

ATTACHMENT “A”

Town of Lincoln Nonmetallic Mining Application

Application Filing Fee \$500.00

Date of Application: March 27, 2019

Applicant’s Name: Valley Sand, LLC.

Federal Employer ID#: 82-4768666 **State Employer ID#:** V02318

Contact Person: Richard George

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Proof of Insurance (Please attach a copy of the insurance policy to this Application):
See Exhibits A and B at end of application.

Legal Description of land for proposed mine development:
Please see Figures 1 and 2, and the table below.

Tax Parcel ID Number(s): Please see the table below.

Name and address of surface land owner(s): Please see the table below.

Legal Descriptions, Tax Parcel IDs, and Owners

Property Tax Parcel ID	Owner Name(s)	Owner Address	Approx. Area (Acres)	Legal Description	Figure 2 ID, Township
024-00857-2000	Eddie Gebhardt Cranberry LLC	27696 Concord Ave. Warrens, WI 54666	76.53	LOT 1 of 11CSM147 #459124, being part of the SE ¼ of the NW ¼ & NE ¼ of the NW ¼ & NW ¼ of the NW ¼ & SW ¼ of the NE ¼, Section 36, T19N R1W	1 Lincoln
024-00856-0000	6 Star LLC	c/o Nancy Bushing 12911 County Highway N Tomah, WI 54666	40.0	SW ¼ of the NW ¼, Section 36, T19N R1W; also an easement 33’ in width for ingress and egress	2 Lincoln

024-00860-0000	6 Star LLC	c/o Nancy Bushing 12911 County Highway N Tomah, WI 54666	40.0	NW ¼ of the SW ¼, Section 36, T19N R1W; also an easement 33' in width for ingress and egress	3 Lincoln
024-00859-0000	6 Star LLC	c/o Nancy Bushing 12911 County Highway N Tomah, WI 54666	40.0	NE ¼ of the SW ¼, Section 36, T19N R1W; also an easement 33' in width for ingress and egress	4 Lincoln
024-00865-0000	6 Star LLC	c/o Nancy Bushing 12911 County Highway N Tomah, WI 54666	28.0	Part of the NW ¼ of the SE ¼ Lying W of the RR, Section 36, T19N R1W; also an easement 33' in width for ingress and egress	5 Lincoln
024-00861-0000	6 Star LLC	c/o Nancy Bushing 12911 County Highway N Tomah, WI 54666	40.0	SW ¼ of the SW ¼, Section 36, T19N R1W; also an easement 33' in width for ingress and egress	6 Lincoln
024-00862-0000	6 Star LLC	c/o Nancy Bushing 12911 County Highway N Tomah, WI 54666	40.0	SE ¼ of the SW ¼, Section 36, T19N R1W; also an easement 33' in width for ingress and egress	7 Lincoln
024-00868-0000	6 Star LLC	c/o Nancy Bushing 12911 County Highway N Tomah, WI 54666	40.0	SW ¼ of the SE ¼, Section 36, T19N R1W; also an easement 33' in width for ingress and egress	8 Lincoln
024-00869-0000	6 Star LLC	c/o Nancy Bushing 12911 County Highway N Tomah, WI 54666	18.5	Part of the SE ¼ of the SE ¼ Lying W of RR, Section 36, T19N R1W; also an easement 33' in width for ingress and egress	9 Lincoln
020-00008-0000	6 Star LLC	c/o Nancy Bushing 12911 County Highway N Tomah, WI 54666	39.97	NW ¼ of the NW ¼, Section 1, T18N R1W; also an easement 33' in width for ingress and egress	10 La Grange
020-00001-0000	6 Star LLC	c/o Nancy Bushing 12911 County Highway N Tomah, WI 54666	35.44	The NE ¼ of the NE ¼ Fract, Exc the W 715' of the N 306'; Also Exc. A Parcel Com at NW Cor, then S 20 Rods , then E 4 Rods, then N 20 Rods, then W to POB; Section 1, T 18N R1W; also an easement 33' in width for ingress and egress	11 La Grange
020-00009-0000	6 Star LLC	c/o Nancy Bushing 12911 County Highway N Tomah, WI 54666	40.3	SW ¼ of the NW ¼, Section 1, T 18N R1W; also an easement 33' in width for ingress and egress	12 La Grange
020-00006-0000	Dale D. Storkel & Sandra L. Hansen	7379 County Highway N, Warrens, WI 54666	40.65	SE ¼ of the NE ¼, Section 1, T18N R1W	13 La Grange
Approximate Total Site Acreage			519.4		

1) Type of Mine:

- _____ Construction fill (Sand, gravel, aggregate, or clay used in the construction trades).
- XX Industrial sand mine (used to produce glass, moldings for castings, manufacture of abrasives, or processed into proppant or other industrial uses).

2) Final Destination and Expected Uses of Mined Materials:

Industrial sand will be loaded onto rail cars and transported to areas of the country (e.g., Texas and Oklahoma) for use in oil and gas recovery. Silica sand with specific properties is pumped down holes in deep well applications to prop open rock fissures and increase the flow rate of natural gas or oil, decreasing the number of total wells needed. In this specialized application the rounded grains of the sand increase the permeability. Silica's hardness and its overall structural integrity combine to deliver the required crush resistance of the high pressures present; its chemical purity is required to resist chemical attack in corrosive environments.

3) Describe current land uses within and adjacent to the project area. Photos would be helpful in providing a view in all directions. Coordinate the photos with the description below.

The proposed Valley Junction Mine site consists of cropped agricultural fields, mixed deciduous forest, and planted coniferous groves. Wetlands, which cover approximately forty percent of the mine property parcels along the western side and southeastern corner, will not be disturbed by mine activity (excavation, transportation, or processing). The site is relatively flat, with an elevation of approximately 950 feet (above mean sea level) AMSL on the western half, rising to 970 feet AMSL in a slight ridge running north-south across the middle of the property, and falling to 950 feet AMSL in the southeast portion of the site.

The historic sandy pine and oak barrens and sand prairie of the local area are interspersed with extensive areas of wetlands, and now include pine plantations and cropped agriculture, particularly commercial cranberry production in the area and a sphagnum moss business located east-northeast of the site. The mine properties consist of approximately 520 acres; mining and contemporaneous reclamation is proposed for approximately 200 acres in twelve phases. The remaining approximately 320 acres on the site include property setbacks, wetland buffers, railroad transport areas, and areas without mineable resource.

Of the approximately 200 acres included in the projected mining area at the Valley Junction site, approximately 80 acres (40%) are currently used for agricultural cropland, approximately 40 acres (20%) are planted conifer forests, and approximately 80 acres (40%) are mixed deciduous forest, with red maple, beech, and black oak.

Sixty percent of the mineable acreage has wildlife habitats that are highly managed—agricultural cropland and pine plantation. The mixed deciduous forest on the west side of the mineable acreage marks a transition zone between the wetlands to the north and west and the managed agricultural areas (including sphagnum harvesting and humanmade cranberry ponds) to the east. A 75-foot buffer will be maintained between delineated wetlands and site disturbance, and conservation Best Management Practices (BMPs) will be installed for their protection.

The proposed final land use of the mine area into a lake with shoreline Emergent Wetlands and a vegetation-protected littoral zone will result in approximately 55 acres of new wetlands, approximately 5 acres of shallow habitats for amphibians and wading birds, and approximately 160 acres of deeper open water for waterfowl and fish habitat.

4) Permits:

- A)** Does this mine have a current reclamation permit from the county to operate? Yes
– the County conditionally approved the reclamation plan and will issue a permit once the other permits and local approval are obtained.
- B)** List other permits (county, state, federal, DNR, etc.) necessary for this project, indicate status and provide a copy (if available).

Agency	Permit/Plan	Status
Wisconsin Department of Natural Resources (WDNR)	Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit No. WI-S067831-5, Storm Water Associated with Land Disturbing Construction Activity	In process
WDNR	Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit No. WI-B046515-6, Mining Operations for Industrial Sand Mining and Processing	In process
WDNR	Storm Water Pollution Prevention Plan and Summary (required for WPDES WI-B046515-6 permit)	In process
WDNR	WI Air Pollution Control Construction Permit	In process
WDNR	WI Air Pollution Control Operation Permit	In process
Monroe County Sanitation Department	Private sanitary sewage disposal permit	To be submitted after final facility design
Monroe County Zoning Department	Building permit	To be submitted after final facility design
Monroe Co. Zoning Dept.	Conditional Use Permit	To be acquired prior to mining in LaGrange Twp.

5) **Size:**

A) Expected maximum depth of mine?

65 feet. Phase 1 will be completed to a depth of 10 feet above the current water table aquifer as measured by the on-site groundwater monitoring wells, in order to allow for construction of processing facilities.

B) Depth is relative to what benchmark? Ground surface.

C) Groundwater level in the project area?

Predicted by United States Geological Society (USGS) to be approximately 940 feet above mean sea level (15 to 30 feet below ground surface).

D) Will any part of the mine extend below the water table? Yes XX No _____

If yes, do you intend to dewater? Yes _____ No XX If yes, estimate the dewatering rates in gallons per day. _____ What impact, if any, will mine dewatering have on neighboring wells? Provide data to support any conclusions or statements made, including any monitoring well data, well construction data, and current water withdrawal rates.

See Figure 3 for Adjacent Properties, Residences, and Wells.

A high-capacity well (ID 2595), permitted for 450 gallons per minute (GPM), is located on the northernmost mine site property, and is currently used in growing cranberries. This well may provide water for wash plant processing, if it is necessary to supplement water pumped from the makeup water pond and excavation area.

Prior to the commencement of mining, baseline groundwater elevation and groundwater base flow will be collected from a network of groundwater monitoring wells installed by Summit at the mine site. Monitoring well locations will be selected by a professional hydrogeologist to optimize the evaluation of up-gradient and down-gradient groundwater conditions. The monitoring wells will be instrumented with pressure transducers and telemetry to enable remote access to continuous, 15-minute data. Additional wells will be installed based on the actual gradients, flow direction, and groundwater velocities that are calculated using the continuous data stream.

A map depicting the mine site groundwater elevation data will be prepared, using the baseline hydrogeological data recorded from the monitoring well network. This map will be provided to the Monroe County Land Conservation Department prior to project commencement. A revision of the mine site groundwater elevation map will be made annually as mining progresses and as

additional data are recorded; this map will be included in the annual site report, which is available to the public through the County.

Baseline samples from the monitoring wells will be collected and tested for pH, arsenic, turbidity, Total Suspended Solids, chlorides, nitrates, specific conductivity, acrylamide, and other toxic substances that may reasonably be believed to be present in the area or geological deposit, as directed by the Monroe County Land Conservation Department.

Groundwater samples from the monitoring wells will be collected and analyzed for the same list of parameters on a quarterly basis during the first two years of mine site operation, and twice a year in subsequent years. Analysis of the monitoring well samples shall be conducted at the expense of the Operator by an independent, licensed, third-party laboratory approved by the Monroe County Land Conservation Department. Results of the groundwater monitoring analysis will be included in the annual site report, which is available to the public through the County.

Owners of potable water wells within ¼ mile of the mine site boundary will be offered groundwater sample collection and analysis for the same list of parameters, as part of the baseline testing. Owners of potable wells included in the baseline sampling will be offered comparable testing on an annual basis. Testing of neighborhood wells will require approval of the property owners. Results of the groundwater monitoring analysis will be included in the annual site report, which is available to the public through the County.

Per requirements, a distance of 100 feet will be maintained from off-site residential buildings and potable wells.

E) Specify the total area that will be affected by this project.

Approximately 200 acres, plus the entry road along current Union Pacific railroad tracks.

Include areas for future expansion, stockpiling, processing, haul roads, settling basins, buildings, parking facilities. Show all phases for the removal of material. Provide a complete description of the entire project on a map or diagram attached to this application. Note: Any area of extraction must be at least fifty (50) feet from any line fence or property boundary.

Please see Figures 4 and 5.

The site consists of approximately 520 acres; mining and contemporaneous reclamation is proposed for approximately 200 acres in twelve phases. The remaining approximately 320 acres on the site include property setbacks, wetland buffers, and areas without mineable resource.

The numbering order of phases identify their estimated operational sequence. The phases represent smaller, manageable parcels that will isolate and limit site disturbance at any one time. This approach will accelerate the reclamation in a measured and managed manner for the life of the mine. The processing area, including wet plant, dry plant, stockpiles and a transload area will be constructed in Phase 1 along the northeast edge of the mine site.

Mine Phases and Approximate Acreage (see Figure 4)

Phase	Acres	Phase	Acres
1	16.3	7	19.7
2	14.3	8	18.3
3	23.7	9	11.4
4	24.05.4	10	9.5
5	7.9	11	13.0
6	15.4	12	25.7
Total Mineable Acreage			199.2

A conceptual mine plan for the Valley Junction Mine is presented on Figure 4. The processing and stockpile areas of Phase 1 will remain throughout the mine lifetime; equipment will be removed and the acreage revegetated after active mining has ceased. The total estimated tonnage for raw sandstone to be mined is approximately 29 million tons assuming an excavated depth of approximately 65 feet. The total overburden volume is estimated at 960,000 cubic yards. Sandstone and overburden thicknesses were estimated using data from the lithologic logs (Appendix 4 of the *Valley Junction Nonmetallic Mining Reclamation Plan*). The volume of material available for reclamation includes the stockpiled overburden and A and B horizons, plus non-marketable material from raw sand processing, and is estimated to 6.9 million cubic yards.

The table below provides the estimated volumes for A and B horizons, sandstone overburden, mineable sandstone resource, and non-marketable material for each phase of mining. The Mine Operator will decide the product specifications of mineable sandstone based on current market conditions (generally, U.S. Standard Sieve sizes 20 to 140). This decision may impact the volume and characteristics of the non-marketable material at any specific time during mining;

for these calculations, twenty-five percent of the raw sandstone resource was projected to be non-marketable.

Estimated Volumes by Phase

Phase	Acres	A and B Horizon (yd ³)	Overburden (yd ³)	Raw Sandstone (tons)	Non-Marketable Material (yd ³)	Reclamation Material (yd ³)
1	16.3	61,865	78,892	1,495,684	267,087	407,844
2	14.3	54,274	69,212	2,150,082	383,943	507,429
3	23.7	89,950	114,708	3,563,424	636,325	840,983
4	24.0	91,089	116,160	3,608,530	644,380	851,629
5	7.9	29,983	38,236	1,187,808	212,108	280,327
6	15.4	58,449	74,536	2,315,473	413,477	546,462
7	19.7	74,769	95,348	2,962,001	528,929	699,046
8	18.3	69,455	88,572	2,751,504	491,340	649,367
9	11.4	43,267	55,176	1,714,051	306,081	404,524
10	9.5	36,056	45,980	1,428,376	255,067	337,103
11	13.0	49,340	62,920	1,954,620	349,039	461,299
12	25.7	97,541	124,388	3,864,133	690,024	911,953
Total	199.2	756,039	964,128	28,995,688	5,177,801	6,897,967

Notes: 1) Conversion factor of 1.4 ton per cubic yard for sandstone; 2) Non-marketable material projected to be 25 percent of raw sandstone resource; 3) Reclamation material includes A and B horizons, overburden, and non-marketable material; 4) Phase 1 resource excavation completed at 10 feet above current water table aquifer in order to build processing area.

Initial activity on the site (after installation of erosion prevention and pollution stormwater protection BMPs) will be construction of the access driveway to Phase 1. The processing area will be prepared by grading top soil into separate A- and B-horizon berms, stabilized by seeding and mulching. The overburden in Phase 1 will be temporarily stockpiled while the sandstone resource in Phase 1 is excavated to 10 feet above the current water table aquifer as measured by the on-site groundwater monitoring wells. The sandstone resource from Phase 1 will be temporarily stockpiled until the Phase 1 overburden is replaced and the processing area is constructed, consisting of wet and dry processing plants, sand storage area, transload rail spur, scale, and stormwater and settling ponds (Figure 5). Wet processing equipment may include

conveyors, screeners, crushers, a hydrosizer, a water tank, a clarifier tank, a makeup water pond, and belt or plate presses.

Stormwater ponds and detention areas capable of managing a 100-year, 24-hour precipitation event will be constructed. The wet and dry processing facilities, sand stockpiles, and the water tank will be constructed on concrete slab. The remainder of the processing area will be surfaced with crushed aggregate (likely Prairie du Chien dolomite).

Excavation of Phase 2 will begin once stormwater BMPs are installed and material storage areas are constructed. Mining, processing, and contemporaneous reclamation is proposed to begin in Phase 2 and continue sequentially through the phases as numbered. A conveyor system or haul trucks will be used to move excavated material from the mine face to the wet processing plant.

Excavation is proposed to consist of twelve phases, ranging from approximately 8 to 24 acres. Contemporaneous reclamation of the mined areas will take place by mining to the proposed final lake contours. Reclamation and revegetation into wetland along the lake shore will begin once mining activities are complete in each phase.

Prior to beginning each phase, the timber (if present) on that area will be harvested. The slash material from timber harvest will be placed in composting windrows on site. Tree stumps will be ground and added to the composting material. This compost will be used as a soil supplement during the reclamation process.

A and B horizon soils and excavated overburden from Phase 2 will be used to create berms around the wet and dry processing plant and sand storage areas. Berms will be constructed with a 3:1 exterior slope. To the extent practicable, the A and B soil horizons will be isolated during the stripping operation and placed in separate berms. The berms will be labeled and stabilized with a protective starter vegetative cover. These berms will serve as both site screening and material storage for final reclamation.

Excavation of the raw sand resource in Phase 2 will proceed with conventional excavation equipment, until a depth of 10 feet above the current ground water level. A and B horizon soils from Phase 2 (and overburden, if any) will be excavated and temporarily stockpiled (isolated and labeled by horizon, to the extent practicable) while the raw sand resource is excavated. Conventional excavation and/or clam shell excavator equipment will be used for mining below the water table until the pond created is deep enough to float a mining dredge. Raw, unprocessed sand will initially be moved by haul truck or conveyor system to the wet processing facility.

Reclamation of Phase 2 will begin once the final mining elevation has been reached. At this time, the shoreline (exterior edge of mining area) will be contoured with land-based excavator equipment. The overburden from Phase 2 plus non-marketable resource material will be used as fill material to establish the necessary grades of the Phase 2 reclaimed surface. The shoreline will be contoured at a 1:10 slope to a depth of approximately 5 feet from the water surface (creating a 50-foot wide shelf) and to 50 feet above the water surface. The A and B horizon soil horizons stripped in the beginning of Phase 3 will then be disked and raked onto the shoreline of Phase 2, with the A horizon soil returned to the uppermost position.

Mining and contemporaneous reclamation will continue in this sequence throughout the remaining phases: overburden material from each phase will be used with the non-marketable materials to create the reclaimed surface of that phase, and temporarily-stockpiled A and B horizon soils from the following phase will be layered by soil horizon onto the reclaimed shoreline surface.

Phase 5 will not become part of the lake area; it will be reclaimed to Emergent Wetland with 3:1 maximum exterior slopes. It is calculated that Phase 3 will have excess volume of A and B horizon soils from reclaiming its relatively short shoreline (less than 1,000 linear feet versus an area of 23.8 acres); the excess A and B horizons which will be stockpiled in vegetated berms to be used to raise the reclaimed elevation of Phase 5.

Phases 10, 11, and 12 will also be reclaimed to Emergent Wetland rather than open water; the longer exterior boundaries versus area of the phases will provide reclamation resource for the maximum 3:1 slopes along property boundaries. At the end of mine excavation, the wet and dry processing facilities, along with stormwater and makeup water ponds, will be removed. The high-capacity well will be returned to cranberry production.

6. Mining Operations:

A) Describe the method that will be used to dispose of brush and other vegetative debris.

Prior to beginning each phase, the timber (if present) on that area will be harvested. The slash material from timber harvest and removal of smaller vegetation will be placed in composting windrows on site. Tree stumps will be ground and added to the composting material. This compost will be used as a soil supplement during the reclamation process.

B) Describe the methods that will be used to retain topsoil and all other overburden. Describe how the topsoil, subsoil, and other materials will be stored until the reclamation process takes place.

A and B horizon soils and excavated overburden (if stored prior to reclamation) will be placed in berms. To the extent practicable, the A and B soil horizons will be isolated during the stripping operation and placed in separate berms. The berms will be labeled and stabilized with a protective starter vegetative cover. Berms will be constructed with a maximum 3:1 exterior slope

Mining and contemporaneous reclamation will continue in sequence throughout the mine phases: overburden material from each phase will be used with the non-marketable materials (over- and under-sized sandstone) to create the reclaimed surface of that phase, and the temporarily-stockpiled A and B horizon soils from the following phase will be layered by soil horizon onto the reclaimed shoreline surface.

Stockpiles of suitable reclamation soils, including A horizon, B horizon, overburden, and clean processing materials, will be maintained in clearly marked segregated berms on stable ground clear of drainageways and depressions. Stockpiles will be treated as necessary to prevent the establishment of weeds and may be temporarily stabilized by seeding with native prairie seeds and an innocuous cover crop, such as annual rye.

C) Describe the processing methods that will be used at the site. (Processing methods may include stockpiling and storage, blending, grading, crushing, screening and cleaning, scalping, dewatering, and dust control.) If there are none, please explain why they are not necessary.

The processing will consist of wet and dry processing plants, sand storage areas, transload rail spur, scale, and stormwater and settling ponds. A conceptual site plan for the processing area is depicted on Figure 5. Wet processing equipment may include conveyors, screeners, crushers, a hydrosizer, a water tank, a clarifier tank, a makeup water pond, and belt or plate presses. Sand will be screened to remove over-size material, which will be sent to a crusher and rescreened. Non-marketable material will be returned to the site, stored, and utilized in the reclamation process of that phase. Screened/crushed sand will be loaded into the hydrosizer via conveyor. Water from a storage tank will be pumped through the hydrosizer to sort the sand into various products. Sand at the desired size range will emerge from the hydrosizer and be piled via conveyor; excess water in the sand will gravity-drain into the make-up water pond system and be pumped back into the water tank. Sand, silt, and clay that is finer than the desired sand size (fines) will flow out of the hydrosizer to the clarifier. The intent of the settling pond/clarifier system will be to recirculate water for re-use to minimize the amount of groundwater pumping.

Stored, drained sand will be moved via conveyor to the propane or natural gas-powered dry processing area. Non-marketable materials that have been wet-treated in the processing

operations will be stockpiled for reuse as reclamation material as needed. No off-site wastes will be received at this facility.

D) Describe the method of extraction:

Mining will be accomplished to the extent practicable using earthmoving equipment such as skid steers, excavators, dozers, backhoes, vacuum and/or bucket dredges, front-end loaders, conveyors, and trucks. Machinery will utilize white noise back-up alarms.

E) Will explosives be used? Yes _____ No XX

Not planned due to local geology and characteristics of the sandstone deposit.

If yes, specify the types and methods used and describe what precautions will be used to prevent physical hazards to persons and neighboring property from flying debris, excessive air blasts, or ground vibrations. Depending on the mine's location to nearby structures, more detailed information may be required on the blasting program (such as a third-party blasting study).

In general, conventional excavation will be used to facilitate the extraction of the sandstone and blasting is not currently anticipated; however, blasting may be necessary if tightly cemented sandstone deposits are encountered. Blasting, if required, will be completed in compliance with Federal, State, and local laws and ordinances. Blasting will be limited to between the hours of 10:00 a.m. and 2:00 p.m. and notice will be given to residents within half a mile of the mine site, a minimum of 48 hours prior to blasting.

F) Will water be used at the site? Yes XX No _____ (Water may be necessary for processing, dewatering, and to control dust at the mine site and on haul roads.) If yes, describe the volume of water that will be used in gallons per minute and gallons per day, the source of the water, and any treatment and water runoff control measures that will be used.

1. Process Water

A high-capacity well (ID 2595), permitted for 450 gallons per minute (GPM), is located on the northernmost mine site property, and is currently used in growing cranberries. This well may provide water for wash plant processing, if it is necessary to supplement water pumped from the makeup water pond and excavation area. The High-Capacity Well Construction Report is included in Appendix 6 of the *Valley Junction Nonmetallic Mining Reclamation Plan*.

The wash plant processing will rely on a settling pond/clarifier system to recirculate water for re-use to minimize the volume of groundwater pumping. Additionally, water may be pumped from the excavation for use in processing.

2. Stormwater

Stormwater on the proposed project site is regulated by the WDNR and Monroe County. Mine operations shall be conducted in a manner that assures compliance with applicable water quality and stormwater management requirements. Erosion control and stormwater management will be implemented in accordance with the conditions of the State of Wisconsin *General Permit to Discharge under the Wisconsin Pollutant Discharge Elimination System WPDES Permit No. WI-B046515-6*. Specific erosion control devices utilized will be determined by referencing the Channel Erosion Control Matrix and Slope Erosion Matrix from the Wisconsin Department of Transportation Facilities Development Manual (Appendix 9 of the *Valley Junction Nonmetallic Mining Plan*).

A site-specific Storm Water Pollution Prevention Plan (SWPPP) will be prepared as required by the WDNR. The SWPPP and SWPPP Summary will be prepared and submitted for approval to the DNR as part of compliance with WPDES Permit No. WI-B046515-6. The general approach to stormwater management is summarized in the text below.

Prior to clearing, construction, or mining within a drainage area, potential off-site receiving areas will be protected by the installation and construction of the appropriate erosion control BMPs and stormwater facilities. Erosion control BMPs and stormwater ponds will be installed per the guidelines provided in the current WDNR Conservation Practice Standards (Appendix 9 of the *Valley Junction Nonmetallic Mining Plan*).

General Stormwater Design Approach

It is the intent of the Operator and Site Manager to maximize infiltration and evaporation of stormwater on-site, and to use stormwater as part of the make-up processing water. Stormwater from areas of active mine operation will be internally drained on site. In addition to the internally-drained stormwater management system for the site, stormwater controls will be installed to prevent discharge of runoff to the waters of the state. Multiple, multi-stage stormwater treatment ponds will be located on site with the ability to control a 100-year, 24-hour rainfall event, keeping off-site discharges consistent with pre-mining conditions.

Stormwater ponds will be sited at lower elevations across the project and are not expected to penetrate the bedrock surface. Additionally, the ponds will be located a minimum of 500 feet from navigable waters.

Mining Site

The following WDNR Conservation Practice Standards will be followed in managing stormwater on the mine site (a copy of each can be found in Appendix 9 of the *Valley Junction Nonmetallic Mining Plan* or current edition):

- Wet Detention Pond (1001)
- Infiltration Basin (1003) along with Site Evaluation for Stormwater Infiltration (1002)
- Vegetated Infiltration Swale (1005)
- Infiltration Trench (1007).

Stormwater facilities will be built in advance of site disturbance. Diversion channels will be utilized to route off-site stormwater runoff away from the mine and stormwater treatment where possible. Stormwater treatment facilities will be constructed at approximately the lowest part of each phase, enabling runoff to flow into the facilities either through natural methods or via man-made swales that direct flow. Facilities will be sized based on the area of land disturbed, to accept and treat the runoff from the 100-year, 24-hour event.

Infiltration basins will be the primary treatment, with wet pond pre-treatment integrated into the stormwater management plan. The discharge from the wet ponds is proposed to be regulated through a two-stage outlet. In small events, a pipe will allow small flows to leave the pond, not cutting off flow to the receiving stream but slowing down and treating runoff for suspended solids. As events get larger, release rates will increase and a secondary weir will engage to allow flow to discharge to the infiltration basin.

Infiltration basins will also employ a staged outlet that slowly releases smaller storm events and gradually increases release rates through orifices, pipes, and weirs. The runoff for the 100-year, 24-hour event will pass safely through both the wet ponds and infiltration basins with freeboard. Automatic pressure transducers (instead of staff gauges) will be installed in stilling wells in the infiltration basin to collect continuous water level data. These data will be used to calculate infiltration rates within each infiltration basin. In the event that the expected rate of infiltration in any given basin decreases, the Site Manager will work with Monroe County to implement changes to increase the infiltration rates to the original prescribed levels. This may include removal of sediment build-up in ponds, weirs, and piping. Records of measurements from the pressure transducers will be submitted to Monroe County within the annual site report, or upon written request.

With a wet pond pretreatment and infiltration basin combination for stormwater management, runoff is slowed down and treated, infiltration is provided, and flow is not cut off to the tributary streams.

Processing Area

The processing and stockpile area will have a stormwater facility with infiltration as the primary treatment with wet pond pretreatment integrated into the SWPPP. The system will be designed to capture the runoff from the 100-year, 24-hour rainfall event, with wet pond(s) discharging through staged outlets to infiltration basins with another staged outlet. The wash plant will operate as a closed loop system; process water will not be discharged off-site.

See also the erosion control measures described in 8 E).

G) Describe the methods used to control dust at the site. This includes mining processes, on haul roads, and while transporting materials to and from the mining operation. Be as complete as possible.

Fugitive dust emissions will be limited by the moist condition of the excavated resource, enclosed wet and dry processing operations, covered gravity-chute loading for rail cars, vegetated berms, and covered rail cars. Dust control will be implemented consistent with NR 415.075.

The Operator will install two moveable/mobile air quality monitors with removable filters “upwind” and “downwind” in order to determine the air quality as it moves on and off the site. The mine Operator shall work with Monroe County in placement of the monitors. At the direction of the Monroe County Land Conservation Department, the filters will be periodically sent to an independent, licensed laboratory to be analyzed, with costs paid by the Operator. Operator will submit copies of Construction and/or Operation Air Quality Permits required by the WDNR to Monroe County. Valley Junction Mine will not exceed the current National Ambient Air Quality Standards for PM_{2.5} and PM₁₀. The information submitted to Monroe County will be public information.

H) Will fuel tanks, solvents, explosives, or other chemicals be stored on site?
Yes ☒ No ☐ If yes, describe these materials in detail and explain how they will be secured and stored, and the method of containment. Indicate locations of storage facilities on a site map of the proposed mining operation, which should be attached to this application.

A fueling station will be located in the processing area (Figure 5) and will adhere to current fuel storage standards. The tank will be of double-wall construction and will be located inside a concrete containment area designed to contain a minimum of 1.5 times the tank volume.

Spills and leaks together are the largest industrial source of stormwater pollution. Thus, required Storm Water Pollution Prevention Plan (SWPPP) will specify material handling procedures and storage requirements for significant materials. Equipment and procedures necessary for cleaning up spills and preventing the spilled materials from being discharged will also be identified. All employees shall be informed of the proper procedures for preventing and responding to spills during annual SWPPP training.

Onsite chemical storage shall be within buildings or be otherwise adequately covered and secured to limit the potential of stormwater contamination and tampering by unauthorized individuals. Adequate space will also be provided to simplify material transfer and provide easier, safer access for inspection. Material containers shall be stored according to manufacturer recommendations in order to avoid collapse or damage of containers that could otherwise result from improper weight distribution. Metal containers shall be stored on pallets, or otherwise off the floor, to prevent corrosion that could result from containers coming in contact with moisture on the ground.

All containers shall be properly labeled to show the name and type of substance, stock number, expiration date, handling procedures, and First Aid information. Proper container labeling will minimize the risk of improper disposal. All Material Safety Data Sheets shall be located on site and accessible on the plant computer system.

The SWPPP permit, when issued, requires that the DNR be immediately notified of an accidental release or spill of any hazardous substance to the environment as required in NR 706 and NR 205.07(3) (b). The 24-hour toll free spills hotline is 1-800-943-0003.

I) Will any structures need to be established on the site? Yes XX No _____

This includes any storage shed, portable toilet, employee facility, etc. If yes, specify the number, type, and location.

Please see Figure 5.

- Wash plant
- Dry plant
- Four silos
- Small office building (private sanitary sewage treatment and potable water well)
- Water tank
- Clarifier
- Conveyors, hoppers, one transload structure

J) How many employees are expected to work at the site and the associated facilities?

Eight to ten full-time employees are expected be employed during construction; twelve to fifteen full-time employees are expected to be employed once the processing plants and load out are completed and the mine is operational.

K) Hours/days of operation (including maintenance):

Hours of mine operation will be limited to between 6 a.m. and 2 a.m. the next day, Monday through Saturday a.m., and between 6 a.m. and 6 p.m. on Saturday. Site operation, except for equipment maintenance, will not be conducted on Saturdays after 6 p.m., Sundays, or legal holidays.

Sand processing will take place within enclosed wet and dry processing facilities, allowing for four-season processing.

L) Length of time the mine is to remain operational.

The life of the Valley Junction Mine is estimated to be 20 to 25 years, depending on market conditions. An approximate condensed timetable for mining operations appears in the table below.

Approximate Mine Timetable for Sandstone Excavation, Processing, and Reclamation

Year (approx.)	Begin Phase	Acres
2019	1	16.3
2020	2	14.3
2022	3	23.7
2025	4	24.0
2027	5	7.9
2028	6	15.4
2030	7	19.7
2032	8	18.3
2034	9	11.4
2035	10	9.5
2036	11	13.0
2037	12	25.7
2039	Estimated mine completion	

Notes:

- This projected timeline assumes continuous mining and processing at approximately 1.5 million tons of raw sandstone resource per year.
- The processing, stockpile, and transload area will remain throughout the mine lifetime. Reclamation on Phase 2 will begin as soon as Phase 2 mining is complete and will continue contemporaneously throughout the life of the mine. The maximum unreclaimed area at any one time during the estimated 20-year life of the mine would be: the area of the active phase, plus the area of interior shoreline from previous phases, plus the processing area.

7. Trucking Operations.

It is planned that the processed sand will be transported by rail car from a spur constructed off the current Union Pacific Railroad, MP 168.02 - 169.20 Altoona Subdivision, Warrens, Monroe Co., Wisconsin. Please see Figures 4 and 5.

If processed sand is ready for transport before the rail spur is completed on site, the Operator plans the following temporary trucking operation.

A) Number of truck loads per day: If temporary trucking is necessary, road agreements would need to allow for up to 200 trucks per day.

B) Proposed hours trucks will operate:

7 a.m. to 7 p.m., Monday through Saturday; no hauling on Sundays or holidays.

C) Maximum weight per truck load: 22 tons

D) Types of trucks that will be used: quad axle dump truck

E) What Town and County roads will be used to transport material? Please provide a complete description with a map showing all roads proposed to be used to transport materials and to return to the site. Performance bonds or other financial security may be required for the repair and/or maintenance of all Town roads that may be used or affected in any adverse ways. What specific actions are proposed to ensure that Town roads will be maintained to a safe and secure condition?

Dump trucks would exit the site turning east onto Concord Avenue (a Town road). After 0.60 mile the trucks would turn south on County Highway N, leaving the Town of Lincoln and heading toward Tomah. During construction of the processing area, eight-axle lowboy trucks up to 60 tons may be required on Concord Avenue.

The Operator will pay the road maintenance costs for Concord Avenue between the project site and County Highway N during the period of temporary trucking use as set out in a road

maintenance agreement or, if maintenance is performed by the Town, then the costs of such maintenance.

8. Environmental.

A) List resources that may be impacted by this project such as timber, agriculture, surface water, ground water, air quality, noise pollution, and plant, wildlife or fish habitat. Describe measures that will be taken to mitigate those impacts.

Timber and Agriculture

The proposed Valley Junction Mine site consists of cropped agricultural fields, mixed deciduous forest, and planted coniferous groves.

Sandy soils dominate the site, covering over 90 percent of the mine area, with sandy loam comprising the remainder of the A and B horizons. Seven percent (14 acres) of the mining area has a soil type classified as prime farmland. The quality of timber and farmland on the mine area do not qualify them for mitigation. Revegetation outlined in the Reclamation Plan will return previously drained areas to wetlands.

Surface Water/Wetlands

A wetland delineation was completed in July 2018 for the Valley Junction mine properties by Ingraham Technical Services, Inc. Delineated wetlands are located on the mine site property in areas that will not be disturbed by mine activities (excavation, processing, and transportation) and are shown on Figure 7. See Appendix 5 of the *Valley Junction Nonmetallic Mining Reclamation Plan* for a copy of the completed delineation. A 75-foot buffer will be maintained between active mine areas and wetlands, per Wisconsin Admin. Code Chapter NR 115.

Reclamation of the mining phases will create an approximately 160-acre lake with 10:1 shoreline seeded with Emergent Wetland species, and planted out to 2-foot depth with a live siltation construction system and reed clump installations. The two types of reclamation planting will create a transition zone between the open water lake and the existing wetlands on the remainder of the project site.

While no impacts are anticipated to the sphagnum operation west of the mine site, Valley Sands will work with the owners to ensure the seed mix used for reclamation will not adversely impact the operation.

Groundwater

Please refer to item 5 C).

Air Quality

Please refer to item 6 G).

Noise Pollution

Noise produced by excavation and processing activities will be mitigated by:

- the distance of the activities from sensitive receptors;
- the distance of the activities from roads and residences;
- the enclosed processing facilities;
- the construction of screening berms (described in *Reclamation Plan*) around the processing area and active mine phase.

Endangered Species

Please refer to item 9 B).

Wildlife

Sixty percent of the mineable acreage has wildlife habitats that are highly managed—agricultural cropland and pine plantation. Species are limited to those capable of co-existing with human activities, such as White-tailed Deer, North American Raccoon, Striped Skunk, Wild Turkey, Ring-Necked Pheasant, and a variety of small rodents, reptiles, and song birds.

The mixed deciduous forest on the west side of the mineable acreage marks a transition zone between the wetlands to the north and west and the managed agricultural areas (including humanmade cranberry ponds) to the east. The limited size of forest remnants restricts the variety of wildlife but could support species listed above plus the Wood Turtles, Snowshoe Hare, and American Woodcock. A wide variety of reptiles, amphibians, birds, and insects likely inhabit the wetlands that are west of the mine area; a 75-foot buffer will be maintained between delineated wetlands and site disturbance, and conservation BMPs will be installed for their protection.

The proposed final land use of the mine area into a lake with shoreline Emergent Wetlands and a vegetation-protected littoral zone will result in approximately 55 acres of new wetlands, approximately 5 acres of shallow habitats for amphibians and wading birds, and approximately 160 acres of deeper open water for waterfowl and fish habitat.

B) Are there any known endangered species on or near the mine site?

Yes ☒ No ☐ If yes, describe the species and whether an environmental impact statement will need to be prepared.

An Endangered Resources Review for the mine site properties was requested from the Wisconsin Department of Natural Resources (WDNR) by Summit Envirosolutions, Inc., and was received on April 3, 2018. Two species were recorded as endangered resources within the project area and/or the surrounding area.

- Karner Blue Butterfly (*Lycaeides melissa samuelis*)
The project is located within the Karner Blue Butterfly (KBB) High Potential Range (HPR). Suitable habitat and the host plant (wild lupine) may be present at the project site.

Required Measures to comply with endangered species laws:

Wild lupine (*Lupinus perennis*) surveys must be conducted by a qualified botanist prior to any ground disturbance at the site, and survey forms will need to be submitted to the WDNR. Additional surveys may be required to determine the presence of the KBB; if present, measures to avoid impacts to the KBB must be coordinated with the U.S. Fish and Wildlife Services or the WDNR HCP Coordinator. See Appendix 8 of the *Valley Junction Nonmetallic Mining Reclamation Plan* for details about required surveys and submittals.

- Blanding's Turtle (*Emydoidea blandingii*)
Suitable habitat for the Blanding's Turtle may be present within the project site.

Recommended Measures to help conserve Wisconsin's endangered resources:

Avoid impacts to wetlands and water bodies at all times; Install and maintain WDNR Amphibian and Reptile Exclusion Fencing during appropriate times of the year. See Appendix 8 of the *Valley Junction Nonmetallic Mining Reclamation Plan* for details on the dates of active and nesting seasons.

A copy of the complete Endangered Resources Review (ERR Log #18-129) is included in Appendix 8 of the *Valley Junction Nonmetallic Mining Reclamation Plan*.

The Bald Eagle (*Haliaeetus leucocephalus*) is separately protected by the *Bald and Golden Eagle Protection Act*, although not included in the NHI database or the Endangered Resources Review; Bald Eagles are not recorded as nesting in the Townships of La Grange or Lincoln in Monroe County as of July 2017 (Appendix 8 *Valley Junction Nonmetallic Mining Reclamation Plan*).

C) Are there any known acid producing minerals or soils present? Yes ___ No **XX**
If yes, how will acid water pollution from the excavation, stockpiling, and waste areas be controlled?

Not applicable.

D) What is the schedule and method for well monitoring within a 1/4 mile of the mine's boundaries before, during and after the mine is opened, worked, and reclaimed? (Monitoring distance may need to be increased if the mine depth is near the water table, dewatering is used, or explosives are used).

Please refer to description in 5 C).

E) Describe erosion control practices that will be used during mining. If no measures will be used, explain why none are needed.

Erosion control measures employed at the site will follow current Best Management Practices (BMPs). WDNR Conservation Practice Standards are in parentheses; a copy of each is included in Appendix 9 of the *Valley Junction Nonmetallic Mining Reclamation Plan*.

- Erosion bales and sediment logs will be placed as ditch checks in swales and ditches (Sediment Bale Barrier - 1055, Ditch Checks - 1062).
- Perimeter control and slope interruption products may be used to slow sediment-laden sheet runoff from small areas of disturbed soil (Interim Manufactured Perimeter Control and Slope Interruption Produces - 1071).
- Sediment traps and basins may be installed as necessary to intercept and retain sediment-laden runoff (Sediment Traps - 1063, Sediment Basins - 1064).
- Silt fence will be installed at the edges of berms and stockpiles and outside the active mine area, where it may not be protected by previously installed erosion control measures (Silt Fence - 1056).
- Seed and mulch will be applied on berms, permanent stockpiles, diversions, and channels located outside the active mine area, and on the mine area that is no longer active (Seeding - 1059, Mulching - 1058).
- Temporary erosion control seeding:
A temporary stabilization seed mix will be used to provide erosion and invasive species control where disturbed areas require vegetation and are not at final reclamation grade. Hay/straw mulch may be applied using a conventional blower and then seeded with a quick-cover annual wetland species, such as *Bidens cernua* (Nodding Bur-Marigold) or *Bidens Frondosa* (Common Beggar-Tick). Seeding for each disturbed area will be performed using drill seeding or hand spreading and will follow procedures described in

Section 630 of the *Wisconsin Department of Transportation Standard Specification for Highway and Structure Construction* (2018 Edition WisDOT Standard Specifications, or current edition, Appendix 11 of *Valley Junction Nonmetallic Mining Reclamation Plan*) The seed will be spread at a rate consistent with the manufacturer's recommendations. Areas will be mulched following procedures described in Section 627—Mulching of the WisDOT Standard Specifications.

- Final reclamation seeding is discussed in 9 I).
- Erosion mats will be placed in concentrated flow channels and on slopes greater than 4:1 (Channel Erosion Mat - 1053, Non-Channel Erosion Mat - 1052).
- Rock rip-rap will be placed where necessary as ditch checks, channel liners, and at inlet/outlet structures (Ditch Checks - 1062).

Erosion control BMPs will be inspected weekly and within 24 hours after rainfall events of one-half inch or greater during a 24-hour period until the drainage area has been either temporarily or permanently reclaimed. In the event of slope failures, failed seeding, or persistent erosion problems, additional BMPs will be assessed and applied where practicable. BMPs may include hydro seeding, silt fence, erosion control mats, turf reinforcement mats, water diversions, rock-lined chutes, slope breaks, soil stabilizers, and inlet protection.

F) Describe measures that will be taken to screen the operation from view of surrounding land uses or an explanation of why such measures are not needed. If they are not needed, please include photos of the area (aerial or ground level). Please show the areas affected on a map.

The mine site is on the opposite side of the railroad tracks and embankment from all roads, and the mineable area is not adjacent to town or county roads.

A and B horizon soils and excavated overburden from Phase 2 will be used to create berms around the wet and dry processing plant and sand storage areas (Figure 5). Berms will be constructed with a 3:1 exterior slope. To the extent practicable, the A and B soil horizons will be isolated during the stripping operation and placed in separate berms. The berms will be labeled and stabilized with a protective starter vegetative cover. These berms will serve as both site screening and material storage for final reclamation of the processing area.

As mining progresses, A and B horizon soils will be temporarily bermed along the outer edge of the active phase to serve as screening and storage.

9. Reclamation. The County reclamation plan for the proposed mining site shall be submitted to the Town with this application for review by the Town.

A) Describe progressive reclamation activities that will occur over the life of the operation. Be complete in the description. If necessary, show the reclamation in the various phases.

The proposed final land use of the mine area into a lake with shoreline Emergent Wetlands and a vegetation-protected littoral zone will result in approximately 55 acres of new wetlands, approximately 5 acres of shallow habitats for amphibians and wading birds, and approximately 160 acres of deeper open water for waterfowl and fish habitat.

Contemporaneous reclamation of the mined areas will be promoted by mining to the proposed final lake contours. Reclamation and revegetation into wetland along the lake shore will begin once mining activities are complete in each phase. Conceptual reclamation areas are shown on Figure 7. Site revegetation will also allow the transition of newly planted areas into the wetland buffers to increase the overall size of wetland habitat on the project site.

In addition to being adjacent to a large area of wetlands to the west, the site exhibits several conditions that indicate wetland as the appropriate reclamation land use: the water table is close to the ground surface, allowing necessary hydrology; the site does not receive stormwater inputs from off-site; the site is isolated from traffic and development; restoring the hydrology will not affect neighboring properties; and the site is upstream from invasive species stands.

Site reclamation and revegetation will follow an adaptive management process throughout the life of the mine and reclamation program. Adaptive management involves the continuous refinement of the reclamation process in order to achieve success against the performance criteria. This allows Valley Sand the option to take advantage of the latest scientific and technological techniques for accomplishing successful reclamation.

Reclamation of Phase 2 will begin once the final mining elevation has been reached. At this time, the shoreline (exterior edge of mining area) will be contoured with land-based excavator equipment. The overburden from Phase 2 plus non-marketable resource material will be used as fill material to establish the necessary grades of the Phase 2 reclaimed surface. The shoreline will be contoured at a 1:10 slope to a depth of approximately 5 feet from the water surface (creating a 50-foot wide shelf) and to 50 feet above the water surface. The A and B horizon soil horizons stripped in the beginning of Phase 3 will then be disked and raked onto the shoreline of Phase 2, with the A horizon soil returned to the uppermost position.

Mining and contemporaneous reclamation will continue in this sequence throughout the remaining phases: overburden material from each phase will be used with the non-marketable materials to create the reclaimed surface of that phase, and temporarily-stockpiled A and B horizon soils from the following phase will be layered by soil horizon onto the reclaimed shoreline surface.

Phase 5 will not become part of the lake area; it will be reclaimed to Emergent Wetland with 3:1 maximum exterior slopes. It is calculated that Phase 3 will have excess volume of A and B horizon soils from reclaiming its relatively short shoreline (less than 1,000 linear feet versus an area of 23.8 acres); the excess A and B horizons which will be stockpiled in vegetated berms to be used to raise the reclaimed elevation of Phase 5.

Phases 10, 11, and 12 will also be reclaimed to Emergent Wetland rather than open water; the longer exterior boundaries versus area of the phases will provide reclamation resource for the maximum 3:1 slopes along property boundaries.

Site stability will be safeguarded through successful revegetation of reclaimed land. Stockpiles of suitable reclamation soils, including A horizon, B horizon, overburden, and clean processing materials, will be maintained in clearly marked segregated piles on stable ground clear of drainageways and depressions. Stockpiles will be treated as necessary to prevent the establishment of weeds and may be temporarily stabilized by seeding with native prairie seeds and an innocuous cover crop, such as annual rye.

Compacted soils with high bulk density can impair wetland plant root growth and soil microbial processes. Measures will be taken to minimize soil compaction, such use of prescribed paths by heavy machinery, swamp mats, and rehabilitation of compacted areas.

Emergent Wetland seed mix planting [please refer to item 9 I)] will be completed on graded and tilled areas within 72 hours of A and B horizon soil reapplication as practicable, prior to the next growing season. If necessary, a cover crop of *Bidens cernua* (Nodding Bur-Marigold) or *Bidens Frondosa* (Common Beggar-Tick) may be planted to protect bare ground and discourage invasive species before the wetland seed mix is established. If necessary, the seed mix may be modified based on discussions with the owners of the sphagnum moss operation located northwest of the mine site.

Mulch may be applied to all seeded areas in accordance with WisDOT Standards (Appendix 11 of the *Valley Junction Nonmetallic Mining Reclamation Plan*). Stabilization treatments requiring ongoing maintenance (e.g., silt fence) will not be used during final reclamation activities.

At a minimum, inspections will take place within 24 hours after every precipitation event that produces one-half inch of rain or more during a 24-hour period. Until vegetation is densely

established, the stabilization treatments will be inspected weekly during the growing season. In the event of slope failures, failed seeding, or persistent erosion problems, additional BMPs will be assessed and applied. Mitigation of erosion damage, dependent on its severity, may include tillage operations, re-grading, placement of additional soil and re-seeding, or anchored straw bales.

B) Is an excavated/impounded body of water to be left as part of the reclamation?

Yes XX No ____.

If yes (1) will it be secured to prevent unauthorized access by the public? Yes XX No ____.

If yes, (2) will it be stocked with fish? Yes ____ No _____. Not determined at this time.

The Valley Junction Mine site will not pose any unusual safety concerns once it has been graded to final reclamation grades. The 10:1 slope for 50 feet above and below the lake surface level will provide a sufficient buffer zone before deeper water is reached. Unauthorized access will be prevented as it would for other private property.

C) Describe the methods that will be used at the cessation of seasonal operations to stabilize slopes from erosion. This includes both wind and water erosion. A complete description is required.

Please refer to items: 8 E) Erosion control practices; and 9 D) Provision for Intermittent Mining.

D) Will the site become inactive during current operations for an unspecified period of time? Yes ____ No ____ Possibly XX Describe the interim reclamation methods that will be used:

Intermittent mining may be conducted on the project site. In the event of intermittent cessation of mining operations, the Operator and Site Manager will implement provisions to monitor and manage open mining and processing areas using the BMPs applied during regular mine operation. Provisions will include maintenance of a reclamation financial insurance, stormwater facilities and systems, erosion controls, stockpiles, and monitoring of open mining areas. If a system failure occurs during an intermittent mining period, (e.g., structural failure of stormwater ponds or major erosion control failure with sediment deposition off site or into surface waters), the County will be notified within 24 hours of the observed failure.

The Operator will maintain financial assurance during any period of intermittent mining for all disturbed areas of the mine site that have not been reclaimed to their final land use.

Stormwater Management

Wet ponds and infiltration basins will be visually inspected monthly, and within 24 hours of precipitation events that produce one-half inch of rain or more during a 24-hour period, to

ensure that basin volumes supply adequate storage for stormwater runoff. Water level data will be continuously recorded using pressure transducers installed in the infiltration basins, allowing for real-time calculation of infiltration rates. If the calculated infiltration rate in any given basin decreases, the Operator and Site Manager will work with the Monroe County Land Conservation Department to implement changes to increase infiltration rates to the original prescribed levels.

Pipes, weirs, channel inlets, skimmer grates, and spillways will be inspected to ensure that they are free from blockage. Sediment will be removed from these areas as necessary.

Wet pond water quality inspections will be completed quarterly, using WDNR Quarterly Visual Inspection- Field Sheet Form 3400-176A. Diversion channels, man-made swales, and culverts will also be inspected quarterly to ensure they are free from blockage and/or adequately vegetated to control on-site water flow. Records of inspections and measurements from pressure transducers will be submitted to Monroe County within the annual site report or upon written request.

Erosion Control

Erosion control BMPs will be inspected quarterly and within 24 hours of precipitation events that produce one-half inch of rain or more during a 24-hour period. Required maintenance on observed erosion controls (re-application, refinement, and/or replacement) will be implemented within two weeks of observation. Disturbed areas requiring vegetation maintenance will be stabilized in accordance with temporary stabilization methods described in item 8 D). Observations documented during inspections will be recorded and submitted to the County within the annual site report or upon written request.

Inspections will include observations of the following erosion controls:

- Erosion bales in swales and ditches;
- Silt fencing installed at the edges of berms, stockpiles, and outside of the active mine area;
- Seed and mulch applied on berms, stockpiles, diversion channels, and disturbed and inactive areas of the mine;
- Erosion matting on slopes and other concentrated flow areas; and
- Rock rip-rap used as ditch checks, channel liners, and at inlet/outlet structures.

Stockpiles and Berms

Mining and reclamation will be conducted contemporaneously, minimizing the stockpiling of sand on site. Temporary stockpiles on site will be processed and stored during intermittent

mining periods. Raw product stockpiles will be processed and stored or re-shaped and re-positioned in a manner that will minimize potential runoff. Stockpiles and berms remaining on site during inactive mining periods will be inspected quarterly and within 24 hours of precipitation events that produce one-half inch of rain or more during a 24-hour period, to ensure mulched and/or vegetated areas meet the requirements of Section 627 of the WisDOT Standard Specifications (Appendix 11 of the *Valley Junction Nonmetallic Mining Reclamation Plan*). Observations documented during inspection will be recorded and submitted to the County within the annual site report, or upon written request.

E) Describe proposed reclamation including final slopes, high wall reduction, benching, terracing, and other structural slope stabilization measures.

The shoreline of the new lake will be contoured at a 1:10 slope to a depth of approximately 5 feet from the water surface (creating a 50-foot wide shelf) and to 50 feet above the water surface. Underwater lakebed slopes may be higher beyond the 50-foot wide shelf.

The maximum reclamation slope along property boundaries will be 3:1. Item 9 A) describes the stabilization measures used in reclamation. Item 9 I) describes the establishment of vegetation for long-term site stability.

Will the reclamation practices being followed fully comply with the County's nonmetallic mining reclamation ordinance?

Yes. The *Valley Junction Nonmetallic Mining Reclamation Plan* was reviewed by the Monroe County Land Conservation Department, then submitted and approved by the Monroe County Land Conservation Committee on January 8, 2019. The majority of this Town Application narrative originated in the approved Plan.

F) Describe anticipated topography, water impoundments, artificial lakes, and future land use of the site. This should be based upon the entire site. It should include a detailed description of the process and how it will relate to the County's nonmetallic mining reclamation ordinance.

Please refer to items 9 A) and Figure 7. The proposed final land use of the mine area into a lake with shoreline Emergent Wetlands and a vegetation-protected littoral zone will result in approximately 55 acres of new wetlands, approximately 5 acres of shallow habitats, and approximately 160 acres of deeper open water.

Reclamation of the mining phases will create an approximately 160-acre lake with 10:1 shoreline seeded with Emergent Wetland species, planted out to 2-foot depth with a live siltation construction system and reed clump installations. The two types of reclamation planting will create a transition zone between the open water lake and the existing wetlands on the remainder of the project site.

G) Describe plans for the disposition of surface structures, haul roads, and related facilities after completion of mining.

At the end of mine excavation, the wet and dry processing facilities, along with stormwater and makeup water ponds, will be removed and the areas revegetated. The high-capacity well will be returned to cranberry production. The private access road will be left in place.

H) Describe the methods proposed for the disposal or reclamation of oversize and undersized materials. If returned to the site, how will they be incorporated into the reclamation process?

Non-marketable materials – oversized or undersized – will be temporarily stockpiled as described in Item 5 E), and will be used for reclamation material. Please refer to the Estimated Volumes by Phase table [Item 5 D)] for calculated volumes of non-marketable material.

I) Describe or attach a copy of a seeding plan that includes methods of seed bed preparation, seed mixtures, seeding rates, mulching, and other techniques needed to accomplish site stabilization.

The objective of site revegetation will be to reclaim disturbed acreage to a post-mining land use of Emergent Wetland, a shallow vegetated littoral zone, and open water lake. The shoreline of the lake will be contoured at a 1:10 slope to a depth of approximately 5 feet from the water surface (creating a 50-foot wide shelf) and to 50 feet above the water surface. The A and B horizon soil stockpiles will then be disked and raked onto the shoreline with the A horizon soil returned to the uppermost position. Preserving the integrity of the A and B horizon soils on the site will be a priority, since this has a strong impact on wetland revegetation success.

Mulching, seeding, and the establishment of permanent vegetation will be done in accordance with NRCS Codes 342 (Critical Area Planting), 658 (Wetland Creation), and 659 (Wetland Enhancement) [Appendix 11 of the *Valley Junction Nonmetallic Mining Reclamation Plan*]. See Item 9 J) for criteria to be used to analyze successful reclamation.

No-till planting will be used to seed the reclaimed area above the water line with an Emergent Wetland Seed mix consistent with a locally-specified composition for shoreline restoration, such as detailed in the table below.

Conceptual Emergent Wetland Seed Mix

	Common Name	Scientific Name	Approx. Seeding Rate in pounds/acre PLS
Grasses	American Sloughgrass	<i>Beckmannia syzigachne</i>	0.72
	American Manna Grass	<i>Glyceria grandis</i>	0.27
Sedges & Rushes	Bottlebrush Sedge	<i>Carex comosa</i>	0.18
	Lake Sedge	<i>Carex lacustris</i>	0.06
	Tussock Sedge	<i>Carex stricta</i>	0.20
	Spike Rush	<i>Eleocharis acicularis</i>	0.12
	Great Spike Rush	<i>Eleocharis palustris</i>	0.12
	Torrey's Rush	<i>Juncus torreyi</i>	0.04
	Three Square Rush	<i>Scirpus americanus</i>	0.24
	Woolgrass	<i>Scirpus cyperinus</i>	0.05
	River Bulrush	<i>Scirpus fluviatilis</i>	0.80
	Softstem Bulrush	<i>Scirpus Validus</i>	0.46
Forbs	Sweet Flag	<i>Acorus americanus</i>	0.20
	Northern Water Plantain	<i>Alisma triviale</i>	0.40
	Swamp Milkweed	<i>Asclepias incarnate</i>	0.30
	Common Arrowhead	<i>Sagittaria latifolia</i>	0.32
	Giant Bur Reed	<i>Sparganium eurycarpus</i>	0.50
Total to equal 5 pounds per acre, equivalent to 110 seeds per square foot			

PLS: Pure Live Seed

The native wetland species will benefit from the effect of the Tussock Sedge (*Carex stricta*) in creating a matrix that will improve stabilization, weed competition, and root structure soil profile.

Baseline requirements for wetland restoration include:

1. The seed mix shall contain a minimum of 15 species, including 4 native wetland forbs and 8 native wetland sedges.
2. The seed mix shall consist of at least 40% sedges by weight, with a maximum of 25% grasses by weight.
3. All seed shall be provided on a Pure Live Seed (PLS) basis.
4. Wetland seed mixes will be selected to match the soil conditions on the site to be planted.

5. Wetland shall be seeded using seeders designed for handling wetland seeds and planting them evenly and efficiently.
6. All wetland seed shall be from genetic stock originating in Wisconsin or Minnesota to ensure adaptability to the local climatic conditions.
7. Wetland seeding shall take place between February 15 and June 15 or between September 15 and December 15. A temporary stabilization seed mix (per Section 2.5) may be used as a cover crop if a mine phase reaches reclamation grade before or after the wetland seeding dates.

In addition to the seeding above the waterline, revegetation will include live siltation construction and reed clump installation in the first 20 linear feet of water from the average lake shoreline. Planting for live siltation and reed clump installation will follow the NRCS specifications concerning shoreline protection, using native species in recommended spacing and alignment (See Appendix 12 of the *Valley Junction Nonmetallic Mining Reclamation Plan*).

J) Describe long-term maintenance needed to support reclamation:

Vegetation management (invasive species removal) must be performed on a regular schedule for the first five years to assure vegetative reclamation. Records of management activities will be documented by the Operator and will be submitted to Monroe County Land Conservation Department in the annual site report, or upon written request.

Years 1 and 2 after wetland seeding:

Conduct invasive species survey/removal twice per year, in mid-summer and in early fall.

Invasive species may include, but not be limited to:

- Giant Reed (*Arundo donax*)
- Canada Thistle (*Cirsium arvense*)
- Purple Loosestrife (*Lythrum salicaria*)
- Reed Canarygrass (*Phalaris arundinacea*)
- Common Reed (*Phragmites australis*)
- Narrow-leaved Cattail (*Typha angustifolia*)
- Hybrid Cattail (*Typha x glauca*)

Invasive species removal may be accomplished through hand-pulling of all above- and below-ground stems, roots, and flower masses prior to seed development.

Years 3-5 after wetland seeding:

Conduct invasive species removal once per summer, in early summer (prior to seed development). Additional management shall be at the discretion of the Monroe County Land Conservation Department to ensure continued success of the wetland restoration.

Monitoring Requirements and Success Criteria

Annual vegetative monitoring will begin in the first year after substantial completion of the reclamation activities in each designated phase and will continue for five years. Monitoring requires the measurement of specific ecological indicators of plant community recovery, in order to check the response of revegetated plant communities. Records of monitoring activities and results will be documented by the Operator and will be submitted to Monroe County in the annual site report, or upon written request.

All vegetation monitoring and data analysis shall be done by independent firms not associated with the mining company. Individuals performing the wetland sampling shall be experienced wetland ecologists who can identify wetland species vegetatively as seedling and small plants. Monroe County shall have the right to review all field data collected by the vendor and review it for consistency and accuracy to the degree possible.

Vegetation sampling transects for collection of monitoring data will be field located. The transect end points will be surveyed by GPS and permanently marked with ground flush steel rebar rod.

Two sampling techniques will be used for the Emergent Wetland acreage during the monitoring period of five years.

First two growing seasons: Sampling will measure Presence (the occurrence of a given species within a defined area) using a transect grid to record all species, both wetland and non-wetland, using a 1/10 square meter quadrat. A quadrat is a square box or circular hoop that can be laid above or around the vegetation to be measured.

This sampling will be used to determine the early success of germination and seedling survival. If the results of the early vegetation sampling indicate poor germination, re-seeding will be done either at the fall of the first growing season or in the spring or fall of the second growing season.

Third through fifth growing seasons: Sampling will measure the Estimated Cover (proportion of ground covered by an individual species as a percentage of the total area) by the transect point method. A measuring tape will be strung along the transect and records will be made of species occurring at defined intervals along the tape. All species encountered at that

exact point along the transect shall be documented. Multiple species may be present due to overlapping leaves at the same point.

The following criteria will be used to evaluate the success of the Emergent Wetland cover type:

First and Second Growing Seasons

1. The number of quadrats to be sampled shall be 50 per each ten acres of wetland seeding.
2. At least 75% of all quadrats must have at least one wetland species present in the first growing season; 85% of all quadrats must have at least one wetland species present in the second growing season.
3. At least 60% of all individual wetland species in the wetland seed mix must be detected during sampling in the first growing season; 75% of all individual wetland species in the wetland seed mix must be detected in the second growing season.
4. Perennial weed species must outnumber perennial wetland species by at least a three-to-one ratio, calculated by adding up the total occurrences of all wetland species and comparing it to the total occurrences of all perennial weed species.

If the above criteria are not met in the first and second growing seasons, the County will work with the Operator to take the appropriate action to over-seed or re-seed the planting. Over-seeding will be the preferred action if seeding density is below standards, but weeds are not dominant. Re-seeding after killing all vegetation (by mechanical methods) on the subject area shall be the preferred action if perennial weeds are dominant and are deemed to be sufficiently established as to compromise the potential for a successful wetland restoration.

Third through Fifth Growing Seasons

1. Using the transect point Estimated Cover method, a total of 50 transect points shall be sampled each year per each ten acres of wetland seeding in the third, fourth, and fifth growing seasons.
2. At least 50% cover of wetland species shall be present in the third growing season.
3. At least 60% cover of wetland species shall be present by the fourth growing season.
4. At least 70% cover of wetland species shall be present by the fifth growing season.
5. The combined maximum areal coverage of invasive species in the revegetated areas shall be no more than 20%.

In the fifth year, if the above criteria have been met, the wetland planting shall be considered successful, and shall be accepted by the County as complete.

K) Provide an estimate of the reclamation cost of each phase of the project or the entire site if phasing is not planned.

Landscape reclamation costs and the financial assurance estimate for Year 1 are summarized in the table on the next page. Landscape reclamation for 15 acres of Phase 1—including earthwork and grading, soil preparation, mulch, Emergent Wetland seed mix, no-till drill seeding, erosion control, invasive species control, and monitoring—is estimated to total \$286,203. Note that earthwork and grading account for 80 percent of the estimated costs. Additional reclamation costs, including the removal of processing buildings and stormwater pond reclamation, are estimated to be \$211,000. The total financial assurance for Year 1 at the Valley Junction Mine site is estimated to be \$497,203.

Using the estimated landscape reclamation cost per acre for Phase 1 (\$286,203 cost for 15 acres divided by 15 acres) = approximately \$19,080 for one acre.

$\$19,080/\text{acre} \times 200 \text{ acres} = \$3,816,000$ = total landscape reclamation cost for Valley Junction site. Adding the costs for building removal and stormwater pond reclamation (\$211,000), the estimated total reclamation cost for the entire site is \$4,027,000.

These estimates are based on current material costs and are to be used only as a general guideline for determining reclamation financial assurance. Accurate assessment of the necessary mine progress, potential updated reclamation requirements, and market costs for materials and labor.

Please see Exhibit C for a letter of bonding capacity for Valley Sand, LLC.

Estimated Financial Assurance, Year 1

Reclamation Item	Item Description	Item Unit Cost	Units	Number of Units	Reclamation Cost (\$)
Earthwork and Grading	A and B horizons 15 acres of Phase 1	\$2.10	cubic yard	56,930	119,553
	Overburden 15 acres of Phase 1	\$1.50	cubic yard	72,600	108,900
Revegetation Emergent Wetland seeding, maintenance, and monitoring for 15 acres of Phase 1	Revegetation (soil prep and discing)	\$600	acre	15	9,000
	Weed-free mulch, approx. 5 tons/acre	\$150	ton	75	11,250
	Wetland Seed Mix (5 lb./acre)	\$1,200	acre	15	18,000
	No-till drill seeding	\$300	acre	15	4,500
	Invasive species removal	\$500	acre	15	7,500
	Vegetation Monitoring	\$300	acre	15	4,500
Removal of Processing Plants and Equipment		\$100,000	each	2	200,000
Stormwater Ponds	Removal	\$5,500	each	2	11,000
Erosion Control Materials	Silt fencing, sediment bale barriers	\$200	acre	15	3,000
Total Estimated Financial Assurance, Year 1					\$497,203

Property owner's signature: _____ Date: _____

Please print or type the property owner's name and address:

Eddie Gebhardt, Eddie Gebhardt Cranberry LLC, 27696 Concord Ave., Warrens, WI 54666

Property owner's signature: _____ Date: _____

Please print or type the property owner's name and address:

6 Star LLC, c/o Nancy Bushing, 12911 County Highway N, Tomah, WI 54666

Authorized Mining Company representative's signature:

_____ Date: _____

Please type or print authorized Mining Company representative's name, address and contact information:

Richard George
N6494 First Street
Waupaca, Wisconsin 54981

Legal name of Mining Company: Valley Sand, LLC

Mining Company's legal address:

N6494 First Street
Waupaca, Wisconsin 54981

Note: Signature of this application by the applicant(s) authorizes the Town and its designees to enter upon the property to perform needed inspections without prior notice to applicant(s).

Note: Applicant(s) are required to provide twenty-five (25) copies of their completed application to the Town upon submission, along with the application filing fee of \$500.00. The additional copies are necessary for the Town Board, landowners, and the general public at the public hearings.

References

Boos, Thomas et al, editors. *A Field Guide to Terrestrial Invasive Plants in Wisconsin*, Wisconsin Department of Natural Resources, 2010. Also accessible at:
<http://dnr.wi.gov/topic/invasives/documents/wi%20inv%20plant%20field%20guide%20web%20version.pdf>

Finley, Robert W., *Original Vegetation Cover of Wisconsin*, 1976. University of Wisconsin Extension Service. <https://wgnhs.uwex.edu/pubs/000386/>

Haber, Elizabeth, *Suggested Science-Based Criteria for Site Selection, Design, and Evaluation of Wisconsin Wetland Mitigation Banks*, 2014. Wisconsin Department of Natural Resources and The University of Wisconsin-Madison Department of Botany.

Industrial Minerals Association – North America, Washington, DC. “What is Industrial Sand?”, March 2019. https://www.ima-na.org/page/what_is_ind_sand

Lippelt, I.D., Water Table Elevation, Monroe County, Wisconsin, 1981, Wisconsin Geological Survey. http://wgnhs.uwex.edu/pubs/download_mp811plate06/

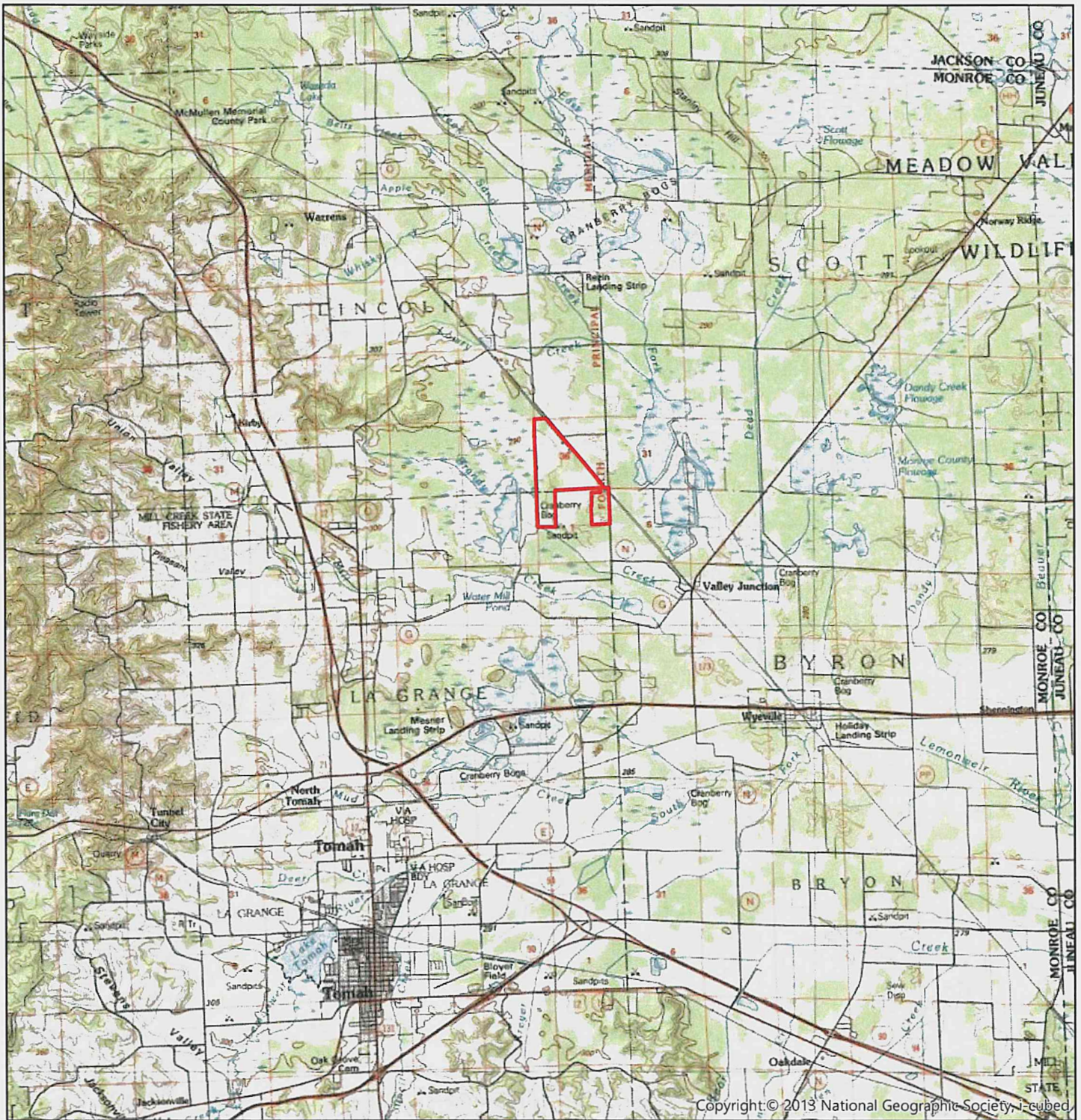
Summit Envirosolutions, October 2018, *Valley Junction Nonmetallic Mining Reclamation Plan*, approved by Monroe County (Wisconsin) Land Conservation Committee on January 8, 2019.

Wisconsin Department of Natural Resources (WDNR). 2015. *The ecological landscapes of Wisconsin: an assessment of ecological resources and a guide to planning sustainable management*. Chapter 10, Central Sand Plains Ecological Landscape. PUB-SS-1131X 2015, Madison.

WDNR High Capacity Well Viewer, http://dnrmaps.wi.gov/H5/?viewer=Water_Use_Viewer. Accessed February 2018.

WDNR Natural Heritage Inventory, *Bald Eagle Nest Locations by Township*. July 2017.
<http://dnr.wi.gov/topic/ERReview/documents/baldEagleTownshipMap.pdf>

WDNR Natural Heritage Inventory, *Endangered Resource Preliminary Assessment*.
<https://dnrx.wisconsin.gov/nhiportal/public/start> . Accessed February 7, 2018.



Legend

Approximate Property Boundary



0 1 2 Miles

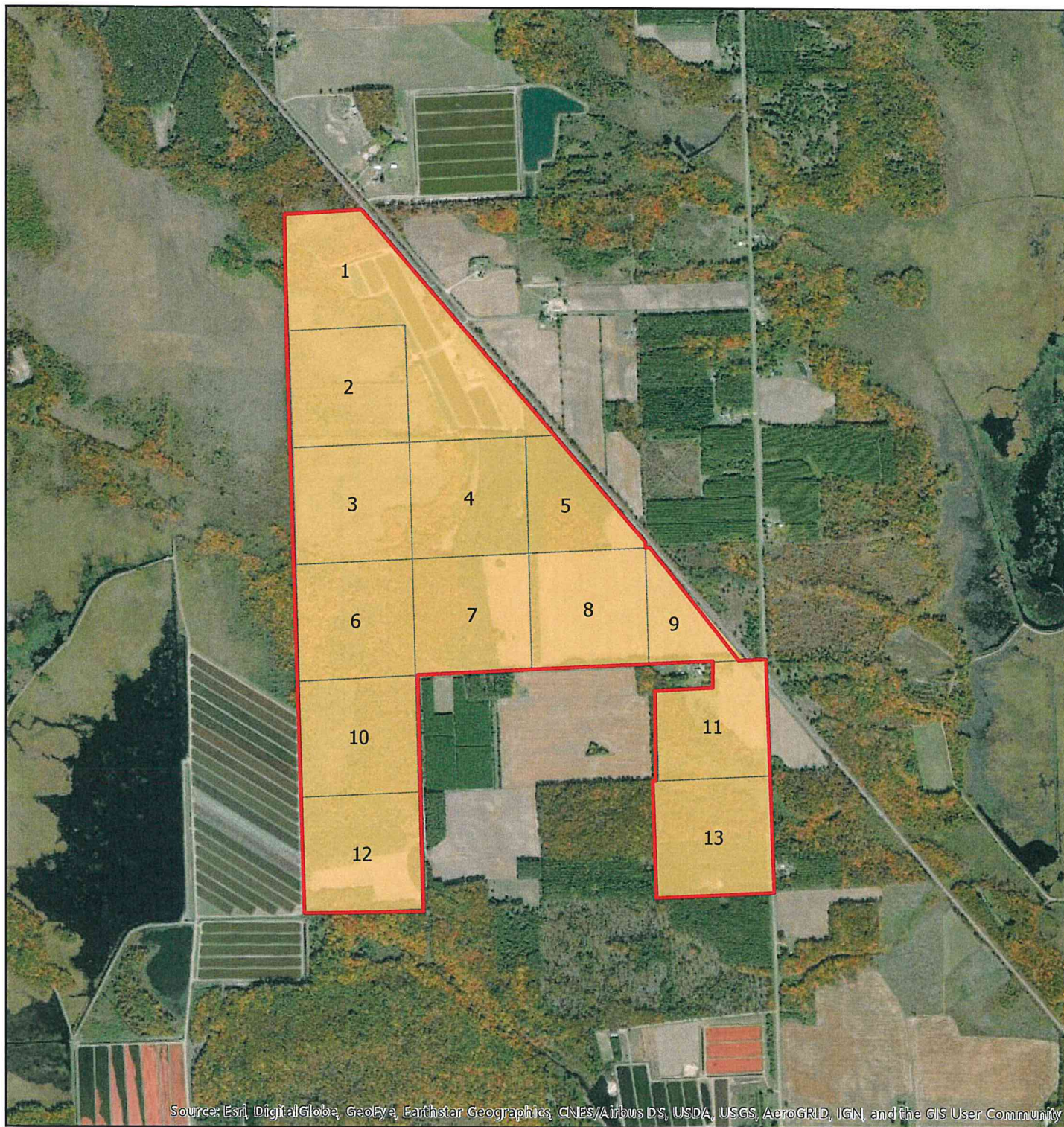
SITE LOCATION

Valley Sand LLC
Monroe County, Wisconsin



FIGURE 1

File: 20180912_figures
Summit Project No.: 2313-0001
Plot Date: 9/12/2018
ArcOperator: JED
Reviewed by: NRTB



Legend

- Approximate Site Boundary
- Mining Parcel



0 1,000 2,000 Feet

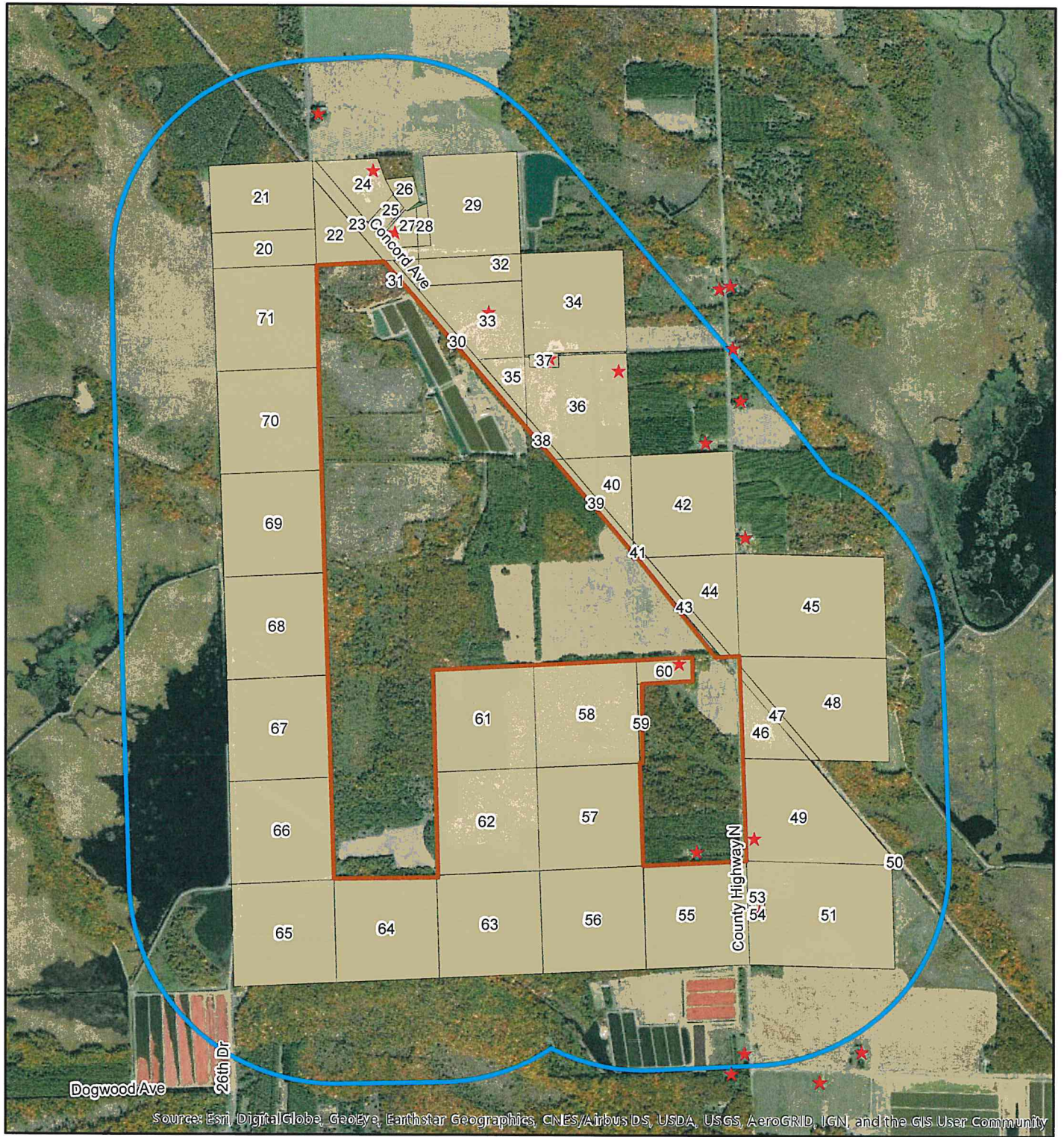
MINE SITE PROPERTIES

Valley Sand LLC
Monroe County, Wisconsin



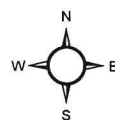
FIGURE 2

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Summit Project No.: 2313-0001
Plot Date: 9/12/2018
ArcOperator: JED
Reviewed by: NRTB



Legend

- Property
- ★ Residence/Well
- Half-Mile Buffer
- Adjacent Parcel



See Appendix 3 in Valley Junction NMM Reclamation Plan for property information.

0 1,000 2,000 Feet



ADJACENT PROPERTIES, RESIDENCES

& WELLS

Valley Sand LLC

Monroe County, Wisconsin



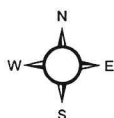
Figure 3

file: 20180912_figures
project no.: 2113-0001
plot date: 9/12/18
arc operator: jed
reviewed by: nrtb



Legend

- Mine Property Boundary
- Phase
- Rail Spur



0 1,000 2,000 Feet

CONCEPTUAL MINE PLAN

Valley Sand LLC
Monroe County, Wisconsin



Figure 4

file: 20180912_figures
project no.: 2313-0001
plot date: 9/12/18
arc operator: jed
reviewed by: nrtb

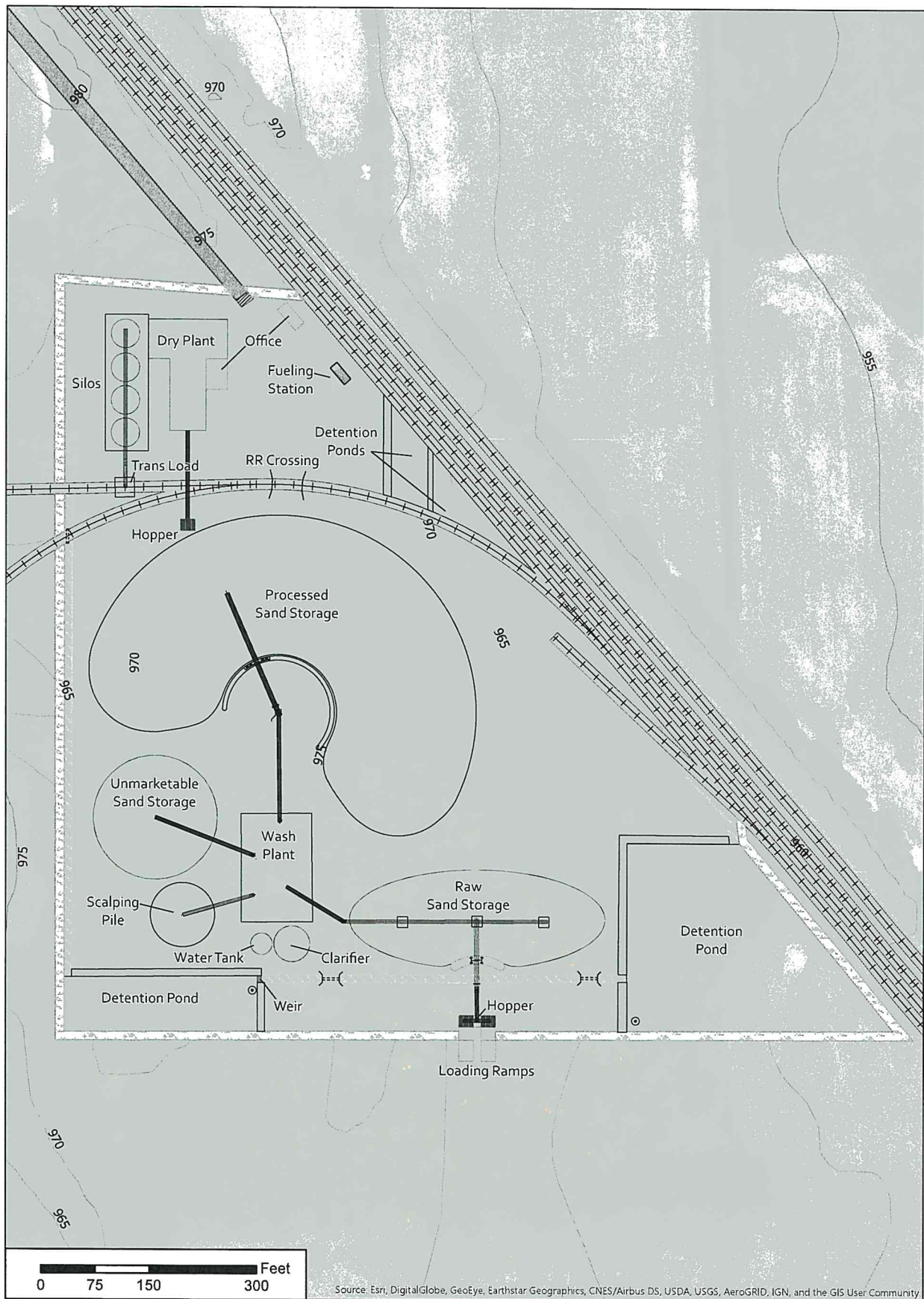


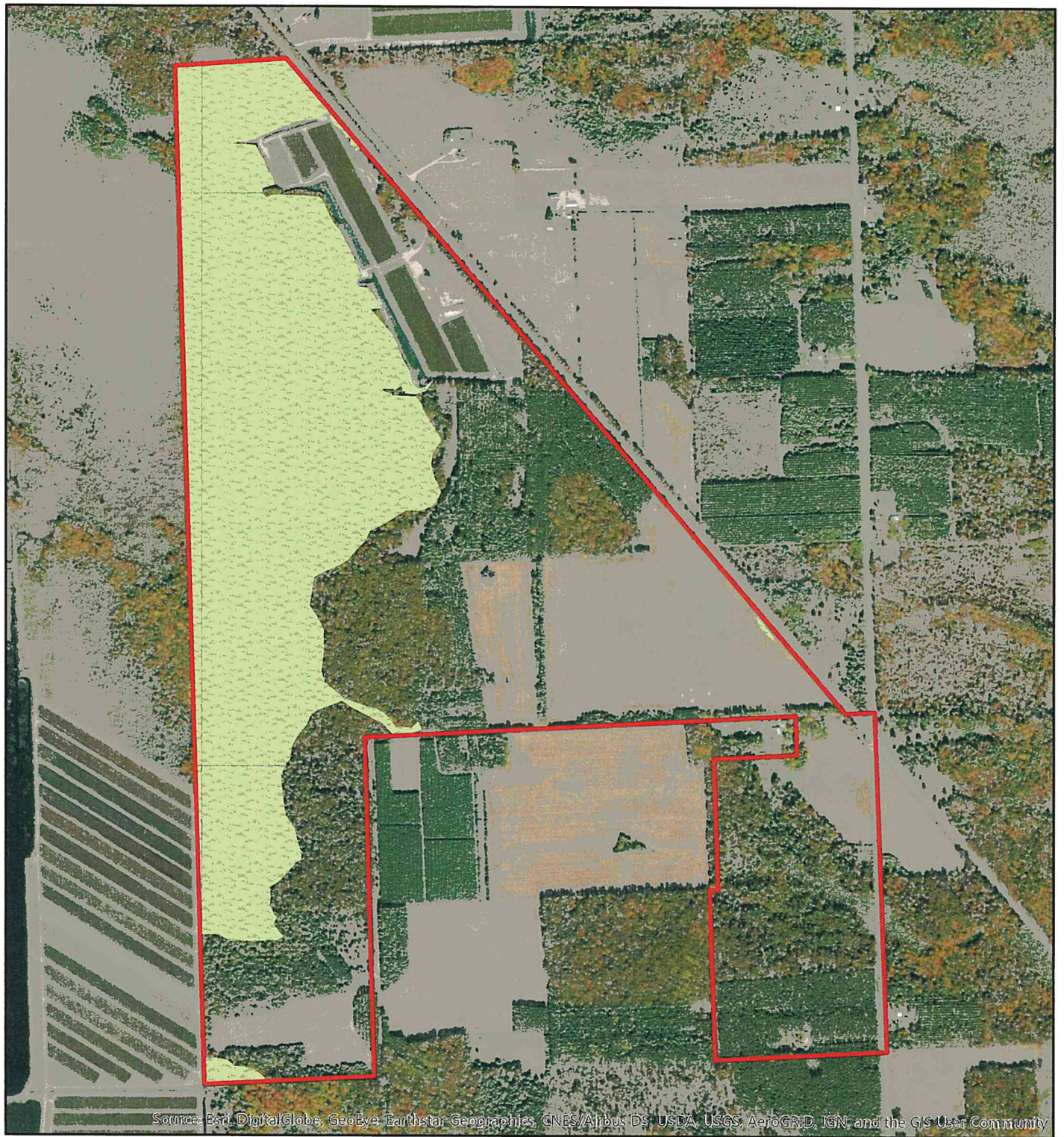
Figure 5



Processing Area

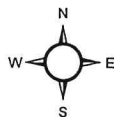
Valley Sand LLC
Monroe County, Wisconsin

File: Figure5_processing_area
Project no.: 2313-0001
Plot date: 03/14/19
Arc operator: GAF
Reviewed by: JAS



Legend

- Property
- Delineated Wetland



0 500 1,000 Feet



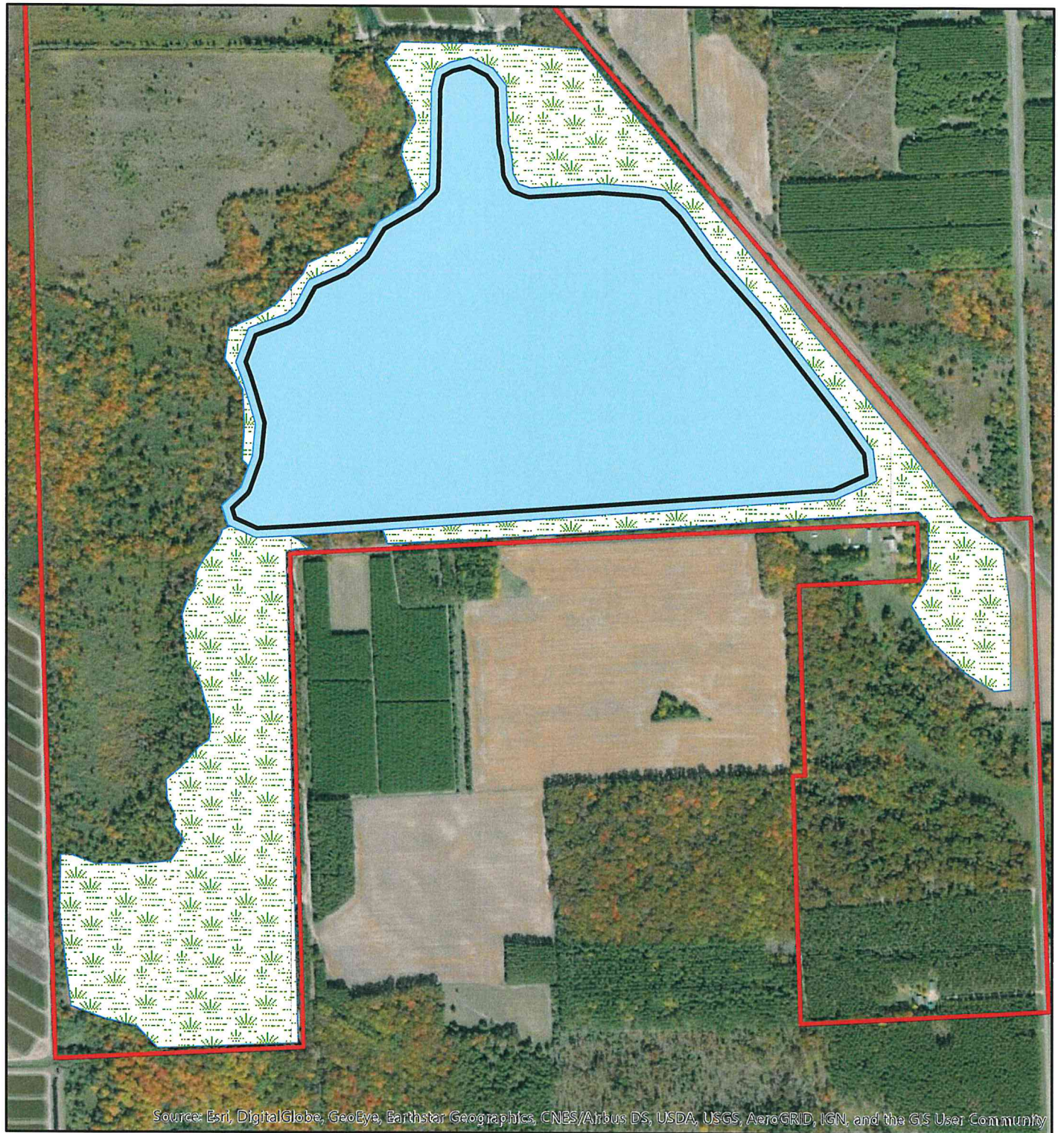
WETLANDS

Valley Sand LLC
Monroe County, Wisconsin

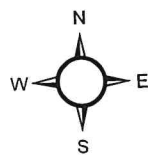


Figure 6

file: 20180912_figures
project no.: 2145-0002
plot date: 9/12/18
arc operator: jed
reviewed by: nrtb



-  Property
-  New Lake
-  New Wetland
-  5-foot Contour



0 500 1,000
Feet

CONCEPTUAL RECLAMATION AREAS

Valley Sand LLC
Monroe County, Wisconsin



Figure 7

file: figure12.aprx
project no.: 2313-0001
plot date: 12/06/18
arc operator: GAF
reviewed by: NRTB