Northern Sands Wisconsin, LLC
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September 13, 2019

Chippewa County
Land Conservation and Forest Management
711 North Bridge St.
Chippewa Falls, WI 74729-1876

Attn: Ethan J. Hau
Land Resource Technician

RE: Northern Sands Wisconsin LLC Permit #2015-1
Clarification Response to Chippewa Co LCFM letter August 7, 2019
Addendum to June 14, 2019 Follow-up Baseline Report

Dear Ethan:

This letter provides information Chippewa County LCFM requested within its letter dated August 7, 2019 following their review of the Northern Sands Wisconsin LLC (NSW) June 14, 2019 follow-up baseline report.

Northern Sands Wisconsin LLC (NSW) acquired this development from Northern Sands LLC and transferred the Chippewa County permit on March 7, 2018. NSW is not using the "Albertville Valley Mine" name for any description or public identifier going forward.

The June 14, 2019 NSW submittal fulfilled some of the requirements as Chippewa County LCFM details in their letter dated August 7, 2019. These are:

1) Full hydrologic inventory of all Phase 1 adjacent properties
2) Phase 1 sub-watershed delineation discharging to Elk Creek watershed
3) General wetland assessment of Phase 1 neighboring parcels

NSW permitted site encompasses 1310 acres which extends to the property boundary of the parcels identified in the NR 135 application. This includes the required boundary setbacks, material processing and transload area, rail yard and excavation area (designated as cells). Areas to be mined are subdivided into cells. The cells to be excavated are combined into three mining phases. Each phase identifies specific cells to be staged in compliance with the contemporaneous reclamation approach promoted by

County and State regulations. There are 465.6 acres within the three phases containing 18 cells which will be incrementally disturbed during the life of the mine.

Recent Geologic Exploration and Definition

NSW completed additional geologic drilling south of Phase I at the highest accessible surface elevation within the permit area. Lithology documentation and core samples were continuously recovered using sonic drilling methods. The recovered samples were then reviewed by Dr. Brian Mahoney, PG (Precision Geosolutions LLC) and a geologic description was developed.

Generally, the Wonewoc formation is present at or near the surface and extends to approximate elevation 1,000 feet above sea level (ft asl) where transition to the Eau Claire formation is encountered. Throughout the Wonewoc formation, isolated thin bedded glauconitic quartz arenite intercalated with minor clay laminae was encountered. These laminae are the result of changing sea levels during deposition. Surface drainage features are the predominate control for the localized wetland development and do not originate from any continuous subsurface feature or layer. This subsurface exploration corroborated the geologic description provided in the June 14, 2019 submittal.

Phase 1 – Cell 1a & Cell 1b General Layout

Phase 1 mine cell excavation match the permitted plan as presented with the 2015 NR 135 application. The anticipated mine floor is proposed 10 feet above the ground water table with a depth no greater than 1025 ft asl as required within Permit #2015-1. The ground water table elevation is monitored from the existing network of monitoring wells.

Mining activity and material excavation as presented within the NR 135 application is planned in this area and designated as Phase 1 which contains two smaller subdivision identified as cell 1A and cell 1B. The area to be excavated are shown within the NR135 application and the attached figures.

The mining area remains consistent at this time with the original NR135 application. There may be some slight adjustments to the cell layout as the wetlands were not delineated at the time of the original application.

Delineated wetlands location in proximity to the Phase 1 cell 1a & cell 1b are shown on Figure 1 & Figure 2. The mine cell 1a and 1b mining boundaries are consistent with the NR 135 permit application approved November 2015 and shown on Figure 1 and Figure 2. Wetlands delineated (November 2018) near the Phase 1 western boundary are generally assumed to be part of the wetland complex on the adjacent parcels assessed in May 2019. Wetland ID # 11 near 90th Ave. may be isolated and distinct from #3A(5-19) as this could be the exception.

Separation distances and surface elevation are highlighted on the figures. Contour elevations are also shown and were created from raster interpretation of the Chippewa Count Digital Elevation Model (DEM). Wetlands along the western permitted area discharge to the east toward 13th St. and the down gradient elevations are labeled along with the elevation of the Cell 1a and Cell 1b boundary closest to the wetland.

NSW will avoid disturbance of these wetlands and their discharge will be maintained at the current rate by maintaining the area and existing discharge elevation. The viability of these wetlands is principally dependent on land use of adjacent parcels west of the NSW permitted area. The area between the mine

cells and the wetlands will be used to reroute surface runoff at a similar rate using grassed swales and berms. This will prevent runoff from impacting the mined area and isolate the wetlands from the mine impacts.

The NR135 applications states a minimum of 75 ft separation distance (buffer) from wetlands (section 2.1 Area and Setbacks p. 14). Wetland ID # 9 (7-18) delineation may cause the 1B cell western boundary to be adjusted to maintain the minimum 75 feet set back distance following review of the construction survey and staking.

Wetland #6A (5-19) has some area of surface water. This is likely the result of landowner disturbance and excavation to create a pond which may have occurred around 2010 based on historic aerial photos. The Wisconsin Department of Natural Resources (WDNR) surface water viewer does not recognize this as a surface water feature and NSW will consider this artificial surface water feature as part of the wetland.

Wetland mitigation and permitting is regulated by the Wisconsin Department of Natural Resources (WDNR) and the US Corp of Engineers (provided wetland complex intersects federal waterways). Current permitted mine configuration within Phase 1 does not include the necessity to disturb or mitigate wetlands.

General Phase 1 Stormwater Controls

Considerable overland flow occurs during rainfall events and snow melt from the hills west of Phase 1 flowing easterly toward the culvert beneath 13th St. Over time, drainage ways have developed and enhanced with grassed swales to improve the ability to farm this acreage.

Runoff entering the permitted Phase 1 area will be diverted to avoid surface water from entering Cell 1a and Cell 1b excavations. Using vegetated swales and berms, off site runoff will be routed around the mine excavation. The existing topography will be enhanced to manage most of this runoff north toward 90th Ave and exit Phase 1 using a culvert under 13th St. Some storm water will be diverted and controlled similarly along the eastern boundary of Phase 1 and discharged to the culvert beneath 13th St. This is the current discharge point as the runoff continues toward Elk Creek. Existing flow paths are shown on Figure 1 and Figure 2. These flow paths were calculated using the Chippewa County DEM and the hydrology toolset within ArcGIS Pro. Some flow paths are isolated as the DEM was not corrected for topographic sinks.

This routing will avoid storm water retention within the excavation and be incorporated in the stormwater controls at the south end of the processing area prior to Elk Creek. The goal is to reduce total suspended solids (TSS) discharge and provide infiltration opportunities. The design of the stormwater management facilities will be developed in accordance with NR 151, Runoff Management, for peak discharge and protective area requirements (located a minimum of 50 ft from wetlands). Detailed modeling for TSS removal and infiltration will be completed and submitted to the WDNR in support of the required Wisconsin Pollutant Discharge Elimination system (WPDES) general permit application. This application will be submitted by a professional engineer and follow the development of detailed grading and construction drawings.

Cooper Engineering has completed preliminary engineering regarding Phase 1 stormwater control which was included in the 2015 NR135 application. Their plan was incorporated into the mine cell sequencing that include infiltration ponds (Figure 11a NR135 application).

Phase 1 Wetland Preservation

Wetland disturbance and mitigation will be avoided as part of our Phase 1 mine plan. Preservation will be managed by isolating these identified wetlands from disturbance. During operations, flagging, fencing and signage will identify these protected features.

Wetland discharge will be managed and controlled by the preservation of the discharge elevation using a hydrologic control berm. Details will be incorporated into the engineered grading plan and provided to the WDNR as part of the storm water construction application.

NSW has utilized a conservative approach to isolating these wetlands. Setback distances between the area of disturbance and the delineated wetlands are beyond the requirements of the WDNR. NSW has employed the 75 feet (NR 151.125(1)(f) and 151.245(1)(f), Wis. Adm. Code) setback for "highly susceptible" classification even though the identified wetlands are degraded and/or artificial in geomorphology. Except for Wetland ID # 9 (7-18), Phase 1 western boundary wetlands are setback from the mine cells by a factor of 2 to 3 times the setback distance from WDNR classified "highly susceptible" wetlands. This is a conservative measure of protection even though these wetlands do not meet the requirement for "highly susceptible" classification.

Phase 1 mine cell development or excavation does not necessitate wetland mitigation or "taking".

NSW appreciates the opportunity to clarify these details as part of the baseline requirements of permit #2015-1.

Sincerely,

Northern Sands Wisconsin LLC

Tom Gapinske
President

Precision GeoSolutions LLC

Dr. J. Brian Mahoney, PG
Consultant

Cc: Susan Haake Town of Howard

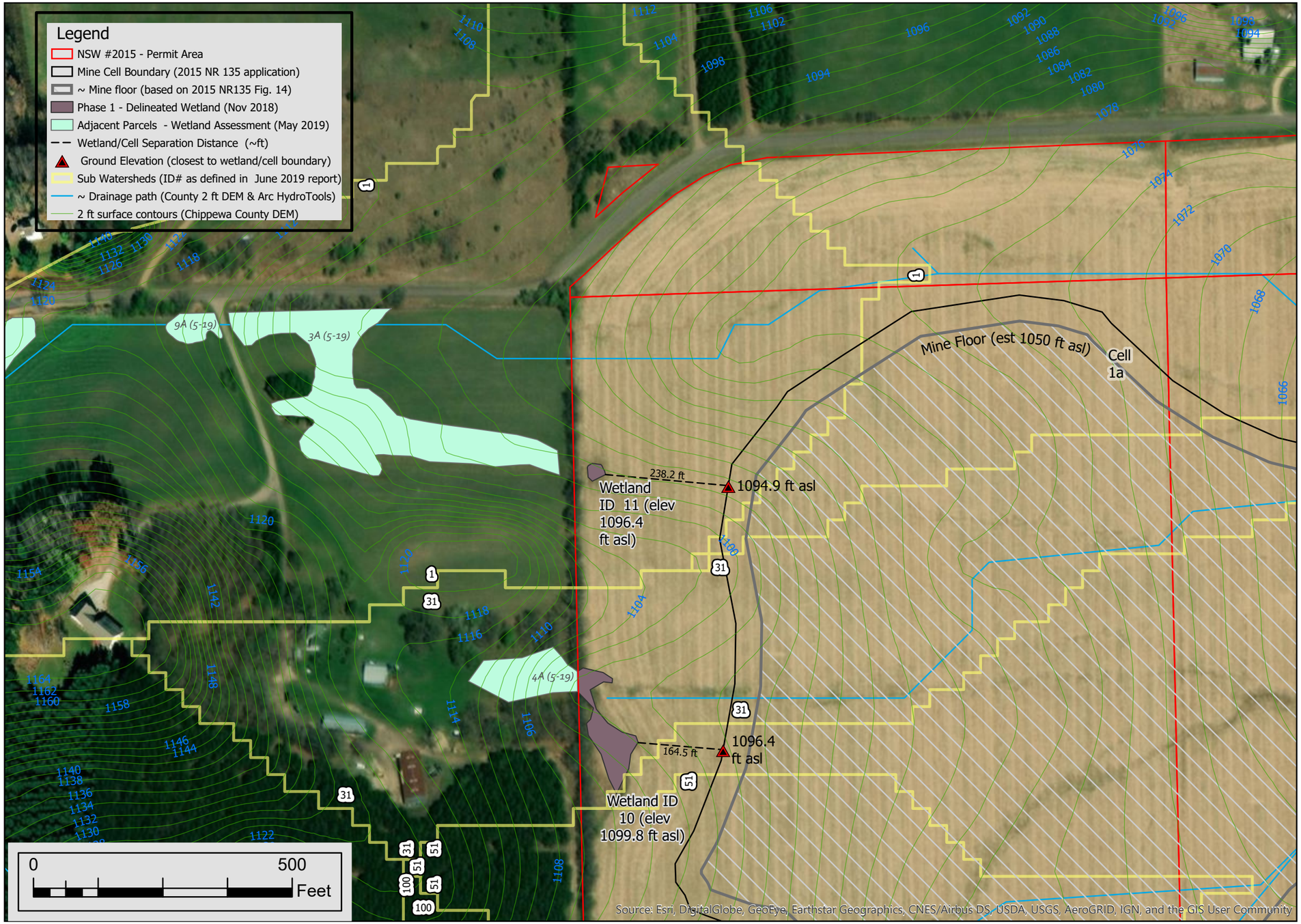

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Figure 1

Phase 1
Mine Cell 1a
Wetland# 11&10
Watershed # 1 &31

Chippewa County - Chapter 17
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September, 2019

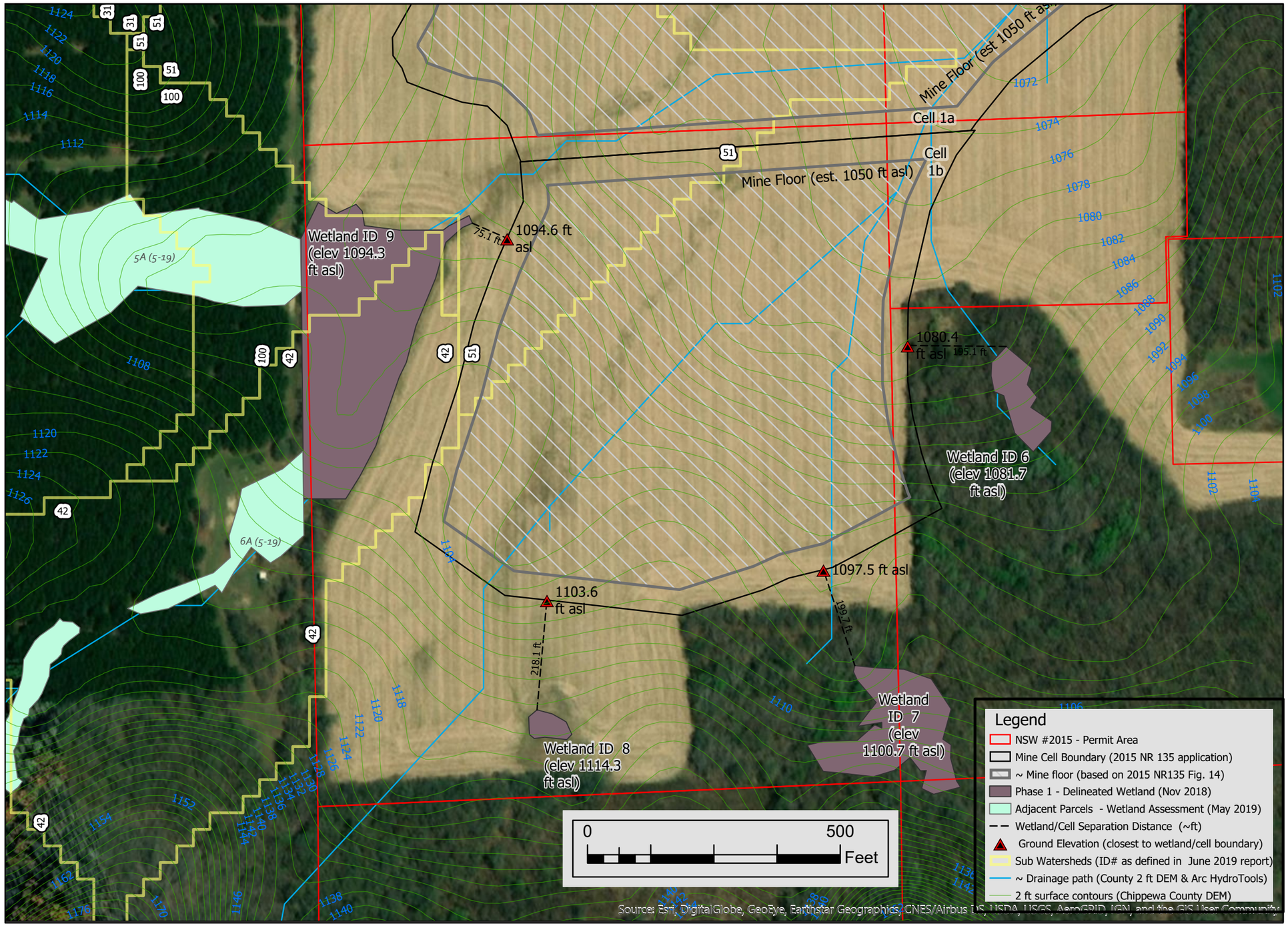

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Figure 2

Phase 1
Mine Cell 1b
Wetland # 6 - 9
Watershed # 42, 51, 100

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