Groundwater Modeling Report
River Bend Quarry Site
Pacolet, Spartanburg County, South Carolina
S&ME Project No. 22610504

PREPARED FOR:

River Bend Aggregates, LLC
500 Duke Drive
Franklin, Tennessee 37067

PREPARED BY:

S&ME, Inc.
8646 W. Market Street
Greensboro, North Carolina 27410

October 20, 2023

October 20, 2023

River Bend Aggregates, LLC
500 Duke Drive
Franklin, Tennessee 37067

Attention: Mr. Jack Mitchell   Submitted via email: jmitchell@synergy-materials.com

Reference: **Groundwater Modeling Report**
River Bend Quarry Site
Pacolet, Spartanburg County South Carolina
S&ME Project No. 22610504

Dear Mr. Mitchell:

S&ME, Inc. has completed this Groundwater Modeling Report as an addendum to S&ME's Hydrogeologic Assessment for the referenced property (i.e., the subject property). The attached report presents S&ME's findings for the proposed River Bend Quarry site. Our services were performed in general accordance with S&ME Proposal No. 22610504A dated January 5, 2023. S&ME appreciates the opportunity to provide this report for the project. Please contact us at your convenience if there are questions regarding the information contained in this report.

Sincerely,
S&ME, Inc.

Edmund Q.B. Henriques, LG
Principal Geologist
ehenriques@smeinc.com

George Losonsky, PhD, PG
Project Modeler
Losonsky & Associates, Inc.

Nathan A Williams, P.G.
Senior Geologist
nwilliams@smeinc.com

cc: South Carolina Department of Health and Environmental Control
Mining Reclamation
2600 Bull Street
Columbia, South Carolina 29201
Attention: Mr. Jeremy Eddy (via email eddyje@dhec.sc.gov)

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Appendices

1.0 INTRODUCTION

S&ME, Inc. (S&ME) conducted a Hydrogeologic Assessment of the River Bend Quarry site, hereafter referred to as the subject property, located southwest of Hammett Grove Road and northeast of the Pacolet River near Pacolet, Spartanburg County, South Carolina. The Hydrogeologic Assessment was conducted in general accordance with S&ME, Inc. Proposal No. 22610504A, dated January 5, 2023. This Groundwater Modeling Report is an addendum to S&ME's Hydrogeologic Assessment Report, dated October 4, 2023.

1.1 Purpose

S&ME understands that River Bend Aggregates, LLC is considering the purchase of the subject property for the purpose of developing the property as an aggregate mine. The mining operations will use dry mining techniques; therefore, the proposed mining area will be dewatered via groundwater extraction points/sumps. The purpose of the hydrogeologic assessment was to provide information on certain recognized hydrogeology features of the site and vicinity, inferred locations of on-site water bearing fractures, registered off-site water supply wells in the vicinity of the site, and to assess aquifer properties for the development of estimated probable impacts of mine dewatering activities.

1.2 Methodology

S&ME's hydrogeology assessment of the subject property relied on a process that began with the development of a preliminary site conceptual model. The preliminary model was based on known or expected main features of geology, hydrogeology, mine pit location and development, and site-specific relationships between geologic structures and groundwater flow. The preliminary site conceptual model was utilized to develop field data collection needs for this assessment. The collected data included geologic, geophysical, and hydrogeologic information. Site specific data was then collected to further characterize the hydrogeologic system and the resultant data analyzed to refine the site conceptual model. A computer aided mathematical model was then employed to provide predictive simulations of effects of future mine dewatering scenarios.

1.3 Planned Quarry Operations

The planned mining operations will take place in the southern and western portions of the subject property with the land north of the pit and plant to be used for overburden storage. The primary infrastructure (i.e., settling ponds, clean water pond, pumps, etc.) for the facility will be north and east of the proposed mine pit. The entrance to the mine facility will be from Hammett Grove Road to the east of the site and will extend to the primary infrastructure area northeast of the proposed pit areas. S&ME understands that mining operations have not been planned for specific depths or time frames. The expected life of any aggregate mine operation is primarily driven by economic factors, such as demand for the product, which is difficult to predict. A mine life forecast of 75 years or more would be foreseeable. **Figure 1, Appendix I** provides the conceptual site plan.

2.0 Site Setting Summary

S&ME's Hydrogeologic Assessment Report, dated October 4, 2023, contains completed details regarding the site setting, which are summarized in this report, as follows for brevity.

The subject site is in the Piedmont Physiographic Province. The subject site and vicinity are likely underlain by Monzogranite, Porphyritic Granodiorite, Biotite Gneiss, and alluvial sediments in the Pacolet River floodplain.

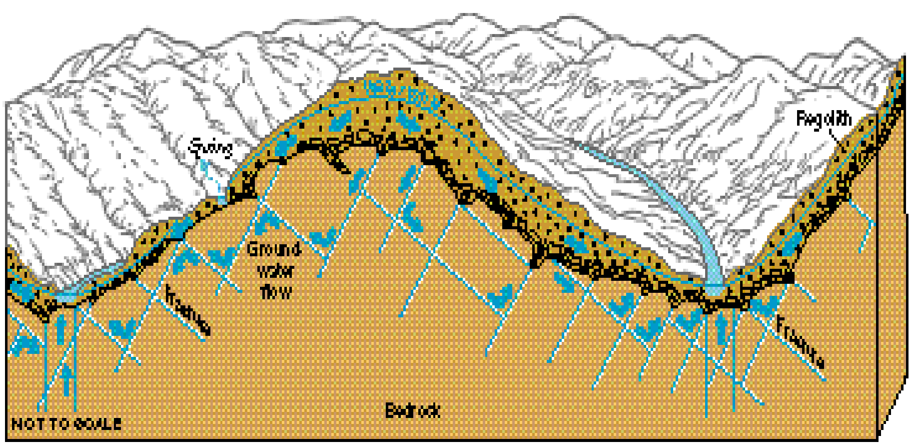
A review of core drilling data recorded by Randall Mining Consultants (bore holes GWPD22-01, GWPD22-02, GWPD22-03, GWPD22-04) indicated that the site is underlain by bedrock primarily described as amphibolite gneiss and meta-granite, with possible pegmatites and quartz/feldspar lenses. Based on the core drilling data, the thickness of the soil/saprolite overburden ranged from a depth of 30 feet to 50 feet below grade (BG). The apparent soil saprolite overburden thickness observed during installation of monitoring wells associated with pump testing ranged from approximately 55 feet BG to 118 feet BG.

Although far more complex, the Piedmont aquifer systems can be conceptually simplified and viewed as a two-layered system consisting of a shallow, unconsolidated, unconfined, porous regolith water aquifer that can supply water to surface water features and to the second layer, the underlying fractured bedrock aquifer.

Aquifer recharge in the Piedmont region is provided by precipitation which occurs in the form of rainfall and snow melt. Depending on factors such as ground saturation, ground cover and slope, a portion of the precipitation forms runoff. This runoff flows to areas of lower elevation where some of the runoff water infiltrates in the unconsolidated material (i.e., soil), and some of the water flows into local surface waters. The precipitation that does not form runoff infiltrates through the unsaturated zone where it can merge with underlying aquifers.

Most of the recharge in this region takes place in inter-stream areas. In general, recharge from precipitation enters the aquifer system through the saprolite zone. It is believed that much of the recharge water moves laterally through the saprolite zone and discharges to nearby streams. Under some conditions shallow groundwater can discharge at the ground surface down slope as seeps or permanent springs above these surface water bodies. Some seeps may occur on a seasonal basis or as short-term temporal responses to precipitation. This unconfined saprolite aquifer is generally expected to act as a storage reservoir for the underlying fractured bedrock aquifer.

Figure 2-1 Simplified Illustration of Groundwater Movement



Heath 1980

Some of the water moves vertically downward through the saprolite until it reaches bedrock where it enters fractures in the crystalline rock. Groundwater within the consolidated fractured bedrock aquifer flows in accordance with hydraulic (i.e., pressure) gradients in the fracture network. Because of this, the groundwater does not necessarily flow in the direction of topographic gradients. Based on the site geology and Very Low Frequency (VLF) imaged fractures, flow likely occurs along rock fabric and fracture zones. Significant fracture zones have the potential to substantially influence groundwater flow and velocities.

A Master Conceptual Model for Hydrogeologic Site Characterization in the Piedmont and Mountain Region of North Carolina, Henry Legrand, 2004 indicates that the upper boundary of the zone of groundwater circulation, the water table, typically lies in the clayey soil-saprolite zone, except in the upland areas of the mountains where it may be in bedrock. The depth of circulation is difficult to define as it is determined by the presence of interconnected bedrock fractures. Although productive fractures have been penetrated at depths exceeding 700 feet, notably in the Mountains, they are more likely to occur above a depth of 300-350 feet below the bedrock surface. The bedrock, in which fractures typically decrease in number with increased depth, can be considered also as a zone of low permeability. Similarly, *Evaluation of Site Selection Criteria, Well Design, Monitoring Techniques, and Cost Analysis for Groundwater Supply in Piedmont Crystalline Rocks, North Carolina*, Charles C. Daniel 1989, reported that as a general rule, the abundance of fractures and size of fracture openings decrease with depth. At depths approaching 600 feet and greater, the pressure of the overlying material, or lithostatic pressure, holds fractures closed, and the porosity can be less than 1%. Both publications support the concept of overall reduction in groundwater yields, with increasing depth, in Piedmont Region of the Carolinas.

Published regional geologic and conceptual hydrogeologic setting data, were combined with actual site geologic data and aquifer pump test data obtained by S&ME, to establish a foundation for a conceptual site model for groundwater movement. The conceptual site model was relied upon as a framework used to guide construction of the computer aided mathematical model discussed in Section 5.0, employed to provide predictive simulations of the effects of future mine dewatering scenarios.

3.0 Water Well Inventory Summary

The findings of S&ME's water well survey, encompassing a 0.5-mile radius of the proposed mine pits, are summarized on **Figure 2, Appendix I**. Based on the methods employed eleven known or suspect water supply wells were identified within 0.5-mile radius of the edge of the proposed mine pits. Of the eleven identified well sites, four are located on the opposite side of the Pacolet River. Of the seven well sites identified on the same side of the river as the proposed quarry, three are located on properties that will be owned by River Bend Aggregates LLC (1010, 1050, and 1070 Hammett Grove Road). The remaining four wells identified are located east of the proposed mine pits. Goucher Water Company has a public water line that runs south along Hammett Grove Road and terminates at the driveway for 1010 Hammett Grove Road.

4.0 Aquifer Pump Testing Summary

The hydrogeologic assessment included the performance of three pump tests using the following configurations.

- Well B1 as the pumping well, whereas wells B1-30, B1-220, B1-100 NE and B1-100 SE functioned as observation wells. Testing included a variable rate (step) test and a constant rate test.
- Well B1-100 SE as the pumping well, whereas wells B1-30, B1-220, B1-100 NE and B1-100 SE functioned as observation wells. Testing included a constant rate test.

Details regarding each test were summarized in S&ME's *Hydrogeologic Assessment* report dated October 4, 2023. The pump test well network layout is depicted in **Figure 3, Appendix I**.

5.0 Pump Test Analysis, Groundwater Modeling, and Reporting

The analysis of pumping tests and development of projections for the dewatering operations were performed utilizing groundwater flow simulation models. Groundwater simulations were performed using MODFLOW-2000 or MODFLOW-2005 through the graphical user interface Groundwater Vistas, version 7.22. Groundwater Vistas is a reliable and commonly used graphical user interface for MODFLOW and the MODFLOW family of groundwater modeling codes. It aids in the construction of model input files and is particularly helpful for data organization for three-dimensional models with multiple hydrogeologic zones. It also facilitates model calibration and the rapid visualization of simulation results.

In preparation for development of a regional model for the simulation of site and regional effects of the proposed mine dewatering, a model was constructed with calibration to the site-specific aquifer pumping test data. Use of a discretized model to evaluate site-specific variables pertaining to fracture zones and pit configurations. Fracture orientations at the site defined by the VLF Geophysical survey identified one distinct trend, generally northeast to southwest. The pumping test calibration model simulated the primary fractures as part of an equivalent porous media (EPM) domain limited to the area of the VLF profiles and pumping test well locations. The purpose of the pumping test calibration model was to derive input parameters for the regional model simulations.

Following pump test calibration, the equivalent porous media (EPM) model was expanded for the purpose of simulating specific phases of the proposed mining operations, over time. The regional model applied aquifer parameters derived from the pumping test to a larger, more regional domain that included residential wells in the vicinity of the planned mining area.

5.1 Model Construction

Figure II-1, Appendix II is a map of the model domain and grid, placed on a site map. The model is rotated so that the x-direction is generally parallel to the northeast-southwest trending primary fractures. The model is rotated 38 degrees east of north (clockwise) to better align model columns with fracture traces. The model covers 16,000 feet in the x-direction and 14,000 feet in the y-direction. The model has 25-foot by 25-foot cells in the refined area around the mine property and 100-foot by 100-foot cells in the remaining peripheral area of the grid.

The model has six layers. Layer 1 is 95 feet thick. It contains the water table and generally represents partially weathered rock. Layer 2 is 100 feet thick and contains the upper part of bedrock. Layer 3 is 113 feet thick and approximately corresponds to the drawdown level created by the east pit limit of mining. Layer 4 is 150 feet thick and approximately corresponds to the drawdown level created by the middle pit limit of mining. Layer 5 is 70 feet thick and corresponds to the limit of mining drawdown in the west pit. Layer 6 represents 142 feet below the bottom of the mine. The bottom of the model is at an elevation of 90 feet.

5.2 Aquifer Storage Properties

The pumping test calibration yields specific storage (*Ss*) of approximately 1×10^{-6} per foot, varying spatially within a narrow range. Specific yield, *Sy*, is consistently 5×10^{-4} based on pumping test interpretations. The low value of

Sy reflects fractures intersecting the water table. After a long period of dewatering at the site drawdown is not very sensitive to *Sy*.

5.3 Hydraulic Conductivity Zones

The EPM model has a consistent set of directional hydraulic conductivity values representing vertical and horizontal anisotropy introduced by the regional fracture trends. The horizontal hydraulic conductivity in the *x*-direction, K_x, reflects flow in the direction of the primary fracture trend. The horizontal hydraulic conductivity in the *y*-direction, K_y, reflects flow in the direction of the secondary fracture trend. The vertical hydraulic conductivity, K_z, reflects the aggregate effect of flow along the steeply dipping fractures and through intervening matrix rock. The three hydraulic conductivity values representing the three principal directions of the EPM model are as follows for the six model layers.

1. Layers 1, 2, and 3: K_x = 1 foot per day, K_y = 0.18 foot per day, and K_z = 1 foot per day
2. Layer 4: $K_x = K_y = K_z$ = 0.23 foot per day
3. Layers 5 and 6: $K_x = K_y = K_z$ = 0.042 foot per day

Lower hydraulic conductivity and anisotropy in the deeper layers reflects the general observation that fracture size decreases the fracture spacing increases with depth at the site.

River and stream conductance (*Ksb*) is 1 foot per day, and reservoir conductance is 0.1 foot per day. Low reservoir conductance assumes silty reservoir bottom sediments. The river width is 100 feet and stream widths are 5 feet for some streams and 2 feet for others.

5.4 Boundary Conditions

The model applied constant head boundaries (CHB) along the edges of the model and a no flow boundary at the base of the model. These boundaries are critical to model calibration.

Figure II-2, Appendix II shows the network of creeks and streams that are represented as boundary condition cells in the model grid. Grid resolution is sufficient for distant effects. The impact of creeks and streams in the model is controlled by the conductance term of the creek, not cell width. The flow between a stream and an aquifer in contact with the stream is proportional to the head difference between the stream and the aquifer, and river conductance, a compound parameter conceptually representing the length and width of a river, the thickness of the stream bed, and its hydraulic conductivity. In addition, river conductance factors in convergent flow toward streams.

5.5 Model Calibration

Figures II-3A through II-3E, Appendix II shows plots of observed and modeled drawdown over time for all five test wells (B1-100SE, B1-220, B1-100NE, B1-30, and B1 during both the step test with recovery and the constant rate pumping test and recovery period. Achieving close match with the orthogonally positioned B1-30 and B1-100SE, along with the pumping well B-1 is particularly important for the EPM model. Improvement of the calibration would entail localized hydraulic conductivity zonation which would not affect the regional EPM hydraulic conductivity and therefore additional calibration refinement would not be productive.

5.6 Mine Pit Dewatering and Drawdown

Figure II-4, Appendix II shows a graph of water levels in the mine pit as a function of time.

The black line depicted on the graph in **Figure II-5, Appendix II** measures the total dewatering rate of the mining operation as the mine expands and deepens with time. The red, orange, and blue lines depicted on the graph represent dewatering for calibration steps that assume no change in fracture size and density with depth. S&ME understands that model predicted dewatering rates are reasonable for mines in similar geologic terrain.

Figure II-6, Appendix II shows drawdown contours for the limit of mining at the base of the east pit, achieved after 39 years of mining. Drawdown is predicted to exceed 100 feet within the property boundary, around all three mine pits. The drawdown cone is steep around the edges of the mine. Drawdown does not exceed 40 feet and is generally between 10 and 20 feet within the immediate vicinity west, south, and east of the mine property boundary. The area where drawdown is predicted to exceed 60 feet outside the site property is confined to an area within approximately 500 feet northeast of the edge of the shallow mine pit.

Figure II-7, Appendix II shows drawdown contours for the limit of mining at the base of the middle pit, achieved after 64 years of mining. Drawdown exceeding 100 feet is confined within the property boundary. Neither the shape nor extent of the drawdown cone is fundamentally changed. The area with drawdown is predicted to exceed 10 feet extends up to 200 feet outward from the 39-year drawdown cone, mainly north and south of the mine property. It is noted that normal seasonal fluctuations in the groundwater table can be on the order of 5-10 feet.

Figure II-8, Appendix II shows drawdown contours when the mine reaches its maximum depth of elevation 90 feet MSL (approximately 500 feet deep from original ground surface), after 75 years. The drawdown cone has essentially the same shape as after 64 years, with little change in size, shape, or drawdown values. Drawdown predicted to exceed 100 feet continues to be confined to the property boundary.

5.7 Significant Assumptions

The assessment assumes that the proposed mine pit and operations would be configured as provided by River Bend Aggregates, LLC and outlined in this report.

5.7 Limitations and Exceptions of Assessment

- This evaluation is based on data available at this time. The estimates and opinions contained herein may need to be revised if significant additional information becomes available. Nevertheless, the opinions are well-founded and consistent with observed conditions at the site.
- S&ME used generally accepted industry practices to characterize site conditions.
- The techniques used in preparing the modeling evaluation were based upon generally accepted industry standards, the current understanding of site conditions, and literature values for some model parameters. Subsurface data is always limited in its spatial coverage and subsurface hydraulic testing produces only approximate results. Furthermore, numerical models are simplified approximations of a complex subsurface. Estimates and projections about groundwater and subsurface behavior have inherent and unavoidable uncertainties. This is particularly true for potential local-scale variations in bedrock depth, fracture distribution and subsurface permeability. By using good, industry standards, generally accepted methods and best practices, we believe this assessment provides useful and reasonable guidance concerning expected site

behavior. Model simulation data outputs should be viewed as predictions. Contour lines shown depicting future groundwater drawdowns scenarios should be viewed as reasonably anticipated conditions, not actual. Results for actual mine operations may be different from model simulated results.

- This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions of a type or at a specific location not evaluated.
- This evaluation was prepared by S&ME specifically for use by the Client and SCDHEC. Use of or reliance upon this information by any other party without express written permission granted by S&ME and the Client is not authorized and is completely at the risk of the user.

6.0 CONCLUSIONS

S&ME has prepared this predictive modeling report for the proposed River Bend Quarry site near the Town of Pacolet, in Spartanburg County, South Carolina. The purpose of the assessment requested by River Bend Aggregates, LLC was to provide information on groundwater flow into the pit area during dewatering, and to help understand potential impacts within the dewatering cone of influence, on neighboring wells, bodies of water, streams, and nearby wetlands.

The hydrogeologic assessment conducted for this project relied on a process that began with the development of a preliminary site conceptual model. The preliminary model was based on known or expected main features of geology, hydrogeology, mine pit location and development, and site-specific relationships between geologic structures and groundwater flow. The preliminary site conceptual model was utilized to develop field data collection needs for this assessment. Site specific data was collected for the purpose of further characterizing the hydrogeologic system and refining the site conceptual model. A standard computer aided three-dimensional mathematical model was then employed to provide predictive simulations of effects of future mine dewatering scenarios. The model used conservative assumptions about aquifer properties and is consistent with standard best practice in numerical finite-difference modeling of flow in porous and fractured media.

S&ME modeled future mine pit development to the limit of mining in three adjacent mine pits that comprise the mine. The east pit is modeled to reach its bottom elevation of 310 feet MSL after 39 years. The middle pit is modeled to reach its bottom elevation of 160 feet after 64 years. The mine is modeled to reach its deepest limit of mining after 75 years in the west pit.

The model predicts a limited drawdown cone with an irregular shape that extends drawdowns smaller than 100 feet northeast of the property, and drawdowns smaller than 40 feet outside of the southeastern and southwestern property boundaries. The model predicts a steep drawdown cone outside of the mine pits and mostly confined to the property except for an area outside of the northeast property boundary. Nowhere is drawdown predicted to exceed 10 feet more than 1,000 feet away from a River Bend Aggregates, LLC property boundary.

The area within approximately 5,000 feet northeast of the proposed mine is predominantly undeveloped woodland and agricultural land with homes not visible from recent aerial photographs. As reported in S&ME's *Hydrogeologic Assessment Report*, our water well survey indicated eleven known or suspected water supply wells were identified within a 0.5-mile radius of the edge of the proposed mine pits. Four of the eleven well sites identified are located on the opposite side of the Pacolet River. The model does not predict drawdown impacts at these well locations. Of the seven well sites identified on the same side of the river as the proposed quarry, three are located on properties that will be owned by River Bend Aggregates LLC (1010, 1050, and 1070 Hammett Grove

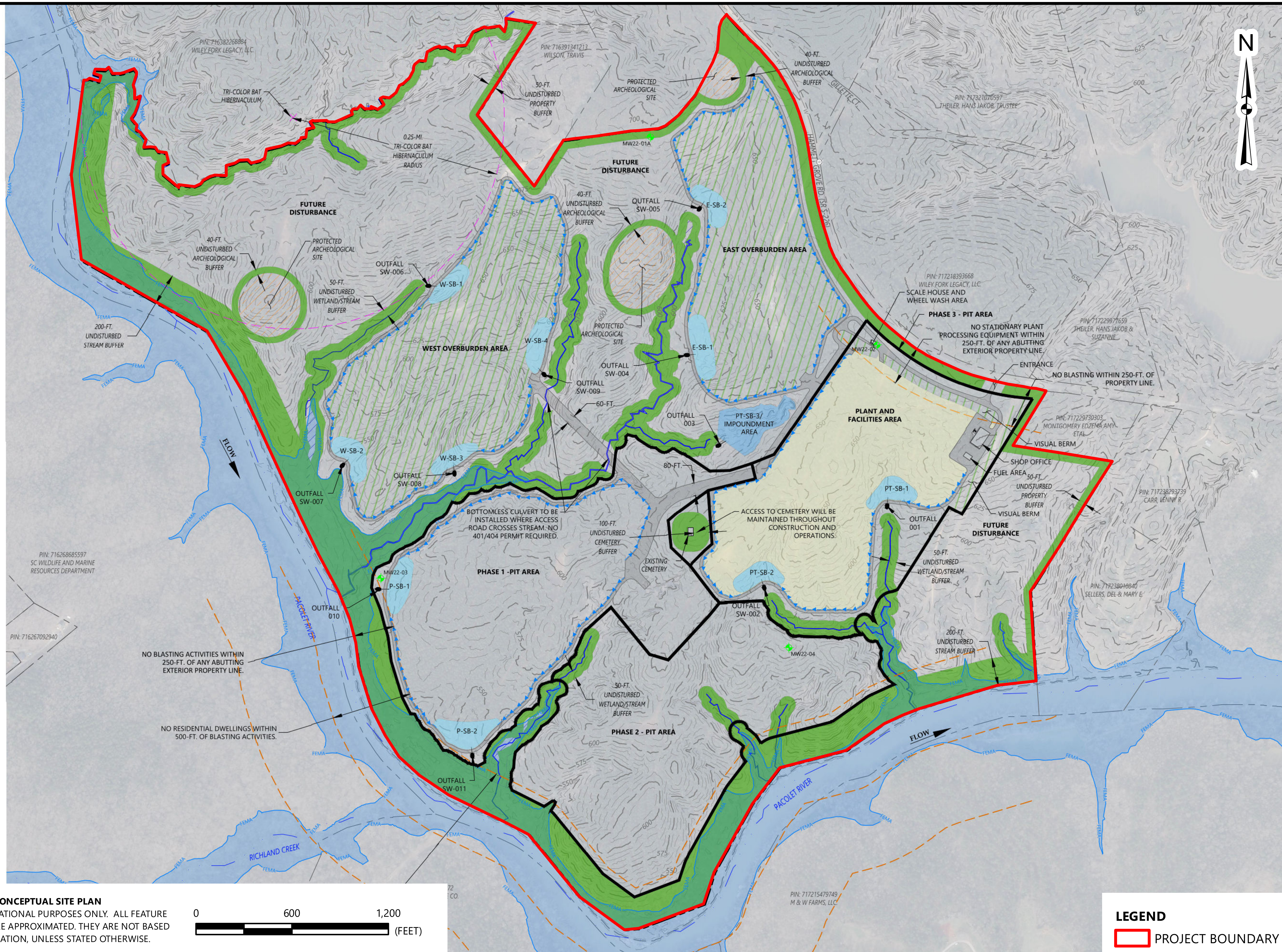
Road). The remaining four wells identified are located east of the proposed mine pits. The model predicted drawdown in the vicinity of these wells is on the order of 10 to 20 feet. In the Piedmont region, normal seasonal fluctuations in the water table aquifer can be on the order of 5 – 10 feet. Should actually aquifer drawdown due to mine operations impact the four water wells east of the proposed mine pits, Goucher Water Company has a public water line that runs south along Hammett Grove Road and terminates at the driveway for 1010 Hammett Grove Road. Drilling a deeper well or providing Goucher Water would be options to address confirmed impacts to any of these four water well users.

S&ME understands that future mine operations will likely include reintroducing a portion of the groundwater extracted by dewatering into on-site stream segments, to lessen the predicted stream flow impacts.

Appendices

Appendix I – Figures

Drawing Path: T:\Charlotte-1350\Projects\2022\22610504B_Synergy Materials_Pacolet Quarry_Pacolet SC\Civil-Geo-Env\GIS\WORKING GIS DATA\wellgeolocation\03_siteplan.mxd plotted by DHomans 10-20-2023



REFERENCE: 8/30/2023 CONCEPTUAL SITE PLAN
THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

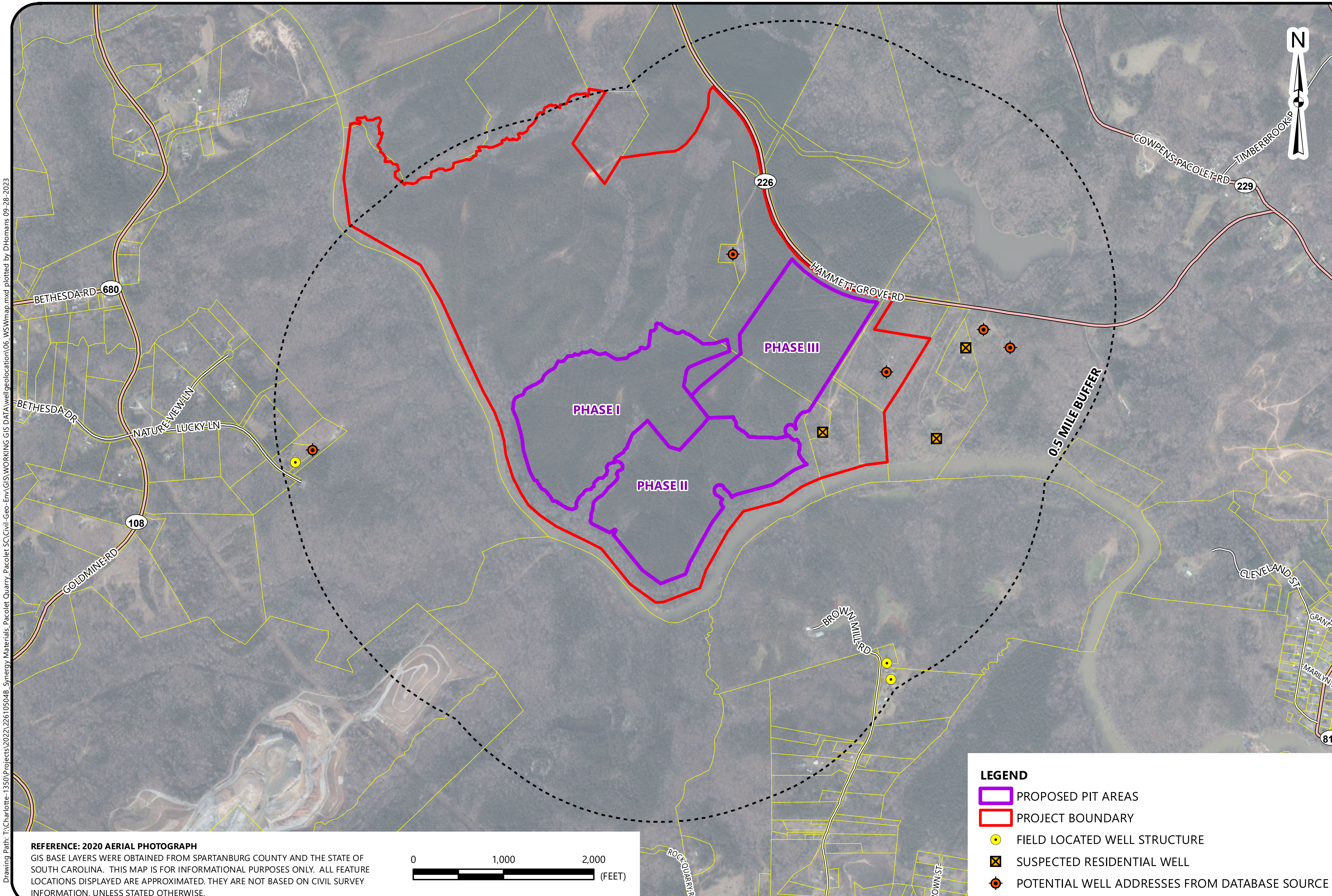
0 600 1,200 (FEET)

LEGEND
PROJECT BOUNDARY

CONCEPTUAL SITE PLAN

PACOLET QUARRY SITE
SPARTANBURG COUNTY, SOUTH CAROLINA

SCALE:	1 " = 599 '
DATE:	10-20-23
PROJECT NUMBER	22610504
FIGURE NO.	1



LEGEND

- PROPOSED PIT AREAS
- PROJECT BOUNDARY
- FIELD LOCATED WELL STRUCTURE
- SUSPECTED RESIDENTIAL WELL
- POTENTIAL WELL ADDRESSES FROM DATABASE SOURCE

REFERENCE: 2020 AERIAL PHOTOGRAPH

GIS BASE LAYERS WERE OBTAINED FROM SPARTANBURG COUNTY AND THE STATE OF SOUTH CAROLINA. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

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WATER SUPPLY WELL MAP

RIVER BEND QUARRY SITE
SPARTANBURG COUNTY, SOUTH CAROLINA

SCALE:
1 " = 1,000 '

DATE:
9-28-23

PROJECT NUMBER
22610504

FIGURE NO.
2

REFERENCE: 8/30/2023 CONCEPTUAL SITE PLAN
THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

LEGEND
- PUMP TEST WELL LOCATIONS
- PROJECT BOUNDARY

PUMP TEST WELL LOCATIONS

RIVER BEND QUARRY SITE
SPARTANBURG COUNTY, SOUTH CAROLINA

SCALE: 1 " = 500 '

DATE: 10-23-23

PROJECT NUMBER: 22610504

FIGURE NO. 3

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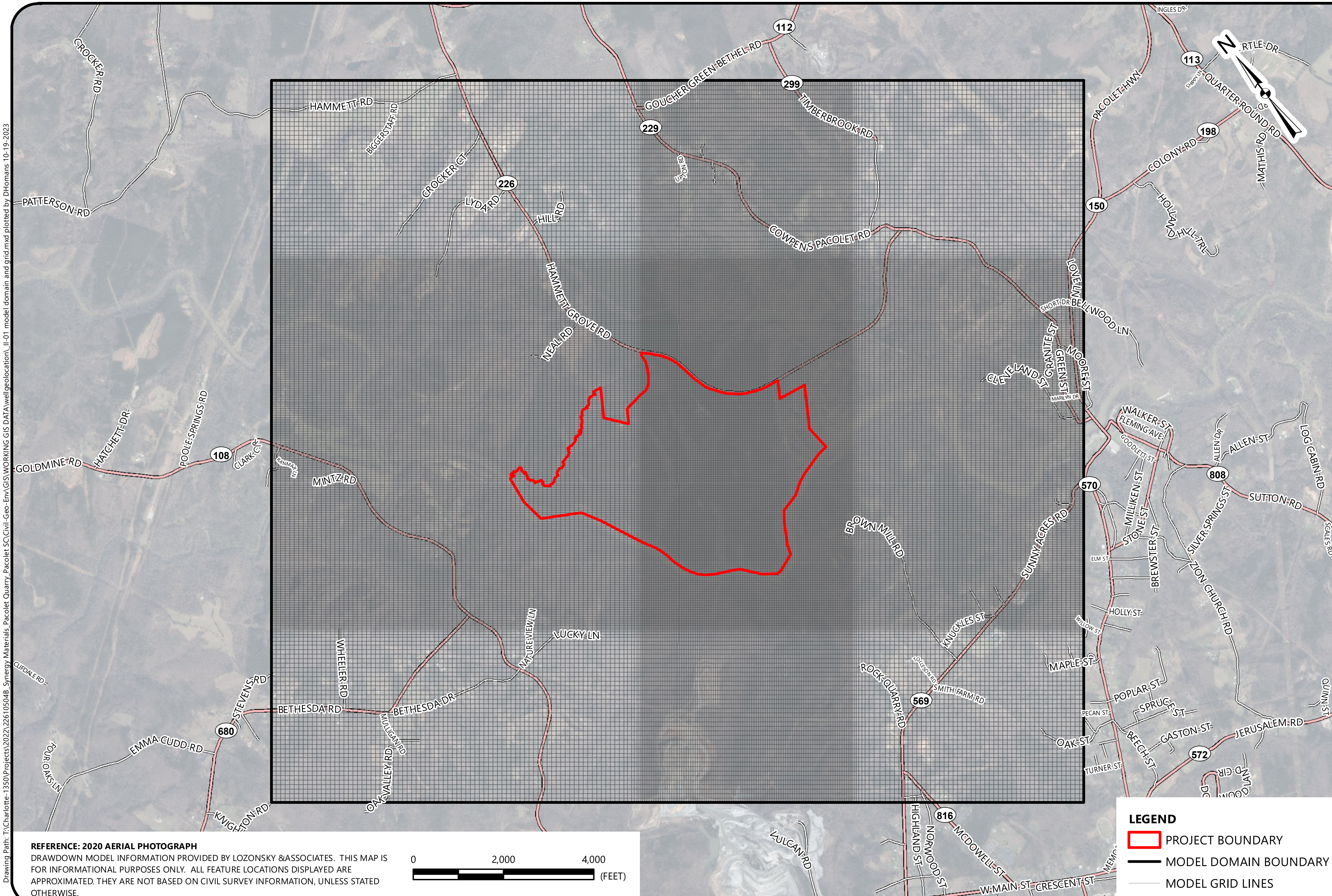
Appendix II – Groundwater Model Charts



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REFERENCE: 2020 AERIAL PHOTOGRAPH
DRAWDOWN MODEL INFORMATION PROVIDED BY LOZONSKY &ASSOCIATES. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

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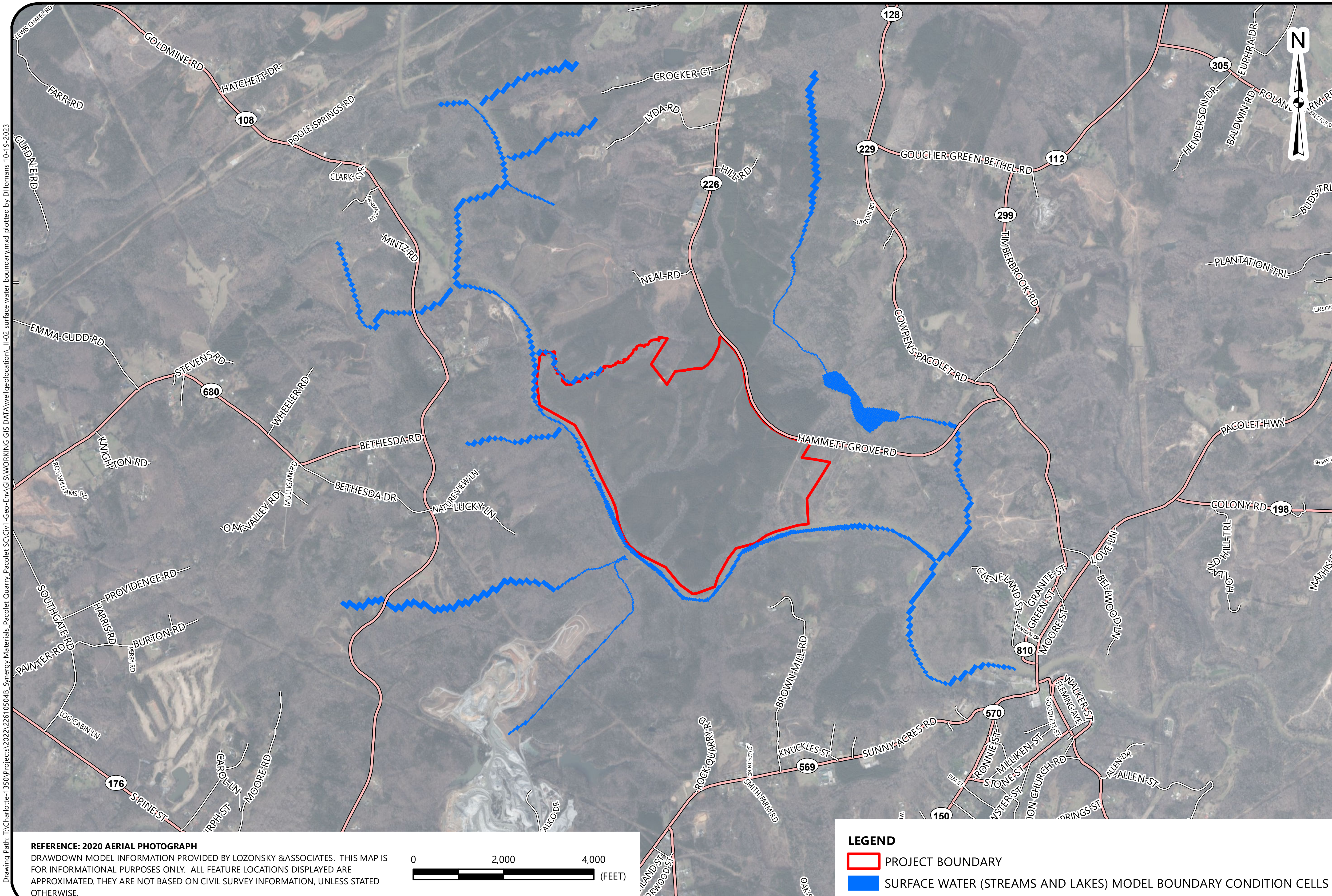
LEGEND
- PROJECT BOUNDARY
- MODEL DOMAIN BOUNDARY
- MODEL GRID LINES

MODEL DOMAIN BOUNDARY AND GRID

RIVER BEND QUARRY SITE
HAMMETT GROVE ROAD
PACOLET, SPARTANBURG COUNTY, SOUTH CAROLINA

SCALE: 1 " = 2,000 '
DATE: 10-19-23
PROJECT NUMBER 22610504
FIGURE NO. II - 1



REFERENCE: 2020 AERIAL PHOTOGRAPH

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LEGEND

PROJECT BOUNDARY

SURFACE WATER (STREAMS AND LAKES) MODEL BOUNDARY CONDITION CELLS

SURFACE WATER MODEL BOUNDARY AREAS

RIVER BEND QUARRY SITE
HAMMETT GROVE ROAD
PACOLET, SPARTANBURG COUNTY, SOUTH CAROLINA

SCALE:
1 " = 2,000 '

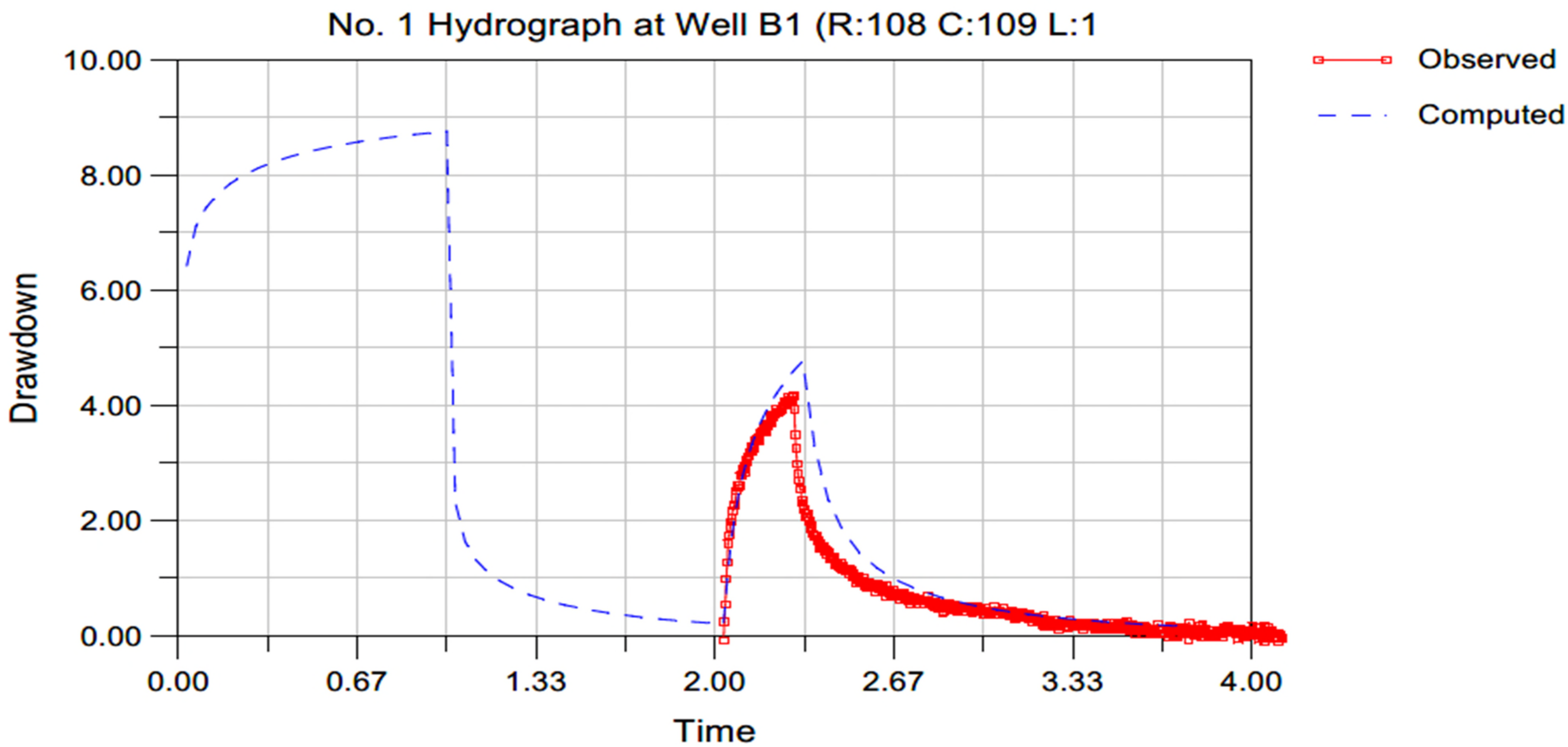
DATE:
10-19-23

PROJECT NUMBER
22610504

FIGURE NO.

II - 2

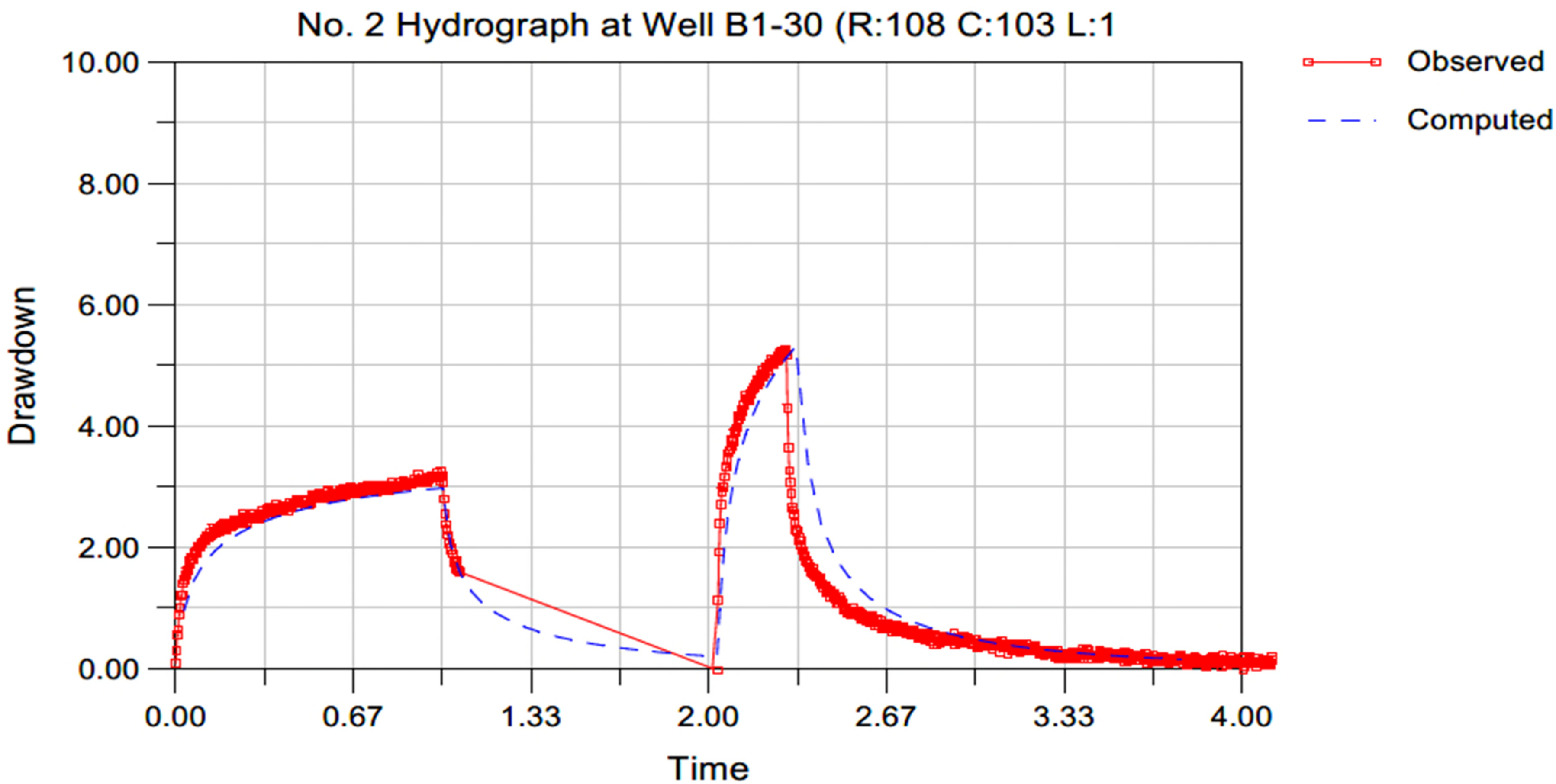
Drawing Path: T:\Charlotte-1350\Projects\2022\22610504B_Synergy Materials_Pacolet Quarry_Pacolet SC\Civil-Geo-Env\GIS\WORKING GIS DATA\wellgeolocation_II-02 surface water boundary.mxd plotted by DHomans 10-19-2023



Pump Test Hydrograph Well B1

River Bend Quarry Site
Hammett Grove Road
PACOLET, SPARTANBURG COUNTY, SOUHT CAROLINA

SCALE:	NOT TO SCALE
DATE:	10/18/2023
PROJECT NUMBER	22610504
FIGURE NO.	II-3A

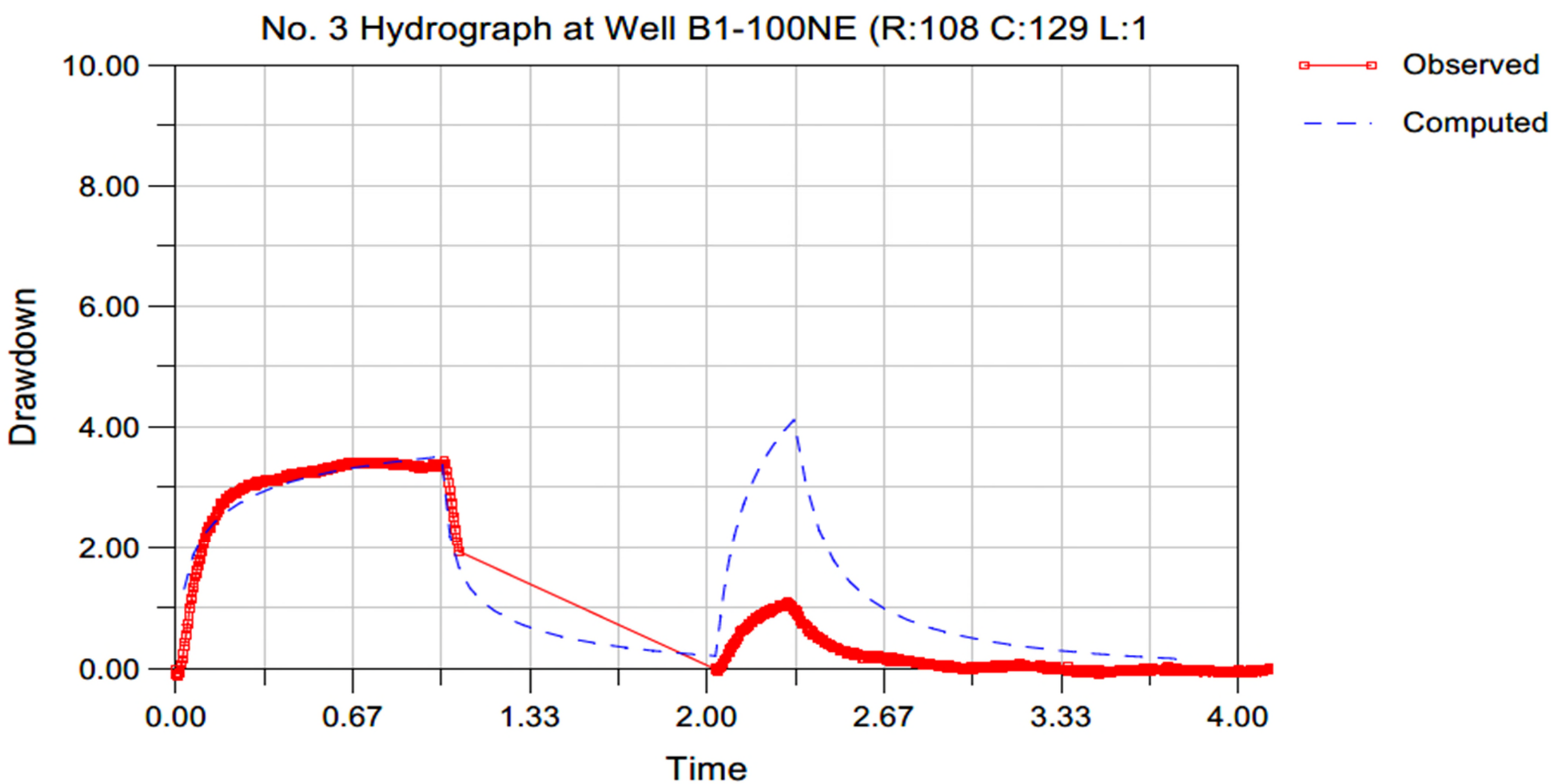


Pump Test Hydrograph Well B1-30

River Bend Quarry Site
Hammett Grove Road
PACOLET, SPARTANBURG COUNTY, SOUHT CAROLINA

SCALE: NOT TO SCALE
DATE: 10/18/2023
PROJECT NUMBER 22610504

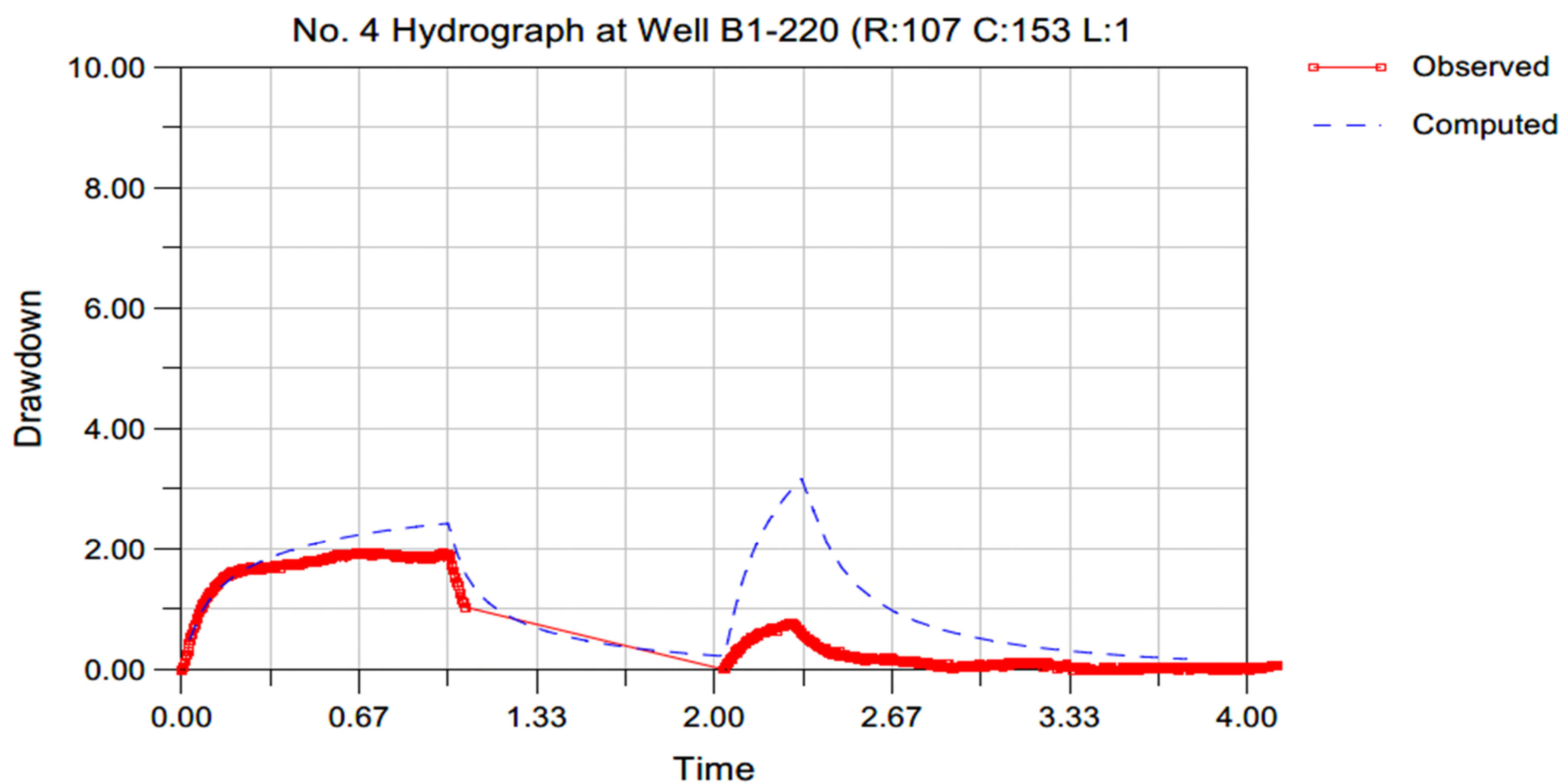
FIGURE NO. **II-3B**



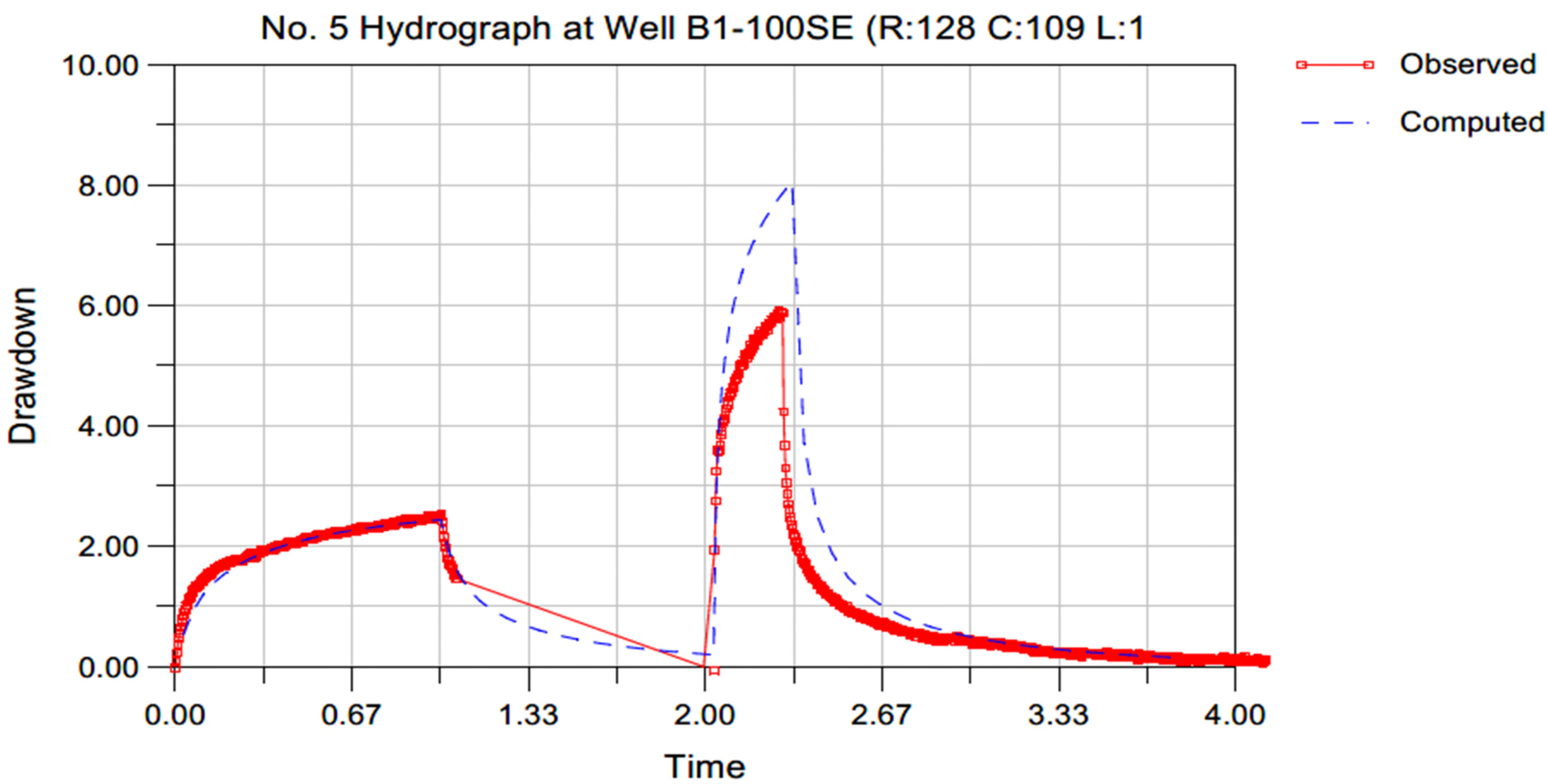
Pump Test Hydrograph Well B1-100NE

River Bend Quarry Site
Hammett Grove Road
PACOLET, SPARTANBURG COUNTY, SOUHT CAROLINA

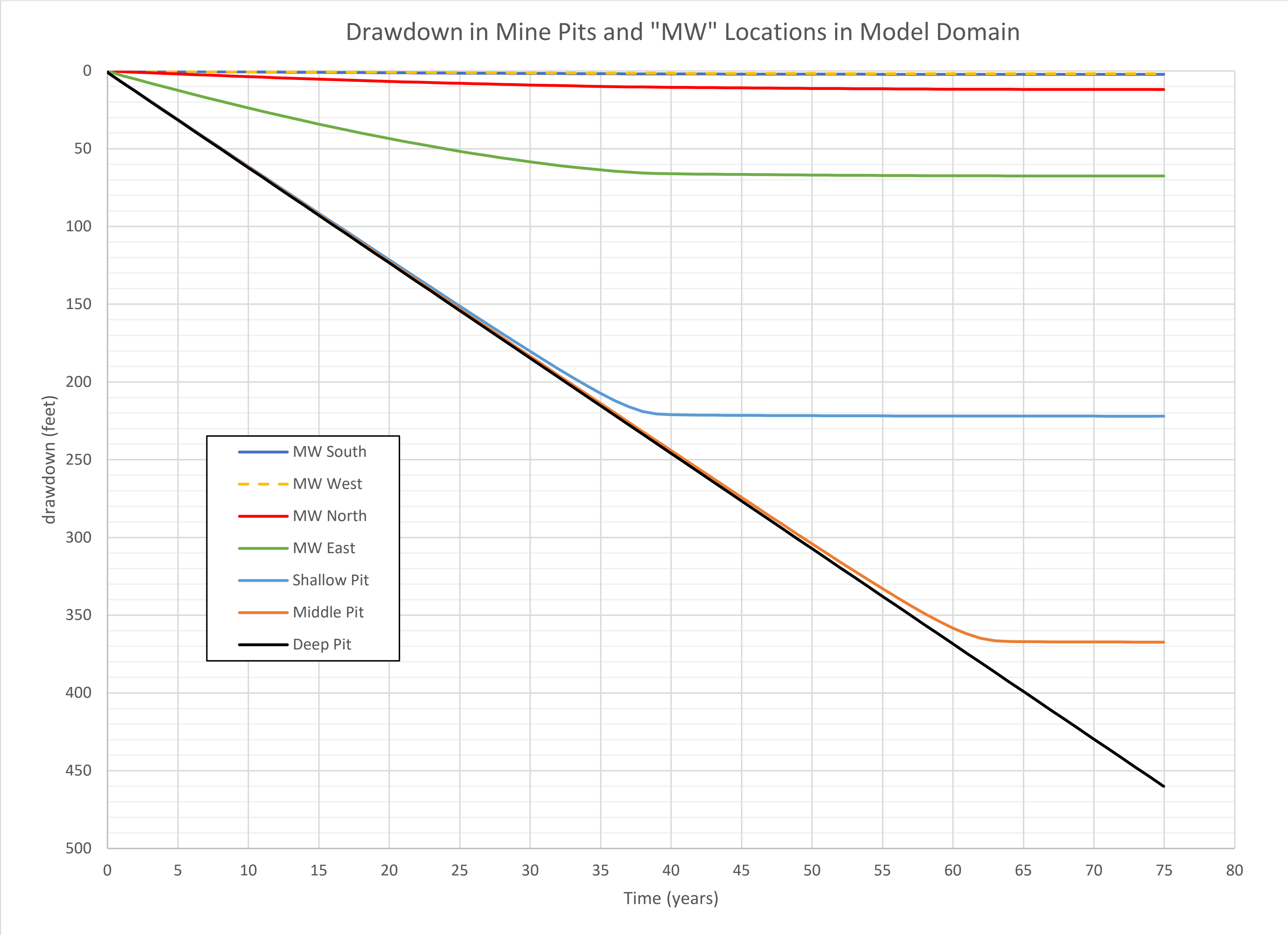
SCALE:	NOT TO SCALE
DATE:	10/18/2023
PROJECT NUMBER	22610504
FIGURE NO.	II-3C



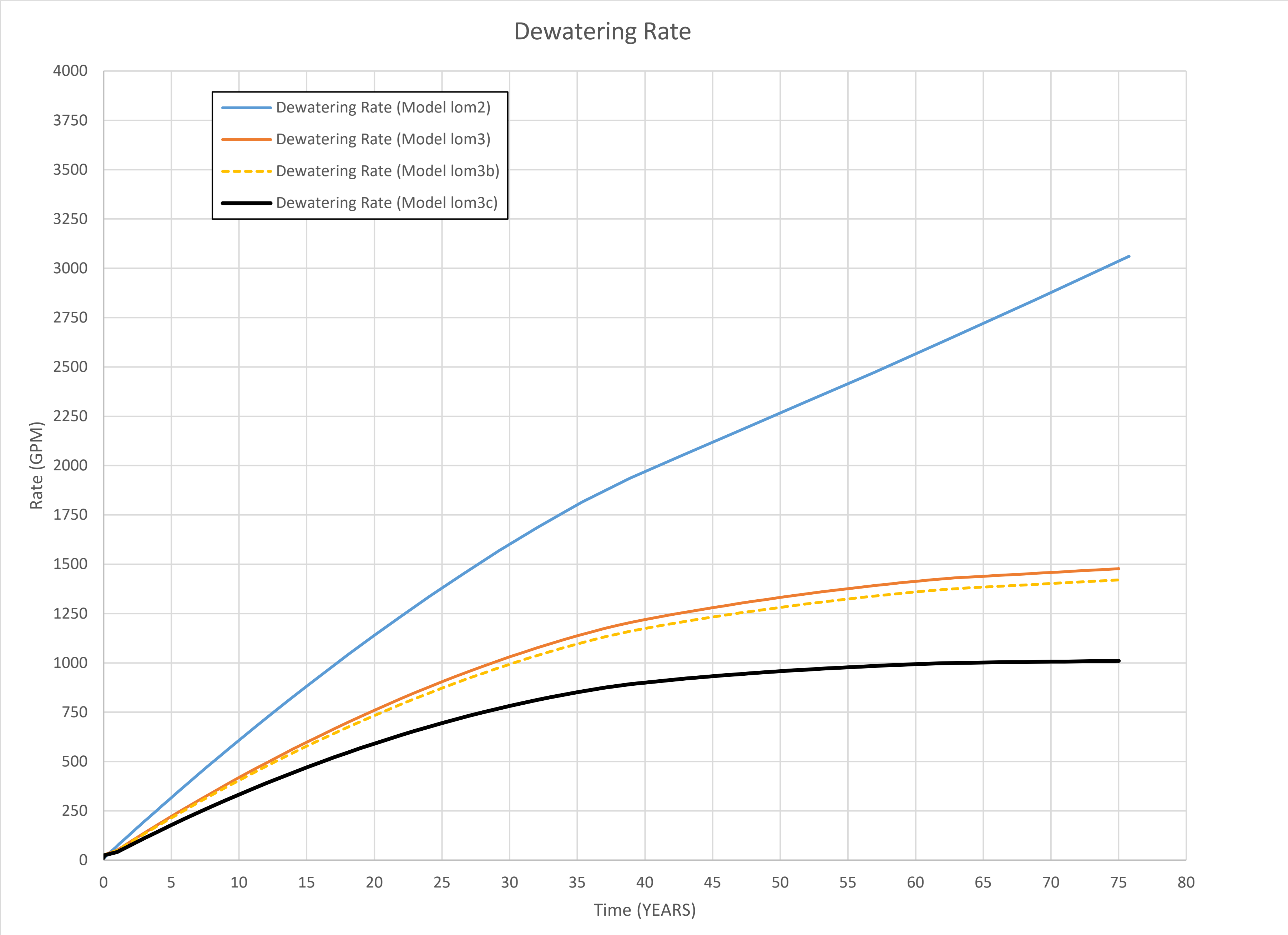
Pump Test Hydrograph Well B1-220	SCALE:	NOT TO SCALE	FIGURE NO.
River Bend Quarry Site Hammett Grove Road PACOLET, SPARTANBURG COUNTY, SOUHT CAROLINA	DATE:	10/18/2023	II-3D
	PROJECT NUMBER	22610504	



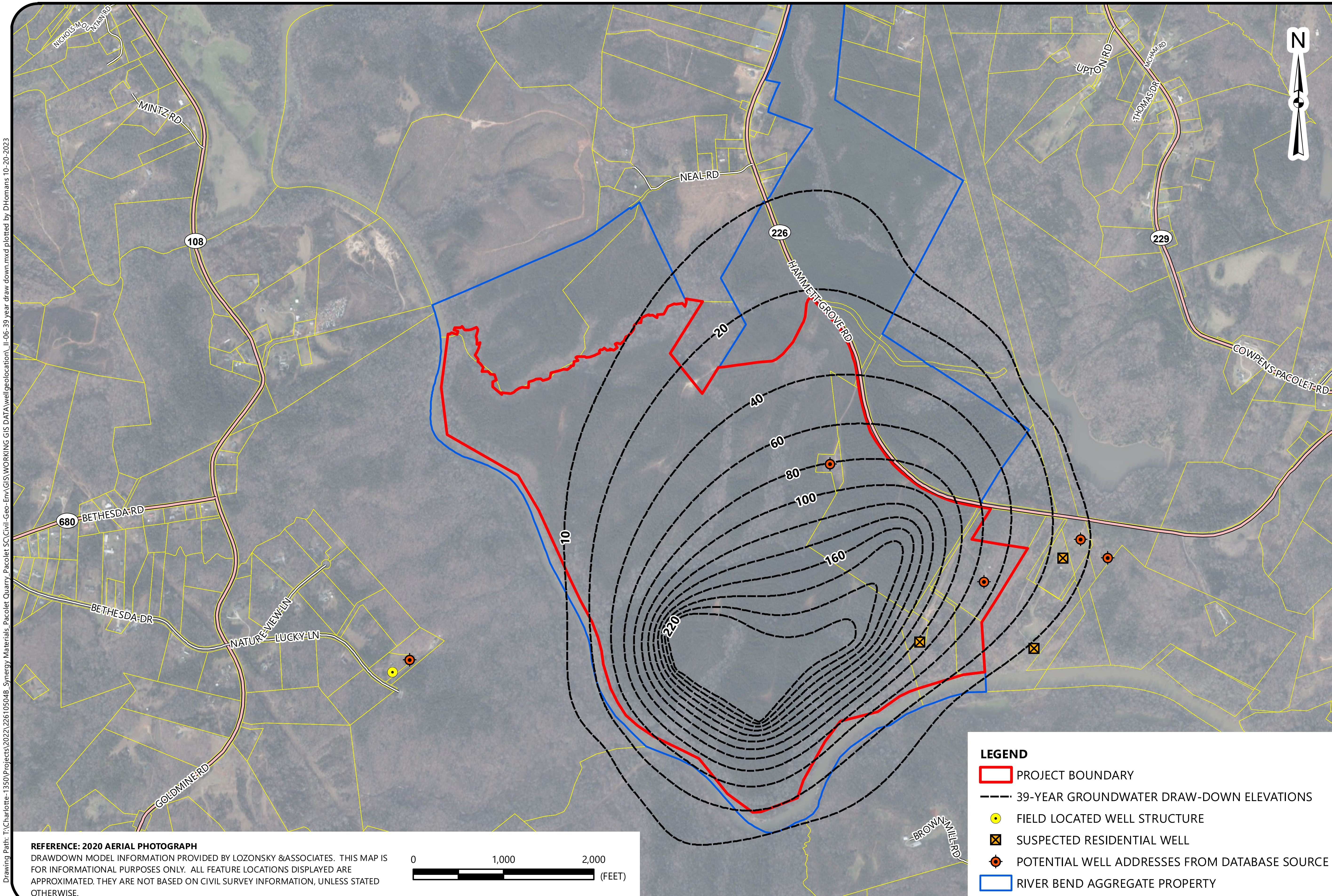
Pump Test Hydrograph Well B1-100SE	SCALE: NOT TO SCALE	FIGURE NO.
River Bend Quarry Site Hammett Grove Road PACOLET, SPARTANBURG COUNTY, SOUHT CAROLINA	DATE: 10/18/2023 PROJECT NUMBER 22610504	II-3E



Drawdown in Mine Pits and "MW" Locations in Model Domain
drawdown (feet)
0
50
100
150
200
250
300
350
400
450
500
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
Time (years)
MW South
MW West
MW North
MW East
Shallow Pit
Middle Pit
Deep Pit



Dewatering Rate
Dewatering Rate (Model lom2)
Dewatering Rate (Model lom3)
Dewatering Rate (Model lom3b)
Dewatering Rate (Model lom3c)
Rate (GPM)
4000
3750
3500
3250
3000
2750
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
Time (YEARS)



LEGEND

- PROJECT BOUNDARY
- 39-YEAR GROUNDWATER DRAW-DOWN ELEVATIONS
- FIELD LOCATED WELL STRUCTURE
- SUSPECTED RESIDENTIAL WELL
- POTENTIAL WELL ADDRESSES FROM DATABASE SOURCE
- RIVER BEND AGGREGATE PROPERTY

REFERENCE: 2020 AERIAL PHOTOGRAPH

DRAWDOWN MODEL INFORMATION PROVIDED BY LOZONSKY &ASSOCIATES. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

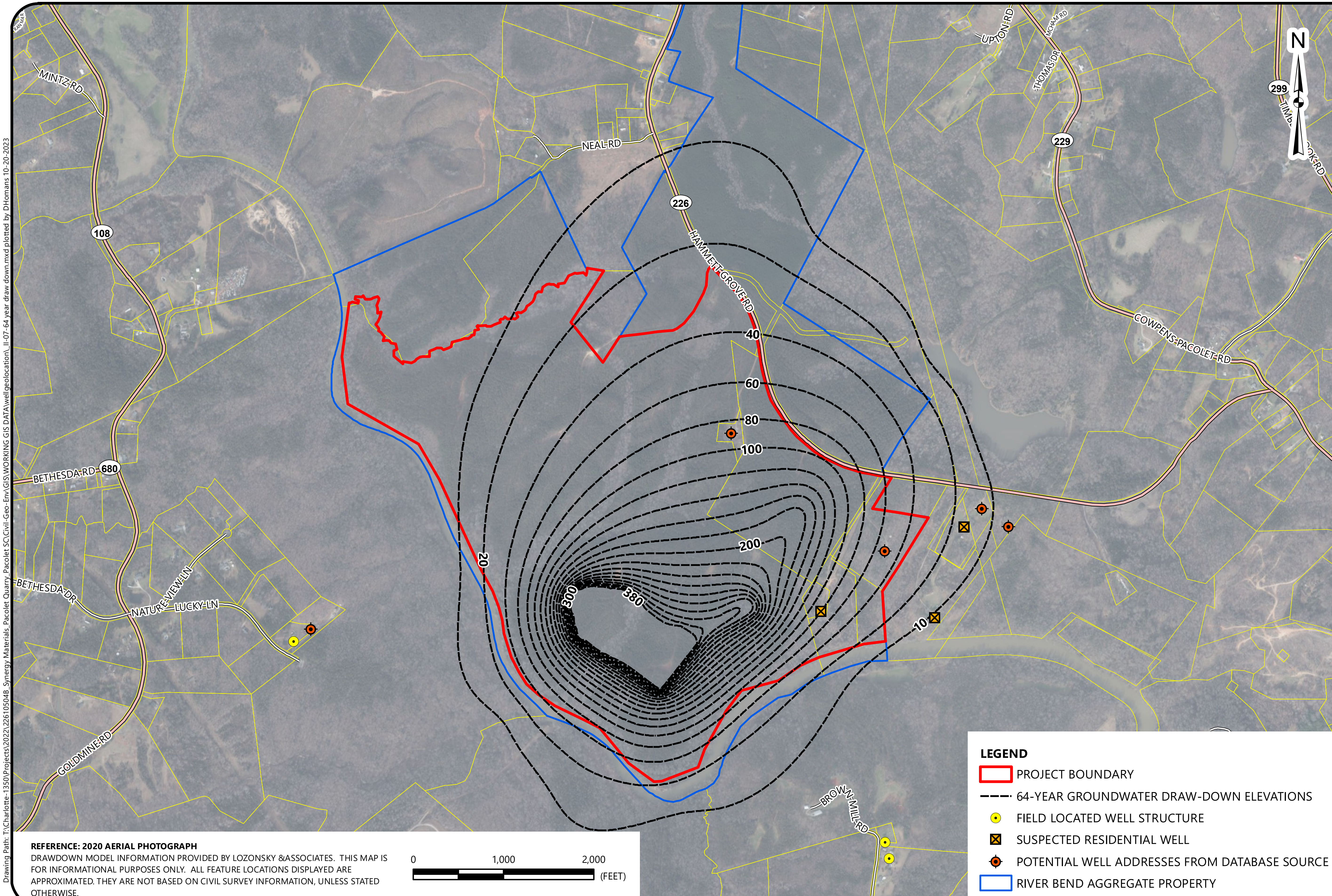
0 1,000 2,000 (FEET)

DRAWDOWN AFTER 39 YEARS OF MINING BASE OF EAST PIT

RIVER BEND QUARRY SITE
HAMMETT GROVE ROAD
PACOLET, SPARTANBURG COUNTY, SOUTH CAROLINA

SCALE:	1 " = 1,000 '
DATE:	10-20-23
PROJECT NUMBER	22610504
FIGURE NO.	II - 6

Drawing Path: T:\Charlotte-1350\Projects\2022\22610504B_Synergy Materials_Pacolet Quarry_Pacolet SC\Civil-Geo-Env\GIS\WORKING GIS DATA\wellgeolocation_II-06-39 year draw down.mxd plotted by DHomans 10-20-2023



LEGEND
PROJECT BOUNDARY
64-YEAR GROUNDWATER DRAW-DOWN ELEVATIONS
FIELD LOCATED WELL STRUCTURE
SUSPECTED RESIDENTIAL WELL
POTENTIAL WELL ADDRESSES FROM DATABASE SOURCE
RIVER BEND AGGREGATE PROPERTY

REFERENCE: 2020 AERIAL PHOTOGRAPH
DRAWDOWN MODEL INFORMATION PROVIDED BY LOZONSKY &ASSOCIATES. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

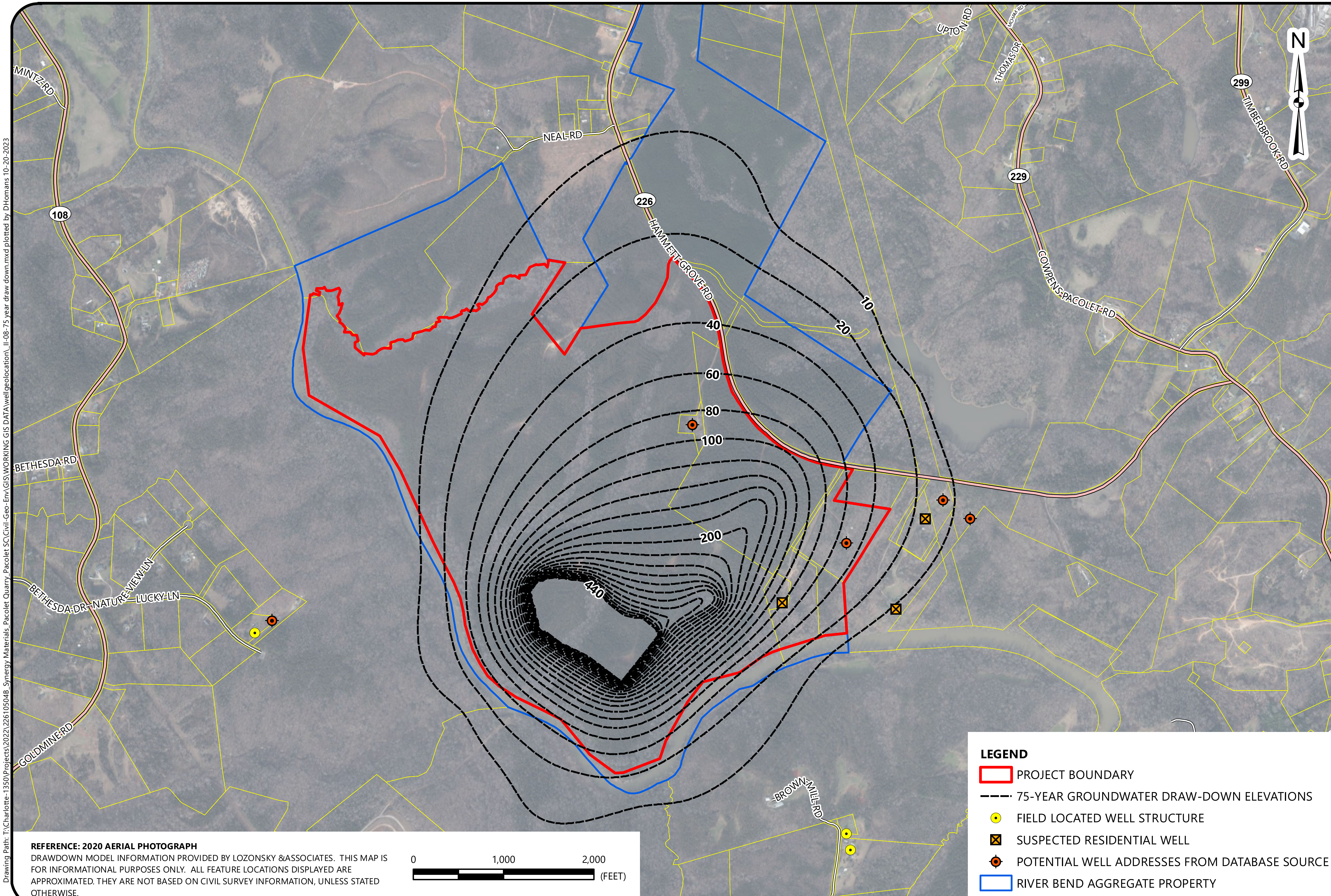
0 1,000 2,000 (FEET)

Drawing Path: T:\Charlotte-1350\Projects\2022\22610504B_Synergy Materials_Pacolet Quarry_Pacolet SC\Civil-Geo-Env\GIS\WORKING GIS DATA\wellgeolocation_II-07-64 year draw down.mxd plotted by DHomans 10-20-2023

DRAWDOWN AFTER 64 YEARS OF MINING BASE OF MIDDLE PIT

RIVER BEND QUARRY SITE
HAMMETT GROVE ROAD
PACOLET, SPARTANBURG COUNTY, SOUTH CAROLINA

SCALE: 1 " = 1,000 '
DATE: 10-20-23
PROJECT NUMBER 22610504
FIGURE NO. **II - 7**



REFERENCE: 2020 AERIAL PHOTOGRAPH

DRAWDOWN MODEL INFORMATION PROVIDED BY LOZONSKY &ASSOCIATES. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

0 1,000 2,000 (FEET)

LEGEND

- PROJECT BOUNDARY
- 75-YEAR GROUNDWATER DRAW-DOWN ELEVATIONS
- FIELD LOCATED WELL STRUCTURE
- SUSPECTED RESIDENTIAL WELL
- POTENTIAL WELL ADDRESSES FROM DATABASE SOURCE
- RIVER BEND AGGREGATE PROPERTY

DRAWDOWN AFTER 75 YEARS OF MINING BASE OF WEST PIT

RIVER BEND QUARRY SITE
HAMMETT GROVE ROAD
PACOLET, SPARTANBURG COUNTY, SOUTH CAROLINA

SCALE: 1 " = 1,000 '

DATE: 10-20-23

PROJECT NUMBER 22610504

FIGURE NO. II - 8

Drawing Path: T:\Charlotte-1350\Projects\2022\22610504B_Synergy Materials_Pacolet Quarry_Pacolet SC\Civil-Geo-Env\GIS\WORKING GIS DATA\wellgeolocation_II-08-75 year draw down.mxd plotted by DHomans 10-20-2023