



Groundwater Monitoring Plan
Luck Edgefield Site
Edgefield County, South Carolina
S&ME Project No. 22350640

PREPARED FOR:

Luck Companies
Post Office Box 29682
Richmond, Virginia 23242

PREPARED BY:

S&ME, Inc.
8646 W. Market Street, Suite 105
Greensboro, North Carolina 27410

February 27, 2024



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Luck Companies
Post Office Box 29682
Richmond, Virginia 23242

Attention: Mr. Bruce Smith

Submitted via email: brucesmith@luckcompanies.com

Reference: **Groundwater Monitoring Plan
Luck Edgefield Site**
Edgefield County South Carolina
S&ME Project No. 22350640

Dear Mr. Smith:

S&ME, Inc. (S&ME) has prepared the Groundwater Monitoring Plan in association with the proposed Luck Companies aggregate mine in Edgefield County, South Carolina. The Plan provides details as to how Luck Companies will monitor groundwater prior to and during operation of the proposed mine. The approved Plan will be incorporated into SCDHEC Mine permit for the site.

Please contact us at your convenience if there are questions regarding the information contained in this document.

Sincerely,
S&ME, Inc.

A handwritten signature in blue ink, appearing to read 'Nathan Williams'.

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



A handwritten signature in blue ink, appearing to read 'Edmund Q.B. Henriques'.

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

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



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1.0 INTRODUCTION

S&ME has prepared this Groundwater Monitoring Plan (Plan) on behalf of Luck Companies in association with the proposed Luck Edgefield aggregate mine located north of Woodlawn Road near Clarks Hill in Edgefield County, South Carolina. The Plan was prepared for submittal to the Mining and Reclamation Section of the South Carolina Department of Health and Environmental Control (SCDHEC) to supplement the *Application For A Mine Operating Permit (Form MR-400)*. The purpose of the Plan is to measure static groundwater levels on a regular basis to establish a pre-mining baseline for groundwater levels and to document changes to groundwater levels during the mining operations. The information gathered will provide a basis to assess if observed changes indicate a potential to impact water supply wells on neighboring properties.

2.0 GROUNDWATER MONITORING

2.1 Proposed Well Locations

The Plan includes installation of four permanent monitoring wells to serve as points to monitor groundwater occurrence within the bedrock aquifer. Monitoring wells LTMW-1, LTMW-2, LTMW-3, and LTMW-4 depicted on **Figure 1, Conceptual Site Plan With Proposed Monitoring Wells, in Appendix I**, will be used to monitor groundwater within the bedrock aquifer. Hereafter, this group of wells will be referred to as the Plan Wells.

The Plan Wells are positioned north, south, east, and west of the proposed mine pits. The Plan Wells will be used to monitor water levels in the bedrock aquifer, and groundwater drawdown associated with dewatering for mine development. Monitoring well LTMW-1 will be positioned between the mine pit and the nearest water supply well, located to the south of the Luck Edgefield site, across Woodlawn Road. As discussed in the S&ME's *Hydrogeologic Assessment Report, Luck Edgefield Site*, dated February 5, 2024, currently there are no known water supply wells to the north, east, or west within a 0.5-mile radius of the proposed pit. Considering the long-term operation of the proposed quarry, and the potential for changes in land use over time in the surrounding area, monitoring wells are also proposed to the north, east, and west of the proposed mine pits. Based on the current undeveloped status of the Luck Edgefield site and considering the need for Luck Companies to develop site grading plans after approval of the mine permit, it may be necessary to make minor modifications of the final locations for the Plan Wells. Accordingly, the locations for these proposed wells should be considered approximate.

2.2 Well Construction Details

Prior to well construction, Luck Companies will obtain a monitoring well permit from SCDHEC. A South Carolina licensed well driller will drill and install the Plan Wells. The borehole for each well will be drilled using air-hammer or air-rotary drilling methods. Each well will be constructed with a nominal 6-inch diameter, galvanized or PVC well casing installed and grouted in-place. The surface casing will extend from approximately three feet above the ground surface down to the top of bedrock. The remaining portions of each well will be open borehole within the bedrock – no well screen will be installed. The well surface completions will include a lockable well cover affixed to the top of the surface casing pipe. A well tag will be affixed to the surface casing. **Figure 2, Typical Bedrock Well Schematic, in Appendix I**, provides a typical well construction detail for the proposed Plan Wells.



During well drilling, rock cuttings will be collected and logged on-site. A boring log will be prepared documenting at a minimum, depth to top of bedrock, rock type, mineral weathering comments, soft and hard drilling zones, and suspect water bearing zones. Luck Companies will prepare and submit to SCDHEC, a *Well Installation Data Report* following installation of the Plan Wells and obtaining surveyed coordinates and top of casing elevations.

2.3 Monitoring Intervals and Data Collection

The monitoring locations detailed in Section 2.1 will be monitored for depth to water to determine the groundwater elevation. The depth to water will be measured with an electronic water probe and relative to the top of the well casing. The depth to water measurements will be obtained monthly and reported to SCDHEC on a quarterly basis.

The groundwater elevation will be calculated by subtracting the depth to water measurement from the top of casing elevation. The locations of the Plan Wells and top of casing elevations will be measured by a South Carolina licensed surveyor.

Each quarterly report will be submitted to SCDHEC within 30 days and will summarize the current and historical groundwater elevation dataset. If a statistically significant decrease in groundwater elevation occurs, which is determined by a South Carolina licensed geologist or professional engineer to be an indicator that mine dewatering operations have resulted in potential impacts to neighboring wells, then the licensed professional will prepare and submit a written report to SCDHEC within five business days from when the determination is made.

Table 2-1 – Plan Monitoring Summary

Well ID	Surface Casing Length (feet)	Approximate Total Depth (feet)	Monitoring Parameters <i>Monthly prior to mine operation; and Monthly after operations begin</i>	Top of Casing Elevation
LTMW-1	TBD	up to 400	Depth to water	Requires Survey
LTMW-2	TBD	up to 300	Depth to water	Requires Survey
LTMW-3	TBD	up to 300	Depth to water	Requires Survey
LTMW-4	TBD	up to 300	Depth to water	Requires Survey

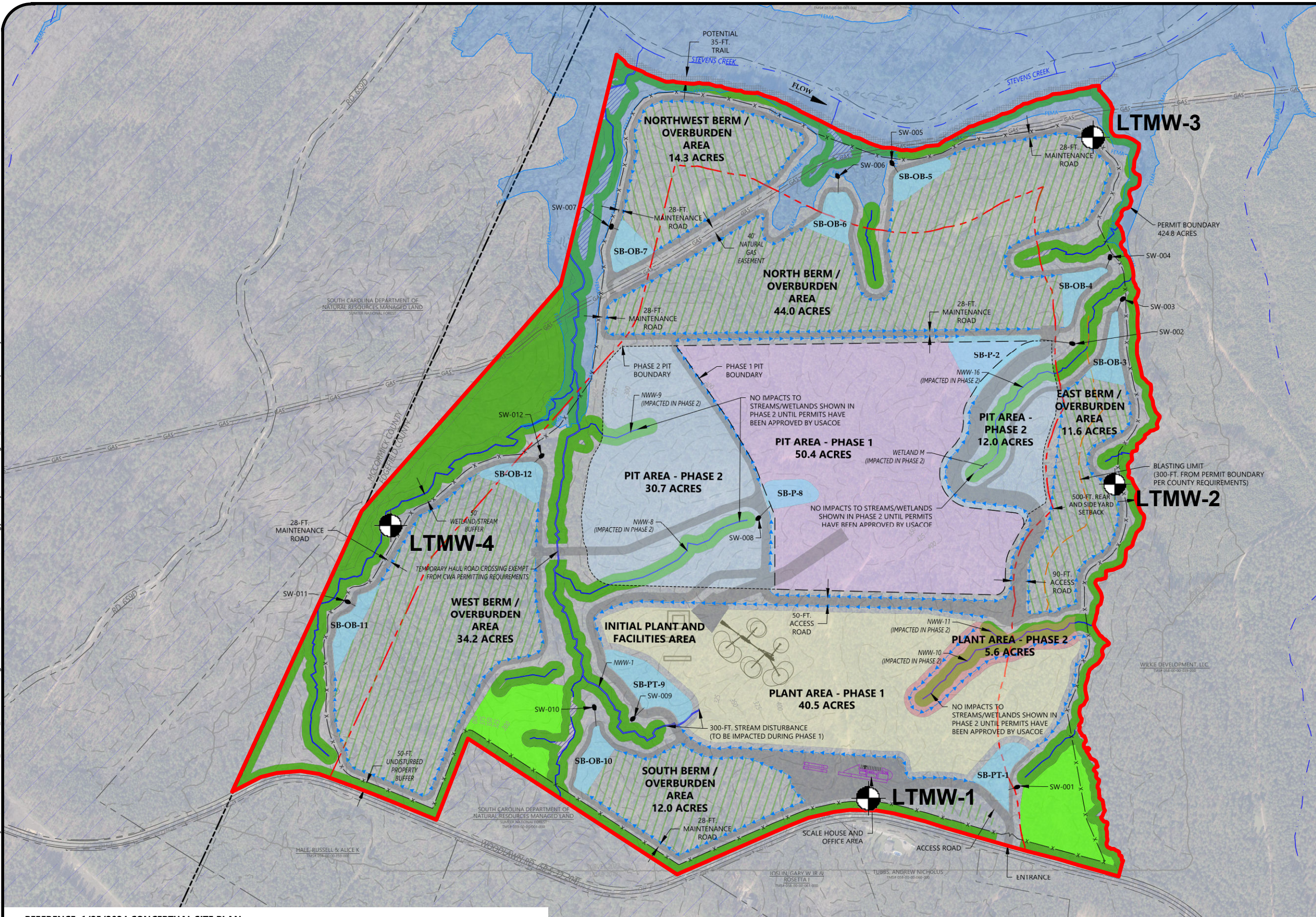
TBD = to be determined at time of drilling based on actual depths to top of rock

Note: The approximate total depths listed for LTMW-2, LTMW-3 and LTMW-4 are less than the approximate total depth of well LTWM-1, based on ground surface elevations at proposed well locations.

Appendices

Appendix I – Figures

Drawing Path: T:\Charlotte-1350\Projects\2022\22350640_Luck Co_Luck Stone Edgfield Mine Site_Wimshoro SC\4 Energy\GIS\HydroModeling\03_SITELAN.mxd plotted by D:\Homans 01-29-2024



CONCEPTUAL SITE PLAN WITH PROPOSED MONITORING WELLS

LUCK EDGEFIELD SITE
EDGEFIELD COUNTY, SOUTH CAROLINA

SCALE:
1" = 600'
DATE:
1-29-24
PROJECT NUMBER
22350640
FIGURE NO.

1

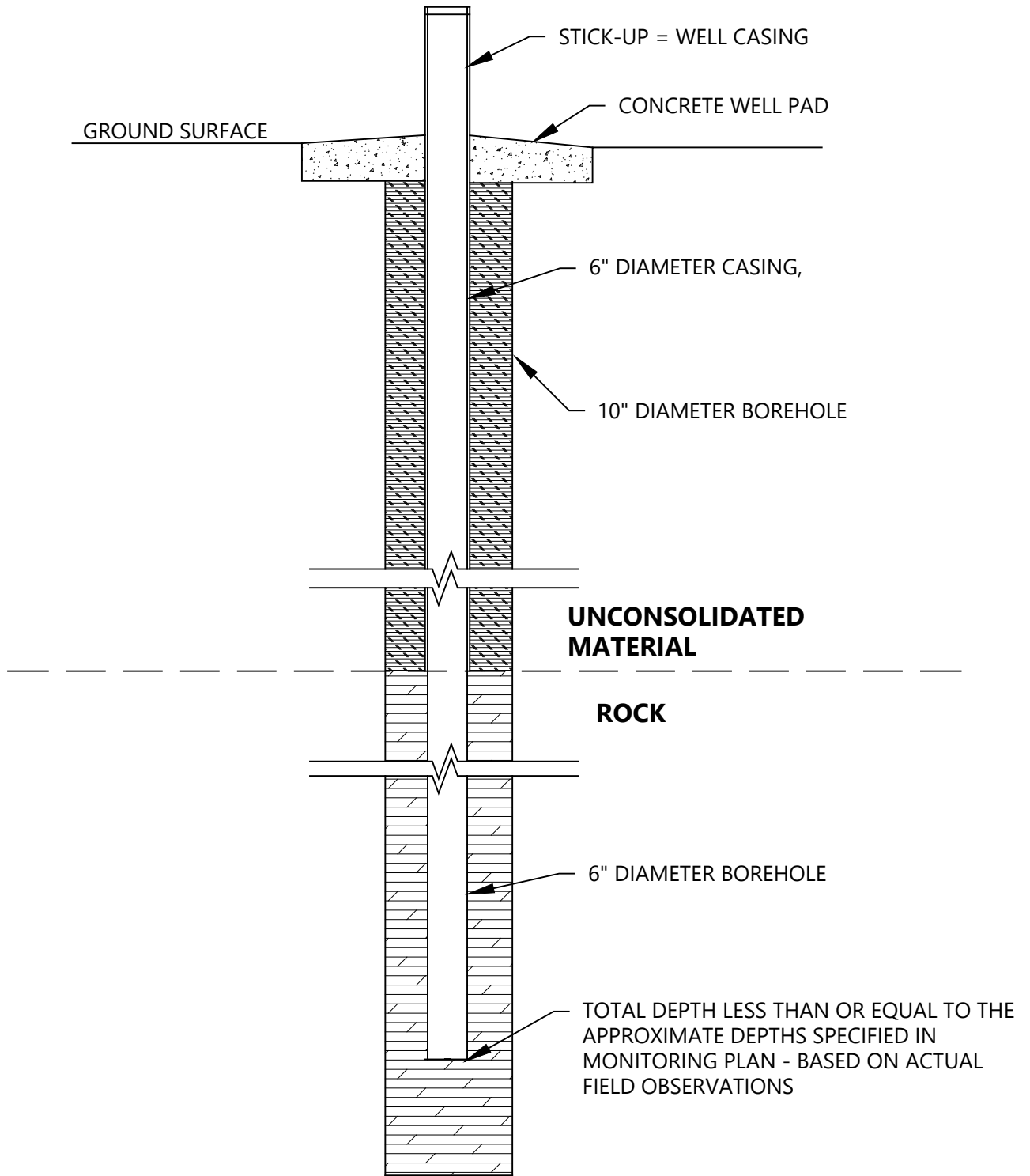
REFERENCE: 1/25/2024 CONCEPTUAL SITE PLAN
THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY.
ALL FEATURE LOCATIONS DISPLAYED ARE
APPROXIMATED. THEY ARE NOT BASED ON CIVIL
SURVEY INFORMATION, UNLESS STATED OTHERWISE.



Monitoring Plan Wells

LEGEND
 SITE BOUNDARY

Drawing Path: C:\Users\murphy\OneDrive - S&ME, Inc\Edgefield Site\PROPOSED WELL SCHEMATIC-rev.dwg



TYPICAL BEDROCK WELL SCHEMATIC

SCALE:

NTS

DATE:

FEB 2024

PROJECT NUMBER

22350640

FIGURE NO.

2



LUCK EDGEFIELD SITE
EDGEFIELD COUNTY, SOUTH CAROLINA