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July 22, 2020

Mr. Greg Cassidy, Brownfields Project Manager  
South Carolina Department of Health and Environmental Control  
Division of Site Assessment, Remediation, and Revitalization  
Bureau of Land and Waste Management  
2600 Bull Street  
Columbia, South Carolina 29201

Subject: Quarterly Progress Report – Second Quarter 2020  
Former Bramlette Manufactured Gas Plant  
400 East Bramlette Road  
Greenville, South Carolina  
VCC 16-5857-RP

Dear Mr. Cassidy:

This Quarterly Progress Report has been prepared for the referenced site in accordance with the requirements of the Responsible Party Voluntary Cleanup Contract (VCC 16-5857-RP) between Duke Energy Carolinas (Duke Energy) and the South Carolina Department of Health and Environmental Control (SCDHEC), dated July 29, 2016.

The following sections provide a summary of work performed during the reporting period, test and sampling results generated during the reporting period, environmental problems experienced during the reporting period and their resolution, and work to be performed during the next reporting period. Monitoring wells were installed in accordance with SCDHEC Monitoring Well Approval MW-12085, dated August 6, 2019, pursuant to the provisions of South Carolina Well Standards R.61-71. The work was conducted in accordance with the July 2, 2019 Remedial Investigation Work Plan Addendum (RIWP-A) submitted by Duke Energy and approved by the SCDHEC on August 6, 2019.

### **Work Performed During the Reporting Period**

A Remedial Investigation (RI) Report was submitted to SCDHEC on June 26, 2020. Based on results of the investigation through submittal of the RI Report, installation of additional monitoring wells was recommended to complete delineation of the horizontal and vertical extent of MGP-related constituents in affected media in accordance with the VCC. Upon completion of additional assessment activities, an RI Report Addendum will be prepared and submitted to SCDHEC.

Activities performed during the second quarter (April 1 through June 30, 2020) included the following:

| Date       | RI Activity   |
|------------|---|
| April 2020 | <b>Sediment Sampling:</b> Collected sediment samples from location SW-17 for analysis of volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs).  |
| April 2020 | <b>Groundwater Sampling:</b> Collected groundwater samples from monitoring wells MW-40BR, MW-48S, and MW-48TZ for analysis of VOCs and SVOCs.   |
| May 2020   | <b>Water Level/Data Loggers:</b> Installed data loggers removed from MW-26/MW-27 cluster on MGP parcel during March 2020 in MW-33S/MW-33TZ cluster adjacent to the Reedy River.   |
| May 2020   | <b>Monitoring Well Installation (Rotary Sonic):</b> Installed surface casings for monitoring wells MW-35BR and MW-43BR (Parcel 2). Installed and developed monitoring wells MW-43S and MW-43TZ (Parcel 2). Monitoring well locations are shown on <b>Figure 1</b> .                                     |
| June 2020  | <b>Monitoring Well Installation (Rotary Sonic):</b> Installed and developed monitoring wells MW-35BR and MW-43BR (Parcel 2); MW-38S and MW-38BR (Parcel 4); MW-44TZ and MW-44BR (west of Reedy River); and MW-45BR through MW-47BR (Parcel 3). Monitoring well locations are shown on <b>Figure 1</b> . |
| June 2020  | <b>Monitoring Well Abandonment:</b> Abandoned monitoring well MW-02 ( <b>Figure 1</b> ) by a South Carolina certified well driller per S.C. Code Section 40-23-10 et seq. to facilitate REWA sewer project. The monitoring well abandonment form is provided in Attachment A.                           |
| June 2020  | <b>Soil Borings:</b> Drilled soil borings RI-SB-13 through RI-SB-16 in the wetlands on Legacy Charter School property adjacent to Parcel 3. Soil boring locations are shown on <b>Figure 1</b> .  |
| June 2020  | <b>Reporting:</b> Completed and submitted RI Report to SCDHEC on June 26, 2020.   |
| June 2020  | <b>Water Levels:</b> Downloaded water levels from data loggers installed in monitoring wells in the MGP Source Area (MW-26 and MW-27), Vaughn Landfill (MW-03BR and MW-20), and along the Reedy River/Swamp Rabbit Trail (MW-31S and MW-31TZ).  |

### Summary of Test and Sampling Results Generated During Reporting Period

A summary of the test and sampling results for work performed during the second quarter (April 1 through June 30, 2020) is provided below:

- Laboratory analytical results for sediment and groundwater samples collected during April 2020 were included in the June 26, 2020 RI Report.
- Monitoring well construction details are listed in **Table 1**.
- NAPL was observed in soil during drilling and installation of monitoring wells MW-35BR and MW-46BR.

- NAPL was observed in the drilling fluid return from the screened interval during drilling and installation of monitoring wells MW-45BR through MW-47BR.
- NAPL was observed from land surface to the top of saprolite (approximately 13 to 14 feet bls) in soil borings RI-SB-13 through RI-SB-16.
- Monitoring well and soil boring logs will be prepared and included in the RI Report Addendum.
- Time series hydrographs showing water level data are included for the MGP Parcel (**Figure 2**), adjacent to the Reedy River (**Figures 3 and 4**), and the Vaughn landfill (**Figure 4**). Observations from the data include:
  - Vertical gradients within the MW-26/MW-27 well cluster on the MGP parcel (Parcel 1) and MW-20/MW-03BR cluster in the Vaughn landfill (Parcel 3) are generally slightly downward.
  - Vertical gradients within the MW-31S/MW-31TZ and MW-33S/MW-33TZ well clusters are minimal and vary from upward to downward.
  - Vertical gradient information suggests the Reedy River can act as a gaining stream or a losing stream based on precipitation and ground saturation.

### **Environmental Problems Identified During Reporting Period and Their Resolution**

Environmental conditions encountered during the second quarter (April 1 through June 30, 2020) which resulted in variation from the proposed scope of work included:

- Partially weathered rock was encountered at a shallow depth at the MW-44 monitoring well cluster; therefore, no monitoring well was installed in the shallow zone. Monitoring wells were installed in the transition and bedrock flow zones.
- A minimal thickness of partially weathered rock was encountered at the MW-38 well cluster; therefore, no monitoring well was installed in the transition zone. Monitoring wells were installed in the shallow and bedrock flow zones.

### **Work to be Performed During the Next Reporting Period (Third Quarter 2020)**

The following activities are scheduled to be conducted during the third quarter of 2020 (July 1 through September 30, 2020). The proposed schedule is subject to change based on safe work practices, weather conditions, site access, availability of subcontractors, and other unforeseen delays. Field work notifications will be provided in accordance with the VCC and access agreements.

- Survey location and elevation of newly installed monitoring wells and soil borings – July 2020
- Slug testing of newly installed monitoring wells – July 2020

Mr. Greg Cassidy

July 22, 2020

Page 4

- Groundwater monitoring of newly installed monitoring wells – July 2020
- Routine groundwater monitoring well gauging to measure presence or absence of NAPL within monitoring wells
- Download and monitor water level transducers/data loggers in monitoring wells and Reedy River stage from a United States Geological Survey (USGS) stream gaging station located downstream of the site – Monthly
- Submit a workplan for ditch assessment to complete delineation of the extent of VOCs and SVOCs in historical ditches associated with the MGP – August 2020

If you have any questions regarding this submittal, please contact me at 980.373.2663 or by email at [Richard.Powell2@duke-energy.com](mailto:Richard.Powell2@duke-energy.com).

Sincerely,

*Richard E. Powell*

Richard E. Powell, P.G.  
Lead Environmental Specialist

cc: Kevin Boland, CSXT  
Daniel Schmitt, Esq., CSXT  
Ty Houck, Greenville County  
William W. Brown, Legacy School Properties, LLC  
Mike Ruhe, Duke Energy Carolinas, LLC  
Todd Plating, SynTerra

Enclosures:

**Figures**

Figure 1 – Site Layout Map

Figure 2 – MGP Source Area (Parcel 1) Hydrographs (MW-26/MW-27)

Figure 3 – Reedy River (Swamp Rabbit Trail) Hydrographs (MW-31S/MW-31TZ)

Figure 4 – Reedy River (Swamp Rabbit Trail) Hydrographs (MW-33S/MW-33TZ)

Figure 5 – Vaughn Landfill Area (Parcel 3) Hydrographs (MW-20/MW-03BR)

**Tables**

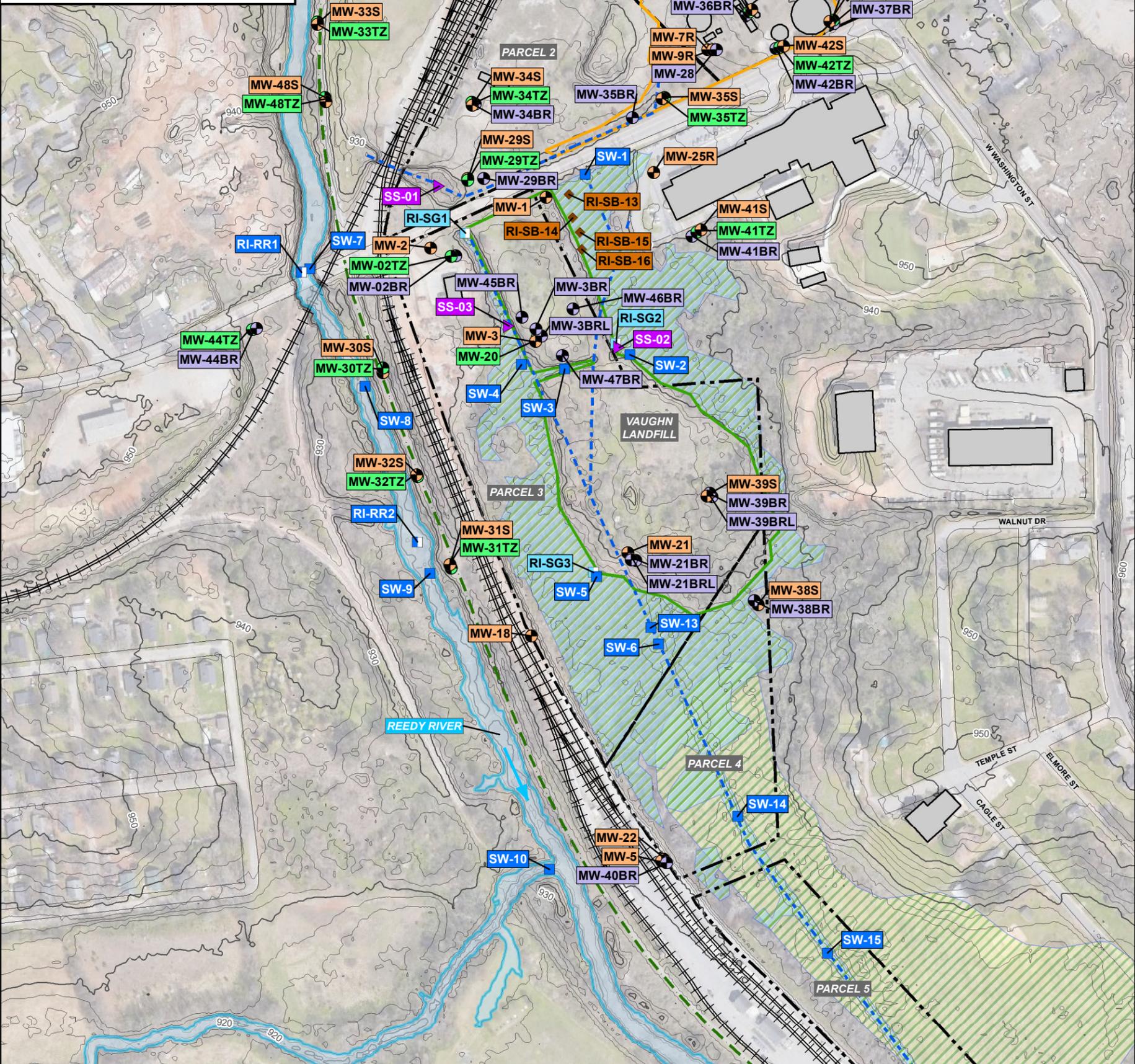
Table 1 – Monitoring Well Construction Details

**Attachment A** – Well Abandonment Form

## **FIGURES**

**NOTES:**

- ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88).
- SURFACE WATER LOCATIONS, FORMER DRAINAGE DITCHES, EXCAVATION AREA, AND VAUGHN LANDFILL BOUNDARY FROM ERM GROUNDWATER REMEDIAL INVESTIGATION WORK PLAN ADDENDUM, APRIL 13, 2018. THESE LAYERS ARE GEOREFERENCED AND APPROXIMATE.
- MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY A SOUTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR
- TOPOGRAPHIC CONTOURS FOR GREENVILLE COUNTY FROM SC DNR (2013).
- PROPERTY BOUNDARIES SOURCED FROM GREENVILLE COUNTY.
- WETLANDS (USFWS) BY US FISH AND WILDLIFE NATIONAL WETLAND INVENTORY. WETLANDS (AES) DELINEATED BY APPLIED ENGINEERING AND SCIENCE, INC. IN 1999.
- SWAMP RABBIT TRAIL CENTERLINE FROM CITY OF GREENVILLE.
- AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH PRO ON MAY 3, 2019. AERIAL WAS COLLECTED ON MARCH 12, 2018.
- DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83 INTERNATIONAL FEET).



**LEGEND**

- WELL SCREENED IN SHALLOW ZONE
- WELL SCREENED IN TRANSITION ZONE
- WELL SCREENED IN BEDROCK ZONE
- SURFACE WATER/SEDIMENT SAMPLE LOCATION
- STAFF GAUGE
- RIVER GAUGE
- SHEEN
- SOIL BORING LOCATION
- TOPOGRAPHIC CONTOUR (10' INTERVAL)
- TOPOGRAPHIC CONTOUR (2' INTERVAL)
- FORMER DRAINAGE DITCH (1964)
- ROAD
- SWAMP RABBIT TRAIL
- RAILROAD
- BUILDING
- EXCAVATED AREA (2001-2002)
- VAUGHN LANDFILL BOUNDARY
- HYDROLOGY
- PARCEL BOUNDARY
- WETLANDS (AES)
- WETLANDS (USFWS)

GRAPHIC SCALE

0 125 250

(IN FEET)

DRAWN BY: T. KING

REVISED BY: J. KIRTZ

CHECKED BY:

APPROVED BY:

PROJECT MANAGER: T. PLATING

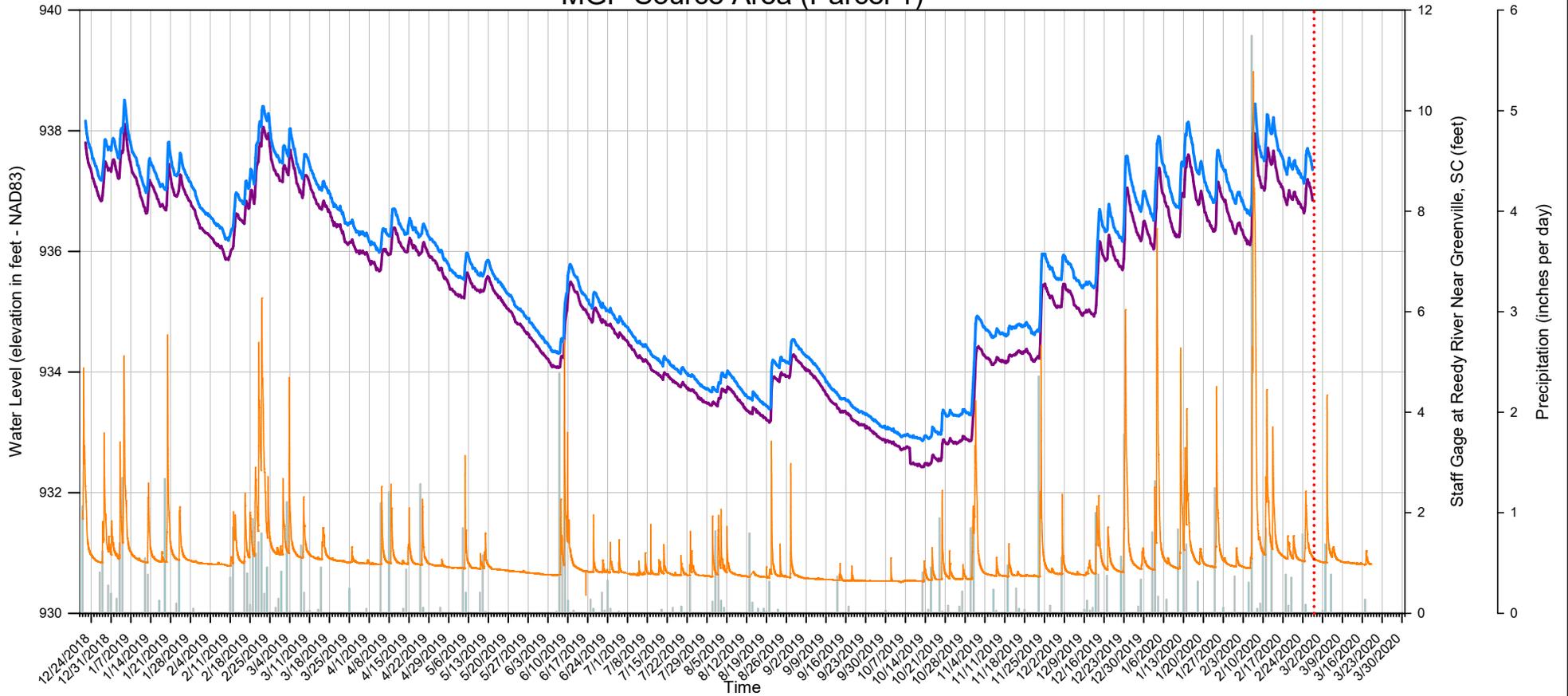
www.synterracorp.com

DATE: 05/21/2019

DATE: 07/09/2020

**FIGURE 1**  
**SITE LAYOUT MAP (JUNE 2020)**  
**FORMER BRAMLETTE MGP SITE**  
**EAST BRAMLETTE ROAD**  
**GREENVILLE, SOUTH CAROLINA**

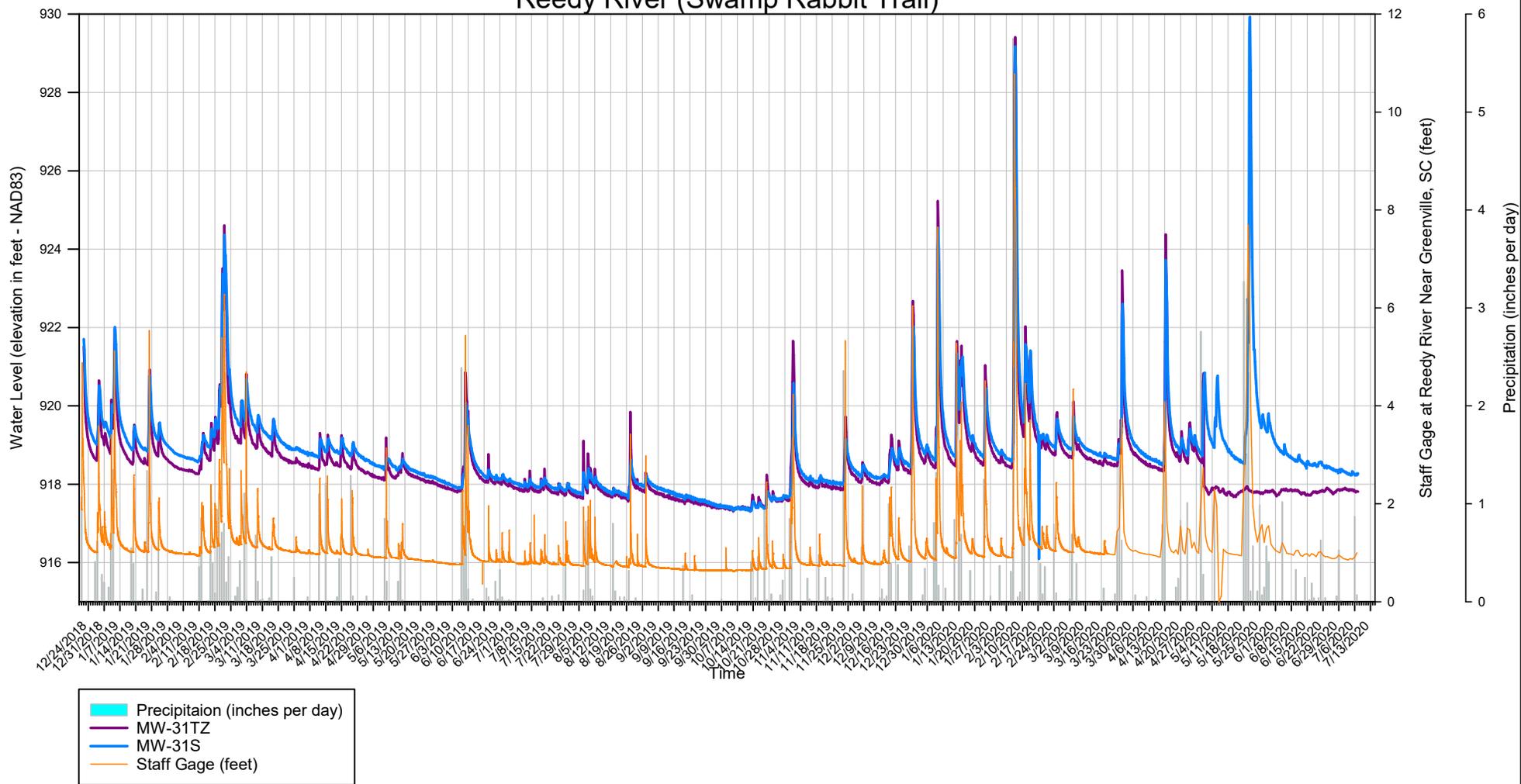
### MGP Source Area (Parcel 1)



- █ Precipitaion (inches per day)
- █ MW-26
- █ MW-27
- █ Staff Gage (feet)
- ⋯ Data Cutoff

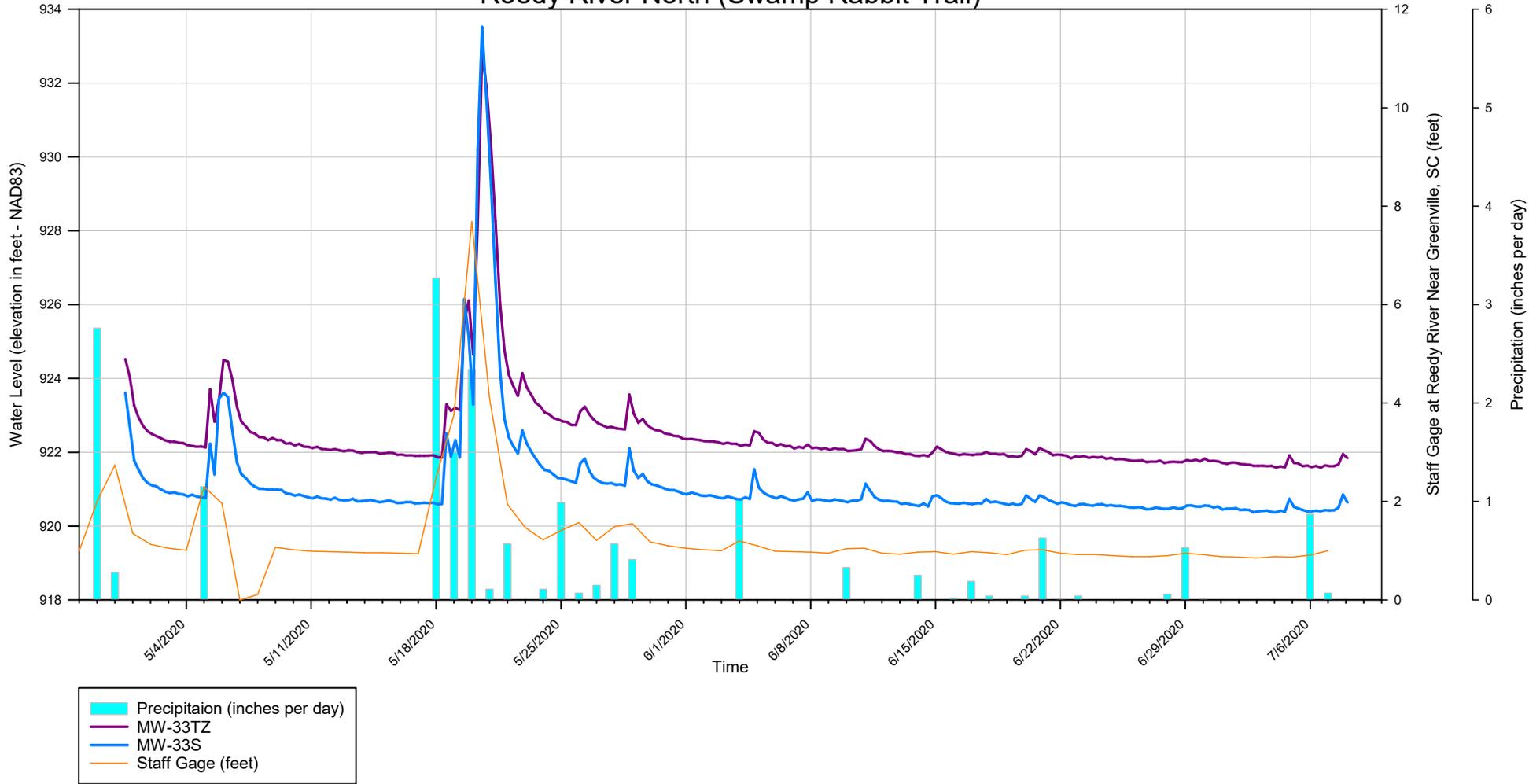
|   |   |   |   |
|---|---|---|---|
|  |  | 148 RIVER STREET, SUITE 220<br>GREENVILLE, SOUTH CAROLINA 29601<br>PHONE 864-421-9999<br>www.synterracorp.com | <b>FIGURE 2</b><br><b>MGP SOURCE AREA (PARCEL 1) HYDROGRAPHS</b><br><b>FORMER BRAMLETTE MGP SITE</b><br><b>REMEDIAL INVESTIGATION REPORT</b><br><b>EAST BRAMLETTE ROAD</b><br><b>GREENVILLE, SOUTH CAROLINA</b> |
|   |   | DRAWN BY: T KING      DATE: JULY 2020<br>PROJECT MANAGER: T PLATING<br>LAYOUT:                                |   |
|   |   | www.synterracorp.com  |   |

## Reedy River (Swamp Rabbit Trail)



|   |   |   |   |
|---|---|---|---|
|  |  | 148 RIVER STREET, SUITE 220<br>GREENVILLE, SOUTH CAROLINA 29601<br>PHONE 864-421-9999<br>www.synterracorp.com | <b>FIGURE 3</b><br><b>REEDY RIVER (SWAMP RABBIT TRAIL) HYDROGRAPHS</b><br><b>FORMER BRAMLETTE MGP SITE</b><br><b>REMEDIAL INVESTIGATION REPORT</b><br><b>EAST BRAMLETTE ROAD</b><br><b>GREENVILLE, SOUTH CAROLINA</b> |
|   |   | DRAWN BY: T KING      DATE: JULY 2020<br>PROJECT MANAGER: T PLATING<br>LAYOUT:                                |   |
|   |   | www.synterracorp.com  |   |

### Reedy River North (Swamp Rabbit Trail)



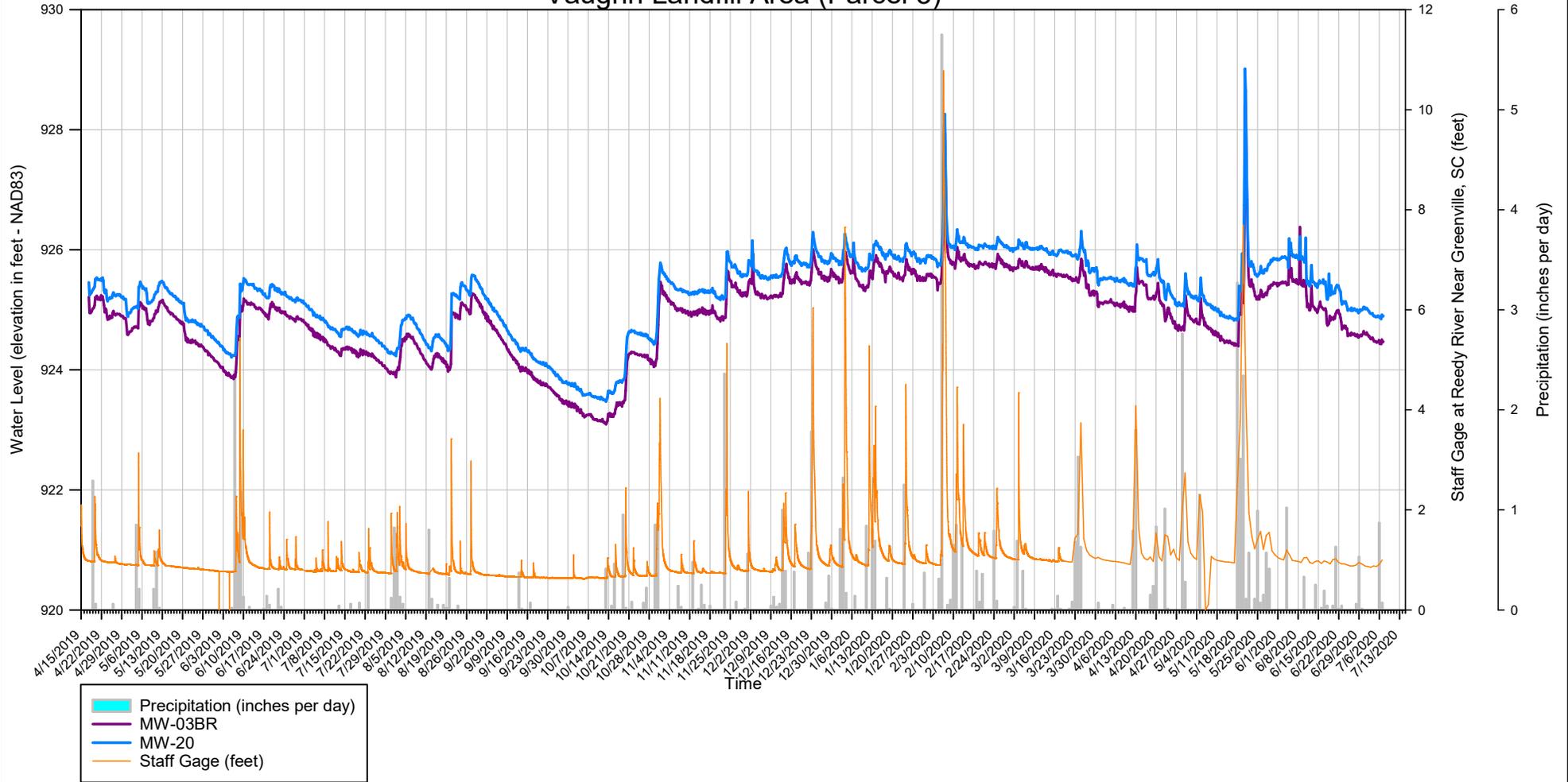
148 RIVER STREET, SUITE 220  
 GREENVILLE, SOUTH CAROLINA 29601  
 PHONE 864-421-9999  
 www.synTerraCorp.com

DRAWN BY: T KING DATE: JULY 2020  
 PROJECT MANAGER: T PLATING  
 LAYOUT:

www.synTerraCorp.com

**FIGURE 4**  
**REEDY RIVER (SWAMP RABBIT TRAIL) HYDROGRAPHS**  
**FORMER BRAMLETTE MGP SITE**  
**REMEDIAL INVESTIGATION REPORT**  
**EAST BRAMLETTE ROAD**  
**GREENVILLE, SOUTH CAROLINA**

### Vaughn Landfill Area (Parcel 3)



|  |  |   |  |
|--|--|---|--|
|  |  | 148 RIVER STREET, SUITE 220<br>GREENVILLE, SOUTH CAROLINA 29601<br>PHONE 864-421-9999<br>www.synterracorp.com | <b>FIGURE 5</b><br><b>VAUGHN LANDFILL AREA (PARCEL 3) HYDROGRAPHS</b><br><b>FORMER BRAMLETTE MGP SITE</b><br><b>REMEDIAL INVESTIGATION REPORT</b><br><b>EAST BRAMLETTE ROAD</b><br><b>GREENVILLE, SOUTH CAROLINA</b> |
|  |  | DRAWN BY: T KING      DATE: JULY 2020<br>PROJECT MANAGER: T PLATING<br>LAYOUT:<br>www.synterracorp.com        |  |

# **TABLES**

**TABLE 1**  
**MONITORING WELL AND SOIL BORING CONSTRUCTION DETAILS**  
**QUARTERLY PROGRSS REPORT - SECOND QUARTER 2020**  
**FORMER BRAMLETTE MGP SITE**  
**DUKE ENERGY CAROLINAS, LLC, GREENVILLE, SC**  
**VCC 16-5857-RP**

| Location   | Well/Boring ID | Installation Date | Total Depth (ft bls) | Surface Casing (ft bls) | Screened Interval |                 |
|--|----------------|-------------------|----------------------|-------------------------|-------------------|-----------------|
|  |                |                   |                      |                         | Top (ft bls)      | Bottom (ft bls) |
| Downgradient of Source Area (Parcel 2)   | MW-35BR        | 6/4/2020          | 150                  | 49                      | 140               | 150             |
| South of Vaughn Landfill (Parcel 4 - near east property line adjacent to private properties) | MW-38S         | 6/17/2020         | 20                   | NA                      | 5                 | 20              |
|  | MW-38BR        | 6/17/2020         | 49                   | 24                      | 42                | 47              |
| North of Parcel 1 Fence (Parcel 2)   | MW-43S         | 5/29/2020         | 20                   | NA                      | 5                 | 20              |
|  | MW-43TZ        | 5/29/2020         | 71                   | NA                      | 61                | 71              |
|  | MW-43BR        | 6/2/2020          | 115                  | 78                      | 110               | 115             |
| West of Reedy River  | MW-44TZ        | 6/23/2020         | 25                   | NA                      | 20                | 25              |
|  | MW-44BR        | 6/24/2020         | 60                   | 39                      | 50                | 60              |
| Bedrock Wells Adjacent to MW-3BRL (Parcel 3)   | MW-45BR        | 6/11/2020         | 100                  | 70                      | 80                | 90              |
|  | MW-46BR        | 6/18/2020         | 180                  | 70                      | 170               | 180             |
|  | MW-47BR        | 6/9/2020          | 120                  | 70                      | 110               | 120             |
| Soil Borings in Wetlands on Legacy Charter School Property (adjacent to Parcel 3)            | RI-SB-13       | 6/30/2020         | 15                   | NA                      | NA                | NA              |
|  | RI-SB-14       | 6/30/2020         | 15                   | NA                      | NA                | NA              |
|  | RI-SB-15       | 6/30/2020         | 15                   | NA                      | NA                | NA              |
|  | RI-SB-16       | 6/30/2020         | 15                   | NA                      | NA                | NA              |

Prepared by: MM Checked by: TDP

**Notes:**

All depths are approximate.

Surface casing is 6-inch diameter, Schedule 80 PVC

Screen is 2-inch diameter, 0.010-inch slot, Schedule 40 PVC

ft bls - feet below land surface

**ATTACHMENT A**

**WELL ABANDONMENT FORM**









