

***EXPEDITED***  
**MONTGOMERY COUNTY HISTORIC PRESERVATION COMMISSION**  
**STAFF REPORT**

<b>Address:</b>	17800 Bowie Mill Road, Derwood	<b>Meeting Date:</b>	2/16/2022
<b>Resource:</b>	(Master Plan Site #22/017-000A <i>Flint Hill II</i> )	<b>Report Date:</b>	2/9/2022
<b>Applicant:</b>	Leigh Dukatt	<b>Public Notice:</b>	2/2/2022
<b>Review:</b>	HAWP	<b>Tax Credit:</b>	No
<b>Permit Number:</b>	978966	<b>Staff:</b>	Michael Kyne
<b>PROPOSAL:</b> Installation of new telecommunications equipment			

**STAFF RECOMMENDATION:**

☐ Approve  
☒ Approve with conditions

1. The proposed new RF Friendly Canister will be painted matte blue, with final review and approval delegated to staff.

**ARCHITECTURAL DESCRIPTION:**

**SIGNIFICANCE:** Master Plan Site #22/017-000A, *Flint Hill II*  
**DATE:** Early 1800s; c1860-75

Excerpt from *Places from the Past*:

Situated on a rise above Bowie Mill Road, Flint Hill is one of three houses in the Olney area that was associated in the early- to mid-1800s with the Bowie family. Washington Bowie, wealthy Georgetown shipping merchant, purchased 2,000 acres of land in 1820 and established a farm at Oatland. His son, Thomas Johns Bowie built Roseneath between 1825 and 1830 on 600 acres. While Thomas' eldest son, Washington Bowie III, inherited Roseneath, another son Thomas Johns Davis Bowie, inherited Flint Hill.

The house was constructed in several sections. The earliest part is the rear section, which is of log construction, said to be chinked with brick. The log house was built before the Bowie's 1820 purchase of the property. The exterior chimney on this section has an asymmetrical stone base with a brick stack. The main block, built c1860-75, is one room deep with a center passage plan. Italianate-style influence is evident in oversize scrolled brackets at the roof cornice and prominent window cornices. The front (east) door opens into a central hall with open-string, double-run staircase with a turned newel post and golden oak banister. A large bank barn is dated

1898.



*Fig. 1: Subject property.*

### **PROPOSAL:**

This application was scheduled to be heard at the February 2, 2022 HPC meeting.<sup>1</sup> However, the applicant revised their application before the meeting, and the case was deferred.

The applicant proposes to modify the existing collocation telecommunications equipment on the non-contributing silo at the subject property. Specific work items, as revised, include:

- Removal of three existing antennas within an existing RF Friendly Canister at the top of the silo.
- Installation of three new antennas within a larger RF Friendly Canister at the top of the silo.
- Installation of nine new Remote Radio Units (RRUs).
- Removal of one existing equipment cabinet.
- Installation of one new equipment cabinet.
- Installation of one new battery cabinet.
- Installation of associated equipment.

Staff notes that the installation of the existing telecommunications equipment was approved by the HPC on June 20, 2001, with the following conditions:

- Antenna casing at top of dome to be a matte blue color (Sherwin Williams Exterior Skylar SW2460) to be approved at staff level.
- PVC housing will be attached close to existing loading tube & will match silo color. Shed color to

<sup>1</sup> Link to February 2, 2022 staff report and previous proposal: <https://montgomeryplanning.org/wp-content/uploads/2022/01/I.D-17800-Bowie-Mill-Road-Derwood-978966.pdf>

match existing shed.

Staff finds the current proposal, as modified by the recommended condition, to be consistent with the previous conditions of approval.

**APPLICABLE GUIDELINES:**

IV. The Expedited Staff Report format may be used on the following type of cases:

2. Modifications to a property, which do not significantly alter its visual character.

**Montgomery County Code; Chapter 24A-8**

- (b) The commission shall instruct the director to issue a permit, or issue a permit subject to such conditions as are found to be necessary to ensure conformity with the purposes and requirements of this chapter, if it finds that:
  - (1) The proposal will not substantially alter the exterior features of an historic site or historic resource within an historic district; or
  - (2) The proposal is compatible in character and nature with the historical, archeological, architectural or cultural features of the historic site or the historic district in which an historic resource is located and would not be detrimental thereto or to the achievement of the purposes of this chapter; or
  - (3) The proposal would enhance or aid in the protection, preservation and public or private utilization of the historic site or historic resource located within an historic district in a manner compatible with the historical, archeological, architectural or cultural value of the historic site or historic district in which an historic resource is located; or
  - (4) The proposal is necessary in order that unsafe conditions or health hazards be remedied; or
  - (5) The proposal is necessary in order that the owner of the subject property not be deprived of reasonable use of the property or suffer undue hardship; or
  - (6) In balancing the interests of the public in preserving the historic site or historic resource located within an historic district, with the interests of the public from the use and benefit of the alternative proposal, the general public welfare is better served by granting the permit.
- (c) It is not the intent of this chapter to limit new construction, alteration or repairs to any 1 period or architectural style.

***Secretary of Interior's Standards for Rehabilitation***

The Secretary of the Interior defines rehabilitation as “the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features, which convey its historical, cultural, or architectural values.” The *Standards* are as follows:

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

**STAFF RECOMMENDATION:**

Staff recommends that the Commission **approve with one (1) condition** the HAWP application under the Criteria for Issuance in Chapter 24A-8(b), (1) & (2), having found that the proposal, as modified by the condition, will not substantially alter the exterior features of the historic resource and is compatible in character with the purposes of Chapter 24A;

and with the *Secretary of the Interior's Standards for Rehabilitation* #2 and #9;

and with the general condition that the applicant shall present an electronic set of drawings, if applicable, to Historic Preservation Commission (HPC) staff for review and stamping prior to submission for the Montgomery County Department of Permitting Services (DPS) building permits;

and with the general condition that final project design details, not specifically delineated by the Commission, shall be approved by HPC staff or brought back to the Commission as a revised HAWP application at staff's discretion;

and with the general condition that the applicant shall notify the Historic Preservation Staff if they propose to make any alterations to the approved plans. Once the work is completed the applicant will contact the staff person assigned to this application at 301-563-3400 or [michael.kyne@montgomeryplanning.org](mailto:michael.kyne@montgomeryplanning.org) to schedule a follow-up site visit.



FOR STAFF ONLY:

HAWP# 978966

DATE ASSIGNED

APPLICATION FOR  
HISTORIC AREA WORK PERMIT  
HISTORIC PRESERVATION COMMISSION  
301.563.3400

APPLICANT:

Name: Leigh Dukatt (T-Mobile)

E-mail: LDukatt@advantageengineers.com

Address: 7151 Columbia Gateway Dr Ste A

City: Columbia Zip: 21046

Daytime Phone: 602-692-9996

Tax Account No.: 00706980

AGENT/CONTACT (if applicable):

Name:

E-mail:

Address:

City: Zip:

Daytime Phone:

Contractor Registration No.:

LOCATION OF BUILDING/PREMISE: MIHP # of Historic Property 22/017-000A

Is the Property Located within an Historic District? Yes/District Name

No/Individual Site Name Flint Hill II

Is there an Historic Preservation/Land Trust/Environmental Easement on the Property? If YES, include a map of the easement, and documentation from the Easement Holder supporting this application.

Are other Planning and/or Hearing Examiner Approvals /Reviews Required as part of this Application? (Conditional Use, Variance, Record Plat, etc.?) If YES, include information on these reviews as supplemental information.

Building Number: 17800 Street: Bowie Mill Rd

Town/City: Derwood Nearest Cross Street: Fraley Farm Rd

Lot: Block: Subdivision: Parcel:

TYPE OF WORK PROPOSED: See the checklist on Page 4 to verify that all supporting items for proposed work are submitted with this application. Incomplete Applications will not be accepted for review. Check all that apply:

New Construction

Deck/Porch

Shed/Garage/Accessory Structure

Addition

Fence

Solar

Demolition

Hardscape/Landscape

Tree removal/planting

Grading/Excavation

Roof

Window/Door

Other: Telecommunications

I hereby certify that I have the authority to make the foregoing application, that the application is correct and accurate and that the construction will comply with plans reviewed and approved by all necessary agencies and hereby acknowledge and accept this to be a condition for the issuance of this permit.

Signature of owner or authorized agent

12/30/21

Date

5

Description of Property: Please describe the building and surrounding environment. Include information on significant structures, landscape features, or other significant features of the property:

Silo on a farm with various buildings & structures

Description of Work Proposed: Please give an overview of the work to be undertaken:

Remove (3) & add (3) antennas, add (9) RRUs, remove (1) & add (1) equipment cabinet and (1) battery cabinet, and other associated equipment at existing silo

Work Item 1: <u>Telecommunications</u>	
Description of Current Condition: Existing Site for T-Mobile	Proposed Work: Proposed equipment upgrades at existing site for T-Mobile
Work Item 2: _____	
Description of Current Condition:	Proposed Work:
Work Item 3: _____	
Description of Current Condition:	Proposed Work:

# HISTORIC AREA WORK PERMIT CHECKLIST OF APPLICATION REQUIREMENTS

	Required Attachments						
Proposed Work	I. Written Description	2. Site Plan	3. Plans/ Elevations	4. Material Specifications	5. Photographs	6. Tree Survey	7. Property Owner Addresses
New Construction	*	*	*	*	*	*	*
Additions/ Alterations	*	*	*	*	*	*	*
Demolition	*	*	*		*		*
Deck/Porch	*	*	*	*	*	*	*
Fence/Wall	*	*	*	*	*	*	*
Driveway/ Parking Area	*	*		*	*	*	*
Grading/Excavation/ Landscaping	*	*		*	*	*	*
Tree Removal	*	*		*	*	*	*
Siding/ Roof Changes	*	*	*	*	*		*
Window/ Door Changes	*	*	*	*	*		*
Masonry Repair/ Repoint	*	*	*	*	*		*
Signs	*	*	*	*	*		*

# T-MOBILE NORTHEAST LLC

FRALEY FAMILY - ROCKVILLE

7WAN162B

67D5A997DB HYBRID

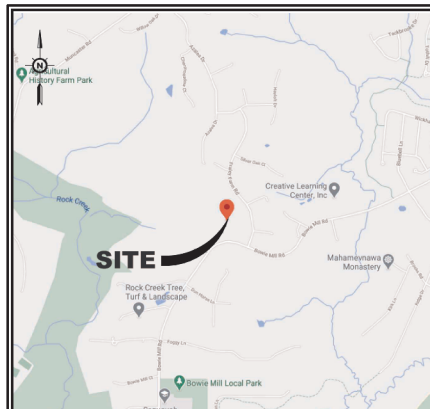
17800 BOWIE MILL ROAD  
DERWOOD, MARYLAND 28055

## SITE INFORMATION

SITE NUMBER: 7WAN162B  
SITE NAME: FRALEY FAMILY - ROCKVILLE  
SITE ADDRESS: 17800 BOWIE MILL ROAD  
DERWOOD, MARYLAND 28055  
ZONING DISTRICT: RE-1  
TAX MAP: HT22P222  
JURISDICTION: MONTGOMERY COUNTY, MARYLAND  
SITE COORDINATES: N 39° 09' 0.49" (NAD 83)  
W 77° 06' 51.56" (NAD 83)  
GROUND ELEVATION: 498± (NAVD 88)  
STRUCTURE TYPE: SILO  
STRUCTURE HEIGHT: 73± AGL (TOP OF EXISTING SILO)  
ANTENNA RAD CENTER: 79' 6"± AGL  
TENANT: T-MOBILE NORTHEAST LLC  
12000 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
OWNER'S NAME: HARRY FRALEY ET AL  
OWNER'S ADDRESS: 17800 BOWIE MILL ROAD  
ROCKVILLE, MARYLAND 20855-1609

## CODE ANALYSIS

BUILDING CODE: IBC 2018  
ELECTRICAL CODE: NFPA 70, NEC 2014  
FIRE CODE: 2015 NFPA 101  
USE GROUP: U (UTILITY)  
CONSTRUCTION TYPE: IB



## AREA MAP

DERWOOD, MARYLAND 28055

## DIRECTIONS

HEAD NORTHWEST TOWARD US-1 N/BALTIMORE AVE, TURN RIGHT ONTO US-1 N/BALTIMORE AVE, USE THE LEFT 2 LANES TO TURN LEFT ONTO THE MD-200 W RAMP TO I-495/275, CONTINUE ONTO MD-200 W, USE THE RIGHT 2 LANES TO TAKE EXIT 98 FOR GEORGIA AVENUE/MD-97 N TOWARD OLNEY, MERGE ONTO MD-97/GEORGIA AVE, TURN LEFT ONTO EMORY LN, TURN RIGHT ONTO CASHELL RD, TURN LEFT ONTO BREADY RD, TURN LEFT ONTO BOWIE MILL RD, ARRIVE AT, DERWOOD MARYLAND 28055.

## SCOPE OF WORK

- REMOVE EXISTING RF FRIENDLY CANISTER
- INSTALL (1) NEW RF FRIENDLY CANISTER
- REMOVE (3) EXISTING ANTENNAS
- REMOVE (3) EXISTING TMA's
- REMOVE (12) 1-1/4" COAX
- INSTALL (3) PROPOSED ANTENNAS
- INSTALL (9) PROPOSED RRUN
- REMOVE (1) EXISTING 2100 EQUIPMENT CABINET
- INSTALL (1) PROPOSED 6160 EQUIPMENT CABINET
- INSTALL (1) PROPOSED 8160 BATTERY CABINET
- INSTALL (6) PROPOSED 6x24 HYBRID CABLES 30M
- INSTALL (1) PSU 4813

## SHEET INDEX

DRAWING SHEET	DRAWING TITLE
T-1	TITLE SHEET
Z-1	SITE PLAN
S-1	COMPOUND PLAN
S-2	SILLO ELEVATION
A-1	ANTENNA PLAN & NOTES
A-2	PLUMBING DIAGRAM & CABLES
A-3	PROPOSED & EXISTING EQUIPMENT CABINET LAYOUT
A-4	DETAILS
D-1	6160 EQUIPMENT CABINET DETAIL
D-2	8160 BATTERY CABINET DETAIL
G-1	GROUNDING DIAGRAM & DETAILS
E-1	ELECTRICAL DETAILS
E-2	ELECTRICAL NOTES

## DO NOT SCALE DRAWINGS

CONTRACTOR IS TO VERIFY ALL PLANS, EXISTING DIMENSIONS & CONDITIONS RELATING TO THIS PROJECT. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IF THERE ARE ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

## APPROVALS

T-MOBILE PROJECT MANAGER \_\_\_\_\_ DATE: \_\_\_\_\_  
T-MOBILE RF ENGINEER \_\_\_\_\_ DATE: \_\_\_\_\_  
LANDLORD \_\_\_\_\_ DATE: \_\_\_\_\_

**T-Mobile**  
NORTHEAST LLC

T-MOBILE NORTHEAST LLC  
12000 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
PHONE: (240) 264-8600  
FAX: (240) 264-8610



advantage engineers

7151 COLUMBIA GATEWAY DRIVE, SUITE A  
COLUMBIA, MARYLAND 21046  
PHONE: (443) 367-0003  
FAX: (443) 367-3548

## SCHEDULE OF REVISIONS

NO.	DATE	DESCRIPTION OF CHANGES
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11	01-07-2022	NEW CANISTER DESIGN
12	11-17-2021	ZONING COMMENTS
13	11-05-2021	ISSUED FOR CONSTRUCTION

DRAWN BY: EDZ

CHECKED BY: MRL

SCALE: NOTED

JOB NO: 19E0047.01

DRAWING TITLE:

## TITLE SHEET

DRAWING SHEET:

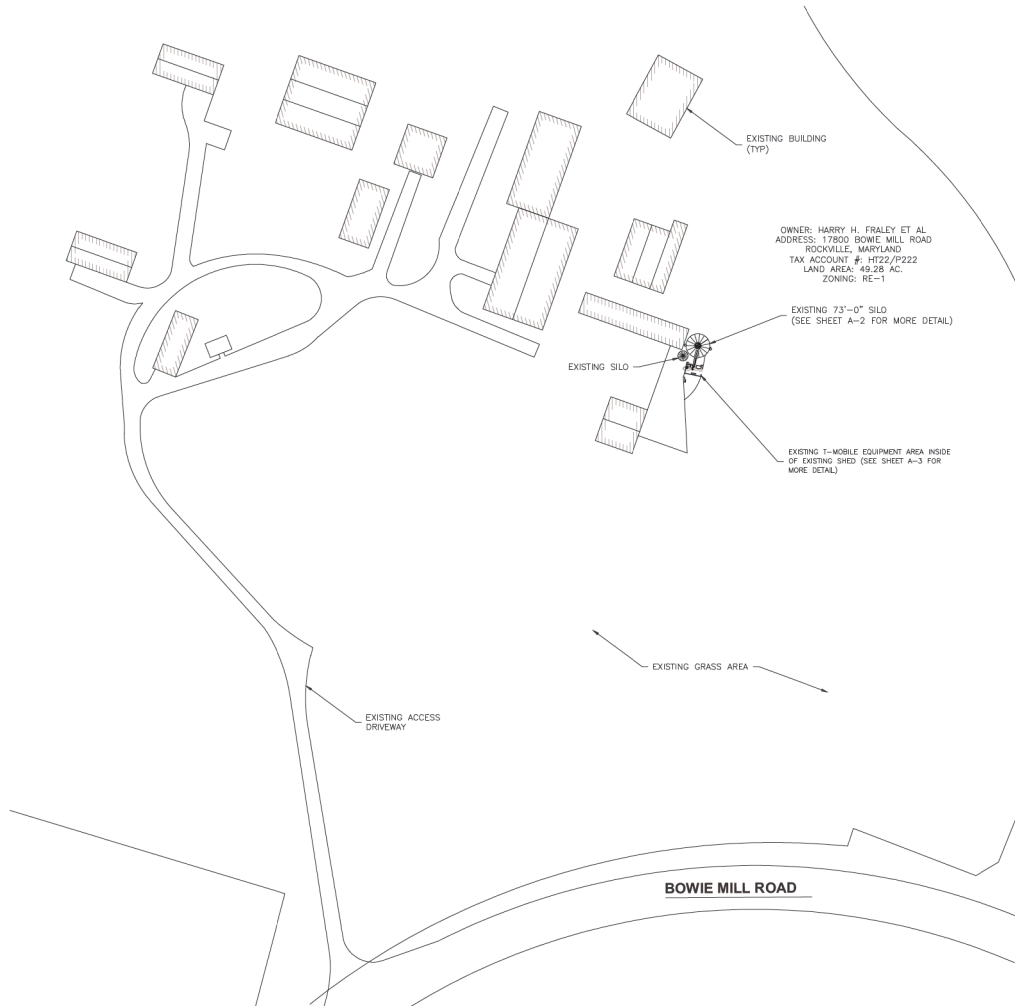
**T-1**

FRALEY FAMILY - ROCKVILLE  
7WAN162B  
17800 BOWIE MILL ROAD  
DERWOOD, MARYLAND 28055

SHEET NO. 1 OF 13



ANDREW M. MILLER, P.E.  
"PROFESSIONAL CERTIFICATION, I HEREBY  
CERTIFY THAT THESE DOCUMENTS WERE  
PREPARED OR APPROVED BY ME, AND THAT I  
AM A DULY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE OF  
MARYLAND, LICENSE NO. 41497, EXPIRATION  
DATE 12/31/2024."



**SITE PLAN**

SCALE: 1"=50'-0"

GRAPHIC SCALE



( IN FEET )  
1 inch = 50ft.

(SCALE BASED ON FULL SIZE 24"x36" SHEETS ONLY)  
(DO NOT USE SCALE ON OTHER SIZED DRAWINGS)

**SITE INFORMATION**

SITE NUMBER: 7WAN162B  
SITE NAME: FRALEY FAMILY - ROCKVILLE  
SITE ADDRESS: 17800 BOWIE MILL ROAD, DERWOOD, MARYLAND 28055  
ZONING DISTRICT: RE-1  
TAX MAP: HT22/P222  
JURISDICTION: MONTGOMERY COUNTY, MARYLAND  
SITE COORDINATES: N 39° 09' 0.49" (NAD 83)  
W 77° 06' 51.59" (NAD 83)  
GROUND ELEVATION: 499± (NAVD 88)  
STRUCTURE TYPE: SILO  
STRUCTURE HEIGHT: 73± AGL (TOP OF EXISTING SILO)  
ANTENNA RAD CENTER: 79'-6" AGL  
TENANT: T-MOBILE NORTHEAST LLC  
12050 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
OWNER'S NAME: HARRY FRALEY ET AL  
OWNER'S ADDRESS: 17800 BOWIE MILL ROAD, ROCKVILLE, MARYLAND 20855-1609

**GENERAL NOTES:**

1. PROPERTY LINE INFORMATION WAS PREPARED USING AVAILABLE SITE PLANS, DEEDS, TAX MAPS, AND PLANS OF RECORD. INFORMATION SHOWN SHOULD NOT BE CONSTRUED AS AN ACCURATE BOUNDARY SURVEY.
2. THIS PLAN WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
3. THE PROPOSED FACILITY WILL CAUSE NO INCREASE IN STORMWATER RUNOFF. THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
4. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. (THERE IS NO HANDICAP ACCESS REQUIRED).
5. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
6. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
7. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE STREET SIGNS OF ANY TYPE. NO SIGNS WILL BE POSTED EXCEPT THOSE REQUIRED.
8. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES.

**T-Mobile**  
**NORTHEAST LLC**  
T-MOBILE NORTHEAST LLC  
12050 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
PHONE: (240) 364-8600  
FAX: (240) 364-8610



**advantage engineers**

7151 COLUMBIA GATEWAY DRIVE, SUITE A  
COLUMBIA, MARYLAND 21046  
PHONE: (443) 367-0003  
FAX: (443) 367-3548

**SCHEDULE OF REVISIONS**

#	DATE	DESCRIPTION OF CHANGES
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11	01-07-2022	NEW CANISTER DESIGN
12	11-17-2021	ZONING COMMENTS
13	11-05-2021	ISSUED FOR CONSTRUCTION

REV. NO.	DATE	DESCRIPTION OF CHANGES
DRAWN BY:	EDZ	
CHECKED BY:	MRL	
SCALE:	NOTED	
JOB NO:	19E0047.001	

DRAWING TITLE:

**SITE PLAN**

DRAWING SHEET:

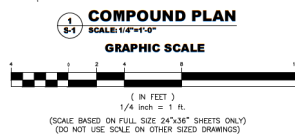
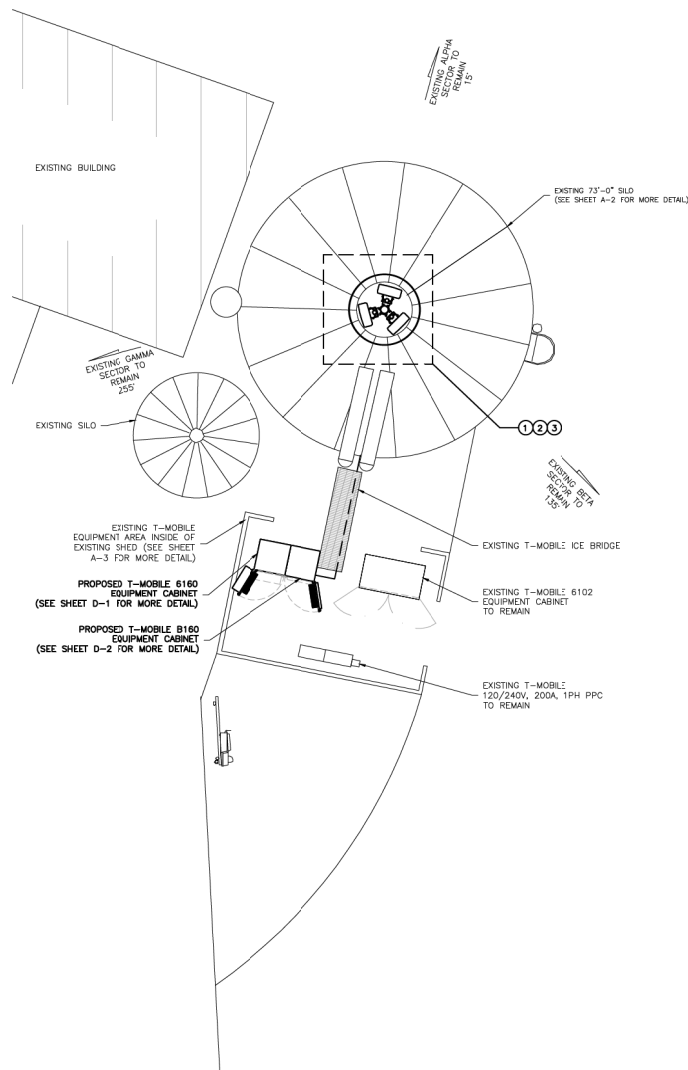
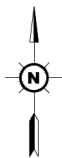
**Z-1**

**FRALEY FAMILY - ROCKVILLE**  
**7WAN162B**  
**17800 BOWIE MILL ROAD**  
**DERWOOD, MARYLAND 28055**

**SHEET NO. 2 OF 13**



ANDREW M. MILLER, P.E.  
"PROFESSIONAL CERTIFICATION. I HEREBY  
CERTIFY THAT THESE DOCUMENTS WERE  
PREPARED OR APPROVED BY ME, AND THAT I  
AM A DULY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE OF  
MARYLAND, LICENSE NO. 41487, EXPIRATION  
DATE 11-01-2024."



### T-MOBILE SECTOR KEY PLAN

T-MOBILE ALPHA SECTOR ①	(0) EXISTING ANTENNAS TO REMAIN
	(0) EXISTING ANTENNAS TO BE RELOCATED
	(1) EXISTING ANTENNA TO BE REMOVED
	(1) PROPOSED ANTENNA TO BE INSTALLED
	(0) EXISTING TMA's TO REMAIN
T-MOBILE BETA SECTOR ②	(0) EXISTING TMA's TO REMAIN
	(0) EXISTING TMA's TO BE RELOCATED
	(1) EXISTING TMA TO BE REMOVED
	(0) PROPOSED TMA's TO BE INSTALLED
	(0) EXISTING RRUs TO REMAIN
T-MOBILE GAMMA SECTOR ③	(0) EXISTING RRUs TO REMAIN
	(0) EXISTING RRUs TO BE RELOCATED
	(0) EXISTING RRUs TO BE REMOVED
	(0) EXISTING RRUs TO BE RELOCATED
	(0) EXISTING RRUs TO BE REMOVED

### PRE CONSTRUCTION TOTALS

(3) ANTENNAS  
(0) RRUs  
(3) TMA's

### POST CONSTRUCTION TOTALS

(3) ANTENNAS  
(0) RRUs  
(0) TMA's

### GENERAL NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY OR OTHER PUBLIC AUTHORITIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
3. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
5. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. (THERE IS NO HANDICAP ACCESS REQUIRED).
8. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
9. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES.
10. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE STREET SIGNS OF ANY TYPE. NO SIGNS WILL BE POSTED EXCEPT THOSE REQUIRED.
11. NO SIGNIFICANT NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY.
12. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 83).
13. CONSTRUCTION TO COMMENCE UPON COMPLETION OF A PASSING STRUCTURAL ANALYSIS. STRUCTURAL ANALYSIS TO BE PERFORMED BY ADVANTAGE ENGINEERS.

**T-Mobile**  
NORTHEAST LLC  
T-MOBILE NORTHEAST LLC  
12005 BALTHAMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
PHONE: (240) 364-6600  
FAX: (240) 364-6610



**advantage engineers**

7151 COLUMBIA GATEWAY DRIVE SUITE A  
COLUMBIA, MARYLAND 21046  
PHONE: (443) 397-0203  
FAX: (443) 397-3548

### SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
1		
2	01-07-2022	NEW CANISTER DESIGN
3		
4		
5		
6		
7	11-17-2021	ZONING COMMENTS
8	11-05-2021	ISSUED FOR CONSTRUCTION

DRAWN BY:	EDZ
CHECKED BY:	MRL
SCALE:	NOTED
JOB NO:	19E0047.001
DRAWING TITLE:	

### COMPOUND PLAN

### DRAWING SHEET:

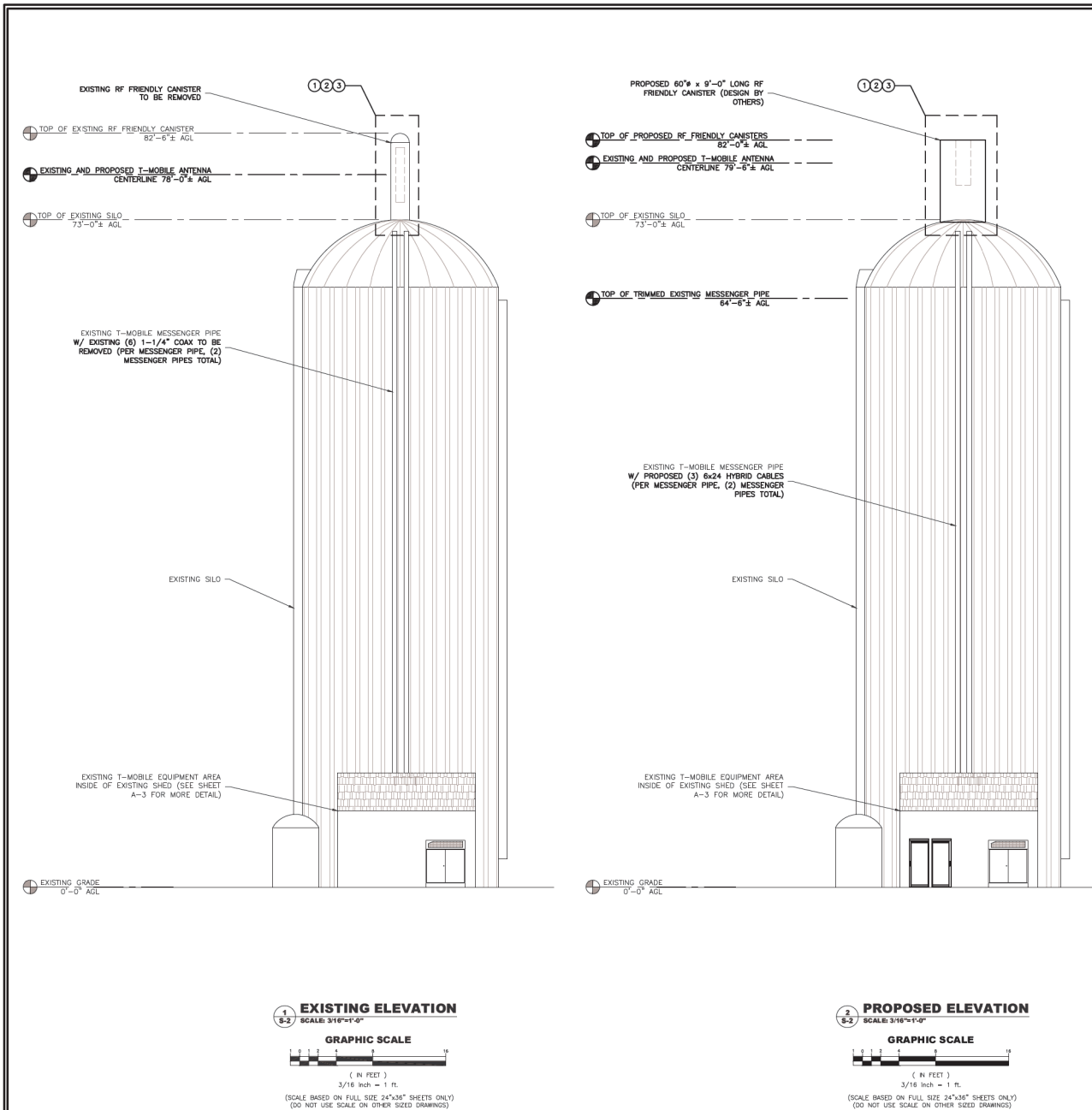
**S-1**

**FRALEY FAMILY - ROCKVILLE**  
**7WAN162B**  
**17800 BOWIE MILL ROAD**  
**DERWOOD, MARYLAND 28055**

**SHEET NO. 3 OF 13**



**ANDREW M. MILLER, P.E.**  
"PERSONAL CERTIFICATION I HEREBY  
CERTIFY THAT THESE DOCUMENTS WERE  
PREPARED OR APPROVED BY ME, AND THAT I  
AM A DULY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE OF  
MARYLAND. LICENSE NO. 41407, EXPIRATION  
DATE 01-08-24"



T-MOBILE SECTOR KEY PLAN	
T-MOBILE ALPHA SECTOR ①	(0) EXISTING ANTENNAS TO REMAIN
	(0) EXISTING ANTENNAS TO BE RELOCATED
	(1) EXISTING ANTENNA TO BE REMOVED
	(1) PROPOSED ANTENNA TO BE INSTALLED
	(0) EXISTING TMA TO REMAIN
T-MOBILE BETA SECTOR ②	(0) EXISTING TMA TO BE RELOCATED
	(1) EXISTING TMA TO BE REMOVED
	(0) PROPOSED TMA TO BE INSTALLED
	(0) EXISTING RRUs TO REMAIN
	(0) EXISTING RRUs TO BE RELOCATED
T-MOBILE GAMMA SECTOR ③	(0) EXISTING RRUs TO BE REMOVED
	(3) PROPOSED RRUs TO BE INSTALLED
	(0) EXISTING ANTENNAS TO REMAIN
	(0) EXISTING ANTENNAS TO BE RELOCATED
	(1) EXISTING ANTENNA TO BE REMOVED
PRE CONSTRUCTION TOTALS	
(3) ANTENNAS	
(0) RRUs	
(3) TMAs	
POST CONSTRUCTION TOTALS	
(3) ANTENNAS	
(0) RRUs	
(0) TMAs	

#### GENERAL NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY OR OTHER PUBLIC AUTHORITIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
3. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
5. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. (THERE IS NO HANDICAP ACCESS REQUIRED).
8. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
9. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES.
10. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE STREET SIGNS OF ANY TYPE. NO SIGNS WILL BE POSTED EXCEPT THOSE REQUIRED.
11. NO SIGNIFICANT NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY.
12. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
13. CONSTRUCTION TO COMMENCE UPON COMPLETION OF A PASSING STRUCTURAL ANALYSIS. STRUCTURAL ANALYSIS TO BE PERFORMED BY ADVANTAGE ENGINEERS.

**T-Mobile**  
NORTHEAST LLC  
T-MOBILE NORTHEAST LLC  
2000 BALLYHORE AVENUE  
BALTIMORE, MARYLAND 21045  
PHONE: (240) 364-8600  
FAX: (240) 364-8610



**advantage engineers**

7151 COLUMBIA GATEWAY DRIVE SUITE A  
COLUMBIA, MARYLAND 21048  
PHONE: (443) 367-0003  
FAX: (443) 367-3548

#### SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
1		
2	01-07-2022	NEW CANISTER DESIGN
3	11-17-2021	ZONING COMMENTS
4	11-05-2021	ISSUED FOR CONSTRUCTION

DRAWN BY: EDZ

CHECKED BY: MRL

SCALE: NOTED

JOB NO: 19E0047.01

DRAWING TITLE:

#### SILO ELEVATION

DRAWING SHEET:

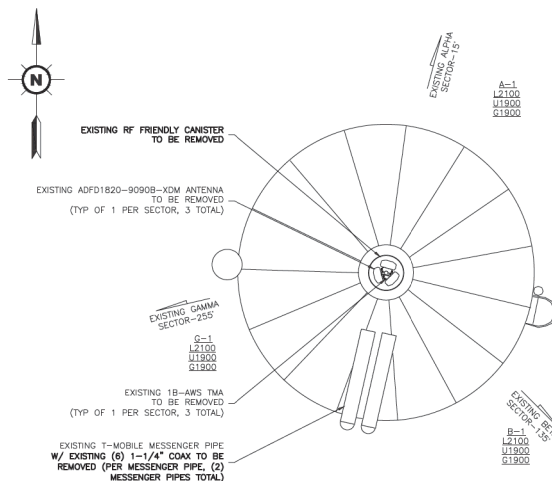
**S-2**

**FRALEY FAMILY - ROCKVILLE**  
**7W1N162B**  
**17800 BOWIE MILL ROAD**  
**DERWOOD, MARYLAND 28055**

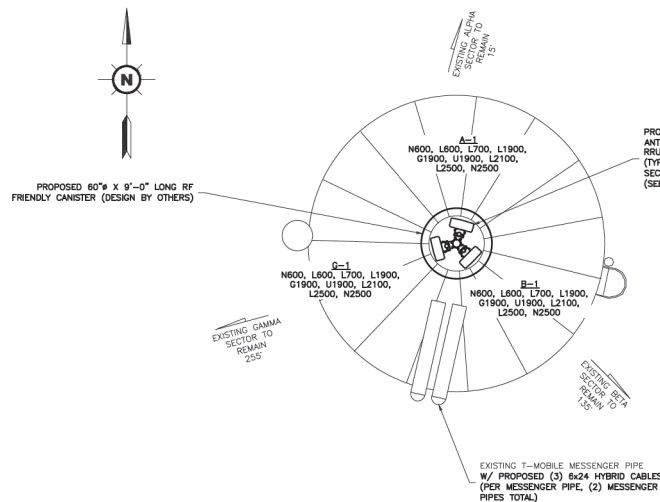
SHEET NO. 4 OF 13



ANDREW M. MILLER, P.E.  
"PROFESSIONAL CERTIFICATION. I HEREBY  
CERTIFY THAT THESE DOCUMENTS WERE  
PREPARED OR APPROVED BY ME, AND THAT I  
AM A DULY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE OF  
MARYLAND, LICENSE NO. 41487, EXPIRATION  
DATE 12/31/2024"



**1 EXISTING ANTENNA PLAN**  
A-1 SCALE: NTS



**2 PROPOSED ANTENNA PLAN**  
A-1 SCALE: NTS

## STRUCTURAL NOTES

- DESIGN REQUIREMENTS PER INTERNATIONAL BUILDING CODE 2015 AND THE ANSI/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED BY FIELD MEASUREMENT AND FROM THE EXISTING STRUCTURAL DRAWINGS. THE GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH CONSTRUCTION.
- STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS - ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN INCLUDING THE COMMENTARY AND THE AISC CODE FOR STANDARD PRACTICE.
- STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM A992. ALL STRUCTURAL STEEL PIPES SHALL CONFORM TO ASTM A53 GRADE B. ALL STRUCTURAL STEEL COMPONENTS AND FABRICATED ASSEMBLIES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
- WELDING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF AMERICAN WELDING SOCIETY (AWS) STRUCTURAL WELDING CODE - STEEL WELD ELECTRODES SHALL BE E70XX.
- ALL COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE AS SPECIFIED BY THE OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL FURNISH ALL CONNECTION HARDWARE REQUIRED TO SECURE THE CABLES. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
- ALL THREADED STRUCTURAL FASTENERS FOR ANTENNA SUPPORT ASSEMBLIES SHALL CONFORM TO ASTM A307 OR ASTM A36. ALL STRUCTURAL FASTENERS FOR STRUCTURAL STEEL FRAMING SHALL CONFORM TO ASTM A325. FASTENERS SHALL BE 5/8\"
- NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY TRUE NORTH AND INFORM CONSTRUCTION MANAGER OF ANY DISCREPANCY BEFORE STARTING CONSTRUCTION.
- CONSTRUCTION TO COMMENCE UPON COMPLETION OF A PASSING STRUCTURAL ANALYSIS. STRUCTURAL ANALYSIS TO BE PERFORMED BY ADVANTAGE ENGINEERS.

## GENERAL CONTRACTOR NOTES

- THE ANTENNA MOUNTS AND CONNECTIONS THAT ARE USED TO SUPPORT THE PROPOSED INSTALLATION ARE TO BE INSPECTED PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT. IF THE CONDITIONS OF THE MOUNTS AND CONNECTIONS ARE FOUND TO BE UNACCEPTABLE, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY AND THE UNACCEPTABLE ELEMENTS OF THE MOUNT OR HARDWARE SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR.
- ANTENNA RAD CENTER IS IN REFERENCE TO ELEVATION 0'-0\"
- CONTRACTOR IS TO VERIFY ALL ANTENNA AZIMUTHS WITH THE T-MOBILE CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.

## EXISTING ANTENNA SCHEDULE

POSITION	ANTENNA RAD CENTER	EXISTING AZIMUTH	EXISTING TECH	ANTENNA MANUFACTURER	EXISTING ANTENNA MODEL #	EXISTING RRU/TMA	EXISTING RRU/TMA	EXISTING MDT	EXISTING EDT
A-1	78°-0"	1°	L2100, U1900, G1900	ANDREW	ADFD1820-9090B-XDM	1B-AWS	N/A	0'	3/3
B-1	78°-0"	1°	L2100, U1900, G1900	ANDREW	ADFD1820-9090B-XDM	1B-AWS	N/A	0'	5/5
G-1	78°-0"	1°	L2100, U1900, G1900	ANDREW	ADFD1820-9090B-XDM	1B-AWS	N/A	0'	5/5

## PROPOSED ANTENNA SCHEDULE

POSITION	ANTENNA RAD CENTER	PROPOSED AZIMUTH	PROPOSED TECH	ANTENNA MANUFACTURER	PROPOSED ANTENNA MODEL #	PROPOSED RRU/TMA	PROPOSED RRU/TMA	PROPOSED MDT	PROPOSED EDT
A-1	78°-6"	15°	N600, L800, L700, U1900, U1900, L2500, N2500	COMMSCOPE	FFV4-65A-R3V1	4480 B71+H85, 8863 B41	4460 B25+H86	0'	3/3/3/3/2/2
B-1	78°-6"	135°	N600, L800, L700, U1900, U1900, L2500, N2500	COMMSCOPE	FFV4-65A-R3V1	4480 B71+H85, 8863 B41	4460 B25+H86	0'	3/3/3/3/2/2
G-1	78°-6"	255°	N600, L800, L700, U1900, U1900, L2500, N2500	COMMSCOPE	FFV4-65A-R3V1	4480 B71+H85, 8863 B41	4460 B25+H86	0'	3/3/3/3/2/2

## ANTENNA/RRU/TMA SPECS

EXISTING ANTENNAS	MANUFACTURER	ANTENNA MODEL #	QUANTITY	HEIGHT	WIDTH	DEPTH	WEIGHT
	ANDREW	ADFD1820-9090B-XDM TO BE REMOVED	3	51.7"	12.1"	4.5"	22.05 LBS
FINAL PROPOSED ANTENNA CONFIGURATION	MANUFACTURER	ANTENNA MODEL #	QUANTITY	HEIGHT	WIDTH	DEPTH	WEIGHT
	COMMSCOPE	FFV4-65A-R3V1	3	48.2"	25.2"	9.3"	79.4 LBS
EXISTING TMAs	MANUFACTURER	TMA MODEL #	QUANTITY	HEIGHT	WIDTH	DEPTH	WEIGHT
	GENERIC	TWIN STYLE 1B-AWS TO BE REMOVED	3	10.04"	9.29"	4.84"	22.5 LBS
FINAL PROPOSED RRU CONFIGURATION	MANUFACTURER	RRU MODEL #	QUANTITY	HEIGHT	WIDTH	DEPTH	WEIGHT
	ERICSSON	4480 B71+H85	3	21.8"	15.7"	7.5"	84 LBS
	ERICSSON	4460 B25+H86	3	19.6"	15.7"	12.1"	109 LBS
	ERICSSON	8863 B41	3	18.82"	14.76"	5.71"	49.8 LBS

**T-Mobile**  
NORTHEAST LLC

T-MOBILE NORTHEAST LLC  
2000 BALTIMORE AVENUE  
BALTIMORE, MARYLAND 21205  
PHONE: (240) 264-8800  
FAX: (240) 264-8810



**advantage engineers**

7151 COLUMBIA GATEWAY DRIVE SUITE A  
COLUMBIA, MARYLAND 21046  
PHONE: (443) 387-0003  
FAX: (443) 387-3548

### SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
1		
2	01-07-2022	NEW CANISTER DESIGN
3	11-17-2021	ZONING COMMENTS
4	11-05-2021	ISSUED FOR CONSTRUCTION

DRAWN BY:	EDZ
CHECKED BY:	MRL
SCALE:	NOTED
JOB NO:	19E0047.001
DRAWING TITLE:	

### ANTENNA PLAN & NOTES

DRAWING SHEET:

**A-1**

**FRALEY FAMILY - ROCKVILLE**  
7W4N162B  
17800 BOWIE MILL ROAD  
DERWOOD, MARYLAND 28055

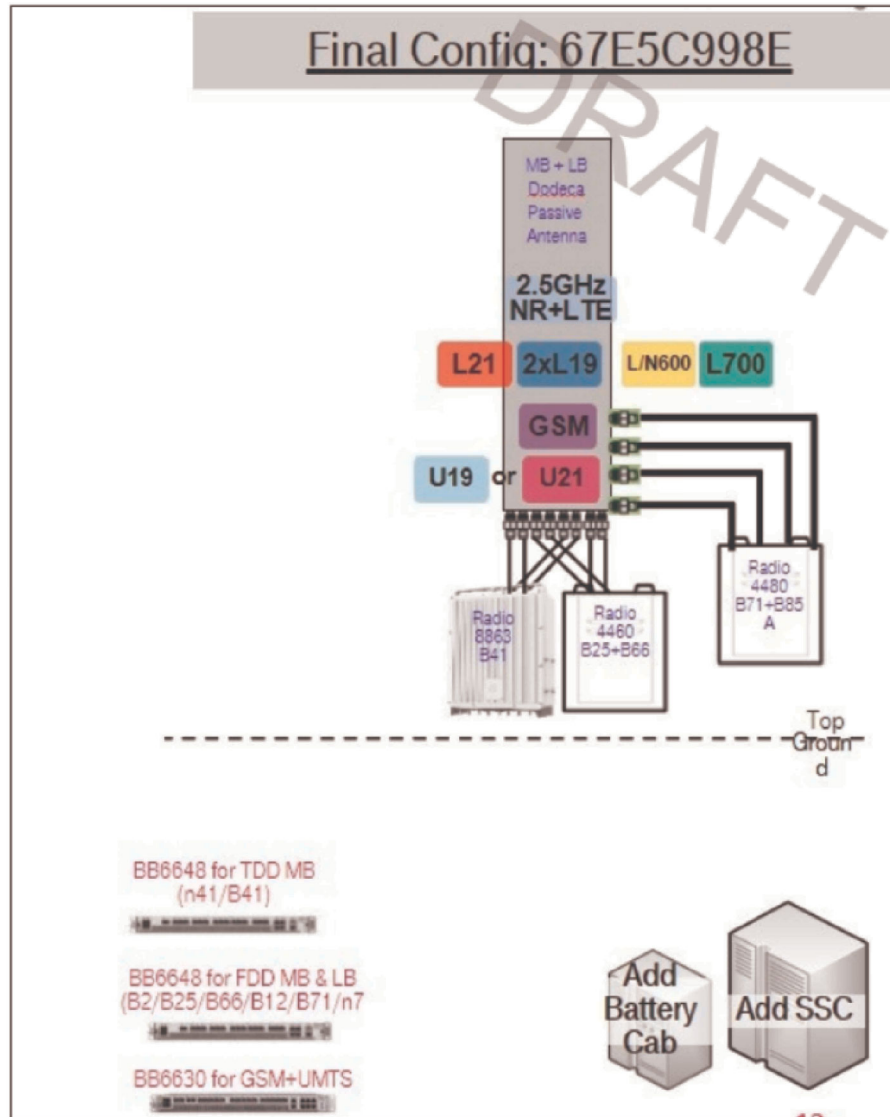
SHEET NO. 5 OF 13



ANDREW M. MILLER, P.E.  
"I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 41487, EXPIRATION DATE 11-01-2024."

## PROPOSED CABLES

DESCRIPTION	QUANTITY	LENGTH
6x24 HYBRID CABLE (ALPHA SECTOR)	2	30M
6x24 HYBRID CABLE (BETA SECTOR)	2	30M
6x24 HYBRID CABLE (GAMMA SECTOR)	2	30M
PSU 4813	1	30M



Notes:

**PLUMBING DIAGRAM**  
SCALE: N.T.S.

**T-Mobile**  
NORTHEAST LLC  
T-MOBILE NORTHEAST LLC  
12000 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
PHONE: (240) 264-8600  
FAX: (240) 264-8610

**advantage engineers**  
7151 COLUMBIA GATEWAY DRIVE SUITE A  
COLUMBIA, MARYLAND 21046  
PHONE: (443) 367-0003  
FAX: (443) 367-3548

### SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
1		
2		
3		
4		
5		
6	01-07-2022	NEW CANISTER DESIGN
7	11-17-2021	ZONING COMMENTS
8	11-05-2021	ISSUED FOR CONSTRUCTION
9		
10		

**PLUMBING  
DIAGRAM &  
CABLES**

DRAWING SHEET:

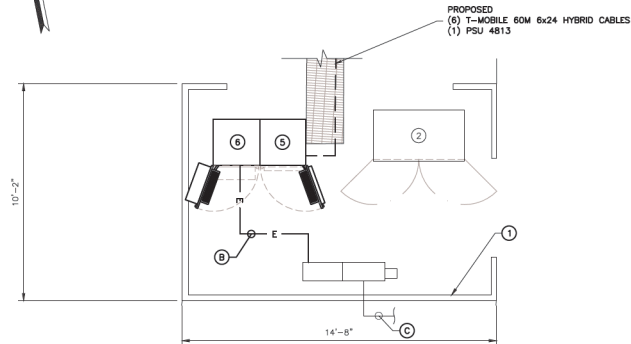
**A-2**

**FRALEY FAMILY - ROCKVILLE**  
7WAN162B  
17800 BOWIE MILL ROAD  
DERWOOD, MARYLAND 28055

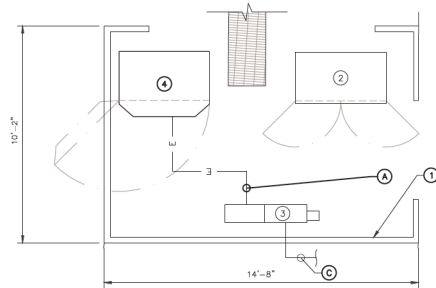
SHEET NO. 6 OF 13



ANDREW M. MILLER, P.E.  
"PROFESSIONAL CERTIFICATION: I HEREBY  
CERTIFY THAT THESE DOCUMENTS WERE  
PREPARED OR APPROVED BY ME, AND THAT I  
AM A FULLY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE OF  
MARYLAND, LICENSE NO. 41487, EXPIRATION  
DATE 11-01-2024"



**PROPOSED EQUIPMENT CABINET LAYOUT**  
SCALE: N.T.S.



**EXISTING EQUIPMENT CABINET LAYOUT**  
SCALE: N.T.S.

### T-MOBILE CABINET PLAN KEY

IDENTIFIER	CABINET AND STATUS	DETAIL
①	EXISTING 14'-0"x10'-2" EQUIPMENT AREA TO REMAIN	N/A
②	EXISTING 6102 EQUIPMENT CABINET TO REMAIN	N/A
③	EXISTING 120/240V, 200A, 1PH PPC TO REMAIN	N/A
④	EXISTING RBS 2106 EQUIPMENT CABINET TO BE REMOVED	N/A
⑤	PROPOSED B160 BATTERY CABINET TO BE INSTALLED	D-2
⑥	PROPOSED 6160 EQUIPMENT CABINET TO BE INSTALLED	D-1

### CABINET INSTALLATION NOTES

- SEE SHEET D-1 FOR 6160 EQUIPMENT CABINET SPECIFICATIONS AND ERICSSON SUGGESTED INSTALLATION INSTRUCTIONS.
- SEE SHEET D-2 FOR B160 BATTERY CABINET SPECIFICATIONS AND ERICSSON SUGGESTED INSTALLATION INSTRUCTIONS.

### ELECTRICAL AT T-MOBILE CABINETS KEY

IDENTIFIER	ITEM AND STATUS	ROUTING/LOCATION	DETAIL
A	EXISTING (3) #1/0 & (1) #6 GND IN EXISTING CONDUIT TO BE REMOVED (SEE NOTE)	FROM EXISTING T-MOBILE 200A PPC TO EXISTING 6102 EQUIPMENT CABINET	N/A
B	PROPOSED (3) #2 & (1) #6 GND IN PROPOSED 1-1/2" CONDUIT	FROM EXISTING T-MOBILE 200A PPC TO PROPOSED 6160 EQUIPMENT CABINET	N/A
C	EXISTING CONDUIT & CONDUCTORS TO REMAIN	FROM EXISTING 200A ENCLOSED BREAKER TO EXISTING PPC	N/A

**T-Mobile**  
NORTHEAST LLC  
T-MOBILE NORTHEAST LLC  
12000 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
PHONE: (240) 264-8600  
FAX: (240) 264-8610



**advantage engineers**

7151 COLUMBIA GATEWAY DRIVE SUITE A  
COLUMBIA, MARYLAND 21046  
PHONE: (443) 367-0003  
FAX: (443) 367-3548

### SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11	01-07-2022	NEW CANISTER DESIGN
12	11-17-2021	ZONING COMMENTS
13	11-05-2021	ISSUED FOR CONSTRUCTION

DRAWN BY:	EDZ
CHECKED BY:	MRL
SCALE:	NOTED
JOB NO:	19E0047.001

DRAWING TITLE:

**PROPOSED &  
EXISTING  
EQUIPMENT  
CABINET LAYOUT**

DRAWING SHEET:

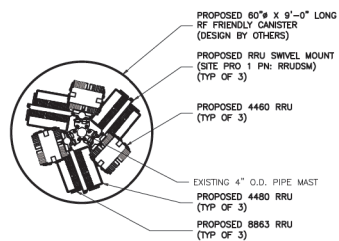
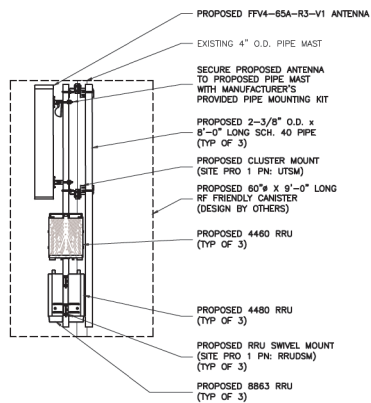
**A-3**

**FRALEY FAMILY - ROCKVILLE**  
7WAN162B  
17800 BOWIE MILL ROAD  
DERWOOD, MARYLAND 28055

SHEET NO. 7 OF 13



ANDREW M. MILLER, P.E.  
"PROFESSIONAL CERTIFICATION, I HEREBY  
CERTIFY THAT THESE DOCUMENTS WERE  
PREPARED OR APPROVED BY ME, AND THAT I  
AM A DULY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE OF  
MARYLAND, LICENSE NO. 41487, EXPIRATION  
DATE 11-01-2024"



**FFV4-65A-R3-V1 ANTENNA  
AND RRU MOUNTING DETAIL**

1  
A-4 SCALE: NOT TO SCALE

**T-Mobile**  
NORTHEAST LLC

T-MOBILE NORTHEAST LLC  
12050 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
PHONE: (240) 264-8600  
FAX: (240) 264-8610

  
**advantage engineers**

7151 COLUMBIA GATEWAY DRIVE SUITE A  
COLUMBIA, MARYLAND 21046  
PHONE: (443) 367-0003  
FAX: (443) 367-3548

**SCHEDULE OF REVISIONS**

REV. NO.	DATE	DESCRIPTION OF CHANGES
1		
2		
3		
4		
5		
6	01-07-2022	NEW CANISTER DESIGN
7	11-17-2021	ZONING COMMENTS
8	11-05-2021	ISSUED FOR CONSTRUCTION
DRAWN BY:	EDZ	
CHECKED BY:	MRL	
SCALE:	NOTED	
JOB NO:	19E0047.001	
DRAWING TITLE:		

**DETAILS**

DRAWING SHEET:

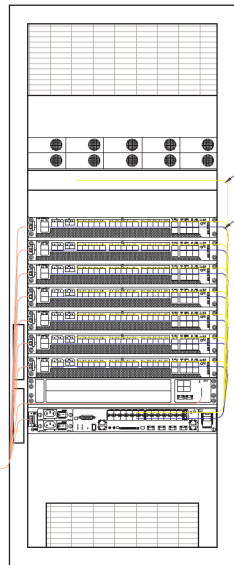
**A-4**

**FRALEY FAMILY - ROCKVILLE**  
7WAN162B  
17800 BOWIE MILL ROAD  
DERWOOD, MARYLAND 28055

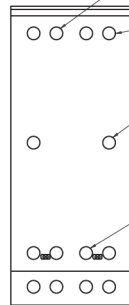
SHEET NO. 8 OF 13



ANDREW M. MILLER, P.E.  
"PROFESSIONAL CERTIFICATION, I HEREBY  
CERTIFY THAT THESE DOCUMENTS WERE  
PREPARED OR APPROVED BY ME, AND THAT I  
AM A DULY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE OF  
MARYLAND, LICENSE NO. 41497, EXPIRATION  
DATE 11-01-2024"

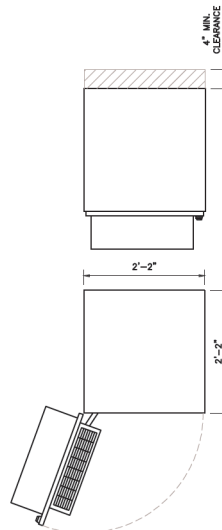


INTERNAL ROUTING

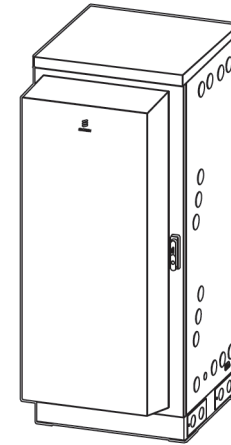


REAR VIEW

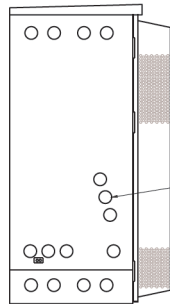
- 2" KNOCKOUTS WITH RIGID CONDUIT AND LB FOR 3/0 BATTERY CABLE INSTALL AND AUX POWER CABLE. OUTSIDE KNOCKOUTS WORK BEST FOR EASER OF INSTALL.
- 2" KNOCKOUTS WITH LBS FOR ALARM CABLE AND TEMPO SENSOR ROUTING. UPPER REAR CENTER WORK BEST FOR THIS INSTALL FOR EASE OF INSTALL REPLACEMENT IN THE EVENT OF FAILURE.
- 2" KNOCKOUTS FOR AAV AND FIBER ROUTING BETWEEN MACRO CABINETS ON SITE. LB WITH RIGID CONDUIT IS PREFERRED.
- 2" KNOCKOUTS AT LOWER REAR OF THE CABINET PROVIDE A CLEANER INSTALL AND EASIER FIBER AND D.C CABLE ROUTING. PROTECTION AND TRIP HAZARD PREVENTION SHOULD BE ADDED FOR SAFETY OF CABLES AND TECHNICIANS.



PLAN VIEW

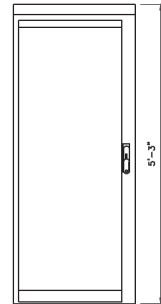


ISOMETRIC VIEW

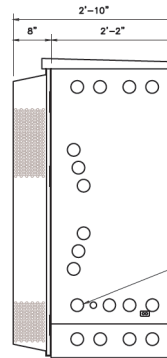


LEFT SIDE VIEW

- 2" KNOCKOUT ON LEFT HAND SIDE OF CABINET USED AC POWER WITH RIGID CONDUIT AND LB. PENETRATIONS DIRECTLY BELOW ACCU

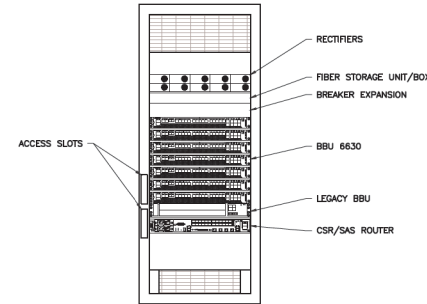


FRONT VIEW



RIGHT SIDE VIEW

- UNUSABLE 2" KNOCKOUTS DUE TO CLOSE PROXIMITY TO B160 CABINET



FRONT VIEW  
(DOOR NOT SHOWN FOR CLARITY)

MANUFACTURER: ERICSSON  
MODEL: 6160  
SKU: 33953  
DIMENSIONS (HxWxD): 63"x26"x34"  
WEIGHT: 295 LBS (WITHOUT EQUIPMENT)  
605 LBS (MAX)

- NOTES:
1. CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS DO NOT DRILL KNOCKOUTS THROUGH.
  2. CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND/OR CABLING.

6160 EQUIPMENT CABINET DETAIL (ERICSSON SKU #33953)  
SCALE: N.T.S.

**T-Mobile**  
NORTHEAST LLC  
T-MOBILE NORTHEAST LLC  
12000 BALTIMORE AVENUE  
BALTIMORE, MARYLAND 21046  
PHONE: (240) 264-8600  
FAX: (240) 264-8610

**advantage engineers**  
7151 COLUMBIA GATEWAY DRIVE SUITE A  
COLUMBIA, MARYLAND 21046  
PHONE: (443) 367-0003  
FAX: (443) 367-3548

SCHEDULE OF REVISIONS	
REV. NO.	DESCRIPTION OF CHANGES
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	
53	
54	
55	
56	
57	
58	
59	
60	
61	
62	
63	
64	
65	
66	
67	
68	
69	
70	
71	
72	
73	
74	
75	
76	
77	
78	
79	
80	
81	
82	
83	
84	
85	
86	
87	
88	
89	
90	
91	
92	
93	
94	
95	
96	
97	
98	
99	
100	

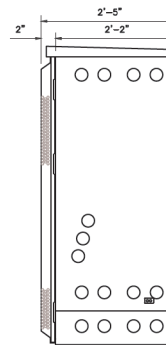
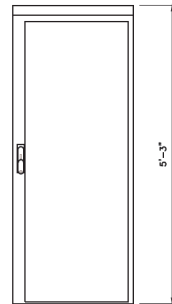
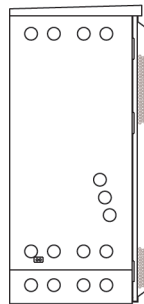
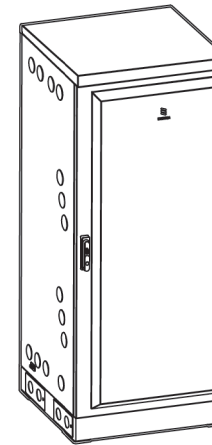
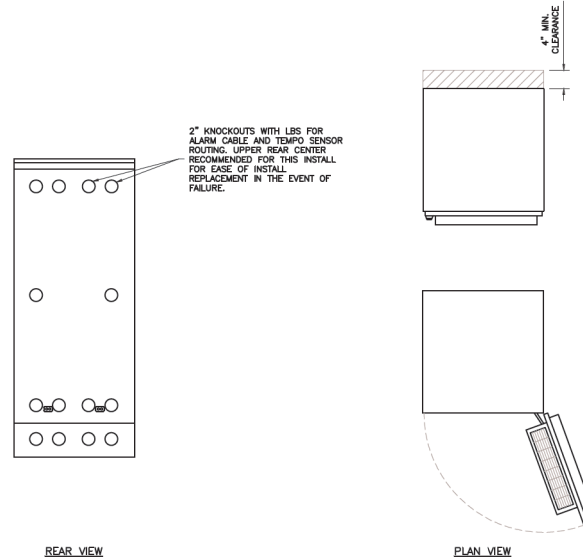
**6160 EQUIPMENT CABINET DETAIL**

**D-1**

SHEET NO. 9 OF 13

**FRALEY FAMILY - ROCKVILLE**  
7WAN162B  
17800 BOWIE MILL ROAD  
DERWOOD, MARYLAND 28055

ANDREW M. MILLER, P.E.  
"PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 41487, EXPIRATION DATE 11-15-24"



- 25A AUX BREAKERS
  - FANS
  - LIGHTS
  - ANCILLARY EQUIPMENT
  - ALARM BOX (PRE-LABELED)
- 
- BATTERY TRAY W/
  - BRACKETS
  - VIBRATION MOUNTS
  - PRE-INSTALLED HEATERS (TYP OF 3)

MANUFACTURER: ERICSSON  
 MODEL: B160  
 SKU: 33954  
 DIMENSIONS (HxWxD): 63"x26"x29"  
 WEIGHT: 295 LBS (WITHOUT BATTERIES)  
 1833 LBS (MAX)

- NOTES:
1. CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL KNOCKOUTS THROUGH.
  2. CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND/OR CABLING.

**B160 BATTERY CABINET DETAIL (ERICSSON SKU #33954)**  
 SCALE: N.T.S.

**T-Mobile**  
 NORTHEAST LLC  
 T-MOBILE NORTHEAST LLC  
 12050 BALTIMORE AVENUE  
 BELTSVILLE, MARYLAND 20705  
 PHONE: (240) 264-8600  
 FAX: (240) 264-8610

**advantage engineers**  
 7151 COLUMBIA GATEWAY DRIVE SUITE A  
 COLUMBIA, MARYLAND 21046  
 PHONE: (443) 367-0203  
 FAX: (443) 367-3548

SCHEDULE OF REVISIONS		
REV. NO.	DATE	DESCRIPTION OF CHANGES
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11	01-07-2022	NEW CANISTER DESIGN
12	11-17-2021	ZONING COMMENTS
13	11-05-2021	ISSUED FOR CONSTRUCTION


**B160 BATTERY CABINET DETAIL**

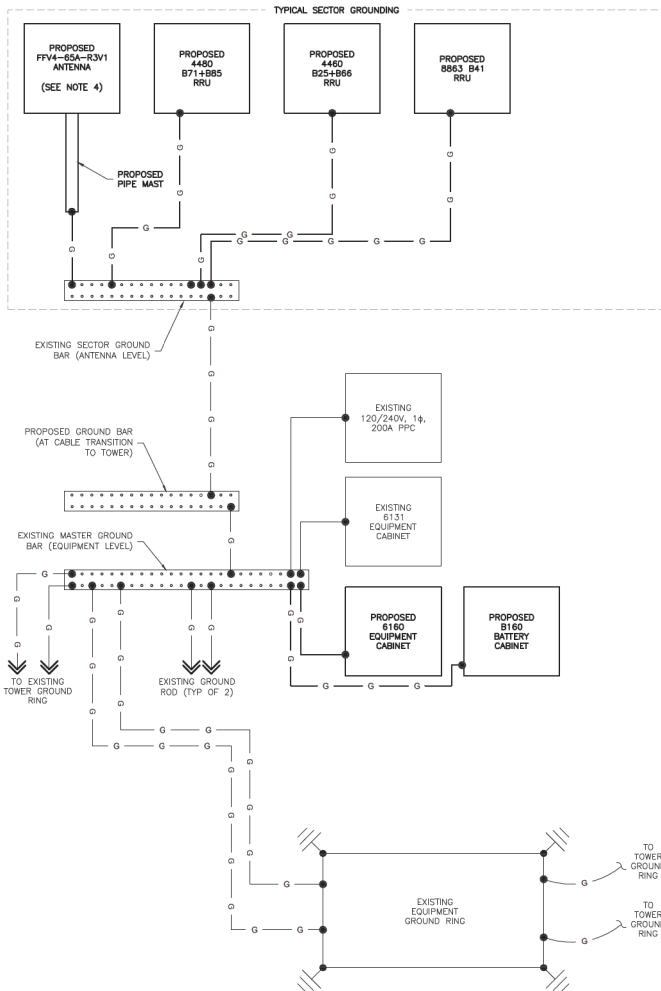
DRAWING SHEET:

**D-2**

**FRALEY FAMILY - ROCKVILLE**  
 7WAN162B  
 17800 BOWIE MILL ROAD  
 DERWOOD, MARYLAND 28055

SHEET NO. 10 OF 13

  
 ANDREW M. MILLER, P.E.  
 "PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 41487, EXPIRATION DATE 11-01-2024."



#### GROUNDING DIAGRAM NOTES:

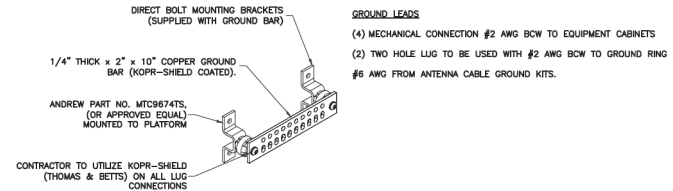
- EQUIPMENT SHOWN DIAGRAMMATICALLY. REFER TO LAYOUT PLANS FOR EXACT EQUIPMENT LOCATION.
- NO EXOTHERMIC WELDS (CADWELD) ALLOWED AT ANTENNA LEVEL.
- GROUND CABLES SHALL BE #2 AWG, GREEN, TINNED, SOLID COPPER CONDUCTORS UNLESS OTHERWISE NOTED.
- ANTENNA GROUNDED BY RF CONNECTOR INNER CONDUCTOR AND BODY GROUNDED TO REFLECTOR AND MOUNTING BRACKET.

#### GROUNDING DIAGRAM

SCALE: N.T.S.

#### GROUNDING NOTES:

- ALL GROUNDING SYSTEM CONDUCTORS AND CONNECTIONS BELOW GRADE SHALL BE THERMAL WELDS AT GROUND RODS AND AT A MINIMUM OF 36" BELOW GRADE.
- ALL INSTALLATIONS SHALL BE FIELD VERIFIED.
- ALL GROUND WIRE SHALL BE #2 AWG BARE COPPER TINNED UNLESS NOTED OTHERWISE.
- ALL GROUND WIRES SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND WITH GRADUAL BEND AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
- THE CONTRACTOR SHALL COORDINATE INSTALLATION OF GROUND RODS AND GROUND RING WITH FOUNDATION AND UNDERGROUND CONDUIT.
- EACH EQUIPMENT CABINET SHALL BE CONNECTED WITH (2) #2 AWG INSULATED SOLID TINNED COPPER WIRE TO GROUND BAR. EQUIPMENT CABINETS SHALL EACH HAVE (2) CONNECTIONS.
- ANTENNA GROUND KITS SHALL BE FURNISHED BY SPRINT AND INSTALLED BY ELECTRICAL CONTRACTOR.
- KOPR-SHIELD ANTI-OXIDATION COMPOUND SHALL BE USED ON ALL GROUNDING CONNECTIONS.
- EXOTHERMIC WELDS (CADWELD) SHALL NOT BE USED ON ROOFTOPS, AT SECTOR LEVEL OR ON WATER TANKS.
- ALL BOLTED GROUNDING CONNECTIONS SHALL BE INSTALLED WITH A LOCK WASHER UNDER THE NUT. HARDWARE FOR BOLTED CONNECTIONS SHALL BE A MINIMUM OF 3/4" DIAMETER AND SHALL BE STAINLESS STEEL.
- GROUNDING WIRE SHALL NOT BE INSTALLED OR ROUTED THROUGH HOLES IN ANY METAL OBJECTS OR SUPPORTS TO PRECLUDE ESTABLISHING A "CHOKE" POINT.
- PLASTIC CLIPS OR METAL CLIPS WHICH DO NOT COMPLETELY SURROUND THE GROUNDING CONDUCTORS SHALL BE USED TO FASTEN AND SUPPORT GROUNDING CONDUCTORS. FERROUS METAL CLIPS WHICH COMPLETELY SURROUND THE GROUNDING CONDUCTOR SHALL NOT BE USED.
- STANDARD BUS BARS (CIGB AND MGB) SHALL BE FURNISHED AND INSTALLED. THEY SHALL NOT BE FABRICATED OR MODIFIED IN THE FIELD.
- THE GROUNDING CONNECTION TO THE POWER AND TELCO SECTIONS OF THE PPC CABINET SHALL BE MADE BY CONNECTING A CONDUCTOR FROM THE GROUND RING TO THE FACTORY FURNISHED BUS BAR IN EACH COMPARTMENT.



#### GROUND BAR DETAIL

SCALE: N.T.S.

**T-Mobile**  
NORTHEAST LLC

T-MOBILE NORTHEAST LLC  
2000 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
PHONE: (240) 264-8600  
FAX: (240) 264-8610



**advantage engineers**

7151 COLUMBIA GATEWAY DRIVE SUITE A  
COLUMBIA, MARYLAND 21046  
PHONE: (443) 367-0003  
FAX: (443) 367-3548

#### SCHEDULE OF REVISIONS

NO.	DATE	DESCRIPTION OF CHANGES
1		
2	01-07-2022	NEW CANISTER DESIGN
3	11-17-2021	ZONING COMMENTS
4	11-05-2021	ISSUED FOR CONSTRUCTION

DRAWN BY:	EDZ
CHECKED BY:	MRL
SCALE:	NOTED
JOB NO:	19E0047.001
DRAWING TITLE:	

#### GROUNDING DIAGRAM & DETAILS

#### DRAWING SHEET:

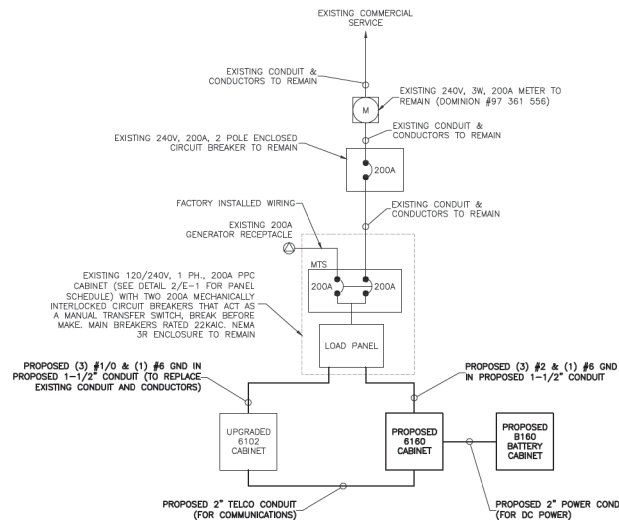
**G-1**

**FRALEY FAMILY - ROCKVILLE**  
7WAN162B  
17800 BOWIE MILL ROAD  
DERWOOD, MARYLAND 28055

SHEET NO. 11 OF 13



ANDREW M. MILLER, P.E.  
"PROFESSIONAL CERTIFICATION I HEREBY  
CERTIFY THAT THESE DOCUMENTS WERE  
PREPARED OR APPROVED BY ME, AND THAT I  
AM A DULY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE OF  
MARYLAND, LICENSE NO. 41487, EXPIRATION  
DATE 11-06-24"



#### NOTES:

- ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT ADOPTED NATIONAL ELECTRIC CODES AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC.
- UNDERGROUND POWER AND TELCO SERVICE LINES SHALL BE ROUTED IN A COMMON TRENCH. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 AND CONDUIT EXPOSED ABOVE GROUND SHALL BE RIGID GALVANIZED STEEL. INTERIOR CONDUIT SHALL BE EMT UNLESS OTHERWISE INDICATED. POWER CONDUIT LINES SHALL BE SIZED AS REQUIRED PER CABLE SIZING AND NEC REQUIREMENTS.
- CONDUITS INSTALLED AT BTS EQUIPMENT ENDS PRIOR TO THE EQUIPMENT INSTALLATION SHALL BE STUBBED AND CAPPED AT 6" ABOVE GRADE OR PLATFORM. IF SERVICE LINES CAN'T BE INSTALLED INITIALLY, PROVIDE NYLON PULL CORD IN CONDUITS.

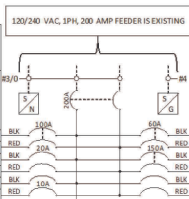
### 1 ELECTRICAL ONE LINE DIAGRAM

SCALE: N.T.S.

Panel Circuit and Load Schedule									
Load		QTY.	Unit V.A.	Load per phase (VA)		Continuous	Non-Continuous	Trip	Poles
				A	B				
1	PROPOSED 6160 CABINET	1	8200	8,200	8,200	X		100	2
2		1	8200		8,200	X			2
3	LIGHT	1	150	150			X	20	1
4	GFI	1	150	150			X		1
5	SPACE			0					
6	FAN	1	200		200		X	10	1
SubTotal Continuous				8,200	8,200				
SubTotal Non-Continuous				150	380				
Voltage: 120/240				Phase: 1		Wire: 3			
Neutral: 200 Amps				A.I.C.: 22,000		Trip: 200 Amps			
Main Breaker: 200 Amp Frame									
Main Lugs: 200 Amps				Main Bus: 200 Amps					

### 2 PANEL SCHEDULE

SCALE: N.T.S.



SERVICE: 120/240 VAC DESIGNATION: T-MOBILE PANEL LOCATION: T-MOBILE PLATFORM									
Load		QTY.	Unit V.A.	Load per phase (VA)		Continuous	Non-Continuous	Trip	Poles
				A	B				
1	PROPOSED 6160 CABINET	1	8200	8,200	8,200	X		100	2
2		1	8200		8,200	X			2
3	LIGHT	1	150	150			X	20	1
4	GFI	1	150	150			X		1
5	SPACE			0					
6	FAN	1	200		200		X	10	1
SubTotal Continuous				8,200	8,200				
SubTotal Non-Continuous				150	380				
Voltage: 120/240				Phase: 1		Wire: 3			
Neutral: 200 Amps				A.I.C.: 22,000		Trip: 200 Amps			
Main Breaker: 200 Amp Frame									
Main Lugs: 200 Amps				Main Bus: 200 Amps					

#### ELECTRICAL SYMBOLS

	TRANSFORMER		PHASE
	METER		POWER WIRE
	CIRCUIT BREAKER		TELCO WIRE
	DISCONNECT SWITCH		

**T-Mobile**  
NORTHEAST LLC  
T-MOBILE NORTHEAST LLC  
12000 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
PHONE: (240) 264-8800  
FAX: (240) 264-8810



**advantage engineers**

7151 COLUMBIA GATEWAY DRIVE SUITE A  
COLUMBIA, MARYLAND 21046  
PHONE: (443) 367-0003  
FAX: (443) 367-3548

#### SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
1	01-07-2022	NEW CANISTER DESIGN
2	11-17-2021	ZONING COMMENTS
3	11-05-2021	ISSUED FOR CONSTRUCTION

DRAWN BY:	EDZ
CHECKED BY:	MRL
SCALE:	NOTED
JOB NO:	19E0047.01

DRAWING TITLE:  
**ELECTRICAL  
DETAILS**

DRAWING SHEET:

**E-1**

**FRLEY FAMILY - ROCKVILLE**  
7WAN162B  
17800 BOWIE MILL ROAD  
DERWOOD, MARYLAND 28055

SHEET NO. 12 OF 13



ANDREW M. MILLER, P.E.  
"PROFESSIONAL CERTIFICATION, I HEREBY  
CERTIFY THAT THESE DOCUMENTS WERE  
PREPARED OR APPROVED BY ME, AND THAT I  
AM A DULY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE OF  
MARYLAND, LICENSE NO. 41487, EXPIRATION  
DATE 11-01-2024"

GENERAL ELECTRICAL NOTES & BASIC ELECTRICAL REQUIREMENTS

1. THE DRAWINGS ARE PROVIDED TO DEPICT DESIGN INTENT AND ARE NOT TO BE CONSIDERED INSTALLATION DRAWINGS. NOT ALL COMPONENTS OR CONNECTIONS ARE SHOWN. EQUIPMENT PART NUMBERS ARE SHOWN TO PROVIDE PERFORMANCE CRITERIA AND LEVEL OF PRODUCT STANDARDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING FINAL CONDUIT ROUTING, INSTALLATION OF ALL ELECTRICAL EQUIPMENT, COMPONENTS AND MATERIALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INSTALLATION MEANS AND METHODS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING, ENERGIZING AND TESTING OF ALL ELECTRICAL COMPONENTS PER THE MANUFACTURER'S INSTRUCTIONS.
2. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE ADVANTAGE ENGINEERS PROJECT MANAGER OR CONSTRUCTION MANAGER FOR CLARIFICATION. NOT AFTER THE CONTRACT HAS BEEN AWARDED.
3. CONTRACTOR SHALL PERFORM ALL VERIFICATION, OBSERVATION, TESTS, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE DESIGN PROFESSIONAL LISTING ANY AND ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
4. THE CONTRACTOR SHALL NOTIFY THE DESIGN PROFESSIONAL, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
5. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE DESIGN PROFESSIONAL OF ANY UNFORESEEN SITE CONDITIONS THAT MAY IMPACT THE DESIGN.
6. THE CONTRACTOR IS IN NO WAY PERMITTED TO MODIFY OR CHANGE THE DESIGN WITHOUT THE EXPRESS, WRITTEN CONSENT OF THE DESIGN PROFESSIONAL. SHOULD THE CONTRACTOR MAKE MODIFICATIONS TO THE DESIGN WITHOUT THE CONSENT OF THE DESIGN PROFESSIONAL, THE CONTRACTOR ASSUMES ALL RESPONSIBILITY AND LIABILITY FOR SUCH CHANGES.
7. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL JURISDICTIONS HAVING JURISDICTION, THE AUTHORITY HAVING JURISDICTIONS OR OTHER PUBLIC AUTHORITIES.
8. ALL ELECTRICAL WORK SHALL CONFORM TO THE CURRENTLY ADOPTED EDITION OF THE NATIONAL ELECTRIC CODE AND OTHER APPLICABLE CODES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR LOCAL MUNICIPAL AUTHORITIES.
10. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION CONSTRUCTION TOOLS, TRANSPORTATION, ETC. FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AS INDICATED IN THE CONSTRUCTION DOCUMENTS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING OF THE WORK SITE AND REMOVING ALL TRASH AND DEBRIS ON A DAILY BASIS.
13. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATING, DRAINING, TRENCHES, BACKFILLING, AND REMOVAL OF EXCESS DIRT.
15. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES (UL) AND SHALL BEAR THE INSPECTION LABEL. IF WHERE SUBJECT TO SUCH APPROVAL, MATERIALS SHALL MEET WITH THE APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION AND SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NFPA, IBC, INC., IECC, IFC, NEC, IEEE, ASTM, NEMA, UL, AND NFPA.
16. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO ROUGH-IN.
17. THE CONDUIT RUNS SHOWN ON THE PLANS ARE APPROXIMATE. EXACT LOCATION AND ROUTING SHALL BE PER EXISTING FIELD CONDITIONS.
18. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING EQUAL TO OR GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 ACI MINIMUM FOR MAINS AND 10,000 ACI MINIMUM FOR BRANCH DEVICES. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT.
19. ALL NEW INSTALLED ELECTRICAL EQUIPMENT SHALL BE FURNISHED WITH ARC FLASH HAZARD LABELS AS REQUIRED BY THE NEC.
20. ALL ELECTRICAL EQUIPMENT, INCLUDING BUT NOT LIMITED TO: DISCONNECT SWITCHES, TRANSFORMERS, PANELBOARDS, POWER PROTECTION CABINET (PPC), AUTOMATIC TRANSFER SWITCH (ATS), MANUAL TRANSFER SWITCH (MTS), POWER TRANSFER LOAD CENTER (PTLC), ETC., SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS. LABELS SHALL INDICATE EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
21. THE CONTRACTOR SHALL PREPARE A COMPLETE SET OF AS-BUILT DRAWINGS, DOCUMENT ALL WIRING EQUIPMENT CONDITIONS, INCLUDING MANUFACTURER'S AND PART NUMBERS FOR PANELBOARDS, TRANSFORMERS, POWER PROTECTION CABINETS (PPC) AND DISCONNECTS, AND CHANGES WHILE COMPLETING THIS CONTRACT. THE AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE DESIGN PROFESSIONAL AT THE COMPLETION OF THE PROJECT.
22. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, REMOVE DEBRIS, CRATING AND CARTONS AND LEAVE THE INSTALLATION FINISHED AND READY FOR OPERATION.
23. THE CONTRACTOR SHALL NOTIFY THE BUILDING OWNER FIVE (5) BUSINESS DAYS PRIOR TO ANY PLANNED POWER OR OTHER SERVICE OUTAGE. THE OWNER SHALL RESERVE THE RIGHT TO REFUSE SUCH OUTAGE AND HAVE IT RESCHEDULED.
24. ANY CODE VIOLATIONS DUE TO THE CONTRACTOR'S WORK SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

ELECTRICAL SPECIFICATIONS: ELECTRICAL MATERIALS AND EQUIPMENT

CONDUIT

1. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND WHERE INDICATED ON THE DRAWINGS, FOR UNDERGROUND AND FINISHED INTERIOR LOCATIONS. RGS CONDUIT SHALL BE STEEL COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZING PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1. FEDERAL SPECIFICATION WW-C-581 AND SHALL BE LISTED WITH THE UNDERWRITER'S LABORATORIES. FITTINGS SHALL BE THREADED - SET SCREW OR COMPRESSION FITTINGS WILL NOT BE ACCEPTED.
2. UNDERGROUND CONDUIT SHALL BE POLYVINYLCHLORIDE SCHEDULE 40 (PVC), SCHEDULE 40 PVC SHALL NOT BE PERMITTED ABOVE GRADE. WHERE CONDUIT PASSES UNDER A ROAD OR DRIVE, IT SHALL BE SCHEDULE 80 PVC. SUITABLE FOR DIRECT BURIAL. JOINTS SHALL BE BELLED, AND FLUSH, SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
3. EMT OR RIGID GALVANIZED STEEL CONDUIT MAY BE USED IN FINISHED INTERIOR SPACES, CONCEALED IN WALLS AND CEILINGS. EMT SHALL BE MILD STEEL, ELECTRICALLY WELDED, ELECTRO-GALVANIZED OR HOT-DIPPED GALVANIZED AND PRODUCED TO ANSI SPECIFICATION C80.3. FEDERAL SPECIFICATION WW-C-563, AND SHALL BE U.L. LISTED. FITTING SHALL BE METALLIC COMPRESSION. SET SCREW CONNECTIONS ARE NOT PERMITTED.
4. LIGHTDUTY FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR FINAL CONNECTION TO EQUIPMENT. FITTINGS SHALL BE METALLIC CLAMP TYPE COMPRESSION FITTINGS, MAINTAINING THE INTEGRITY OF CONDUIT SYSTEM. SET SCREW CONNECTIONS ARE NOT PERMITTED.
5. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED 30 (6) FEET, EXCEPT WHERE PERMITTED BY THE NEC. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRED BY THE NEC.
6. MINIMUM SIZE CONDUIT SHALL BE ¾ INCH.
6. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY THE NEC.
7. PROVIDE VERTICAL CABLE SUPPORTS IN ALL VERTICAL CONDUITS WHERE SHOWN OR REQUIRED BY THE NEC.
7. PROVIDE EXPANSION FITTINGS IN CONDUIT WHERE SHOWN OR REQUIRED BY THE NEC.
8. ALL CONDUITS SHALL BE MET WITH BENDS MADE IN ACCORDANCE WITH NEC. NO RIGHT ANGLE DEVICE OTHER THAN STANDARD CONDUIT ELBOWS WITH 12 INCH MINIMUM INSIDE BENDS FOR ALL CONDUITS 2 INCH OR LARGER.
10. THERE SHALL NOT BE MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL) BETWEEN PULL BOXES, CONDUIT BODIES AND BOXES. CONTRACTOR SHALL FURNISH AND INSTALL ANY/ALL JUNCTION BOXES SIZED IN ACCORDANCE WITH THE NEC REQUIREMENTS AS REQUIRED FOR THE INSTALLATION.
11. ALL CONDUIT TERMINATIONS SHALL BE PROVIDED WITH PLASTIC THROAT INSULATING GROUND BUSHING.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION.
13. TEMPORARY OPENINGS IN THE CONDUIT SYSTEM SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATTER. CONTRACTOR SHALL REPLACE ANY CONDUITS CONTAINING FOREIGN MATERIALS THAT CANNOT BE REMOVED.
14. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATELY SIZED MANDREL THROUGH THE CONDUIT BEFORE INSTALLATION OF CONDUCTORS OR CABLES. CONDUIT SHALL BE FREE OF DIRT AND DEBRIS.
15. INSTALL PULL STRINGS IN ALL CLEAN EMPTY CONDUITS. IDENTIFY PULL STRINGS AT EACH END.
16. INSTALL 2" HIGHLY VISIBLE AND DETECTABLE TAPE 12" ABOVE ALL UNDERGROUND CONDUIT AND CONDUCTORS, OR AS INDICATED ON THE DRAWINGS.
17. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO ENSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.
18. PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS TO ALLOW FOR RACEWAYS AND CABLES TO BE ROUTED THROUGH THE BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION (WALLS AND FLOORS) SHALL BE EFFECTIVELY SEALED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL, FLOOR OR STRUCTURE. FIRE STOPS AT FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE AND FUMES. ALL MATERIAL SHALL BE U.L. APPROVED FOR THIS PURPOSE.
19. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE ARE NOT PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO THE STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIDGID CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
20. SPARE CONDUITS SHALL BE FURNISHED WITH PULL LINES AND CAPPED WITH FACTORY CAPS.

CONDUCTORS

1. CONDUCTORS AND CABLE SHALL BE FLAME-RETARDANT, MOISTURE AND HEAT RESISTANT THERMOPLASTIC, SINGLE CONDUCTOR, COPPER, TYPE THHN/THWN-2, 600 VOLT, OR TYPE XHHW, 600V OR XHHW-2, 600V. SIZE AS INDICATED. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR.
2. #10 AWG AND SMALLER CONDUCTORS SHALL BE SOLID AND #8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
3. SOLDERLESS, COMPRESSION-TYPE CONNECTORS SHALL BE USED FOR TERMINATION OF ALL STRANDED CONDUCTORS.
4. ALL CONDUCTORS SHALL BE TAGGED AT BOTH ENDS OF THE CONDUCTOR, AT ALL PULL BOXES, JUNCTION BOXES, EQUIPMENT AND CABINETS AND SHALL BE IDENTIFIED WITH APPROVED PLASTIC TAGS.
5. CONTRACTOR SHALL PROVIDE STRAIN-RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND ALSO RET CABLES. CABLE STRAIN-RELIEF & CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. ZIP TIES OR VELCO STRAPS ARE NOT PERMITTED.

ELECTRICAL SPECIFICATIONS: ELECTRICAL MATERIALS AND EQUIPMENT. CONTINUED

DISCONNECT SWITCHES

1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, FUSIBLE, DEAD FRONT, QUICK-MAKE, QUICK-BREAK, EXTERNALLY OPERABLE, HANDLE LOCATABLE AND INTERLOCK WITH COVER IN CLOSED POSITION, VOLTAGE, AMPERAGE AND NEMA RATING AS INDICATED.
  2. INSTALL DISCONNECT SWITCHES LEVEL AND PLUMB. CONNECT TO WIRING SYSTEM AND GROUNDING SYSTEM AS INDICATED.
  3. PROVIDE A WHITE PHENOLIC SIGN WITH N°RED ENGRAVED LETTERING LABELING EACH SERVICE DISCONNECT AS SURFACE DISCONNECT. IF SOURCE IS HOUSE POWER, INCLUDE LOCATION AND LABEL OF PANEL FEEDING EQUIPMENT. HVAC DISCONNECTS SHALL BE LABELED "HVAC DISCONNECT" AND HELLGE PANEL CIRCUIT BREAKER OR CIRCUIT BREAKER SERVING THE HVAC EQUIPMENT.
  4. ALL FUSIBLE DISCONNECTS SHALL BE FURNISHED WITH CLASS RK-1 FUSES, SIZED AS INDICATED.
- PANELBOARDS
1. RATED FOR USE AT 120/240V, SINGLE PHASE, THREE WIRE PLUS GROUND, OR 120/208V, SINGLE PHASE, THREE WIRE PLUS GROUND OR 120/208V, THREE PHASE, FOUR WIRE PLUS GROUND AS REQUIRED FOR THE INTENDED APPLICATION OR AS INDICATED ON THE DRAWINGS.
  2. ALUMINUM OR COPPER BUS, RATED FOR 200 AMPERES OR AS INDICATED ON THE DRAWINGS, AND HAVE A SHORT CIRCUIT WITHSTAND RATING OF 22,000 ACI MINIMUM.
  3. MAIN CIRCUIT BREAKER SHALL BE 200 AMPERES OR AS INDICATED ON THE DRAWINGS AND HAVE A SHORT CIRCUIT RATING OF 22,000 ACI MINIMUM. THE MAIN BREAKER SHALL NOT BE INSTALLED SO AS TO BACKFEED THE PANEL BUS.
  4. PANELTALL, OVER A NUMBER OF BRANCH CIRCUITS AS INDICATED ON THE DRAWINGS. THE MAIN BREAKER SHALL NOT USE ANY OF THESE SPACES.
  5. BRANCH CIRCUIT BREAKERS SHALL BE PLUG-IN OR BOLT-ON TYPE.
  6. BRANCH CIRCUIT BREAKERS SHALL HAVE A MINIMUM RATING OF 10,000 ACI.
  7. TANDEN BRANCH CIRCUIT BREAKERS ARE NOT PERMITTED.
  8. PANEL ENCLOSURE SHALL BE NEMA 1 FOR INTERIOR APPLICATIONS OR NEMA 3R FOR EXTERIOR APPLICATIONS OR AS INDICATED ON THE DRAWINGS.
  9. DO NOT INSTALL PANEL UPSIDE DOWN.
  10. WHERE A PANELBOARD IS INSTALLED, AN EXTERNAL SURGE PROTECTION DEVICE MUST ALSO BE INSTALLED ADJACENT AND CONNECTED TO THE PANELBOARD.
  11. QUALITY PRODUCT CIRCUIT BREAKERS ARE NOT PERMITTED.
  12. ALL BRANCH CIRCUIT SPACES SHALL HAVE PANEL MANUFACTURER'S BLANK SPACE INSERTS INSTALLED.
  13. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN, NOT HANDWRITTEN.
  14. PANEL DIRECTORIES SHALL BE UPDATED TO ACCURATELY REFLECT THE FINAL CIRCUITING.
  15. ALL UNUSED CIRCUIT BREAKERS SHALL BE SWITCHED OFF AND LABELED "SPARE".

EXTERNALLY MOUNTED SURGE PROTECTION DEVICES

1. RATED FOR THE INTENDED APPLICATION AND AS INDICATED ON THE DRAWINGS: 120/240V, SINGLE PHASE, OR 120/208V, SINGLE PHASE, OR 120/208V, THREE PHASE, OR 480/277V, SINGLE PHASE OR 480/277V, THREE PHASE.
2. RATED FOR 100KA PEAK SURGE CURRENT PER PHASE.
3. INDICATOR LEDS FOR NORMAL AND FAULT CONDITION FOR EACH PHASE.
4. U.L. LISTED 1449.
5. ENCLOSURE SHALL BE INTERIOR APPLICATIONS, NEMA 1. EXTERIOR APPLICATIONS: NEMA 3R OR NEMA 4X STAINLESS STEEL.

POWER PROTECTION CABINET (PPC)

1. RATED FOR USE AT 120/240V, SINGLE PHASE, THREE WIRE PLUS GROUND OR 120/208V, SINGLE PHASE, THREE WIRE PLUS GROUND OR 120/208V, THREE PHASE, FOUR WIRE PLUS GROUND AS REQUIRED FOR THE INTENDED APPLICATION OR AS INDICATED ON THE DRAWINGS.
2. ALUMINUM OR COPPER BUS, RATED FOR 200 AMPERES OR AS INDICATED ON THE DRAWINGS, AND HAVE A SHORT CIRCUIT WITHSTAND RATING OF 22,000 ACI MINIMUM.
3. TWO MAIN CIRCUIT BREAKERS MECHANICALLY INTERLOCKED, THAT ACT AS A MANUAL TRANSFER SWITCH, BREAK BEFORE MAKE, ALLOW FOR A NORMAL AND PORTABLE GENERATOR STANDBY FEEDS, MAIN BREAKERS SHALL BE 200 AMPERES AND HAVE A SHORT CIRCUIT RATING OF 22,000 ACI MINIMUM. CONTRACTOR SHALL ENSURE THAT THE MECHANICAL INTERLOCK HAS BEEN INSTALLED.
4. INTERNAL PANEL SHALL HAVE A MINIMUM OF 24 BRANCH CIRCUITS AVAILABLE.
5. BRANCH CIRCUIT BREAKERS SHALL BE PLUG-IN OR BOLT-ON.
6. BRANCH CIRCUIT BREAKERS SHALL HAVE A MINIMUM RATING OF 10,000 ACI.
7. TANDEN BRANCH CIRCUIT BREAKERS ARE NOT PERMITTED.
8. CLASSIFIED PRODUCT BRANCH CIRCUIT BREAKERS ARE NOT PERMITTED.
9. FURNISHED WITH INTERNAL, FACTORY INSTALLED, INTEGRATED SURGE SUPPRESSION.
10. FURNISHED WITH STANDBY GENERATOR INLET (RECEPTACLE), REVERSE SERVICE RATED, VOLTAGE AND AMPERAGE AS INDICATED ON THE DRAWINGS. GENERATOR RECEPTACLE SHALL BE FACTORY INSTALLED ON SIDE OF PPC UNLESS SHOWN AS REMOTE MOUNTED ON THE DRAWINGS.
11. UNUSED BRANCH CIRCUIT BREAKERS SHALL HAVE PANEL MANUFACTURER'S BLANK SPACE INSERTS INSTALLED.
12. ENCLOSURE SHALL BE NEMA 1 FOR INTERIOR APPLICATIONS OR NEMA 3R FOR EXTERIOR APPLICATIONS OR AS INDICATED ON THE DRAWINGS.
13. IF AN EXISTING PPC IS MISSING THE MECHANICAL INTERLOCK, THE CONTRACTOR SHALL FURNISH AND INSTALL THE CORRECT FACTORY MECHANICAL INTERLOCK ON THE TWO MAIN CIRCUIT BREAKERS.
14. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN, NOT HANDWRITTEN.
15. PANEL DIRECTORIES SHALL BE UPDATED TO ACCURATELY REFLECT THE FINAL CIRCUITING.
16. ALL UNUSED CIRCUIT BREAKERS SHALL BE SWITCHED OFF AND LABELED "SPARE".

EXTERIOR COMBINATION GFCI/SWITCH UNIT

1. WEATHERPROOF ENCLOSURE WHICH INCLUDES A 120V, 20A GFCI RECEPTACLE AND A 120V, 20A TOGGLE SWITCH.
2. "IN-USE" COVER, CORROSION RESISTANT, GALVANIZED STEEL ENCLOSURE.
3. GFCI RECEPTACLE AND LIGHT SWITCH SHALL BE WIRED ON SEPARATE CIRCUITS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
4. G.E. # U10S101G1P OR APPROVED EQUAL.

T - Mobile  
NORTHEAST LLC

T-MOBILE NORTHEAST LLC  
2000 BALTIMORE AVENUE  
BELTSVILLE, MARYLAND 20705  
PHONE: (240) 264-8600  
FAX: (240) 364-8810



advantage engineers

7151 COLUMBIA GATEWAY DRIVE SUITE A  
COLUMBIA, MARYLAND 21048  
PHONE: (443) 387-0003  
FAX: (443) 387-3548

SCHEDULE OF REVISIONS

#	DATE	DESCRIPTION OF CHANGES
1	01-07-2022	NEW CANISTER DESIGN
2	11-17-2021	ZONING COMMENTS
3	11-05-2021	ISSUED FOR CONSTRUCTION

APP. NO.	DATE	DESCRIPTION OF CHANGES
DRAWN BY:	EDZ	
CHECKED BY:	MRL	
SCALE:	NOTED	
JOB NO:	19E047.001	
DRAWING TITLE:		

ELECTRICAL  
NOTES

DRAWING SHEET:

E-2

FRALEY FAMILY - ROCKVILLE  
7WAN162B  
17800 BOWIE MILL ROAD  
DERWOOD, MARYLAND 28055

SHEET NO. 13 OF 13



ANDREW M. MILLER, P.E.  
"PROFESSIONAL CERTIFICATION, I HEREBY  
CERTIFY THAT THESE DOCUMENTS WERE  
PREPARED OR APPROVED BY ME, AND THAT I  
AM A DULY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE OF  
MARYLAND, LICENSE NO. 41487, EXPIRATION  
DATE 01-01-2027"

