National Grid
Five Mile Road Station Project

Exhibit E-2

Other Facilities

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EXHIBIT E-2: OTHER FACILITIES

E-2.1 Introduction

The proposed Five Mile Road Station project will require that work be completed at several other remote terminal station locations in addition to the work proposed at Five Mile Station. The work at the remote terminal stations will include Arcade Station in the Town of Yorkshire, New York, Gardenville Station in the Town of West Seneca, New York, the switchyard at the Homer City Station in the Borough of Homer City, Pennsylvania (owned by First Energy), Homer Hill Station in the City of Olean, New York, and Stolle Road Station in the Town of Elma, New York (owned by New York State Electric & Gas). The proposed work to be completed at each site is provided in more detail in the following sections.

E-2.2 Arcade Station

The proposed work at the Arcade Station will be limited to protective relay modifications to protect the transmission network inclusive of the proposed station. This work will be on the existing 115kV Arcade – Five Mile Road Line 167.

E-2.3 Gardenville Station

The proposed work at the Gardenville Station will be limited to protective relay settings to protect the transmission network inclusive of the proposed station. This work will be on the existing 115kV Gardenville –Five Mile Road Line 152, will be limited to the interior of the existing onsite control building and will not result in any exterior physical changes to the station.

E-2.4 Homer City Station

The proposed work at the Homer City Station will be limited to protective relay modifications/settings to protect the transmission network inclusive of the proposed station. This work will be on the re-named 345 kV Five Mile Road – Homer City Line 37, will be limited to the interior of the control building and will not result in any exterior physical changes to the station.

E-2.5 Homer Hill Station

The proposed work at the Homer Hill Station will include protective line relay replacement and the installation of a new microwave tower approximately 100 feet tall for communications associated with the protective line relay. There will be two line relays replaced on each of the two 115kV transmission lines at this station – Line 170 (previously Line 152) and Line 169 (previously Line 167). There is sufficient space within the control house to allow for the relay replacements. The new microwave tower will be located at the Homer Hill Station on National Grid property.

E-2.6 Stolle Road Station

The proposed work at the Stolle Road Station will be limited to protective relay modifications/settings to protect the transmission network inclusive of the proposed station. This work will be on the re-named 345 kV Stolle Road – Five Mile Road Transmission Line 29 (previously Line 37), will be limited to the interior of the control building and will not result in any exterior physical changes to the station.

E-2.7 New Five Mile Road Station

National Grid proposes to construct a new 345kV to 115kV station in the Town of Humphrey, Cattaraugus County ("Five Mile Road Station" or "Station"). The Five Mile Road Station is necessary in order to relieve the persistent voltage problems occurring in the Southwest Region, as set forth in further detail in Exhibit E-4. The Station will be constructed, owned, operated and maintained by National Grid and is proposed to be located directly to the west of three existing transmission lines: the Homer City – Stolle Road Line 37 (345kV line); and the Gardenville – Homer Hill Line 152 and the Arcade – Homer Hill Line 167 (115 kV lines). The Homer City – Stolle Road Line 37 line will be split between Structure 171 and Structure 172 to source the new station. The station will help support the 115 kV system in the region by supplying power to the Gardenville – Homer Hill Line 152 and the Arcade – Homer Hill Line 167; the lines will be split between double circuit structures 547 and 548.

The station footprint will consist of a fenced area covered with crushed stone measuring approximately 468 feet by 421 feet (approximately 4.4 acres). Installed within the fence line will be electrical transformers, conductors, breakers, switches and instrument transformers mounted on steel

structures placed on reinforced concrete foundations; a control house containing protective relaying, double-circuit power systems, remote monitoring and communications systems; 345 kV and 115 kV terminal structures; 115 kV intermediate strain bus support structures; and a 60 foot tall monopole microwave tower constructed for communication purposes directly south of the control house. The terminal structures for both the 345 kV and 115 kV transmission lines entering the station will be of an "A" frame construction using galvanized steel with reinforced concrete foundations. The expected structure height for the 345 kV structures will be approximately 95 feet, and the 115 kV structures will be approximately 70 feet.

The transformer, each breaker and each terminal will have appropriate disconnect switches. Approximately eight tubular pole lightning masts 70 to 95 feet tall comprised of galvanized steel will provide protection for the equipment from lightning strikes. Rods installed on the terminal structures and microwave tower will provide additional lightning protection.

The control building will be a metal-framed building on a reinforced concrete foundation approximately 32 feet wide, 120 feet long and 20 feet high. A crushed stone access road approximately 200 feet long by 20 feet wide will be constructed from Five Mile Road to a crushed stone parking/turn-around area (300 feet by 60 feet) adjacent to the south side of the station.
Plans for this station and transmission work are illustrated in Exhibit 5.

E-2.8 Microwave Tower Sites

There will be four existing microwave towers and two new microwave tower installations required to provide communications for the transmission line protection equipment at the proposed station. The existing microwave towers are Potter in the town of Humphrey, Flat Iron in the town of Olean, Franklinville NY AMT in the town of Franklinville, and Delevan in the town of Yorkshire. The two new microwave towers will be located at the Five Mile Road Station in the town of Humphrey and the Homer Hill Station in the town of Olean. Table E-2-1 below indicates tower locations, tower height, diameter of the antenna and ownership.

Table E-2-1: Microwave Tower Details

Tower	Approx. Height (ft)	Antenna Diameter (ft)	Existing	New	National Grid Owned
Five Mile Road	60	2 (To Potter)	No	Yes	Yes
Potter	210	2 (to Five Mile Road) 4 (to Flat Iron) 4 (Franklinville NY AMT)	Yes	No	No (Tower to be Purchased by National Grid/Land to be leased)
Flat Iron	300	4 (To Potter) 2.6 (to Homer Hill)	Yes	No	Yes
Homer Hill Station	105	2 (To Flat Iron)	No	Yes	Yes
Franklinville NY AMT	150	4 (To Potter) 6 (To Delevan)	Yes	No	No
Delevan	110	6 (To Franklinville NY AMT)	Yes	No	Yes

The existing microwave towers are galvanized steel lattice-type construction. The microwave towers at Homer Hill Station and Five Mile Road will be galvanized steel monopoles.