

STATE OF MAINE PUBLIC UTILITIES COMMISSION

DOCKET NO. 2008-255

CENTRAL MAINE POWER COMPANY

and

PUBLIC SERVICE OF NEW HAMPSHIRE

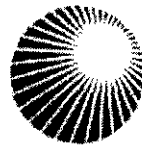
**Request for Certificate of Public Convenience
and Necessity for the Maine Power Reliability Program
Consisting of the Construction of Approximately
350 miles of 345 kV and 115 kV Transmission Lines ("MPRP")**



Central Maine Power



An Energy East Company



**Public Service
of New Hampshire**

The Northeast Utilities System

UPDATE TO:

EXHIBIT I-4 (Lewiston Loop Studies & Information)

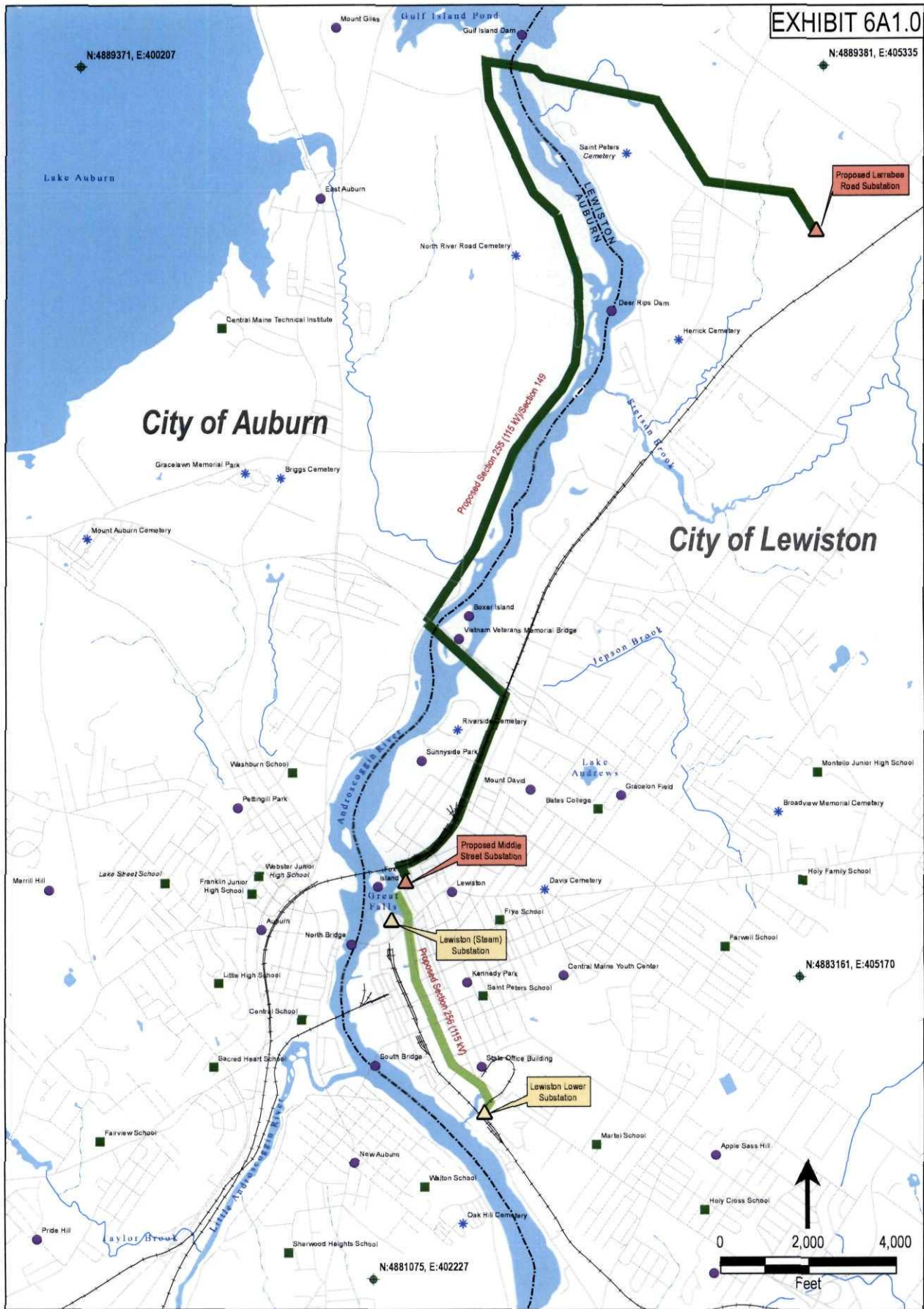
REDACTED

January 23, 2009

Attorneys for Central Maine Power Company

**Jared S. des Rosiers
John W. Gulliver
Catherine R. Connors
PIERCE ATWOOD LLP
One Monument Square
Portland, ME 04101**

EXHIBIT 6A1.0



Legend

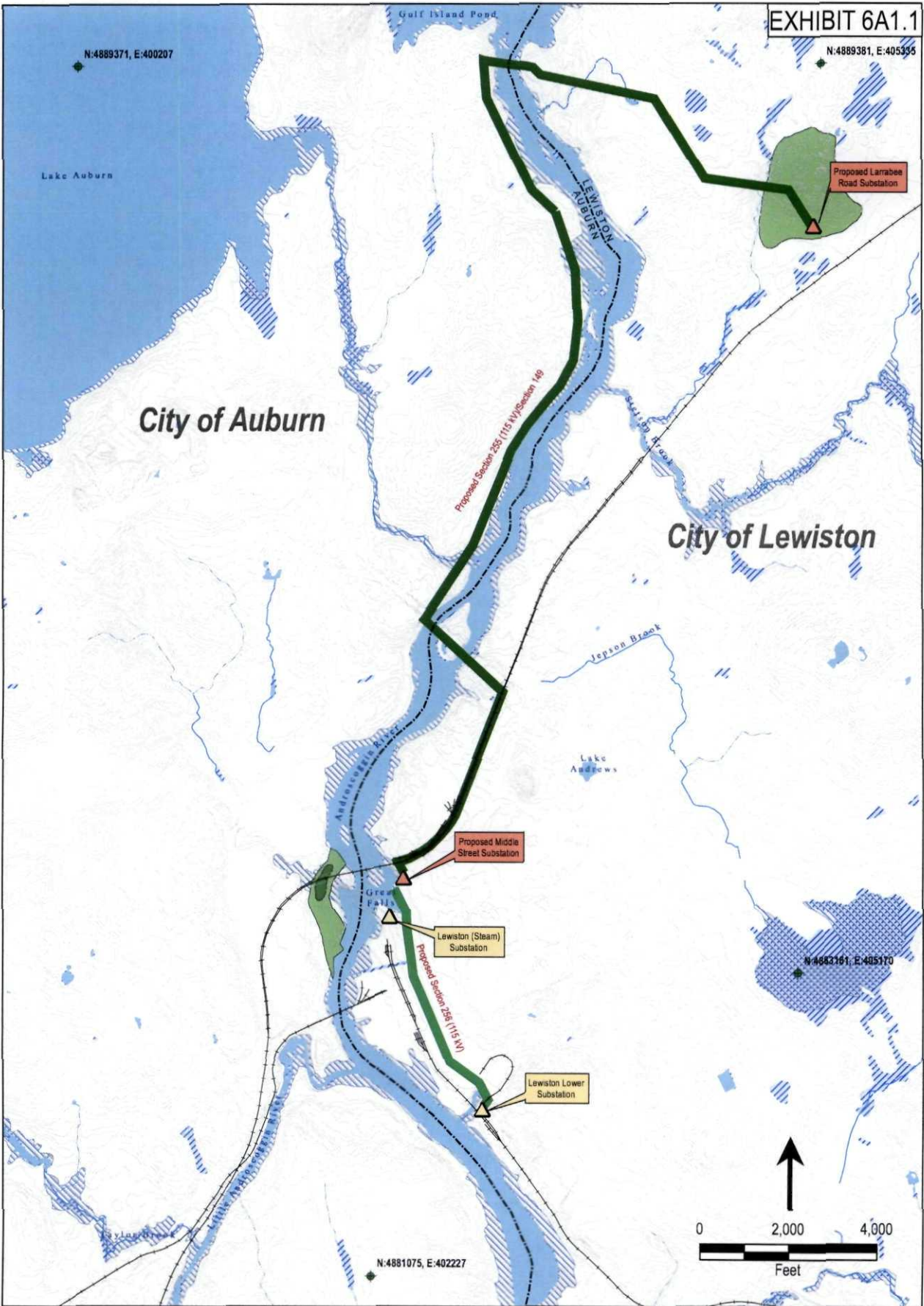
- Proposed Substation
- Existing Substation
- USGS Places & Landforms
- Cemetery
- School
- Municipal Boundary
- Proposed Section 255
- Proposed Section 256
- Reference Point NAD83, UTM Zone 19N, Meters

**Central Maine Power Company
Lewiston Loop**

Proposed 115 kV Transmission Line Project

249 Western Ave
Augusta, ME 04330

EXHIBIT 6A1.1



Legend

- Proposed Substation
- Existing Substation
- Municipal Boundary
- Contours (10ft Interval)
- Intermittent Stream
- Perennial Stream
- Hydrography
- National Wetlands Inventory
- Lacustrine
- Palustrine
- Riverine
- 100 Year Flood Plain
- Significant Aquifers
- 10-50 GPM
- >50 GPM
- Proposed Section 255
- Proposed Section 256
- Reference Point: NAD83, UTM Zone 19N, Meters

**Central Maine Power Company
Lewiston Loop**

Constraints Map -
Proposed 115 kV Transmission Line Project



249 Western Ave
Augusta, ME 04330

EXHIBIT 6B2.0

SYSTEM DIAGRAM REDACTED

EXHIBIT 6C

§6(C) Description of Type of Line

The proposed 115 kV transmission line (the circuits designated Sections 255 and 256) will be built as:

Section 255

- *Single-circuit construction utilizing existing transmission line Section 64 plant from the proposed site of the Larrabee Road Substation in Lewiston to the east bank of the Androscoggin River near Gulf Island Dam (approximately 1.47 miles). This segment will consist of approximately 23 H-frame structures averaging 50 feet in height. This segment will bypass the existing Gulf Island substation.*
- *Single-circuit construction on double wood poles (H-frame) from the east bank of the Androscoggin River crossing to the west bank of the river to Auburn (approximately 0.15 mile). This segment will consist of approximately 2 H-frame structures averaging 80 feet in height.*
- *Single-circuit construction on single poles of wood or steel with davit arms from the terminus of H-frame construction to Deer Rips Dam (approximately 1.3 miles). This segment will consist of approximately 15 structures averaging 75 feet in height.*
- *Double-circuit construction (with 34.5 kV Section 149) generally on single poles of wood or steel with davit arms from Deer Rips Dam to Veterans Memorial Bridge (approximately 1.4 miles). This segment will consist of approximately 19 structures averaging 85 feet in height.*
- *Single-circuit construction on double wood poles (H-frame) from Veterans Memorial Bridge crossing the Androscoggin River via Boxer*

Island to the westerly edge of Pan American Railway's rail corridor (approximately 0.45 mile). This segment will consist of approximately 4 H-frame structures averaging 80 feet in height.

- Single-circuit construction generally on single poles of wood or steel with line post construction along the westerly edge of the Pan American Railways rail corridor to the site of the proposed Middle Street Substation (approximately 0.91 mile). This segment will consist of approximately 13 structures averaging 90 feet in height.

Conductor for the new section is expected to be single conductor per phase utilizing 1113 MCM aluminum conductor/steel reinforced (ACSR) code name "Bluejay" with a diameter of 1.259 inches. The lowest conductor will be a minimum of 25 feet above ground under maximum sag conditions (additional clearance required for river crossings and within the railroad corridor). Conductor on the segment of existing section 64 that will become part of section 255 is 795 MCM ACSR code name "Drake". The aerial shield wire is expected to be Optical Ground Wire (OPGW) with a diameter of 0.5 inches.

Structures will be spaced typically 350 to 550 feet apart, though any river crossing will be considerably longer spans. Wood structures will be directly embedded in the ground, while some steel structures may be erected on concrete foundations. Structure types and heights will vary depending on span length, terrain, and circuit configurations as noted above. CMP expects to install approximately 53 new structures and utilize 23 existing structures (total of 76) for Section 255.

Section 256

- Single-circuit underground high-pressure fluid-filled or gas-filled (HPFF/HPGF) pipe cable from the site of the proposed Middle Street Substation along Chapel Street, crossing Main Street, to the Upper Canal (approximately 0.21 mile);
- The pipe cable will be trenched into the bottom of Upper Canal from Main Street to the easterly end of the canal (approximately 0.79 mile);
- The pipe cable will cross Gully Brook and extend to Lewiston Lower Substation (approximately 0.1 mile).

Section 256, which will replace an existing lower voltage underground line between Lewiston Lower Substation and Lewiston (Steam) Substation, is expected to be an underground HPFF or HPGF pipe cable system. The pipe cable system will be rated at the equivalent of 795 MCM "Drake" conductor. The cable will be either 1250 MCM or 1500 MCM copper for the HPFF or 1500 MCM or 1750 MCM copper for the HPGF depending on final design conditions. The pipe will be 8 5/8" O.D. steel pipe with a 0.250" wall thickness and filled with insulating dielectric fluid or gas under a 200 psi static pressure. The pressure will be maintained by a pre-engineered fluid pumping plant or compressed gas supply located inside the proposed Middle Street Substation fence.

All construction will be in accordance with CMP's transmission standards, general industry standards, and "Good Utility Practice," including all necessary live-line working clearances, strength factors, and reliability factors as governed by the National Electrical Safety Code (NESC). In all instances, the line will be designed to meet or exceed the NESC and other standards, as applicable. The transmission line

and all facilities will be operated in full compliance with CMP safety standards,
which fully comply with Federal Occupational Safety & Health Administration
requirements.

EXHIBIT 6D

§6(D) Description of Proposed CorridorSection 255

The proposed site of the Larrabee Road Substation is located at the easterly end of Larrabee Road approximately 0.25 miles east of Route 202 in Lewiston. Beginning from the Larrabee Road Substation site, the proposed Section 255 corridor extends westerly and northwesterly 1.47 miles to the east bank of the Androscoggin River. This portion of the corridor is shared with several transmission lines (Sections 64 200, 212, and 201) and is variable in width. From the site of the Larrabee Road Substation, the corridor extends northwesterly for 0.22 miles and is 475 feet wide. There is a narrow strip (approximately 75-100 feet wide) of vegetation on this corridor that will be cleared. The corridor then angles westerly and northwesterly for 0.75 miles and is 250 feet wide and is cleared to the full width. The corridor then extends westerly for 0.58 miles and is 560 feet wide and is cleared to the full width.

From the east bank of the Androscoggin River, Section 255 extends 0.15 miles westerly crossing the Androscoggin River to an angle point. This is an existing 200 foot wide corridor that will be increased to 300 feet and cleared to the full width. This portion of the corridor is shared with transmission line Sections 50 and 61. At the angle, Section 255 extends southerly and southeasterly for approximately 0.66 miles to the junction with transmission line Sections 45 and 46; this new corridor will be 100 feet wide and cleared to the full width. At the junction with Sections 45 and 46, the corridor extends southeasterly and southerly parallel and adjacent to Sections 45 and 46 for approximately 0.65 miles to the Deer Rips Dam. The existing 90 foot

wide corridor for Sections 45 and 46 will be increased to 155 feet and will be cleared to the full width.

South of the Deer Rips Dam, the corridor continues generally southeasterly along the centerline of existing transmission line Section 149 (34.5kV Section 149 to be installed on double circuit poles of Section 255) for 1.4 miles to the south side of Mt. Auburn Avenue at Veterans Memorial Bridge. This portion of the existing corridor is 70 feet in width and will be increased to 100 feet in width, and cleared to the full width.

From this point, the corridor angles generally southeasterly for 0.45 miles, crossing the Androscoggin River via Boxer Island, to the Pan American Railways rail corridor. This new corridor will be 150 feet wide and cleared to the full width. For the remaining 0.91 miles to the Middle Street Substation site, the proposed pole centerline will be within the railroad corridor and be constructed 39 feet from centerline of the Pan American Railways track. The rail corridor is generally 80 feet in width and passes through an open residential/commercial area. Additional trim rights outside the rail corridor may be secured to provide additional clearance in some areas.

CMP has contacted all landowners, including Pan American Railways and the Maine Department of Transportation (MDOT), along this route and entered into discussions and negotiations to acquire the additional needed real estate interests for this project. Options to acquire land and/or rights have been obtained from several landowners along this route, and CMP continues to negotiate with the remaining landowners.

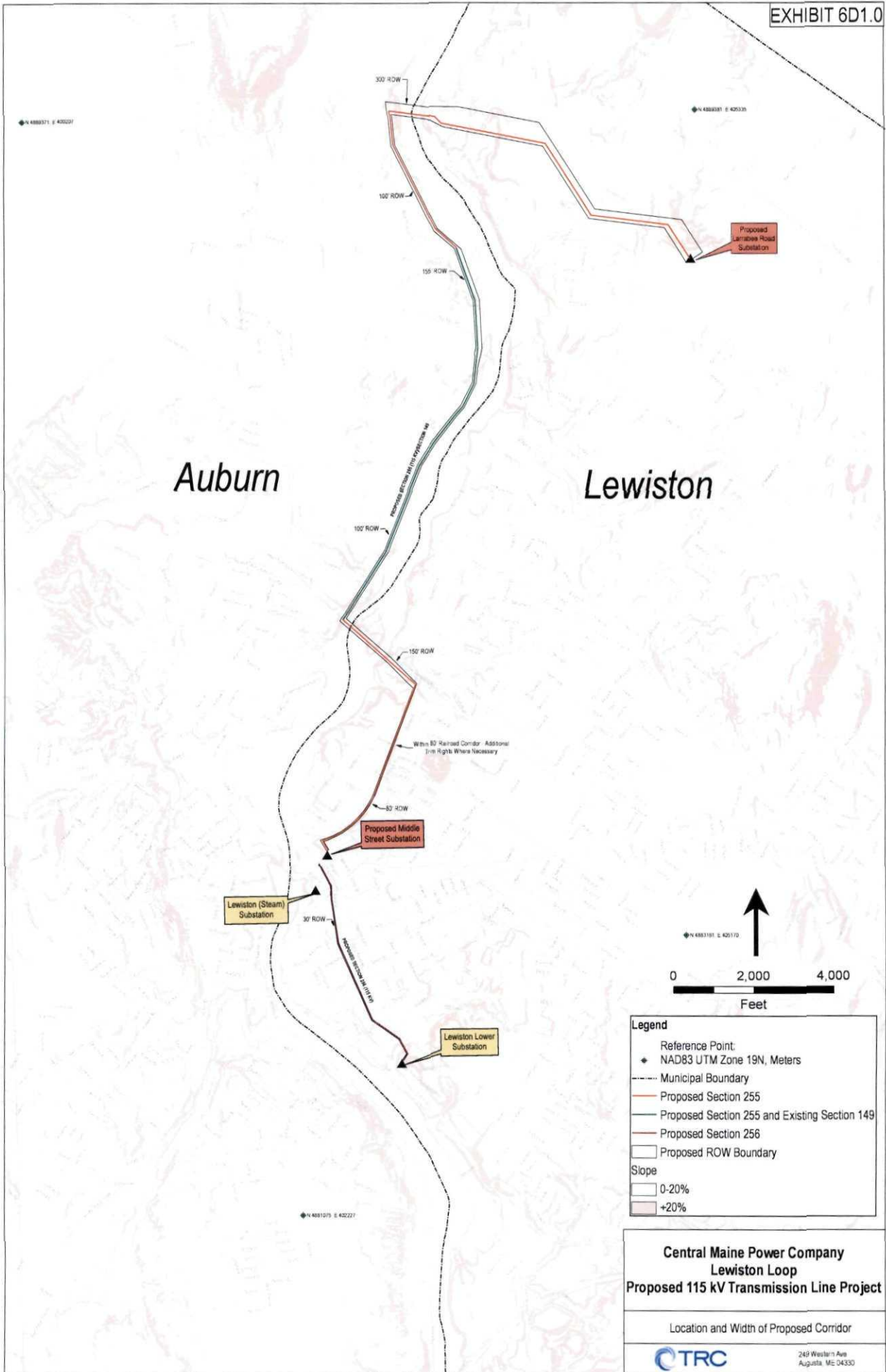
Section 256

From the Middle Street Substation site, the pipe cable route will be underground extending from the substation generally southerly and southeasterly to Lewiston Lower Substation. Using a directional drill from the proposed Middle Street Substation, the cable will cross Main Street extending to the Upper Canal approximately 0.21 miles. From there, the pipe cable will be trenched into the bottom of the Upper Canal and covered by concrete planks for its entire length for protection for approximately 0.79 miles to Gully Brook, and then continue into Lewiston Lower Substation by either crossing lower Gully Brook (approximately 0.10 miles) or along the southerly edge of Lisbon Street and Strawberry Patch Road (approximately 0.18 miles). CMP is negotiating for an easement for the placement of the underground cable in Upper Canal with the canal owner. The easement required to construct and maintain the circuit will be approximately 30 feet in width (additional temporary width and setup areas may be required during initial construction operations).

CMP will acquire all municipal permits needed for locating any portions of the proposed 115 kV transmission line within, along, over, or under municipal streets and property.

Section 6(D) of Chapter 330 also requests a description of locations within the proposed corridor where the degree of slope is in excess of twenty degrees. There are several areas along the proposed routes where slopes exceed 20%. The majority of these areas is associated with the shorelines and banks of the Androscoggin River and its tributaries, and is depicted on Exhibit 6D1.0.

EXHIBIT 6D1.0



Legend

- Reference Point:
 - ◆ NAD83 UTM Zone 19N, Meters
- Municipal Boundary
- Proposed Section 255
- Proposed Section 255 and Existing Section 149
- Proposed Section 256
- Proposed ROW Boundary
- Slope
 - 0-20%
 - +20%

**Central Maine Power Company
Lewiston Loop
Proposed 115 kV Transmission Line Project**

Location and Width of Proposed Corridor

 249 Western Ave
Augusta, ME 04330

EXHIBIT 6G

Description of Changes to Plant Proposed 115kV Project

TRANSMISSION LINE MODIFICATIONS AND CONSTRUCTION

Existing 34.5 kV Transmission line modifications:

- Termination of Section 144 from Monty Hydro into the new Middle St. S/S;
- Removal of Section 147 from Lewiston Steam S/S to Lewiston Lower S/S;
- Removal of 115kV-34kV power transformer at Lewiston Lower S/S;
- Termination of Section 148 from Great Falls S/S into the new Middle St. S/S; and,
- Rebuild approximately 1.4 miles of Section 149 to double circuit with Section 255.

Existing 115kV Transmission modifications

- Existing Section 64 between Larrabee Road and Gulf Island substation (about 1.47 miles) will be connected to the new Section 255 construction and then terminate at the new Larrabee Road substation

New 115 kV Transmission line construction:

- Construction of Section 255 from the new Middle St. S/S to the new Larrabee Road S/S; and,
- Construction of Section 256 from Lewiston Lower S/S to the new Middle St. S/S.

SUBSTATION MODIFICATIONS AND CONSTRUCTION

Existing Substations

Lewiston Lower Substation:

A new 115kV transmission line terminal addition (Section 256) will be added at Lewiston Lower for the system interconnection required for the new Middle Street Substation transmission supply. The new terminal equipment required for the interconnection will consist of an 115kV circuit breaker with galvanized steel dead-end structure, disconnect switches, capacitor voltage transformers and surge arresters mounted on separate structures. This arrangement will be complete with reinforced concrete foundations, grounding system, conduit and duct system additions necessary to support the new 115kV terminal protection equipment in the existing the control house. Control house cabinet additions and interconnections will be included for the relay protection and control equipment upgrades.

Existing electrical infrastructure rearrangements necessary at Lewiston Lower Substation include the removal and relocation of the 115/34kV 37MVA (T5) power transformer to Middle Street Substation. The related 34.5 kV circuit breaker and its ancillary equipment will also be removed.

Once the existing T5 transformer has been removed, the existing 115/12kV 14MVA T1 power transformer will be relocated to the vacated former T5 position. The existing underground 12kV cable interconnection to the existing Lewiston Lower Distribution's switchgear breaker will then be re-established.

Lewiston (Steam) Substation

Lewiston Substation will be retired as part of this project. All circuits currently originating or terminating at this substation will be transferred to the new Middle Street s/s. All internal equipment and cables will be removed, hazardous materials removed (if present) and the building is expected to be sold.

New Electrical Facilities**Middle Street Substation:**

A new transmission/distribution electrical substation facility will be constructed to address overloaded system conditions that exist in the Lewiston area. The addition of this substation will provide the transmission interconnection, and transformer capacity for increased distribution load, system reliability, and supply future capacity identified as essential for system demand in this area.

The new substation will be constructed to provide two 115kV line terminals, one from Lewiston Lower substation (Section 256), and one from Larrabee Road substation (Section 255). Both of these circuits will enter the Middle Street substation aerially. The 115kV terminal equipment will consist of a circuit breaker with disconnect switches, and a set of line-side capacitor voltage transformers and surge arresters for each line terminal.

The open-air substation will be constructed using low-profile galvanized steel structures, with a main 115kV tubular aluminum bus supplying three power transformers. The T1 and T2 transformers will have high-side circuit switchers each feeding an enclosed 14 position 15 kV switchgear unit for local distribution. The low-side of each transformer will feed the switchgear unit via underground power cables.

The T3 transformer with high-side circuit switcher will feed a galvanized steel 34kV two-bay structure supplying two sub-transmission circuits – one to Great Falls (Section 148), and one to Monty Hydro (Section 144) substations.

This new substation arrangement will be complete with reinforced concrete foundations, grounding and duct system necessary to support the yard equipment functionality to a new 20' x 28' control house, all enclosed by an 8 foot chain-link fence with 3 strands of barbed wire above the fence fabric.

Larrabee Road 115kV/345kV Substation

A new 115kV transmission line terminal position (Section 255) will be provided at Larrabee Road substation.