

**New York State Electric & Gas Corporation**

**Jennison Transmission Solution Project**

**Exhibit 5**

**Design Drawings**

**Part 1 of 12**

**New York State Electric & Gas Corporation**

**Jennison Transmission Solution Project**

**Exhibit 5**

**Design Drawings**

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## EXHIBIT 5: DESIGN DRAWINGS

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### 5.1 Design Standards

The Applicant<sup>1</sup> will design the Project's transmission structures and components in accordance with applicable national and state codes and regulations and the Applicant's own standards. The most significant such regulation is the National Electrical Safety Code (NESC) edition in effect at the start of the design process, which specifies both the minimum structural loads for determining the required structural capacity and appropriate clearances to energized parts and wires. Typical clearance requirements, as defined by the NESC code, include clearances to the ground, adjacent transmission lines, railroad lines, buildings, and a host of other facilities.

The NESC, as well as other more stringent criteria that may be implemented by the Applicant, will determine the structural loading of the Project's transmission lines. Four basic load conditions are considered by the Applicant:

1. **NESC Heavy Loading Grade B Construction, Rule 250B:** ½-inch radial ice at 0 degrees Fahrenheit (°F) with a 4-pound per square foot (psf) wind pressure;
2. **NESC Extreme Wind Loading, Rule 250C:** 90 miles per hour (mph) wind at 60°F;
3. **NESC Extreme Ice with Concurrent Wind Loading, Rule 250D:** ¾-inch radial ice at 15°F with a 4 psf wind pressure; and
4. **Heavy Ice Loading:** 1½-inch radial ice at 32°F with no wind.

The wire in each load case is in the "initial" condition before the effects of creep or other loads influence the wire tension.

The Proposed Lines will typically be supported with single steel pole structures with steel davit arms and clear toughened glass suspension or gray braced post polymer composite insulators.

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<sup>1</sup> For clarity and consistency, the Application includes a Master Glossary of Terms that defines terms and acronyms used throughout the Application.

The proposed Lines have a 1192 MCM 45/7 “Bunting” Aluminum Conductor Steel Reinforced (ACSR) conductor. The outer strands of the ACSR conductor are a dull silver-gray color. The shield wires for Lines will be 72 Fiber DNO-11467 Optical Ground Wire (OPGW) and Alumoweld 7#7 (mostly in spans connecting substation A-frames, where two shield wires are required).

A detailed description of the proposed new transmission structures is included in Exhibit E-1.

Figure 5-1 is a set of Plan and Profile drawings of the Proposed Lines, including a profile of the Project ROW centerline at exaggerated vertical scale.

Figure 5-2 is a set of cross-section diagrams of the existing structures and the structures that will support the Proposed Lines within the Project ROW. Preliminary engineering indicates that the most common height of the new steel pole structures will be approximately 90.5 feet at the highest point (the tops of the vertical poles), and the most common width at the widest point (across the davit arms) will be approximately 16 feet. However, several individual structures required to maintain clearances from existing transmission lines and other features will be taller, up to approximately 120 feet AGL. The compact braced post tangent structures used for Lines 734 and 946 will be approximately 12.5 feet wide (across the post insulators).

Figure 5-3 shows typical structure types and provides information on the lengths, widths, and heights of the structures the Applicant anticipates will be used for the Project. Additional structure designs may be added to the portfolio as the Project progresses from conceptual to final design.

The material of the structures will be steel, their color will be rust, and their finish will be self-weathering.

Figures 5-4 and 5-5 are drawings that illustrate the design standards the Applicant proposes to use for insulators, structure foundations, and typical structure details on the Project. Figures 5-7 through 5-10 are design drawings of the Proposed Jennison Substation.

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# **New York State Electric & Gas Corporation**

## **Jennison Transmission Solution Project**

### **Exhibit 5**

### **Design Drawings**

### **Figures**

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# **New York State Electric & Gas Corporation**

## **Jennison Transmission Solution Project**

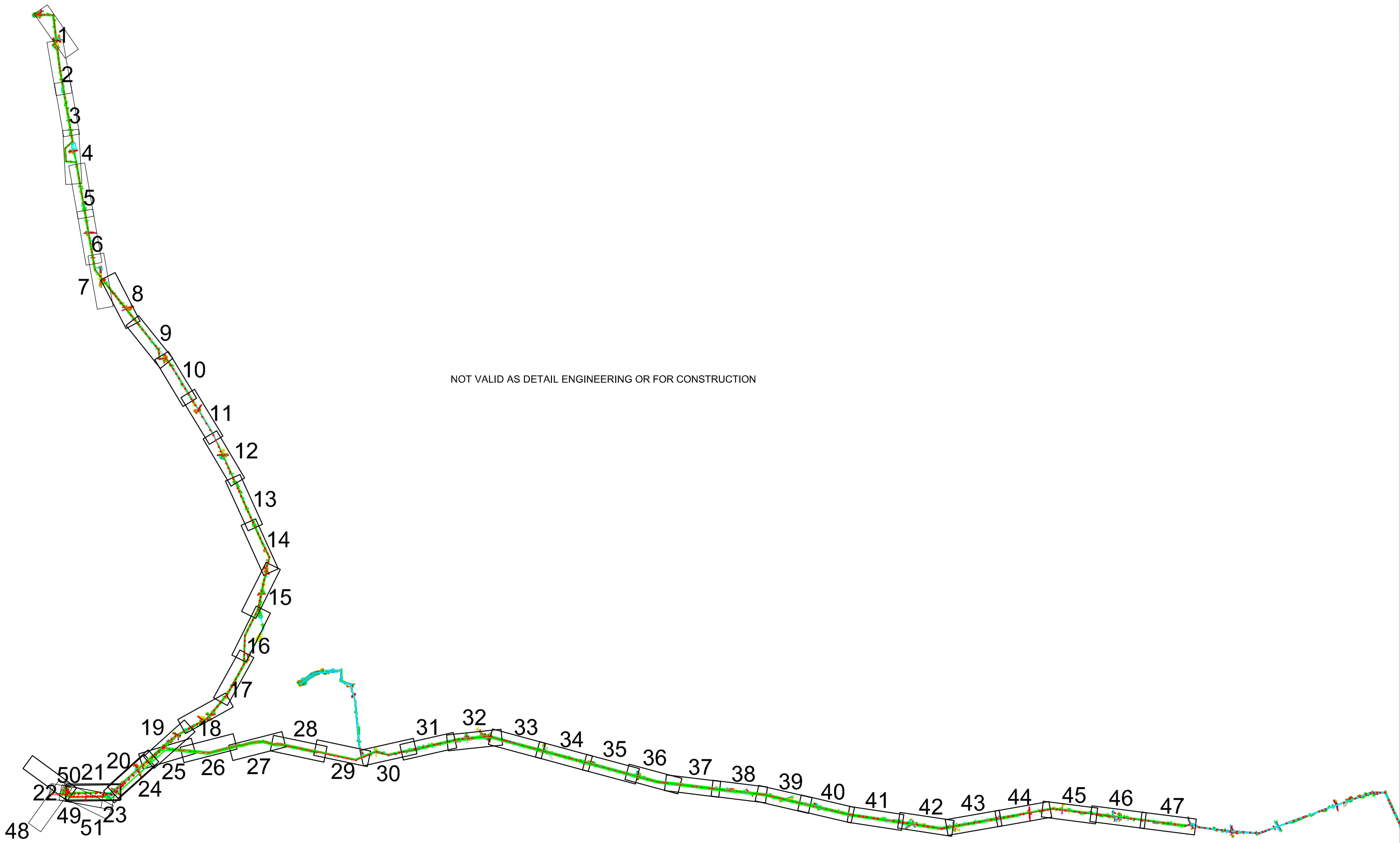
### **Exhibit 5**

#### **Design Drawings**

##### **Figure 5-1**

###### **Plan and Profile Drawings**

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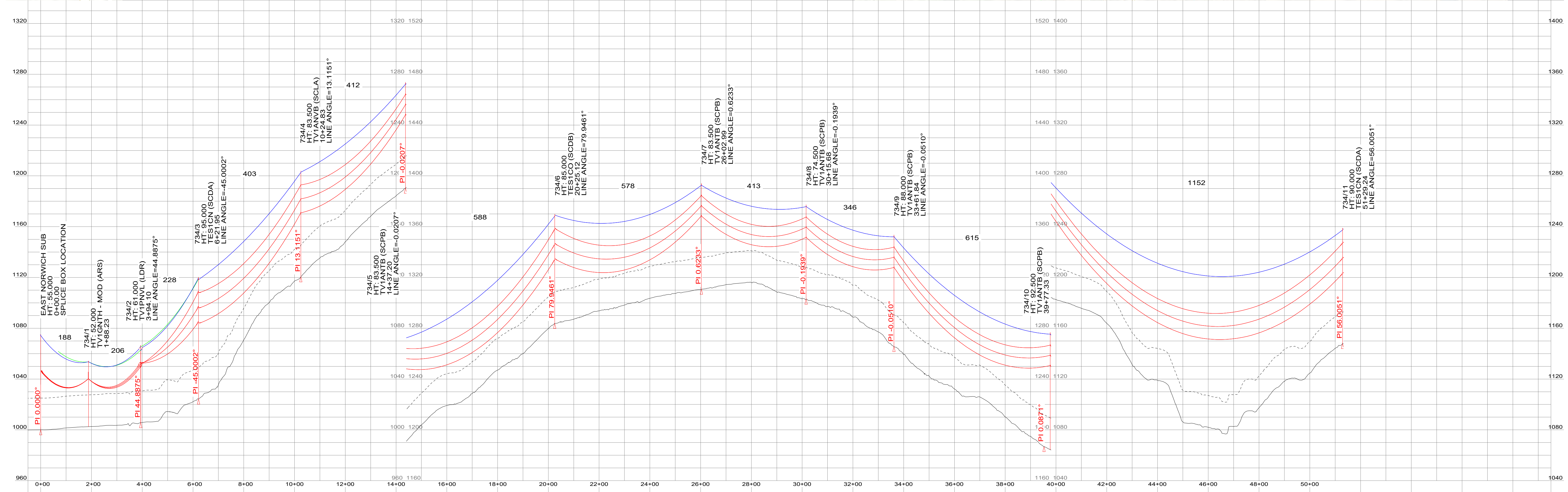
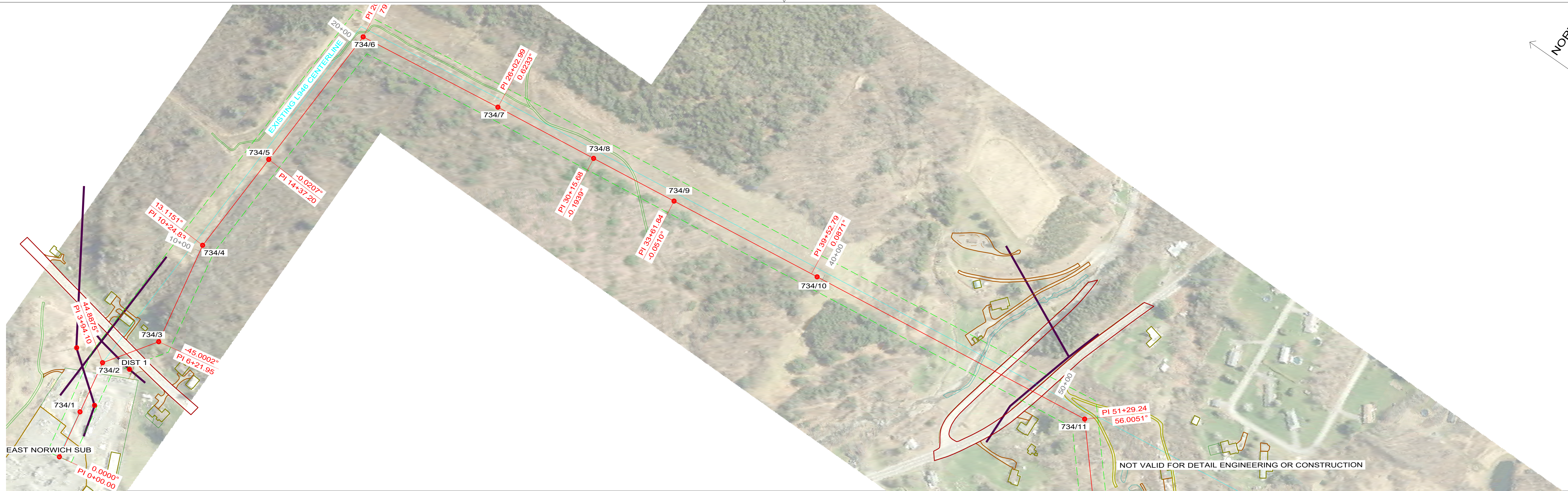
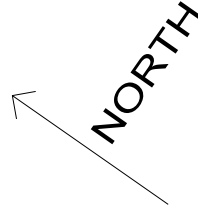
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TENSION	TENSION	TENSION 4,800 - 6,000 LBS (NESC HEAVY 250B)	TENSION 8,000 - 12,000 LBS (NESC HEAVY 250B)	NOTES: HEIGHT IN STRUCTURE COMMENTS REFERS TO ABOVE GROUND HEIGHT					KEY SHEET
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REV.	DATE	BY	DESCRIPTION	APP.					
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CHK.	ADR/DAS	NO.
APP.	ZRH/DAS	DATE: 09/06/2024

DR.	HAR/DAS	FILE
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APP.	ZRH/DAS	DATE: 09/06/2024





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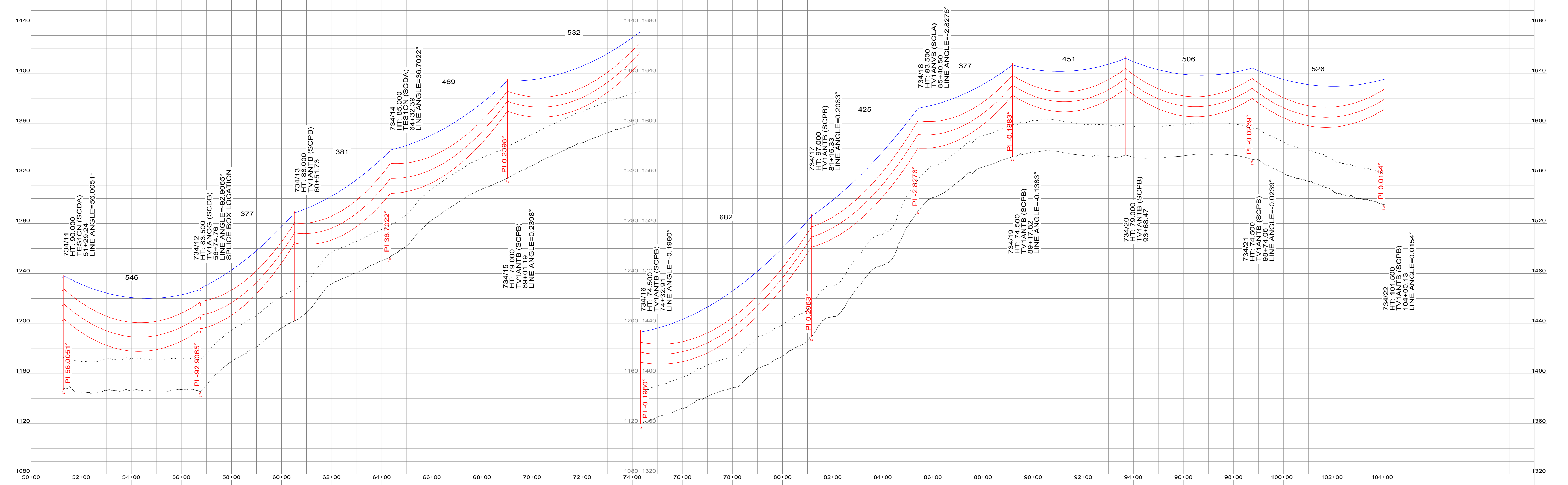
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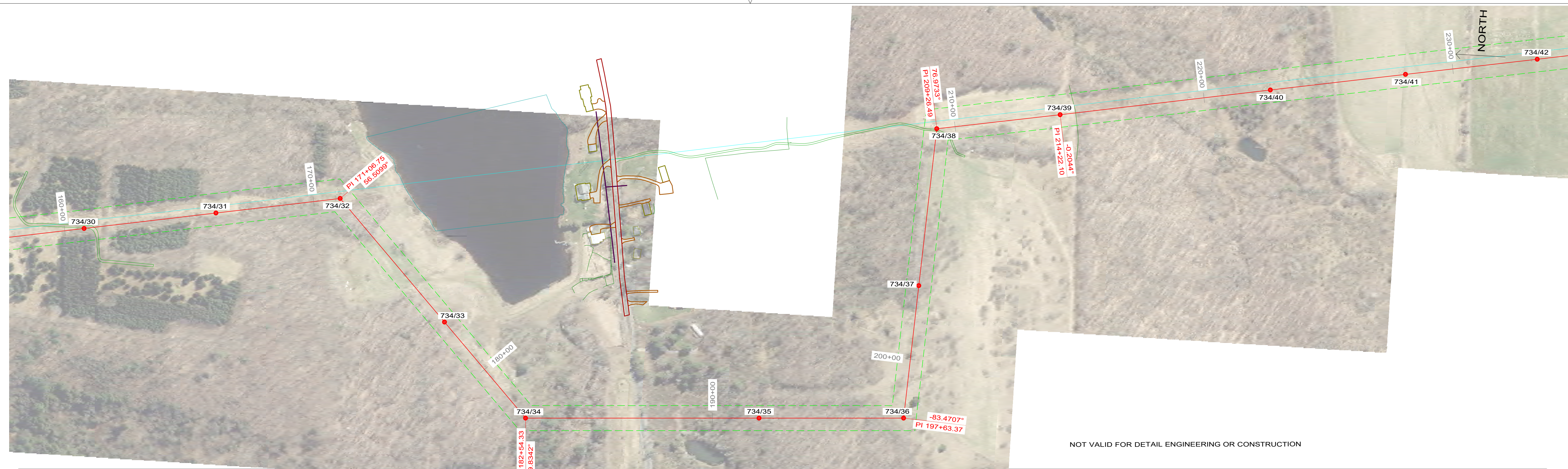
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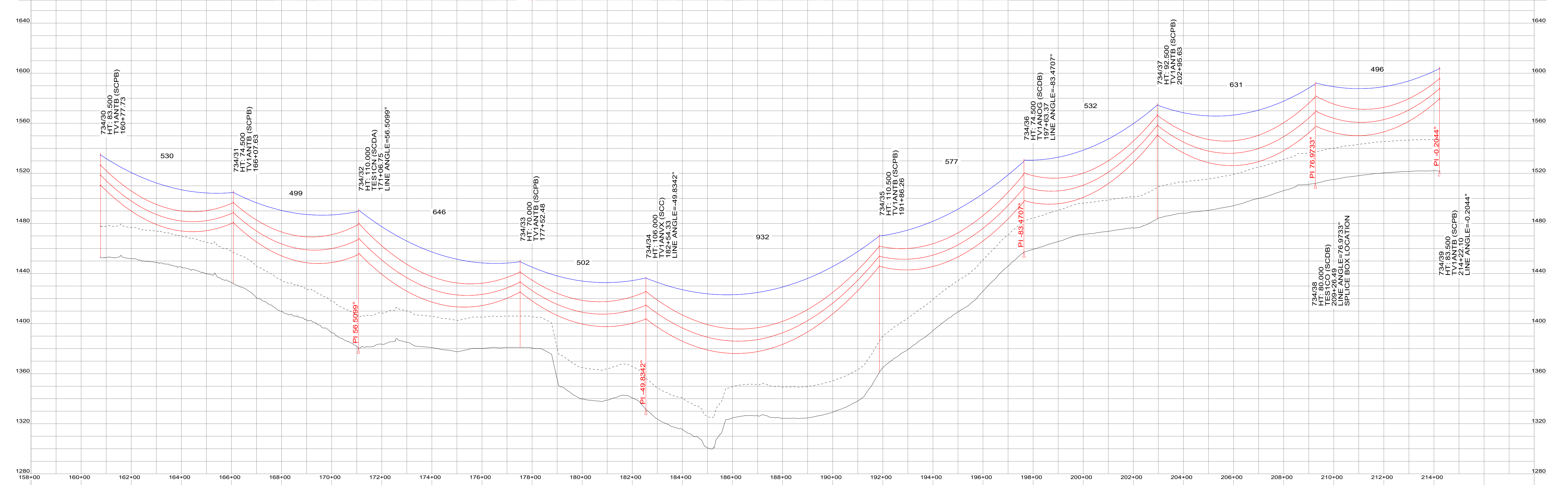
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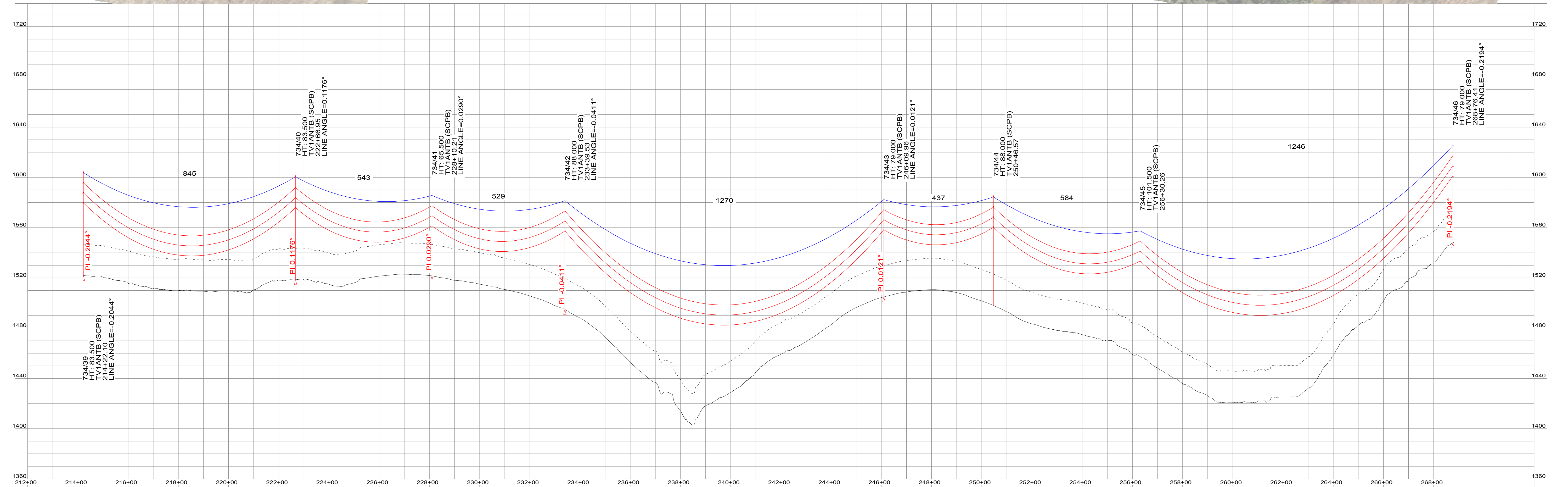
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DESIGN TEMP.	DESIGN TEMP.	DESIGN TEMP. 120 DEG MAX SAG FE	DESIGN TEMP. 260 DEG MAX SAG FE

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REV.	DATE	BY	DESCRIPTION	APP.	DATE: 09/06/2024

JENNISON TRANSMISSION SOLUTION PROJECT 115KV L734 EAST NORWICH S/S TO NORTH POND S/S PLAN AND PROFILE DRAWINGS			
SHEET 5 OF 51			
REBUILD NYSEG - ONEONTA		MILE NO.	FILE:
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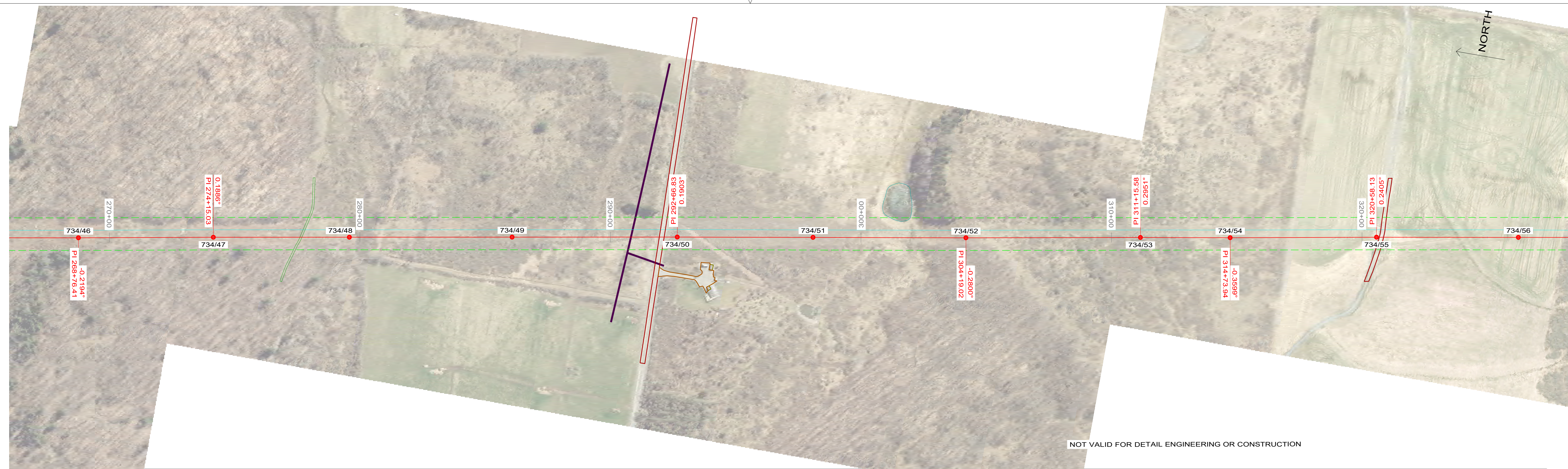
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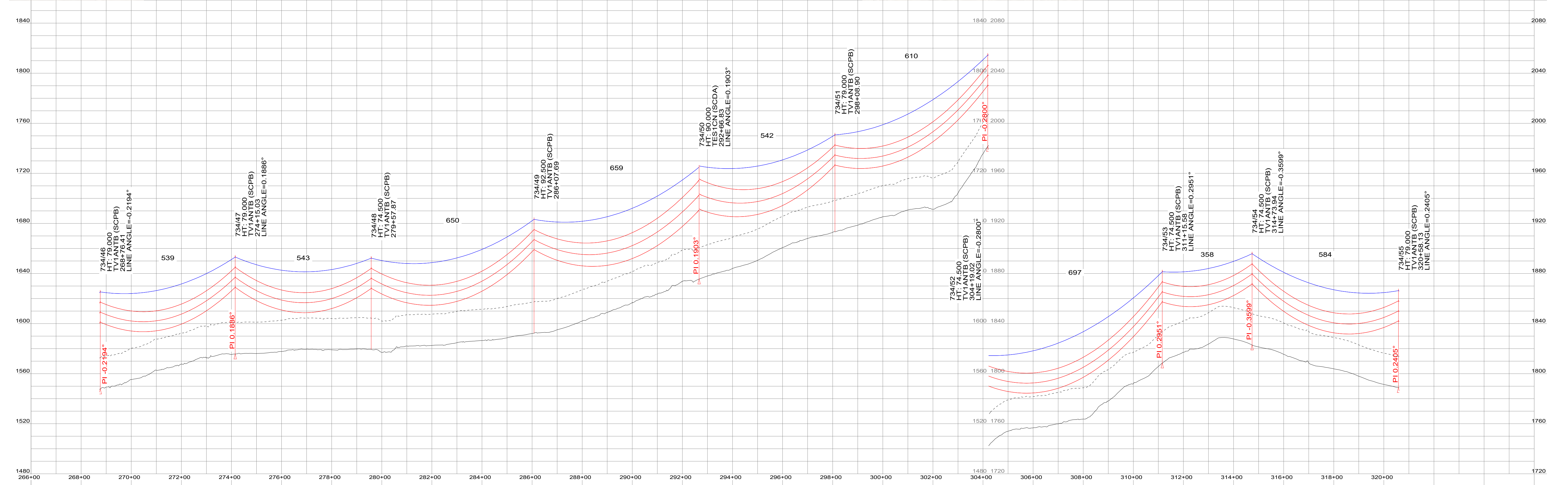
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