

# Historic Resource Survey Form

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION  
Bureau for Historic Preservation

Resource/Key #2025RE12203

Project #2023PR04584

## Name, Location and Ownership *(Items 1-6; see Instructions, page 4)*

HISTORIC NAME East Texas VOR/DME

CURRENT/Common NAME n/a

STREET ADDRESS 2049 Heffner Road

ZIP 18501

LOCATION Heffner Road, north of I-78 and east of Kecks Road.

MUNICIPALITY Weisenberg Township

COUNTY Lehigh

TAX PARCEL #/YEAR 544621423461/2025

USGS QUAD Slatington

OWNERSHIP  Private

Public/Local  Public/County  Public/State  Public/Federal

OWNER NAME/ADDRESS United States of America/GSA1B5CA0310 PO32K100, PO BOX 17128 PA058822, Fort Worth, TX 76102-0128

CATEGORY OF PROPERTY  Building  Site  Structure  Object  District

TOTAL NUMBER OF RESOURCES 1

## Function *(Items 7-8; see Instructions, pages 4-6)*

Historic Function

Subcategory

Particular Type

Defense

Air Facility

Navigation Aid

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Current Function

Subcategory

Particular Type

Defense

Air Facility

Navigation Aid

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## Architectural/Property Information *(Items 9-14; see Instructions, pages 6-7)*

### ARCHITECTURAL CLASSIFICATION

No Style

\_\_\_\_\_

\_\_\_\_\_

### EXTERIOR MATERIALS and STRUCTURAL SYSTEM

Foundation

Concrete

Walls

Aluminum

Roof

Unknown

Other

Structural System

WIDTH \_\_\_\_\_(feet) or 1 (# bays)

DEPTH \_\_\_\_\_(feet) or 1 (# rooms)

STORIES/HEIGHT 1

**Property Features** (Items 15-17; see Instructions, pages 7-8)Setting Suburban**Ancillary Features**

Fence \_\_\_\_\_

Antenna \_\_\_\_\_

\_\_\_\_\_

Acreage 22.5 acres (round to nearest tenth)**Historical Information** (Items 18-21; see Instructions, page 8)Year Construction Began 1955-1958  Circa Year Completed \_\_\_\_\_  CircaDate of Major Additions, Alterations \_\_\_\_\_  Circa \_\_\_\_\_  Circa \_\_\_\_\_  CircaBasis for Dating  Documentary  PhysicalExplain Historic aerial photographs.Cultural/Ethnic Affiliation(s) n/aAssociated Individual(s) n/a

Associated Event(s) \_\_\_\_\_

Architect(s) n/aBuilder(s) n/a**Submission Information** (Items 22-23; see Instructions, page 8)Previous Survey/Determinations None.Threats  None  Neglect  Public Development  Private Development  OtherExplain Property is within the APE for the I-78 Reconstruction Project (I-78 Section 19M) project.This submission is related to a  non-profit grant application  business tax incentive NHPA/PA History Code Project Review  other**Preparer Information** (Items 24-30; see Instructions, page 9)Name & Title Gabrielle A. Vicari, Senior HistorianDate Prepared July 21, 2025Project Name I-78 Reconstruction Project (I-78 Section 19M)Organization/Company NTM Engineering, Inc.Mailing Address 435 Devon Park Drive, Building 800, Suite 803, Wayne, PA 19087Phone (610) 605-3104Email gvicari@ntmeng.com

**National Register Evaluation** *(Item 31; see Instructions, page 9)***(To be completed by Survey Director, Agency Consultant, or for Project Reviews ONLY.)**

- Not Eligible (due to  lack of significance and/or  lack of integrity)
- Eligible Area(s) of Significance Criterion A- Defense, Criterion C- Architecture  
 Criteria Considerations \_\_\_\_\_ Period of Significance c. 1955- c. 2016
- Contributes to Potential or Eligible District District Name \_\_\_\_\_

**Bibliography** *(Item 32; cite major references consulted. Attach additional page if needed. See Instructions, page 9.)*

See Continuation Sheet.

**Additional Information**

The following must be submitted with form. Check the appropriate box as each piece is completed and attach to form with paperclip.

- Narrative Sheets—Description/Integrity and History/Significance (See Instructions, pages 13-14)
- Current Photos (See Instructions, page 10)
- Photo List (See Instructions, page 11)
- Site Map (sketch site map on 8.5x11 page; include North arrow, approximate scale; label all resources, street names, and geographic features; show exterior photo locations; See Instructions, page 11)
- Floor Plan (sketch main building plans on 8.5x11 page; include North arrow, scale bar or length/width dimensions; label rooms; show interior photo locations; See Instructions, page 11)
- USGS Map (submit original, photocopy, or download from TopoZone.com; See Instructions, page 12)

**Send Completed Form and Additional Information to:**

National Register Program  
 Bureau for Historic Preservation/PHMC  
 Keystone Bldg., 2<sup>nd</sup> Floor  
 400 North St.  
 Harrisburg, PA 17120-0093

**Photo List** (Item 33)

See pages 10-11 of the Instructions for more information regarding photos and the photo list. In addition to this photo list, create a photo key for the site plan and floor plans by placing the photo number in the location the photographer was standing on the appropriate plan. Place a small arrow next to the photo number indicating the direction the camera was pointed. Label individual photos on the reverse side or provide a caption underneath digital photos.

Photographer name Gabrielle Vicari

Date February 19, 2025

Location Negatives/Electronic Images Stored NTM Engineering, Inc.

Photo #	Photo Subject/Description	Camera Facing
1	Looking northeast at the East Texas VOR/DME, located on cultivated farmland at the end of an unpaved driveway.	NE
2	Looking northwest at the VOR/DME station, showing south and east elevations and the antenna at left.	NW
3	Looking northeast at the VOR/DME station, showing the west and south elevations.	NE
4	Looking southeast at the VOR/DME station, showing the north and west elevations and showing the antenna at right.	SE
5	Looking southeast at the cultivated land on the property.	SE
6	This undated photo, taken before 1986 and looking northwest, shows the East Texas VOR/DME. <i>Source: VintageAerial.com, Photo 121-PLE-1.</i>	NW
7	This 1990 photo looks northeast at the East Texas VOR/DME. <i>Source: VintageAerial.com, Photo 6-KLE-9.</i>	NE

## Physical Description and Integrity (Item 38)

Provide a current description of the overall setting, landscape, and resources of the property. See page 13 of the Instructions for detailed directions. Continue on additional sheets as needed.

Suggested outline for organizing this section:

- Introduction [summarize the property, stating type(s) of resource(s) and function(s)]
- Setting [describe geographic location, streetscapes, natural/man-made landscape features, signage, etc.]
- Exterior materials, style, and features [describe the exterior of main buildings/resources]
- Interior materials, style, and features [describe the interior of main buildings/resources]
- Outbuildings/Landscape [describe briefly additional outbuildings/landscape features found on property, substitute Building Complex Form if preferred; See Instructions, page 18]
- Boundaries [explain how/why boundaries chosen, such as historic legal parcel, visual natural features such as tree lines, alley separating modern construction, etc.]
- Integrity [summarize changes to the property and assess how the changes impact its ability to convey significance]

(Text entered directly into form fields will not permit formatting adjustments, such as spell checking or italicizing. Instead, you may wish to cut-and-paste text from another document into the field below; “unprotect” the document for this section, or prepare the “Physical Description and Integrity” narrative as a separate document.)

### Introduction

The East Texas VOR/DME is an aircraft navigation aid constructed between 1955 and 1958. VOR/DME is an acronym referring to “very high frequency omnidirectional radio range/distance measuring equipment,” a navigational aid used in aviation. The one-story building is located in a farm field in Weisenberg Township, Lehigh County, Pennsylvania (Figures 1 and 2). The property has not been previously entered in PA-SHARE, nor has it been evaluated for National Register of Historic Places eligibility.

### Setting

The East Texas VOR/DME is located in a suburban area of Weisenberg Township. The navigation aid is located on a parcel that is actively farmed, and is surrounded by other agricultural fields, twentieth-century residential development, and warehouse complexes. I-78 is located just to the south of the property, which is roughly 3 miles west of Fogelsville.

### Description of Property

#### VOR/DME station (bet. 1955-1958)

The VOR/DME station consists of a one-story square building clad in metal siding with an overhanging circular flat roof clad in an unknown material. A bowling pin-shaped transmitter rises from the center of the building. There are evenly spaced transmitters placed around the circumference of the circular roof. An antenna with a blinking beacon is located to the west of the building and is connected via a wire. The building is surrounded by a fence (Photo 1). An oil tank sits against the fence to the south of the building.

The south elevation of the building has two metal entry doors (Photo 2), and a series of metal vents and electrical boxes attached to the exterior of the wall. The west elevation has an off-center air conditioning unit placed mid-way up the wall but has no additional fenestration (Photos 3 and 4). A large electrical box sits on a concrete foundation in front of the elevation. The north elevation of the building has an off-center air conditioning unit placed mid-way up the wall but has no additional fenestration (Photo 4). The east elevation has no windows or doors. There are two metal vents extending from the wall, and a metal pipe extends from the wall (Photo 2). A large electrical box sits on a concrete foundation in front of the elevation.

The station appears to reflect a common design for these facilities, often called a “bowling pin” due to the shape of the transmitter atop the roof. Other stations across the country reflect a nearly identical appearance.



*An undated photo of an unidentified VOR/DME station that is nearly identical to the East Texas VOR/DME installation. Source: ICASC 2025*

### Integrity

The integrity of the East Texas VOR/DME was evaluated following National Register of Historic Places guidelines as outlined in “How to Apply the National Register Criteria for Evaluation,” *National Register Bulletin 15* (DOI 1997). The National Register of Historic Places recognizes a property’s integrity through seven aspects or qualities: location, design, setting, materials, workmanship, feeling, and association. The property retains integrity.

*Location.* The East Texas VOR/DME retains integrity of location; it has not been moved from its original site.

*Setting.* The East Texas VOR/DME does not retain integrity of setting. While agricultural fields and wooded areas remain to the east and north, areas immediately to the west have been compromised by the construction of large warehouse complexes and late-twentieth century residential developments.

*Design.* The East Texas VOR/DME retains integrity of design. The successful operation of these navigation aids mandates that they be in an unobstructed location with clear sight lines to the sky to allow uninterrupted transmission of radio waves and visual location confirmation for pilots (Photo 5). The navigation aid remains in an agricultural field at the end of a small unpaved driveway surrounded by a fence, with no tree growth or man-made development obscuring it from any direction. The property reflects a largely similar appearance to that reflected in twentieth-century aerial photographs (Photos 6 and 7; Figure 3).

*Materials.* The East Texas VOR/DME retains integrity of materials. The building appears to retain the same or similar cladding to its mid-twentieth century appearance and has not been subject to significant alterations or replacement of materials.

*Workmanship.* The East Texas VOR/DME retains integrity of workmanship. The construction methods of the building have not been additionally obscured or compromised by modern changes.

*Feeling.* The East Texas VOR/DME retains integrity of feeling due to integrity of location, design, setting, materials, and workmanship.

*Association.* The East Texas VOR/DME retains integrity of association, as it remains in use as a navigational aid.

## History and Significance (Item 39)

Provide an overview of the history of the property and its various resources. Do not substitute deeds, chapters from local history books, or newspaper articles. See page 14 of the Instructions for detailed directions. Continue on additional sheets as needed. Suggested outline for organizing this section:

- History [Summarize the evolution of the property from origin to present]
- Significance [Explain why the property is important]
- Context and Comparisons [Describe briefly similar properties in the area, and explain how this property compares]

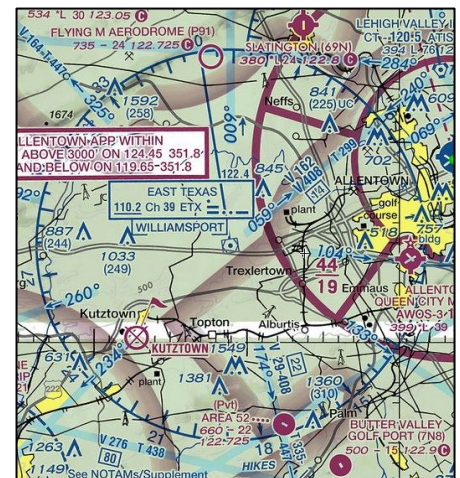
(Text entered directly into form fields will not permit formatting adjustments, such as spell checking or italicizing. Instead, you may wish to cut-and-paste text from another document into the field below; “unprotect” the document for this section, or prepare the “History and Significance” narrative as a separate document.

A chain of title was not able to be established for the property; however, the land on which the navigation aid rests was a part of property owned by the Charles J. Haaf Trust. It is unknown at what time this land was conveyed to the United States government, and it is unknown how much they paid for the land (Lehigh County Recorder of Deeds). The navigational aid first appears on an aerial photograph in 1958; it does not appear on a previous photograph taken in 1955 (NETR).

VOR/DME is an acronym referring to “very high frequency omnidirectional radio range/distance measuring equipment,” a navigational aid used in aviation. A “very high frequency omnidirectional radio range”- or VOR- allows in-flight pilots to determine their plane’s bearing to or from the VOR’s fixed location. “Distance measuring equipment”- or DME- uses radio signals to measure an aircraft’s distance to or from a fixed location (FAA 1986). When used in tandem at a single station, these technologies allow pilots to chart their fixed position with one set of measurements. Previously, pilots were required to triangulate between multiple VOR stations or use other, less accurate methods of navigation to establish their position. These installations are typically located in clear, open areas so as to not obstruct the clear lines of sight necessary for successful transmission of radio waves between the aircraft and the VOR/DME station.

VOR was first developed as a short-range navigation technology by the Federal Aviation Administration (FAA)’s predecessor, the United States Civil Aeronautics Administration (CAA), which was formed in 1938 in anticipation of World War II (FAA 2021). During World War II, a number of advancements in aeronautical technology were perfected, including the VOR; however, the war effort’s demand for materials delayed the rollout of these stations across the country until the war had ended. By the early 1950s, there had been over 271 VOR installations, and upwards of 45,000 miles of airways relied on the VOR for navigation. Around the same time, the CAA worked to make the VOR/DME equipment the “international standard navaid for enroute navigation,” and planned to install 450 DME stations alongside the VOR transmitters (ICASC 2025).

During the early 1950s, the CAA continued to pursue the widespread use of VOR/DME facilities and other navigational technology at airports and aeronautical facilities across the United States. This effort was somewhat derailed, however, by the rapid expansion and evolution of recreational flight and air travel, as well as a number of high-profile aviation accidents. The federal government began an overhaul of existing air travel facilities in 1956 to account for this growth and to avoid future incidents (ICASC 2025). It was around this time that the East Texas VOR/DME was constructed. While there is a village called “East Texas” approximately 7 miles away in Lehigh County, the relationship of the village to this particular site is unclear.



*This image shows the East Texas VOR/DME on a flight chart. The hexagonal shape inside a square near the center of the photograph represents the station. Source: SkyVector.com.*

Over the past seventy years, new and increasingly accurate technologies have been introduced to the world of aviation. VOR/DME stations have continued to operate alongside these improvements, including GPS (global positioning system) programs, which has become the standard for navigation both in the air and on land.

Since 2016, the FAA has been decommissioning many VOR/DME stations because of modern GPS technology's accuracy. A number of these mid-century VOR/DME installations will remain active, however, as a backup navigations system if GPS programs fail (Brooks 2022). It is unclear if the East Texas VOR/DME has been decommissioned or if it will remain operational as part of the backup system.

### National Register Evaluation

The East Texas VOR/DME was evaluated according to the criteria outlined in *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (DOI 1990). In addition, *National Register Bulletin 34: Guidelines for Evaluating and Documenting Historic Aids to Navigation* (DOI 1992) and *National Register Bulletin 43: Guidelines for Evaluating and Documenting Historic Aviation Properties* (DOI 1998) were consulted in the preparation of this form, as was the PA SHPO's "Environmental Review Resource Documentation Guidance for Airports & Airfields in Pennsylvania" (PA SHPO 2025). The property is recommended eligible for listing in the NRHP under Criterion A for association with the defense and under Criterion C for association with architecture.

*Criterion A.* The East Texas VOR/DME is recommended eligible under Criterion A for association with defense. The East Texas VOR/DME was constructed between 1955 and 1958, during the post-World War II growth of the United States' defense network, as well as the expansion of civil and recreational aviation. The site additionally represents the combination of the VOR (very high frequency omnidirectional radio range) and DME (distance measuring equipment) technologies, which greatly simplified pilots' triangulation measurements. Research has not uncovered any better examples of this type of installation in the area, nor did it find any navigation aids of this type that have been previously entered in PA-SHARE.

Guidance contained in *National Register Bulletin 34*, *National Register Bulletin 43* and in the PA SHPO context was not found to be useful in evaluating this property. *National Register Bulletin 43* and the PA SHPO guidance pertain to airports and airfields, but do not address elements that may be standalone or part of a larger complex on an aviation-related property. *National Register Bulletin 34* addresses navigation aids but exclusively discusses lighthouses and other maritime-associated properties.

*Criterion B.* Research has not uncovered a connection between the property and any persons significant in local, state, or national history. The East Texas VOR/DME is recommended not eligible under Criterion B.

*Criterion C.* The East Texas VOR/DME is recommended eligible under Criterion C for association with architecture. The station reflects a set of evidently standard design criteria for these mid-century navigational aids, often referred to as the "bowling pin" due to the shape of the transmitter. It additionally remains in a location that is unobstructed by development or vegetative growth, allowing for clear sight lines and radio wave transmission between aircraft and the station. It is unclear how many VOR/DME stations reflecting this design are still extant; however, the East Texas VOR/DME appears to be the only



The author and the Dove Creek VORTAC (DVC) in southwest Colorado in February 2002.

*This photo shows the Dove Creek VORTAC (DVC) navigational aid installation in southwest Colorado. This "bowling pin"-style station is nearly identical to the East Texas VOR/DME. Source: Brooks 2022.*

installation in the Lehigh Valley or in its immediate surroundings that represents this design.

*Criterion D.* The property has not been subject to archaeological investigation; as a result, it cannot be evaluated for eligibility under Criterion D.

Period of Significance

The recommended period of significance for the East Texas VOR/DME is c. 1955 - c.2016, representing the last available aerial photograph before the station was constructed, and ending with the year in which the FAA began decommissioning VOR/DME facilities.

National Register Boundary and Contributing Buildings

The recommended National Register boundary for the East Texas VOR/DME is the tax parcel. While it encompasses a great deal of land that is not in related use, capturing the tax parcel represents the intentional siting of the station in a spot where it is unobstructed and easy for pilots to see. The VOR/DME station and connected antenna is the only contributing feature on the property.

## Bibliography

Brooks, Phil

2022 “VOR Chasting: My Unusual Hobby.” Personal blog. Available online at <https://wahsonline.com/chasing-vors-my-unusual-hobby/>. Accessed February 2025.

Federal Aviation Administration (FAA)

1986 “VOR, VOR/DME, and VORTAC Siting Criteria.” Order No. 6820.10 Available online at [https://www.faa.gov/regulations\\_policies/orders\\_notices/index.cfm/go/document.information/documentID/9741](https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.information/documentID/9741). Accessed February 2025.

2021 “From Civil Aeronautics Authority (CAA) to FAA.” Available online at [https://www.faa.gov/about/history/photo\\_album/caa\\_to\\_faa](https://www.faa.gov/about/history/photo_album/caa_to_faa). Accessed February 2025.

International Committee for Airspace Standards and Calibration (ICASC)

2025 United States of America. Available online at <https://icasc.co/united-states-of-america/>. Accessed February 2025.

Lehigh County Tax Assessment Office

Various records.

NETR Online

Various aerials. Available online at <https://www.historicaerials.com>. Accessed February 2025.

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2025 “Environmental Review Resource Documentation Guidance for Airports & Airfields in Pennsylvania.” Available online at <https://www.pa.gov/agencies/phmc/historic-preservation/about-historic-preservation/forms-and-guidance>. Accessed July 2025.

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2025 Skyvector Aeronautical Charts. Available online at <https://skyvector.com>. Accessed February 2025.

U.S. Department of the Interior (DOI)

1990 How to Apply the National Register Criteria for Evaluation. National Register Bulletin 15. National Park Service. Available online at <http://www.nps.gov>. Accessed July 2025.

1992 Guidelines for Evaluating and Documenting Historic Aids to Navigation. National Register Bulletin 34. National Park Service. Available online at <http://www.nps.gov>. Accessed July 2025.

1998 Guidelines for Evaluating and Documenting Historic Aviation Properties. National Register Bulletin 43. National Park Service. Available online at <http://www.nps.gov>. Accessed July 2025.

VintageAerial.com

Pre-1986 Film Roll 121; Photo 121-PLE-1. Available online at <https://vintageaerial.com>. Accessed February 2025.

1990 Film Roll 6; Photo 6-KLE-9. Available online at <https://vintageaerial.com>. Accessed February 2025.



Photo 1. Looking northeast at the East Texas VOR/DME, located on cultivated farmland at the end of an unpaved driveway.



Photo 2. Looking northwest at the VOR/DME station, showing south and east elevations and the antenna at left.



Photo 3. Looking northeast at the VOR/DME station, showing the west and south elevations.



Photo 4. Looking southeast at the VOR/DME station, showing the north and west elevations and showing the antenna at right.



Photo 5. Looking southeast at the cultivated land on the property.




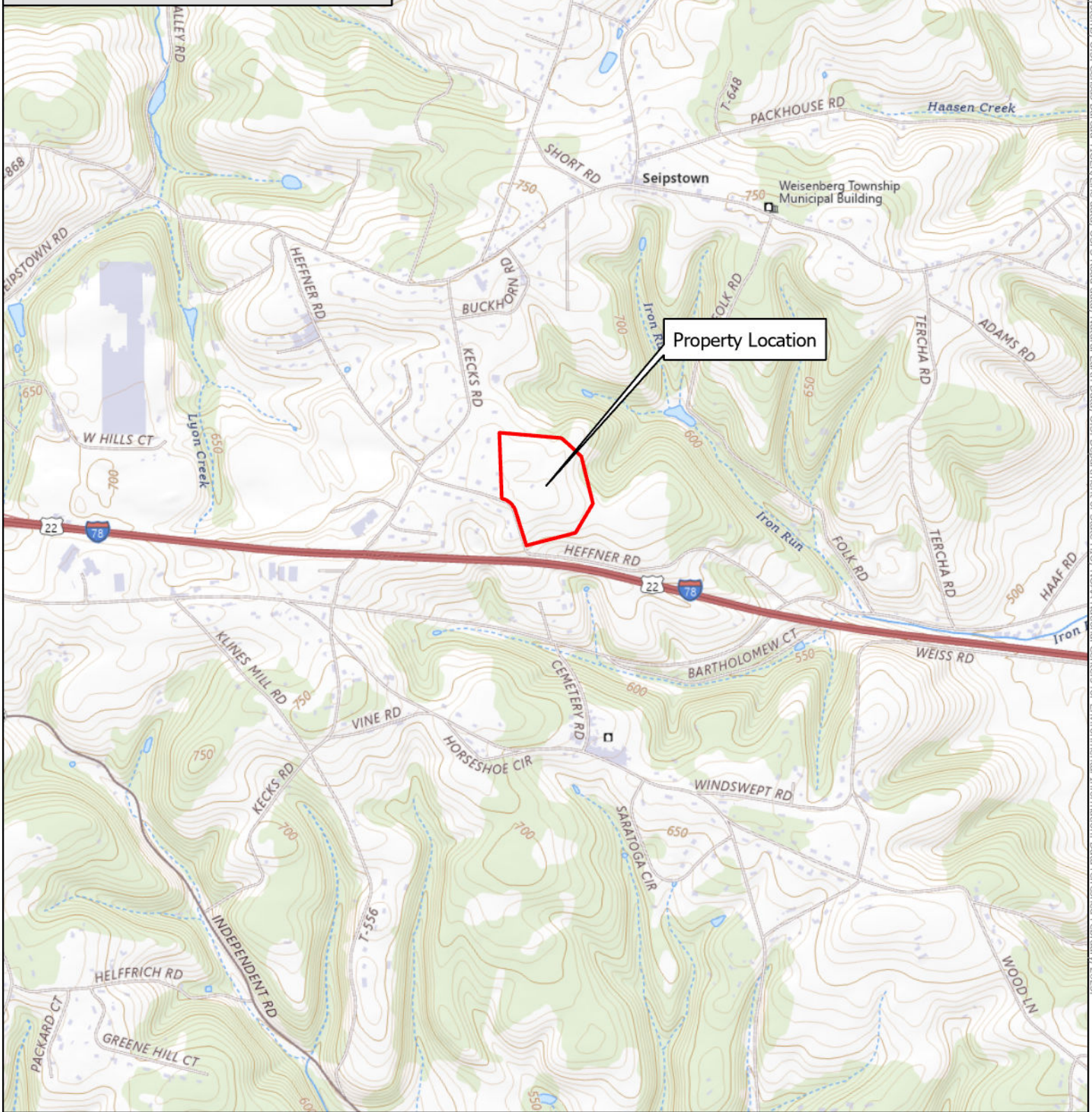
Photo 6. This undated photo, taken before 1986 and looking northwest, shows the East Texas VOR/DME. *Source: VintageAerial.com, Photo 121-PL-1.*




Photo 7. This 1990 photo looks northeast at the East Texas VOR/DME. *Source: VintageAerial.com, Photo 6-KLE-9.*

# Legend

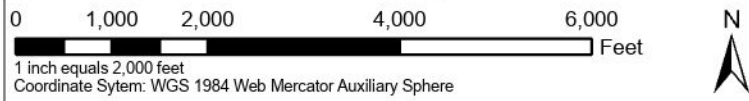
- East Texas VOR/DME
-  Recommended National Register Boundary



 Prepared By:  
NTM Engineering, Inc.  
435 Devon Park Drive, Suite 803  
Wayne, PA 19087  
Date: February 2025

Prepared For:  
PennDOT District 5-0  
1002 Hamilton Street  
Allentown, PA 18101

**Figure 1: Property Location Map**  
I-78 Reconstruction Project (Section 19M)  
Weisenberg and Upper Macungie Townships, Lehigh County,  
Pennsylvania





Credits: USGS The National Map; National Base; 30EP Elevation Program; Geographic Names Information System; National Hydrography Dataset; National Land Cover Database; National Structures Database; and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth data; U.S. Department of State HLU; NOAA National Centers for Environmental Information; Data refreshed February, 2025.

**Legend**

- East Texas VOR/DME
- Recommended National Register Boundary
- Photo Locations

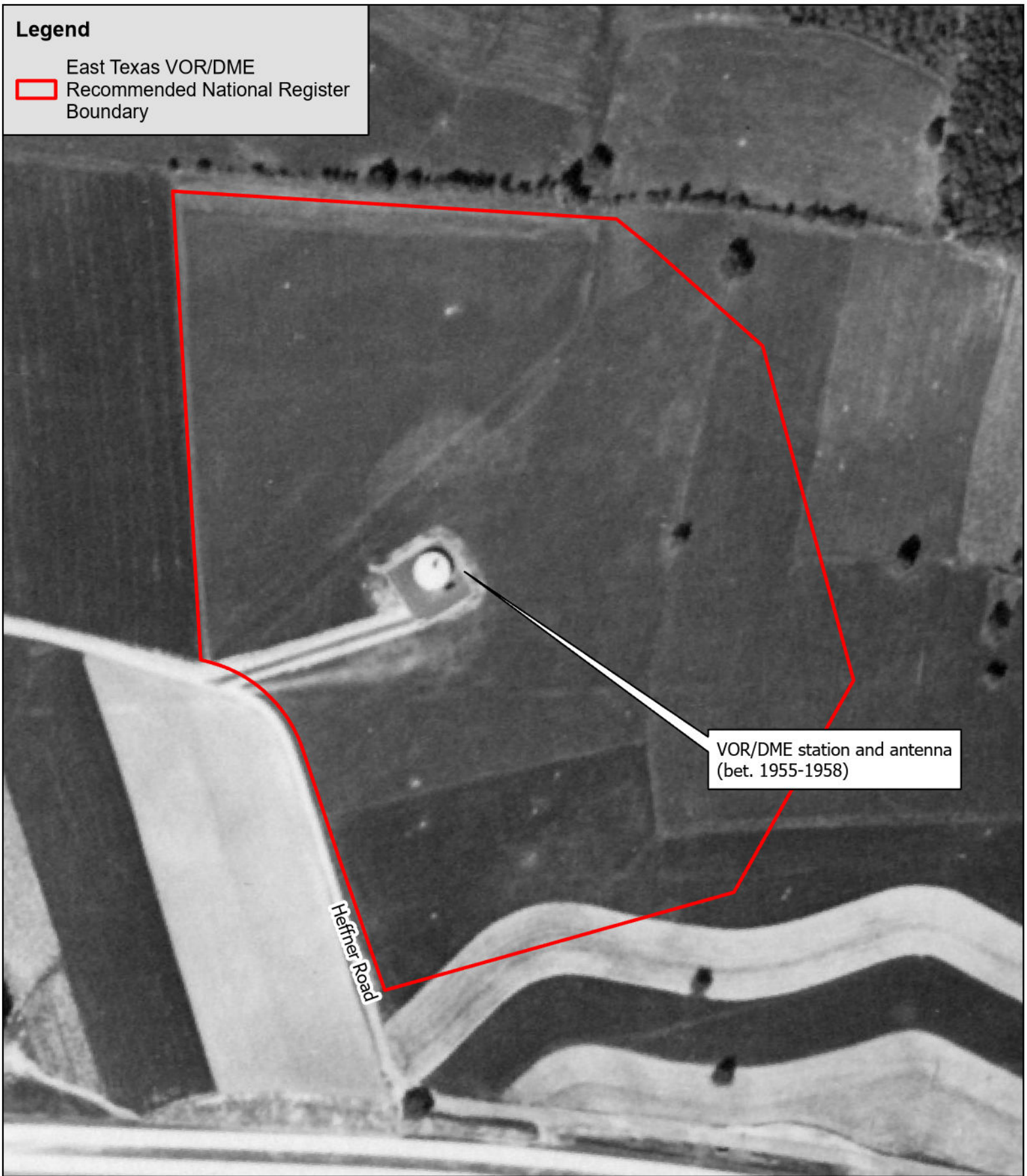


 <p>Prepared By: NTM Engineering, Inc. 435 Devon Park Drive, Suite 803 Wayne, PA 19087 Date: February 2025</p>	<p>Prepared For: PennDOT District 5-0 1002 Hamilton Street Allentown, PA 18101</p>	<p>0    50    100    200    300 Feet</p> <p>1 inch equals 100 feet Coordinate Sytem: NAD 1983 2011 StatePlane Pennsylvania South FIPS 3702 Ft US</p> <div style="text-align: center;">  <p>N</p> </div>
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**Figure 2: Site and Photo Location Map**  
I-78 Reconstruction Project (Section 19M)  
Weisenberg and Upper Macungie Townships, Lehigh County,  
Pennsylvania

**Legend**

- East Texas VOR/DME
- Recommended National Register Boundary



Prepared By:  
 NTM Engineering, Inc.  
 435 Devon Park Drive, Suite 803  
 Wayne, PA 19087  
 Date: February 2025

Prepared For:  
 PennDOT District 5-0  
 1002 Hamilton Street  
 Allentown, PA 18101



1 inch equals 200 feet

Coordinate System: NAD 1983 2011 StatePlane Pennsylvania South FIPS 3702 Ft US



**Figure 3: Historic Aerial, 1958**

I-78 Reconstruction Project (Section 19M)  
 Weisenberg and Upper Macungie Townships, Lehigh County,  
 Pennsylvania