New Bedford Whaling National Historical Park
National Park Service
U.S. Department of the Interior

CULTURAL LANDSCAPE REPORT AND GEOPHYSICAL SURVEY

Rotch-Jones-Duff House & Garden Museum

New Bedford Whaling National Historical Park
New Bedford, Massachusetts

September 2010

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Southern views of the pergola from the porch, 2009 (Pressley Associates).

CULTURAL LANDCAPE REPORT

&

GEOPHYSICAL SURVEY

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Northwestern view from the circular pergola, 2009 (Pressley Associates).

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CHAPTER 1:

INTRODUCTION

Overview

Located at 396 County Street in New Bedford, Massachusetts, the Rotch-Jones-Duff House & Garden Museum is a rare surviving example of a whaling mansion and its associated grounds open to the public. The museum is also an important non-profit partner with the National Park Service in the New Bedford Whaling National Historical Park. The house and grounds chronicle over one hundred and fifty (150) years of economic and social life in New Bedford through its architecture, decorative arts, and landscape, along with the stories of the three principal families who inhabited the home from 1834 to 1981.

Study Area

The Cultural Landscape Report for the Rotch-Jones-Duff House & Garden Museum addresses the history of the one-acre site at 396 County

Street, currently occupied by the historic house, greenhouse, garage, and carriage house, and the associated gardens that together constitute a city block bordered by County Street, Madison Street, Seventh Street and Joli Gonsalves Memorial Way (formerly Cherry Street). County Street sits on a slope above downtown New Bedford and many of the remaining historic houses associated with the Rotch family are in the neighborhood, although most have been converted to other uses and no other property possesses the integrity of building, site and interior collections evident here. The property is approximately a half (1/2) mile from the visitor's center of the New Bedford Whaling National Historical Park and is located within the County Street Historic District.

Rotch-Jones-Duff House & Garden Museum

The Rotch-Jones-Duff House & Garden Museum Inc. was incorporated in 1985 to manage the non-profit museum through public access and stewardship of the property's significant buildings and grounds, and also serving as an active partner in New Bedford's cultural community through its diverse education programs and special events. The mission of the Rotch-Jones-Duff House & Garden Museum is threefold:

- To preserve one of the nation's finest Greek Revival mansions and its historic grounds and gardens to the highest standards;
- To interest and educate the public through exhibits and interpretive historical and horticultural programs that document the history of New Bedford, an important chapter in American history, through the lives of the three families who lived in the house;
- To acquire and care for appropriate artifacts, furnishings and period collections.

The property has been the subject of a Historic Structure Report (1985) and a Historic Furnishings Report (2005). The Rotch family was also the subject of a book titled *The Rotches* (1947) by John Bullard. The William Rotch Jr. House was designated a National Historic Landmark in 2005 for its significance in the areas of architecture, economics, industry, and maritime history. Today, the property contains physical features associated with each of the families who lived in the house over a century and a half of continuous occupancy.

Rotch Family (1831-1850)

William Rotch Jr. (1759-1850) was born on Nantucket and trained in his father's counting house as a merchant before taking over operation of the family business on Nantucket in the 1780s. Following his family, he moved to New Bedford in 1787. In New Bedford, William Rotch Jr. was one of the most influential townsmen and businessmen. He was founder (1825) and president (1825-1850) of the New Bedford Institution for Savings, a charter member of the New Bedford Horticultural Society (1847), and a prominent New England Quaker who served as clerk of the New England Yearly Meeting (1788-1818). He was also involved in the establishment of the New Bedford Friends School (1810-1811) and the Moses Brown School, a Quaker boarding school, when it was relocated to Providence in

1819 under the name "The New England Yearly Meeting Boarding School."

Figure 1.1: Original building of the Moses Brown School Campus, circa 1918.

In the business realm, the Rotch family managed an early example of a vertically integrated corporation; they owned and built whaling vessels, transported whale oil and other goods, outfitted whaling vessels, operated their own store, made candles, owned wharves and storehouses in New Bedford and Nantucket, and sold oil and bone on both national and international markets. William Rotch Jr. married twice, first to Elizabeth Rodman (1759-1828) in 1782, with whom he had seven (7) children. Upon her death, he married Lydia Scott (1782-1863) in 1829. In 1834, the Rotches moved from their home at the corner of Water and William Streets (now the Mariner's Home) to their new Greek Revival style County Street home. William Rotch Jr. lived in his County Street home for sixteen (16) years until his death in 1850.

Jones Family (1850-1935)

Edward Coffin Jones (1808-1880) was born on Nantucket and moved to New Bedford as an infant, where he was raised by his widowed mother from the age of thirteen (13). He became a clerk for Captain Elisha Dunbar's ship chandlery in 1824.[1] By 1827 he was Dunbar's partner, and elevated to owner of the firm after Dunbar's death in 1839.[2] Jones invested in whaling ships and by mid-century was an agent and owned sixteen (16) ships, either in whole or in part.

Edward Jones was married three (3) times, first to Louisa Gibbs (1817-1839) in 1835, who died four years later, predeceased by two (2) infant children. Second, he married Emma Chambers Nye (1823-1852) in 1844, with whom he had four (4) children, one (1) of whom died in infancy. Upon his second wife's death from scarlet fever, Jones married Mary Luce (1840-1917) in 1872. Edward Jones died in 1880. His wife and daughter, Amelia, continued to live in the County Street house together. A charismatic woman, Amelia Jones was dedicated to philanthropic endeavors, including Sole-e-Mar, a children's hospital she funded on the Jones family farm in nearby South Dartmouth. Upon her death in 1935, the property was sold to Mark Duff.

Duff Family (1935-1981)

Mark Mitchell Duff (1891-1967) was born and raised in New Bedford. His family business, David Duff & Son, established in 1851 by his grandfather, first dealt in whale oil before expanding to coal in 1887 and fuel oil transportation in 1932. Mark Duff's influence in New Bedford was extensive. He was at one time president of the Merchants Bank and the New Bedford Hotel Corporation. He served on the executive council of the Massachusetts Bankers Association and on the board of the Morse Twist Drill and Machine Company, the Soule Mill,

Hathaway Manufacturing, and the Kilburn Mill, among many other professional affiliations.[3] Mark Duff was married to Beatrice Marceau (1889-1987) in 1915, with whom he had two (2) daughters, Beatrice and Elizabeth (Betty). Upon Mark Duff's death in 1967, his wife remained in the County Street house until 1981.

Figure 1.2: 1937 photograph of Mark Duff on the porch at the southeast corner of the house (RJD House Archives, F1).

New Bedford Whaling National Historical Park

A maritime community on Buzzard's Bay, where the Acushnet River meets the bay and the Atlantic Ocean beyond, New Bedford supported the largest fleet of whaling vessels in the nation during the nineteenth century along with an extensive system of maritime industries that contributed greatly to America's economic and political prosperity. The New Bedford Whaling National Historical Park was established in 1996 to commemorate and interpret the economic, social, and industrial contributions of the whaling industry to the history of the United States. The park encompasses a thirty-four (34) acre area dedicated to the legacy of the New Bedford maritime community that includes the New Bedford National Historic Landmark District (established in 1966), consisting of a core group of historic properties in downtown, most of which are privately owned.

From its inception, the park was conceived as a partnership in which the National Park Service collaborates with multiple public and private entities, such as the Rotch-Jones-Duff House & Garden Museum, to support the stewardship and educational mission of the New Bedford Whaling National Historical Park. Together, this unique collaboration of federal, state, municipal and non-profit institutions provides an unprecedented glimpse into the economic, social, and geographic impact of the whaling industry on the American landscape.

Park Mission Statement

> New Bedford Whaling National Historical Park helps to preserve, protect, and interpret certain districts, structures, and artifacts located in New Bedford, Massachusetts that are associated with the history of whaling and related social, economic, and environmental themes for the benefit and inspiration of this and future generations. These efforts will be undertaken in partnership with the city of New Bedford, local and regional institutions, and Inupiat Heritage Center in Barrow, Alaska.[4]

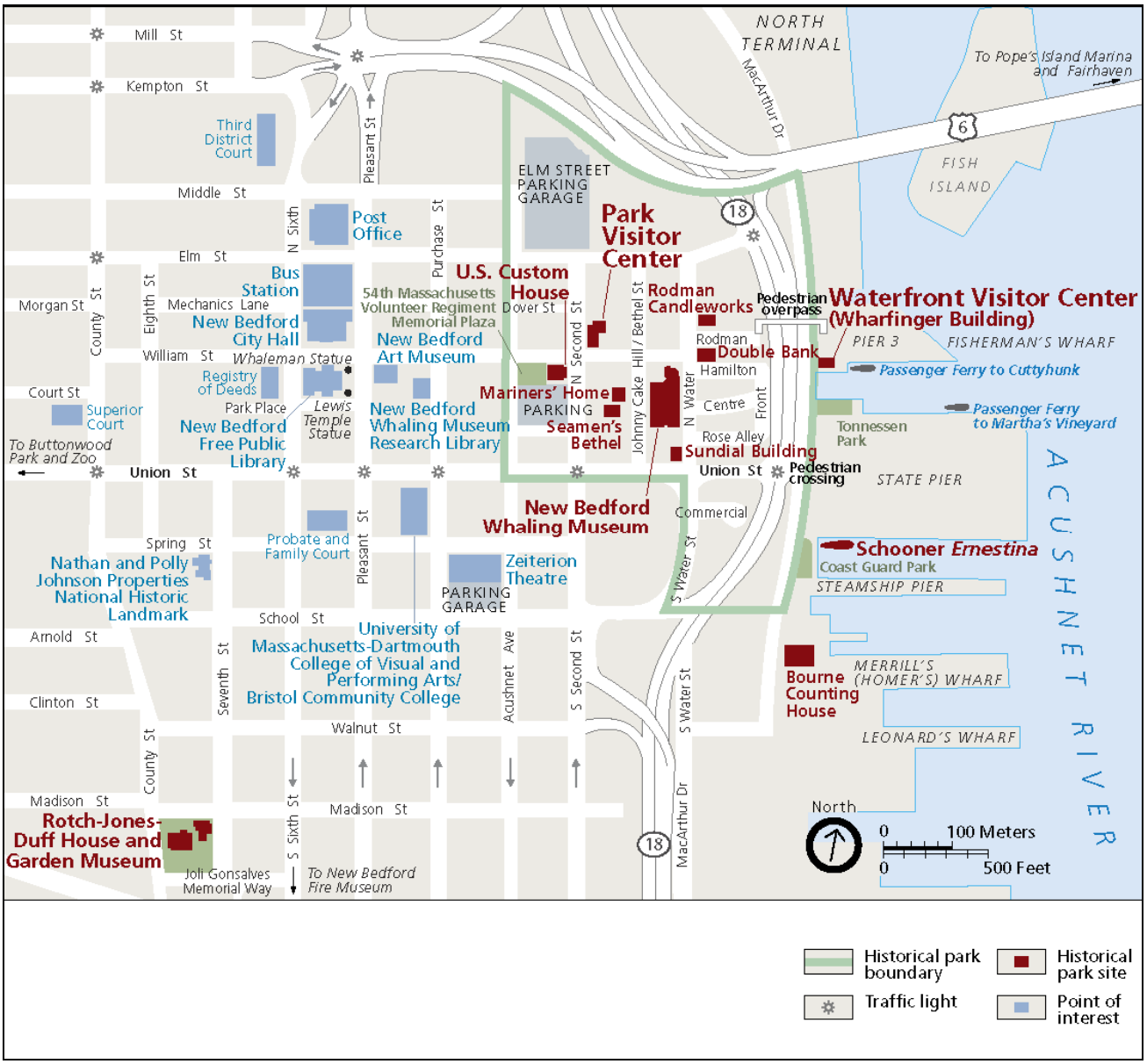


Figure 1.3: Map of the New Bedford Whaling National Historical Park showing the location of the Rotch-Jones-Duff House & Garden Museum relative to the other properties in the park (National Park Service).

Historical Overview

The site occupied by the Rotch-Jones-Duff House originally belonged to Joseph Russell III, one of the earliest settlers of the Town of Dartmouth, which then encompassed the Village of Bedford. In 1787, the Village of Bedford was incorporated as the Town of New Bedford, the same year William Rotch Jr. moved with his wife and infant daughter from Nantucket to New Bedford.

By 1818, William Rotch (Sr.) acquired this property presently occupied by the Rotch-Jones-Duff House from Joseph Russell's son, Abraham.[5] After William Rotch's death in 1828, the property was deeded to his heirs, who disputed his will for some time before the County Street property went to William Rotch Jr. in 1831.[6] William Rotch Jr. contracted a relatively unknown architect at the time, Richard Upjohn, to design a new home for himself and his new wife in the Greek Revival style. William Rotch Jr. and his second wife, Lydia (Scott) Rotch, moved into the house in fall of 1834. A founding member of the New Bedford Horticultural Society, Rotch had an acute interest in horticulture, a fashionable hobby for New Bedford's leading citizens at the time. Rotch's submissions to the Society's exhibitions with his gardener, William M. Howard, provide documentation of some of the specimen plants Rotch grew at his County Street home. Rotch's daughter, Sarah, was married to County Street neighbor and avid horticulturist James Arnold, who was previously in the employ of Rotch.

Upon William Rotch Jr.'s death in 1850, Edward Jones purchased the property from Sarah (Rotch) Arnold in December 1850. Edward Jones, his second wife, Emma Chambers Nye, and his three (3) daughters moved into the County Street house in May 1851. Edward Jones's improvements to the property were numerous, including construction of a barn (the coachman's house), a stable at the southeast corner of Seventh and Madison Streets, a grapery, and a simple greenhouse. Over the Jones family's period of ownership, they employed at least five (5) different gardeners.

Edward Jones's daughter, Amelia, who never married, played a pivotal role in the stewardship of the property following her father's death in 1880 and her step-mother's death in 1917. Her interest in Azaleas and Roses remains visible on the property to this day. Despite the fact that Amelia Jones kept a gardener on staff until her death,[7] upon the sale of the property to Mark Duff, Mrs. Duff reported that the gardens were not well maintained at the end of Jones's tenure on County Street.[8] Amelia Jones summered at her home in New Hampshire, as well as maintained a farm in South Dartmouth, which was later the site of the Sol-e-Mar Children's Hospital, a charitable institution founded by Amelia Jones.[9]

Mark Duff purchased the house in November 1935 from the executor of Amelia Jones's estate, Oliver Prescott Jr. Mr. Duff took a particular interest in the gardens, and with his wife, Beatrice (Marceau) Duff, oversaw their revival in the late 1930s under the direction of landscape architect Helen Coolidge. According to a 1985 interview with Helen Coolidge, her approach to the landscape was based on "training to preserve, not to change."[10] The Duffs improvements to gardens

included a new fountain in the stone terrace to the west of the house as well as a water garden in the lawn immediately to the south. The Duffs also expanded Edward Jones's simple greenhouse structure to its present size. Numerous photographs from the Duff family era show diverse planting in the property's many garden beds, as well as thousands of Tulips in bloom on the property.

In 1962, the Waterfront Historic Area LeaguE (WHALE), a non-profit organization, was established to preserve the heritage of New Bedford in the face of urban renewal. The mission of the organization is "to promote the value and reuse of greater New Bedford's historic structures through preservation, education and advocacy." WHALE purchased the County Street property from Mrs. Beatrice Duff in 1981 following a failed attempt to convert the property into an inn and restaurant. WHALE took important first steps in stabilizing the historic property and beginning restoration, including re-painting the exterior of the house and reconstructing the circular garden pergola. The Garden Club of Buzzards Bay took an active role in stabilizing the property as well, restoring the greenhouse and caring for the gardens, in part using the landscape to continue their work of the propagation of Boxwood, begun in the 1950s. The property was opened to the public as an historic house museum in 1983.

The Rotch-Jones-Duff House & Garden Museum Inc. was incorporated in 1985 and assumed ownership of the property, continuing its use as an historic house museum and expanding its educational outreach programs, including the woodland garden, apiary, and history programs with New Bedford Schools' fourth and fifth grade students. The Rotch-Jones-Duff House & Garden Museum became a partner in the New Bedford Whaling National Historical Park, established by the National Park Service in 1996.

Purpose & Objectives

This Cultural Landscape Report (CLR) documents the history, current condition, and significance of the landscaped grounds of the Rotch-Jones-Duff House. The purpose and objectives of this Cultural Landscape Report (CLR) are to:

1. Consolidate multiple primary and secondary source materials into one document, building on similar studies completed for the house and interior collections that will serve as a useful reference for the museum and its NPS partner;
2. Document and interpret the evolution of the property as a foundation for the development of treatment (design) recommendations;
3. Provide the Rotch-Jones-Duff House & Garden Museum with a useful document that will aid in future planning and long-term management of the property; and
4. Support the stewardship and partnership goals of the New Bedford Whaling National Historical Park.

Methodology & Scope

Cultural Landscape Report

The CLR methodology developed by the National Park Service is the primary guide for documenting and determining the treatment and use of a historic landscape, and provides a flexible and adaptable approach for the Rotch-Jones-Duff House property. A CLR typically analyzes a landscape's geographic setting, development and evolution, materials, construction techniques, and use in all periods, including those deemed not significant. This CLR includes the components typically contained in Part I: Site History, Existing Conditions, and Analysis and Evaluation.

This CLR for The Rotch-Jones-Duff House & Garden Museum includes a chronological **site history** documenting how the property changed over time as each of the three (3) families took residence, concluding with its transition from private residence into a historic house museum open to the public. Period plans from the Jones and Duff eras illustrate the configuration of the garden at the end of each family's ownership. The **existing conditions** chapter documents the location, appearance and condition of extant cultural landscape features, including the property's spatial organization, landscape characteristics, and archaeological resources. A new site topographic and boundary survey provides the base map on which the existing landscape features are drawn. The **historic analysis** chapter addresses the integrity and significance of the landscape, based on its period(s) of significance and expanding on the National Register criteria presented in the National Historic Landmark nomination form, and places the historic property in the context of the development of New Bedford during the nineteenth century. While this CLR does not include Part 2: Landscape Treatment Recommendations and Treatment Plan, the background information contained in the report forms the baseline from which treatment recommendations can be developed.

Historical research for the CLR utilized both primary and secondary sources related to the Rotch-Jones-Duff property itself. Because source material specific to the landscape is very limited, selected records related to key historic properties nearby, that were owned and developed by other family members, were also reviewed to see if they could shed any additional light on the development of the Rotch-Jones-Duff gardens. The primary repository containing information germane to this CLR is the Rotch-Jones-Duff House & Garden Museum Archives, housed in the mansion. Additionally, the records of the New Bedford Horticultural Society at the New Bedford Free Public Library and the Special Collections and records of the Old Dartmouth Historical Society Collection at the New Bedford Whaling Museum Library both provided valuable information regarding the Rotch and Jones families' periods of ownership, as well as historic context.

Geophysical Survey

This CLR also includes a geophysical survey, which utilized three survey non-invasive methods to locate below-grade features: ground penetrating radar (GPR), electomagnetics (EM), and magnetics (MAG). The **GPR method** used a radar device to transmit electromagnetic energy into the ground. This energy was then reflected back to the device when it encountered materials of contrasting electrical and physical properties. The resulting data produced two-dimensional profiles of the survey area that were visualized as cross-sections through the ground. These profiles were then compiled using a computer program to produce a three-dimensional model of the below-grade survey area. The penetration depth of the GPR method is variable, dependent upon the frequency of the antenna used to collect the data. In the case of the Rotch-Jones-Duff House survey, the appropriate antenna was chosen to achieve a penetration depth sufficient to locate all potential archaeological features, while maintaining a high level of precision.

The **EM method** used a conductivity meter that sent an electromagnetic field into the ground and then detected a resulting electromagnetic field. This technique operates on the principle that all objects have electromagnetic properties, and when an electromagnetic field is applied to an object, a secondary field will result. The data derived from the EM method resulted in a two-dimensional image of the survey area that showed areas of higher and lower conductivity. In areas where a change in subsurface material was present, the data showed contrasting conductivity, indicated on the associated plate by a change in color. The EM method was effective in showing changes in conductivity within one meter of the surface.

The **MAG method** used the movement of cesium atoms and the introduction of a radio frequency in a magnetometer to determine ambient magnetic field strength throughout the property. The data derived from this survey method resulted in a two-dimensional image, much like the EM method, that showed changes in magnetism across the property. In areas where changes in material were detected, the anomaly was represented on the associated plate by a change in color. The magnetometer is very sensitive to surface interference. As the geophysical survey plates show, interference was evident on the property in the vicinity of many above-grade metal features, including the greenhouse, fence, and metal edging. The MAG method also had a wide influence, meaning that anomalies shown on the associated plate appear larger than their actual extent.

The findings of the geophysical survey informed the site history and a complete report on Geophysical Survey for Archaeological Investigations is included as Appendix B of this report.

Summary of Findings

Cultural Landscape Report

This Cultural Landscape Report confirmed much of what has been written about the grounds of the Rotch-Jones-Duff House, without revealing any new or significant primary sources. It presents the available information chronologically, with period plans that portray what is known about the configuration of the grounds during the Jones and Duff family ownership, since very little specific information is available for the Rotch period. While the current National Historic Landmark nomination for the property lists a period of significance of 1835-1880, the CLR proposes a secondary period that continues through Amelia Jones life, ending in 1935. This reflects many of the garden elements present today.

What is conspicuously lacking from the documentation, though perhaps suggested in some historic photographs, is the location and extent of a working service yard. The service yard, which may have been located where the bluestone terrace now stands, would likely have included a privy, laundry yard, and other uses separated and screened from view of the more formal landscape gardens intended for public view and promenading.

Figure 1.4: Reduced Period Plans from the site history; top: Jones ownership period 1850-1935; bottom: Duff ownership period, 1935-1981.

Geophysical Survey

In November 2009, Hager GeoScience undertook a geophysical investigation of the Rotch-Jones-Duff House & Garden Museum to locate subsurface anomalies on the property. Three survey methods were employed in this investigation: ground penetrating radar (GPR), electomagnetics (EM), and magnetics (MAG). Survey data was collected on a two-foot grid across the property. GPR located the most targets (98 targets), while EM (23 targets) and MAG (13 targets) located fewer targets. The GPR data provided most useful in locating below-grade features, while the EM and MAG data primarily confirmed the findings of the other methods. Some anomalies were detected with a high degree of confidence, and have been shown on the final geophysical survey plates (plans) with solid lines. Other anomalies were detected with a lower level of confidence, and for that reason have been shown with dashed lines on the associated plates, which are included in the complete Geophysical Survey for Archaeological Investigation as Appendix B of this Cultural Landscape Report.

With all three survey methods, the identification of anomalies is different from their detection. In some cases, historic photographs show a close correlation between known historic features and the findings of the geophysical survey; such is the case with the former fountain basin on the terrace, former staircase footings on the terrace, and former fountain basin on the lawn to the south of the terrace.

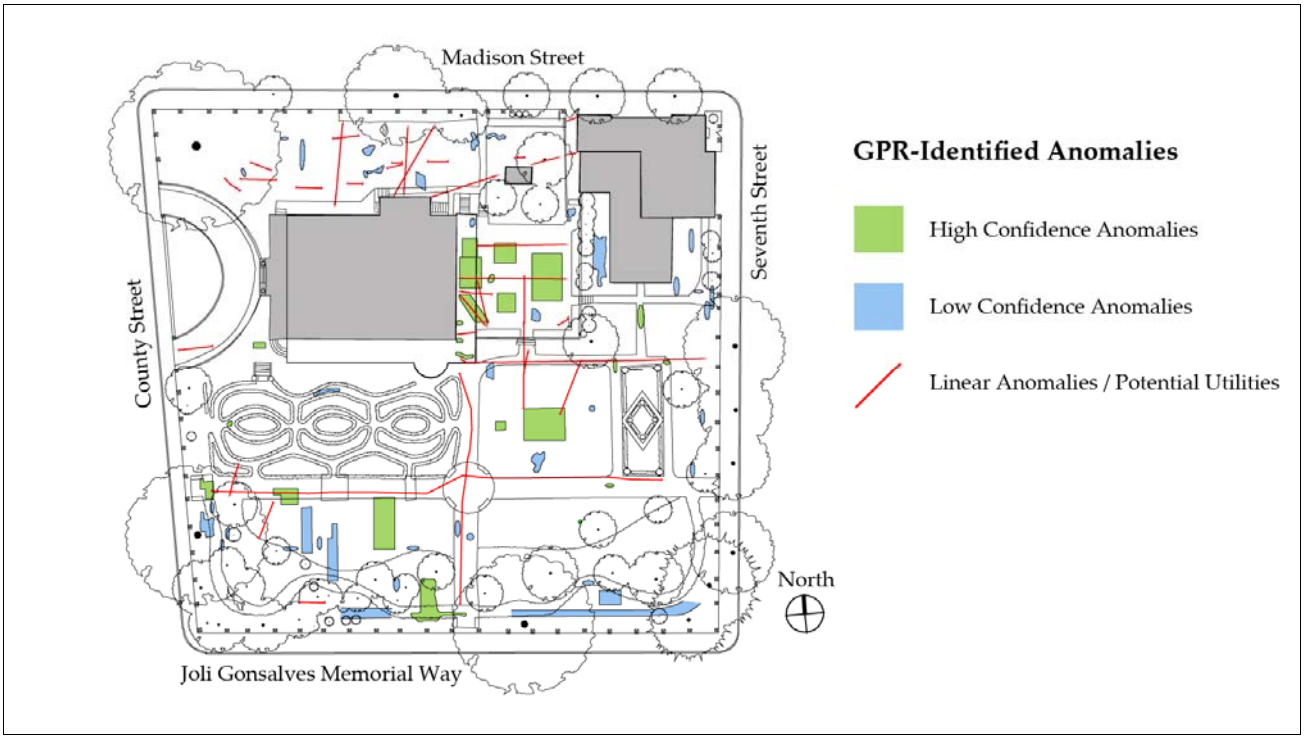


Figure 1.5: Diagram showing anomalies located using ground-penetrating radar (GPR).

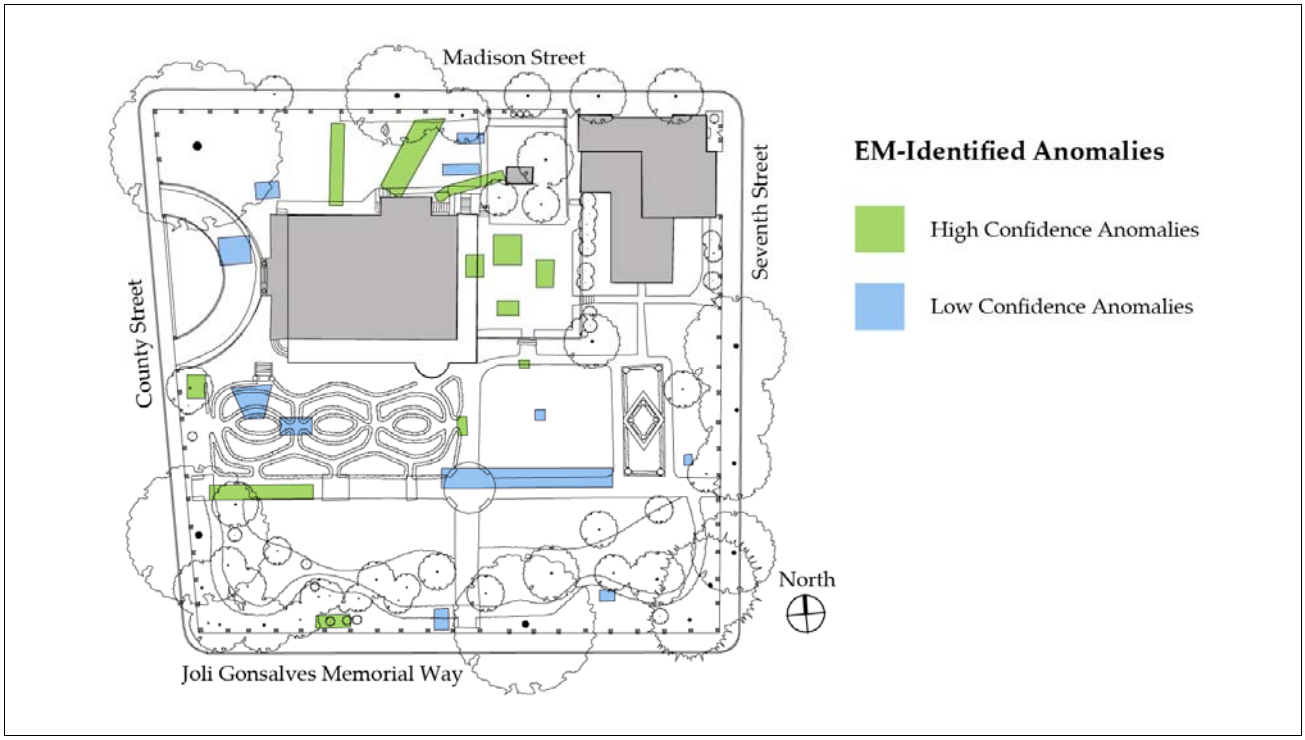


Figure 1.6: Diagram showing anomalies located using electromagnetics (EM).

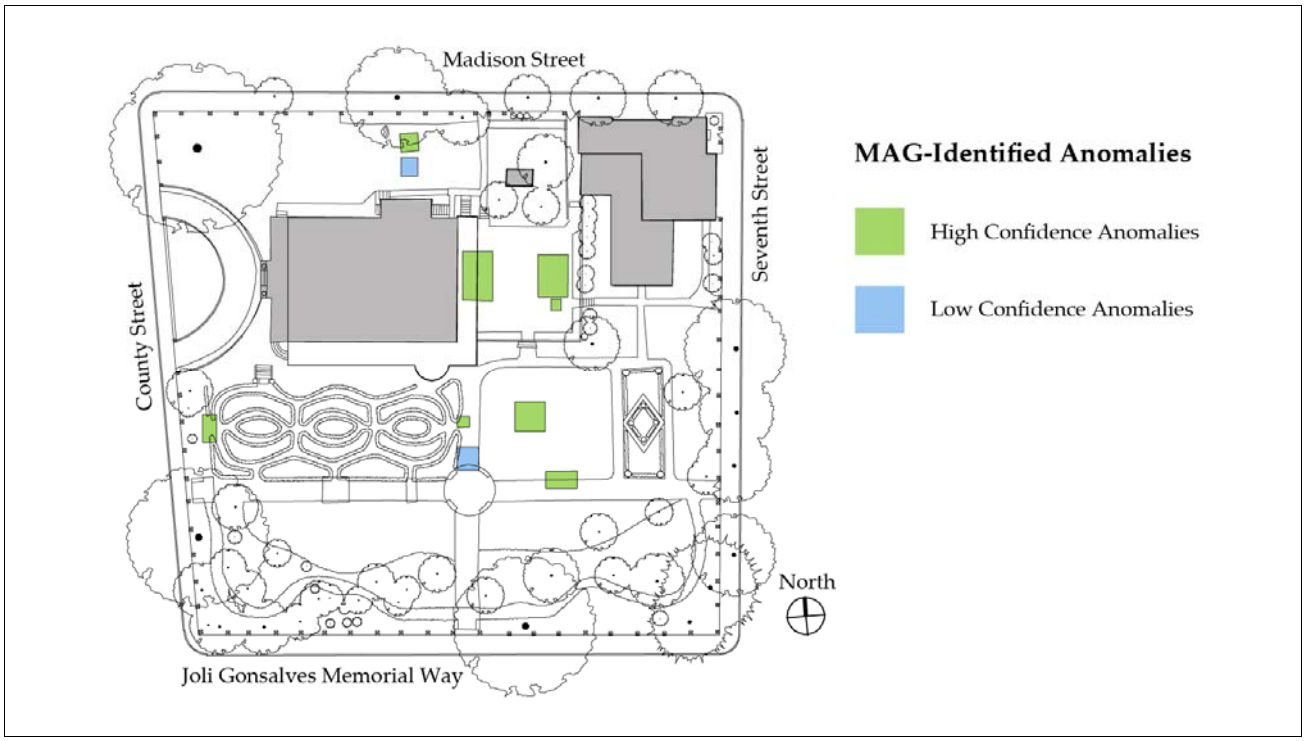


Figure 1.7: Diagram showing anomalies located using magnetics (MAG).

Several buried utility lines were also located on the property in the area to the north of the house and along the primary east-west garden path. Their identification is fairly certain given their shape and orientation. In some instances, linear anomalies were categorized by utility type if evidence existed. Several other linear anomalies were located in the northwest corner of the property, which are believed to be tree roots associated with the large Copper Beech. In cases where historic visual evidence is not available, the only definitive way to identify an anomaly is through excavation.

Recommendations for Further Study

Cultural Landscape Report

Prior to undertaking a landscape treatment plan for the Rotch-Jones-Duff House & Garden Museum, additional research or archeological investigation may be necessary to confirm the potential location of a service yard as discussed below. Photographic evidence from the Jones era should be evaluated in greater detail by a professional horticulturist to determine more specifically the plant material comprising the beds in the southern half of the property. Finally, careful consideration of the interpretative objectives for the landscape should inform the treatment approach, since some of the historic garden areas have been altered, and sufficient evidence exists to better represent the character of the landscape during the Jones period.

This CLR did not include a research visit to the Smithsonian Institute, Archives of American Gardens, which holds some records related to the transition of the property from the WHALE to museum ownership. It is possible that these records could hold some additional information about the condition of the garden during the WHALE period.

Geophysical Survey

Archaeology has the potential to illuminate additional information about the history of the house, its grounds, and its inhabitants. The large concentration of anomalies on the stone terrace and its proximity to the house make this area a particularly strong candidate for archaeological investigation. Two specific anomalies detected on the terrace near the house, G4A9 and G4A10, are of particular interest given the recent discovery of a small extension to the back of the house identified in an historic photograph. Although no documentary evidence has been located to date, this area may have served as the original service yard for the house. Many of the paving stones that comprise the terrace have begun to shift on their dry setting bed. Resetting these stones presents an opportunity to achieve the dual objectives of repairing the pavement on the terrace while undertaking an archaeological investigation of the area that may yield additional historical information that will be valuable to the Rotch-Jones-Duff House and Garden Museum in their ongoing mission of preservation and education.

Based on geophysical survey data, anomalies G1A9 and G1A16, located in the path and lawn to the south of the parterre garden, appear to be previous excavations that have not been correlated with any known historical evidence. These sites may also bear additional information about the history of the property. Anomaly G1A2,

located immediately to the east of the garden settee at the western end of the axial garden path, is also a good candidate for excavation, given that excavation may reveal additional information about the original design of the garden settee.

Endnotes

[1] Amelia H. Jones. "Memories of Edward C. Jones collected and written for his grandchildren by their aunt Amelia H. Jones," January 1899, pp. 3-4, from Janice Hodson. "Historic Furnishings Report: Rotch-Jones-Duff House, Volume 1: Historical Data with Implementation Options," Historic New England for the Northeast Museum Services Center, National Park Service, February 2005, p. 49.

[2] Amelia H. Jones. "Memories of Edward C. Jones collected and written for his grandchildren by their aunt Amelia H. Jones," January 1899, pp. 6-8, from Hodson. "Historic Furnishings Report," p. 49.

[3] Rotch-Jones-Duff House and Garden Museum, Inc. "Historic Structure Report of the Rotch-Jones-Duff House & Garden Museum," 1985, p. 31.

[4] National Park Service. "Final General Management Plan and Environmental Impact Statement for New Bedford Whaling National Historical Park," 2001.

[5] Janice Hodson, Historic Furnishings Researcher, Historic New England for the Northeast Museum Services Center, National Park Service. "Historic Furnishings Report: Rotch-Jones-Duff House, Volume 1: Historical Data with Implementation Options," February 2005, p. 19.

[6] Hodson. "Historic Furnishings Report," p. 19.

[7] Ibid.

[8] "Visit by Mrs. Mark Duff to 396 County Street, June 9, 1982" [Duff Family file at RJD House], from Hodson. "Historic Furnishings Report," p. 25.

[9] Hodson. "Historic Furnishings Report," p. 25.

[10] Telephone interview with Mrs. John Coolidge, Bedford, Massachusetts, April 24, 1985 from Rotch-Jones-Duff House and Garden Museum, Inc. "Historic Structure Report," p. 33.

Northeastern view across the parterre garden, 2009 (Pressley Associates).

CHAPTER 2:

SITE HISTORY

Site Prior to 1831

New Bedford was originally a part of the Town of Old Dartmouth, which at one time included the villages of Westport, Dartmouth, Bedford, and Fairhaven. The town was founded by Quakers and Baptists who wished to escape the influence of the Puritan lifestyle of Plymouth Colony in the seventeenth century. By the 1700s, an influential Quaker population remained in the town. Joseph Russell III was one of the early property owners in the area, a prominent citizen, and "a substantial farmer who included in his broad domain a large part of the most valuable portion of land on which New Bedford now stands."[1] Russell purchased a large tract of land that was roughly bounded by what are now County, Spring, and Elm Streets, and the Acushnet River prior to 1711

from Manasseh Kempton.[2] Russell laid out village lanes on his land in a gridiron pattern and sold tracts for house lots. The original Russell street grid is still visible in the vicinity of the Rotch-Jones-Duff House today. As the founding father of the Village of Bedford, Russell was responsible for introducing the whaling industry to the area, which was to bring prosperity to the community throughout the nineteenth century.

By 1765, the year Joseph Rotch, (1704-1784), grandfather of William Rotch Jr., moved to Dartmouth, the small village had begun to organize. The nascent whaling community was structured around a deep harbor beside an estuary formed by the outlet of the Acushnet River into Buzzards Bay and the Atlantic Ocean beyond. When it came time to name the settlement, Joseph Rotch "suggested that the name should be 'Bedford,' in honor of Joseph Russell, who bore the family name of the Duke of Bedford."[3] (The Village of Bedford was incorporated as the Town of New Bedford in 1787. The City of New Bedford was incorporated in 1847, when it was entrusted with a city council with a mayor and six (6) aldermen, and a common council with members from each of the six (6) wards.[4]) Joseph Rotch was the grandson of William Rotch of Salem, founder of the family in the United States, who it is believed to have come from Ireland, a weaver by trade.[5] Bringing experience and technological innovation from Nantucket, Rotch and his sons elevated New Bedford to the forefront of the whaling industry.

Upon moving to New Bedford, Joseph Rotch, "not being able to obtain as much land as he wished in New Bedford, made an extensive purchase of land in the rear of the village of Fairhaven. He wished to purchase upon the shore, but not being able to do so, relinquished his intention of settling at Fairhaven, and located himself in New Bedford."[6] In 1765, Joseph Rotch purchased a tract of land from Joseph Russell, officially moving his fishery and shipbuilding empire to "Old Dartmouth" by 1769.[7] This tract of land, often referred to as the Russell farm, extended from County Street west to what is now Rockdale Avenue. According to a 1924 portrait in the *Old Dartmouth Historical Sketches*, "the region was covered with elms and flowering lindens. The west part of the estate included some swamp land and was wooded in part."[8]

William Rotch (1734-1828), Joseph Rotch's son, remained on Nantucket to oversee the family operations when his parents and two brothers, Francis and Joseph Jr., moved to New Bedford in 1765. Upon his father's death in 1784, William Rotch inherited his father's New Bedford property.[9] Of all the Rotch family members, William proved to be the most influential in the whaling trade.[10] In 1759, the same year his son was born, he built a mansion at the corner of Union and Second Streets, later an inn named the Mansion House, which fell into ill repute.[11]

William Rotch Jr. (1759-1850), the eldest surviving son of William and Elizabeth (née Barney) Rotch, was born on Nantucket on 29 November 1759 and trained there in his father's counting house. At the age of twenty-eight (28), he moved his wife, Elizabeth (1759-1828), and infant daughter, Sarah (1786-1860), to New Bedford in 1787.

The location of William Rotch Jr.'s first residence in New Bedford is unknown. However, on 5 May 1788, William Haydon sold William Rotch (Sr.) land and buildings on the west side of Johnny Cake Hill Street (now Water and William Streets), for three hundred pounds.[12] This may have been where William Rotch Jr. first settled in New Bedford. Before building his stately Greek Revival mansion on County Street, William Rotch Jr. built a house in late 1790 on the site of his deceased grandfather's homestead at the southwest corner of what are now Water and William Streets.[13] The property was given to the younger Rotch by his father by deed of gift on 28 July 1790. The deed, acknowledged in New Bedford the same day before Judge Edward Pope was recorded on 12 March 1791 and mentions "on which premises my [ill.] is now building a house."[14] The home was impressive in its size and original siting, but was typical of the architecture of the time. The simple three-story wood frame house stood next to the Rodman mansion, as shown in a painting by William A. Wall in the collection of the Old Dartmouth Historical Society. In 1851, after her father's death, William Rotch Jr.'s daughter, Sarah (Rotch) Arnold, gave this house to the Port Society, and it was moved to Bethel Street on Johnny Cake Hill, where it stands today as the Mariners' Home.[15]

The Rotch family, along with two other Quaker whaling families in New Bedford, the Russells and the Rodmans, were among the most prominent citizens and businessmen in the community. The Rotches built the first Fairhaven Bridge, founded banks, established the market place, and built a rope walk and schools.[16] Massachusetts Governor Levi Lincoln Jr. (1782-1868) visited New Bedford in 1825, accompanied by Josiah Quincy, who recorded in his journal, "one word, however, of the picture presented by the venerable William Rotch, ninety-three years of age, standing between his son and grandson, the elder gentlemen being in their Quaker dresses and the youngest in the fashionable costume of the day. 'You will never see a more ideal representation of extreme age, middle life, and vigorous maturity than is given by these three handsome and intelligent men,' said Governor Lincoln to me as we left the [Arnold] house."[17]

Rotch Family (1831-1850)

The Rotch-Jones-Duff House is sited on a tract of land that originally belonged to Joseph Russell. By 1818, William Rotch acquired this property from Russell's son Abraham in a foreclosure sale.[18] After William Rotch's death in 1828, the property was deeded to his heirs, who finally agreed on a division of real estate in 1831, the year the County Street property went to William Rotch Jr.[19] The deed for this transaction, dated 5 July 1831 contains the following description of the property:

> Beginning in the east line of the County Road, at the corner of a Street as now laid out called Bush Street, for a northeast corner bound, thence running southerly in the line of said Country Road, as now laid out and accepted by the town, about two hundred and four feet six inches to the north line of an intended street to be called Cherry Street; thence easterly in the said north line to hundred and seven feet to the continuation of Seventh Street; thence northerly in the line of said continuation two hundred and three feet six inches, to Bush Street aforesaid; and thence westerly in the line of said street two hundred and twenty-six feet to the bound first mentioned; said lot containing one hundred and sixty-two 7-10 rods, more or less.[20]

In New Bedford, William Rotch Jr. was a successful businessman and townsman, founder (1825) and president (1825-1850) of the New Bedford Institution for Savings, charter member of the New Bedford Horticultural Society (1847), and prominent New England Quaker who served as clerk of the New England Yearly Meeting (1788-1818). He was also involved in the establishment of the New Bedford Friends School (1810-1811) and the Moses Brown School, a Quaker boarding school, when it was relocated to Providence in 1819 under the name "The New England Yearly Meeting Boarding School." In the 1820s, a rift developed in the New Bedford Quaker community between the "New Lights" and the "Old Lights." As a result, many wealthy New Bedford Quakers seceded to the Unitarian church, under the direction of Reverend Orville Dewey.[21] The Rotch family was believed by some to be more liberal thinking than many of the other Quakers. They were expelled by the Yearly Meeting in 1829, in part due to William Rotch Jr.'s marriage that same year outside the religion to Lydia Scott. Officially, the family became Unitarian; however, many of the family members held strong to Quaker values.[22]

Joseph Rotch (b.1790), William Rotch Jr.'s son, initiated the family's steady move up the hill from the waterfront with the construction of his Greek Revival home at the corner of William and County Streets in 1821. Over the following decade, the area came to be known as "Rotch's Hill."[23] Upon visiting New Bedford in 1835, John Quincy Adams wrote in his dairy, "New Bedford is an offshoot from Nantucket, and more thriving than the original street…We were taken to see the street [presumably, County Street], which presents more noble looking mansions than any other in the country."[24] (The following day, Adams met William Rotch Jr. at the home of James Arnold.) Herman Melville, who sailed from New Bedford in 1841 aboard the *Acushnet* at the age of twenty-one (21), alluded to the relationship between the society homes on County Street and

the harbor below ten (10) years later when he wrote in *Moby Dick*,

> …nowhere in all America will you find more patrician-like houses, parks and gardens more opulent, than in New Bedford. Whence came they? How planted upon this once scraggy scoria of a country? Go and gaze upon the iron emblematical harpoons round yonder lofty mansions, and your question will be answered. Yes, all these brave houses and flowery gardens came from the Atlantic, Pacific, and Indian oceans. One and all, they were harpooned and dragged up hither from the bottom of the sea.[25]

Figure 2.1: Sketch of James Arnold's mansion at the intersection of County and Spring Streets in 1821 (Brave Houses and Flowery Gardens of Old New Bedford).

By the time William Rotch Jr. built his Greek Revival house, County Street was already home to his daughter Sarah and her husband James Arnold (constructed 1821), nephew Samuel Rodman Jr. (constructed 1834), son William Rodman Rotch (purchased 1820), Joseph Grinnell (constructed 1834), and William Swain (constructed 1830), all of whom had impressive stone and brick mansions.[26] Despite his wealth and prominence both in the whaling industry and in the New Bedford community, William Rotch Jr.'s house was unique for its modest wooden clapboard design. The scene on County Street at that time is well portrayed in Mary Rotch's description of her brother William Rodman Rotch's (b.1788) home,

> One of the finest our Village affords, the grounds are elevated, of course, it commands extensive prospects—on one side you will have all the retirement and charm of a country life, while on the other, the full view of the town, river, etc. is presented. Thus combining sources of gratification to the taste, in either rural or more busy scenes—the house may not prove altogether what you wish tho I presume it is as convenient as one built upon so large a plan will admit.[27]

Lydia Scott is often credited with William Rotch Jr.'s decision to move from his Water Street house on Johnny Cake Hill up the hill to County Street, although the true motivation for the move is not revealed in any of Rotch's papers. When construction of the house began in 1833, Lydia Scott was fifty-one (51) years of age and William Jr. seventy-four (74). Rotch's nephew, Samuel Rodman Jr., alluded to the idea when he wrote on 30 September 1834, "Accompanied ma chere H. [his wife, Hannah Prior] after dinner to see my Uncle William's new house, which is very spacious and combines many conveniences and luxuries in its arrangements, but on a scale better adapted to the age of his wife than to his own age and for whose gratification mainly it may be presumed to have been built."[28]

Figure 2.2: Detail of a map showing the village of New Bedford in 1834 drawn by J. Congdon and published by Pendleton, Boston. Shaded areas indicate the developed sections of the village. Note that at the time County Street served as the outer limit of the developed area (Old Dartmouth Historical Society, New Bedford Whaling Museum).

Shortly after the move, Rotch wrote to his grandson Benjamin, "I enjoy our new habitation…very much, the delightful air & sea prospects is more gratifying than I anticipated, and I feel very much weaned from the daily mixing, with company, which was little interesting, and I find a good deal of employment in arranging the Garden, planting Trees &c."[29] On May 15, 1833, William Rotch bought twenty-five (25) Mulberry trees at a cost of $7.62, which, if planted on the grounds of his new County Street house, do not survive today.[30] Advertisements in the *New-Bedford Mercury* from 1835 indicate that Joseph Rotch was interested in Mulberry trees and silk cocoons for silk culture. Although not documented, it is possible this was a hobby he shared with his father, William Rotch Jr.[31]

Figure 2.3: Circa 1830 sketch of Joseph Rotch's house on the north side of William Street between County and Eighth Street by Benjamin Rotch (New Bedford Whaling Museum).

Like the decision to move to County Street, Rotch's motivation for selecting a relatively little-known architect (Richard Upjohn) for the design of his new house over the well-known residential architect of the time (Russell Warren), remains a mystery. Perhaps Warren was unavailable or Rotch was not taken by the opulent stone buildings Warren designed, preferring a more modest clapboard home in keeping with the simple Quaker architectural tradition.

A cabinetmaker from England, Richard Upjohn arrived in New Bedford in 1830 to join his brother in search of opportunities for advancement.[32] Upon his arrival in New Bedford, he was employed by Samuel Leonard as a draftsman. Upjohn also opened an evening school to teach drawing. Upjohn advertised his architectural

services in the *New Bedford Daily Mercury* on 5 May 1833, announcing that he was available for "architectural plans and elevations, neatly executed at short notice, by Richard Upjohn."[33] William Rotch Jr.'s account book indicates two (2) payments made to Upjohn totaling forty dollars ($40) on 28 September 1833 and 7 February 1834.[34] William Rotch Jr.'s cash book also indicates a payment of $250 (28 May 1833) to Samuel Leonard for "materials for new house."[35] The Rotches moved into their new house in late September or early October 1834.[36]

Rotch's gardener, William M. Howard (1810-1899), maintained the landscape at his County Street home from 1839 until at least 1845, possibly until as late as 1847.[37] Howard was born in Ireland on 2 May 1810. He immigrated to the United States at the age of twenty (20), first living in Philadelphia, where he worked for Dr. Wistar. By 1835 he was in New Bedford searching for work on a whaling ship, but he was eventually employed as a coachman and gardener for Andrew Robeson. "In the 1840 census, one person in the Rotch household is listed as being employed in agriculture—that person was undoubtedly William Howard."[38] Howard eventually opened the first greenhouse in New Bedford at the corner of Arnold and Cottage Streets.[39] An 1850 "Plan of the City of New Bedford, Massachusetts: from original surveys by J.C. Sidney, c.e." shows Howard's building at the southwest corner of the intersection.

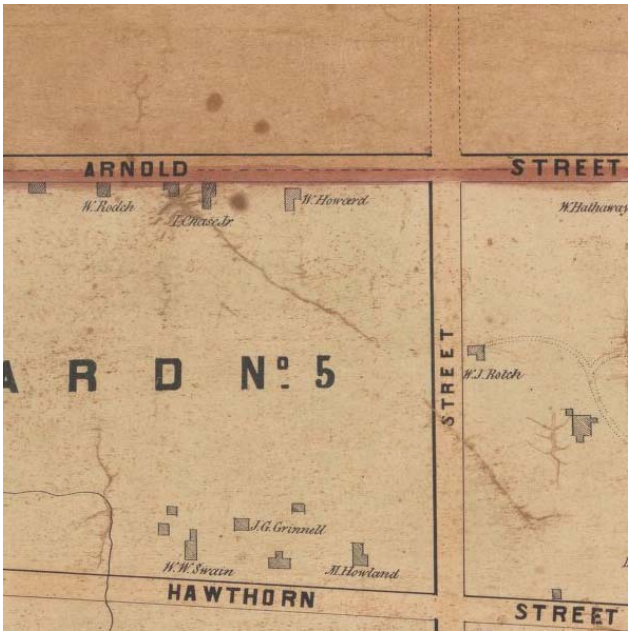


Figure 2.4: Details of 1850 "Plan of the city of New Bedford, Massachusetts: from original surveys by J.C. Sidney, c.e." showing William Howard's greenhouse (New Bedford Free Public Library).

William Rotch Jr. was a charter member of the New Bedford Horticultural Society, founded 20 December 1846, incorporated by James Arnold, Henry Crapo, and Joseph Clarke. The Society was organized "for the purpose of advancing the science and encouraging and improving the practice of Horticulture; and for that purpose shall have all the powers and privileges, and be subject to all the duties, liabilities and restriction, contained in the forty-fourth chapter of the Revised Statutes."[40] In the beginning, the Society planned exhibitions at the hall in Market Square semi-monthly, later shifting to monthly and finally annual exhibits.[41] William M. Howard often participated in the exhibitions as Rotch's representative.

Together, Rotch and Howard's contributions to the exhibitions included:

- 1847, 3-5 July, "several varieties of roses."[42]
- 1847, 3 August by Wm. Howard, "*Yucca filamentosa*, Dahlias, Roses, and many other cut flowers."[43]
- 1847, 17 August by Wm. Howard, "Dahlias, several varieties of perpetual roses and other cut flowers."[44]
- 1847, 7 September by Wm. Howard, "Dahlias, very fine specimens also Hibiscus and other cut flowers."[45]
- 1847, 7 September by Wm. Howard, "Washington Plums, Dearborn Seedling Pear, and a very handsome yellow pear of large size, with a bright red [ill.], name not known."[46]
- 1847, 30 September-2 October, "two hard-shell pumpkins from seeds raised at Nantucket; this kind of pumpkin was found on the Island by the first white persons visiting it, and has continued to grow well without degenerating, up to this time. One of the specimens exhibited, shows the advantage of the island still, as it has in some measure degenerated, not having the strong characteristic of the island pumpkin, to wit: a great number of warts or excresences [*sic*] covering the exterior. The other specimen was truly genuine."[47]
- 1847, 30 September-2 October by Wm. Howard, 7 Roses and 25 Dahlias[48]
- 1848, 20 June, "thirty varieties of roses and other cut flowers."[49]
- 1848, 4 July by Wm. Howard, "Black heart cherries, large and well ripened, and superior to any other cherries of the variety exhibited."[50]
- 1848, 4 July by Wm. Howard, "Roses – 20 varieties, *Lilium canadense* and orange lily, *Veronica rosea*, and other cut flowers."[51]
- 1848, 1 August by Wm. Howard, *Gladiolus natalensis*; *Yucca filamentosa*; seedling Dahlias, including three new varieties; Phloxes; [ill.], Verbenas, Marigolds, Roses, and other cut flowers.[52]
- 1848, 27-29 September by Wm. Howard, Bartlett Pears and two (2) unnamed varieties of Pears.[53]
- 1848, 27-29 September by Wm. Howard, Wilkinson Pear, Henry 4th Pear, Washington Pear, Louise Bonne de Jersey Pear, and a Pear variety without a name, deemed worthless in the report, and Baldwin Apple.[54] (All fruit varieties are listed in the Crapo catalogue from 1848.[55])
- 1848, 27-29 October by Wm. Howard, Stand filled with Dahlias, Asters, Marigold, Verbenas, and other flowers; Sugar beet and white Altringham carrots.[56]
- 1848, 27-29 October, William M. Howard exhibited his skill at floral decoration independently, with a "model of a church, with its elevated spire, placed on a mound four feet in height. The whole covered with moss, and ornamented with dahlias, zinnias, globe amaranth, and many other flowers."[57]
- 1849, 26-28 September by Wm. Howard, "Pears – Heathcot, Louise Bonne de Jersey, Seckel, very large & the best dish of the variety exhibited, St. Germain and two varieties for a name, one of which the committee pronounced the Bartlett. Grapes, for a name, marked, "foreign variety," by the contributor, but which the committee pronounced to be the Isabella."[58]
- 1849, 26-28 September by Wm. Howard, eighteen (18) varieties of Dahlias, *Gladiolus natalensis*, Verbenas, and Phloxes.[59]

William R. Rotch, William Rotch Jr.'s eldest son, also submitted plants, including:

- 1847, 3 August, *Yucca filamentosa*.[60]
- 1847, 7 September, "red and white summer beets, very large, and well grown winter beets."[61]
- 1847, 30 September-2 October, "large and handsome cabbages." [62]
- 1848, 30 June, "fourteen (14) varieties of roses and ten (10) varieties of geraniums."[63]
- 1848, 27-29 September, "orange quinces, greening and Baldwin apples, and orange pears."[64]
- 1848, 27-29 October by Wm. Brown (gardener), "summer beets and chili pumpkins, well grown."[65]

Although little documentation of Rotch's gardens remain today, Rotch's submissions to the exhibitions show that his grounds included a flower garden, with Asters, Dahlias, Gladiolus, Lilies, Marigolds, Phloxes, Roses, and Verbenas, among other cutting flowers; a vegetable garden, with white Altringham Carrots, Pumpkin, and Sugar Beet; and a fruit garden, with Apple tree(s), Cherry tree(s), Grapes, Plum tree(s), and a wide variety of Pear trees.

Rotch's fruit garden falls into a particularly interesting period of fruit diversification and migration in American history; "the 1800s are known as the golden age of pomology—the science and practice of fruit growing—produced hundreds of new and diverse varieties of fruit."[66] The development of horticultural societies in the United States was tied closely with the increase of amateur orchardists in America. Until the 1830s, many Apple varieties available in the U.S. were introduced from European nurseries. During the 1830s, an increasing number of new American varieties were developed.

Pears rose in popularity in the U.S. between the 1820s and 1860s as well to compete with Apples in popularity. In 1847, Andrew Jackson Downing, the great arbiter of American taste, wrote that the pear was "the favorite fruit of modern times and modern cultivators."[67] William Rotch Jr.'s submissions to the New Bedford Horticultural Society exhibits seem to illustrate that Pears were his preferred fruit as well; Rotch submitted at least nine (9) different identified varieties, as well as at least six (6) unidentified varieties of Pears. At the 1850 annual exhibit of the Society, one hundred (100) different kinds of Pears were on display from members' orchards.[68]

Apiculture, or beekeeping, also became a fashionable hobby in America in the early 1800s. In 1826, J.C. Loudon wrote, "independently of their honey, bees are considered as useful in gardens, by aiding in the impregnation of flowers. For this purpose, a hive is sometimes placed in a cherry-house, and sometimes in peach-houses."[69] By the late 1830s, beekeeping had achieved mass appeal to the "suburban gardener." In Loudon's opinion, "the Apiary is another source of interest to all who live in the country, and fortunately it may be indulged in by the humblest labourer, nor less than by the wealthiest citizen, provided there are fields and gardens in the neighborhood containing flowers."[70]

The terms "bee house, or Apiary" were used in an article in *The New England Farmer* in 1831.[71] However, most hives at the time consisted of woven or braided straw hollow vessel. Bee

houses, which were structures designed to contain one or more hives, where much rarer. The first movable hive, the Leaf Hive, was invented in Switzerland by Francis Huber in 1789.

Lorenzo Lorraine Langstroth, a Philadelphia-born apiarist and teacher, invented the first movable frame hive in the United States in 1852. (Prior to the invention of the movable frame hive, harvesting honey involved destruction of the entire hive.) In 1853, Langstroth published *The Hive and the Honey-Bee*, which remains a seminal work on apiculture today. In his book, Langstroth advocated for a southeastern exposure for hives, which were to be located in grass, "mowed frequently, and kept free of weeds."[72]

Although the construction date of the original apiary at the Rotch-Jones-Duff House is not known, historic photographs indicate that it was extant on the property during the Jones era. Because no photographs of the grounds are known to exist from the Rotch era, it is possible that an apiary was extant on the grounds of the property was early as the Rotch family's tenure.

In the early 1800s, nursery catalogues also became important sources of information for orchardists. The Prince Nursery catalogs, printed between 1815 and 1859, were among the most important horticultural publications of the time.[73] By 1830, the Prince catalogue offered as many American varieties of Apples as European varieties.[74] Rotch's Pears included a combination of European (the St. Germain, for example) and American varieties, including the Seckel, one of the first Pear varieties developed in the United States, in Philadelphia. The Bartlett Pear, which William Rotch Jr. also grew, was later to become one of the most economically-important pears of the twentieth century.

Private horticulture, floriculture and arboriculture were fashionable hobbies enjoyed by New Bedford's leading citizens. Henry H. Crapo (1804-1869), co-founder of the New Bedford Horticultural Society, was a prominent plantsman in New Bedford. In 1841, he was also acting as the agent for William R. Prince's Linnæan Botanic Gardens and Nurseries in Flushing, New York:

> and offered the people of New Bedford fruit and ornamental trees, shrubs, and flowering plants, greenhouse plants, bulbous roots, 'more than three hundred varieties of the Grape,' et cetera. He [Crapo] says: 'This is by far the most extensive horticultural establishment in America and contains more an a million trees and plants…The collection of Dahlias is unrivaled in extent and beauty, a concentration of the most choice and interesting that could be selected from the establishments of Europe.'[75]

The following year, in 1842, Crapo founded Wasemequia Nursery and produced his own nursery catalogues. Crapo's nursery catalogue from 1848 includes nearly every variety Rotch exhibited between 1847 and 1849 at the New Bedford Horticultural Society shows. In fact, Crapo reported that a rivalry developed between himself and Rotch as to who could grow "the biggest and rarest pear, or the earliest and most luscious grape."[76]

Landscape design plans for the property during the Rotch era have not been located and the design of the garden is unattributed; however, typical layouts of comparable properties of the

period suggest how Rotch's gardens and ancillary structures may have been arranged. In *Victorian Gardens: The Art of Beautifying Suburban Home Grounds* (1870), Frank J. Scott included prototypical site layouts for suburban home grounds, many of which are remarkably similar to the Rotch property.

The geophysical survey associated with this report confirms the presence of many below-grade anomalies throughout the property. Of particular interest is the area immediately to the east of the house, where two survey methods have located an anomaly in the vicinity of rear door. The recent discovery of a photograph from the Jones era showing a small extension to the rear of the house, suggests that this anomaly may be associated with a former extension to the house. Several typical layouts in Scott's *Victorian Gardens* show the privy located immediately to the rear of the house, attached to the main structure; however, archaeology is needed to determine the exact nature of this anomaly.

This small addition was removed after 1910, which is consistent with installation of a bathroom at the east end of the second story hall in 1856, and the installation of a complete plumbing system in the house in 1897/8 by Charles A. Maxfield.

At the same time, other typical estate lay-outs illustrated in Scott's *Victorian Gardens* show the privy attached to a stable/barn or located near the orchard and vegetable garden. Although only contextual evidence exists, the area immediately to the rear (east) of the house may also have been a drying yard.

Figure 2.5: Photograph of young Stephen Forbes (b. 1910) in the garden showing the unidentified addition to the rear of the house beyond, below the east porch (RJD House Archives).

Estate lay-outs in Scott's *Victorian Gardens*, also illustrate how Rotch's garden may have been organized. The front of the property was likely reserved for ornamental displays and possibly a croquet ground, which may account for the terracing on the north side of the house. If Rotch's grounds were consistent with these typical site layouts, his stable/barn was likely located at the northeastern corner of the property, his orchard to the south or east of the house, and his vegetable garden somewhere in the southeastern quarter of the property.

The Early Victorian period (1837-1850s) was concurrent with the formative years of the American Romantic period of design, and the Rotch house shares at least two important Victorian design tenets: visual dominance of the principal structure and significance of the ground plane, as evidenced by terracing on the site. By the 1830s, Colonial style gardens were increasingly less popular and a new, naturalistic approach to the landscape was being introduced

to the United States by landscape gardener Andrew Jackson Downing (1815-1852). Downing built upon the English landscape tradition of Alexander Pope (1688-1744), Lancelot "Capability" Brown (1716-1783), Humphry Repton (1742-1818), and in particular John Claudius Loudon (1783-1842), adapting their ideas to the United States. Downing was most influential upon the tastes of 'landscape gardening' and architecture in the United States in the 1840s and 1850s. Among many, his published works included *A Treatise on the Theory and Practice of Landscape Gardening*, first published in 1841,[77] and *The Fruits and Fruit Trees of America,* first published in 1847.[78]

By 1838, the *New-Bedford Mercury* had published articles on "rural embellishment,"[79] as well as well as notes on "orcharding," grape vines, hedges, and "engrafting."[80] By 1848, articles on grafting fruit trees appeared in the local paper.[81] While plans of William Rotch Jr.'s orchard have not been located, as a member of the New Bedford Horticultural Society, Rotch likely subscribed to the standard horticultural practices of the day. In *The Fruits and Fruit Trees of America*, Downing advocated for a thirty-foot grid spacing for apple and pear trees and a sixteen to twenty-foot spacing for peaches, cherries, and plums.[82]

In addition to its aesthetic and practical qualities, Downing's philosophy likely had a strong draw for William Rotch Jr. due to its appeal to the "love of home." Downing wrote in the preface to his *Treatise*, "as a people descended from the English stock, we inherit much of the ardent love of rural life and its pursuits which belongs to that nation."[83] Downing recognized that a love of a place was a strong counterpoise to the constant change that is a part of the American national character.[84] He went on to suggest that a "love of home" strengthened an individual's familial and civic responsibly, making him a better citizen.[85] Despite his Nantucket origins, William Rotch Jr. was a man deeply rooted in New Bedford. As previously referenced, Rotch was at one time founder and president of the New Bedford Institution for Savings, charter member of the New Bedford Horticultural Society, and a prominent and active New England Quaker.

Rotch's appreciation of his County Street garden is clear in a letter he wrote to his grandson, Benjamin, in 1834; "I generally rise at 5 spend 20 minutes in promoting circulation of the blood by using a hand brush, and since my change of dwelling walk half a mile by going four times round the Garden & then read till breakfast. This gives me a fine appetite, and I feel much improved in my health."[86]

William Rotch Jr. lived to the age of ninety-one (91) and was active in New Bedford for sixty-three (63) years. With Lydia, he lived in his County Street home for sixteen (16) years, where he died on 17 April 1850. His widow, Lydia, was provided for in his will, although the County Street estate passed to his children, who quit-claimed the property to Sarah (Rotch) Arnold. In turn, Sarah Arnold promptly sold the property within four (4) months to Edward Coffin Jones on 30 December 1850 for $17,000.[87]

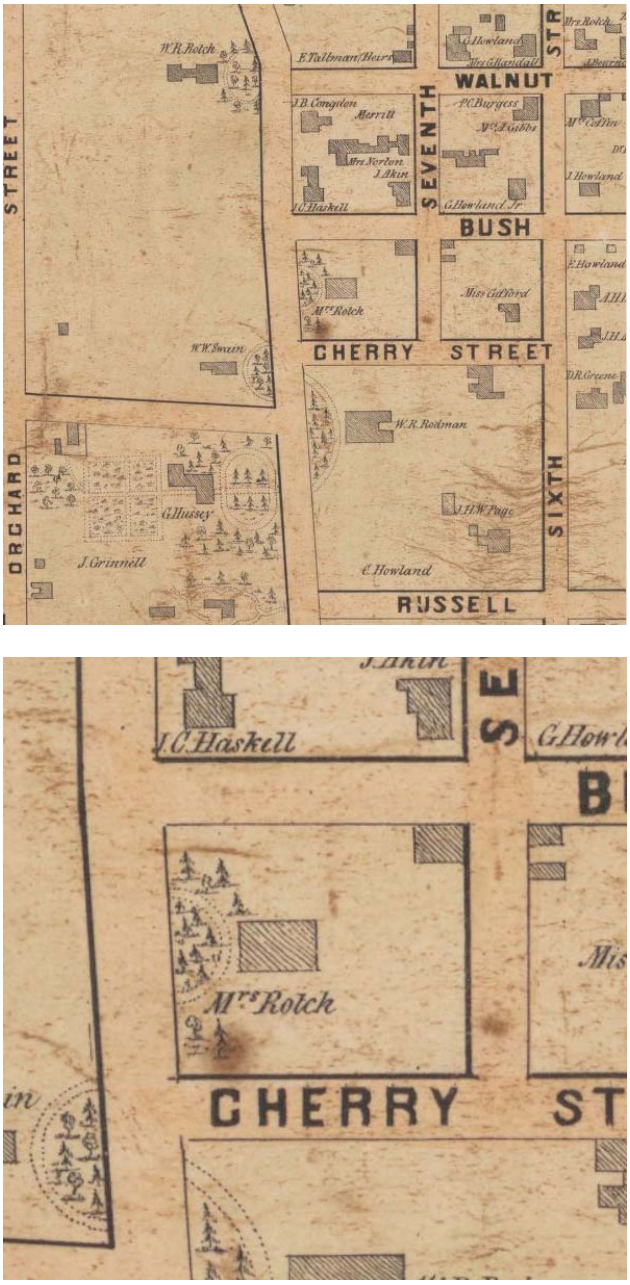


Figure 2.6: Details of an 1850 "Plan of the city of New Bedford, Massachusetts: from original surveys by J.C. Sidney, c.e." showing Mrs. Rotch's house at center with a distinctive planting of evergreen trees in the bed defined by the main entrance drive. Note also the presence of an ancillary building at the northeast corner of the property (RJD House).

Jones Family (1850-1935)

Edward Coffin Jones (1805-1880) was born on Nantucket on 23 October 1805 and moved to New Bedford as an infant.[88] His mother, Sally Coffin, was a Quaker, although his father, Reuben Jones, who died in 1818, was not. After the death of his father at age thirteen (13), Edward Jones was raised by his widowed mother; he became a clerk for Captain Elisha Dunbar's ship chandlery in 1824.[89] By 1827 he was Dunbar's partner, and elevated to owner of the firm after Dunbar's death in 1839.[90] Before moving to the County Street house, the Joneses lived in the house at the northwest corner of Walnut and Fifth (now Pleasant) Streets.[91]

In 1835, Edward C. Jones married Louisa Gibbs (1817-1839), who died four years later, predeceased by two (2) infant children. In 1844, Jones married Emma Chambers Nye (1823-1852). The couple had three (3) children together before moving into their new home on County Street in May 1851: Sarah Coffin (1845-1852), Emma Chambers (1847-1920), and Amelia Hickling (1849-1935). Their eldest daughter, Sarah, died of scarlet fever in February 1852. Ten months after the move, Emma gave birth to a fourth child, who was named for their deceased daughter, Sarah Coffin (1852-1891). Later in February, Emma also succumbed to scarlet fever. Edward Jones married for a third time, in 1872 to Mary Luce (1840-1917). The couple did not have children together.

Edward Jones was a director of the Marine Bank (later First National Bank) and of the New Bedford Gas Light Company. He was also an enormously successful whaling agent – the third wealthiest individual in New Bedford. According to a 1936 portrait, Mr. Jones was also man of culture, with a love for art and literature.[92]

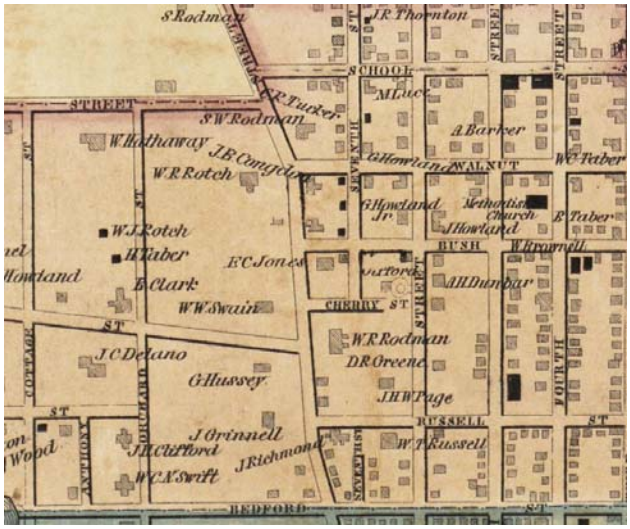


Figure 2.7: Detail of 1852 "Map of Bristol County Massachusetts" by Henry Francis Walling, published by C. & A. Taber. The image shows the E.C. Jones property at center, including the main house and what is likely the coachman's house (Norman B. Leventhal Map Collection, BPL).

The Jones family tenure at the County Street house was the longest of all owners, and many of the improvements the Joneses undertook in the landscape remain today. Construction of the barn or coachman's house probably took place in 1851 along with renovations to the main house. The tax assessment for 1853 includes the new barn.[93] The Joneses also acquired a property at the corner of Seventh Street and Bush (now Madison) Street where a stable was located prior to 1871, when it is first shown on a map from an "Atlas of Bristol County." The stable is again illustrated in an 1876 "View of the City of New Bedford, Mass." by O.H. Bailey & Company. The Jones's stable is first

included on tax records in 1889, when it is listed in Mary Jones's ownership.[94] Coachman Charles Timoney was employed by the Joneses by 1852, at the st.[95]

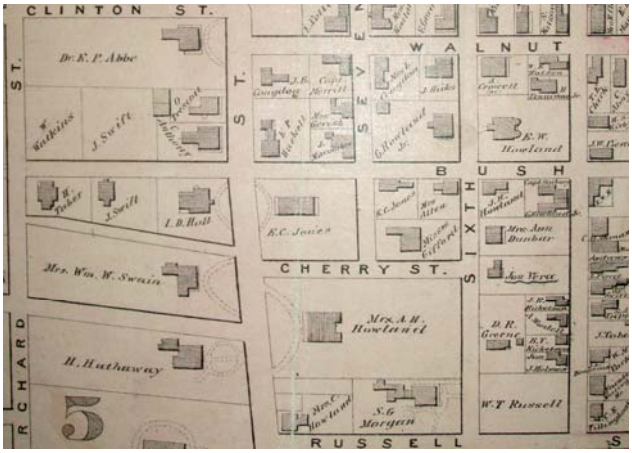


Figure 2.8: Detail of Jones house from the 1871 "Atlas of Bristol County" from the Bristol County Southern District Registry of Deeds. Note the stable at the southeast corner of Seventh and Sherry Streets (New Bedford Free Public Library Special Collections).

Figure 2.9: Detail of 1876 "View of the City of New Bedford, Mass." by O.H. Bailey & Company showing the Jones house, coachman's house, and new stable at center (Norman B. Leventhal Map Collection, BPL).

Between 1852 and 1857, several petitions were submitted to the city government asking that various portions of County Street be graded, curbed, and flagged. After 1854, petitions appeared to install main drains and sewers.[96] By the end of the 1850s, it is evident that improvements had been made, as the petitions disappear.

The Joneses employed numerous gardeners over the period of their ownership, including Edward O'Connoll [O'Connell?] (1851-1858, 1868, 1870), Edward Gleason (1860), Thomas Brann (1879-1880), George Wirds [sp.] Jr. (1900), and Frederick Puckering (1919-1935).[97] Although the location is unknown, Edward Jones added a grapery to his property by 1868, the year mistresses Watson and Eustace called on Sarah Jones wanting to see it.[98] The vines were still producing in 1904 when Mary Luce Jones sent Henry Stone Forbes "a bunch of the most delicious grapes."[99]

The Joneses also added a greenhouse to the property, which was a simple structure that was later expanded by the Duffs. The greenhouse was standing before 1 April 1872 when Sarah Jones mentioned it in a letter to Sarah Forbes.[100] A New Bedford atlas from 1881 is the first to show the new greenhouse extending south off the coachman's house.[101] The fifth page of Edward Jones's account book lists twenty (20) tons of pig iron from Potter & Morgan at 228 South Street, New York for $19, as well as plate glass from William Rouvell. The account book also includes a second listing for iron and another for $50.40 worth of "hoops."

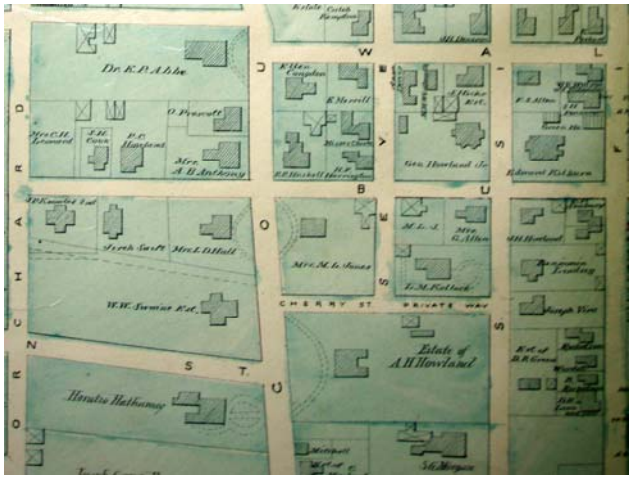


Figure 2.10: Detail of 1881 "Atlas of the City of New Bedford, Massachusetts," published by Geo. H. Walker & Company (New Bedford Free Public Library Special Collections).

In 1871, Sarah (Jones) Forbes recalled Violets in the garden, which she brought inside to decorate the parlor.[102] The Joneses purchased a double white Camellia, a dozen (12) red Camellias, two (2) Roses, and three (3) Climbing Roses from Mr. Carter; as well as seeds for E.J. Tryon of 9 John Street, New York.[103] Edward Jones also noted in his account book, landscape gardener Howard Daniels of 237 Broadway and florist Geo. E. Han[ill.] & Co., Boylston and Park Boston, presumably to consult for their professional advice.[104]

The 1880s was characterized by a rise in commercialization and technological development with respect to orchards and fruit propagation. Several blights in the late 1870 led to a decline in the number of active orchards in the U.S. The 1910 Federal census shows that twenty-five percent of the bearing fruit trees were lost during the first decade of the twentieth century.[105] Concurrently, historic photographs show the disappearance of fruit trees from the Jones property. A particularly interesting photograph of the western end of the garden from circa 1870 shows a man working in the early Jones garden under a large Apple tree, which is later referenced in a newspaper article as "more picturesque than useful for the fruit that it yields and is being utilized mostly as a trellis for a wisteria creeper."[106]

Figure 2.11: Circa 1870 view of a gardener working along the east/west axial path below what is likely an Apple. Note the young hedge and perennial planting bordering the garden walks (RJD House Archives, F11).

On the left side of the photo the wooden garden settee is documented for the first time at the western end of the garden path. Garden seats were often sited to frame vistas within the garden and beyond, and covered and walled to provide escape from the sun and protection from dust, as the trees in young gardens were not often large enough to provide sufficient shade.

Figure 2.12: Circa 1870 view of the southeast corner of the house. Note the low hedge bordering the garden path, as well as the trees shielding an ancillary building at center. Both the greenhouse and coachman's house are visible in the photograph, although the porch on the southern side of the house was not added until circa 1905 (Historic Structure Report).

Another early (circa 1870) photograph of the Jones garden provides a glimpse of the eastern end of the garden, which at the time consisted of a series of rectangular beds defined by the garden paths, each of which is bordered by a low hedge. The coachman's house and greenhouse are both visible in the photograph, along with an ancillary building at center, which may be the original apiary or a storage shed. A covered stairway led from the rear (east) porch to the area behind the house, which was separated from the gardens by a lattice-covered walkway, similar in design to the garden settees, which may have been the Jones's grapery. The porch on the south side of the house was not added until circa 1905, and is conspicuously absent from the photograph, where lower-level windows were present on the house at the time.

Edward Coffin Jones died in his County Street home on 16 March 1880 at the age of seventy-five (75). After his death, his widow Mary continued to live in the County Street house with her step-daughter, Amelia Hickling Jones. "Tax records from 1889 list Mary Jones as owning three horses, carriages, furniture and silverplate, and the barn."[107]

Figure 2.13: View along the east/west axial path showing an arbor at the center entrance to the parterre garden (RJD House Archives).

During Mary Jones's tenure at the house, the garden was carefully documented in a New Bedford newspaper article:

> If any lover of gardens, in doubt as to what he wanted to do with a little spare money, should have happened to stroll up County street earlier in in [*sic*] month; and should have got a glimpse over the fence enclosing the lot on the northeast corner of Cherry street, he would undoubtedly have caused a boom, to the extent of his available cash, in the trade of the rambler rose grower. For that lot is one of the most attractive spots in New Bedford, and its charm was its rambler roses.
>
> The place is the property of Mrs. Mary L. Jones, one of the most ardent lovers of a well kept garden to be found in this city. For years she has taken the keenest pleasure in developing a garden of which she might well be proud; and a view from the Veranda of her home over the layout of shrubs and walks and blossoms lends one to think that she has succeeded.
>
> When the writer visited the garden the rambler roses most of all caught the eye. The house which Mrs. Jones occupies, adjoining the garden on the north side, is set on the top of an embankment several feet above the level of the garden with a wide veranda on the south side, facing the garden. The whole railing of this veranda is one thick mass of rambler roses – crimson, pink, and white. In the garden itself, the central point where the two broad walks cross is covered with a large arching arbor and this too is almost concealed by the hardy climbers. Further along the walk that leads one toward the western boundary of the garden are other smaller arbors liberally bedecked with the choicest of rose blooms.
>
> This is the exhibit which the gardener presented for the early summer. But only a few weeks ago at the most the garden presented an entirely different picture with other blooms to please the eye; not long hence the garden will develop new beauties that are yet hidden from view. Thanks to the careful planning of the gardener, there is always to be seen in the garden a pretty array of color from the time when the tulips and the crocuses open in the early spring and the red and white lilac throws it odor on the air, to the cool days of late fall when the most hardy plants die down before the approaching winter.
>
> Now that the ramblers are losing their freshness and other blooms will take their place. There will be the white and pink tinged phlox, the varied hues of the iris and the petunias, and the bright red salvias. Then later in the fall will come the chrysanthemums, the red and yellow cannas, and the other late blossoming flowers.

The garden which Mrs. Jones has developed is to some extent formal, even though its beauty does not lie chiefly in the artistic planning of its layout but in the delightful color effect of its masses of blossoms. It is divided into four sections with walks running at right angles from the middle of each boundary. The real garden is limited to the two sections west of the north and south walk and immediately south of the house of Mrs. Jones.

The most elaborate section of the garden is that nearest the house and at the foot of the green embankment near the veranda. It is laid out in [illegible] elipses [*sic*] bounded by low borders of box. Around these ellipses are other rows of box laid out in geometrical design in one of the elliptical beds is planted red cannas and ageratum in another are scarlet salvias and recinus and in the third yellow cannas and caladimus. When these blossom out later in the season, they will show a most pleasing picture.

The section of the garden south of this is taken up by shrubs and trees scattered over a well trimmed lawn. There are peonies and phlox, iris, and rugosa roses making the border. Near the western end is a large apple tree which is more picturesque than useful for the fruit that it yields and is being utilized mostly as a trellis for a wisteria creeper. In the middle of the lawn are two large white lilac trees that enliven the view of the garden in the early spring. Along the southern edge of the fence is a thick border of various kinds of flowering shrubs. There is not the variety of color in this part of the garden just now that there is in the section nearer the veranda, but offers cool shade and an inviting appearance these warm summer days.

Much as Mrs. Jones loves the cultivated garden that shows the care and skill of the experienced gardener, she still takes pleasure with Nature as Nature is before it is adapted and restrained by human hands. It is for this reason that she has insisted that one part of the garden should be left to develop as it would-the grass has grown high and the shrubs are untrimmed. It is a striking contrast with the rest of the garden. The fourth section of the garden is laid out in regular rectangular beds in which flowers are grown to be out and gathered.

It is comparatively easy to give some idea [illegible]…upon to give the place its charm. Mrs. Jones's garden is of the old-fashioned variety, with its beds of varicolored blossoms, its arbors and its masses of green foliage. Writing may suggest its charms, but it must be seen to be fully appreciated.[108]

Figure 2.14: Winter view to the west on the woodland garden lawn showing the sundial in the foreground of what is likely the Apple tree beyond (RJD House Archives).

Mary Jones died on 2 September 1917 at her summer home in Dublin, New Hampshire. Amelia Jones, who never married, continued to divide her time between New Bedford and Dublin until her death 4 May 1935. Of all the residents of the County Street house, Amelia lived there the longest, although she spent most of her summers in New Hampshire. Upon purchasing the house in 1935, Mrs. Duff speculated that because Amelia Jones spent her summers away, the gardens were not well maintained in the later years of the Jones family ownership.[109]

Figure 2.15: Circa 1890 view of the Jones house from County Street (RJD House Archives).

Figure 2.16: Circa 1900 photograph of Amelia Hickling Jones riding side saddle in front of her County Street home (RJD House Archives, F11).

Photographs from Mary and Amelia Jones's tenure at the County Street house reveal much about the condition of the landscape and the many changes they undertook. Circa 1900, the driveway at the house was surfaced with loose granular material, bordered on the outer edge by a wooden walk. The semi-circular front planting bed was bordered by stone posts strung with steel cable or rope. Planting in front of the house consisted of evergreen trees, possibly Cedar, over un-mown lawn. A small ornamental tree, possibly a Katsura, was planted in the lawn at the top of the embankment above the parterre garden.

On the northern side of the entry drive, planting in the north lawn consisted of deciduous trees, including a Copper Beech planted circa 1900 by the Joneses. Today, the Copper Beech towers over the northwest corner of the property. Historic photographs also show Elm trees bordering the perimeter streets to the north and west of the house, which were likely killed with the onset of Dutch Elm disease in the mid-twentieth century, during the Duff family's ownership.

Figure 2.17: Circa 1900 photograph of Amelia Hickling Jones at the northern end of the main entrance drive. Note the young Copper Beech that still stands today behind the horse (RJD House Archives).

Prior to 1905, the garden settee at the western end of the garden walk was also in place. The garden structure was originally constructed with a wood slat floor and a wooden slat partition, designed to separate the seating area from the pass-through. The edge of the parterre garden is also visible in the photograph. At the time, the garden contained shrubs in addition to herbaceous plant material.

Figure 2.18: Western view of the wooden garden settee (RJD House Archives, F6).

The parterre garden also featured prominently among the Jones family photographs of the garden. Prior to 1905, the parterre garden paths were bordered by low Boxwood hedges, which defined planting beds filled with herbaceous and woody plant material. The addition of the south porch to the house likely required reconfiguration of the parterre garden beds, which are shown in later historic photographs bordered by a brick edge with planning including Rose, Zinnia, Rodgersia, and Iris.

Later, the Boxwood hedge was re-planted as the garden grew into lush maturity during Amelia Jones's tenure at the house. The beds were filled with Roses, Foxglove, Delphinium, and Canna (planted as an annual), among other plants. In 1915, Amelia Jones's inventory of roses in the garden included eight (8) different varieties: Vicountess Folkstone (hybrid tea), La Tosca (white tinged), Victor Hugo (deep red), William Allen Richardson (salmon colored), Harry Kirk (yellow tea), Double Pink Killarney, Mrs. Aaron Ward (buds of deep yellow), and Genss am Teplitz (deep red).[110] Amelia Jones maintained a small cutting garden of Roses near the greenhouse,[111] and kept a gardener on staff, Frederick Puckering, until her death in 1935.

Figure 2.19: Post 1905 northwestern view through the parterre garden. Note that the Boxwood hedge is absent with garden paths delineated with a brick edge (RJD House Archives).

Figure 2.20: 1914 southwest view across the parterre garden showing low Boxwood hedges, Rose arbors, the garden settee, sundial in the woodland garden lawn (at left) and birdbath in the woodland garden lawn (at right) (RJD House Archives, F2, F9).

Figure 2.21: Two postcards showing the parterre garden planted with Roses and Hollyhocks, among others flowers (RJD House Archives, F11).

The wide porch on the southern side of the house with a turned baluster railing was in place by 1905.[112] As shown in historic photographs, initially, a rectangular gathering area was located at the eastern end of the porch. Around the same time, the granite stairs that traverse the embankment to the main entrance drive are documented for the first time.

Figure 2.22: Northeastern view of the south porch following its construction before 1905. Note the granite stairs leading up the embankment to the entrance drive (RJD House Archives, F3).

This area was later expanded with a semi-circular, exedra-like area covered by a pitched roof supported by Ionic columns. At the time, the covered outdoor living area was accessed by an exterior door off the rear parlor and a solid fence ran along the eastern end of the porch, with a door that provided access to a staircase. Bamboo shades hung from the roof and provided additional outdoor living space for the family before indoor air conditioning was commonplace. Family photographs document the popularity of this location for outdoor living.

Figure 2.23: Amelia Hickling Jones on the south porch (RJD House Archives).

A wooden staircase provided access from the southeastern corner of the house to the area to the east of the house. Before the addition of the south porch, this staircase was covered with a tunnel-like wood slat roof; after the addition of the porch, the staircase was uncovered. The Joneses added lattice to the porch supports and quickly the south porch was clad in climbing vines including Wisteria and Roses. Late in the Jones family ownership, the pitched roof at the eastern end of the porch was removed, and the porch to the rear (east) of the house was enclosed with glass.

Figure 2.24: Snapshot of a child climbing the stairs between the parterre garden and the main entrance. The roof covering the eastern end of the porch is just visible at the top of the photograph (RJD House Archives).

The garden on the southern side of the property was densely vegetated with large, deciduous shrubs and scattered trees. Close to the center of the woodland garden, a group of evergreen trees, likely White Pine, shielded another wooden garden settee from view from the house.

Figure 2.25: Hand-tinted glass lantern slide showing the gardens from the second story of the house. Note the White Pine at the center of the image (Smithsonian Institution, Archive of American Gardens).

A second group of evergreen trees, likely Spruce, were located at the far southeastern corner of the property. Two (2) large Spruce still stand in this location today. A large sundial and cast birdbath were located at the western end of the woodland garden area, set in the lawn that bordered the east/west axial walk. Historic photographs show that the lawn area was largely open with low shrubs and herbaceous material along its perimeter, including Peony, and a low Boxwood hedge bordering many, if not all, garden paths.

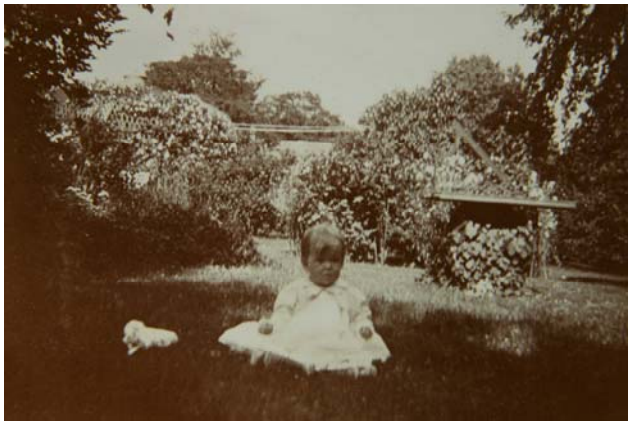


Figure 2.26: Child and vine-clad sundial in the lawn that borders the woodland garden (RJD House Archives).

Helen Coolidge, landscape architect for the subsequent owners of the property, the Duffs, reported that noted plant collector Ernest H. Wilson (1876-1930) was hired by the Joneses to find exotic plants for the gardens, including a Dwarf Horsechestnut (scientific name unknown); however, no evidence of his involvement with the property has been located.[113]

Figure 2.27: Postcard showing a northern view of the circular pergola showing the mature Boxwood hedge bordering the garden paths with lush vegetation on both sides (RJD House Archives, F6).

The lawn area, located to the east of the parterre garden, was lushly planted toward the end of the Jones ownership of the property. The area included a unique garden feature as well, a metal post planted with Wisteria in the northwestern corner of the lawn.

Figure 2.28: Staircase leading to the south porch. Note the metal pole covered with Wisteria (RJD House Archives).

A spear-headed wooden picket fence separated the area presently occupied by the terrace from the water garden lawn area. The fence was also draped with climbing Wisteria, planted at its eastern end, and interrupted by two piers that match those that flank the entrance drive, likely constructed of stone. Further to the east, a wooden latticework fence (similar to the fence that presently borders the southern side of the terrace) separated the greenhouse area from the other garden areas to the south. Cold frames were located to the south of this fence, providing a desirable southern exposure for young plants. Further to the east, in the present location of the Boxwood display gardens, a large apiary with an ogee roof was located near the eastern perimeter fence.

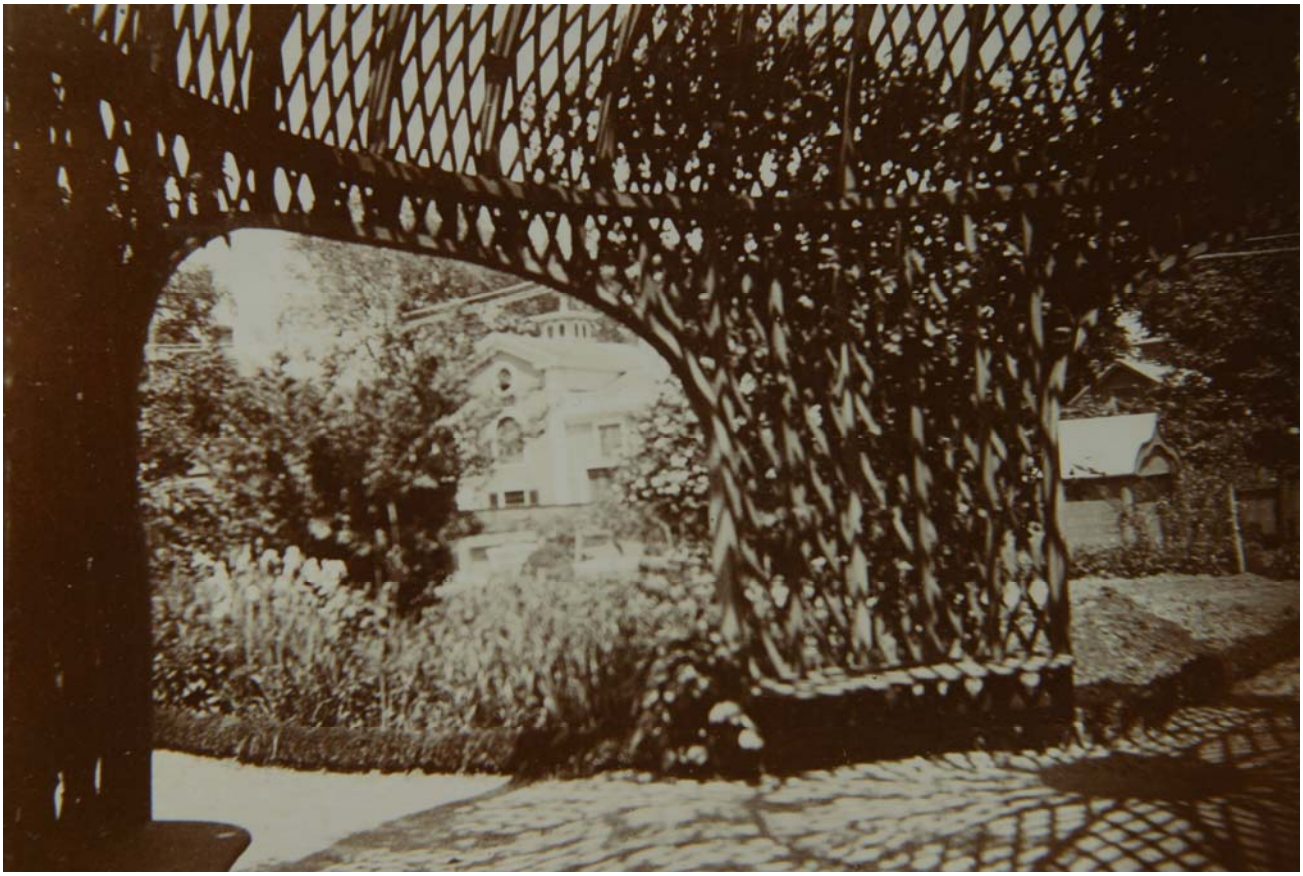


Figure 2.29: Eastern view from below the circular garden pergola. Note the ogee roof of the apiary visible at right and the stable visible at left (RJD House Archives).

Amelia Forbes Thomas (b.1915) recounted her childhood visits to the County Street House in 1921, writing that she remembered Frederick the gardener, who was elderly at the time, working in the greenhouse.[114] She also recalled her brother playing croquet on the grass on the north side of the house and joining Auntie Jones (Amelia H. Jones) on her "regular walk, usually in the gravel paths of the formal garden below the house between the very low boxwood hedges."[115]

Figure 2.30: View of the eastern elevation showing a wooden picket fence along the terrace covered in Wisteria. Note the cold frames in the foreground of the photograph (RJD House Archives).

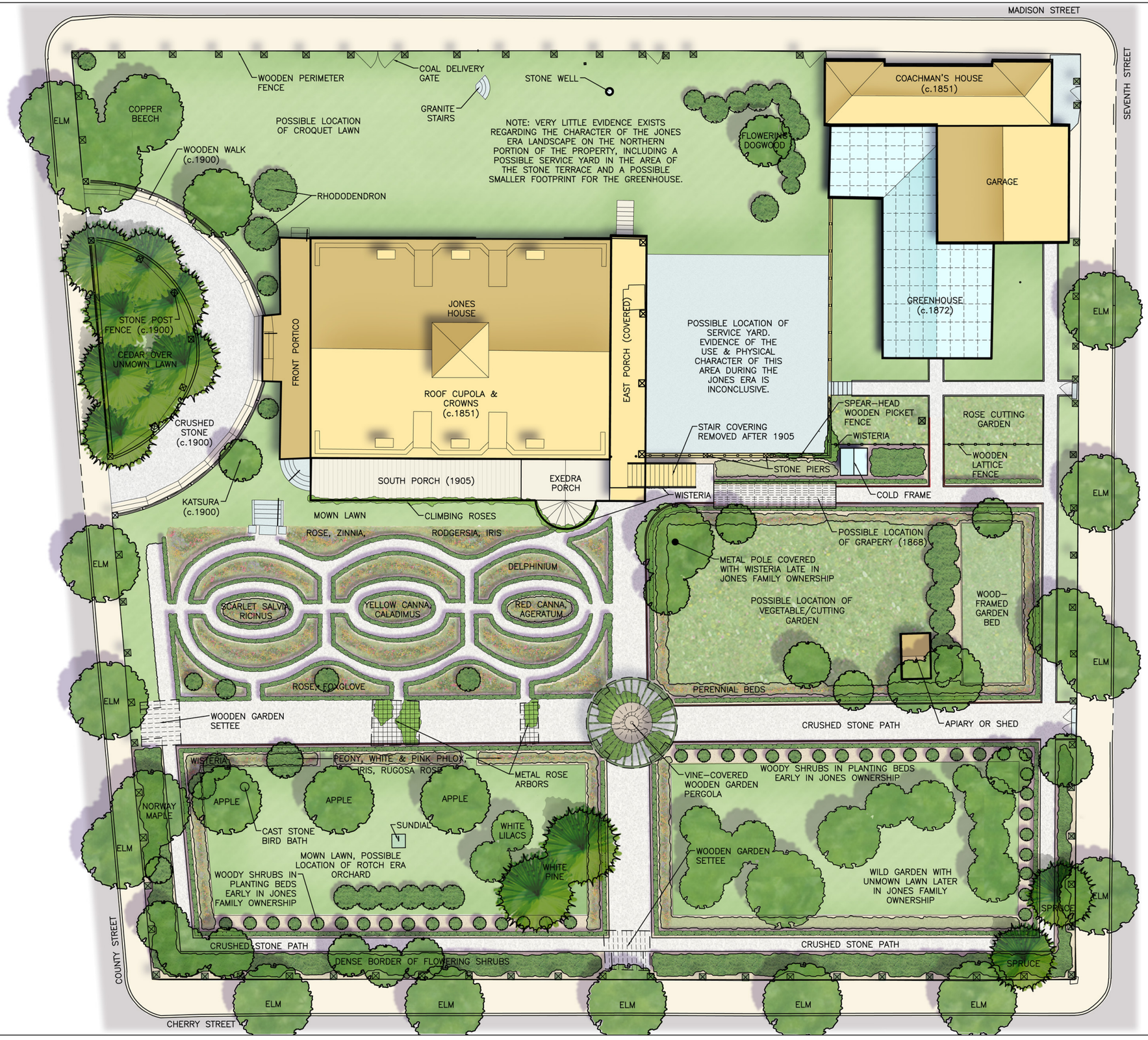
According to a 1936 portrait of Miss Jones, "in her handsomely furnished home, filled with choice bric-a-brac and a fine collection of paintings, with greenhouses and an entrancing garden to gratify her taste for flowers, Miss Jones led the life of a true gentlewoman."[116] Around 1928, Amelia Jones was in a car accident that left her with severe neck pain that impacted her mobility. By 1931, she was accompanied by a nurse, but continued to travel between New Bedford and her summer home in Dublin, New Hampshire until 1934. Amelia Jones died on 4 May 1935. Both her wake and funeral were held in her County Street home. The County Street property passed to her heirs following her death: Ellen Forbes, Amelia Emerson, Henry S. Forbes, Gerret Forbes, and their spouses.[117]

Figure 2.31: Photograph of Amelia Jones on the south porch. The apiary is visible in the background at right (RJD House Archives).

Jones Family Farms

The Jones family owned two properties outside of New Bedford. The family farm in South Dartmouth, Massachusetts was purchased by Edward Jones around 1856.[118] There are not sufficient historical references to determine how often the Joneses visited the farm; however, its proximity to the city suggests that trips would have been easy for the family.[119] The Joneses kept cows on the South Dartmouth farm, and in 1919 the family canned vegetables, including peas, beans, lima bans, carrots, beets, corn, tomatoes, spinach, and salsify.[120] In 1922, Amelia Jones donated the farm for the Sol-e-Mar Children's Hospital for crippled children, which was launched with a $1 million gift from Jones as a branch of St. Luke's Hospital in New Bedford. The hospital opened on Saturday, 7 June 1924. A 1924 report in the *Journal of Bone & Joint Surgery* stated, the Hospital "is at present equipped with fifty beds, with possible enlargement to 150 or 200. It is situated on a large farm, fronting on Buzzards Bay."[121] A third wing was added in 1931, and at the time of Amelia Jones's death, there were eighty (80) beds in the hospital.[122] The name is the Portuguese phrase for "Sun and Sea."

The second Jones family property outside of New Bedford, Crowhurst, was purchased in August 1894 by Mary Jones. Crowhurst was located in Dublin, New Hampshire. The purchase included one hundred fifteen (115) acres, a house designed by the noted Boston architecture firm of Rotch & Tilden in 1884, and all the furnishings. Mary began to use it in summer 1902, but it was destroyed by fire in 1915. Following the fire, a new house named Sky-Field was designed by architect Lois Lilly Howe.[123] From 1902 to 1917 Mary and Amelia spent summers together in New Hampshire. After her step-mother's death, Amelia continued to spend summers at the home until 1934.



Jones Era Period Plan (1850-1935)

Rotch-Jones-Duff House & Garden Museum

New Bedford Whaling National Historical Park

New Bedford, Massachusetts

NOTES:
THIS PLAN REPRESENTS FEATURES DOCUMENTED IN PHOTOGRAPHS DURING THE PERIOD 1850–1935.

SOURCES:
1. SURVEY PREPARED BY BRYANT ASSOCIATES, APRIL 7, 2010.
2. FIELD OBSERVATIONS COMPLETED BY PRESSLEY ASSOCIATES, OCTOBER 27, 2009 AND AUGUST 26, 2010.
3. GEOPHYSICAL SURVEY PREPARED BY HAGER GEOSCIENCE, JULY 2010.
4. HISITORIC PHOTOGRAPHS IN THE ROTCH-JONES-DUFF HOUSE & GARDEN MUSEUM ARCHIVES.

DRAWN BY: CMB

CHECKED BY: LGM

DATE: SEPTEMBER 2010

Duff Family (1935-1981)

Mark Mitchell Duff was born on 19 February 1891 in New Bedford to John Duff and Mary Mitchell. He grew up at the northwest corner of County and Elm Streets.[124] The Duff family business was David Duff and Son, which was established in 1851 by his grandfather and father as a shipping business that handled whale oil. By 1887, the company refocused on coal, transitioning into fuel oil in 1932. Mark Duff and his brother John continued the firm after the death of his father, eventually selling it in 1958. Like Rotch and Jones before him, Duff's resume was impressive; he was at one time president of the Merchants Bank and the New Bedford Hotel Corporation. He served on the executive council of the Massachusetts Bankers Association and on the board of the Morse Twist Drill and Machine Company, the Soule Mill, Hathaway Manufacturing and Kilburn Mill, among many other professional affiliations.[125] He married Beatrice Marceau (1889-1987) of Chicago on 1 September 1915. The Duffs resided at 695 County Street from 1922 to 1935. Together they had two children, Beatrice (1917-1993) and Elizabeth (Betty) (1921-1962).

Mark Duff purchased the 396 County Street property on 23 November 1935 from Oliver Prescott, Jr., executor of Amelia Jones's estate.[126] According to a 1981 portrait of the property based on interviews with Mrs. Beatrice Duff, "it was the garden that was the deciding factor in the purchase of the Rotch-Jones estate by Mr. and Mrs. Mark M. Duff" in 1935.[127] At that time, they had been living on the southwest corner of Parker and County Streets and were very happy in that home.[128] During a 1982 visit to the County Street house, Beatrice Duff confirmed her husband's interest in the gardens, saying, "for a man he was very interested in gardens."[129] William Kenney, Mark Duff's nephew, confirmed the sentiment, saying that Mr. Duff took great pride in the grounds of his County Street home.[130]

Shortly after moving to the property, the couple undertook extensive improvements. Two undated drawings by architect Marshall B. Martin of Rehoboth, Massachusetts indicate a double flying staircase from the east (back) porch to the new stone terrace below.[131] The staircase was brought to the County Street property from a house on Sixth Street.[132] A photograph of the new staircase taken 19 September 1937, at the debut of the terrace shows the new staircase with potted palm trees below. The grand flying staircase featured a curving black wrought iron railing with decorative scrollwork.

Figure 2.32: September 19, 1937 terrace debut (RJD House Archives, F16).

In 1937, the Duffs held a debutante party for their daughter, Beatrice (1917-1993), at the house. A September newspaper clipping in the collection of the Rotch-Jones-Duff House highlighted the success of the new terrace:

> the newly renovated, wide-vistad [*sic*] veranda at the rear of the house occasioned much attention – its gracefully curved circular-stairways with their wrought-iron balustrades leading to a flagged patio in the center of which was a goldfish pool. Viewed from below, the vista was reminiscent of the flower-scented charm of old Southern homes seen in the Carolinas and the deep South. On all sides were flowers…and on all sides of the gracious rooms and hallways of the house.[133]

Figure 2.33: 1939 professional photograph by Bachrach of Betty Duff on the terrace (RJD House Archives, F21).

Other Duff era alterations to the County Street house included the removal of the exterior door that lead to the south porch,[134] and the addition of the north porch and door off the kitchen, in 1937 in accordance with the design by Marshall B. Martin.[135] In additional to architectural improvements, the Duffs also hired Helen Coolidge of Bedford, Massachusetts to prepare plans for the gardens in March 1937. Helen Coolidge was educated at the Lowthorpe School and the Rhode Island School of Design, and was a former editor of *House Beautiful*. She was the wife of John W. Coolidge (b. 1904), who was an executive at United Shoe in New Bedford.[136]

The Duffs met Helen Coolidge through mutual friends Dr. and Mrs. Edwin Seavor.[137] Her approach to the landscape was based on "training to preserve, not to change."[138] When the Duffs first moved to the house, Helen Coolidge recalled that the gardens were "an overgrown mess." According to the *Historic Structures Report* (1985) for the property, "careful pruning and rehabilitation, using the line of existing beds, was the focus of her work."[139] While Mr. Duff supervised the work and made decisions about the landscape, Mrs. Duff was also interested in Helen Coolidge's work, frequently lunching with the landscape architect on the new bluestone terrace overlooking the gardens.[140]

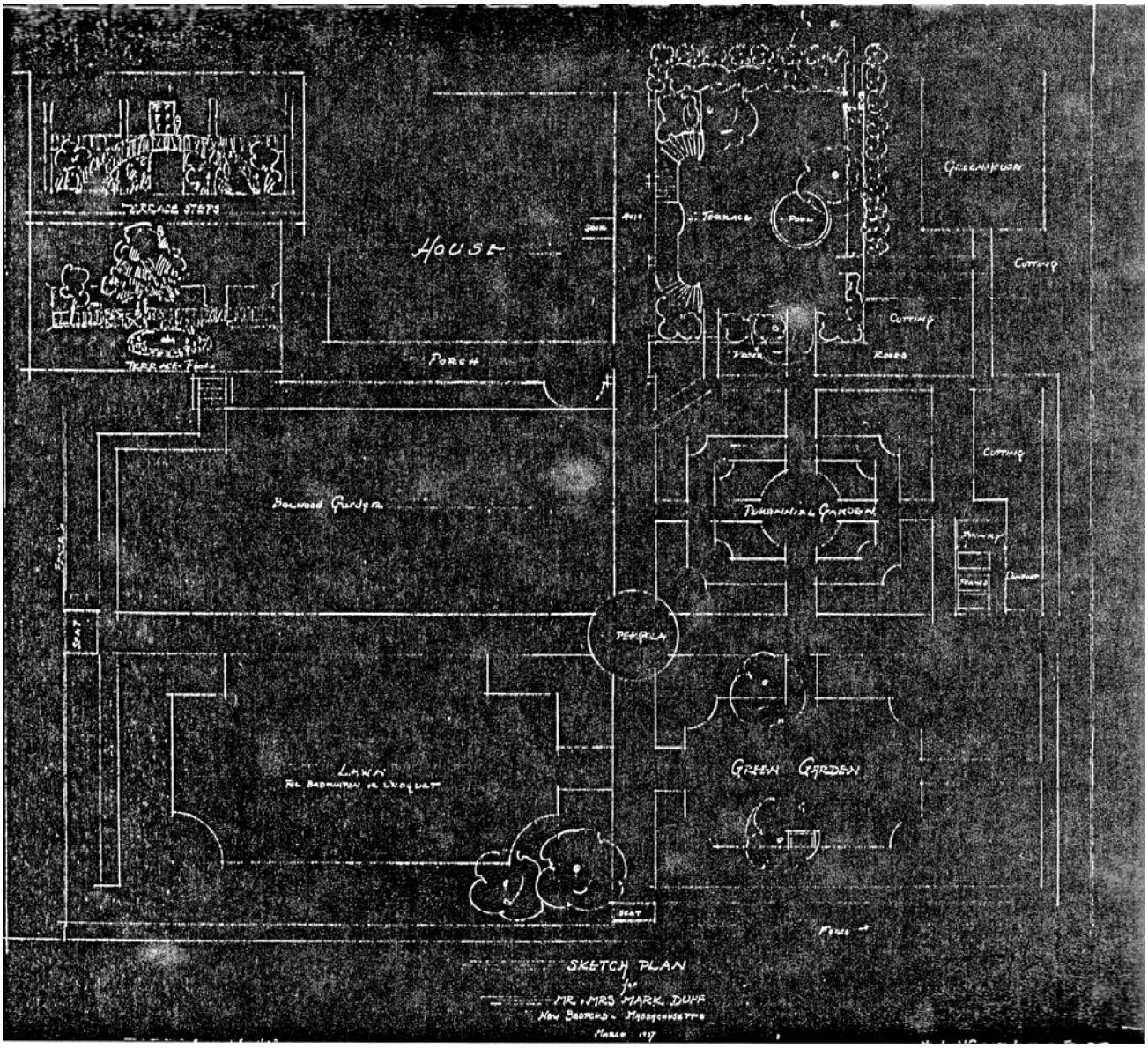


Figure 2.34: 1937 proposed site plan for the property (Historic Structures Report).

According to Helen Coolidge in 1985, when the Duffs purchased the property, the greenhouse housed massive Azaleas that had been favorites of Amelia Jones. The smaller greenhouse of the Jones era was expanded by the Duffs to its present size. The Duffs also restored the circular garden pergola, which was reportedly in deteriorated condition when they purchased the house in 1935. The Duffs had a goldfish pond that was installed on the new stone terrace at the bottom of the double flying staircase.

The rectangular pool featured semicircular ends and a fountain plume at its center. The pool was bordered by a narrow planting bed with English Ivy. The Duff's cat, named Brownie, is shown in one photograph on the terrace watching the fish in the new pool.

Figure 2.35: Post 1937 view of the terrace with Roxanne drinking from the pool showing the Carolina Silverbell in bloom in the woodland garden beyond (RJD House Archives, F1).

Mark Duff was a lover of animals and had numerous dogs at his County Street home. Family photographs show that the dogs were kept near the greenhouses by a series of low fences.

Figure 2.36: Summer 1938 photograph of Roxanne at the entrance to the terrace from the water garden lawn (RJD House Archives, F15).

During the Duff era, the water garden lawn featured a small pool at the center with a rustic stone coping and a scalloped seashell basin at its western end. Photographs show Water Lilies in the pool. Planting beds defined by a low stone border surrounded the lawn and were filled with annuals, in addition to Tulip bulbs and Iris rhizomes. Yews were located at the four corners of the outer garden beds, with young prostrate Juniper and a Mugo Pine around the coping of the pool. At the northwest corner of the water garden lawn, the Wisteria covered post from the Jones era remained into the 1970s.

Mountain Laurel and Azalea were planted in the beds bordering the terrace, with Morning Glory or Moon Flower and Clematis climbing on the metal railing. The Duffs also planted the gardens with over seven thousand (7,000) Tulip bulbs, none of which remain today.[141] Photographs show the flowers in bloom in the water garden area, in the parterre garden, and bordering the east/west axial walk.

Figure 2.37: Spring 1938 photograph of the water garden lawn and terrace from Betty's photo album. Note the Wisteria covered structures at the southeast corner of the bluestone terrace (RJD House Archives, F17).

Figure 2.38: Spring 1938 photograph looking to the west across the water garden lawn. Note the scalloped shell-shaped ornament on the coping of the pool (RJD House Archives, F17).

Photographs from young Beatrice Duff's album show Roses in the parterre garden. The three oval-shaped beds were densely planted with Tulip bulbs, one color in each bed. Tulip bulbs were also planted at the base of the western embankment. At the western end of the parterre garden, a Magnolia and Forsythia grew along the perimeter fence.

According to 1981 interviews, Mrs. Duff's favorite time in the garden was the spring. "The dogwoods and azaleas are in bloom. Later come the roses with the heliotrope and verbena. The focal point in the center of the garden is the latticed gazebo."[142]

Figure 2.39: 1939 Betty Duff professionally photographed by Bachrach sitting on the southern side of the water garden pool, which is filled with Water Lilies and fish (RJD House Archives, F8).

Photographs of the woodland garden show a Carolina Silverbell to the south of the water garden lawn. A second, older Carolina Silverbell was located to the east of the north/south axial walk. Like the water garden lawn, the northern edge of the woodland area bordering the east/west axial walk featured herbaceous planting beds. Flowering Dogwood dominated the tree line with numerous Azalea and Rhododendron in bloom below.

Figure 2.40: Spring 1938 photograph of the woodland garden in bloom also showing Tulips lining the east/west axial garden path (RJD House Archives, F17).

Figure 2.41: Spring photograph showing the Carolina Silverbell in flower and planting beds bordering both sides of the east/west axial garden walk from Betty Duff's photo album (RJD House Archives, F18).

Photographs from Beatrice Duff's album also provide glimpses of the grassy embankment that led from the parterre garden to the main entrance drive, as well as the evergreen trees at the front of the house, likely Cedar, which remained into the Duff's ownership of the property. The large Elms that once bordered County Street are visible in the photograph as well.

Figure 2.42: Spring 1938 photograph looking to the west across the parterre garden planted with Tulips (RJD House Archives, F17).

In 1982, Beatrice Duff recalled that two (2) gardeners were employed by the Duffs.[143] According to a 2003 interview with David Kenney, Mark Duff's nephew, employees of David Duff & Sons were also used for grounds maintenance during the company's slow seasons.[144]

Like Amelia Jones before her, Mrs. Duff was charitable with her property; "as part of her war work, Beatrice Duff was among those who opened their private gardens to the public to benefit the Fifth War Loan Drive. Admission was $2.00 worth of war stamps."[145]

Figure 2.43: Spring 1938 photograph of the water garden lawn from Betty's photo album. Note the Arborvitae planted to the east of the greenhouse beyond and the apiary at right (RJD House Archives, F17).

Mark Duff died on 21 May 1967, and deeded the County Street property to his wife, who continued to live in the house. Mrs. Duff was a board member of the Old Dartmouth Historical Society and a member of both the New Bedford and Buzzards Bay garden clubs.[146]

By 1976, the parterre garden was overgrown and the planting beds on the water garden lawn were less meticulously maintained than they appeared in previous decades. Upon selling the property to the New Bedford's Waterfront Historic Area LeaguE (WHALE) in 1981, Mrs. Duff entered Tabor Nursing Home, where she lived until her death in 1987.

Figure 2.44: 1938 view across the planting beds bordering the water garden lawn showing the carriage house across Seventh Street in the background (RJD House Archives, F17).

Figure 2.45: 1964 view from the southeast corner of the house. The mass of vines at right is assumed to cover the original apiary (RJD House Archives, F13).

Figure 2.46: 1964 photograph of the western side of the greenhouse in disrepair (RJD House Archives, F13).

Figure 2.47: May 1976 photograph of the bluestone terrace (RJD House Archives, F12).

Figure 2.48: Circa 1976 photograph of the pergola and parterre garden with overgrown Boxwood hedges (Brave Houses and Flowery Gardens of Old New Bedford).

Duff Family Farm

In 1937, the Duff purchased land in Dartmouth, Massachusetts that was formerly a part of the Howland family property.[147] The family built a second home called Destruction Brook Farm. The home was a two-story Colonial Revival estate that included stables for the Duff's horses, a passion of Mark Duff.[148] The farm was kept open year-round and the family spent most weekends on the farm. A farmer was employed at Destruction Brook Farm.[149] Mr. Duff preferred the farm in Dartmouth, while Mrs. Duff preferred the New Bedford house.[150] Nonetheless, Mrs. Duff volunteered at the nearby Sol-e-Mar Children's Hospital, established in South Dartmouth by Amelia Jones.[151] Her first daughter, also named Beatrice, eventually became president of the volunteers at the hospital, where her second daughter, Betty, also volunteered her time.[152]

MADISON STREET

SEVENTH STREET

COPPER BEECH

GRANITE STAIRS

STONE WELL

FLOWERING DOGWOOD

COACHMAN'S HOUSE

GARAGE

RHODODENDRON

NORTH PORCH (1937)

GREENHOUSE

ARBORVITAE HEDGEROW

TERRACE POOL AND FOUNTAIN (1937) PLANTED WITH ENGLISH IVY

EVERGREEN SCREEN PLANTING

FRONT PORTICO

DUFF HOUSE

EAST PORCH (COVERED)

DOUBLE FLYING STAIRCASE FROM EAST PORCH TO BLUESTONE TERRACE (1937)

DOGHOUSE

WISTERIA– COVERED TRELLIS

WOODEN LATTICE FENCE

FLOWERING DOGWOOD

SOUTH PORCH

CLIMBING ROSES

PERENNIAL BEDS

MOUNTAIN LAUREL AND AZALEA

WISTERIA–COVERED METAL POST

NOTE: EVIDENCE OF THE USE & PHYSICAL CHARACTER OF THIS AREA DURING THE DUFF ERA IS INCONCLUSIVE.

FORSYTHIA

TULIPS

ROSES

MAGNOLIA

WATER GARDEN POOL

FLOWERING DOGWOOD

APIARY

PERENNIAL BEDS

WOODEN GARDEN SETTEE

CRUSHED STONE GARDEN PATHS

PERENNIAL BED

PERENNIAL BED

METAL ROSE ARBORS

VINE–COVERED WOODEN GARDEN PERGOLA

CAROLINA SILVERBELL

NORWAY MAPLE

WHITE PINE

WOODEN GARDEN SETTEE

RHODO–DENDRON

CRUSHED STONE WOODLAND GARDEN PATH

SPRUCE

COUNTY STREET

CHERRY STREET

NORTH

15 0 30 60

SCALE IN FEET

Duff Era Period Plan (1935-1981)

Rotch-Jones-Duff House & Garden Museum

New Bedford Whaling National Historical Park

New Bedford, Massachusetts

NOTES:
THIS PLAN REPRESENTS FEATURES DOCUMENTED IN PHOTOGRAPHS DURING THE PERIOD 1935–1981.

SOURCES:
1. SURVEY PREPARED BY BRYANT ASSOCIATES, APRIL 7, 2010.
2. FIELD OBSERVATIONS COMPLETED BY PRESSLEY ASSOCIATES, OCTOBER 27, 2009 AND AUGUST 26, 2010.
3. GEOPHYSICAL SURVEY PREPARED BY HAGER GEOSCIENCE, JULY 2010.
4. HISITORIC PHOTOGRAPHS IN THE ROTCH–JONES–DUFF HOUSE & GARDEN MUSEUM ARCHIVES.
5. LAYOUT PLAN IN THE GARDEN CLUB OF BUZZARDS BAY ARCHIVES, PREPARED BY THE PRESERVATION PARTNERSHIP.

DRAWN BY: CMB

CHECKED BY: LGM

DATE: SEPTEMBER 2010

WHALE (1981-1985)

New Bedford Waterfront Historic Area LeaguE (WHALE) was established in 1962 to save New Bedford's history and architectural heritage from urban renewal. WHALE's mission is "to promote the value and reuse of greater New Bedford's historic structures through preservation, education and advocacy." On 30 November 1981, WHALE purchased the County Street property from Mrs. Beatrice Duff after she unsuccessfully petitioned the town for a zoning variance to sell the property to a New Jersey developer who was going to turn the property into an inn and restaurant.

Figure 2.49: Front face of the house showing low shrubs along the front porch and small tree above the western embankment (RJD House Archives).

In 1981, Mrs. Duff indicated that it was her hope that "the mansion, which is the last privately owned and occupied whaling mansion in the city today, will somehow be maintained as a private residence and ultimately become a museum, both restored and furnished, depicting a style of living once enjoyed by a certain few families in the whaling era."[153]

At the time the Rotch-Jones-Duff property was sold to WHALE, a preservation restriction was placed on the property, with the stipulation that WHALE "preserve the architectural and historical integrity of the features, materials, appearance, workmanship, and environment for a period of (10) years from the date of execution" of the agreement (1984).[154] The restriction also stipulated for the preservation of the grounds, stating, "The Transferee [WHALE] agrees that the grounds around said building be maintained in a landscaped environment consistent with the historical character of the building."[155]

According to a 1981 interview with Mrs. Duff, "she also feels that the important history of the garden warrants its continuous upkeep and maintenance, hopefully by a group such as the Garden Club of Buzzards Bay, who have not only expressed a desire to do so, but have the expertise to handle such an undertaking."[156]

Figure 2.50: Water garden lawn with vestiges of the former planting beds (RJD House Archives).

In 1982, the Garden Club of Buzzards Bay signed a ten-year lease at a rate of $1 per year with WHALE for the first floor of the coachman's

house, the greenhouse, and the property along the western and southern perimeter fences, now known as the Boxwood display garden, civic garden, and the woodland garden, for the cultivation of a Boxwood nursery and to plant, cultivate, and maintain the gardens.[157]

Figure 2.51: Greenhouse prior to restoration from the present site of the civic garden, showing the brick edge and path alignment present during the Duff era (RJD House Archives).

The lease for the coachman's house, greenhouse, and a portion of the gardens stipulated that:

> It is WHALE's desire to present the entire property, including the house and grounds, as a nineteenth century house and garden, to recall the original dwelling and setting established by William Rotch, Jr., as closely as possible.
>
> THE GARDEN CLUB shares in the foregoing objective and also wishes to use the leased premises to conduct its activities and educational programs, including but not limited to, the development of solar capabilities. WHALE agrees that it will not plant or maintain any trees or shrubs as well as buildings, fences, and other structures so as to obstruct the sunlight from reaching the greenhouse.
>
> It is expected that a spirit of cooperation shall prevail at all time to carry out said purposes and THE GARDEN CLUB will work with and consult with the Grounds Committee of the William Rotch, Jr. House. To aid in the success of these objectives, the Grounds Committee or similar committee, by whatever name, whose responsibility shall be to take care of the grounds of the Rotch House, shall always have representation of at least one-third (1/3) of its members from THE GARDEN CLUB.

Figure 2.52: 1982 photograph of the greenhouse during restoration with glass removed and frame sandblasted and repainted (Garden Club of Buzzards Bay Archives).

In addition to their maintenance work, in 1982, the Garden Club of Buzzards Bay raised $50,000 to restore the greenhouse. The work was undertaken by greenhouse restoration specialist Mark Ward of Concord, Massachusetts, with builder Preston Henderson of Rehoboth, Massachusetts.[158] In the course of the repair, the windows were removed and the original frame was sandblasted and repainted in place. The greenhouse reopened in late September 1982, although work was still needed to restore the gardens.

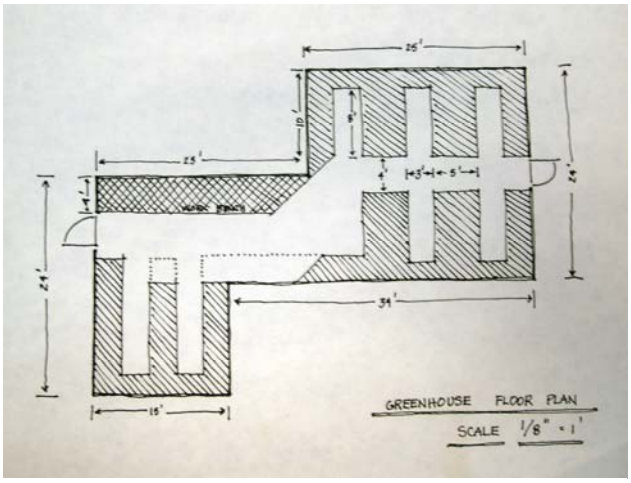


Figure 2.53: Proposed greenhouse floor plan by Mark Ward, 1982 (Garden Club of Buzzards Bay Archives).

Figure 2.54: 1984 photograph of the greenhouse following restoration (Garden Club of Buzzards Bay Archives)

Photographs from the Garden Club of Buzzards Bay archives from 1982 show the gardens in disrepair, with un-mown lawn, un-pruned shrubs, and weeds growing in garden paths. The parterre garden hedges were also overgrown and out of scale with the garden. Very little planting restoration was initiated during WHALE's ownership. Rather the work during this period was focused on stabilizing the property's deteriorating historic buildings and structures.

Figure 2.55: 1982 photograph illustrating the condition of the garden prior to restoration work (Garden Club of Buzzards Bay Archives).

Figure 2.56: Circa 1984 western view along the axial garden path showing climbing roses on the arbor and vines on the garden settee (RJD House Archives).

Figure 2.57: Circa 1984 view of the restored circular pergola from the south porch (RJD House Archives).

The garden structures, including the pergola and garden settees, were in disrepair, and in 1982 WHALE began a two-year restoration project to reconstruct the collapsed pergola based on the remaining structure and historic photographs. In 1982, WHALE also began a program to conserve the front and rear (east) porches of the house.[159] A $40,975 Massachusetts Historical Commission grant was issued under the Emergency Jobs Bill to conserve the south and north porches; carry out east porch finish work; repoint chimneys and foundations; preserve the eaves fascia, cornice roof rails, dormers, lanterns and areaways; install new wood gutters and copper downspouts; paint windows and shutters; and reconstruct the two garden settees. By 1984, the project was substantially complete.[160]

Figure 2.58: Photograph of the lawn-covered embankment from the parterre garden to the main entrance drive, showing the restored front porch (RJD House Archives).

The double flying staircase from the back (east) porch was removed in the early 1980s, in conjunction with the porch restoration. In the 1980s, the ornamental pool was removed from the stone terrace as well. Repair of the coachman's house fence and refinishing of the main floors in the house were carried out with private funds raised by WHALE in the amount of $70,500.[161] In 1983, the property opened to the public as an historic house museum. In 1984, WHALE established a board of overseers for the property to save the building from commercial development, and in 1985, incorporated the property as a museum.[162]

Figure 2.59: Photograph of the fountain basin prior to its removal from the terrace (RJD House Archives).

Figure 2.60: Northern view of the water garden lawn, showing high shrubs in the terrace garden planting beds and the back porch prior to restoration (RJD House Archives).

Rotch-Jones-Duff House & Garden Museum, Inc. (1985-Present)

The Rotch-Jones-Duff House & Garden Museum (RJD House) was incorporated in 1985, with a threefold mission:

- To Preserve one of the nation's finest Greek Revival mansions and its historic grounds and gardens to the highest standard;
- To interest and educate the public through exhibits and interpretive historical and horticultural programs that document the history of New Bedford and important chapters in American history through the lives of the three families who lived in the house;
- And to acquire and care for appropriate artifacts, furnishings and period collections.

RJD House upheld the existing relationship with the Garden Club of Buzzards Bay, who continued to maintain and restore the gardens on the east and south sides of the property. To fund their mission, in 1985, the Garden Club of Buzzards Bay pursued and was awarded a $25,000 Founder's Fund grant from the Garden Club of America to construct a wildflower garden on the southern perimeter of the property. The wildflower garden was an important component of the educational mission of both the Garden Club and the RJD House. 1987 marked the beginning of the fourth grade garden education program, with over six hundred school children visiting the property annually.[163]

The Garden Club has a long tradition of propagating Boxwood varieties, an activity they have been involved with since the 1950s. In 1986, the Garden Club moved their Boxwood collection to the Rotch-Jones-Duff House. Moving the plant material involved an extensive renovation of the gardens along the east side of the property, with the removal of existing Viburnum and Spirea. The Boxwood garden planting design was completed by Jane Walker, Rica Beckman, and Sally Howland.

Figure 2.61: 1985 photograph of planting the Boxwood display gardens to the east of the civic garden (Garden Club of Buzzards Bay Archives).

Work in the civic garden was initiated around 1985, beginning with realigning the paths in the vicinity of the garden. In 1988, civic garden planting was designed with the help of Sue Underwood. The original design included white Clematis, white Beebalm, yellow Lilies, Lavender, white and lavender Liatris, blue Asters, Thistle, yellow Tree Peony, yellow Coreopsis, yellow Aquilegia, white Physostegia, Baby's Breath, and Santolina. At the center of the garden, the Garden Club of Buzzards Bay erected a birdhouse based on the design of the Rotch house. By 2003, the civic garden was overgrown and the Garden Club undertook a renovation with help of Sue Fairfax. Several new varieties were added to the garden,

but the renovation maintained Sue Underwood's original (1988) planting design.

Figure 2.62: Circa 1988 photograph of the Boxwood display garden and civic garden showing the birdhouse (Garden Club of Buzzards Bay Archives).

Figure 2.63: Circa 1988 winter photograph of the civic garden (Garden Club of Buzzards Bay Archives).

In May 1992, the Museum began reconstruction of the apiary. The original was disassembled in 1985 in deteriorated condition. The apiary was reconstructed as the centerpiece of a fifth grade garden education program at the Rotch-Jones-Duff House.[164] Funding for the reconstruction of the apiary was supported by the Crapo Foundation and the New York Community Trust, each of which gave $3,000 for the project. The Garden Club of Buzzards Bay proposed an herb garden in the area of the apiary for educational purposes, off the kitchen on the north side of the house, and espaliered fruit trees were proposed by the Garden Club for the north fence, in place of Forsythia.

In 1992, the Rotch-Jones-Duff House and Garden Museum Garden Committee initiated an effort to replant the Rose garden. Meeting notes indicate that the committee was considering the appropriate approach and organization of the garden (i.e. grouped by type, grouped by form, or grouped by color) and which Roses would be appropriate for the garden (i.e. only those cultivars that existed in 1867, 1890, or 1900).[165]

In 1992, the Garden Committee also planted a Star Magnolia in the lawn to the south of the civic garden, to replace a missing Magnolia. However, this plant did not survive. Numerous other small changes were made to the garden by the Garden Club as well, including removing the birdhouse from the civic garden and replacing it with a tuteur trellis, moving the wildflower walk plaque, adding signage to the wildflower walk, and planting Scilla, Snowdrops, and Grecian Windflowers bulbs below the Copper Beech at the northwest corner of the property.[166]

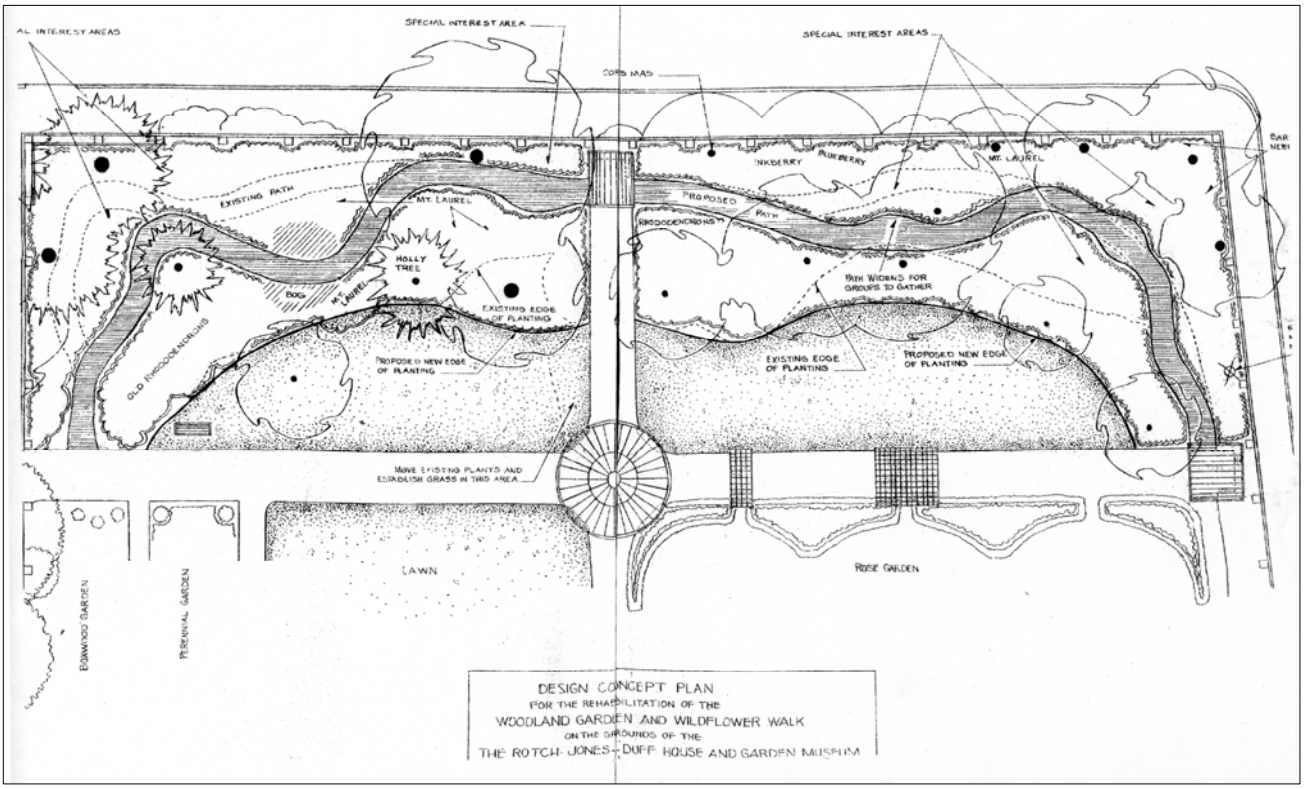


Figure 2.64: Garden Club design concept plan for the woodland garden and wildflower walk (Garden Club of Buzzards Bay Archives).

In 2004, David Haskell assisted with a $12,000 renovation of the wildflower garden, aimed at converting the wildflower garden to a woodland walk. The changes included an expanded educational program as well.[167] Later recommendations for the woodland walk included widening and realigning the path, replanting the garden with woody plants native to southern New England, changing the shape of the bed along the northern edge of the garden, removing the Norway Maple along the western side of the garden, and planting additional vegetation in the southeast corner to prevent unwanted foot traffic.[168]

Garden Club member Sue Fairfax suggested several new species for the woodland walk. Recommended trees included: *Amelanchier canadensis, Carpinus caroliniana, Cornus florida/Cornus kousa* hybrids, *Ilex opaca, Ostrya virginiana,* and *Pinus strobus 'Fastigiata'*. Suggested shrubs for the woodland walk included: *Clethra alnifolia, Comptonia peregrina, Cornus alba, Hamamelis virginiana, Ilex glabra, Ilex verticillta, Kalmia angustifolia, Lindera benzoin, Rhododendron maximum, Rhododendron periclymenoides, Rhododendron prinophyllum, Salix discolor, Salix nigra, Taxus canadensis, Viburnum acerifolium,* and *Viburnum dentatum.*[169]

Maintenance of the garden at the Rotch-Jones-Duff House remains split between Museum staff and Garden Club volunteers. The Garden Club continues to maintain the boxwood display

gardens, civic garden, Heath and Heather garden adjacent to the stone terrace, and woodland garden.

Figure 2.65: Boxwood display gardens, circa 1988 (Garden Club of Buzzards Bay Archives).

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Eastern view of the civic garden across the former water garden lawn, 2009 (Pressley Associates).

CHAPTER 3:

EXISTING CONDITIONS

Overview

The Rotch-Jones-Duff (RJD) House is sited on just under one acre (.999 acres) property that occupies a full city block in the City of New Bedford, Bristol County, Massachusetts. RJD House, located at 396 County Street, is bounded by Madison Street to the north, Joli Gonsalves Memorial Way (formerly Cherry Street) to the south, and Seventh Street to the east. Vehicular access to the house is accommodated by a semi-circular entrance drive off of County Street. Visitor entrances to the property are located along the perimeter fence, mid-block on Madison Street. Service access to the grounds is largely accommodated on Seventh Street, to the rear of the property.

Site Survey

The topographic and boundary (site) survey for the RJD House was completed by Bryant Associates on November 11, 2009. The existing conditions plan for the RJD House included in this chapter was drawn by Pressley Associates based on the November 11, 2009 survey in conjunction with on-site observation completed by Pressley Associates in fall 2009 and spring-summer 2010. The most current orthophotograph of RJD House property is 2005 1:5,000 color imagery from the Massachusetts Geographic Information System database (MA GIS).

Spatial Organization

Spatial organization is the arrangement and patterns of features in the landscape. This includes visual links and barriers, as well as groupings. Both the functional and visual relationships between landscape spaces are integral to the historic character of a property. Due to the diversity of landscape spaces at RJD House, the CLR organizes the site into distinct landscape zones or character areas, which are described in more detail below.

Boundaries, Views & Vistas

The boundaries of the RJD House property are fixed perimeter streets on all four (4) sides. A public concrete sidewalk follows the curb line of the streets and borders the site on all sides. The extent of the RJD House property is bounded by a wooden perimeter fence that surrounds the site on all sides. In front of the RJD House, on the western side of the property, the wooden perimeter fence transitions to a more ornate metal picket fence. Vehicular access is accommodated at the front of the house by way of a semi-circular entrance drive, with associated breaks in the fence; pedestrian access is accommodated primarily on the northern side of the site with gates; with service access accommodated along the eastern side of the site.

Figure 3.1: Southwestern view of the front entrance area to the RJD House (Pressley Associates, 2009).

The most striking views of the landscape at the RJD House are of the gardens to the south of the house from the southern porch. The geometric layout of the garden walks and paths lend themselves to highly structured views, framed and focused on garden structures, notably the garden pergolas and settees. From within the house, windows on the main level provide views of the gardens to the south of the house. From the upper levels of the house, views are primarily of the property's larger trees and of the city and harbor beyond.

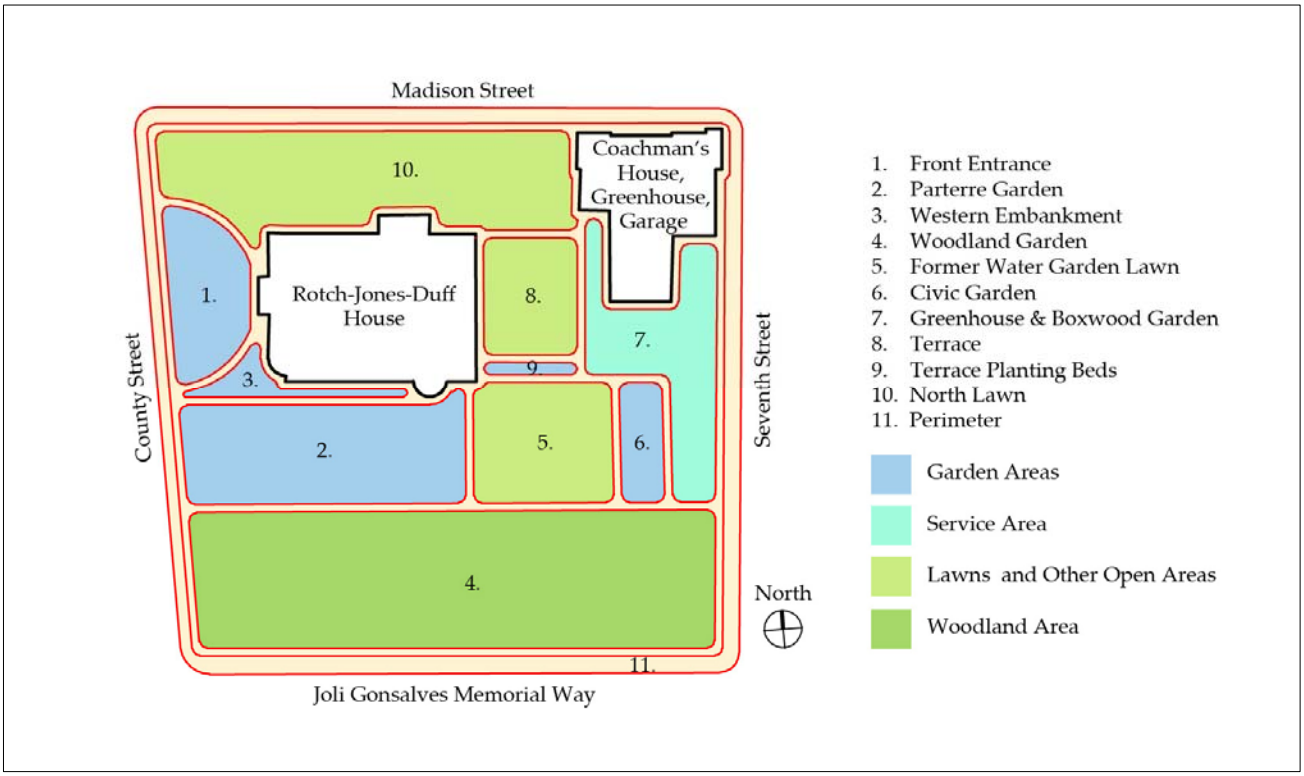

Figure 3.2: Character area diagram for the Rotch-Jones-Duff House & Garden Museum (Pressley Associates, 2010).

Landscape Character Areas

Garden Areas at the RJD House consist of (1.) front entrance, (2.) parterre garden, (3.) western embankment, and (6.) civic garden. These areas are characterized by dense planting and feature the highest levels of botanical diversity. They are maintained by the RJD House maintenance staff and the Garden Club of Buzzards Bay.

The **Service Area** consists of the (7.) greenhouse & Boxwood garden along the eastern property boundary. This area includes the portion of the property that is actively used for support functions. The greenhouse and Boxwood specimen garden are both maintained with the assistance of the Garden Club of Buzzards Bay.

Lawns and Other Open Areas consist of (5.) former water garden lawn, (8.) terrace, and (10.) north lawn. Both the lawn and the terrace are used to host special events, including weddings, receptions and other special event rentals. The terrace is located immediately to the east of the house and is presently covered by a temporary event tent.

Woodland Area consists of (4.) woodland garden along the entire southern property boundary. This portion of the site consists of a lawn bordered by a woodland area with an over-story canopy of deciduous and evergreen trees under-planted with a variety of woody shrubs, herbaceous perennials, and groundcovers.

Landscape Characteristics

Topography

The general topography of the RJD House property slopes from northwest to southeast for a vertical grade change of approximately twelve feet (12′) across the site. Along the northern side of the house, the grade drops four foot six inches (4′-6″) from the northwest corner to the northeast corner of the house to reveal the basement story at the eastern (rear) side of the house. A sloped embankment on the northern side of the house is traversed with a set of three (3) granite steps set in the lawn, and a second set of four (4) steps provides access to the terrace from the north lawn at the northeastern corner of the house. On the terrace at the rear of the house, the lower (basement) level is fully exposed. A mortared fieldstone retaining wall supports the terrace, with an approximate two-foot (2′) vertical change to the adjacent garden areas, which is navigated with stairs.

Figure 3.3: Eastern view of the western embankment that separates the parterre garden from the RJD House (Pressley Associates, 2009).

The general topography of the garden areas that occupy the southern portion of the property slopes from west to east for a vertical change of seven-feet (7′) across this portion of the property. At the western end of the garden areas, the grade of the parterre garden meets the grade at the front of the RJD House with a steep, fifty percent (50%) embankment and a set of seven (7) granite stairs with granite check walls. In the Boxwood specimen garden and at the southeast corner of the property, the topography has been raised against the wooden perimeter fence. In both cases, wooden retaining walls were constructed inside the perimeter fence and used to hold the fill from the fence.

Vegetation

Vegetation plays an important role in defining the character of RJD House and complements the architecture of the 1834 Richard Upjohn-designed mansion. The character and species composition of the vegetation varies greatly between the landscape character areas. The table that follows identifies all vegetation on the property and is keyed to the existing conditions site plan as well as specific landscape character areas to demonstrate species distribution.

In the front of the mansion, a variety of *Rhododendron* sp. (Rhododendron) are located in the planting area defined by the semi-circular entrance drive, and a large *Fagus sylvatica 'Cuprea'* (Copper Beech) marks the northwest corner of the property. The northern side of the house is dominated by open lawn with *Forsythia* sp. (Forsythia) bordering the perimeter fence. Close

to the coachman's house, three *Cornus florida* (Flowering Dogwood) separate the north lawn from the complex of buildings at the northeast corner of the property. On the perimeter fence between visitor entrances, three (3) espaliered *Pyrus* sp. (Pear) are trained on support wires. Street trees on the surrounding streets are all *Acer platanoides* (Norway Maple) with the exception of one (1) *Fraxinus americana* (White Ash).

Figure 3.4: Southwestern view across the parterre garden from the porch at the southeast corner of the RJD House (Pressley Associates, 2009).

Along the western side of the mansion, the parterre garden immediately to the south of the RJD House consists of beds of *Rosa* sp. (Rose) bordered by a *Buxus sempervirens* (Common Boxwood) hedge. The majority of the Roses in the garden are *Rosa* sp. (Hybrid Tea Rose) interspersed with *Rosa* x (Shrub Rose). Along the western embankment, at the base of the porch, *Rosa* x (Shrub Rose) dominates the slope. A specimen *Aesculus parviflora* (Bottlebrush Buckeye) is located at the western end of the parterre garden. Ongoing restoration of the parterre garden began in 1996.

To the south of the parterre garden is the former water garden lawn, which is bordered on its northern side by the two (2) terrace planting beds dominated by *Erica* sp. (Heath) and *Calluna* sp. (Heather). To the east of the former water garden lawn, the civic garden is a symmetrical knot garden bordered by dwarf *Berberis thunbergii* (Japanese Barberry) hedge with *Buxus* sp. (Common Boxwood) planted at the corners. Within the garden is a variety of herbaceous plant material, including *Achillea millefolium* (Yarrow), *Clematis* 'Jackmanii' (Clematis), *Coreopsis* sp. (Tickseed), *Echinops* sp. (Globe Thistle), *Hemerocallis* sp. (Daylily), *Lavandula* sp. (Lavander), *Paeonia* sp. (Peony), and *Veronica spicata* 'Red Fox' (Pink Spike Speedwell).

Figure 3.5: Eastern view of the Boxwood garden (right and ahead) with the civic garden (left) (Pressley Associates, 2009).

The Boxwood specimen garden, to the east of the civic garden and to the south of the greenhouse, contains a wide variety of Boxwood cultivars from the species *Buxus harlandii* (Harland Boxwood), *Buxus microphylla* (Little-leaf Boxwood), *Buxus sempervirens* (Common Boxwood), and *Buxus sinica* (Korean Boxwood).

Figure 3.6: Western view through the woodland garden (Pressley Associates, 2009).

Figure 3.7: Young Oxydendron arboretum (Sourwood) in the woodland garden (Pressley Associates, 2009).

The woodland garden occupies the entire southern property boundary. This garden is dominated by *Cornus florida* (Flowering Dogwood) with two (2) large *Picea abies* (Norway Spruce) and an *Ilex opaca* (American Holly) at the southeast corner; *Amelanchier* x *grandiflora* (Apple Serviceberry), *Fraxinus americana* (White Ash), three (3) young *Pinus strobus* (Eastern White Pine), and *Styrax japonica* (Japanese Snowbell) in the center; *Acer platanoides* (Norway Maple) at the western end of the garden; and *Prunus* sp. (Cherry) throughout. The woodland garden also includes some noteworthy young trees, including an *Oxydendrum arboreum* (Sourwood) and a *Magnolia* 'Royal Star' (Royal Star Magnolia). The understory consists of a variety of woody shrubs and herbaceous plant material, including *Clethra alnifolia* (Summersweet), *Euonyomous alata* (Burning Bush), *Fothergilla major* (Witchhazel), *Ilex glabra* (Inkberry), *Ilex pedunculosa* (Longstalk Holly), *Kalmia latifolia* (Mountain-laurel), *Lilac* sp. (Lilac), *Lonicera tatarica* (Tatarian Honeysuckle), *Rhododendron* sp. (Rhododendron), *Taxus baccata* (Common Yew), *Vaccinium corymbosum* (Highbush Blueberry), and *Viburnum trilobum* (American Cranberrybush).

To the east (rear) of the mansion, the terrace is bordered by a planting of *Buxus sempervirens* (Common Boxwood), with a hedge of *Aronia arbutifolia* 'Erecta' (Upright Red Chokeberry) on its eastern side. Specimens of *Aronia arbutifolia* 'Erecta' (Upright Red Chokeberry) are also interspersed throughout the woodland garden.

Table 3.1: Existing Plant List

Landscape zones are defined as follow:

1. Front entrance
2. Parterre garden
3. Western embankment
4. Woodland garden
5. Former water garden lawn
6. Civic garden
7. Greenhouse & Boxwood specimen garden
8. Terrace
9. Terrace planting beds
10. North lawn
11. Perimeter

Key	Botanical Name	Common Name	Zone(s)
TREES			
Ac. pl.	*Acer platanoides*	Norway Maple	4, 11
Ae. hi.	*Aesculus hipposcatanum*	Common Horsechestnut	2
Am. gr.	*Amelanchier* x *grandiflora*	Apple Serviceberry	4
Ca. ov.	*Carya ovata*	Shagbark Hickory	7
Co. fl.	*Cornus florida*	Flowering Dogwood	4, 7, 10
Co. ko.	*Cornus kousa*	Kousa Dogwood	4
Fa. cu.	*Fagus sylvatica* 'Cuprea'	Copper Beech	10
Fr. am.	*Fraxinus americana*	White Ash	4, 7, 11
Il. op.	*Ilex opaca*	American Holly	4
Ma. st.	*Magnolia stellata* 'Royal Star'	Royal Star Magnolia	4
Ma. sp.	*Malus* sp.	Apple	2, 10
Ox. ar.	*Oxydendrum arboreum*	Sourwood	4
Pi. ab.	*Picea abies*	Norway Spruce	4
Pi. ar.	*Pinus aristata*	Bristlecone Pine	1
Pi. st.	*Pinus strobus*	White Pine	4
Pr. pe.	*Prunus pennsylvanica*	Wild Red Cherry	4, 10
Pr. ce.	*Prunus cerasifera*	Purple-leaf Plum	4
Py. sp.	*Pyrus.* sp.	Pear	
Py. ca.	*Pyrus calleryana* 'Cleveland Select'	Cleveland Select Pear	7
St. ja.	*Styrax japonica*	Japanese Snowbell	4
Ul. ru.	*Ulmus rubra*	Slippery Elm	11
SHRUBS			
Ae. pa.	*Aesculus parviflora*	Bottlebrush Buckeye	2
Ar. uv.	*Arctostaphylos uva-ursi*	Common Bearberry	9
Ar. ar.	*Aronia arbutifolia* 'Erecta'	Upright Red Chokeberry	4, 7
Az. sp.	*Azalea* sp.	Azalea	4
Be. th.	*Berberis thunbergii*	Japanese Barberry	6
Bu. sp.	*Buxus* sp.	Boxwood	2, 8
Bu. ha.	*Buxus harlandii*	Harland Boxwood	7

Key	Botanical Name	Common Name	Zone(s)
Bu. mi.	*Buxus microphylla*	Littleleaf Boxwood	6, 7
BM Co.	*Buxus microphylla* 'Compacta'	Compact Littleleaf Boxwood	7
BM CL	*Buxus microphylla* 'Curly Locks'	Curly Locks Littleleaf Boxwood	7
BM GHP	*Buxus microphylla* 'Grace Hendrick Phillips'	Grace Hendrick Phillips Littleleaf Boxwood	7
BM GP	*Buxus microphylla* 'Green Pillow'	Green Pillow Littleleaf Boxwood	7
BM JB	*Buxus microphylla* 'John Baldwin'	John Baldwin Littleleaf Boxwood	7
BM KD	*Buxus microphylla* 'Kingsville Dwarf'	Kingsville Dwarf Littleleaf Boxwood	7
BM Su.	*Buxus microphylla* 'Sunlight'	Sunlight Littleleaf Boxwood	7
BM ja.	*Buxus microphylla* var. *japonica*	Japanese Boxwood	7
BM MM	*Buxus microphylla* var. *japonica* 'Morris Midget'	Morris Midget Japanese Boxwood	7
Bu. se.	*Buxus sempervirens*	Common Boxwood	7
BS Ag.	*Buxus sempervirens* 'Agram'	Agram Common Boxwood	7
BS Ab.	*Buxus sempervirens* 'Arborescens'	Tree Boxwood	7
BS Ar.	*Buxus sempervirens* 'Argentea'	Variegated Common Boxwood	7
BS AP	*Buxus sempervirens* 'Aurea Pendula'	Aurea Weeping Boxwood	7
BS AV	*Buxus sempervirens* 'Aurea Variegata'	Aurea Variegated Common Boxwood	7
BS Be.	*Buxus sempervirens* 'Belleville'	Belleville Common Boxwood	7
BS Bu.	*Buxus sempervirens* 'Butterworth'	Butterworth Common Boxwood	7
BS DR	*Buxus sempervirens* 'Dee Runk'	Dee Runk Common Boxwood	7
BS EA	*Buxus sempervirens* 'Edgar Anderson'	Edgar Anderson Common Boxwood	7
BS El.	*Buxus sempervirens* 'Elegantissima'	Variegated Common Boxwood	7
BS Fa.	*Buxus sempervirens* 'Fastigiata'	Upright Common Boxwood	7
BS GB	*Buxus sempervirens* 'Graham Blandy'	Graham Blandy Common Boxwood	7
BS Ha.	*Buxus sempervirens* 'Handsworthiensis'	Handsworthiensis Common Boxwood	7
BS Ha.	*Buxus sempervirens* 'Hardwickensis'	Hardwickensis Common Boxwood	7
BS HS	*Buxus sempervirens* 'Henry Shaw'	Henry Shaw Common Boxwood	7
BS HvS	*Buxus sempervirens* 'Hermann von Schrenk'	Hermann von Schrenk Common Boxwood	7
BS In.	*Buxus sempervirens* 'Inglis'	Inglis Common Boxwood	7
BS Je.	*Buxus sempervirens* 'Jensen'	Jensen Common Boxwood	7
BS Jo.	*Buxus sempervirens* 'Joy'	Joy Common Boxwood	7
BS NB	*Buxus sempervirens* 'Newport Blue'	Newport Blue Common Boxwood	7
BS No.	*Buxus sempervirens* 'Northland'	Northland Common Boxwood	7
BS Ro.	*Buxus sempervirens* 'Rotundifolia'	Round-leaf Common Boxwood	7
BS SG	*Buxus sempervirens* 'Saint Genevieve'	Saint Genevieve Common Boxwood	7
BS Sa.	*Buxus sempervirens* 'Salicifolia'	Salicifolia Common Boxwood	7
BS Su.	*Buxus sempervirens* 'Suffruticosa'	English Boxwood	7
BS VV	*Buxus sempervirens* 'Vardar Valley'	Vardar Valley Common Boxwood	7
BS We.	*Buxus sempervirens* 'Welleri'	Welleri Common Boxwood	7
SB Ze.	*Buxus sempervirens 'Zeitung'*	Zeitung Common Boxwood	

Key	Botanical Name	Common Name	Zone(s)
BS ins.	*Buxus sinica* var. *insularis*	Korean Boxwood	7
BI Co.	*Buxus sinica* var. *insularis* 'Compacta'	Compact Korean Boxwood	7
BI JB	*Buxus sinica* var. *insularis* 'Justin Brower'	Justin Brower Korean Boxwood	7
BI WW	*Buxus sinica* var. *insularis* 'Wee Willie'	Wee Willie Korean Boxwood	7
Bu. CG	*Buxus* x 'Chicagoland Green'	Chicagoland Green Hybrid Boxwood	7
Bu. Ju.	*Buxus* 'Junkey'	Junkey Boxwood	7
Cai. sp.	*Callicarpa* sp.	Beautyberry	4
H.	*Calluna* sp.	Heather	9
Ch. sp.	*Chamaecyparis* sp.	False Cypress	9
Ch. vi.	*Chionanthus virginicus*	White Fringetree	4
Cl. al.	*Clethra alnifolia*	Clethra	4
CAH	*Clethra alnifolia* 'Hummingbird'	Dwarf Clethra	4
De. sc.	*Deutzia scabra*	Fuzzy Deutzia	2, 4
En. ca.	*Enkianthus campanulatus*	Redvein Enkianthus	9
H.	*Erica* sp.	Heath	9
Eu. al.	*Euonymus alata*	Burningbush	4, 7
Fo. in.	*Forsythia* x *intermedia*	Forsythia	10
Fo. ma.	*Fothergilla major*	Large Fothergilla	4
Ha. sp.	*Hamamelis* x 'Arnold Promise'	Yellow Witchhazel	4
Hy. qu.	*Hydrangea quercifolia*	Oak-leaf Hydrangea	4
Il. sp.	*Ilex* sp.	Deciduous Holly	4
Il. gl.	*Ilex glabra*	Inkberry	4
Il. pe.	*Ilex pedunculosa*	Longstalk Holly	4
Ka. la.	*Kalmia latifolia*	Mountain Laurel	4
Ka. laE	*Kalmia latifolia* 'Elf'	Dwarf Kalmia	4
La. sp.	*Lavandula* sp.	Lavender	6
Le. fo.	*Leucothoe fontanesiana*	Drooping Leucothoe	4
Lig. sp.	*Ligustrum* sp.	Privet	4, 7
Li. sp.	*Lilac* sp.	Lilac	4
Pi. mu.	*Pinus mugo*	Mugo Pine	9
Po. fr.	*Potentilla fruticosa*	Bush Cinquefoil	9
Ro. sp.	*Rosa* sp.	Shrub Rose/Climbing Rose	2, 3
Ro. x	*Rosa* x	Hybrid Tea Rose	2
Ro. BP	*Rosa* 'Betty Prior'	Betty Prior Rose	2
Ro. Bo.	*Rosa* 'Bonica'	Floribunda Rose	2
Ro. Me.	*Rosa* 'Meidiland'	Red Pavement Rose	2, 3
Ro. ru.	*Rosa rugosa*	Rugosa Rose	2
Rh. sp.	*Rhododendron* sp.	Rhododendron	1, 4, 10
Rh. ca.	*Rhododendron calendulaceum*	Flame Azalea	4
Rh. la.	*Rhododendron* x *laetevirens*	Wilson Rhododendron	1

Key	Botanical Name	Common Name	Zone(s)
Rh. PJM	*Rhododendron* 'P.J.M.'	P.J.M. Rhododendron	1
Sa. ni.	*Salix nigra*	Black Willow	4
Sp. sp.	*Spirea* sp.	Spirea	9
Ta. ba.	*Taxus baccata*	English Yew	4
Ta. ba. R.	*Taxus baccata* 'Repandens'	Prostrate English Yew	7
Va. co.	*Vaccinium corymbosum*	Highbush Blueberry	4
Vi. op.	*Viburnum opulus*	European Cranberrybush Viburnum	4
Vi. tr.	*Viburnum trilobum*	American Cranberrybush Viburnum	4
Yu. fi.	*Yucca filamentosa*	Adam's Needle	2

Herbaceous Plants, Vines, & Groundcovers			
Ac. pa.	*Actaea pachypoda*	Doll's Eye	4
Ac. mi.	*Achillea millefolium*	Yarrow	6
Ak. qu.	*Akebia quinata*	Fiveleaf Akebia	2, 4
Ar. di.	*Aruncus dioicus*	Goat's Beard	4
As. eu.	*Asarum europaeum*	European Wild Ginger	4
As. di.	*Aster divaricatus*	Wood Aster	4
Ci. ra.	*Cimicifuga racemosa*	Bugbane	4
Cl. vi.	*Clematis virginiana*	Devil's Darning Needles	3
Cl. Ja.	*Clematis* x 'Jackmanii'	Jackman Clematis	6
Co. sp.	*Convallaria* sp.	Lily-of-the-valley	4
Co. sp.	*Coreopsis* sp.	Tickseed	6
De. pu.	*Dennstaedtia punctilobula*	Hayscented Fern	3, 4
Dr. er.	*Dryopteris erythrosora*	Autumn Fern	4
Ec. ri.	*Echinops ritro*	Globe Thistle	6
Ep. sp.	*Epimedium* sp.	Barrenwort	4
He. sp.	*Hemerocallis* sp.	Daylily	6
He. he.	*Hedera helix*	English Ivy	3, 4, 10
Ho. sp.	*Hosta* sp.	Plantain Lily	4
Ir. en.	*Iris ensata*	Japanese Iris	4, 7
Ir. ge.	*Iris germanica*	Bearded Iris	1
Ir. si.	*Iris siberica*	Siberian Iris	2
Lo. he.	*Lonicera heckrottii*	Goldflame Honeysuckle	4
Lo. se.	*Lonicera sempervirens*	Trumpet Honeysuckle	3
Ly. sp.	*Lysimachia* sp.	Pennywort	10
Ma. co.	*Macleaya cordata*	Plume Poppy	4
Ma. st.	*Matteuccia struthiopteris*	Ostrich Fern	4
On. se.	*Onoclea sensibilis*	Sensitive Fern	4
Pa. pr.	*Pachysandra procumbens*	Allegheny Spurge	4
Pa. sp.	*Paeonia* sp.	Peony	6

Key	Botanical Name	Common Name	Zone(s)
Pl. ca.	*Plumbago capensis*	Cape Leadwort	10
Po. re.	*Polemonium reptans*	Jacob's Ladder	4
Po. bi.	*Polygonatum biflorum*	Solomon's Seal	4
Po. ac.	*Polystichum acrostichoides*	Christmas Fern	4
Pu. sp.	*Pulmonaria* sp.	Lungwort	4
Sm. ra.	*Smilacina racemosa*	False Solomon's Seal	4
Ti. sp.	*Tiarella* sp.	Foamflower	4
Ve. sp.	*Veronica spicata* 'Red Fox'	Pink Spike Speedwell	6
Vi. mi.	*Vinca minor*	Periwinkle	2, 3, 4, 10
Wi. sp.	*Wisteria* sp.	Wisteria	3, 9
Xa. si.	*Xanthorhiza simplicissima*	Yellowroot	4
Zi. sp.	*Zizia* sp.	Zizia	4

Buildings & Structures

Rotch-Jones-Duff House

The house was designed by the English-born Gothic Revival architect Richard Upjohn (1802-1878) for William Rotch, Jr. and constructed in 1833-34. The RJD House was Upjohn's first house, built near the beginning of his long career. The RJD House currently functions as an historic furnished house museum and accommodates the offices of the organization, as well as visitor restrooms in the basement.

RJD House is located in the northwest quadrant of the property, set back from the adjacent streets by approximately forty feet (40'). The footprint of the structure is forty-eight feet six inches by sixty-six feet (48'-6" x 66'). The three (3) story Greek Revival style house features a three (3) bay west (front) elevation of horizontal flush boards. Ten (10) fluted Doric columns and two (2) pilasters support a flat portico that extends the full width of the front of the house, topped by a wood railing with turned balusters. The pediment of the gable roof features a lunette window. On the north and south elevations, hipped dormers adorn the roof, which is concealed by a paneled parapet with several tall chimneys emerging from the roof. The building is painted yellow with cream trim and black doors.

Figure 3.8: Northeastern view of the RJD House from the entrance drive (Pressley Associates, 2009).

Figure 3.9: Northwestern view of the RJD House from the area of the civic garden (Pressley Associates, 2009).

A wooden porch extends along the southern side of the house, overlooking the parterre garden, and continues along the eastern side of the house, where it transitions to a covered porch. Near the eastern end of the south porch, a semi-circular projection extends over the parterre garden. As the grade drops to the east, the basement story is fully exposed on the eastern elevation of the house.

Coachman's House

The coachman's house is located in the extreme northeast corner of the property. The footprint of the structure is fourteen feet by fifty feet (14′ x 50′). The two (2) story bracketed Italianate building is clad with flush board siding and painted yellow with cream trim and black doors. The building supports a hip roof with a red brick chimney. The coachman's house was added to the property during Edward Jones's ownership, circa 1851. The coachman's house currently serves as a private residence for museum support staff and is not open to the public.

Figure 3.10: Eastern view of the coachman's house showing the greenhouse and apiary at right (Pressley Associates, 2009).

Garage

A stucco garage with wood trim is attached to the coachman's house on its southern side, providing access from Seventh Street. The footprint of the garage is twenty-six feet by twenty-nine feet (26′ x 29′). This single-story building has a gable roof and is painted yellow with cream trim and black doors. Triple sash windows with window boxes replace the garage doors along Seventh Street. The garage was added to the coachman's house in the early twentieth century. The garage has been converted from its original use and currently houses a function space for museum events and activities.

Figure 3.11: Western view of the garage from Seventh Street (Pressley Associates, 2009).

Greenhouse

The greenhouse adjoins the south side of the coachman's house, providing the greenhouse with an unobstructed southern exposure. The greenhouse has an irregular footprint, which occupies one thousand one hundred fifteen square feet (1,115 SF).

Figure 3.12: Northern view of the greenhouse from the northern end of the civic garden (Pressley Associates, 2009).

The greenhouse has a brick foundation and steel frame with an intersecting roof. The windows are re-glazed with ribbed plastic sheets. The greenhouse was constructed during the Jones era as a lean-to structure and renovated and expanded during the Duff era. The Garden Club of Buzzards Bay rehabilitated the greenhouse in the 1980s for plant propagation and cultivation.

Apiary

An apiary (bee yard) has been reconstructed from historic photographs on the northern side of the property between the RJD House and the greenhouse (location is not original). The footprint of the structure is six feet six inches by ten feet (6'-6" x 10').

Figure 3.13: Southwestern view of the apiary (Pressley Associates, 2009).

The structure has a red brick foundation set on grade that extends one brick beyond the footprint of the structure for ornamental effect. The wooden structure is painted yellow with cream trim and features a distinctive ogee roof. A wooden door that is painted dark green provides access to the apiary on its northern side. The apiary does not currently house bees, but is used by the RJD

House & Garden Museum in an educational program with New Bedford Schools' fifth grade students.

Circular Garden Pergola

A pergola is located at the intersection of the north/south axial path and the east/west axial path. The pergola is twenty feet (20') in diameter. Wide arches at each of the four (4) path entrances provide access to the pergola. The pergola is constructed of wood with a criss-crossing lattice work along the sides and over the domed top.

Figure 3.14: Southeastern view of the circular pergola from the porch at the southeastern corner of the RJD House (Pressley Associates, 2009).

The pergola is painted a shade of deep green, with the exception of the cupola, which is white and wired for electricity with a light on its underside. Four (4) curved benches are integrated into the interior of the pergola. The pergola existed during the Jones family ownership, although the original construction date is unknown. The pergola was reconstructed in 1984 by WHALE from historic photographs. Historic photographs also indicate that the present color of the pergola is original to the Duff era.

Event Tent

A white event tent has been set-up immediately to the east of the RJD House over the terrace. The forty foot (40') square tent has a pyramid hip roof that covers the entire terrace and is wired for lighting. The tent is used for special events, including educational programs and private rentals.

Figure 3.15: Northern view of the event tent from the former water garden lawn (Pressley Associates, 2009).

Circulation

Vehicular

Entrance Drive

The entrance drive is the only vehicular circulation route on the RJD House property. The drive consists of an eleven-foot (11') wide semi-circular bituminous concrete drive centered on the façade of the RJD House. The bituminous concrete surface of the drive is bordered by a two-foot (2') wide concrete walk and a granite curb on its outer edge. The inner edge of the semi-circular drive is defined by an extruded bituminous concrete curb. The bituminous concrete drive has been coated with a bituminous coating, but suffers from cracking.

Figure 3.16: Southwestern view of the entrance drive from the front steps of RJD House (Pressley Associates, 2009).

Pedestrian

Visitor Entrance Walks

Visitor access to the property is accommodated mid-block along Madison Street by two walks that lead from the sidewalk to the terrace. The eastern-most walk is constructed of hand-tight bluestone paving with a width of four feet six inches (4′-6″), providing an accessible transition to the terrace. The visitor entrance walk further to the west is constructed of a single row of larger rectangular bluestone units three feet six inches (3′-6″) wide bordered by a brick edge set with a half inch (½″) reveal. A set of four (4) granite steps provides access to the terrace with a metal handrail on the western side. At the house, the five foot (5′) wide walk turns to run along the northern elevation, providing access to the visitor entrance and continuing on to the front portico. A series of four (4) granite steps with a handrail are located at the western end of a small porch that leads to the visitor entrance. Beyond these steps, the walk widens to approximately five foot six inches (5′-6″) in width.

Figure 3.17: Southern view of the visitor entrance walk closest to the coachman's house (Pressley Associates, 2009).

Stone Terrace

The terrace is located immediately to the west of the RJD House, comprised of an approximate six-foot (6′) wide rectangular brownstone border with a twenty-nine foot six inch by twenty-three foot six inch (29′-6″ x 23′-6″) center of rectangular bluestone pavement. The terrace is bordered by brownstone set on edge to define a *Buxus* sp. (Boxwood) planting bed along the north, south, and west sides of the terrace. Access off of the terrace to the south is accommodated by a set of three (3) steps with bluestone treads and stacked fieldstone on the risers to match the adjacent wall. The steps are bordered by metal handrails on both sides that connect to the metal fence that borders the southern side of the terrace.

Figure 3.18: Eastern view of the southern end of the stone terrace from the porch at the southeast corner of the RJD House (Pressley Associates, 2009).

Figure 3.19: Western view of the concrete greenhouse walk leading to the terrace (Pressley Associates, 2009).

Greenhouse Walks

An approximate three-foot (3′) wide concrete walk bordered by a low cast concrete curb extends out of the main entrance to the greenhouse on its southern elevation to intersect a second concrete walk that runs perpendicular. This east/west walk turns the corner at the eastern end, connecting to the garage, and connects to the terrace at its western end. The transition from the walk to the terrace is accommodated by a set of four (4) granite steps with one handrail.

Figure 3.20: Western view along the east/west axial walk with the civic garden immediately to the right (Pressley Associates, 2009)

Axial Garden Paths

The axial garden paths run north/south and east/west and are comprised of light-colored peastone bordered by red brick set in a soldier saw tooth pattern. The paths vary in width slightly, with the north/south path averaging nine feet (9′) wide, and the east/west path averaging eight feet (8′) wide.

Civic Garden Paths

The brick path within the civic garden bed is laid-out in a diamond shape, meeting the adjacent peastone paths that surround the garden on the east and west sides. The brick paths are set in a soldier pattern and are one foot six inches (1'-6") wide. The brick paths were reset in 2009. The surrounding light-colored peastone paths are three feet (3') wide, bordered by a metal edge on the civic garden side and red brick set in a soldier saw tooth pattern on the other sides of the path.

Figure 3.21: Southeastern view across the civic garden showing brick paths within the garden area and peastone paths surrounding the garden (Pressley Associates, 2009).

Parterre Garden Paths

The parterre garden paths are light-colored peastone and follow the curvilinear layout of the beds. The paths vary in width, averaging two feet six inches (2'-6") in width. The Rose garden paths are bordered by a low *Buxus sempervirens* (Common Boxwood) hedge.

Granite Stairs from Parterre Garden to Main Entrance

Two (2) sets of granite stairs lead from the northwest corner of the parterre garden to ascend the slope that separates the garden from the front portico with one handrail. At the bottom of the first set of stairs, two (2) granite piers frame the base of the stairs. Seven (7) granite treads bordered by granite cheek-walls with a metal handrail on the eastern side ascend the bulk of the slope. The stairs are interrupted by a small peastone landing bordered by a red brick set in a soldier pattern with three (3) irregularly-shaped brownstone stepping stones. From the landing, four (4) curved granite stairs provide access to the front portico, bordered on the eastern side by a metal handrail.

Figure 3.22: Northeastern view of the granite stairs leading from the parterre garden to the RJD House portico (Pressley Associates, 2009).

Woodland Path

The woodland path is a curvilinear path that runs through the woodland garden along the southern side of the property, passing through the pergola with seating at the southern end of the north/south axial path. The woodland path connects to the east/west axial garden path at both the eastern and western ends of the property. The woodland garden path is surfaced with crushed stone over a geotextile barrier. The path does not have edge restraints so the width varies, but averages approximately four feet (4') wide.

Figure 3.23: Southwestern view of the eastern end of the woodland path (Pressley Associates, 2009).

Granite Stairs in North Lawn

A set of three (3) granite treads is set in the north lawn near the fence. The bottom tread is buried so that only the upper surface is exposed, therefore creating a trip step. A narrow granite cheek-wall borders both sides of the steps, which are curved to comprise one quarter (¼) of a circle. The width of the bottom tread is five feet (5') and the width of the top tread is three feet nine inches (3'-9"). A metal handrail along the southern side of the steps was removed in 2009.

Figure 3.24: Northwestern view of the granite steps in the north lawn (Pressley Associates, 2009).

Constructed Water Features

Well

A well is located in the north lawn close to the perimeter fence opposite the northeast corner of the house. The well is constructed of mortared rounded stones with a slab cap stone and decorative pulley system. The outside diameter of the well is approximately three feet (3'). The well is covered with *Hedera helix* (English Ivy), planted at its base.

Figure 3.25: Southwestern view of the well on the north lawn (Pressley Associates, 2009).

Small-scale Features

Fences & Walls

Perimeter Fence & Gates

The perimeter fence at the RJD House surrounds the entire property, breaking only where it meets the garage, coachman's house, and at the main entrance drive. The fence is painted chrome green, comprised of vertical boards. The fence height varies between approximately five feet (5') and seven feet (7'). The granite fence posts are enclosed in boards that are located on the interior of the fence, which gives the exterior a smooth, uninterrupted appearance.

Figure 3.26: Eastern view of the double-hung gate at the eastern end of the east/west axial walk (Pressley Associates, 2009).

A double-hung gate is located at the end of the east/west axial path, a single-hung gate is located at the northeast corner of the property, a single-hung gate is located at the end of the greenhouse walk, and two (2) single-hung gates are located at the visitor entrances on Madison Street near the coachman's house. A double-hung gate was also once located along Madison Street further to the west of the visitor entrances, providing access to the north lawn; however, this gate has been removed and replaced with a solid fence panel. The fence was substantially repaired by WHALE after they acquired the property in 1981. The design is original to the Rotch period of ownership (1831-1850) and is one of very few extant original solid fences surrounding residential properties in New Bedford.

Metal Fence at Main Entrance

A metal fence borders the sidewalk and the outer edge of the main entrance drive along County Street. The fence is approximately five feet (5') high and painted black, with square pickets set in a granite base with a single rail near the top of the fence. Granite piers with pyramidal cap stones mark the ends of the metal fence at both sides of the entrances to the drive. The granite piers range in height between five feet (5') and seven feet (7'), as the grade drops to the south.

Figure 3.27: Northeastern view of the main entrance fence and granite pier (Pressley Associates, 2009).

Terrace Fences

The southern side of the terrace is bordered by a three-foot (3′) high metal fence with pickets held between two (2) rails. The fence is painted a shade of deep green and the fence posts are set in the fieldstone wall that supports the southern side of the terrace and topped with spherical finials. The eastern side of the terrace is bordered by a wooden fence with slats set at a forty-five degree (45°) angle to each other to create a latticework pattern. This fence, which stands approximately three feet (3′) above the terrace, is also painted a shape of deep green.

Figure 3.28: Northeastern view of the wooden terrace fence showing the greenhouse beyond (Pressley Associates, 2009).

Fieldstone Wall along the Southern Side of the Terrace

A low fieldstone wall supports the southern side of the terrace. The two-foot (2′) high wall is constructed of dry-laid stones and is approximately one foot (1′) wide.

Figure 3.29: Northwestern view of the terrace showing the fieldstone wall with iron railing bordered by planting beds (Pressley Associates, 2009).

Stone Wall along Visitor Entrance Walk

A retaining wall borders the western side of the eastern-most visitor entrance walk, where it retains the lawn area that supports the Apiary. The wall is comprised of mortared rounded stones. The wall varies in height between one foot (1′) at the top of the visitor entrance walk to three inches (3″) at the terrace.

Figure 3.30: Southwestern view of the stone wall bordering the visitor entrance walk (Pressley Associates, 2009).

Site Furnishings

Garden Settees

Two (2) matching wooden garden settees are located at the southern end of the north/south axial path and the western end of the east/west axial path. The pergola covered settees consist of horizontal slats on three (3) sides with arched roofs set on concrete foundations. Seating is integrated into three (3) sides of the interior space, leaving one side open to the adjacent path. On the open side of the settees, the roofs project beyond the seating areas with an overhang. The settees are painted a shade of deep green. Historic black and white photographs do not indicate if this is the original color; however, the garden settees appear dark in the photographs. The roofs of the settees are nine feet by ten feet (9′ x 10′).

Figure 3.31: Southern view of the garden settee at the southern end of the north/south axial walk (Pressley Associates, 2009).

Rose Arbors along East/West Path

Two arched climbing Rose arbors are located along the east/west axial path. The larger arbor is located on-axis with the center of the adjacent parterre garden, and the other smaller arbor is located midway between the larger arbor and the circular pergola. The arbors are both constructed of metal pipes covered in climbing Roses. The larger, middle arbor is ten feet (10′) in length and the smaller arbor is four feet (4′) in length.

Figure 3.32: Eastern view along the east/west axial walk showing the climbing Rose arbors (Pressley Associates, 2009).

Tuteur Trellis in Civic Garden

A small metal trellis with four (4) vertical supports and three (3) circular horizontal rails is located in the center of the civic garden. The black trellis stands approximately five feet (5′) high and has a domed top. The trellis is covered with *Clematis* 'Jackmanii' (Clematis).

Arbor at Visitor Entrance Walk

A wooden arbor with horizontal slats, spaced at approximately six inches (6″), covers the eastern-most visitor entrance walk between the latticework fence along the terrace and the stone wall along the walk. The arbor is four feet (4′) wide and painted a shade of deep green.

Figure 3.33: Southeastern view of the arbor over the eastern-most visitor entrance walk (Pressley Associates, 2009).

Bench at Southern End of Civic Garden

A wooden bench is located in the woodland garden opposite the southern end of the civic garden. The wooden bench is unpainted, thus allowing the wood to weather naturally. A small bronze plaque on the backrest of the bench is inscribed with "In Loving Memory Of Virginia Fronthingham Haydock."

Figure 3.34: Southwestern view of the wooden bench opposite the southern end of the civic garden (Pressley Associates, 2009).

Objects

Granite Pier in Boxwood Garden

A square granite pier is located along the path to greenhouse in one of the Boxwood planting beds. The pier is eighteen inches (18″) square and stands approximately three feet (3′) high. The pier is located at the point where the greenhouse walk transitions from concrete to a peastone path.

Figure 3.35: Southwestern view of the granite pier in the Boxwood garden (Pressley Associates, 2009).

Boot Scraper

A metal boot scraper is located in a planting bed at the southwest corner of the terrace.

Cold Frames

Two (2) cold frames are located along the greenhouse walk near the eastern perimeter fence. The cold frames are constructed of wood with sliding Plexiglas covers and sunken into the ground. The floors of the cold frames are covered with light-colored peastone. Each cold frame measures three feet by four feet (3′ x 4′).

Figure 3.36: Southern view of the cold frames from the eastern side of the greenhouse (Pressley Associates, 2009).

Lath House

A series of eight (8) raised nursery garden beds comprise the lath house that is located on the eastern side of the greenhouse. Together, the beds measure six feet by twelve feet six inches (6′ x 12′-6″) and are constructed of wood with a lattice shade cover. Presently the nursery beds hold young *Buxus* sp. (Boxwood).

Figure 3.37: Northwestern view of the lath house on the eastern side of the greenhouse (Pressley Associates, 2009).

Commemorative Boulder

A commemorative boulder is located on the northern side of the woodland garden path near the southeast corner of the property. A bronze plaque on the boulder is inscribed with, "In Memory Of Anne Davidson-Wood, A Founder Of This Garden."

Figure 3.38 Commemorative boulder along the woodland path near the southeast corner of the property (Pressley Associates, 2009).

Planters

Main Entrance

Two (2) twenty-four-inch (24″) cast stone (concrete) pots planted with *Pinus aristata* (Bristlecone Pine) are located on the granite cheek walls of the main entrance stairs to the RJD House portico. The planters are decorated with four decorative medallions and horizontal banding. They do not appear in historic photographs from the Rotch, Jones or Duff eras and are assumed to be contemporary with WHALE and Rotch-Jones-Duff House & Garden Museum stewardship.

Figure 3.39: Northeastern view of the front entrance steps showing a cast stone planters (Pressley Associates, 2009).

Visitor Entrance

Two (2) twenty-four-inch (24″) cast stone (concrete) pots planted with *Plumbago capensis* (Cape Leadwort) are located along the walk to the visitor entrance. These planters match the pots at the main entrance to the RJD House portico. They do not appear in historic photographs from the Rotch, Jones or Duff eras and are assumed to be contemporary with WHALE and Rotch-Jones-Duff House & Garden Museum stewardship.

Figure 3.40: Southwestern view of the visitor entrance to the RJD House showing a cast stone planters (Pressley Associates, 2009).

Signage

Main Entrance Sign

The main entrance sign to the RJD House is located in the semi-circular planting area framed by the main entrance drive. The sign is supported by two (2) posts painted white with gold-painted spherical finials. The green body of the sign is inscribed with "Rotch-Jones-Duff House & Garden Museum" in gold lettering. A gold band also defines the outer border of the sign. The sign is positioned above the planting below, perpendicular to County Street so it is visible to traffic on the street.

Figure 3.41: Northern view of the main entrance sign from the sidewalk along County Street (Pressley Associates, 2009).

Figure 3.42: Southern view of visitor entrance sign (Pressley Associates, 2009).

Visitor Entrance Signage

Small directional signs guide visitors from the two (2) visitor entrance to the "Visitor Entrance" and "Offices & Deliveries" for the RJD House. The signs are black and elliptical in shape with gold lettering and directional arrows in relief. A gold band defines the outer border of the signs. The signs are approximately one foot (1') wide, mounted on single posts at a variety of heights. Additionally, a small blue accessibility sign with an image of a wheelchair clearly identifies the universally accessible entrance to the property, located along Madison Street adjacent to the coachman's house.

Figure 3.43: Civic garden identification sign (Pressley Associates, 2009).

Garden Identification Signage

A series of elliptical signs throughout the gardens maintained by the Garden Club of Buzzards Bay identify the different garden areas: civic garden, Boxwood garden, and wildflower walk (now referred to as the woodland garden). The signs consist of a white sign with green lettering mounted at an angle on a single post, approximately two feet (2') high.

NHL Plaque

A small bronze plaque mounted on a finished piece of wood is located on the front of the RJD House identifying the house as a National Historic Landmark. The plaque is located immediately to the right of the front door and includes text in relief that indicates the at the "William Rotch, Jr. House" was designated a National Historic Landmark in 2005.

Figure 3.44: NHL plaque to the right of the main entrance to RJD House (Pressley Associates, 2009).

Archaeological Features

To date, no archaeology has been undertaken on the Rotch-Jones-Duff House property; however, the geophysical survey associated with this report (see Appendix B for complete report) located numerous (134) below-grade anomalies, some of which have been correlated with known historic features, others of which are of unknown origin and warrant further investigation. Know historic features located using geophysical survey methods include:

- Former woodland garden path alignment in the eastern half of the woodland garden (anomaly G1A27),
- Former fountain basin in the former water garden lawn (anomalies G1A61, G1A28),
- Former fountain basin on the stone terrace (anomalies G4A27, G4A29, G4A19),
- Former stair footings on the stone terrace (anomalies G4A15, G4A25 and G4A16, G4A26), and
- Several existing utility lines on the north side of the house and in the garden paths to the south and east of the house.

The geophysical survey also located several unknown anomalies of particular interest, including:

- Anomalies G4A2 and G4A10, located immediately to the east of the house on the stone terrace,
- Anomalies G1A9 and G1A16, located in the garden path and lawn to the south of the house, possibly associated with previous excavations,
- Anomaly G1A2, located near the garden settee at the western end of the garden path, and
- Anomaly G1A48, located under the Apple tree at the northwest corner of the parterre garden.

Existing Conditions

Rotch-Jones-Duff House & Garden Museum

New Bedford
Whaling National
Historical Park

New Bedford,
Massachusetts

MADISON STREET
SEVENTH STREET
COACHMAN'S HOUSE
PERIMETER FENCE GATE, ACCESSIBLE ENTRANCE
GRANITE STAIRS
GARAGE
PERIMETER FENCE GATE
MORTARED STONE WALL
APIARY
STONE WELL
PERIMETER FENCE GATE, PRIMARY VISITOR ENTRANCE
BLUESTONE WALKS
GRANITE STAIRS
GRANITE ENTRANCE PIERS
CONCRETE SIDEWALK WITH GRANITE CURB
IRON FENCE SET ON GRANITE BASE
"ROTCH–JONES–DUFF HOUSE & GARDEN MUSEUM" WOODEN SIGN
BITUMINOUS CONCRETE ENTRANCE DRIVE WITH CONCRETE APRON
IRON FENCE SET ON GRANITE BASE
LOW STONE PIERS AND GRANITE STAIRS
WOODEN PERIMETER FENCE
WOODEN GARDEN SETEE
ROTCH–JONES–DUFF HOUSE
FRONT PORTICO
EAST PORCH (COVERED)
SOUTH PORCH
WOODEN ARBOR
WOODEN LATTICE–WORK FENCE
GRANITE STAIRS
BLUESTONE TERRACE
GRANITE STAIRS
CAST IRON FENCE & STAIR HANDRAIL
GREENHOUSE
WOODEN COMPOST BOXES
LATH HOUSE
PERIMETER FENCE GATE
WOODEN COLD FRAMES
GRANITE PIER
METAL BOOT SCRAPER
GRANITE STAIRS
CONCRETE WALK BORDERED BY CONCRETE CURB
METAL EDGE
METAL GARDEN TRELLIS
BRICK EDGE, TYPICAL
TEAK GARDEN BENCH
WOOD RETAINING WALL
BRICK PATH
CRUSHED STONE GARDEN PATH
PERIMETER FENCE DOUBLE–HUNG GATE
CRUSHED STONE PATHS
METAL ROSE ARBORS
WOODEN GARDEN PERGOLA
CRUSHED STONE WOODLAND PATH
COMMEMORATIVE BOULDER
WOOD RETAINING WALL
WOODEN GARDEN SETEE
COUNTY STREET
JOLI GONSALVES MEMORIAL WAY
NORTH
15 0 30 60
SCALE IN FEET

TREE LEGEND

Ac. pl.	Acer platanoides
Ae. hi.	Aesculus hippocastanum
Am. gr.	Amelanchier x grandiflora
Ca. ov.	Carya ovata
Co. fl.	Cornus florida
Co. ko.	Cornus kousa
Fa. cu.	Fagus sylvatica 'Cuprea'
Fr. am.	Fraxinus americana
Il. op.	Ilex opaca
Ma. st.	Magnolia stellata 'Royal Star'
Ma. sp.	Malus sp.
Ox. ar.	Oxydendron arborea
Pi. ab.	Picea abies
Pi. ar.	Picea aristata
Pi. st.	Pinus strobus
Pr. pe.	Prunus pennsylvanica
Pr. ce.	Prunus cerasifera
Py. sp.	Pyrus sp.
Py. ca.	Pyrus calleryana 'Cleveland Select'
St. ja.	Styrax japonica
Ul. ru.	Ulmus rubra

NOTE: For a complete list of existing trees, shrubs and herbaceous plants, vines and groundcovers, please see Table 3.1: Existing Plant List in Chapter 3, which has been keyed to this plan.

SOURCES:
1. SURVEY PREPARED BY BRYANT ASSOCIATES, APRIL 7, 2010.
2. FIELD OBSERVATIONS COMPLETED BY PRESSLEY ASSOCIATES, OCTOBER 27, 2009 AND AUGUST 26, 2010.

DRAWN BY: CMB

CHECKED BY: LGM

DATE: SEPTEMBER 2010

Southeastern view of the reconstructed apiary, 2009 (Pressley Associates).

CHAPTER 4:

HISTORICAL ANALYSIS

Introduction

This chapter briefly summarizes the current historic designation and analyzes the integrity of the landscape at the Rotch-Jones-Duff House based on an examination of both the historic and existing conditions. The analysis of landscape integrity documents the degree to which the RJD House retains the essential qualities associated with the property during its period of significance. The national significance of the RJD House was recognized by the National Park Service when the property was designated a National Historic Landmark in 2005. This chapter also builds on the National Historic Landmark nomination by presenting a summary statement of landscape significance.

Current Historic Designation

The William Rotch Jr. House, otherwise known as the Rotch-Jones-Duff House, was designated a National Historic Landmark (NHL) on 5 April 2005. The Greek Revival style house was previously listed on the National Register of Historic Places. The NHL nomination recognizes the property's significance in the areas of architecture, economics, industry, and maritime history.

Figure 4.1: Northwestern view of the RJD House over the former water garden lawn. The civic garden is shown in the foreground (Pressley Associates, 2009).

Historic significance is the importance of a property to the history, architecture, archaeology, engineering, or culture of a community, State, or the nation.[1] Significance is determined by a process of identification and evaluation defined by the National Register Program. The period of significance for the William Rotch Jr. House indicated in the National Historic Landmark nomination is 1834-1880, with significant dates in 1834, 1851, and 1856. The period of significance relates to the property's association with William Rotch Jr. and Edward Jones, for their pivotal roles in the development of the whaling industry. Specific dates indicated in the NHL nomination relate to the completion of construction of the house (1834), the sale of the property from the heirs of William Rotch Jr. to Edward Jones (1851), and Jones's architectural modifications to the house (1856).

The property is nationally significant under the following National Register criteria:

> **Criterion A (Event).** A property that is associated with events that have made a significant contribution to the broad patterns of our history and
>
> **Criterion C (Design/Construction).** A property that has distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction.

The property is also significant under the following National Historic Landmark criteria:

> **Criterion 1.** A property that is associated with events that have made a significant contribution to, and are identified with, or that outstandingly represent, the broad national patterns of United States history and from which an understanding and appreciation of those patterns may be gained and
>
> **Criterion 4.** A property that embodies the distinguishing characteristics of an architectural type specimen exceptionally valuable for a study of a period, style or method of construction, or that represents a significant, distinctive and exceptional entity whose components may lack individual distinction.

In addition to its status as a National Historic Landmark, the Rotch-Jones Duff House is also located within the County Street Historic District, listed on the National Register in 1976, composed of nineteenth century residential neighborhood characterized by high-style residences. The district is roughly bounded by Acushnet Street, Page Street, Middle Street, and Bedford Street (both sides).

Secondary Period of Significance

The NHL nomination focused primarily on the significance of the architecture and the important role of the inhabitants in New Bedford's whaling industry. It is possible that the grounds have continued significance as a rare extant example of an intact whaling estate, through the entire Jones family ownership, ending with the death of Amelia Jones in 1935. During the Jones family ownership, the landscape was developed as a small country estate with gardens features that complimented the architecture, much of which remains today. A potential secondary period of significance could therefore be defined for the later Jones family residency with the stewardship of Mary (d. 1917) and Amelia (d. 1935) Jones. For the purpose of this CLR, the landscape is considered significant through 1935.

Analysis of Landscape Integrity

Integrity is the ability of a property to convey its historic identity, or the extent to which it evokes its appearance during a particular historic period, usually the period of significance. While the evaluation of integrity is often a subjective judgment, particularly for a landscape, it must be grounded in an understanding of a property's physical features and how they relate to significance.

The National Register of Historic Places identifies seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. Retention of these qualities is essential for a property to convey its significance, though all of the seven qualities need not be present to convey a sense of past time and place.

- **Location** is the place where the historic property was constructed, or the historic event occurred.
- **Design** is the combination of elements that create the form, plan, space, structure, and style of a property.
- **Setting** is the physical environment of a historic property.
- **Materials** are the physical elements of a particular period, which includes plant materials, paving, and other landscape features.
- **Workmanship** includes the physical evidence of the crafts of a particular period.
- **Feeling** is a property's expression of the aesthetic or historic sensibilities of a particular period.
- **Association** is the direct link between an important historic event or person and an historic property.

Table 4.1: Summary of RJD House's Landscape Integrity

Aspects of Integrity	Period of Significance: 1834-1880 Secondary Period of Significance: 1950-1935
Location	Retains location.
Design	Retains most elements of the original design as evidenced from the Jones era; loss of some plant materials and minor alterations to garden layout diminish the landscape design integrity.
Setting	Retains setting.
Materials	Retains most landscape materials; loss of some plant materials and small-scale features diminish landscape materials.
Workmanship	Retains workmanship.
Feeling	Retains most feeling; all parts of the landscape are easily recognizable from their appearance during the Jones era, but changes in vegetation diminish views in some areas.
Association	Retains association.

Character-defining Features

This analysis of integrity evaluates existing character-defining features (described in Chapter 3) in comparison with the appearance of the property during the period of significance (1834-1880) based on historic documents and photographs. Extant features that existed during the period of significance and which contribute to the character of the property and its importance are considered contributing features. This includes contributing resources (individually significant buildings, sites, and structures) identified in the National Historic Landmark nomination, as well as smaller scale features that are integral to the historic character of the Rotch-Jones-Duff property. Contributing resources identified on the NHL nomination include two buildings (William Rotch Jr. house & coachman's house/garage), one site (garden & landscape features), and one structure (pergola). The only non-contributing resource identified on the NHL nomination is the greenhouse (structure).

Spatial Organization & Views

The spatial organization of the County Street landscape is largely defined by circulation patterns, with individual landscape spaces bounded by walks and paths. With the exception of the woodland path, these circulation patterns are geometric and bear a strong relationship to the architecture of the house, either extending from the house into the landscape or running parallel to the façade. All landscape spaces

historically associated with the property remain, although some have been altered, with missing features.

Important views remain intact as well, including views of the gardens on the southern side of the property from the south and east porches. At garden level, important views are structured along the property's main circulation routes, framed by garden structures, including the pergola and arbors. The removal of evergreen trees to the west (front) of house during the Duff era opened views to and from the house front and County Street.

Figure 4.2: Western view along the east/west axial path from under the circular pergola showing the parterre garden at right (Pressley Associates, 2009).

Views into the landscape from within the house are not highly structured. From the main level of the house, views of the garden are possible. Views from the upper level of the house are primarily of the property's larger trees and of the city beyond.

List of Contributing Landscape Spaces

- Front entrance
- Parterre garden
- Western embankment
- Woodland garden
- Water garden lawn
- Terrace
- Terrace planting beds
- North lawn

Topography

Little information exists regarding the exact topography of the Rotch-Jones-Duff House site during the period of significance. Historic photographs reveal similar conditions to what exists today with the first floor of the main house close to grade along the north and west sides of the house. Along the south and east sides of the house, the grade is lower, with the basement level exposed. (The addition of the south porch prior to 1905 concealed the basement elevation along the south side of the house).

The most distinctive topographic features of the property are the western embankment, which comprises the slope along the south side of the house, the embankment on the northern side of the stone terrace, and terracing in the north lawn. These topographic features remain intact. Historic photographs show little to no change in topography on the site from the 1870s to present.

List of Contributing Topographic Features

- Western embankment
- Embankment on the northern side of stone terrace
- Terracing on the north lawn

Figure 4.3: Northeastern view across the north lawn (Pressley Associates, 2009).

Vegetation

Changes to vegetation over time are a common characteristic of all historic landscapes, caused both by deliberate action and by the natural process of plant growth, death, and regeneration. The Rotch-Jones-Duff house landscape has experienced all of these characteristic changes, including maturation of vegetation throughout the property and the loss of some specimen plants. Many trees and shrubs are substantially larger than they appear in historic photographs, but this does not alter the original design intent of the planting. The character and species composition of the vegetation varies greatly between the landscape character areas on the site, with the greatest botanical diversity in the parterre garden and woodland garden.

Changes to vegetation on the site since the period of significance include the loss of vegetation in the former water garden lawn area, which consisted of scattered trees and a perennial border along the perimeter of the landscape space dating to the Jones era of ownership. The Boxwood display garden was added to the property by the Garden Club of Buzzards Bay to support their work in propagation of Boxwood species. The civic garden was also added by the Garden Club of Buzzards Bay in the mid-1980s. New plants have been added to the parterre garden as well, including many new varieties of *Rosa* sp. (Rose). In the terrace planting beds, new vegetation includes *Arctostaphylos uva-ursi* (Common Bearberry), *Calluna* sp. (Heather), *Chaemaecyparis* sp. (False Cypress), and *Erica* sp. (Heath).

Figure 4.4: Northeastern view across the parterre garden showing the peastone paths bordered by Buxus sempervirens (Common Boxwood) (Pressley Associates, 2009).

While the woodland garden retains a high level of integrity related to historic trees, some new vegetation has also been added, including *Clethra alnifolia* 'Hummingbird' (Dwarf Clethra), *Ilex glabra* (Inkberry), *Magnolia stellata* 'Royal Star' (Royal Star Magnolia), *Oxydendrum arboretum* (Sourwood), and *Pinus strobus* (White Pine), as well as numerous herbaceous plants.

List of Contributing Gardens & Vegetation Features

- Parterre garden
- Western embankment
- Woodland garden, altered
- *Acer platanoides* (Norway Maple) at the western end of the woodland garden
- *Aesculus parviflora* (Bottlebrush Buckeye) at the western end of the parterre garden
- *Buxus sempervirens* (Common Boxwood) hedge of the parterre garden
- *Cornus florida* (Flowering Dogwood) in the woodland garden and north lawn
- *Euonyomous alata* (Burning Bush) at the southeast corner of the property
- *Fagus sylvatica ' Cuprea'* (Copper Beech) at the northwest corner of the property
- *Ilex opaca* (American Holly) in the woodland garden
- *Kalmia latifolia* (Mountain-laurel) in the woodland garden
- *Picea* sp. (Spruce) at the southeast corner of the property
- *Rhododendron* sp. (Rhododendron) in the woodland garden
- *Rosa* sp. (Rose) in the parterre garden
- *Styrax japonica* (Japanese Snowbell) in the woodland garden

Buildings & Structures

Both the William Rotch Jr. house and the coachman's house/garage remain extant from the period of significance and are in excellent condition. Restoration of the William Rotch Jr. house was initiated by WHALE in the 1980s, with ongoing maintenance and restoration by the Rotch-Jones-Duff House & Garden Museum. The circular garden pergola was rehabilitated by WHALE in 1984 and is considered a contributing resource.

Figure 4.5: Southwestern view across the civic garden showing the small metal trellis in the center of the garden (Pressley Associates, 2009).

The greenhouse was substantially renovated by the Garden Club of Buzzards Bay in the 1980s, and for this reason was not considered a contributing resource on the National Historic Landmark nomination. The apiary, which was reconstructed from historic photographs by the Rotch-Jones-Duff House & Garden Museum in the 1990s, is in excellent condition; however, because it is a reconstructed feature that was relocated from its historic location near the southeast corner of the civic garden, it is not considered a contributing resource.

List of Contributing Buildings & Structures

- William Rotch Jr. house
- Coachman's house/garage
- Circular garden pergola

Circulation Features

Vehicular and pedestrian circulation features evident in historic photographs remain extant today, with the exception of a wooden staircase leading from the southeast corner of the house to the terrace below, which was removed by the Duff family and the alignment of the woodland garden path. The center of the stone terrace was patched in the center when the pool was removed from the terrace in the 1980s by WHALE.

Figure 4.6: Eastern view of the civic garden from the porch at the southeast corner of the RJD House. The water garden lawn is shown in the foreground (Pressley Associates, 2009).

New bluestone walks were added along the northern side of the house by the Rotch-Jones-Duff House & Garden Museum to facilitate access to the visitor entrance when the property transitioned from a private residence to a museum property. The brick walks in the civic garden do not appear in historic photographs of the property. They were added by the Garden Club of Buzzards Bay in the 1980s. Historical evidence regarding the alignment of the woodland garden path is scarce; however, the preliminary findings of the geophysical survey suggest that the path ran in a straight line parallel to the perimeter fence.

List of Contributing Pedestrian & Vehicular Circulation Features

- Entrance drive
- Visitor entrance walks
- Stone terrace
- Greenhouse walks
- Axial garden paths
- Parterre garden paths
- Granite stairs from parterre garden to main entrance
- Granite stairs in north lawn

Furnishings & Small-scale Features

Many of the garden furnishings and small-scale features associated with the property remain from the period of significance. The perimeter fence is noteworthy as one of very few extant original solid fences surrounding residential properties in New Bedford. The other contributing fences within the property, including the iron fence at the main entrance and the terrace fences, are noteworthy as they remain from the period of significance. Within the gardens, the metal Rose arbors along the east/west axial path remain from the period of significance, although the wooden garden settees were reconstructed by WHALE in the 1980s.

Figure 4.7: Northern view of the perimeter fence along Madison Street (Pressley Associates, 2009).

Other minor changes include the loss of the birdbath and sundial at the western end of the woodland garden lawn, loss of the arbor at the center entrance to the parterre garden, loss of *Wisteria* sp. (Wisteria)-covered post in the water garden area, loss of the cold frames to the south of the greenhouse, and the loss of granite posts with rope or cable present along the main entrance drive, all present during the Jones era. The fence that separated the south side of the greenhouse area from the other garden areas was also removed during the Duff family era or during the WHALE's ownership of the property.

List of Contributing Furnishings & Small-scale Features

- Well
- Perimeter fence & gates
- Iron fence at main entrance
- Terrace fences
- Fieldstone wall along the southern side of the terrace
- Rose arbors along east/west path
- Arbor at visitor entrance walk
- Granite pier in Boxwood display garden
- Boot scraper in terrace planting beds

Summary Statement of Landscape Significance

The William Rotch Jr. House was designated a National Historic Landmark (NHL) on April 5, 2005 for its association with the economic and industrial development of the American whaling industry in New Bedford (under NHL Criterion 1) and as a significant example of Greek Revival architecture, recognized as the first house built to a design by architect Richard Upjohn (under NHL Criterion 4). The NHL nomination for the Rotch-Jones-Duff house recognizes the significance of the property as it relates to NHL Theme III. Expressing Cultural Values (architecture, landscape architecture and urban design) and Theme V. Developing the American Economy (extraction and production).

The Rotch-Jones-Duff house and garden is one of the few surviving examples of nineteenth century landscaped estates encompassing a full city block in New Bedford. The Greek Revival house was sited in the northwest corner of the lot, likely to maximize the portion of the property with an ideal southern exposure for use as gardens. Although the exact appearance of the landscape during Rotch's ownership is not known, his interest in natural history, as evidenced by his membership in the New Bedford Natural History Society, and his involvement with the New Bedford Horticultural Society from its founding in 1847 until his death in 1850, demonstrate his interest in the natural world. The specimens he showed at the public exhibitions of the Horticultural Society provided evidence of the plants he grew at his County Street home.[2] With his Irish gardener, William M. Howard, Rotch's submissions demonstrated a particular interest in the cultivation of Roses and Dahlias.

Private horticulture, floriculture, and arboriculture were fashionable hobbies enjoyed by New Bedford's leading citizens, Rotch among them. Henry H. Crapo, incorporator of the New Bedford Horticultural Society and owner of Wasemequia Nursery, wrote in his autobiography, "New Bedford afforded at that time an excellent place for horticultural exploitation. There were many men, captains and merchants, who having amassed comfortable fortunes, had retired from active business at an early age and found their leisure burdensome."[3] The Horticultural Society fostered an exchange of popular ideas and techniques, and provided a social outlet for New Bedford's leading citizens. In this way, the Rotch garden serves as a tangible vestige of the social and cultural spirit of the time.

In New Bedford, the focus of the garden was undoubtedly on plants. As Edward T. Pierce Jr. wrote in a paper for the Garden Club of Buzzards Bay, "water, as an element in garden design, was pretty much ignored at New Bedford. Fish-ponds and fountains may very well have seemed anti-climactic in these gardens which were won on blue water in the chase of the spouting whale. The Baroque had been devoured, but not assimilated; else the architectural wonders of the whale himself, so impressive in *Moby Dick*, could never have escaped the arbor-builders."[4] The families that owned the County Street property embraced the popular styles in American landscape design and trends specific to New Bedford. Thus, the

County Street landscape reflects the distinctive characteristics of the period during which it was constructed.

In 1850, just as Herman Melville was writing in *Moby Dick* of the "brave houses and flowery gardens" of New Bedford, the Joneses took residency in the County Street home. Photographs from early in the Jones family ownership (circa 1870) show a gardenesque approach to the landscape, with island display beds planted with specimen vegetation. (It should also be noted that around this time the Boston Public Garden was kept in the gardenesque style.) Edward Jones added a grapery and garden ornaments, including a circular pergola and garden settees, typified by the Victorian era. Out-of-doors living was encouraged by the addition of the wide south porch to the house prior to 1905. Photographs of planting during the Jones era show Boxwood hedges bordering nearly all garden planting beds.

When the property was sold to Mark Duff and his wife Beatrice in 1935, the Duff's hired architect Marshall B. Martin to make minor improvements to the house and landscape architect Mrs. John Coolidge to suggest improvements to their gardens, in which Mark Duff took a great interest. A pool with fountain was added to the center of a new stone terrace and a second pool with a perennial border was added to the center of what is now known as the water garden lawn. Both the parterre garden and greenhouse were retained from previous periods of ownership. Mark Duff took pride in his gardens. His wife even suggested that his decision to purchase the house could be attributed to the gardens.[5] In this way, the Rotch-Jones-Duff house is also distinguished for its continuity of ownership that resulted in a landscape that coherently exhibits a historical continuum. Over a period of approximately one hundred forty-seven years, the property was occupied by only three families, who kept it remarkably intact since its initial construction. Subsequent owners of the property, WHALE and the Rotch-Jones-Duff House & Garden Museum, both preservation-minded organizations, have maintained this continuum by preserving and restoring the house and gardens without stripping the property of additions and modifications following Rotch family occupancy. Since the property ceased to function as a private residence, compatible uses of the property have helped to maintain its high degree of integrity.

The overall significance of the property and landscape lie in the integrity of the suburban estate as a unit, with remarkably intact architectural and landscape design, which reflects changing concepts of what was considered beautiful in American design. As Edward T. Pierce Jr. wrote in a paper for the Garden Club of Buzzards Bay, "New Bedford's rise was microcosmic. The Golden Age, its period of mansion and garden building, was an interlude, a single victory in the conquest. It had the flush of success, the shortness of a triumph. It was a manly pouring out of pent-up feelings; relief from yesterday's hardship, pride in the exploit of today and…happy indifference to the morrow…"[6] The Rotch-Jones-Duff house and garden remain as vestiges of cultural and artistic developments that paralleled the rise of New Bedford and its stars, William Rotch Jr. and Edward Jones among them, to the international stage. As Herman Melville wrote in *Moby Dick* (1851), "…nowhere in all

America will you find more patrician-like houses; parks and gardens more opulent, than in New Bedford…all these brave houses and flowery gardens."[7] The Rotch-Jones-Duff House & Garden Museum remains as a rare surviving example of such a home and garden. While some of the original patrician houses remain, particular in the County Street Historic District, few convey the interrelationship of architecture, landscape and interior found in the RJD House.

Figure 4.8: The Arnold mansion, then the residence of William J. Rotch on County Street at the corner of Union Street in 1881 "Atlas of the City of New Bedford, Massachusetts," published by Geo. H. Walker & Company (New Bedford Free Public Library Special Collections).

Figure 4.9: Residence and Grounds of Mrs. William Gifford on South Country Street in 1881 "Atlas of the City of New Bedford, Massachusetts," published by Geo. H. Walker & Company (New Bedford Free Public Library Special Collections).

Endnotes

[1] U.S. Department of Interior, National Park Service. *National Register Bulletin: How to Complete the National Register Registration Form*, 1997, p. 3.

[2] Flowers included Aster, Dahlia, Gladiola, Hibiscus, Lily, Marigold, Phlox, Rose, Verbena, Veronica, and Yucca. Fruits and vegetables included Apple, Beet, Carrot, Cherry, Grape, Pear, Plum, and Pumpkin.

[3] Henry Howland Crapo. *The Story of Henry Howland Crapo, 1804-1869*. Boston, MA: Thomas Todd Company, 1933, p. 104.

[4] Edward T. Pierce Jr. "Gardens Harpooned" in Alice G.B. Lockwood, ed. *Gardens of Colony and State: Gardens and Gardeners of the American Colonies of the Republic before 1840*, 2nd ed. Smallwood & Stewart for The Garden Club of America, 2000, p. 110.

[5] "Visit by Mrs. Mark Duff to 396 County Street, June 9, 1982," Duff family file, RJD. From Janice Hodson, Historic Furnishings Researcher, Historic New England for the Northeast Museum Services Center, National Park Service. "Historic Furnishings Report: Rotch-Jones-Duff House, Volume 1: Historical Data with Implementation Options," February 2005, p. 110.

[6] Pierce. "Gardens Harpooned," p. 110.

[7] Herman Melville. *Moby Dick: or, The Whale*. New York, NY: Harper and Brothers. 1851, p. 42.

Northern view of the entrance to the greenhouse, 2009 (Pressley Associates).

CHAPTER 5:

SOURCES

Repositories

Arnold Arboretum Library; Boston, MA

Research in the special collections of the Arnold Arboretum Library was completed on 16 December 2009 with the assistance of Lisa Pearson, Librarian.

James Arnold Family Papers

The Arnold Family Papers included information about the establishment of the Arnold Arboretum, newspaper clippings related to Arnold and his County Street home, James Arnold's Last Will and Testament, funeral sermons for James and Sarah Arnold, a copy of *Old Dartmouth Historical Sketches* (June 1924) including an article about the Arnold mansion on County Street, and a copy of *Brave Houses*

and Flowery Gardens of Old New Bedford (1976), which features both the Arnold and the Rotch houses. The James Arnold Family Papers also contains a folder of information related to Henry Howland Crapo, co-founder of the New Bedford Horticultural Society with Arnold and Joseph Clarke.

E.H. Wilson Papers

The E.H. Wilson Papers were consulted for any reference to correspondence between Wilson and the Jones family, by whom it is reported he was hired to find exotic plants for their gardens; however, no documentation of this was located in the Arnold Arboretum collections.

Boston Public Library, Norman B. Leventhal Map Center; Boston, MA

Research at the Boston Public Library was completed on 23 August 2010 with the assistance of Angela Bonds.

The Leventhal Map Center collection contains several important maps of New Bedford, including:

- "Map of Bristol County, Massachusetts by Walling, Henry Francis Walling." C. & A. Taber, 1852.
- "View of the City of New Bedford, Mass." O.H. Bailey & Co., 1876.
- "Atlas of Bristol Co., Massachusetts: From Actual Surveys / by and under the Direction of F.W. Beers; assisted by Geo. P. Sanford and others; Chas. Hart, lithographer." New York, NY: F.W. Beers & Co., 1871.
- "Atlas of New Bedford City, Massachusetts Compiled from Recent Actual Surveys and Records under the Direction of the Publishers." Boston, MA: Geo. H. Walker & Co., 1881.
- "Atlas of the City of New Bedford, Massachusetts: Based on Plans in the Office of the City Engineer." Boston, MA: Walker Lith. & Pub. Co., c. 1911.
- "Lord's Indexed Street Atlas of Bristol County, Massachusetts." Newton, MA: H.D. Lord, 1944.

Garden Club of Buzzards Bay Archives; New Bedford Whaling Museum Library, New Bedford, MA

Research in this collection was completed on 26 August 2010 with the assistance of Judi Sterns, Archives Chairlady for the Garden Club of Buzzards Bay.

The archives contain a wide variety of materials ranging from minutes, scrapbooks, photographs, reports, newsletters, pamphlets, awards, fundraisers, trips, plant sales, special projects, grants, membership related to the history of the Society from 1930 to present. A finding aid for this extensive collection was developed by the Garden Club Archives and History Committee in January 2009.

Harvard College Library, Harvard Map Collection; Cambridge, MA

Research in the Harvard Map Collection was completed online through the digital archive. This collection includes:

- 1834. Map of New Bedford surveyed and drawn by J. Congdon.
- 1850. Plan of the city of New Bedford, Massachusetts: from original surveys by J.C. Sidney, c.e.
- 1858. Map of Bristol County, Massachusetts.
- 1871. Map of City of New Bedford by Henry Francis Walling.
- 1875. Map of the city of New Bedford: Bristol County, Mass by Wheeler & Coggeshall.
- 1890. Massachusetts, New Bedford sheet by U.S. Geological Survey, Henry Gannett, Chief Geographer.

Massachusetts Historical Society; Boston, MA

Research at the Massachusetts Historical Society was completed on 8 January 2010.

Rotch Family Papers Ms. N-812

The Rotch Family Papers contains 21 boxes, 8 volumes, 3 extra tall volumes, 1 narrow box, and 2 oversize boxes of material, including correspondence, primarily business-related, as well as photographs of the Rotches, primarily portraits and a travel album. The collection also includes John Bullard's research notes from his 1947 book, *The Rotches*.

New Bedford Free Public Library, Special Collections; New Bedford, MA

Research in the New Bedford Horticultural Society Records was completed on 24 November 2009 with the assistance of Janice Hodson, Curator of Art. Research in the New Bedford Newspaper Database and map Collection was completed on August 24, 2010 with the assistance of Paul Cyr, Head of Special Collections.

New Bedford Horticultural Society Records

The New Bedford Horticultural Society Records consists of 3 boxes, including the charter of the Society, records of annual exhibitions, reports of Society committees, records of membership and annual dues, plant catalogues from local nurseries, newspaper clippings related to annual exhibitions, and miscellaneous material, including printed material from the Martha's Vineyard Agricultural Society, Bristol County Agricultural Society, and the Poultry Association, as well as early photographs of the Congdon and Howland families.

New Bedford Newspaper Database

The New Bedford Newspaper Database contains a searchable index of the *New-Bedford Mercury*, *Daily Mercury*, *Medley*, *Courier*, and *Republican Standard* from November 1792 to January 1874. Development of the database is ongoing by Paul Cyr. Copies of all newspapers references in the database are available at the New Bedford Free Public Library on microfilm.

New Bedford Map Collection

The New Bedford Map Collection contains a small, but important group of maps of New Bedford, including a reconstructed map of early New Bedford and maps from 1850, 1871, 1881, 1895, 1911, as well as Sandborn Fire Insurance maps.

New Bedford Whaling Museum Library, Old Dartmouth Historical Society Collection; New Bedford, MA

The collections of the Old Dartmouth Historical Society are held in the New Bedford Whaling Museum Library. Research in this collection was completed on 24 November 2009 with the assistance of Laura C. Pereira, Librarian.

Rotch Family Papers, Collection Mss 2

The Rotch Family Papers consists of 9 linear feet of material related primarily to the business records and secondarily to the personal papers of the family, 1764 to 1947. An inventory of this collection was developed by the Whaling Museum.

Jones Family Papers, Collection Mss 72

The Jones Family Papers consists of 3 linear feet of material related to the business records and personal papers of the family, circa 1811 to 1960. The Jones family papers include three (3) architectural plans of the County Street house, dating to 1851 and 1856, and a site plan of Sol-e-Mar, dating to circa 1845. An inventory of this collection was completed in 1983, revised in 1989.

Rotch-Jones-Duff House Archives; New Bedford, MA

Research at this collection has been ongoing by museum staff, with periodic research visits by Pressley Associates.

The Rotch-Jones-Duff House Archives, located in the lower level of the Rotch-Jones-Duff House, contains and extensive collection of reports, historic photographs, and correspondence all related to the history of the house and contemporary management of the museum.

Smithsonian Institution, Archives of American Gardens; Washington, D.C.

The collections of the Archives of American Gardens are available for online research at <http://sirismm.si.edu/siris/aagtop.htm>.

Garden Club of America Collection, Rotch-Jones-Duff House and Garden Museum 1990-1998

The Garden Club of America Collection, Rotch-Jones-Duff House and Garden Museum 1990-1998 consists of 1 folder of mixed archival material related to The Rotch-Jones-Duff House & Garden Museum, 1990-1998, as well as 13 slides by Margaret Megowen, 1990, including 11 slides of the garden, 1 slide of the cover of Charles Baker, Chairman. "The Garden Committee Handbook and Background Information", and 1 slide of the Rotch-Jones-Duff House and Garden Museum site plan. The Garden Club of America Collection also contains 1 hand-colored glass lantern slide of the parterre garden, misidentified as the Arnold Garden.

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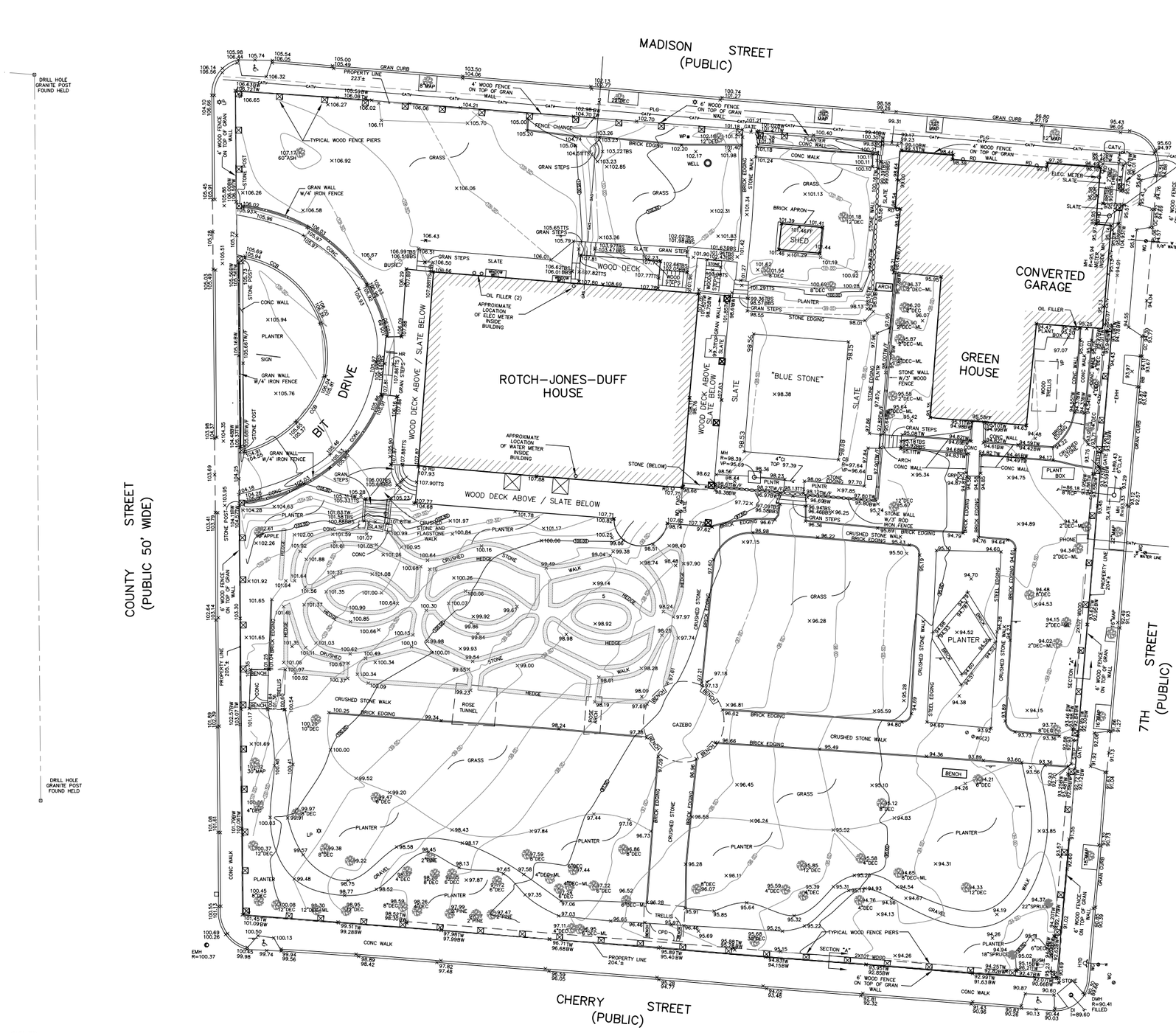
Southeastern view across the parterre garden, 2009 (Pressley Associates).

APPENDIX A:

BOUNDRY AND TOPOGRAPHIC (SITE) SURVEY

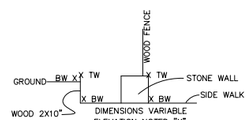


LEGEND

———	EXISTING CONTOUR
———	EXISTING INDEX CONTOUR
X 100.00	SPOT GRADE
——D———	SURFACE DRAIN
——E———	ELECTRIC
——T———	TELEPHONE
——W———	WATER MAIN
——PLG———	PAINT LINE GAS
——PLE———	PAINTED LINE ELECTRIC
	WOOD FENCE (WD FNC)
	IRON FENCE
	STONE WALL

□	CB	CATCH BASIN
⊕	DMH	DRAIN MANHOLE
▮	EHH	ELECTRIC HAND HOLE
Ⓔ	EMH	ELECTRIC MANHOLE
⊕	UG	UNKNOWN GATE
☼	LP	LIGHT POLE
⊗	MH	MANHOLE
•	POST	POST
•	POST	POST
—	SIGN	SIGN
⊙	SMH	SEWER MANHOLE
○	OIL	OIL FILLER
Ⓣ	TMH	TELEPHONE MANHOLE
		DECIDUOUS
		CONIFEROUS
⊘	WG	WATER GATE
⊠	WPST	WOOD POST

SECTION "A"



ABBREVIATIONS

BB	BITUMINOUS BERM
BBS	BOTTOM BOTTOM STEP
BIT	BITUMINOUS CONCRETE
BW	BOTTOM WALL
CONC	CONCRETE
CI	CAST IRON
FF	FINISHED FLOOR ELEVATION
FD	FLOOR DRAIN
FP	FLAG POLE
GC	GRANITE CURB
GRAN	GRANITE
HR	HAND RAIL
I	INVERT
NPV	NO PIPES VISIBLE
PA	PLANTER AREA
PVC	POLYVINYL CHLORIDE
R	RIM
RD	ROOF DRAIN
REC	RECORD
RCP	REINFORCED CONCRETE PIPE
S	SUMP
TBS	TOP BOTTOM STEP
TTS	TOP TOP STEP
TW	TOP WALL
TW/F	TOP WALL FLUSH
VP	VERTICAL PIPE

NOTES:

1) THE SURFACE EVIDENCE OF THE UTILITIES SHOWN HEREON HAVE BEEN LOCATED BY FIELD SURVEY. THE LINEWORK REPRESENTING UNDERGROUND STRUCTURES AND PIPES HAVE BEEN SHOWN IN THEIR APPROXIMATE LOCATION BASED ON AVAILABLE RECORD PLANS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. (THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE SUBSURFACE UTILITIES).

2) NO UTILITY RECORDS WERE PROVIDED OR FOUND ON SITE. A SUBSURFACE INVESTIGATION IS BEING PERFORMED BY HAGER GEOSCIENCE. INFORMATION FROM THAT INVESTIGATION HAS NOT BEEN SHOWN HEREON.

3) NO PLAN LAYOUT FOR MADISON, 7TH AND CHERRY STREET FOUND.

4) OIL FILLERS FOUND ON SITE, LOCATION OF SUB SURFACE OIL TANKS (IF EXISTING) WERE NOT DETERMINED AS A PART OF THIS SURVEY.

REFERENCES:

- DEED BOOK 1917 PAGE 543.
- PLAN BOOK 119 PAGE 142.
- NSTAR GAS PLAN OF AREA.
- COMCAST PLAN OF AREA.
- TOWN PLAN OF WATER AND SEWER.

EXISTING CONDITIONS PLAN OF LAND
AT
ROTCH-JONES-DUFF HOUSE & GARDEN MUSEAM
IN
NEW BEDFORD, MASSACHUSETTS
PREPARED FOR
PRESSLEY ASSOCIATES
APRIL 1, 2010
BY

BRYANT ASSOCIATES, INC.
98 NORTH WASHINGTON STREET, SUITE B-1 BOSTON, MA 02114
TEL. 617-248-0300, FAX 617-248-0212
WWW.BRYANT-ENGRS.COM

0 5 10 20 40
1" = 10 FT

SURVEY DATE: 11-11-09
CHECKED BY: GJH
DRAWN BY: RRD
APPROVED BY: GJH

SHEET 1 OF 1

SIGNED: _____ DATE _____
GARY JOHN HAMILTON, P.L.S.
FOR: BRYANT ASSOCIATES, INC.

H:\p\09059-Rotch Jones House\survey\taskno100\dwg\09059T01.dwg 4/1/2010 9:00:31 AM EDT

Western view across the water garden lawn, 2009 (Pressley Associates).

APPENDIX B:

GEOPHYSICAL SURVEY REPORT

FINAL REPORT
GEOPHYSICAL SURVEY FOR
ARCHAEOLOGICAL INVESTIGATION
ROTCH-JONES-DUFF HOUSE
396 COUNTY STREET
NEW BEDFORD, MASSACHUSETTS

Prepared for:

Rotch-Jones-Duff House & Garden Museum
and the National Park Service
New Bedford Whaling National Historical Park

Prepared by:

Hager GeoScience, Inc.
596 Main Street
Woburn, MA 01801

File 2009099
September 2010

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APPENDIX B: Geophysical Anomaly Profiles

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EXECUTIVE SUMMARY

In November of 2009, Hager GeoScience, Inc. (HGI) was contracted by Pressley Associates (Pressley) to perform a geophysical investigation to characterize the subsurface in support of a cultural landscape report for the Rotch-Jones-Duff House.

The geophysical survey was conducted in all accessible areas of the Rotch-Jones-Duff House property, located at 396 County Street, New Bedford, Massachusetts. The purpose of the survey was to conduct a site-wide characterization, with specific goals of locating former buried foundations, garden beds, gravel paths, pit features, and large buried objects.

The survey was conducted with three different geophysical methods: ground penetrating radar (GPR), electromagnetics (EM), and magnetics (MAG). The survey area was divided into 6 separate grids and one area of individual lines. GPR data were collected along orthogonal traverses spaced no more than 2 feet apart and EM and MAG data along unidirectional traverses no more than 2 feet apart.

All data were displayed on the individual systems' monitors for immediate visual inspection and quality control and simultaneously recorded for later processing and interpretation. Data were downloaded in the office where they underwent necessary processing steps.

A total of 134 targets were identified from the three geophysical methods: 98 targets from GPR, 23 from EM, and 13 from MAG. Anomalies identified with lower confidence levels are shown using dashed lines. Additional plates were made to display horizontal depth slices through GPR 3D blocks of data at 1, 3, and 5 feet below the ground surface for both the north-south and east-west traverses. The results for all three methods were also shown in combined form.

GPR proved the most useful of the three methods used for the geophysical investigation. GPR anomalies accounted for 73% of the total anomalies located, EM for 17%, and MAG for only 10%. Part of this difference is due to surface interference. Unlike GPR, both EM and MAG are affected by proximity to surface metal, with MAG being the more sensitive of the two methods. The GPR used for this survey is shielded, so surface features, even those directly adjacent to the antenna, produce minimal if any effects. The significantly lower number of MAG anomalies may also be related to the nature of the anomalies detected by GPR. These are likely features without sufficient ferrous material for detection, either naturally in the soil or in manmade sources such as steel, brick, or burned soils. The lower number of EM anomalies may similarly indicate that changes in the soil conductivity across the site are not significant, and that there are few concentrations of manmade conductive materials.

HGI recommends ground truthing of a sample of the anomalies with unknown origins. Anomalies G1A9 or G1A16 are good examples of possible former excavations that may be related to unknown historical features. HGI also recommends ground truthing the areas around

G4A9 and G4A10 because of their proximity to the house and their confirmation by multiple geophysical methods.

The major challenge to locating potential historical features at this site was a lack of data or inconsistent coverage caused by plants and other surface features. HGI recommends that additional GPR data be collected over areas to be cleared, in order to fill in areas of poor data density or total lack of data.

1.0 INTRODUCTION

In November of 2009, Hager GeoScience, Inc. (HGI) was contracted by Pressley Associates (Pressley) to perform a geophysical investigation to characterize the subsurface in support of a cultural landscape report for the Rotch-Jones-Duff (RJD) House. This report will describe the geophysical survey methods, data reduction, data interpretation, results, and recommendations.

The geophysical survey was conducted in all accessible areas of the RJD House property, located at 396 County Street, New Bedford, Massachusetts. The purpose of the survey was to conduct a site-wide characterization, with specific goals of locating former buried foundations, garden beds, gravel paths, pit features, and large buried objects.

The survey was conducted with three different geophysical methods: ground penetrating radar (GPR), electromagnetics (EM), and magnetics (MAG). GPR is an active method that uses an antenna to transmit a radar pulse into the subsurface, where changes in the dielectric constant of the materials reflect the signal back to the antenna. GPR is sensitive to changes in the subsurface conductivity. EM is also an active method that uses a transmitter coil to introduce alternating electric and magnetic fields that interact with the subsurface. The secondary fields created by this interaction are read by a receiver coil and can be used to map changes in apparent ground conductivity. MAG is a passive method that measures the strength of the earth's magnetic field. For this survey, a unit with two sensors (gradiometer) was used to measure the gradient of the local magnetic field. A MAG unit is sensitive to iron, steel, brick, burned soils, and other ferrous materials.

The challenge of the geophysical survey was to map the subsurface using these methods and identify potential areas of archaeological significance. A key component to identifying archaeologically significant features is their geometry. In addition to the geophysical data, HGI used historical photographs and a site plan (Figure 1, Appendix C) provided by Pressley to ascertain the size, shape, and approximate locations of historical features.

2.0 METHODS AND PROCEDURES

Geophysical data were collected across the entire site where unobstructed space was available. The survey area was divided into 6 separate grids and one area of individual lines. Plates 1A-1C

show the grids for the GPR, EM, and MAG traverses, respectively. The plates were created in AutoCAD 2000 and overlaid on a base map provided by Bryant Associates, Inc. (Bryant). Grid 1 covered the southern half of the property, with the exception of the parterre garden; Grid 2 was located in the northwest part of the property near the beech tree; Grid 3 was located in the northeast area adjacent to and around the apiary display; Grid 4 covered the stone patio east of the house; Grid 5 was a radial grid located on the driveway; Grid 6 was a small grid southwest of the southwestern corner of the house. Data were collected along individual lines in the parterre garden.

2.1 GPR SURVEY

2.1.1 GPR DATA ACQUISITION

GPR data were collected using a Geophysical Survey Systems, Inc. (GSSI) SIR-2000 digital acquisition system. The data were displayed on a color monitor for immediate visual inspection and quality control and simultaneously recorded on the system's hard drive for later processing and interpretation. Due to interference created by the site-specific subsurface materials, more complete data quality assessments were made during post-processing following the data collection.

A 400-MHz GSSI antenna was used to collect the GPR data. This antenna was chosen to achieve the depth of penetration necessary to locate all potential archaeological features while providing a resolution sufficient to locate features as small as one (1) inch in diameter (see Appendix A for further discussion of GPR resolution).

GPR data were collected along orthogonal traverses spaced no more than 2 feet apart. Data were collected as two-way travel time, which determines the time for the input radar wave pulse to travel to a subsurface discontinuity and reflect to the antenna at the ground surface.

Appendix A provides a detailed description of the GPR method and its limitations.

2.1.2 GPR DATA REDUCTION AND ANALYSIS

All GPR data were stored on the system's hard drive and transferred to PC for later signal processing using GSSI's RADAN for Windows XP™ proprietary software. Band-pass filtering, background removal, and horizontal averaging techniques were used to enhance the data quality. Depths to discontinuous interfaces were recovered from the recorded travel-time data using radar propagation velocities estimated through migration velocity calculations.

Seven hundred sixty-one (761) individual GPR records were acquired during the survey. Following post-acquisition data processing, the processed records were used to construct 3D models of the surveyed area. Velocity migration was also performed to sharpen the definition of

hyperbolic features in the 3D modeling. 3D models are useful for viewing the spatial qualities of the data and identifying subtle spatial features that may not be apparent in individual 2D records. The 3D model is sliced horizontally and vertically to observe patterns of GPR anomalies.

Each individual record was evaluated for its potential archaeological significance. Preliminary interpretations made from analysis of individual records were evaluated in a spatial context using the 3D models. Conversely, spatial anomalies observed in the 3D models were re-examined on the individual records to ensure that all possible anomalies had been evaluated.

The final potential anomalies for each grid and traverse direction (N-S and E-W) were exported as DXF files and overlaid on an AutoCAD base map provided by Bryant. In AutoCAD, individual GPR targets were categorized as either anomalous areas or linear features. These two categories were further divided into confidence levels based on the likelihood that individual GPR targets were associated (Plate 2). Lower-confidence anomalous areas or linear features were dashed, while higher confidence areas were shown as solid lines. Linear anomalies were further categorized by utility type if evidence existed.

Representative depth (z) slices were made into AutoCAD plates (Plates 3A-3F) for three different depth intervals for each traverse orientation. Plates 3A through 3C represent z-slices at 1, 3, and 5 feet below ground surface, respectively, for the north-south traverses. Plates 3D through 3F represent the same depths for the east-west traverses. These z-slices provide a view of the data at their respective depths, but may not resolve all of the anomalies identified at these depths.

2.2 EM SURVEY

2.2.1 EM DATA ACQUISITION

EM data were collected with a Geonics EM38-DD conductivity meter. The data were displayed on an Allegro CX field computer's color monitor for immediate visual inspection and quality control and simultaneously recorded on the computer's hard drive for later processing and interpretation.

Apparent conductivity data were collected simultaneously in both vertical and horizontal dipole orientations along unidirectional traverses spaced no more than 2 feet apart. The scan rate was 12 readings per second, producing approximately 1 reading every 2 inches.

Appendix A provides a detailed description of the EM method and its limitations.

2.2.2 EM DATA REDUCTION AND ANALYSIS

All EM data were stored on the field computer's hard drive and transferred to PC for later data

reduction using Geonics DAT38DDW proprietary software. The files were first converted from Q38 files to D38 files. Grid geometry was then applied to the data files, and they were exported as a DAT file for gridding using Golden Software's Surfer 9. Prior to the final gridding, the data underwent a latency correction in Microsoft Excel.

HGI used the data from the vertical dipole orientation rather than those from the horizontal dipole, as the vertical dipole orientation focused the transmitted signal strength in a depth range more likely to contain archaeologically significant targets. Several gridding iterations were carried out to produce the best representative data contour map. This map was exported to AutoCAD as a DXF file and overlaid on the Bryant base map. Anomalies in the data set were marked in AutoCAD based on how strongly they stood out from the background signal for each grid.

2.3 MAG SURVEY

2.3.1 MAG DATA ACQUISITION

MAG data were collected using a Geometrics G-858 gradiometer. The data were displayed on a monitor for immediate visual inspection and quality control and simultaneously recorded on the system's hard drive for later processing and interpretation. A grid location away from high-strength signal returns from either surface or subsurface sources was chosen as a base station. This base station was occupied several times each day the gradiometer was used to monitor drift in the local magnetic field.

Two cesium vapor sensors oriented in the vertical gradient mode were used to acquire the MAG data. The long axis of each sensor was oriented 90° to the ground surface and parallel to the traverse direction, an orientation determined by the Geometrics CSAZ program using the site location. This sensor orientation is used to avoid dead zones in the sensors' field.

MAG data were collected along unidirectional traverses spaced no more than 2 feet apart. Magnetic field readings were taken at a rate of 10 readings per second for an average of one reading every 2 to 3 inches.

Appendix A provides a detailed description of the MAG method and its limitations.

2.3.2 MAG DATA REDUCTION AND ANALYSIS

All MAG data were stored on the system's hard drive and transferred to PC for later data reduction using Geometrics MagMap2000 proprietary software. Grid geometry was applied to the data files, which were then exported as a DAT file for gridding using Golden Software's Surfer 9.

Several iterations of gridding were carried out to determine the most representative contour map of the data. This map was exported to AutoCAD as a DXF file and overlaid on the base map. Anomalies in the data set were marked in AutoCAD based on how strongly they stood out from the background signal for each grid.

3.0 RESULTS

Color-coded plates showing the results for the geophysical survey are attached. A total of 134 targets were identified by the three geophysical methods: 98 targets from GPR, 23 from EM, and 13 from MAG.

Table 1. Breakdown of Targets by Method and Grid/Survey Area Location

Grid	GPR Anomalies	EM Anomalies	MAG Anomalies	All Anomalies
1	47	10	5	62
2	13	2	0	15
3	11	4	5	20
4	23	4	3	30
5	1	1	0	2
6	1	0	0	1
Parterre Garden	2	2	0	4
All Anomalies	98 (73%)	23 (17%)	13 (10%)	134

Plate 2, a color-coded AutoCAD plate, shows the locations of anomalies for the GPR method. The anomalies are separated into several categories, including GPR-Identified Linear Anomaly—Potential Utility (violet), GPR-Identified Water Utility (blue), GPR-Identified Communication Utility (orange), and GPR-Identified Anomaly (cyan). The utilities were identified by type based on their correspondence with known utilities shown entering the property on the Bryant base map. The values listed next to each anomaly are depths and a unique anomaly identification tag. The depths were converted from travel times using GPR migration velocities. As noted previously, anomalies with lower confidence level are shown with dashed lines.

Plates 3A-3F show GPR 3D block slices along the z-axis for Grids 1-4 (Table 2). Depth slices at 1 feet, 3 feet, and 5 feet were used for all of the grids. 3D blocks were analyzed over the entire vertical range of the GPR records and were used to visualize the lateral variations of GPR reflectors at specific depths. Although 3D blocks were used for analysis and interpretation, Plates 3A-3F are presented for visualization purposes.

Table 2. Depth and GPR Traverse Direction Shown on Plates 3A-3F

Plate	Depth (feet)	GPR Traverse Direction
3A	1.0	North-South
3B	3.0	North-South
3C	5.0	North-South
3D	1.0	East-West
3E	3.0	East-West
3F	5.0	East-West

Plate 4 displays the results for the EM38-DD conductivity meter. The vertical dipole data are shown as a color contour map with lower apparent conductivity values in blue and higher apparent conductivity values in red. The values are in milliSiemens per meter (mS/m). EM anomalies that stood out from the background through signal strength and/or geometry were selected as potential areas of interest and marked by a brick-red colored shape. All other EM highs and lows could be correlated to surface metal.

Plate 5 displays the results for the G-858 gradiometer survey. The gradient data are shown as a color contour map, with lower values shown in blue and higher values in red. The values are in nanoTeslas (nT). MAG anomalies that stood out from the background through signal strength and/or geometry were selected as potential areas of interest and marked by a salmon-colored shape. All other MAG highs and lows could be correlated to surface metal.

Plate 6 is a compilation of all the anomalies from each method. The anomalies are color-coded according to their method and category, include depth where applicable, and are tagged with an anomaly identification tag.

Tables 3 is an anomaly list for all the survey areas. Each entry includes anomaly ID, method used, grid name, approximate depth to top of anomaly, category (if applicable), and notes (if applicable).

Appendix B includes 2D profiles of all anomalies.

4.0 INTERPRETATIONS

GPR proved the most useful of the three methods used for the geophysical investigation. As Table 1 shows, GPR anomalies accounted for 73% of the total located, EM for 17%, and MAG for only 10%. Part of the difference for the three methods is due to surface interference. Unlike GPR, both EM and MAG are affected by proximity to surface metal, with MAG the more sensitive of the two methods. The GPR antenna used for this survey is shielded, so even surface features directly adjacent to the antenna produce minimal if any effects. The significantly lower number of MAG anomalies may also be related to the nature of the anomalies detected by GPR.

These are likely features without sufficient ferrous material for detection, either naturally in the soil or in manmade sources such as steel, brick, or burned soils. The lower number of EM anomalies may similarly indicate that changes in the soil conductivity across the site are not significant, and that there are few concentrations of manmade conductive materials.

GPR anomalies have been separated into two categories based on level of confidence: Dashed lines represent lower confidence anomalies, while solid lines represent higher confidence ones. The confidence levels are based on the likelihood that the GPR targets producing the anomaly are related, and the likelihood that the anomalies are caused by natural features such as tree roots. Further discussion of the anomalies, by survey area, is presented below.

4.1 GRID 1

Grid 1, the largest of the 6 grids, is located in the southern portion of the property and contains both the highest number of anomalies and a diverse anomaly arrangement and type. A site plan supplied by Pressley (Figure 1, Appendix C) shows that this grid includes the historical locations of a fence, apiary, pool, various planting beds, and former walking paths. The GPR method was able to determine the location of the former pool and the potential location and geometry of parts of the walkway. A MAG anomaly is present in the vicinity of the pool location, but the geometry differs from that detected using GPR. Likely locations for the former planting beds, fence, and apiary were not displayed with any of the three methods. This lack of identification could be caused by a number of factors, including the lack of remnant subsurface evidence (e.g. lack of foundation for the apiary); masking by current features (e.g. plant beds, walkways), or lack of a continuous data set due to surface obstructions.

Several additional anomalies of both current and historic significance were also detected. The historic features included utilities that appear to be related to the former pool. One utility ties in to a current water line, but the other is of unknown use and appears to continue underneath the stone patio into Grid 4. The other anomaly of potential historical significance is G1A26, located west of the former pool. This flat-lying, shallow, discontinuous feature appears to correlate with flat-lying landscape fieldstones in a historical photograph (Figure 2, Appendix C). Several current utilities, located mainly underneath the current pathways, were also detected.

The remaining anomalies are of unknown origin. These anomalies vary greatly in size, shape, and depth. Several showed characteristics potentially related to former excavations. These same characteristics may be associated with the cross-section of a tree root system.

4.2 GRID 2

Grid 2 is located in the northwestern portion of the property where the shallow subsurface (0-3 feet) is dominated by the root system of a large beech tree. The root system extends over the majority of the grid and affects the quality of the GPR signal throughout the records. Figure 1 in

Appendix C shows the locations of possible historic paths from the well to the stairs and the house. There was no evidence of these features in any of the geophysical data.

Most of the anomalies are located in the center and east portions of the grid. The anomalies in the center of the grid are considered lower confidence, as they may be caused by part of the beech tree root system. GPR detected a potential utility in the eastern portion of the grid; as the location of this utility was confirmed by EM, it contains metal. The remaining anomalies are small and do not exhibit the geometry expected for a manmade feature.

4.3 GRID 3

Grid 3, located between Grid 2 and the Garden Museum, contains several GPR- and EM-identified potential utilities. Several of the GPR-identified anomalies do not correlate with any known historical features. These anomalies are irregularly shaped, with the exception of lower confidence feature G3A5.

None of the geophysical methods was able to resolve the possible historic path connections to the well seen in Figure 1 (Appendix C).

4.4 GRID 4

Grid 4 includes the stone patio directly east of the RJD house. The potential historical features located in this grid, as seen in Figure 1 (Appendix C), are a pool and stair footings. All three methods showed an anomaly likely created by the buried pool, but this was shown most clearly with GPR. Both the GPR and EM data showed anomalies at the approximate location of the stair footings. In addition to these known features, GPR detected several potential utilities, and all three methods detected several larger anomalies of unknown origin in the northwest corner of the grid.

4.5 GRID 5

Grid 5 includes the driveway and accessible portions of the landscaping inside the driveway curve. Both GPR and EM identified a single low-confidence anomaly. Figure 1 (Appendix C) shows historical evergreen trees and fence footings within the curve of the driveway, but these were not detected in the geophysical data. The only method able to obtain coverage within the driveway curve was GPR, and obstructions caused by bushes made the coverage insufficient to locate these features if they were present.

4.6 Grid 6

Grid 6 is located south of the southwestern corner of the RJD house and partially in a rose garden adjacent to the metal fence lining the driveway. Due to the proximity to metal of this survey

area, no MAG data were collected in this grid. The overall data quality was poor and only one anomaly was identified, from the GPR data.

4.7 PARTERRE GARDEN

The parterre garden data were collected as single lines because of obstructions from the rose bushes and hedges. Several GPR and EM anomalies were identified. The geometries of these anomalies do not indicate any obvious historical feature, but the true geometry may be obscured because of the large gaps in the dataset.

5.0 RECOMMENDATIONS

HGI recommends ground truthing a sample of the anomalies of unknown origins. Anomalies G1A9 or G1A16 are good examples of possible former excavations that may be related to unknown historical features. Anomaly G1A2, located next to the western garden settee, is a flat lying anomaly with a strong signal response. HGI also recommends ground truthing the areas around G4A9 and G4A10 because of their proximity to the house and their confirmation by multiple geophysical methods.

The major challenge to locating historical features at this site was a lack of data or inconsistent coverage caused by plants and other surface features. HGI recommends that additional GPR data be collected over areas to be cleared, in order to fill in areas of poor data density or total lack of data.

APPENDIX B: ANOMALY 2D PROFILES

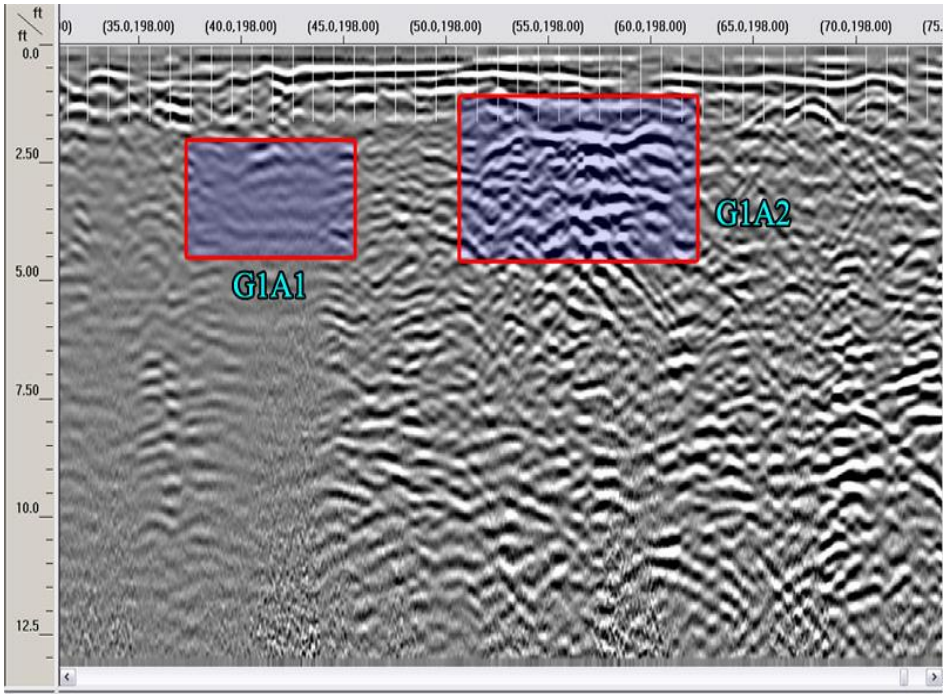


Figure 1. GPR Anomalies G1A1 & G1A2.

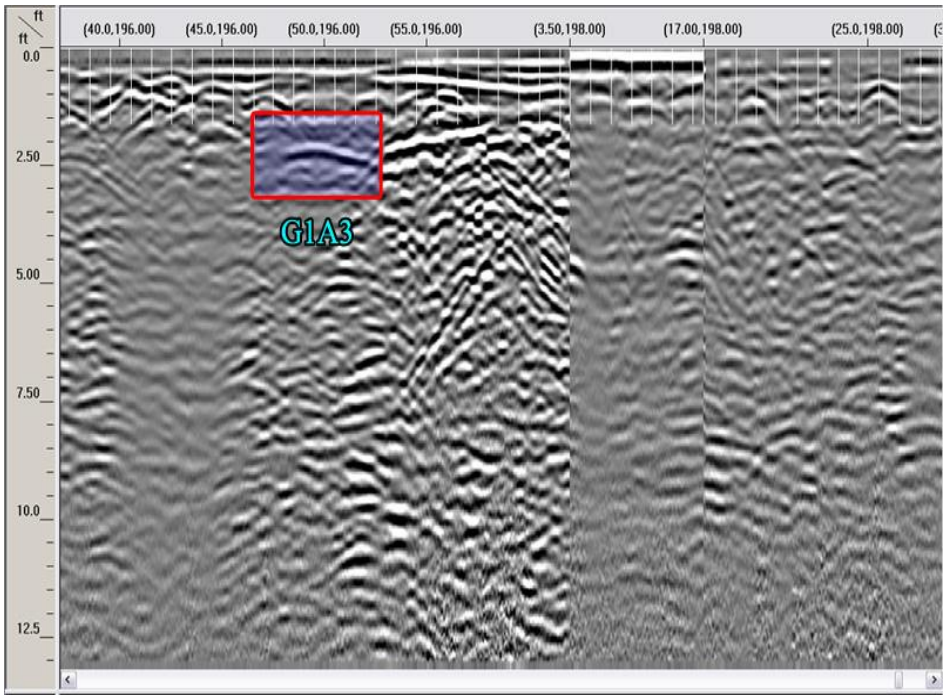


Figure 2. GPR Anomaly G1A3.

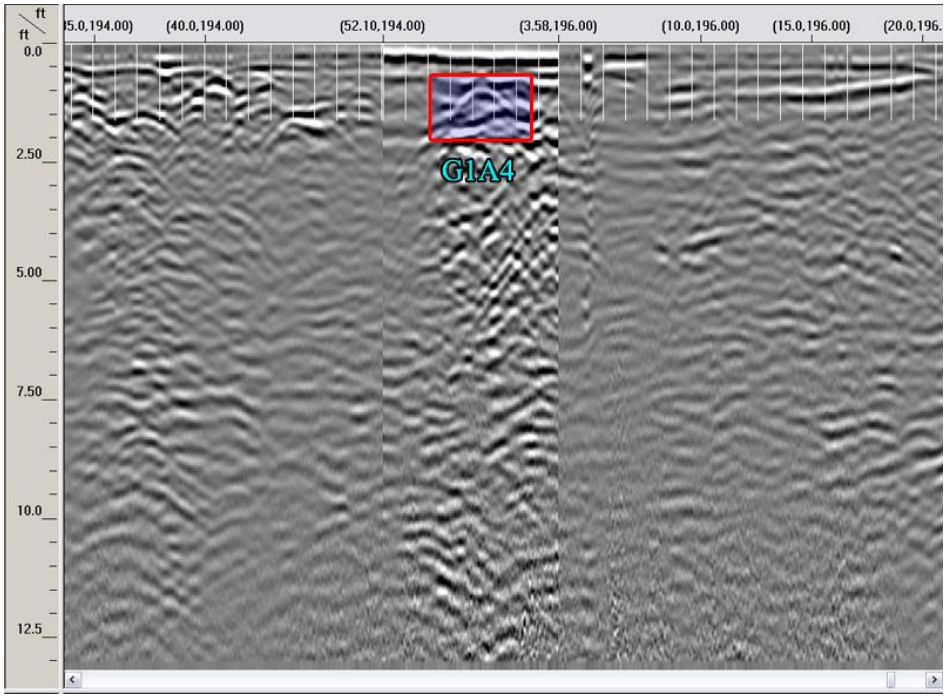


Figure 3. GPR Anomaly G1A4.

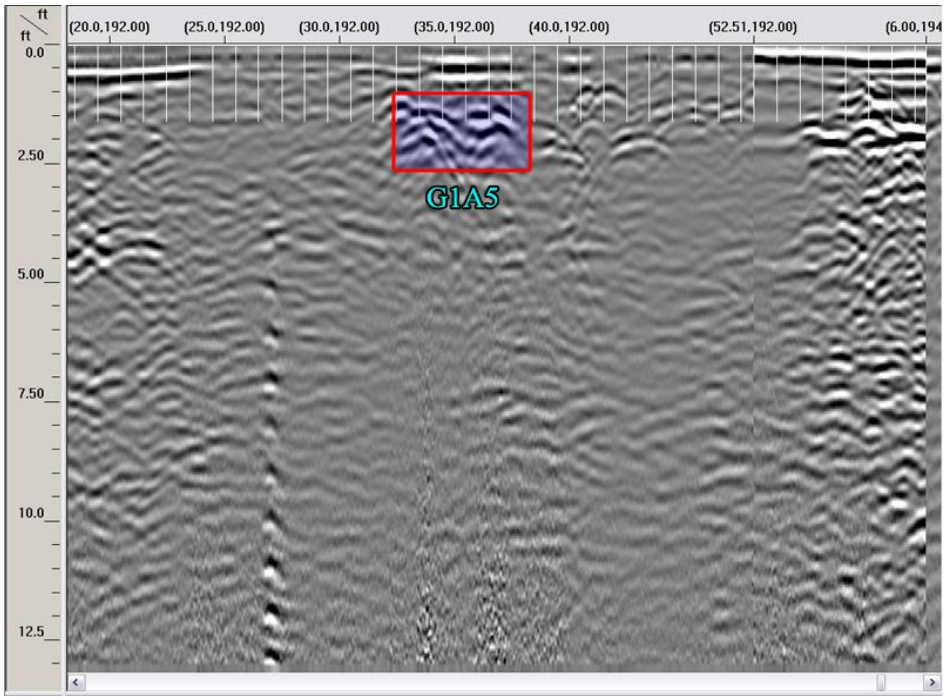


Figure 4. GPR Anomaly G1A5.

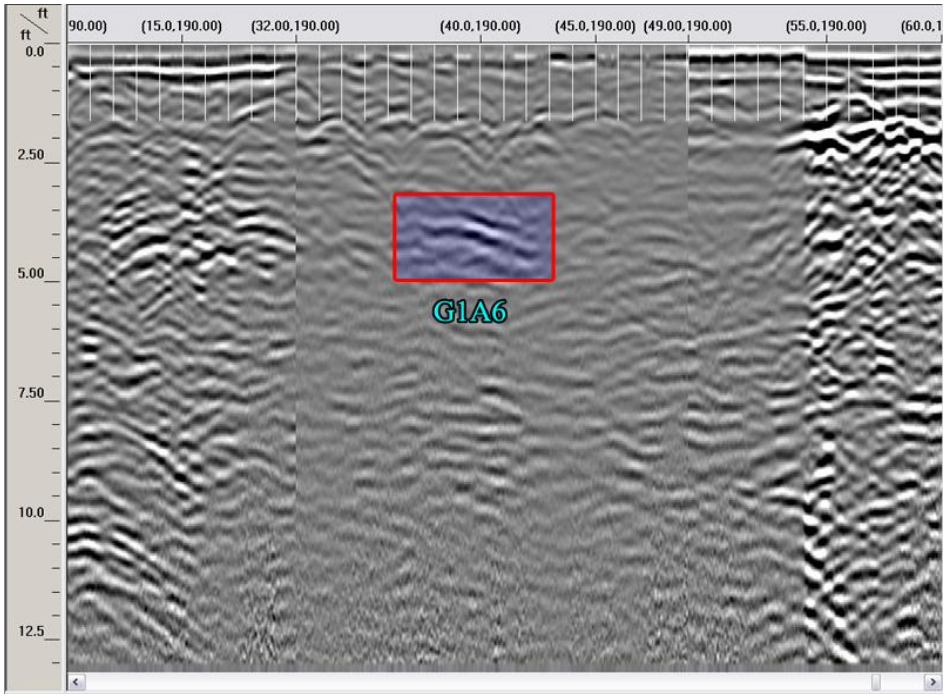


Figure 5. GPR Anomaly G1A6.

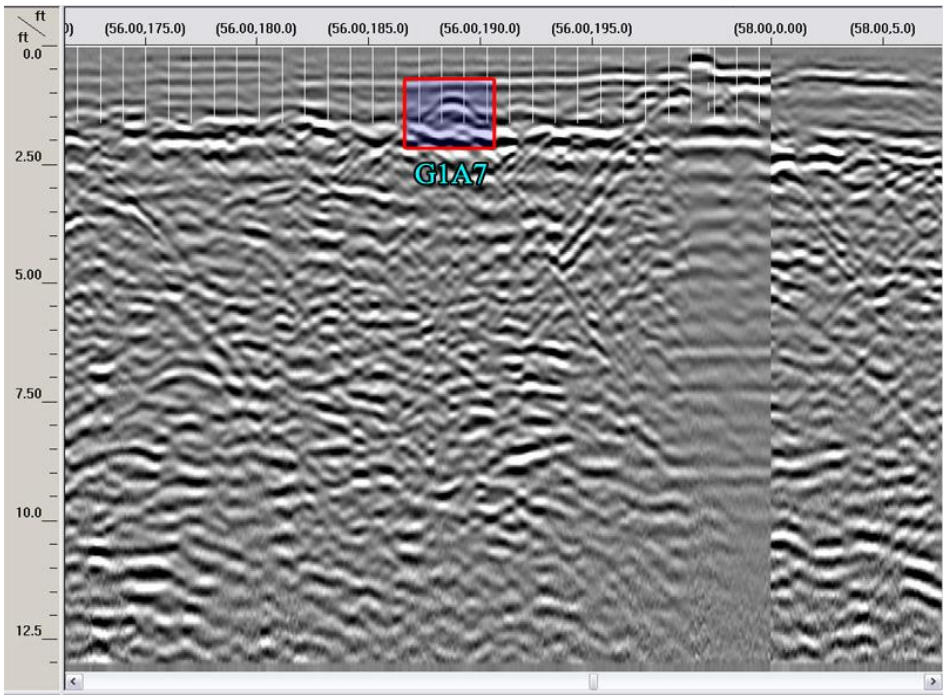


Figure 6. GPR Anomaly G1A7.

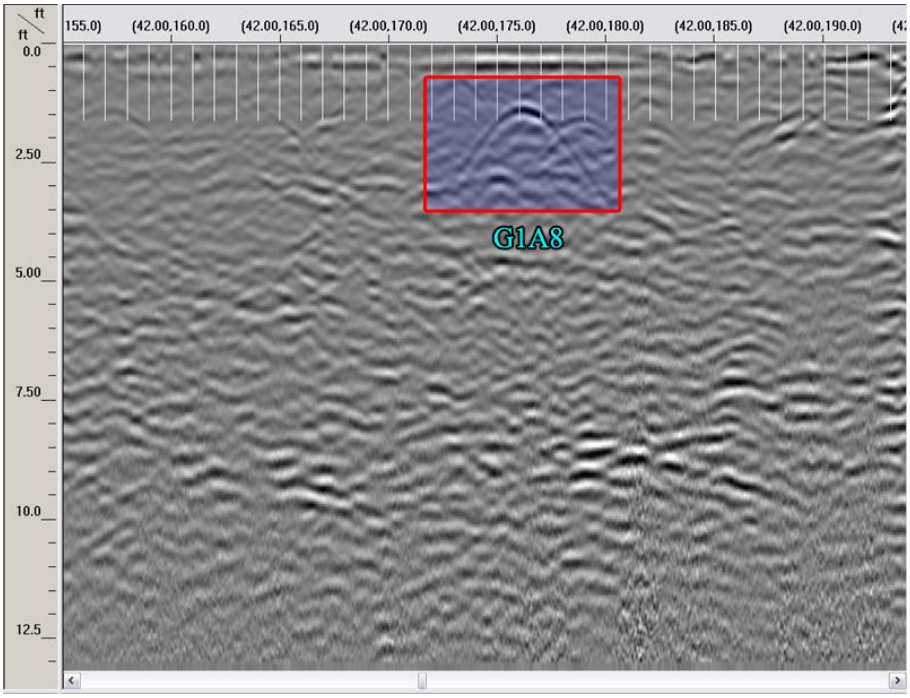


Figure 7. GPR Anomaly G1A8.

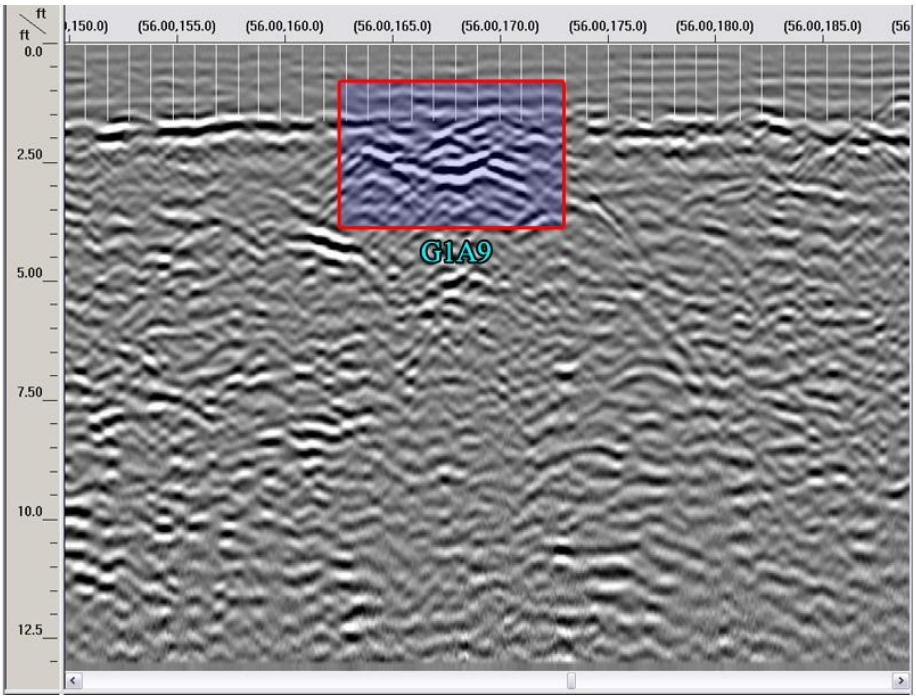


Figure 8. GPR Anomaly G1A9.

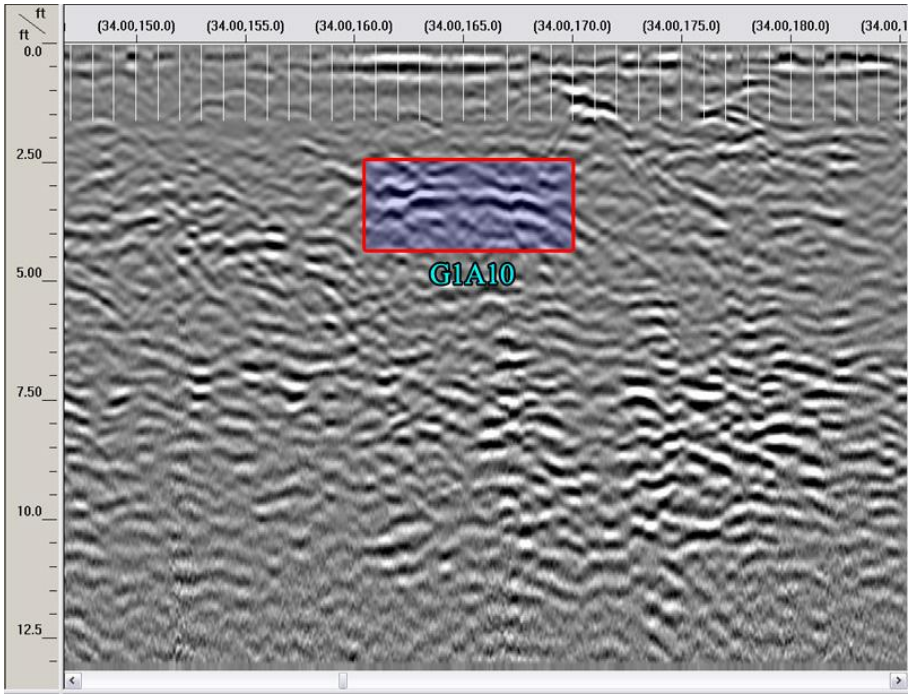


Figure 9. GPR Anomaly G1A10.

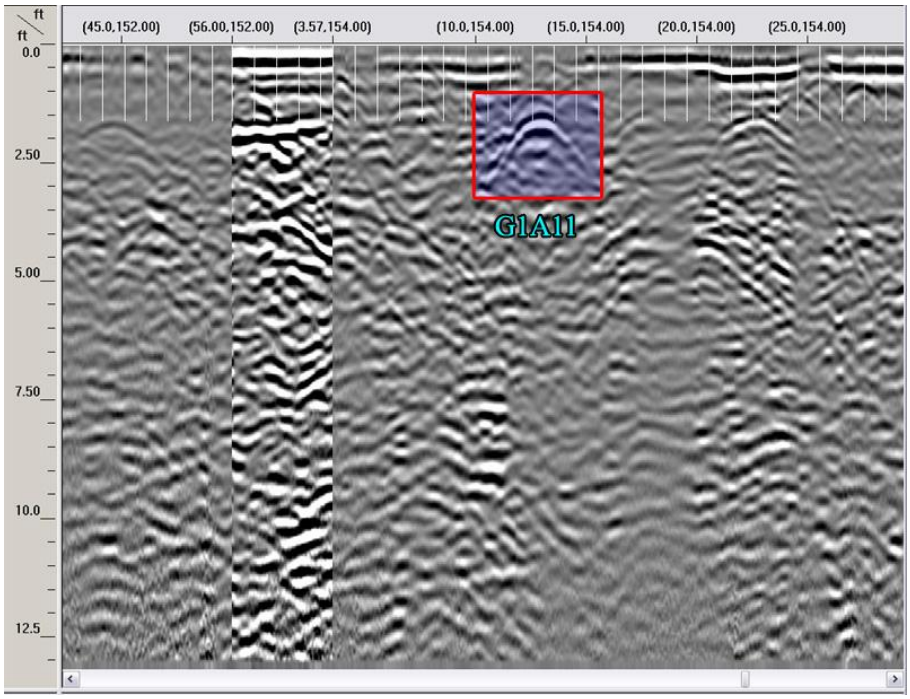


Figure 10. GPR Anomaly G1A11.

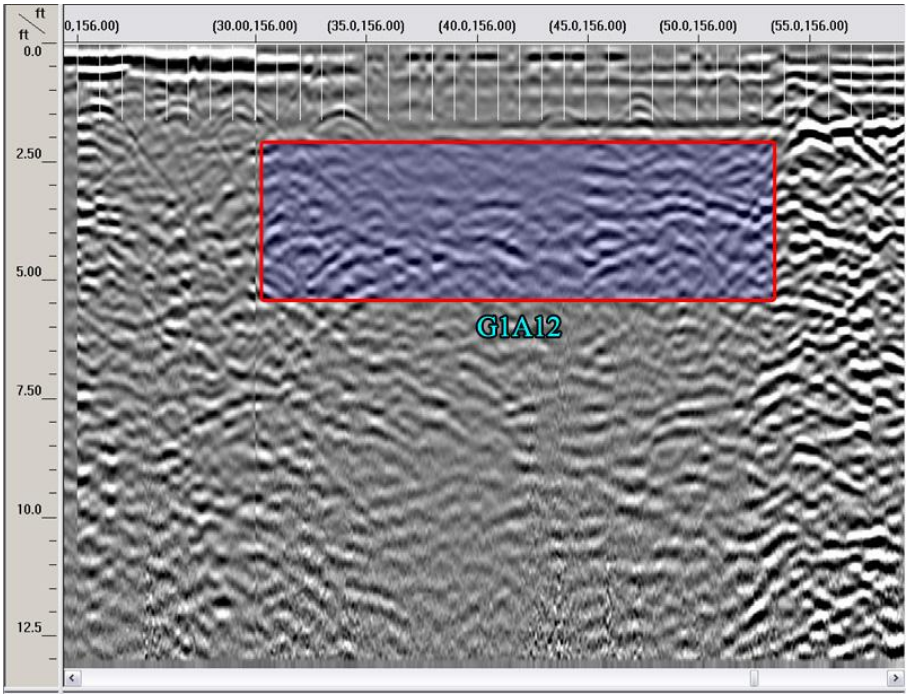


Figure 11. GPR Anomaly G1A12.

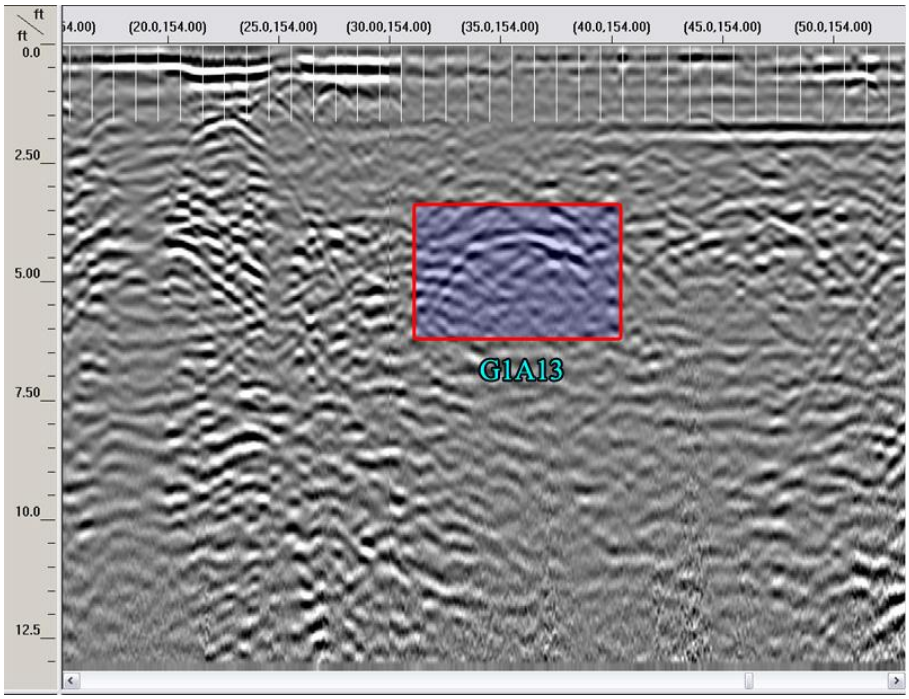


Figure 12. GPR Anomaly G1A13.

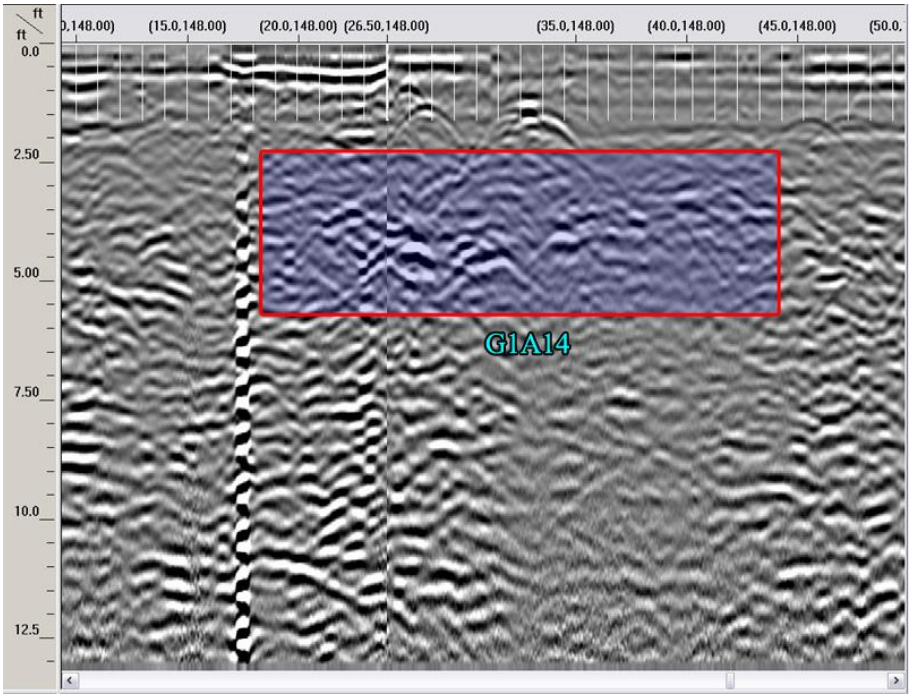


Figure 13. GPR Anomaly G1A14.

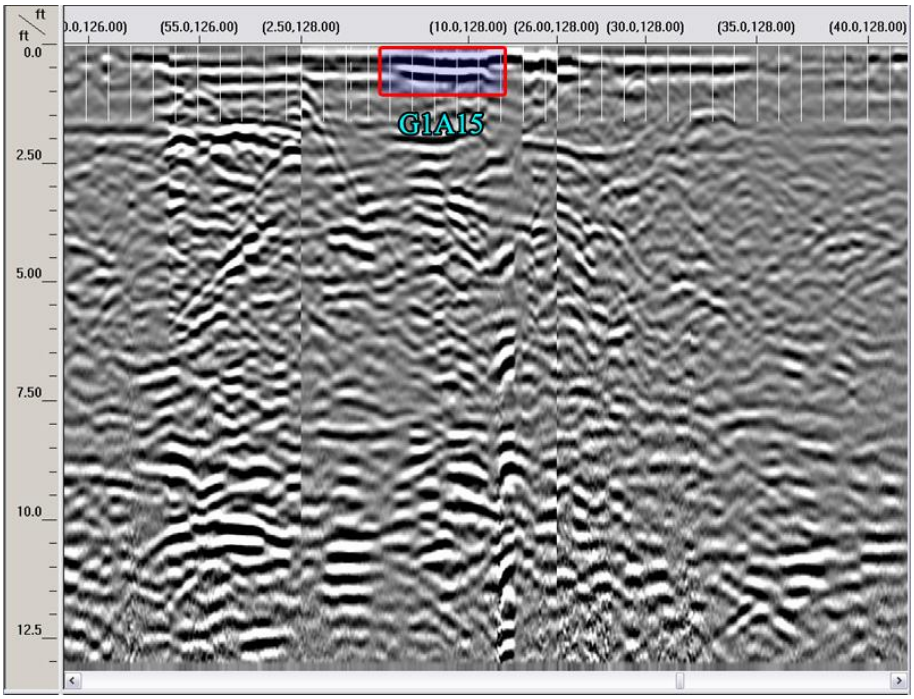


Figure 14. GPR Anomaly G1A15.

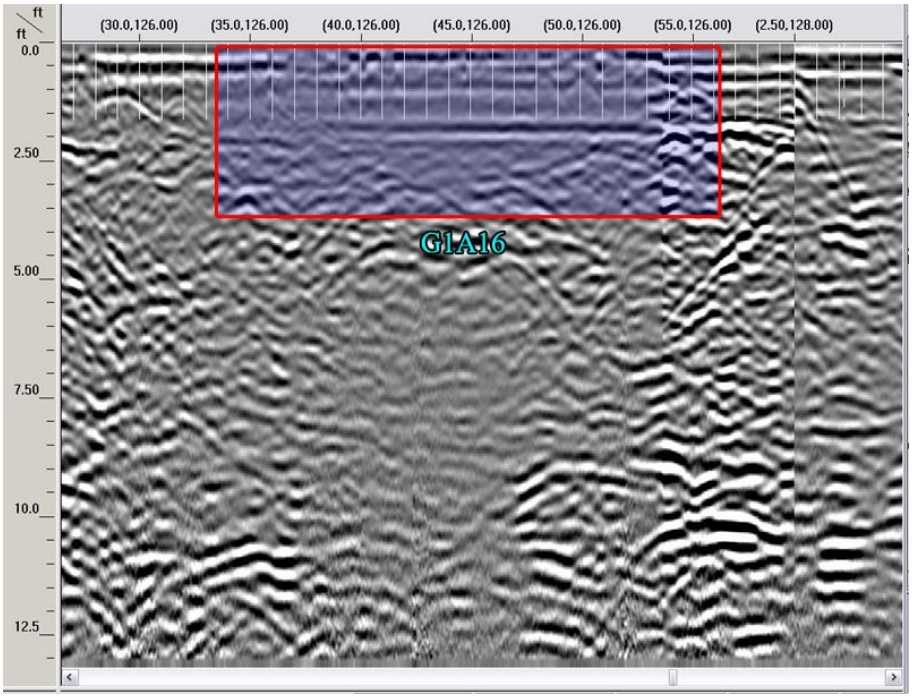


Figure 15. GPR Anomaly G1A16.

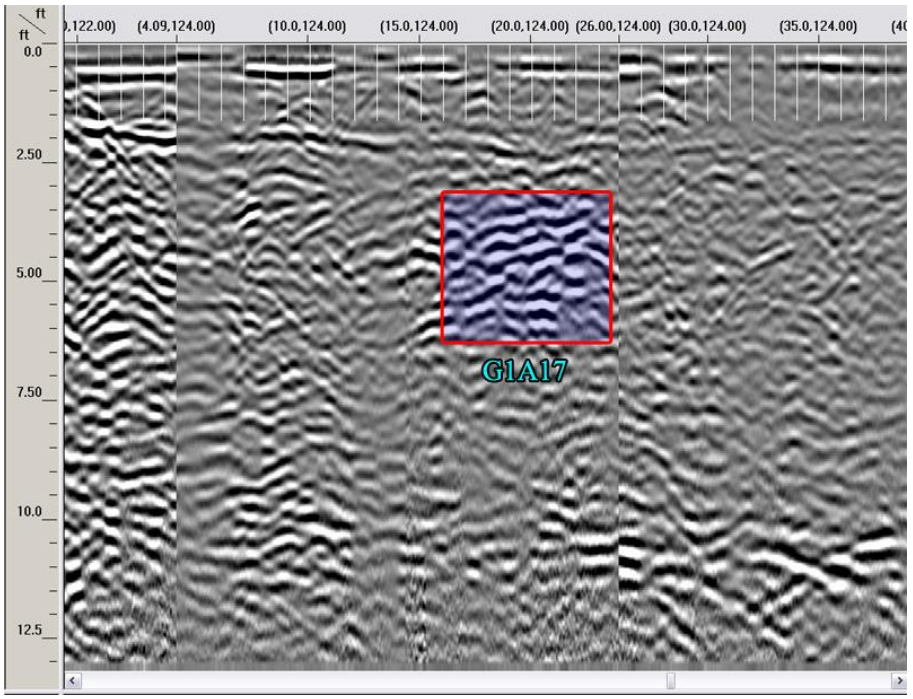


Figure 16. GPR Anomaly G1A17.

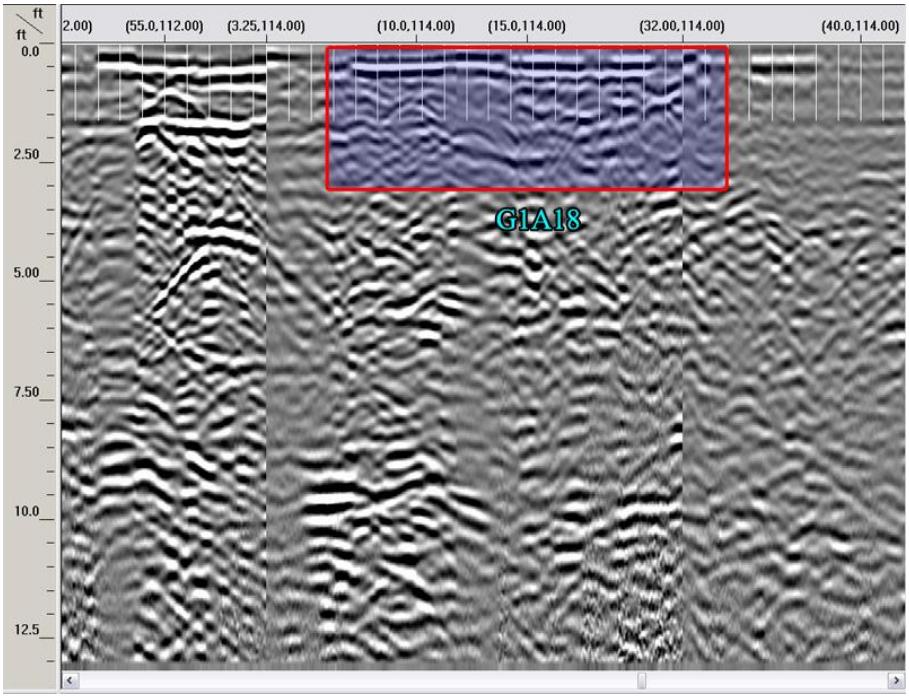


Figure 17. GPR Anomaly G1A18.

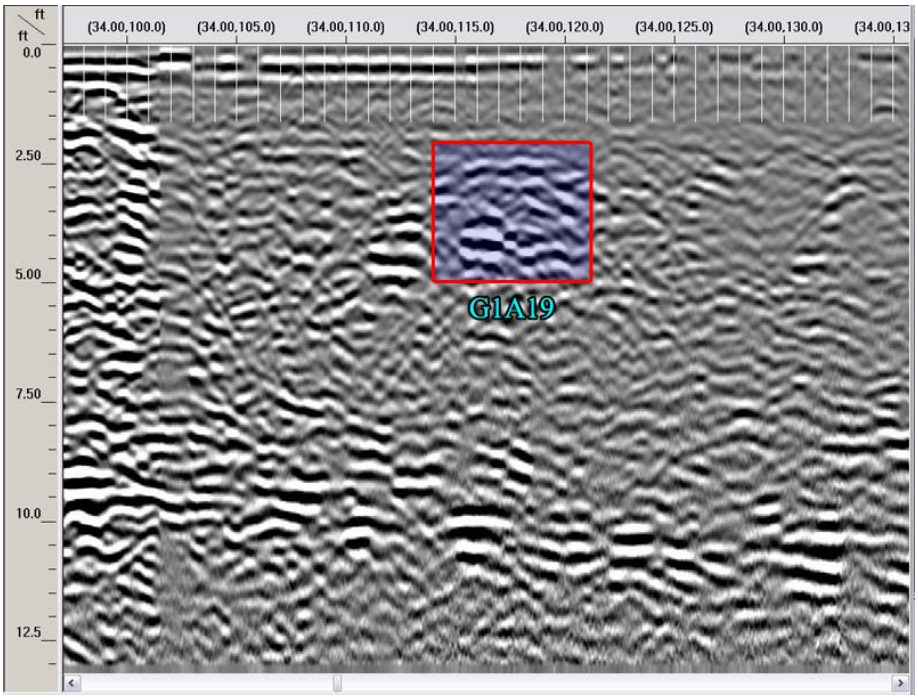


Figure 18. GPR Anomaly G1A19.

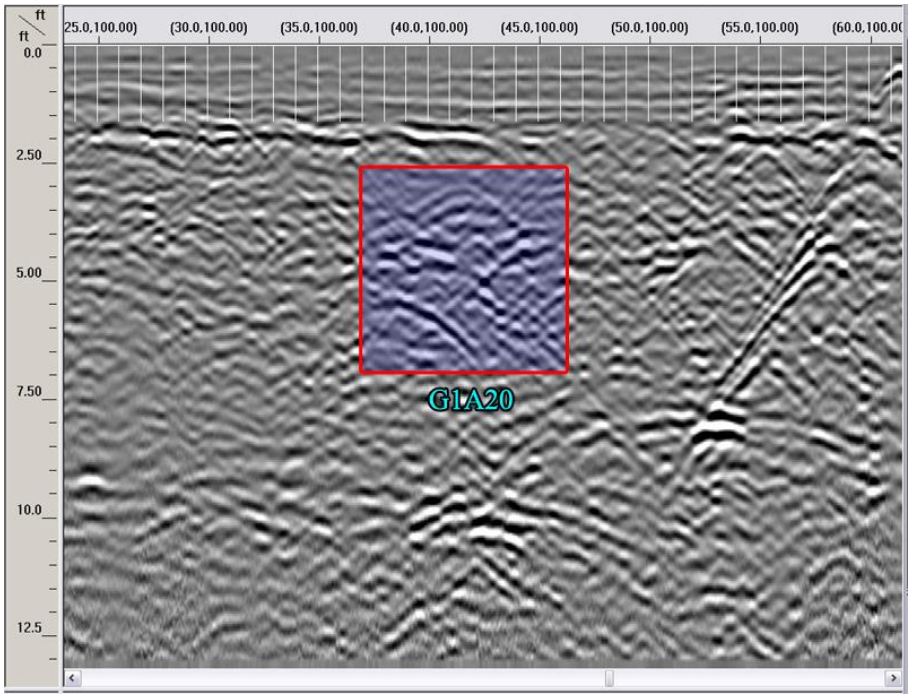


Figure 19. GPR Anomaly G1A20.

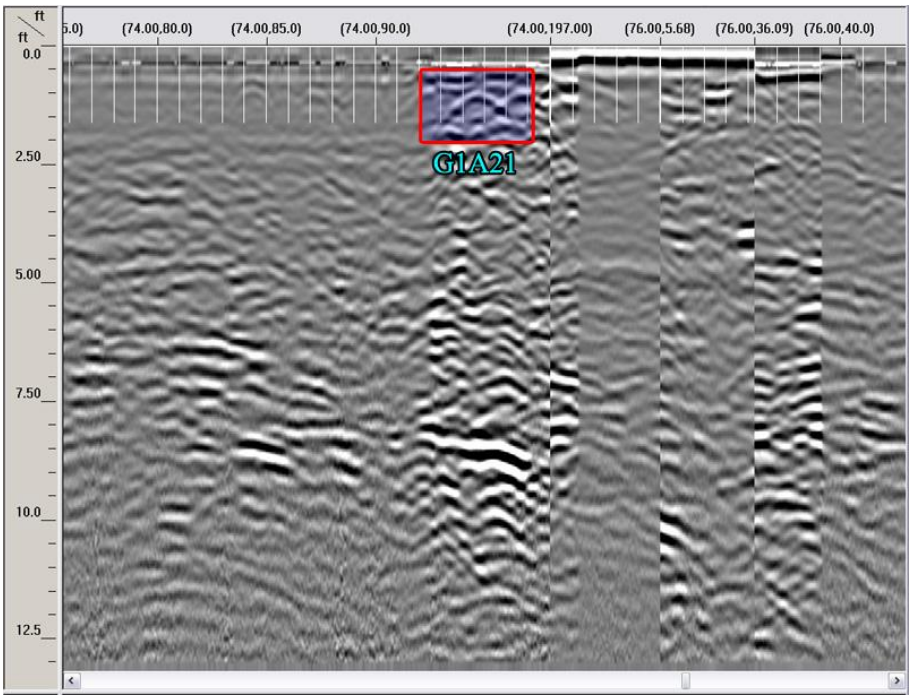


Figure 20. GPR Anomaly G1A21.

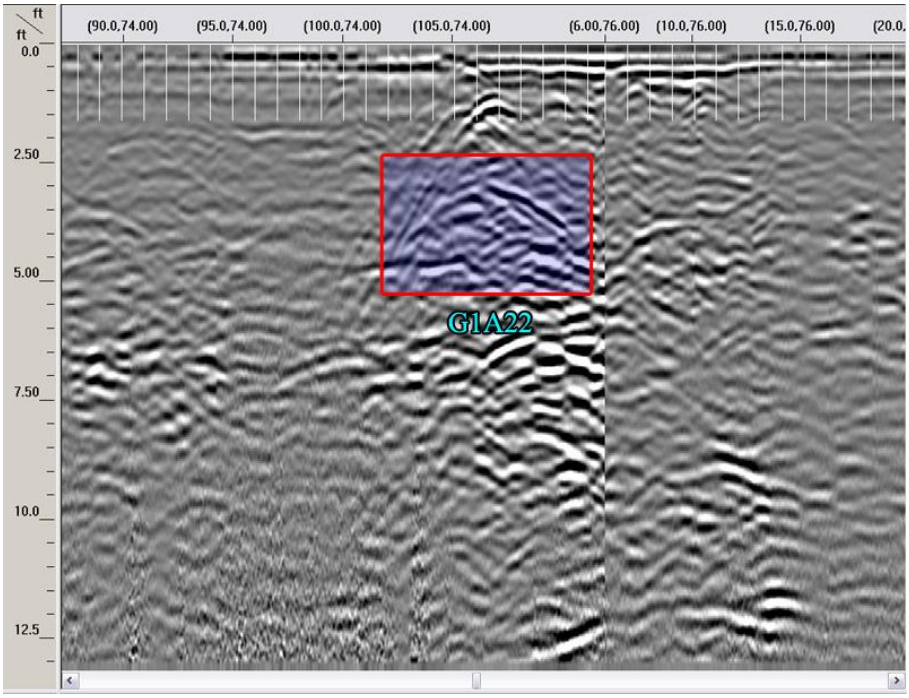


Figure 21. GPR Anomaly G1A22.

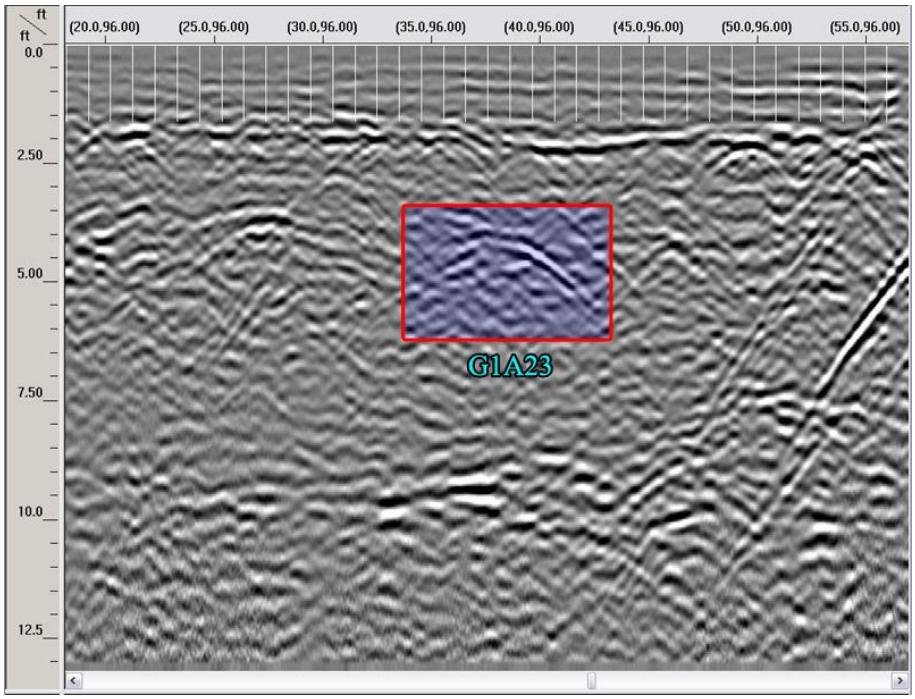


Figure 22. GPR Anomaly G1A23.

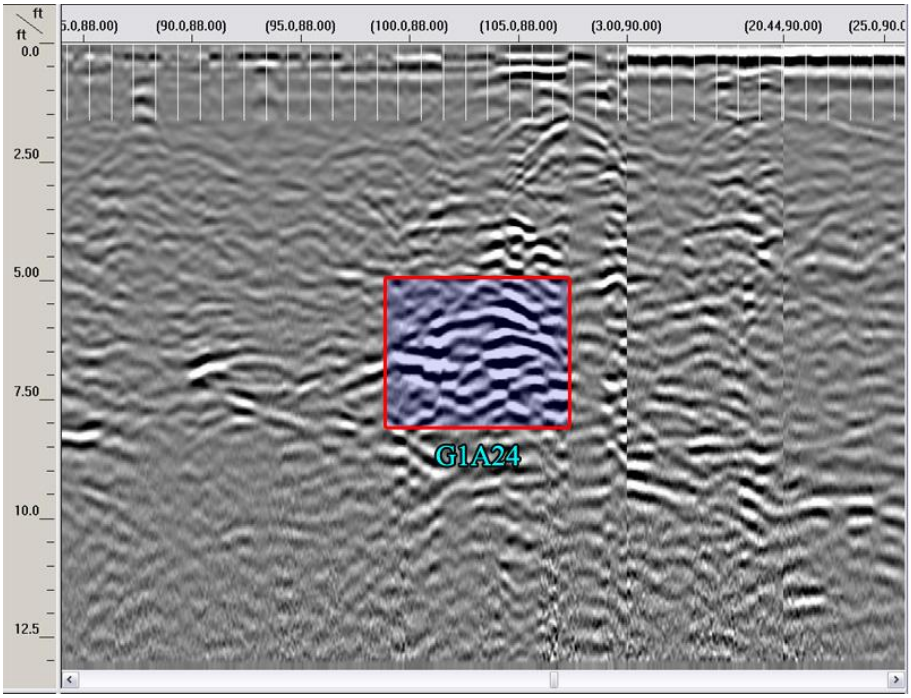


Figure 23. GPR Anomaly G1A24.

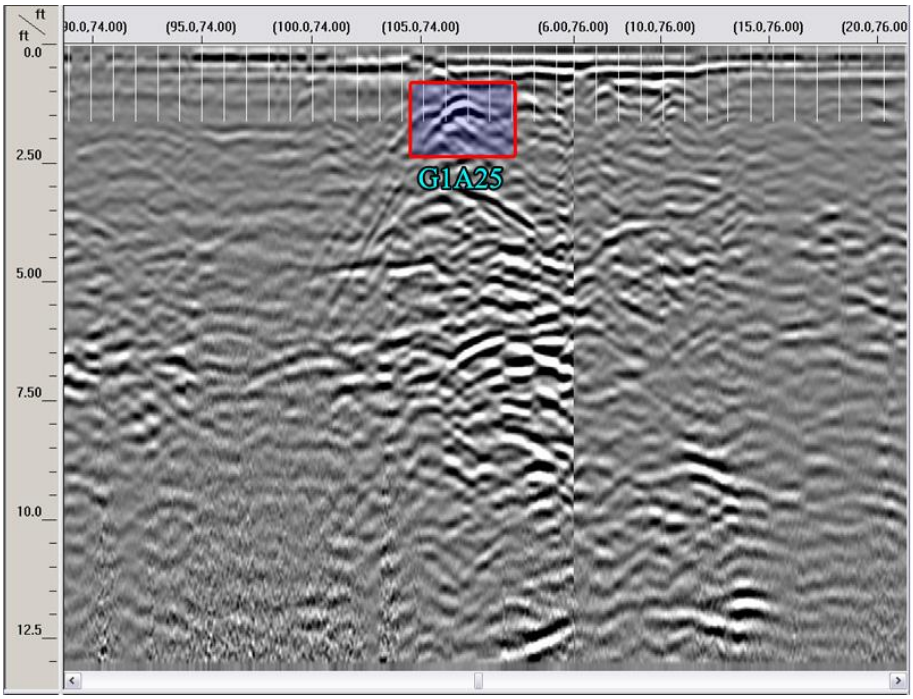


Figure 24. GPR Anomaly G1A25.

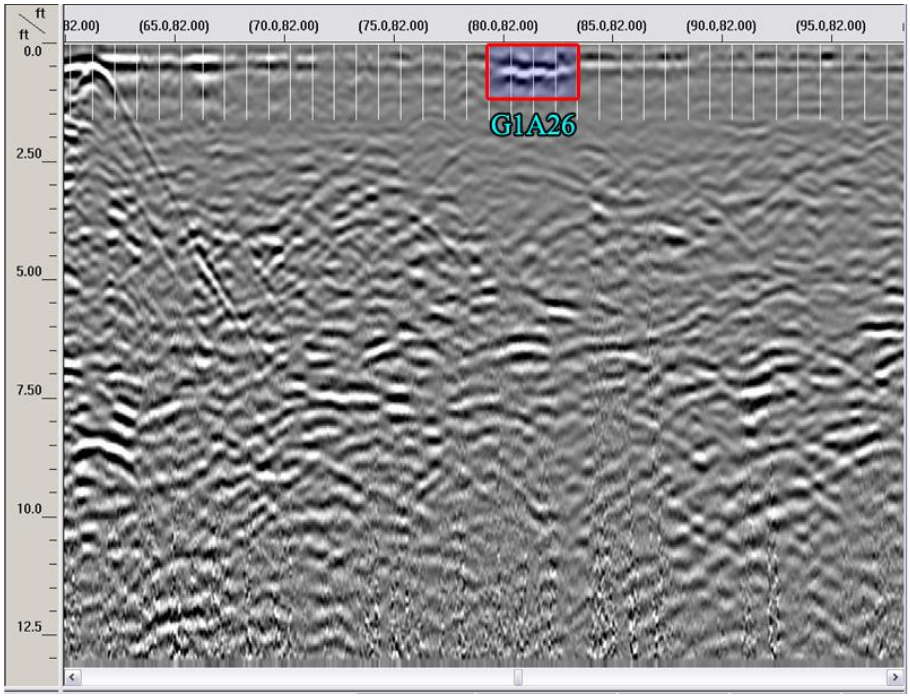


Figure 25. GPR Anomaly G1A26.

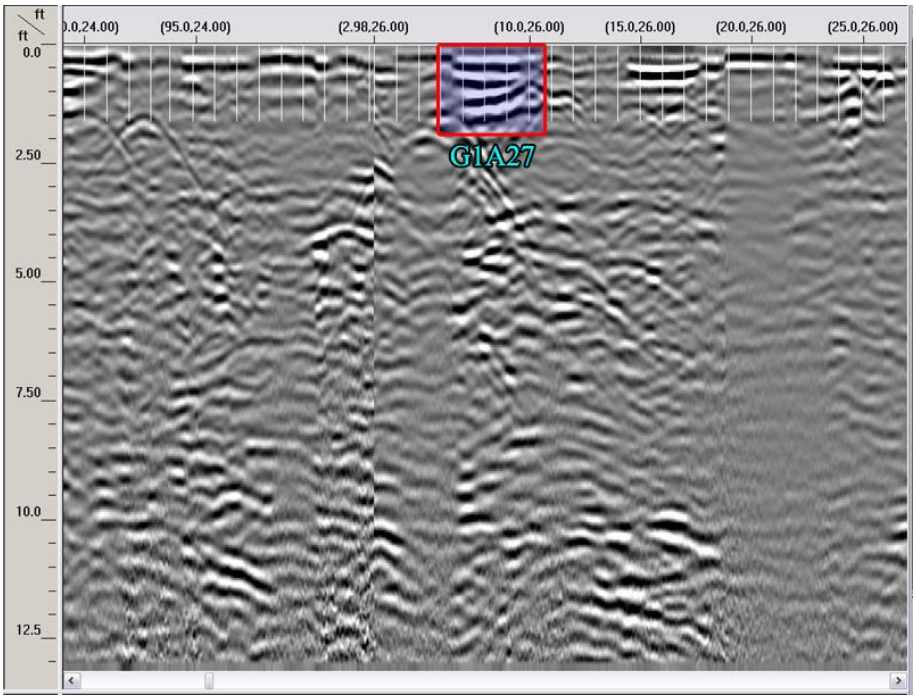


Figure 26. GPR Anomaly G1A27.

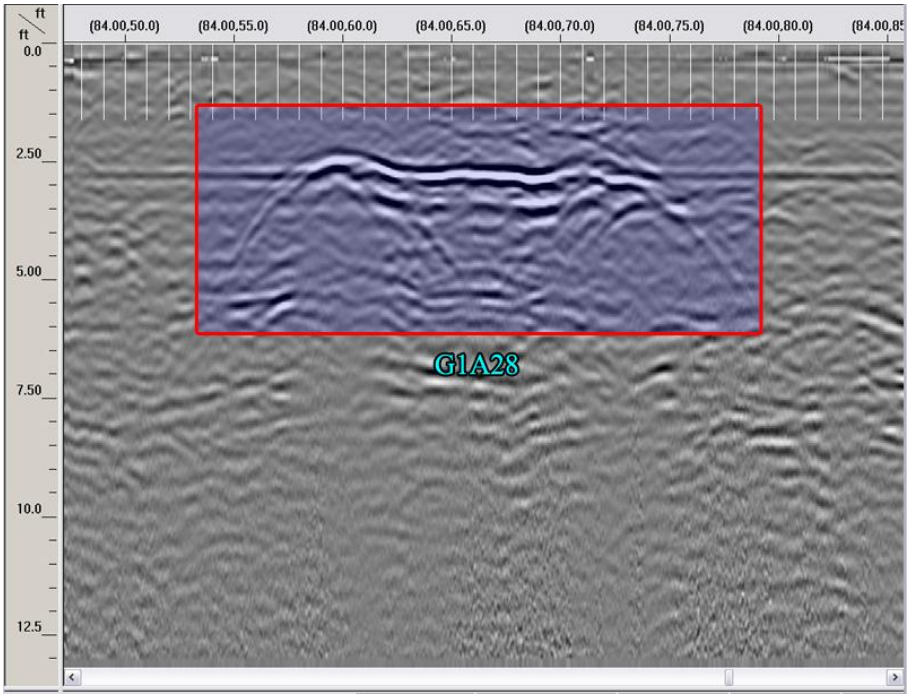


Figure 27. GPR Anomaly G1A28.

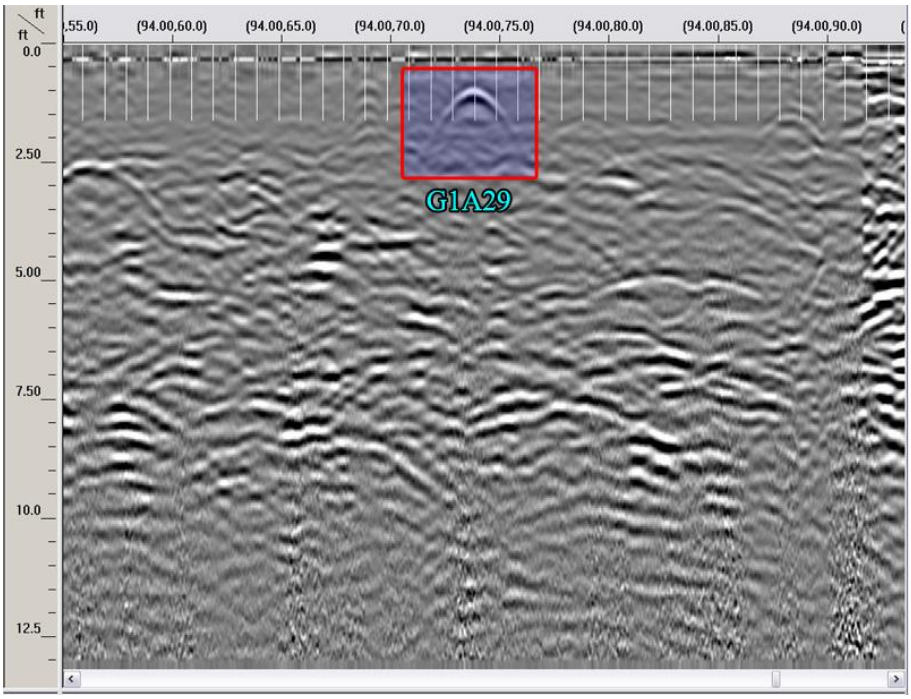


Figure 28. GPR Anomaly G1A29.

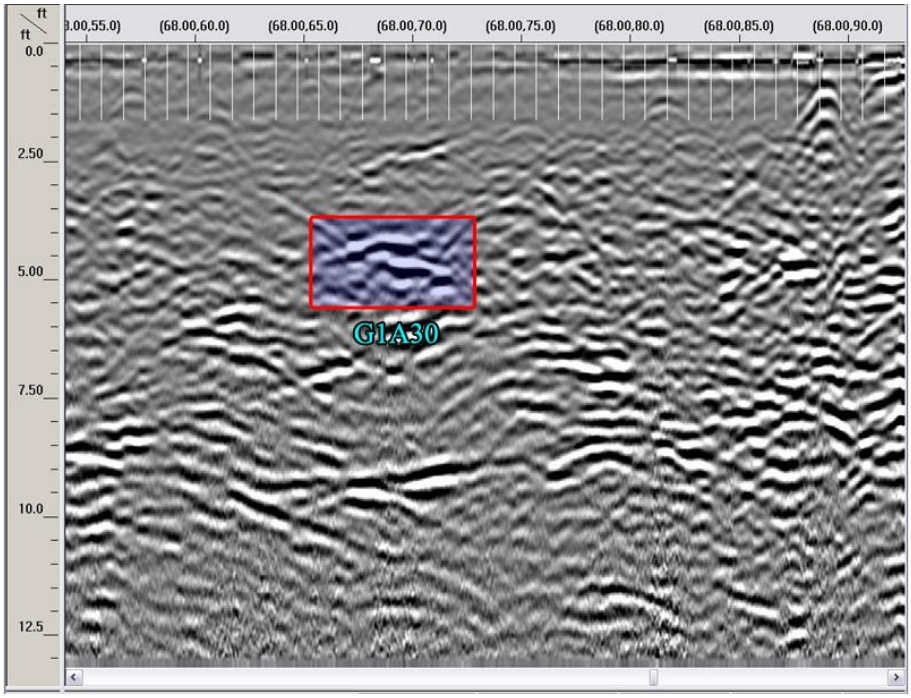


Figure 29. GPR Anomaly G1A30.

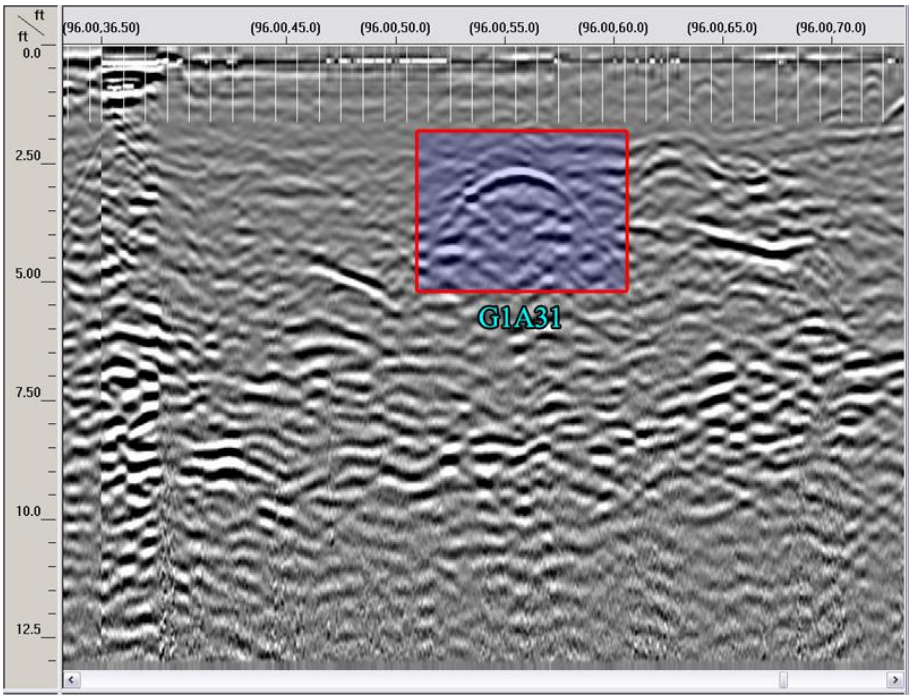


Figure 30. GPR Anomaly G1A31.

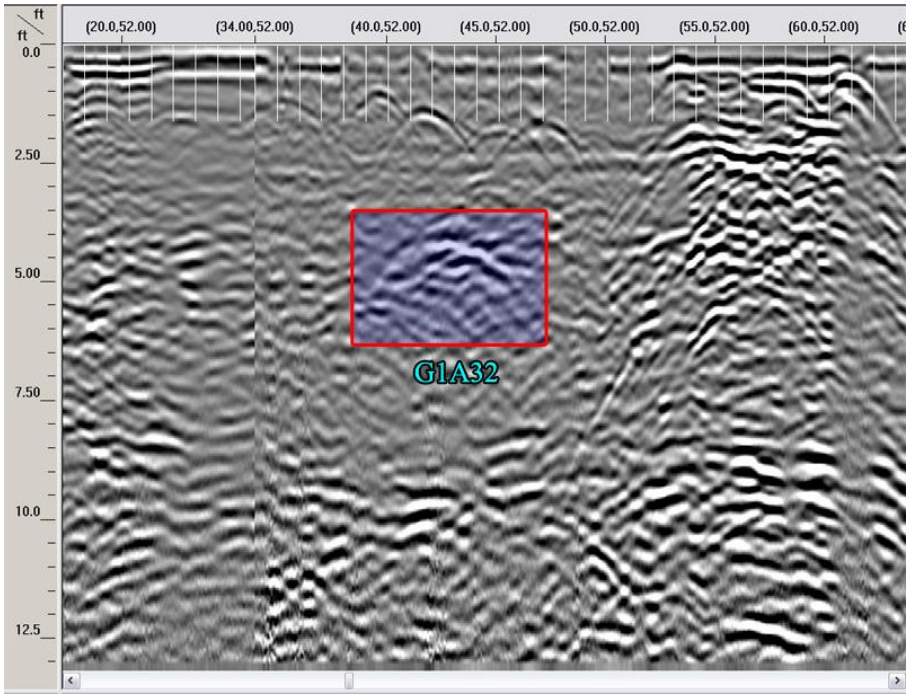


Figure 31. GPR Anomaly G1A32.

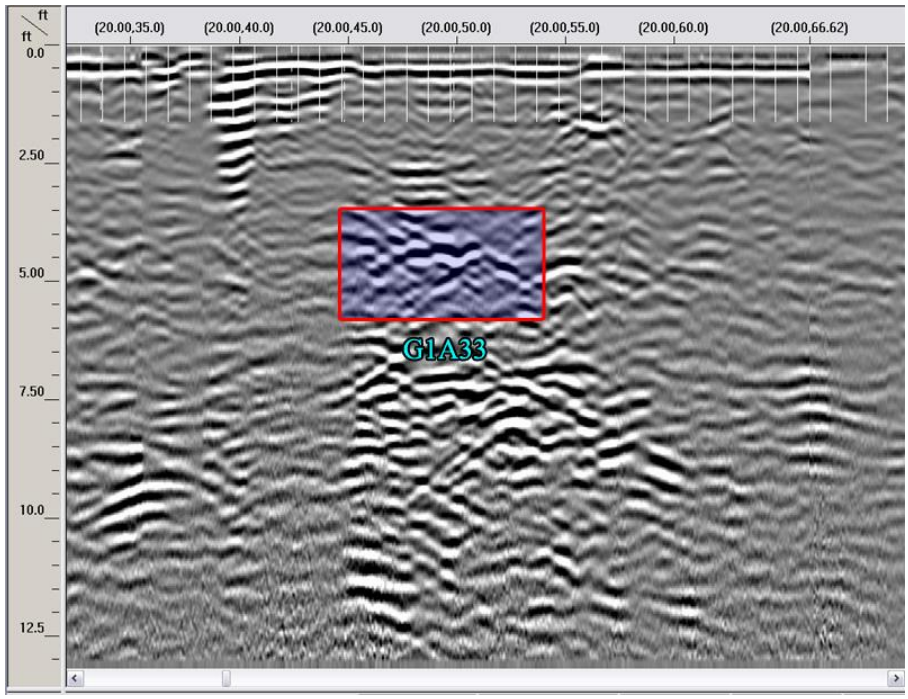


Figure 32. GPR Anomaly G1A33.

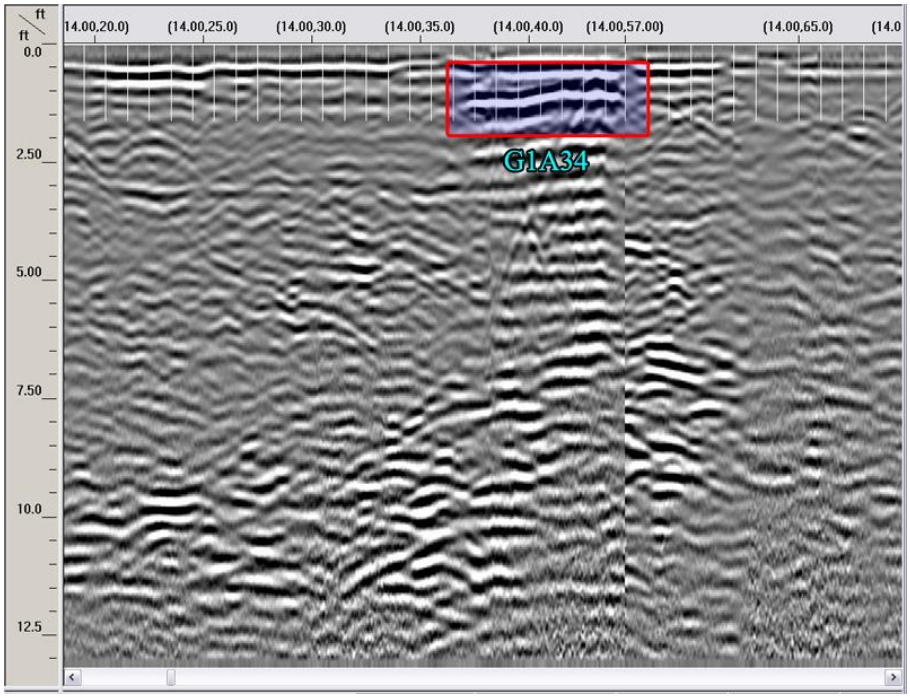


Figure 33. GPR Anomaly G1A34.

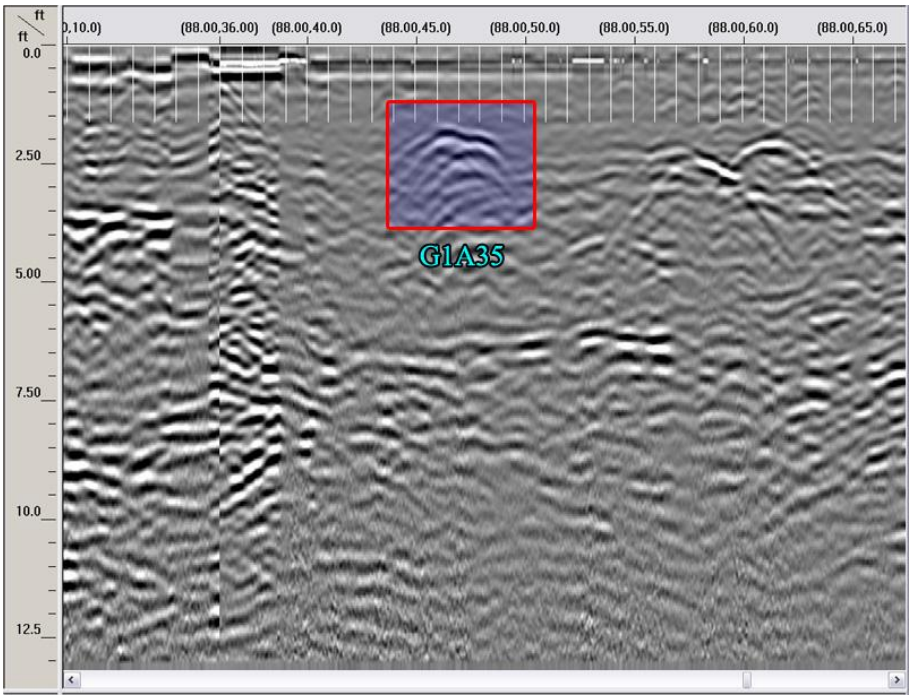


Figure 34. GPR Anomaly G1A35.

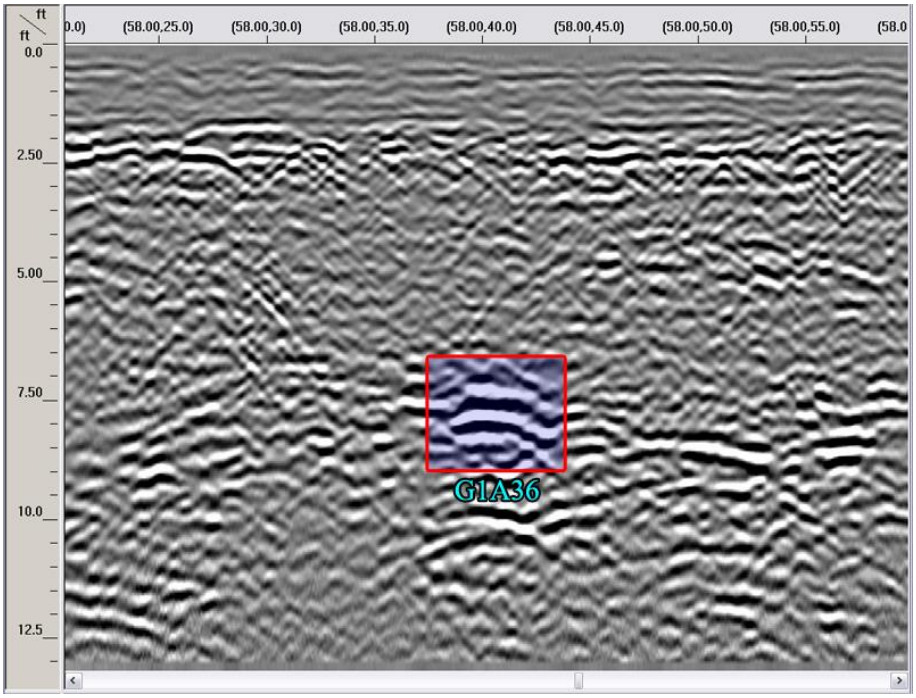


Figure 35. GPR Anomaly G1A36.

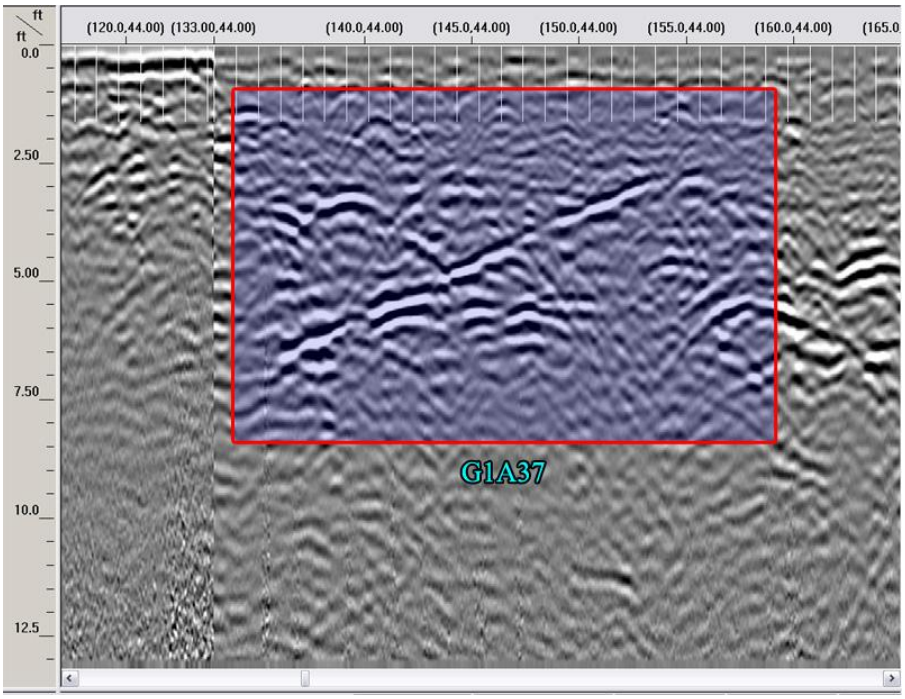


Figure 36. GPR Anomaly G1A37.

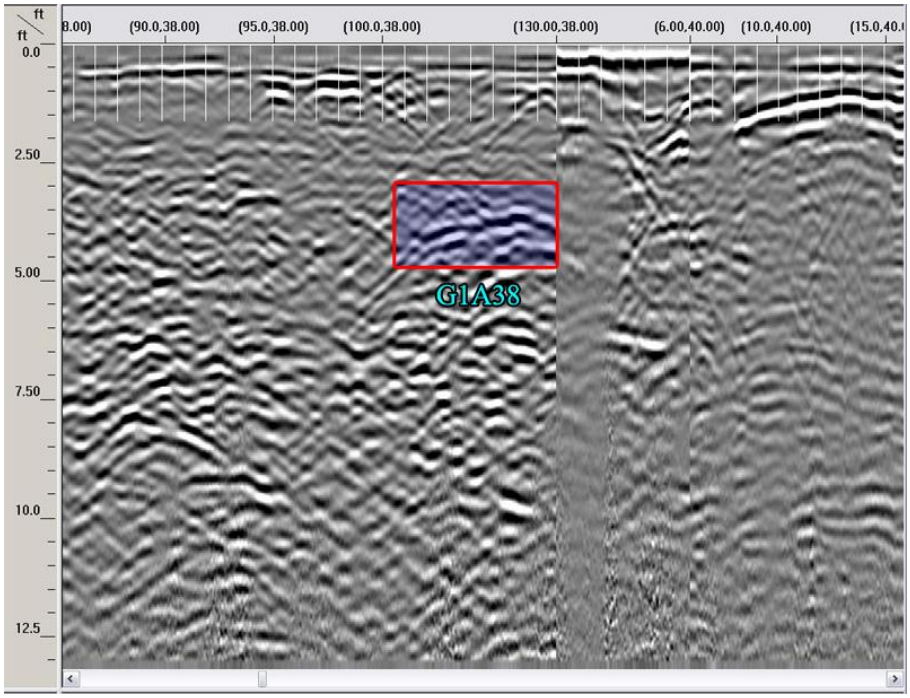


Figure 37. GPR Anomaly G1A38.

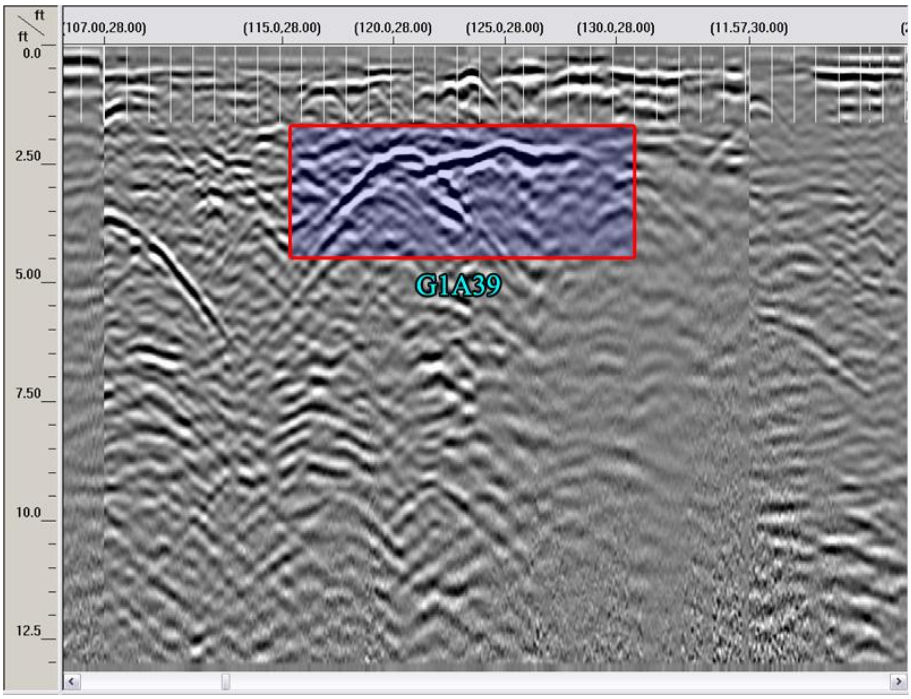


Figure 38. GPR Anomaly G1A39.

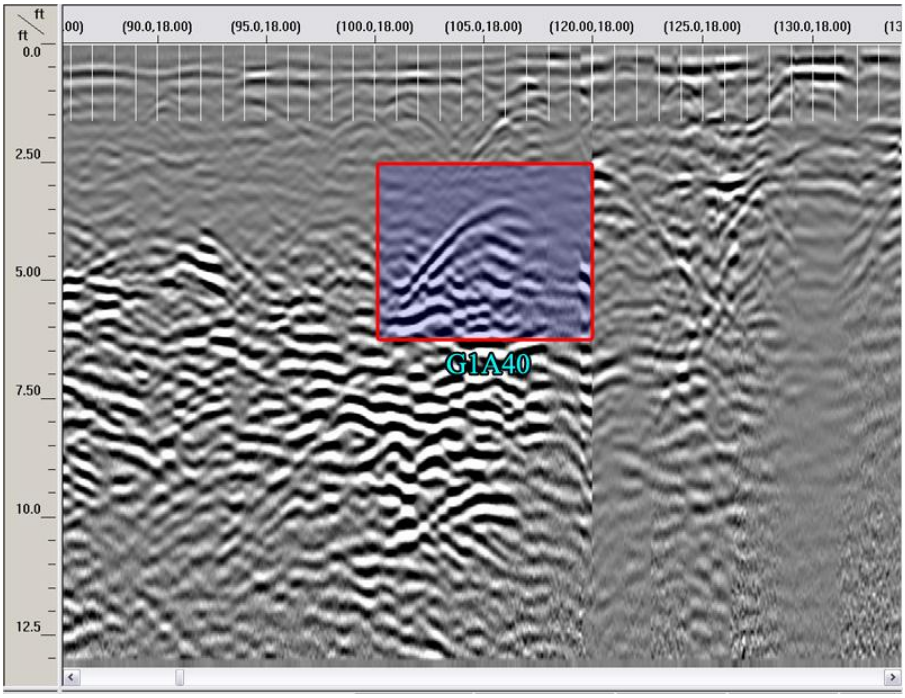


Figure 39. GPR Anomaly G1A40.

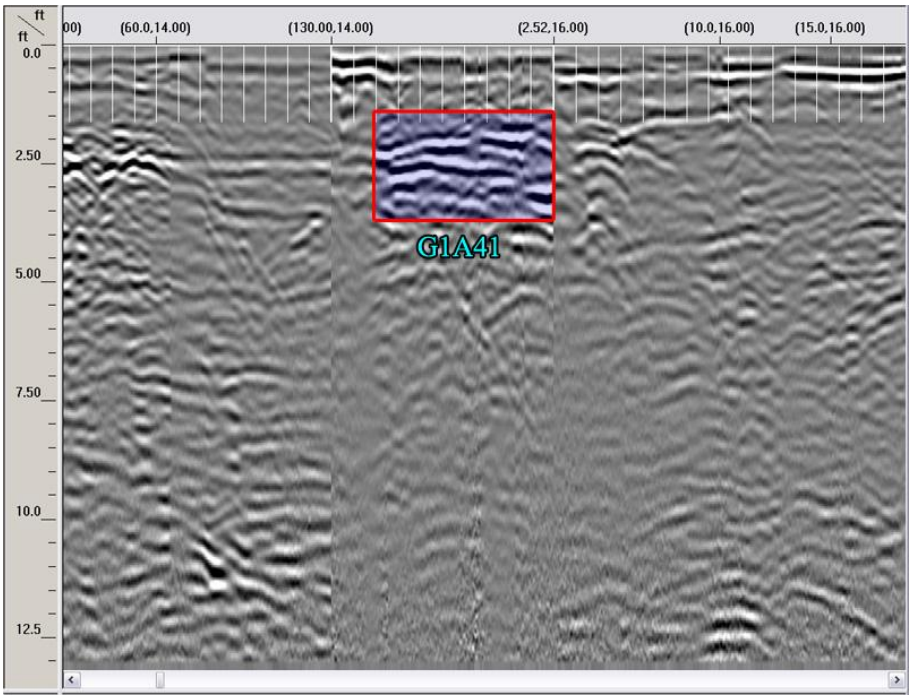


Figure 40. GPR Anomaly G1A41.

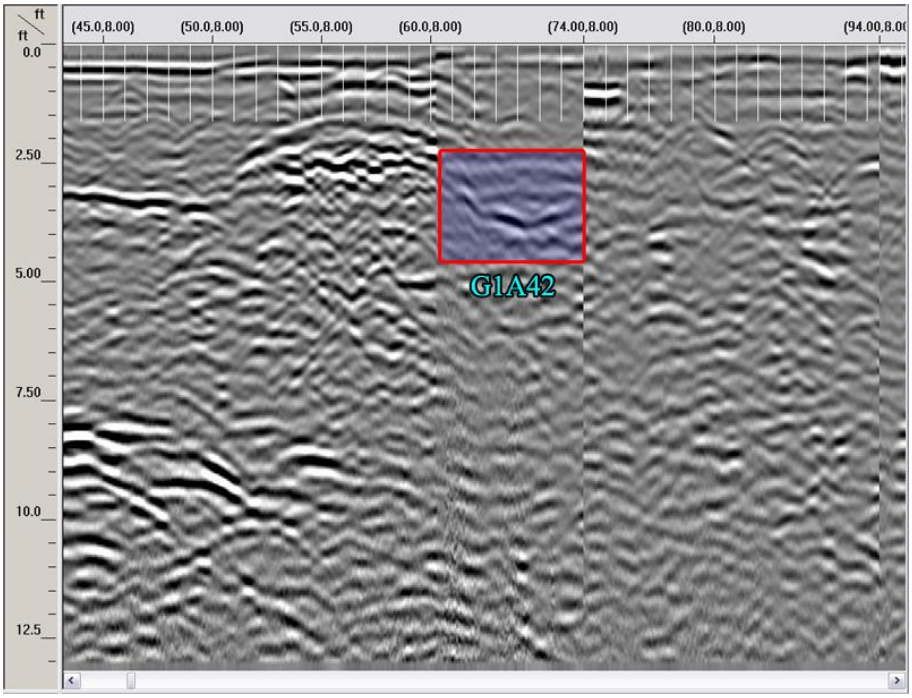


Figure 41. GPR Anomaly G1A42.

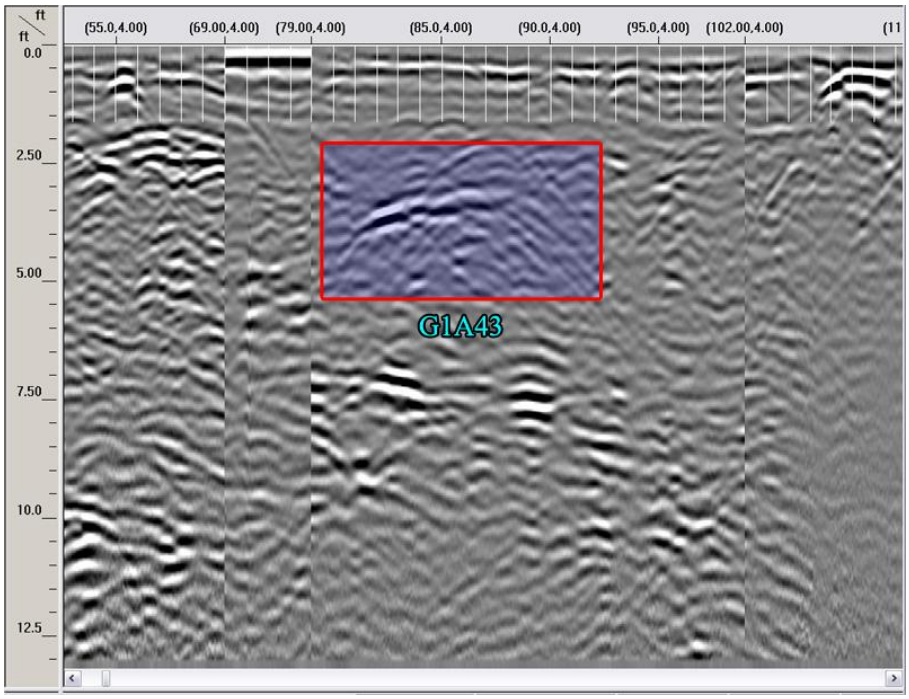


Figure 42. GPR Anomaly G1A43.

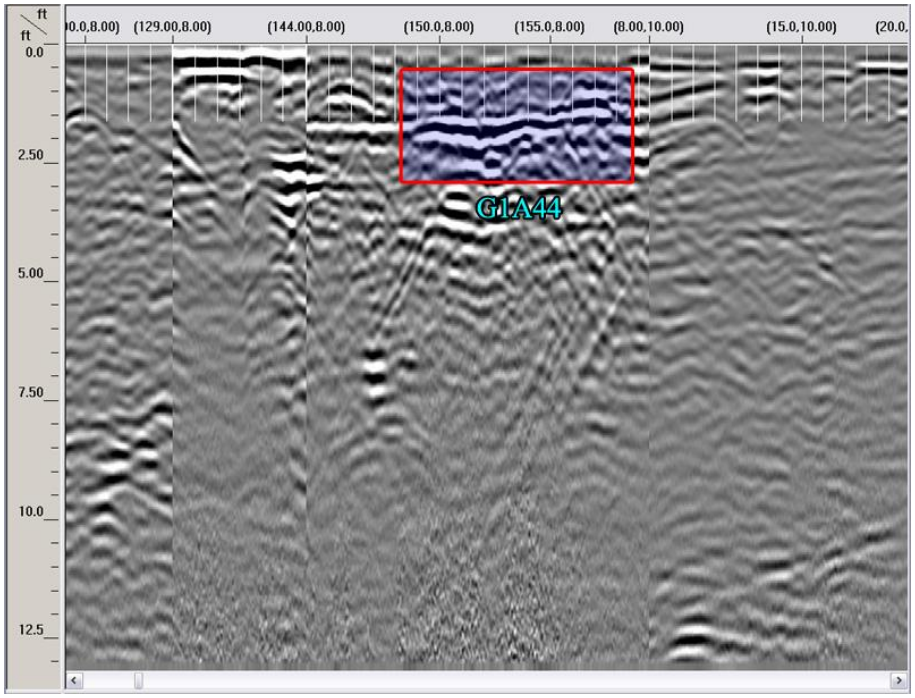


Figure 43. GPR Anomaly G1A44.

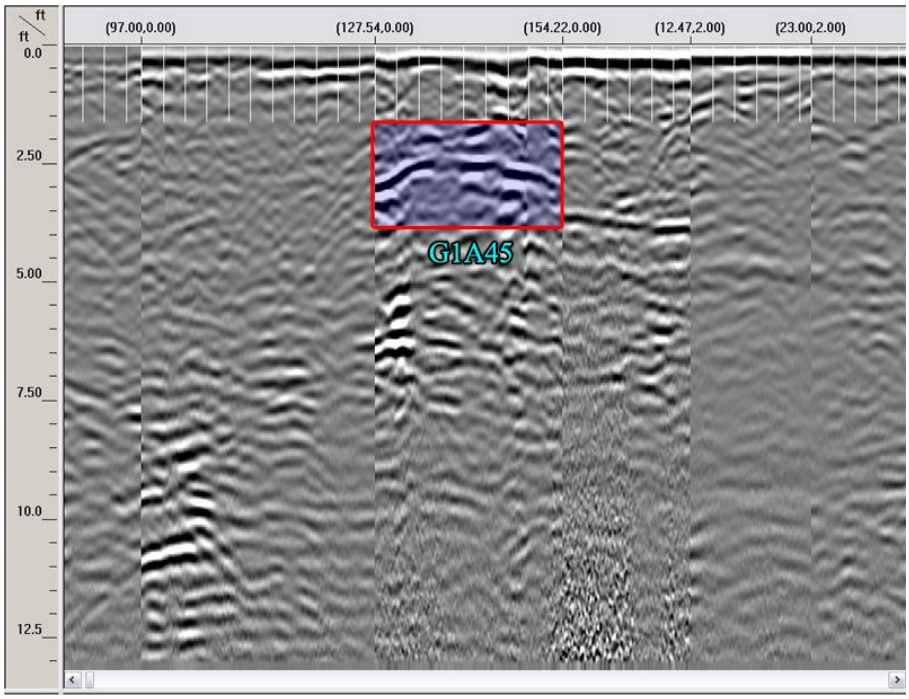


Figure 44. GPR Anomaly G1A45.

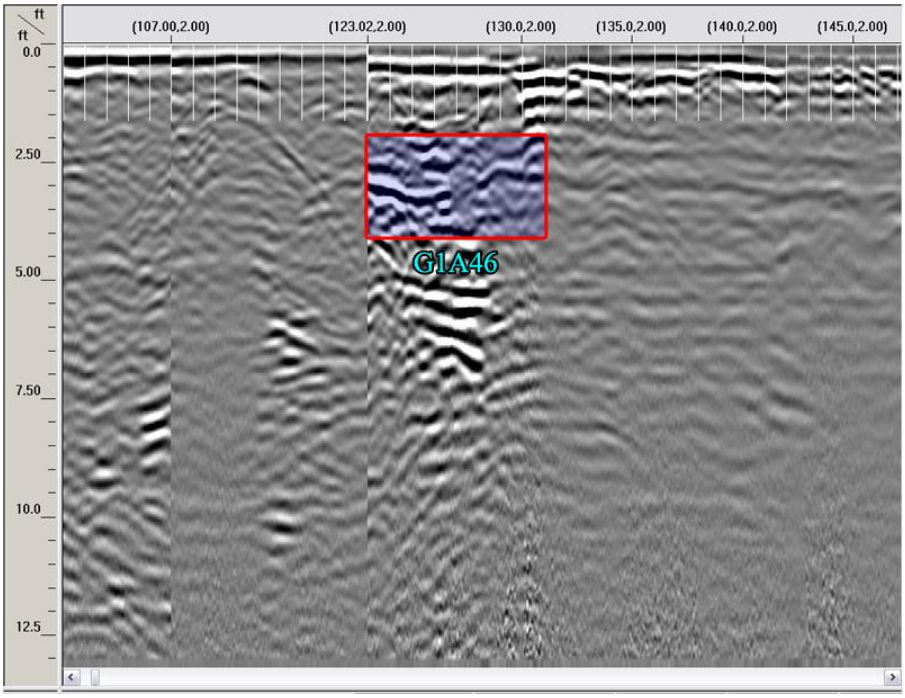


Figure 45. GPR Anomaly G1A46.

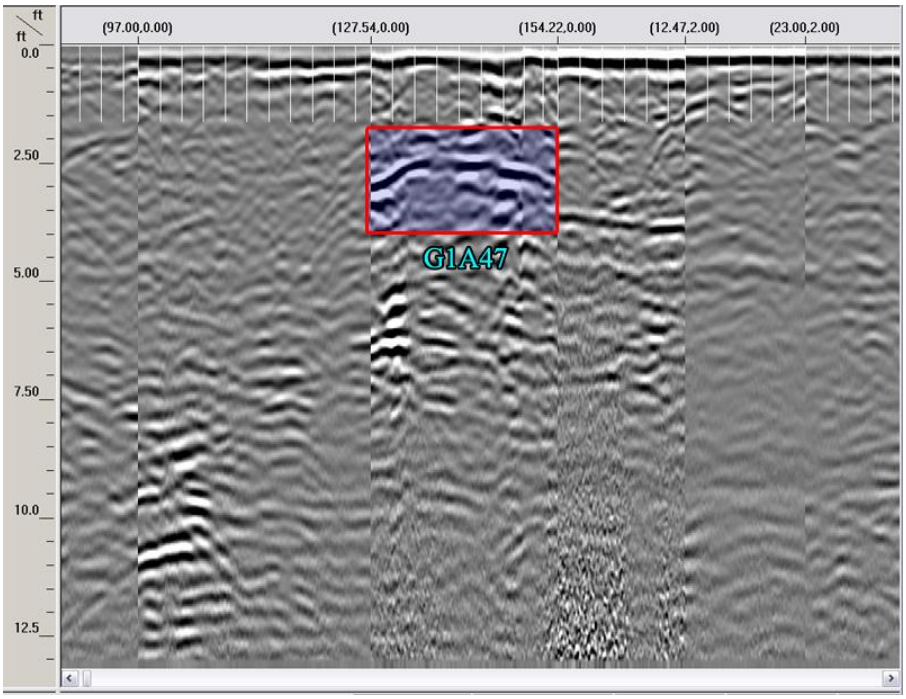


Figure 46. GPR Anomaly G1A47.

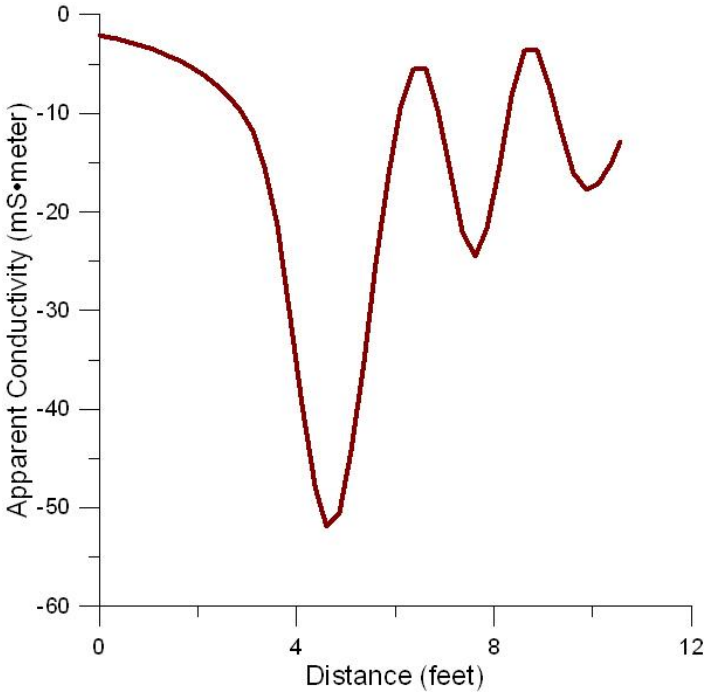


Figure 47. EM38-DD-DD Anomaly G1A48.

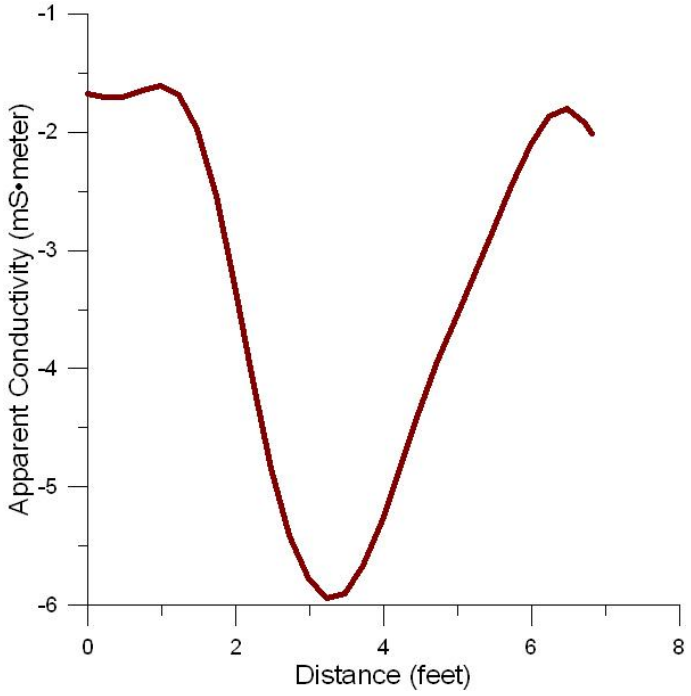


Figure 48. EM38-DD Anomaly G1A49.

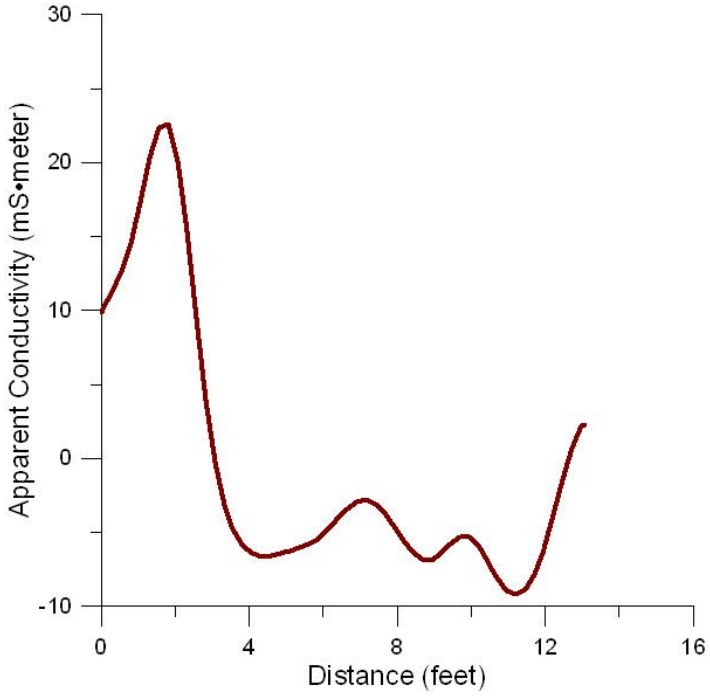


Figure 49. EM38-DD Anomaly G1A50.

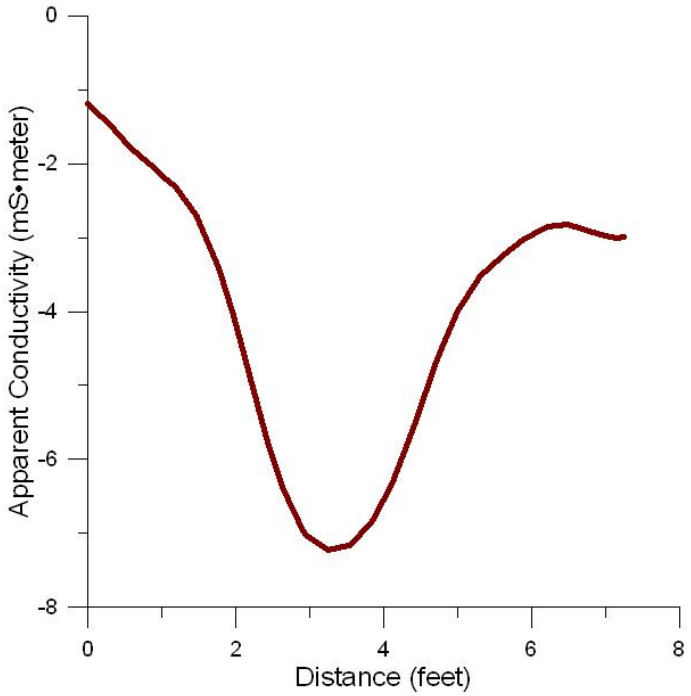


Figure 50. EM38-DD Anomaly G1A51.

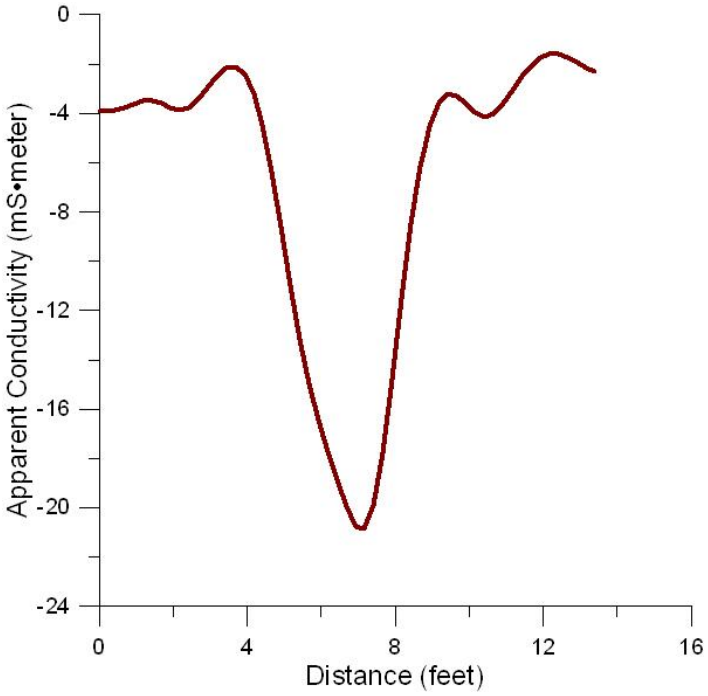


Figure 51. EM38-DD Anomaly G1A52.

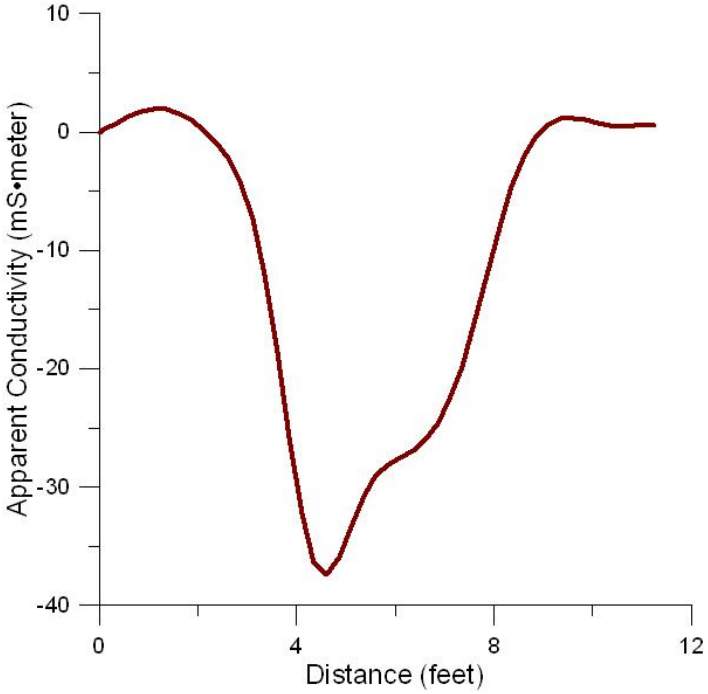


Figure 52. EM38-DD Anomaly G1A53.

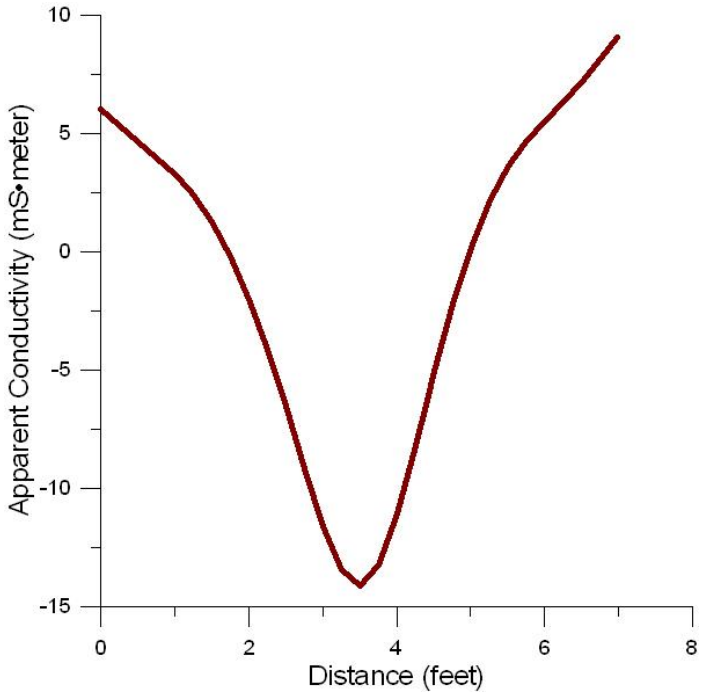


Figure 53. EM38-DD Anomaly G1A54.

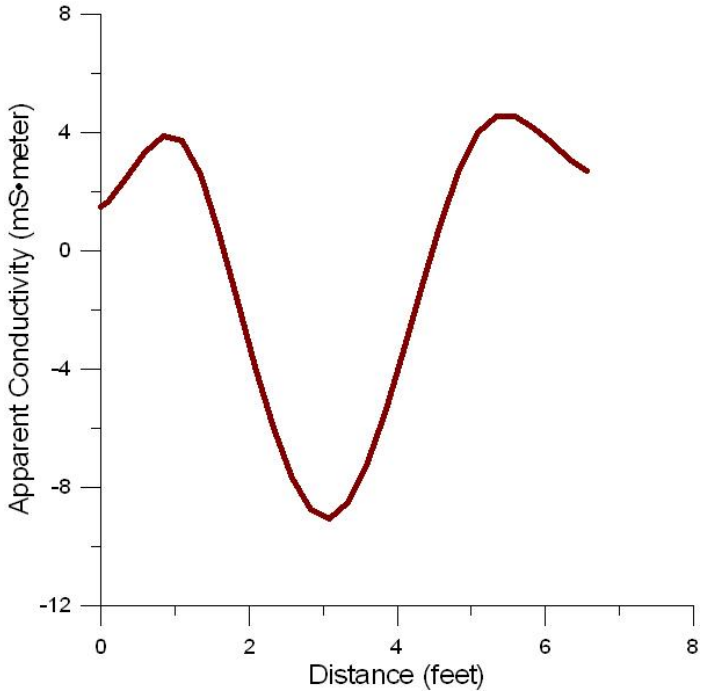


Figure 54. EM38-DD Anomaly G1A55.

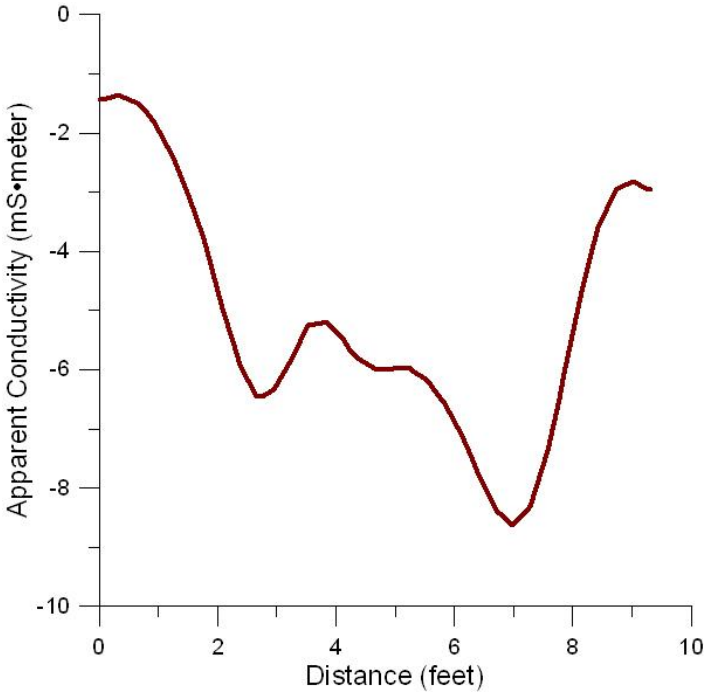


Figure 55. EM38-DD Anomaly G1A56.

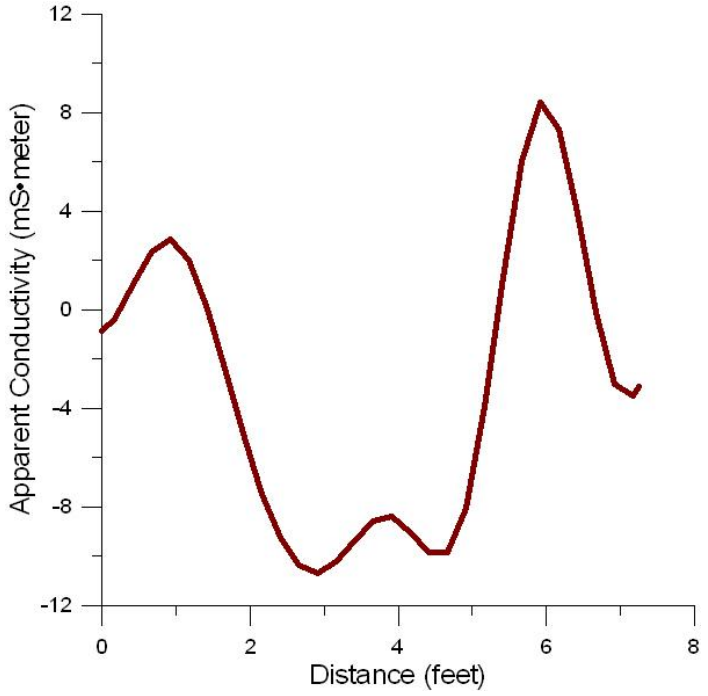


Figure 56. EM38-DD Anomaly G1A57.

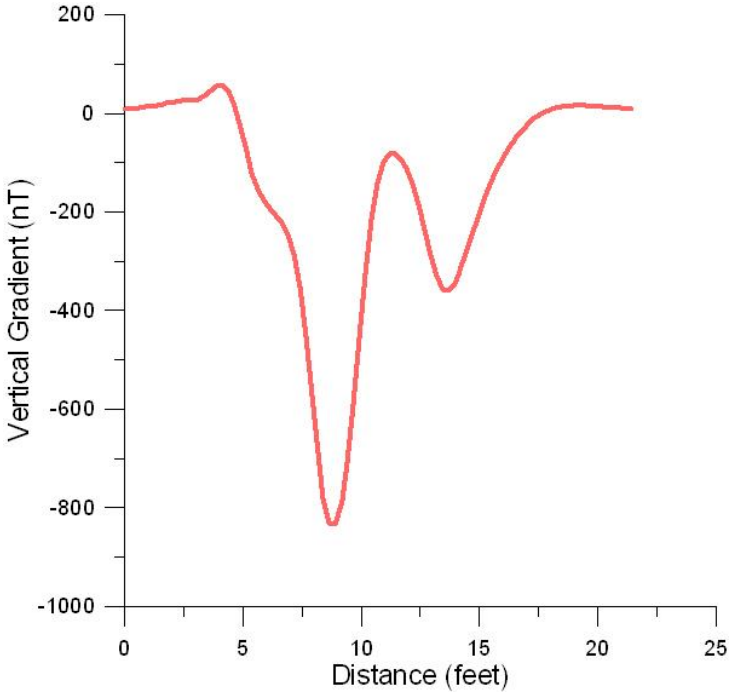


Figure 57. MAG Anomaly G1A58.

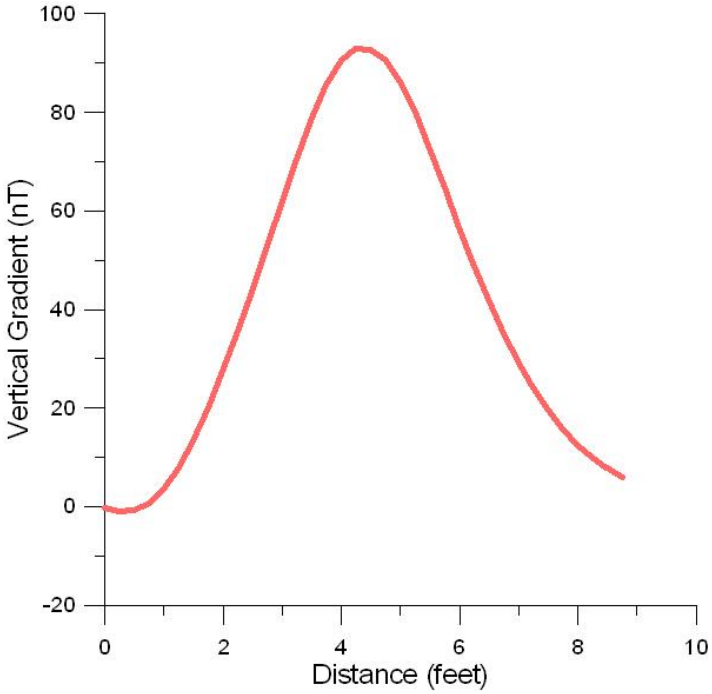


Figure 58. MAG Anomaly G1A59.

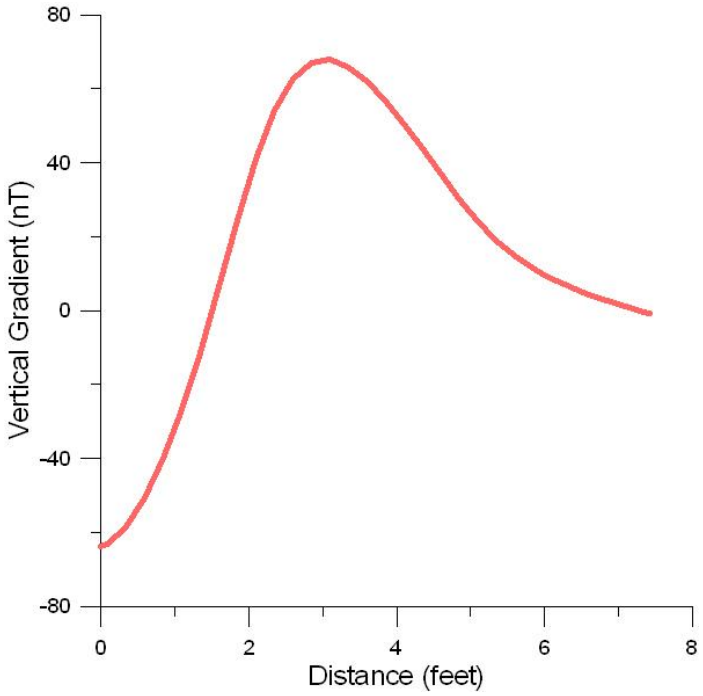


Figure 59. MAG Anomaly G1A60.

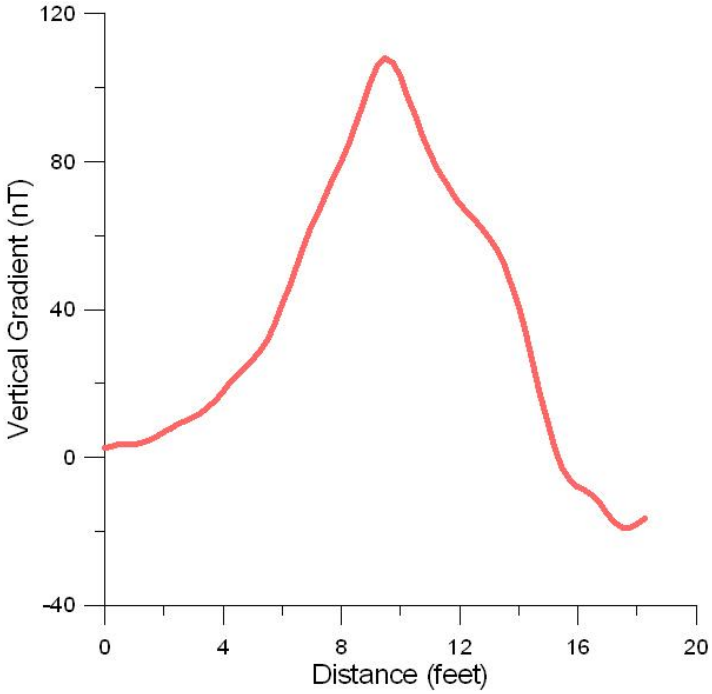


Figure 60. MAG Anomaly G1A61.

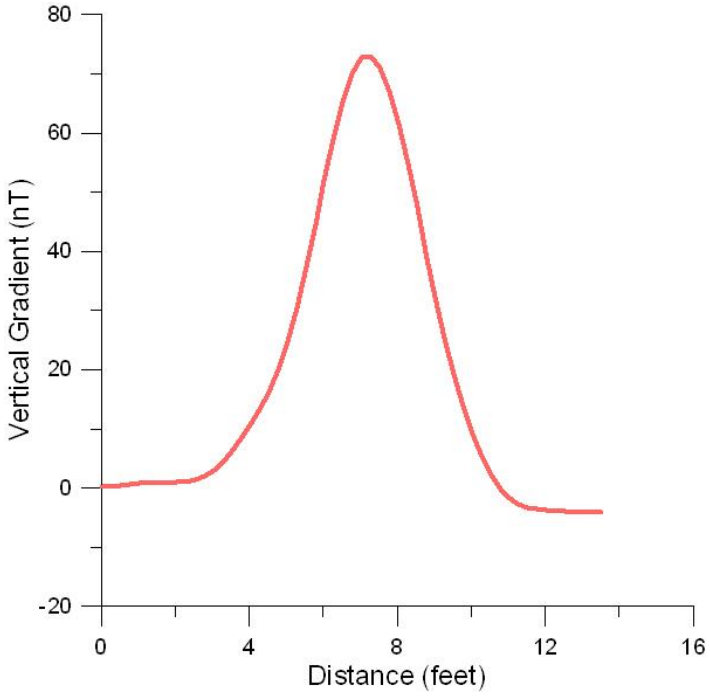


Figure 61. MAG Anomaly G1A62.

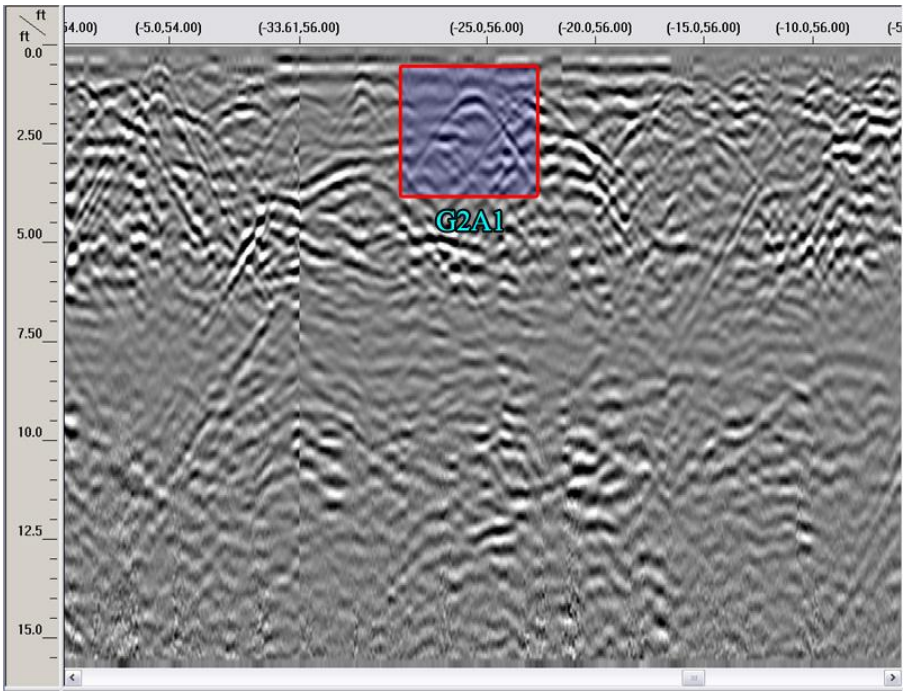


Figure 62. GPR Anomaly G2A1.

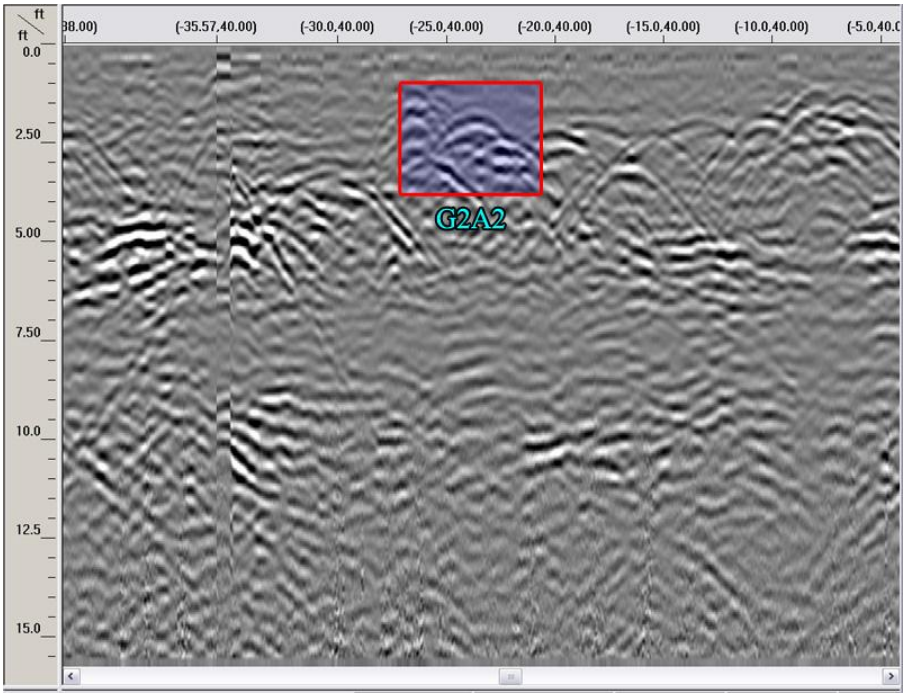


Figure 63. GPR Anomaly G2A2.

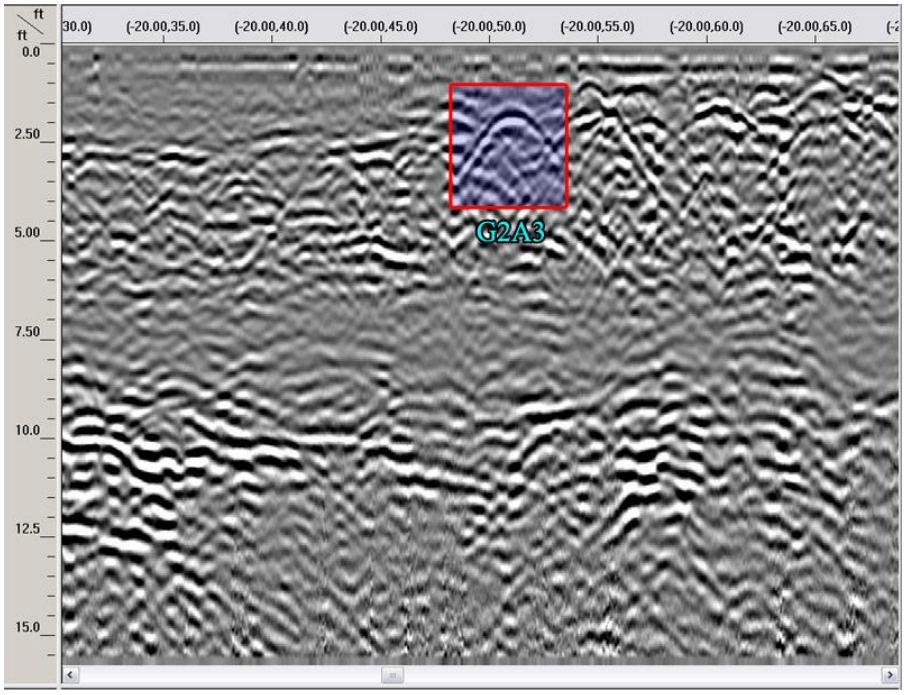


Figure 64. GPR Anomaly G2A3.

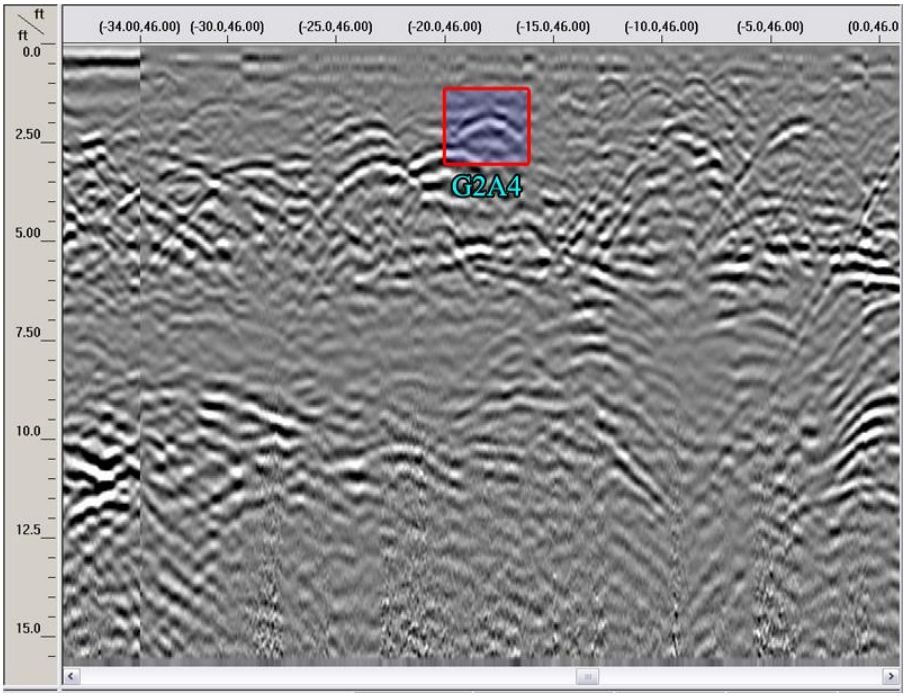


Figure 65. GPR Anomaly G2A4.

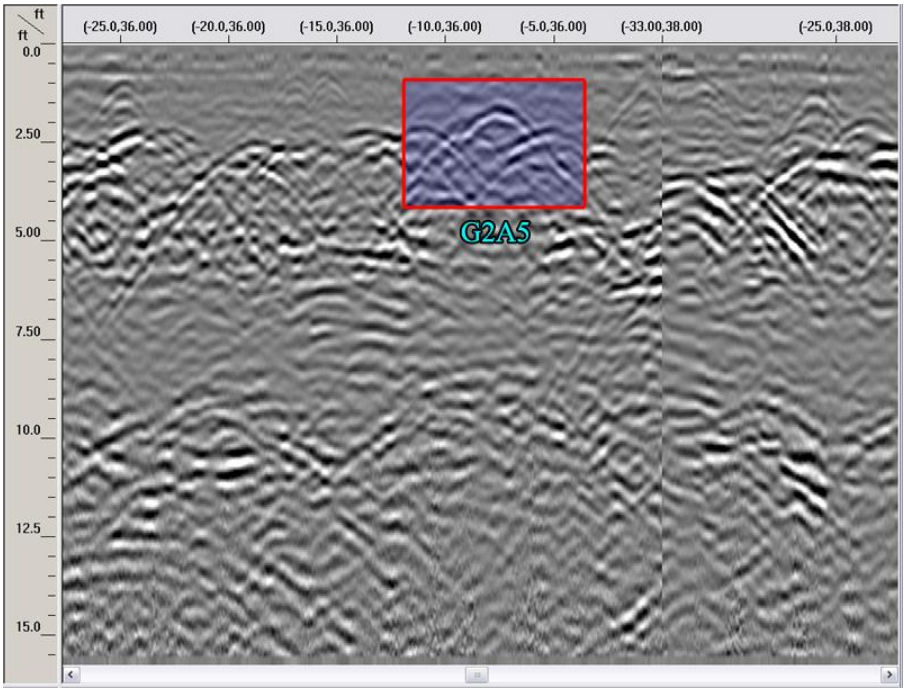


Figure 66. GPR Anomaly G2A5.

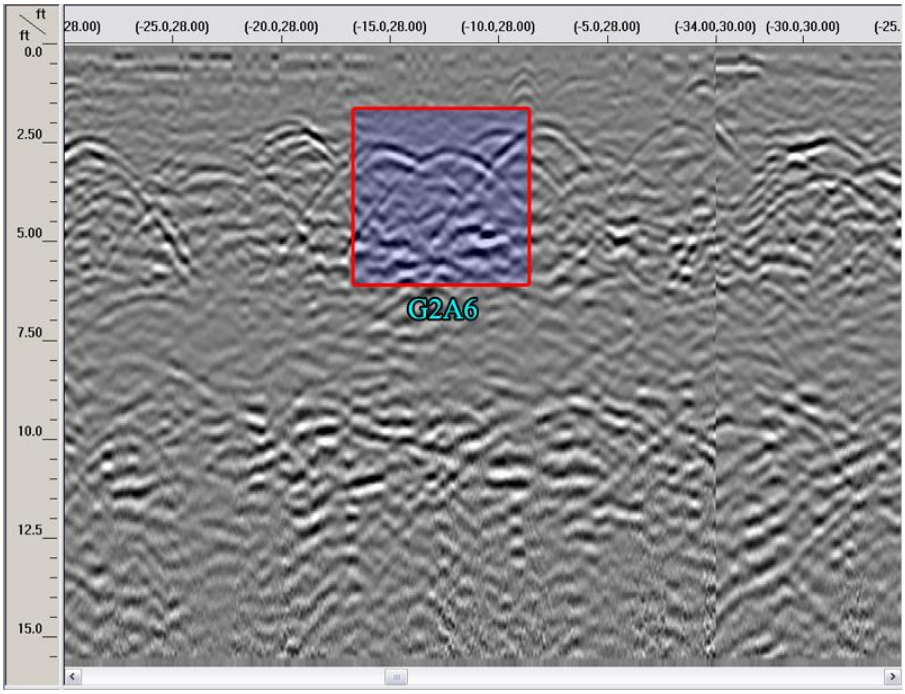


Figure 67. GPR Anomaly G2A6.

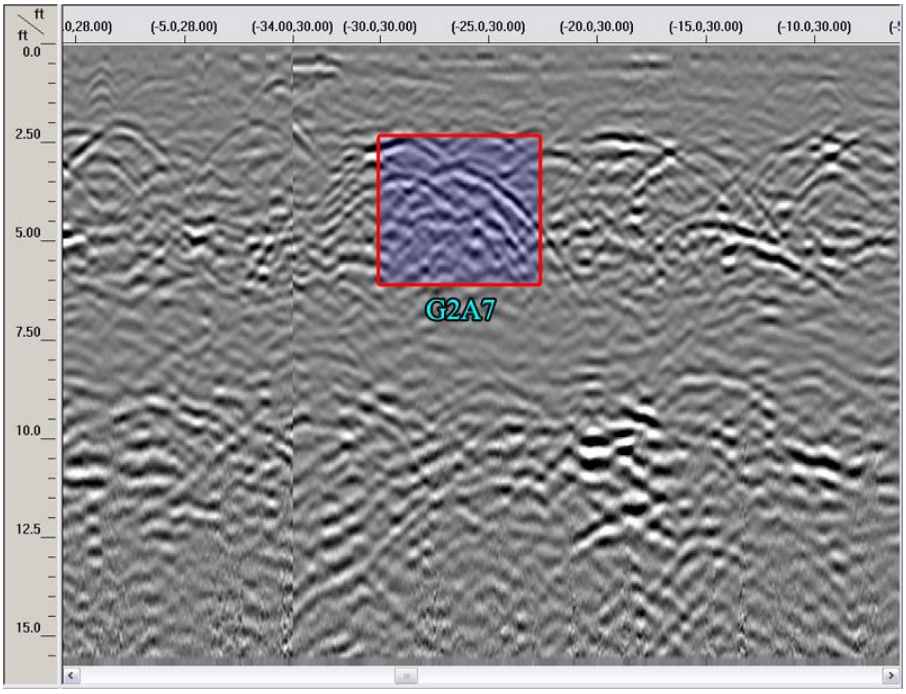


Figure 68. GPR Anomaly G2A7.

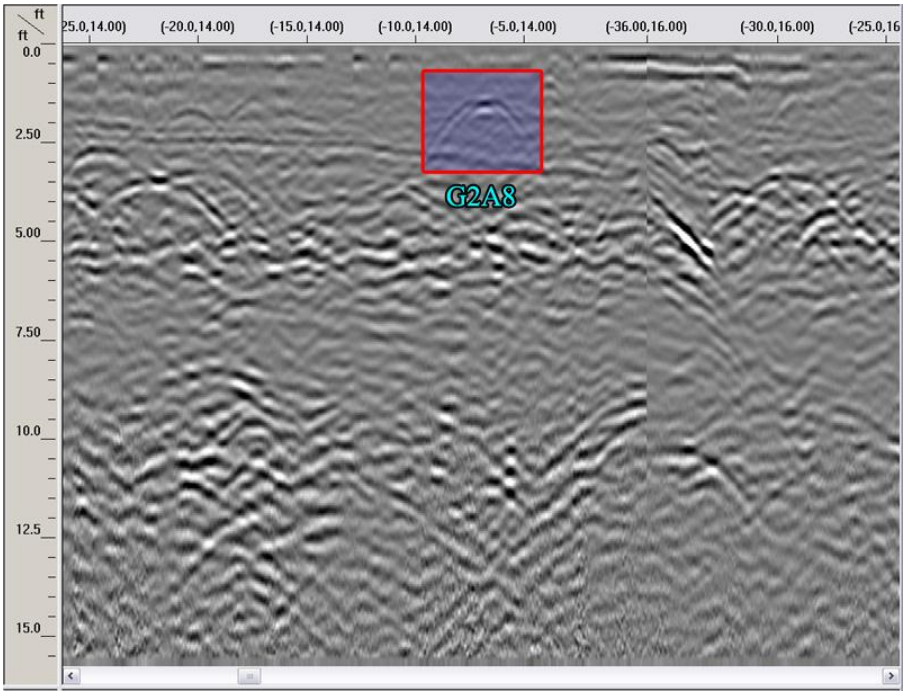


Figure 69. GPR Anomaly G2A8.

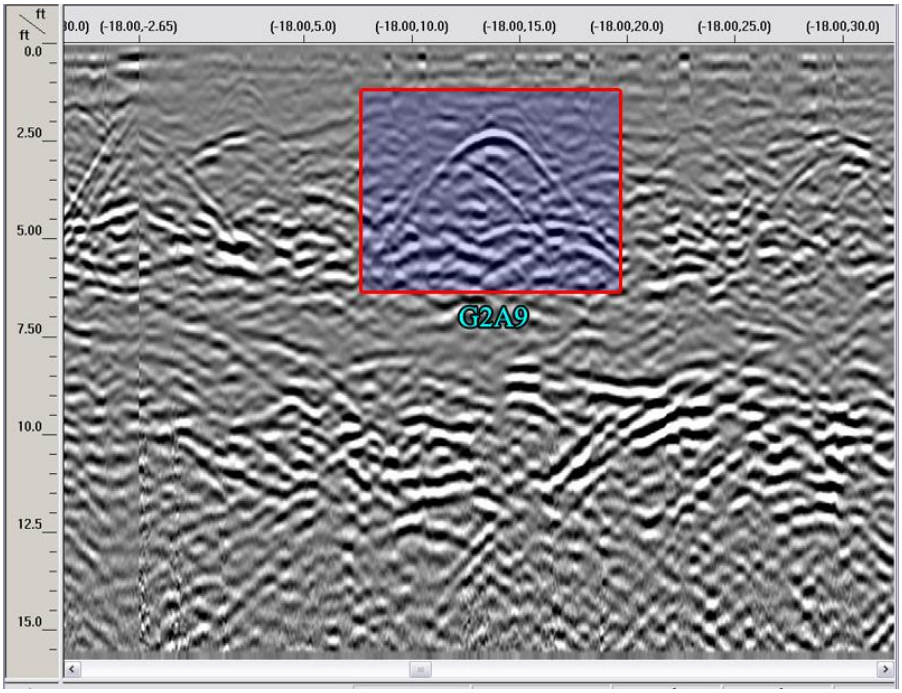


Figure 70. GPR Anomaly G2A9.

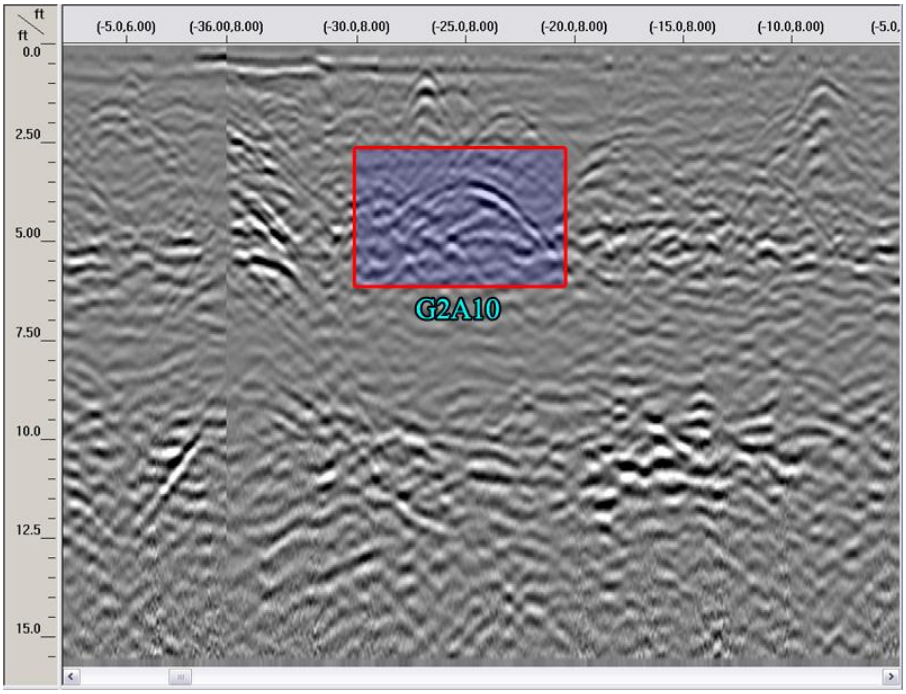


Figure 71. GPR Anomaly G2A10.

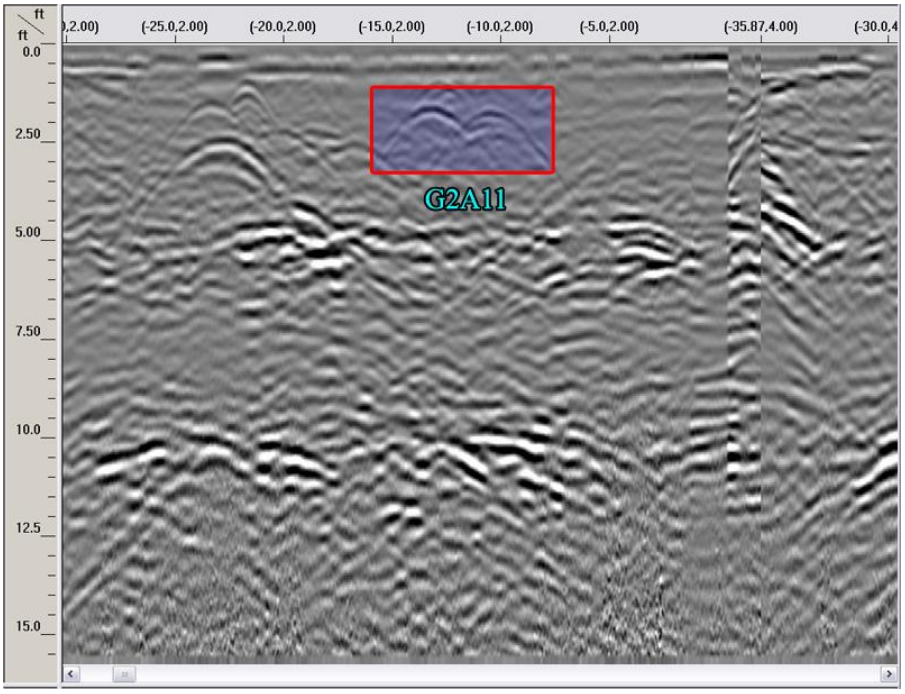


Figure 72. GPR Anomaly G2A11.

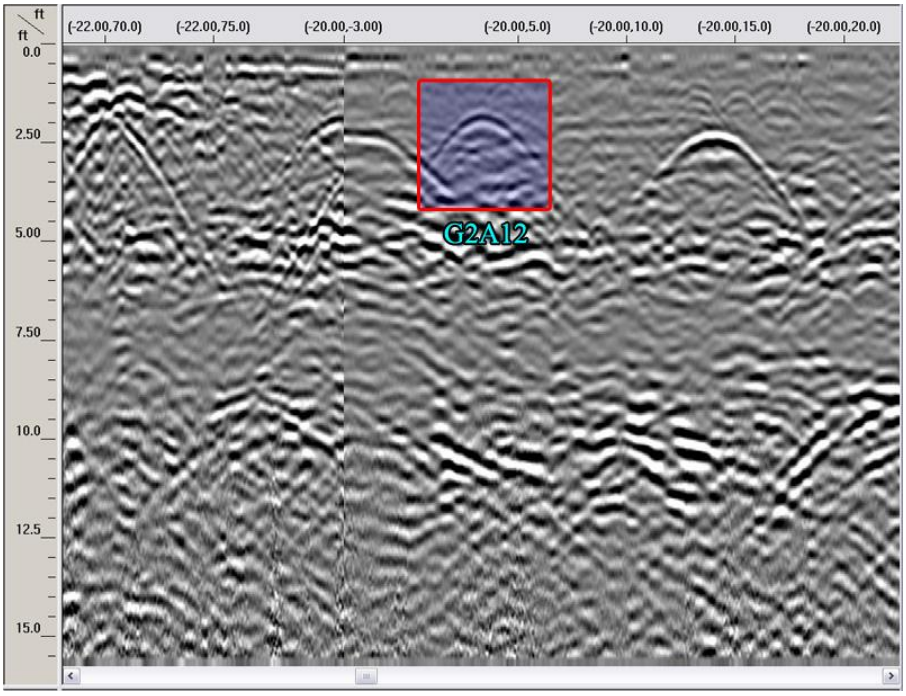


Figure 73. GPR Anomaly G2A12.

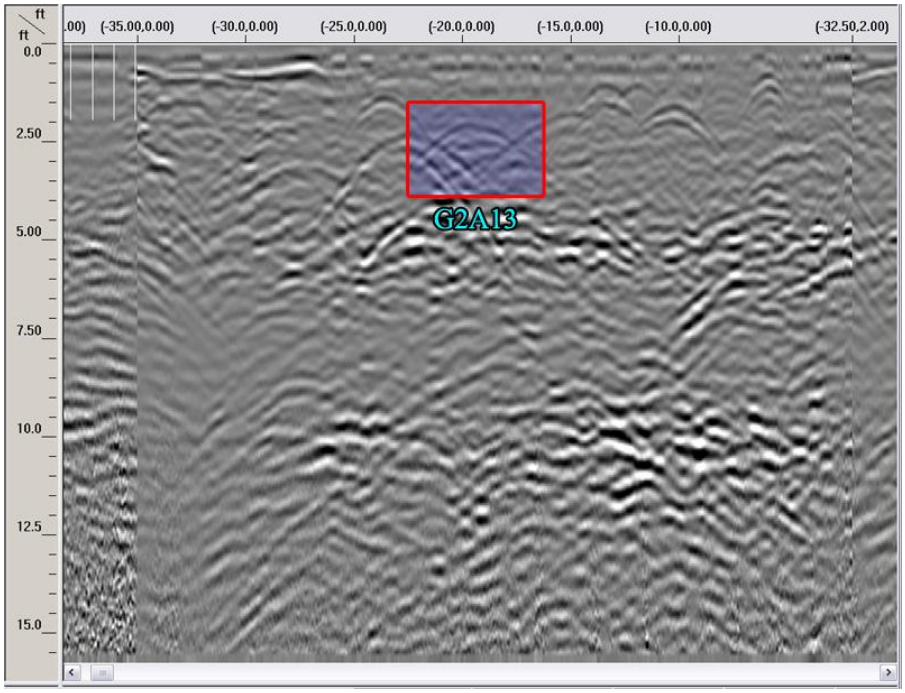


Figure 74. GPR Anomaly G2A13.

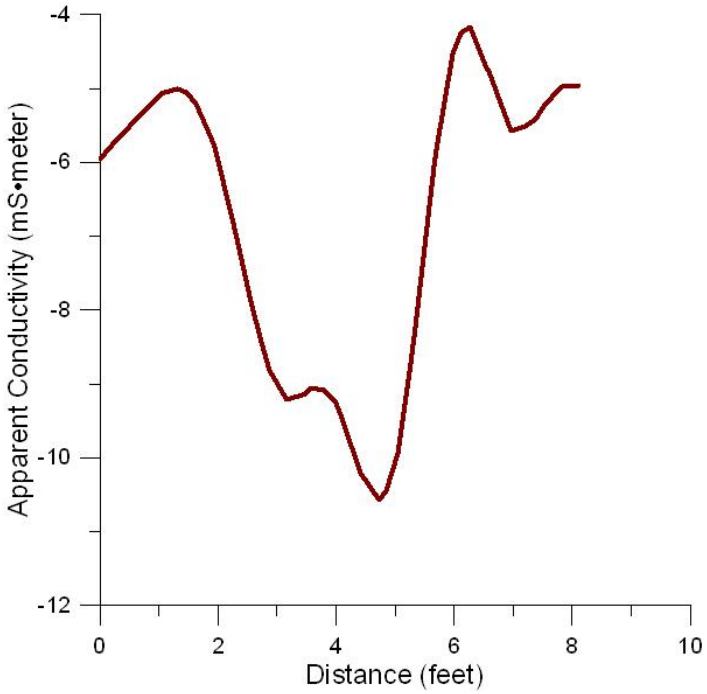


Figure 75. EM38-DD Anomaly G2A14.

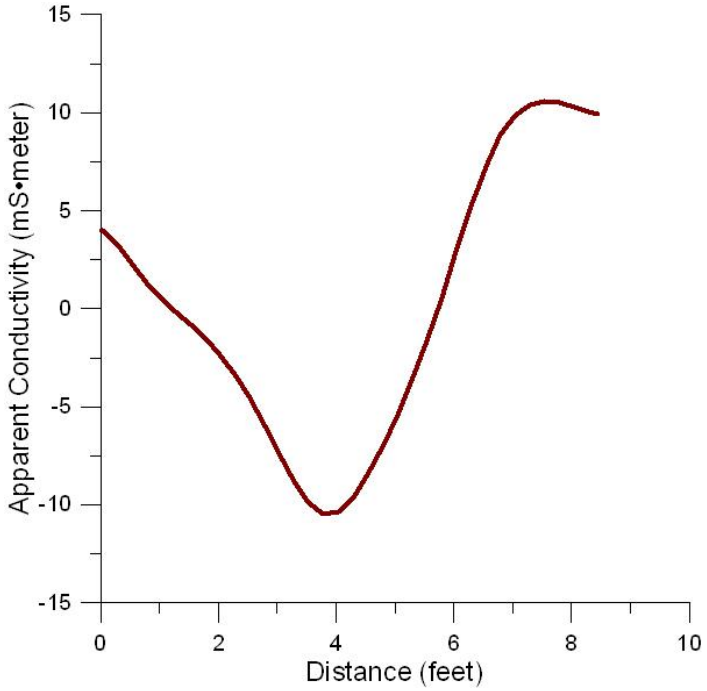


Figure 76. EM38-DD Anomaly G2A15.

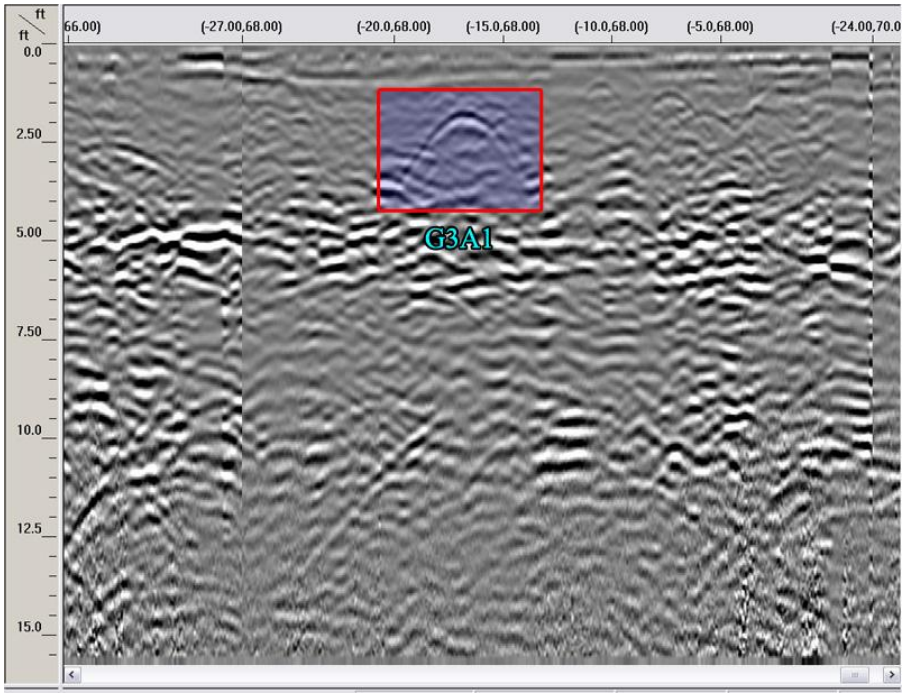


Figure 77. GPR Anomaly G3A1.

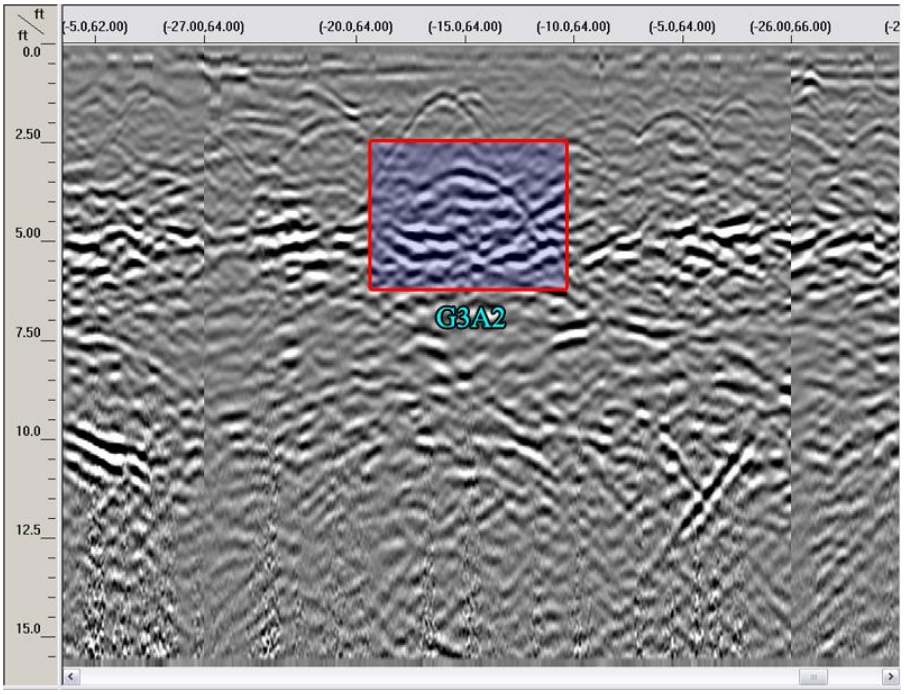


Figure 78. GPR Anomaly G3A2.

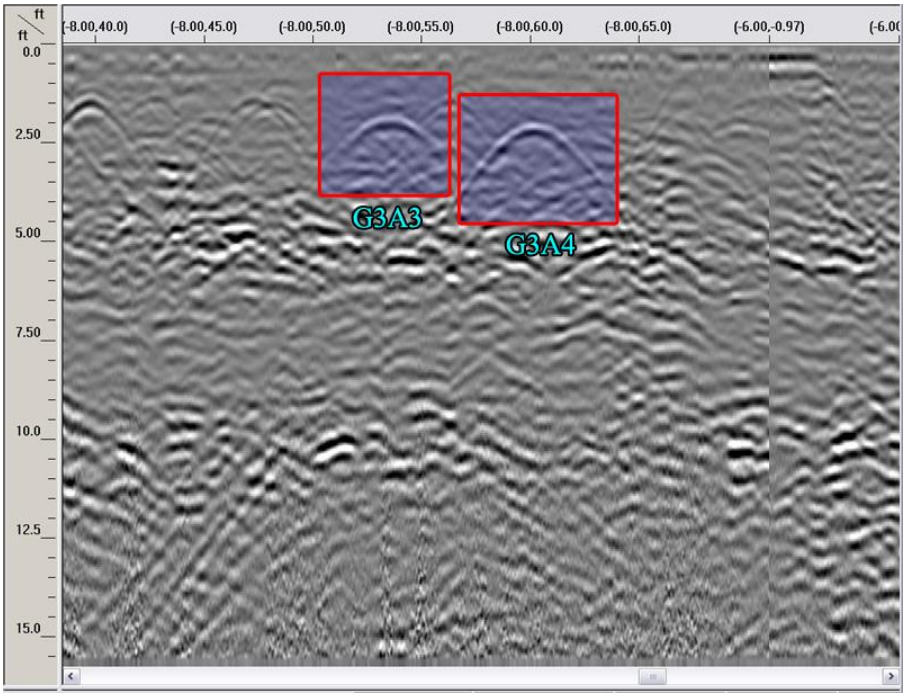


Figure 79. GPR Anomalies G3A3 & G3A4.

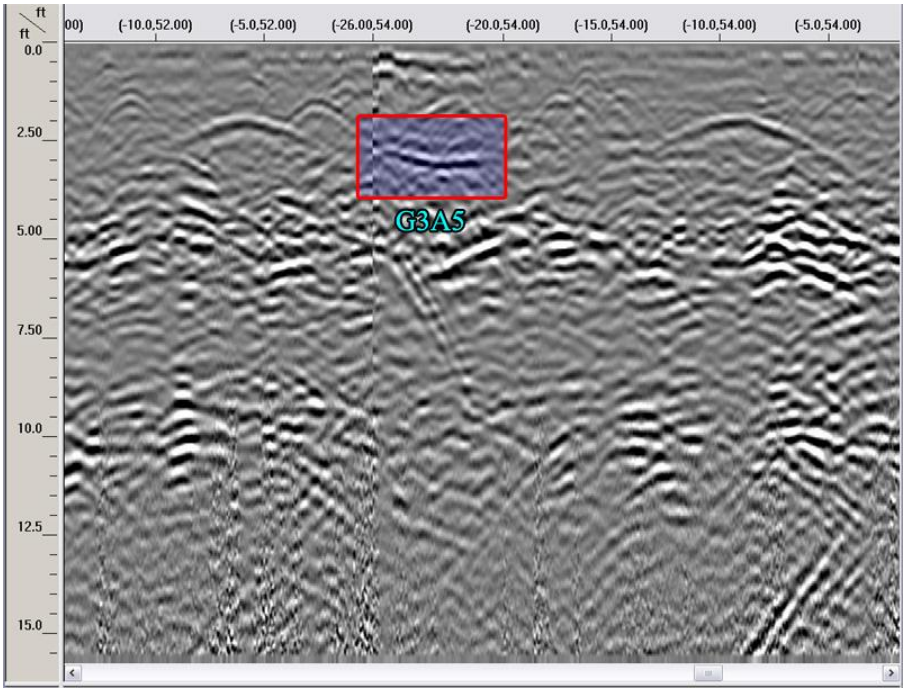


Figure 80. GPR Anomaly G3A5.

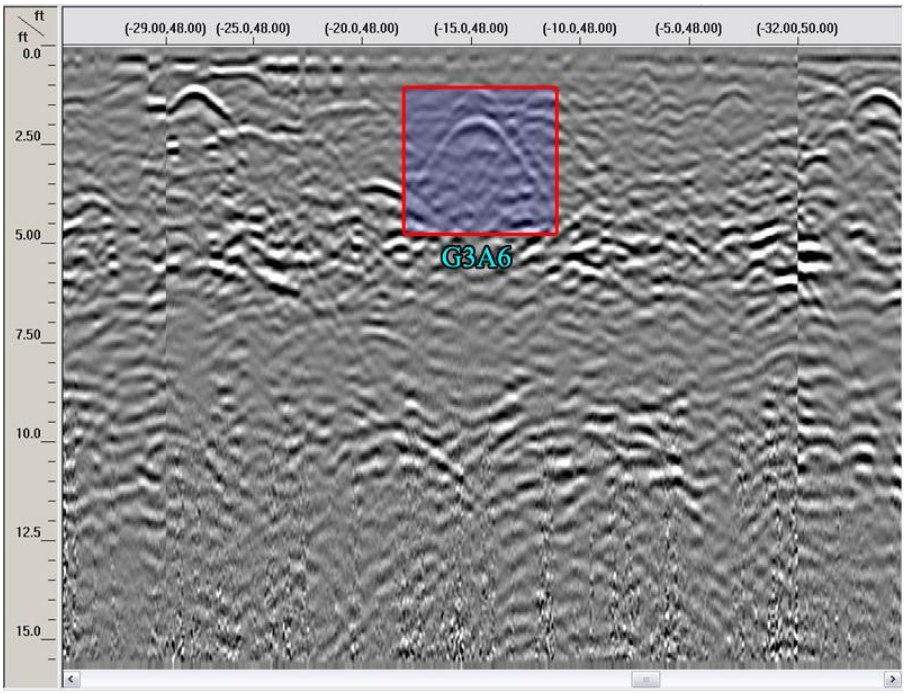


Figure 81. GPR Anomaly G3A6.

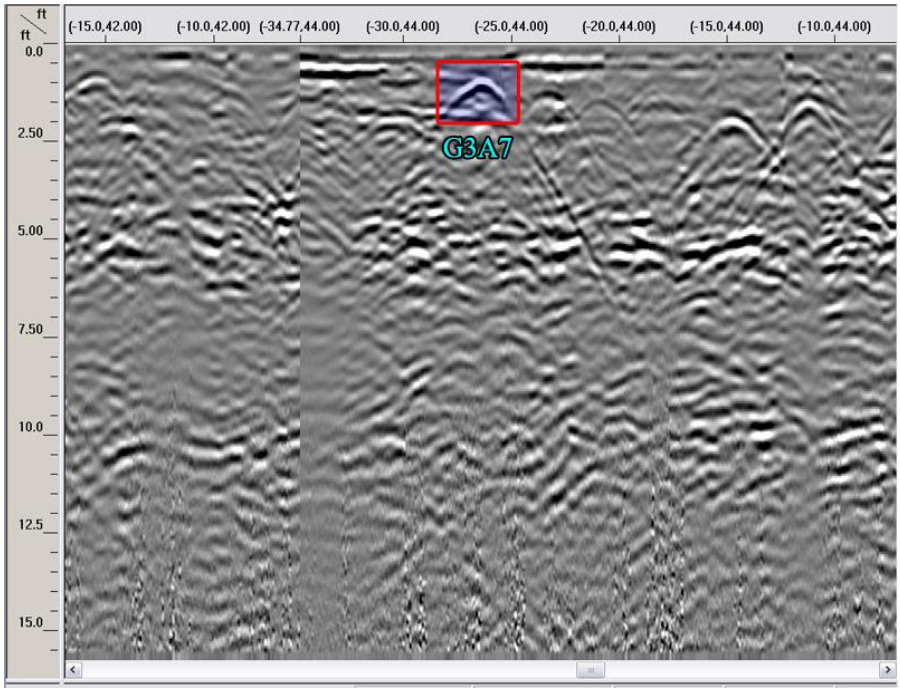


Figure 82. GPR Anomaly G3A7.

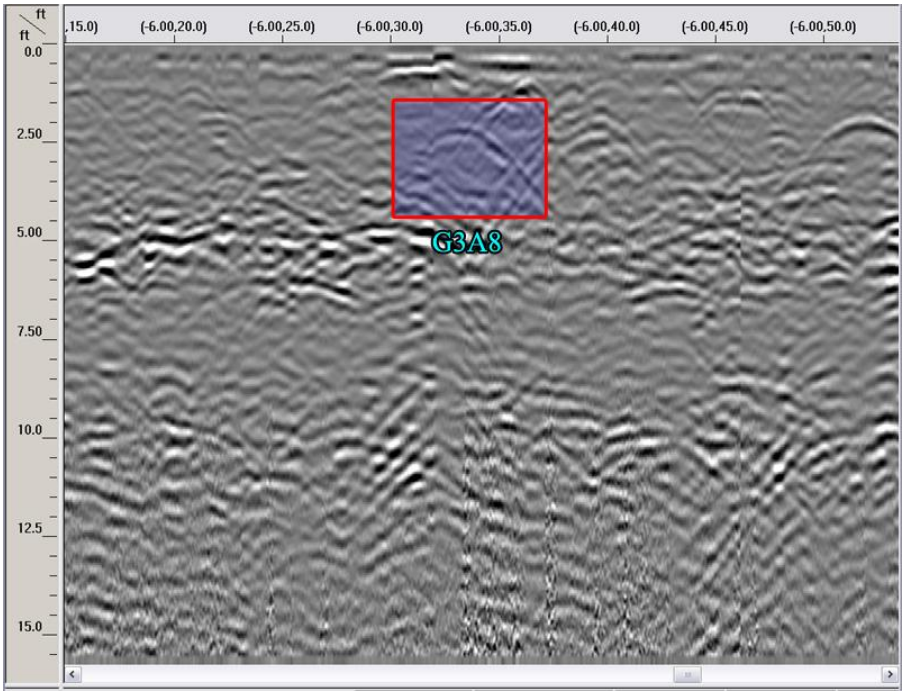


Figure 83. GPR Anomaly G3A8.

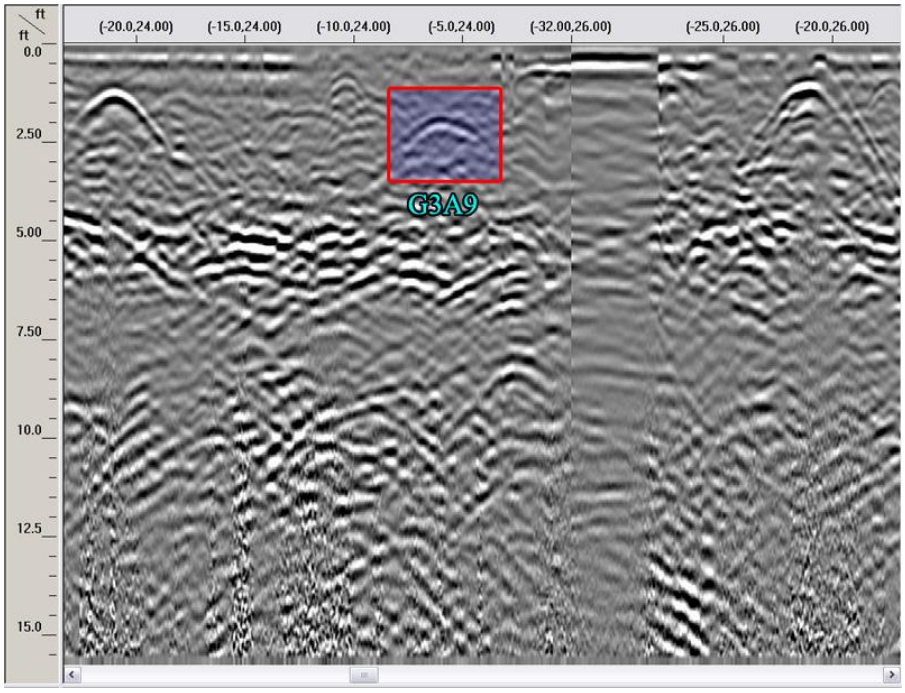


Figure 84. GPR Anomaly G3A9.

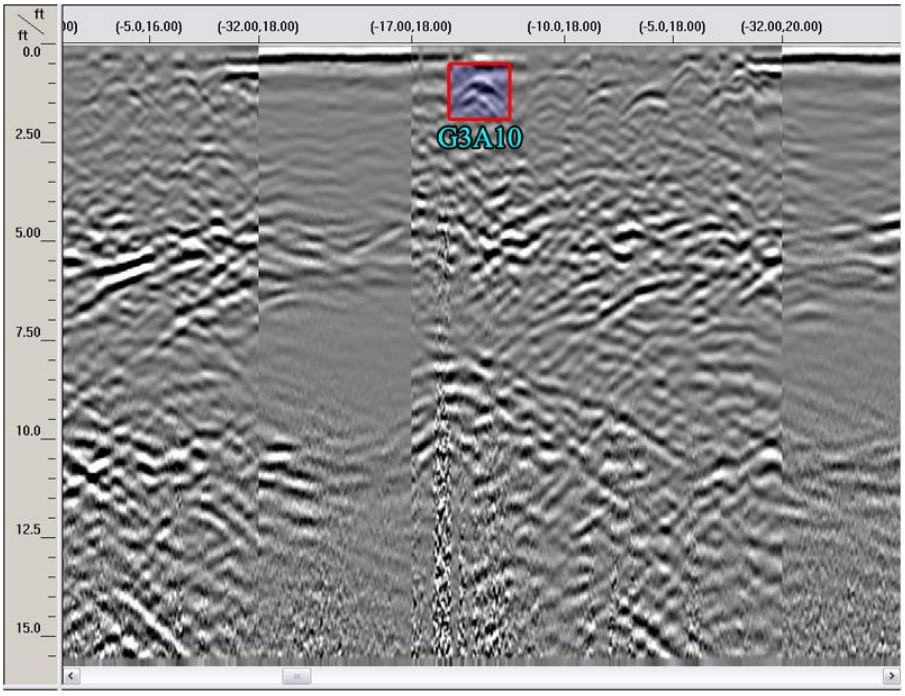


Figure 85. GPR Anomaly G3A10.

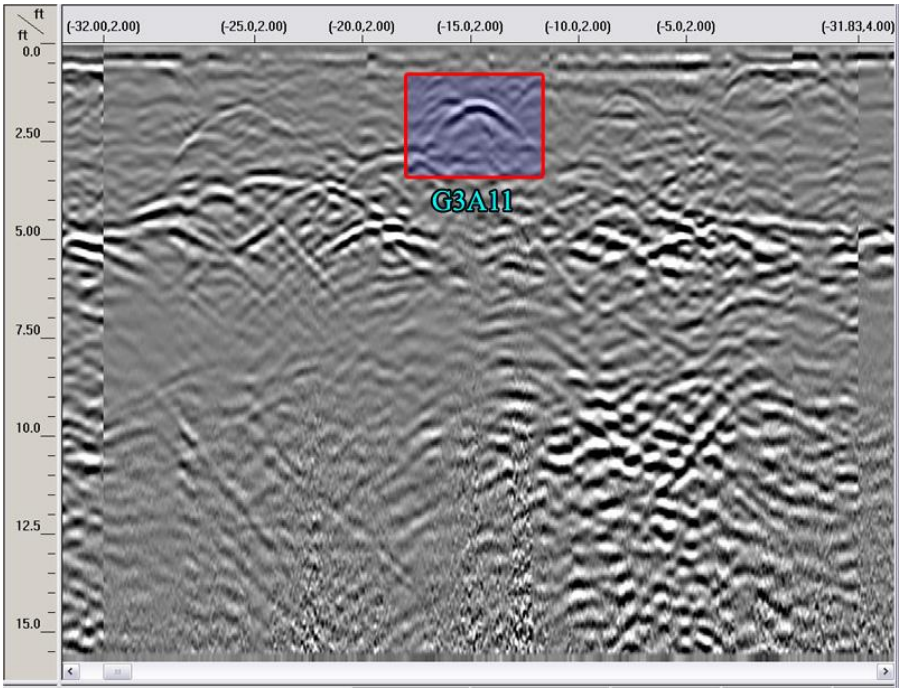


Figure 86. GPR Anomaly G3A11.

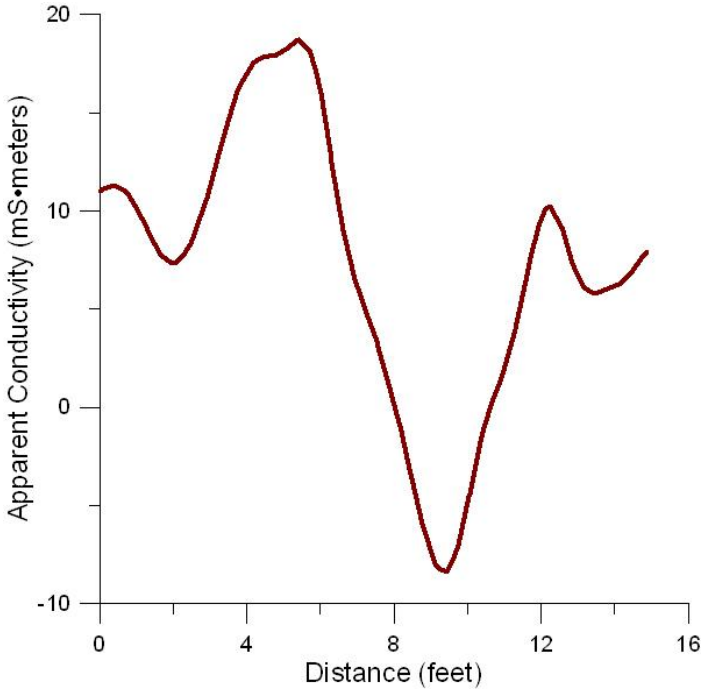


Figure 87. EM38-DD Anomaly G3A12.

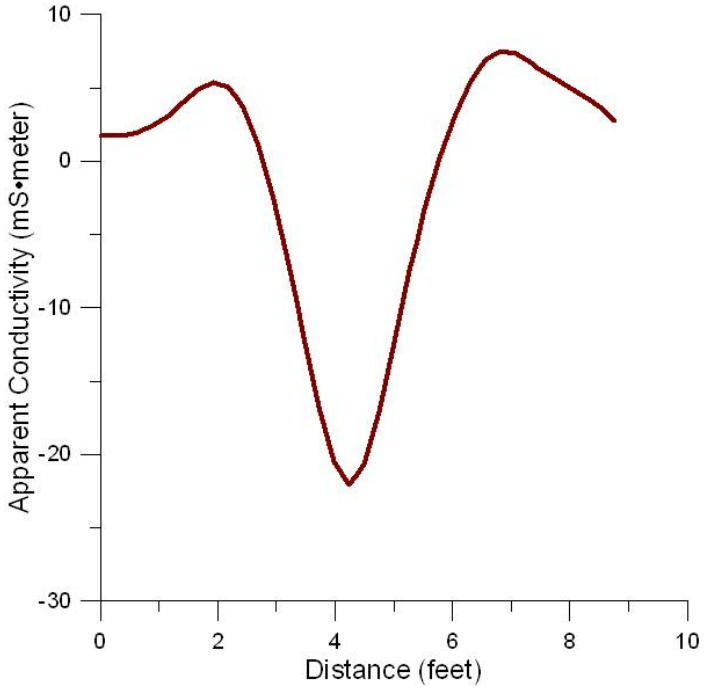


Figure 88. EM38-DD Anomaly G3A13.

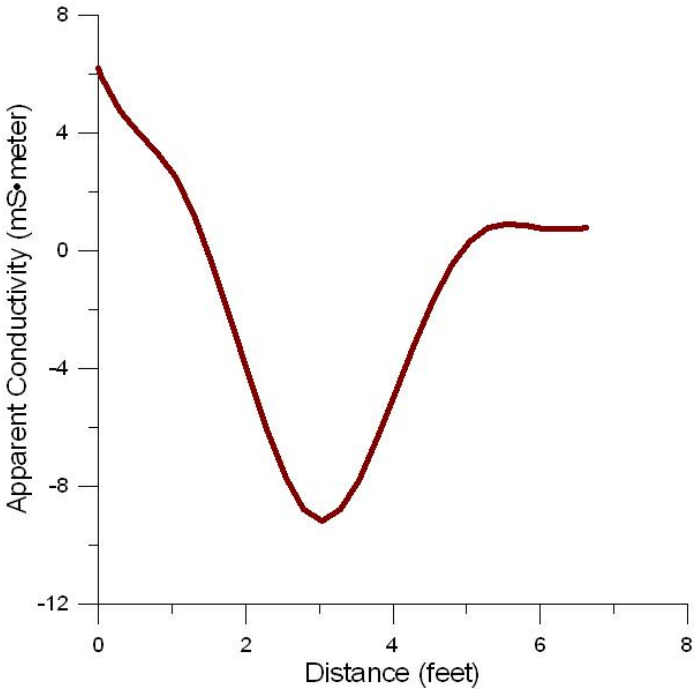


Figure 89. EM38-DD Anomaly G3A14.

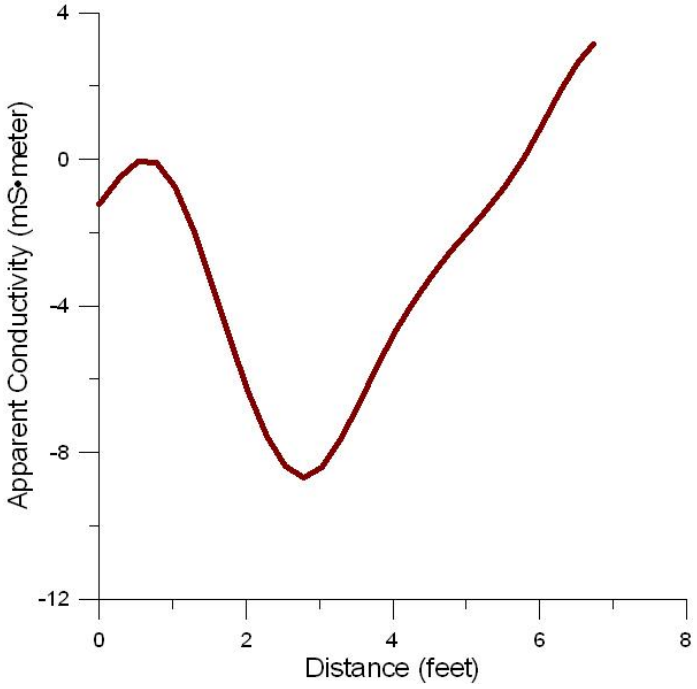


Figure 90. EM38-DD Anomaly G3A15.

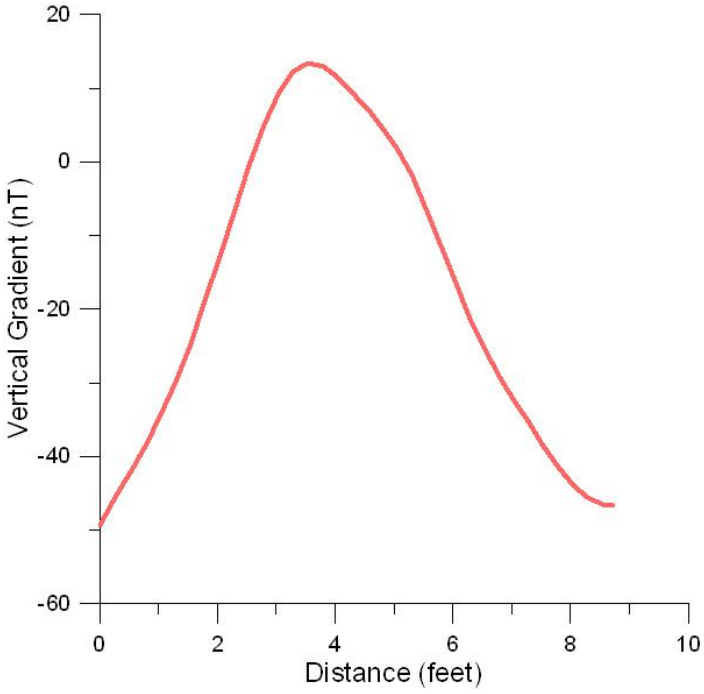


Figure 91. MAG Anomaly G3A16.

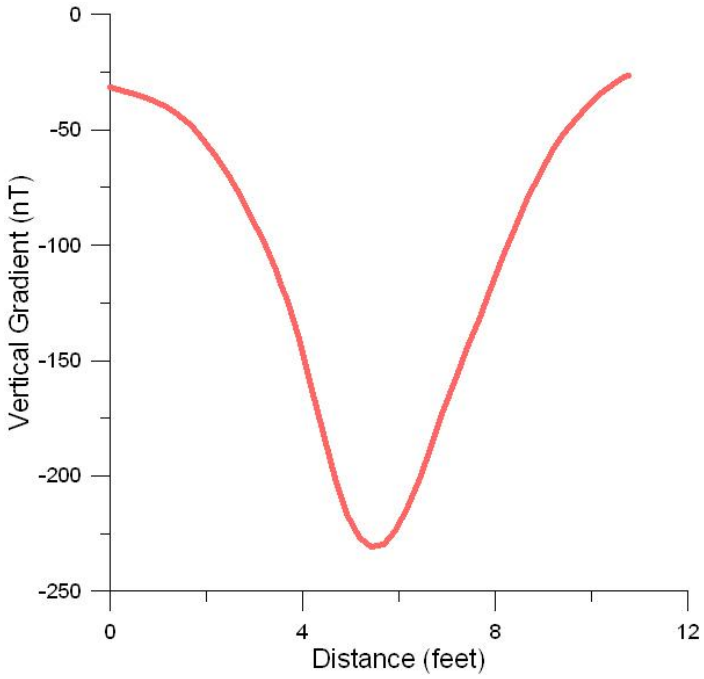


Figure 92. MAG Anomaly G3A17.

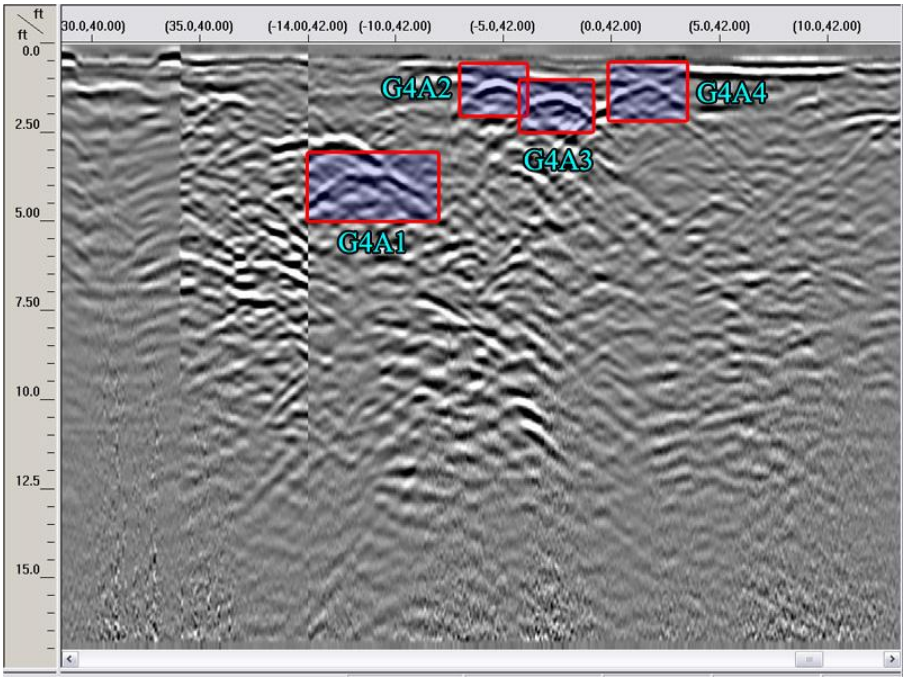


Figure 93. GPR Anomalies G4A1, G4A2, G4A3, & G4A4.

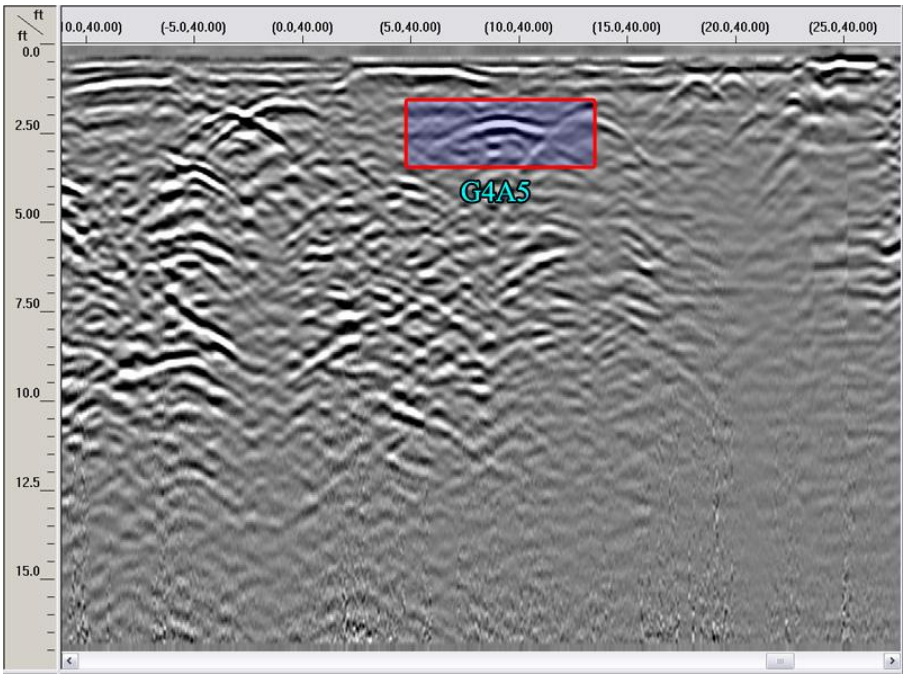


Figure 94. GPR Anomaly G4A5.

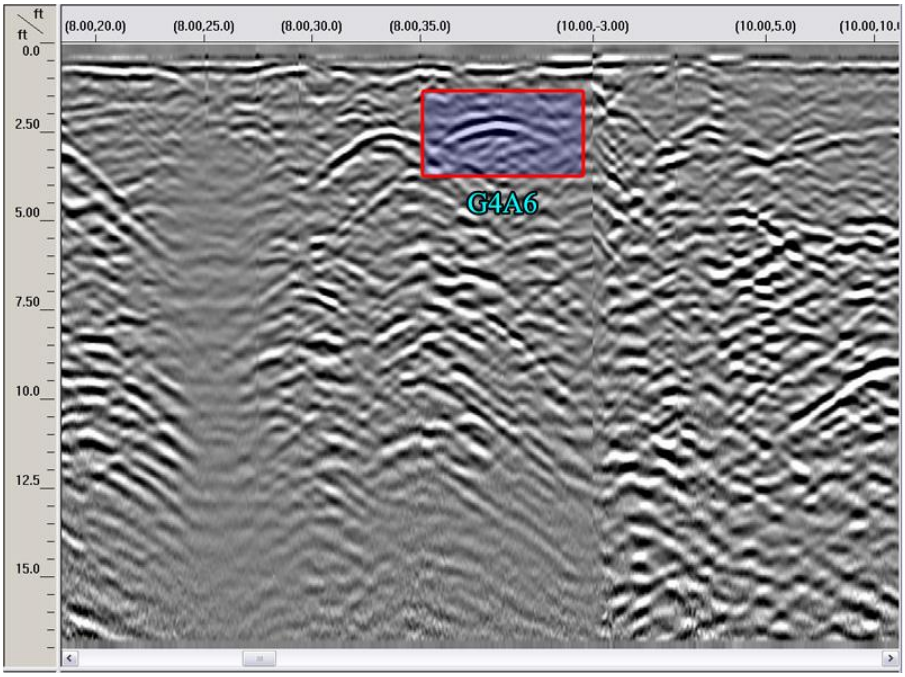


Figure 95. GPR Anomaly G4A6.

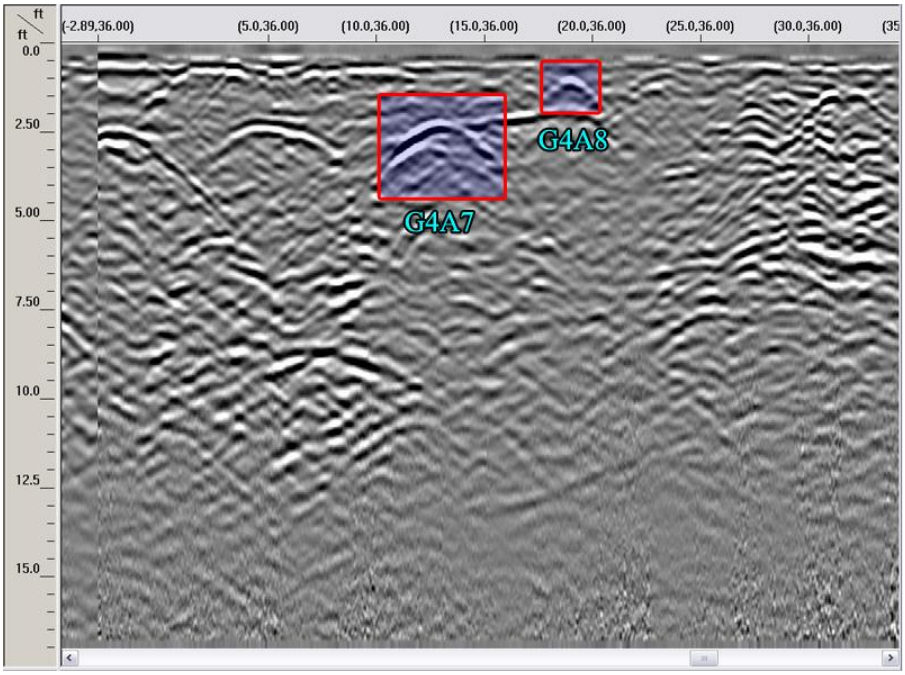


Figure 96. GPR Anomalies G4A7 & G4A8.

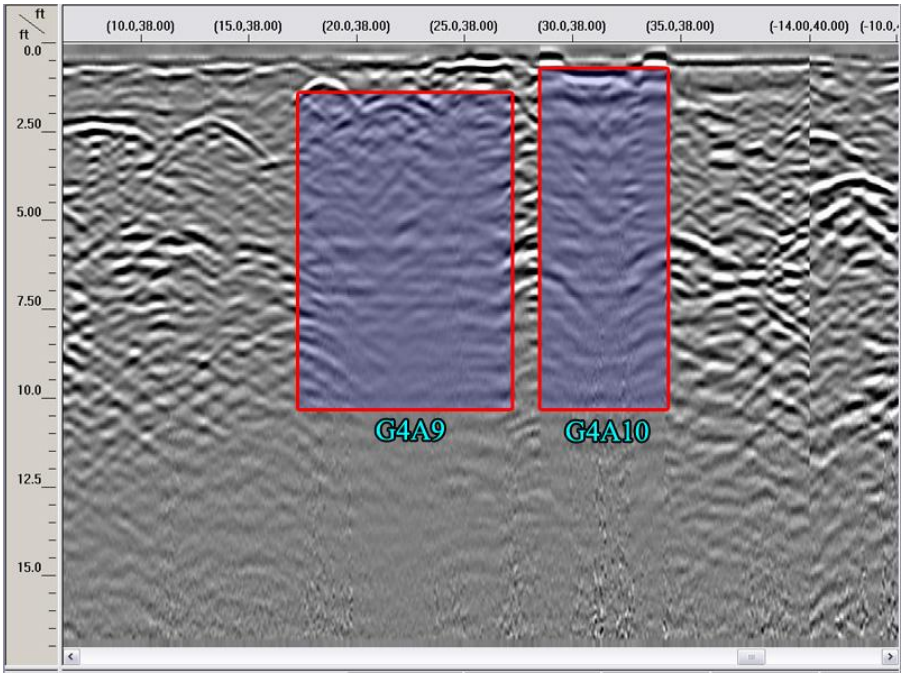


Figure 97. GPR Anomalies G4A9 & G4A10.

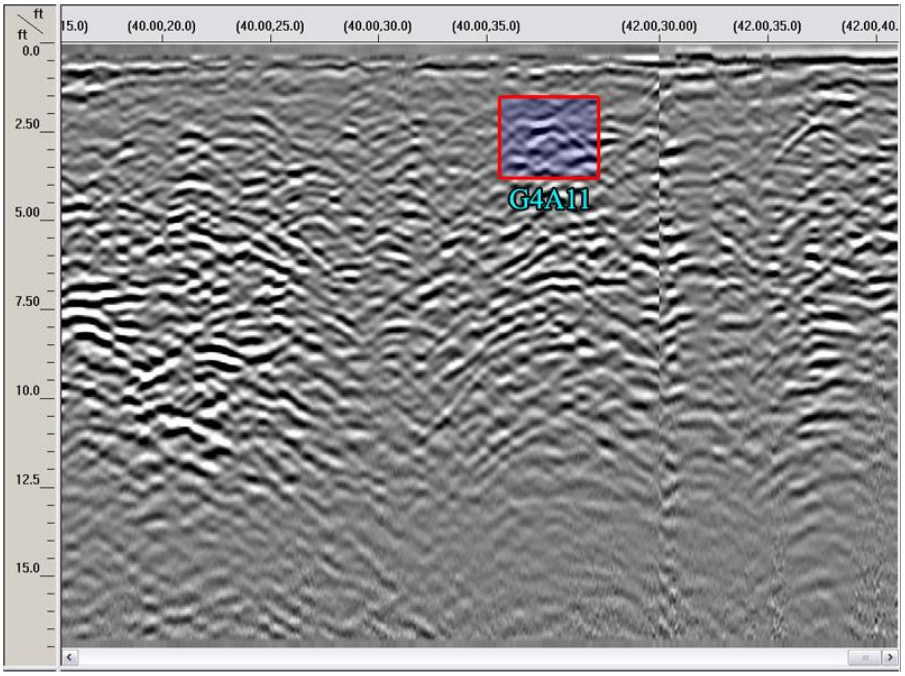


Figure 98. GPR Anomaly G4A11.

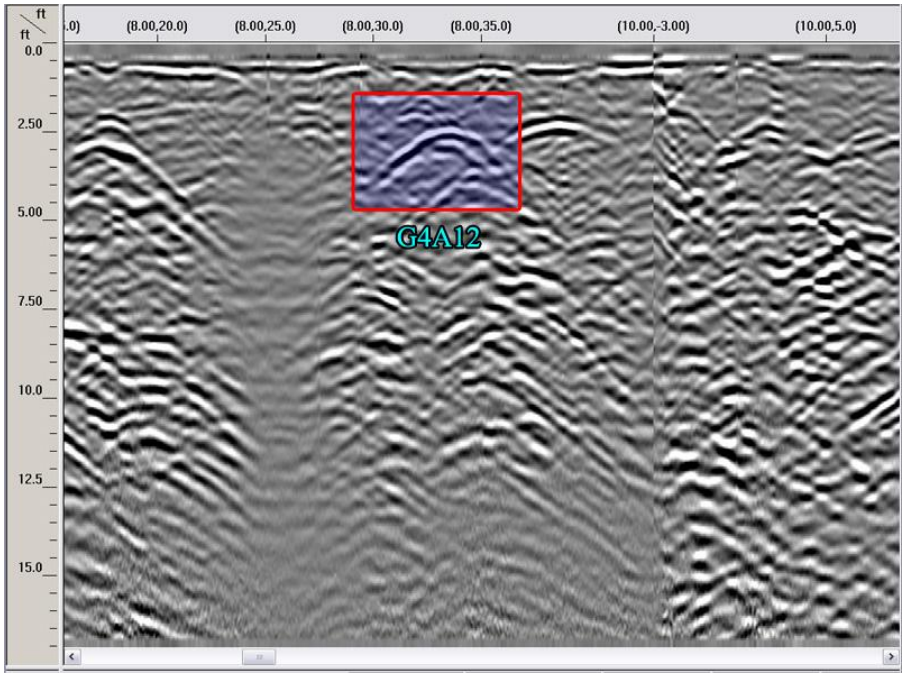


Figure 99. GPR Anomaly G4A12.

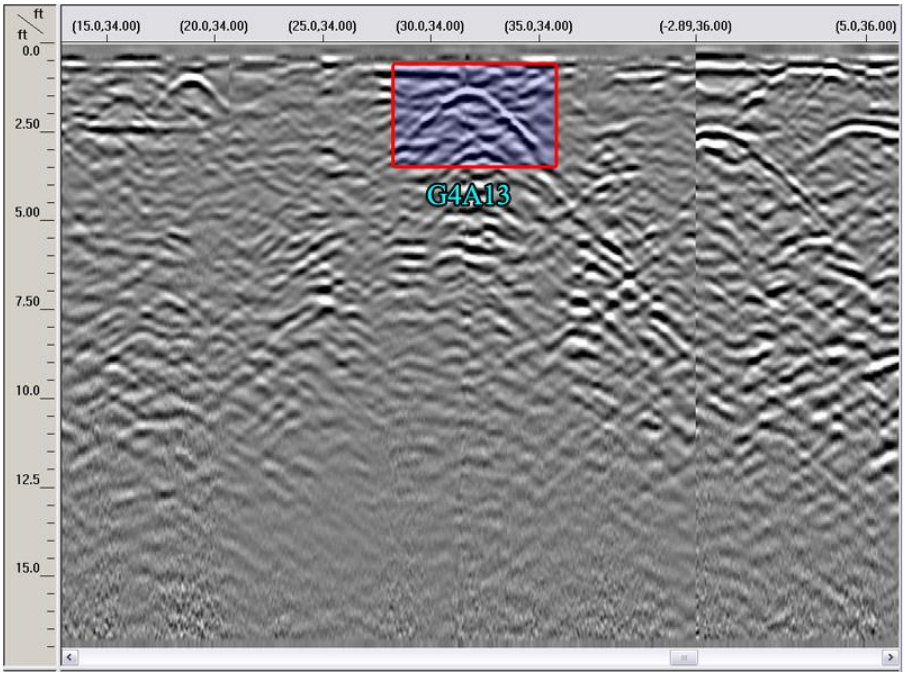


Figure 100. GPR Anomaly G4A13.

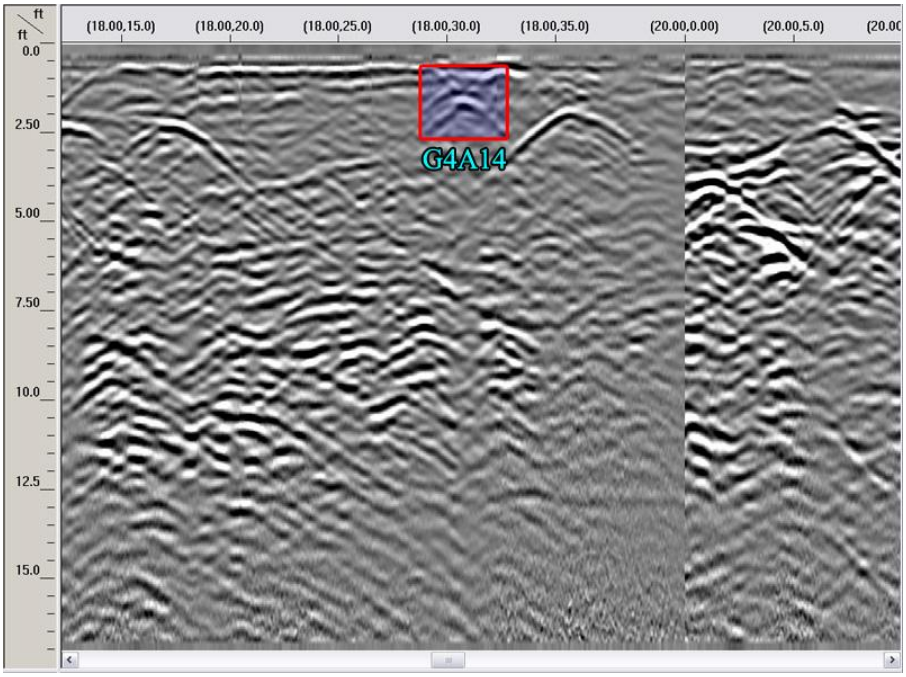


Figure 101. GPR Anomaly G4A14.

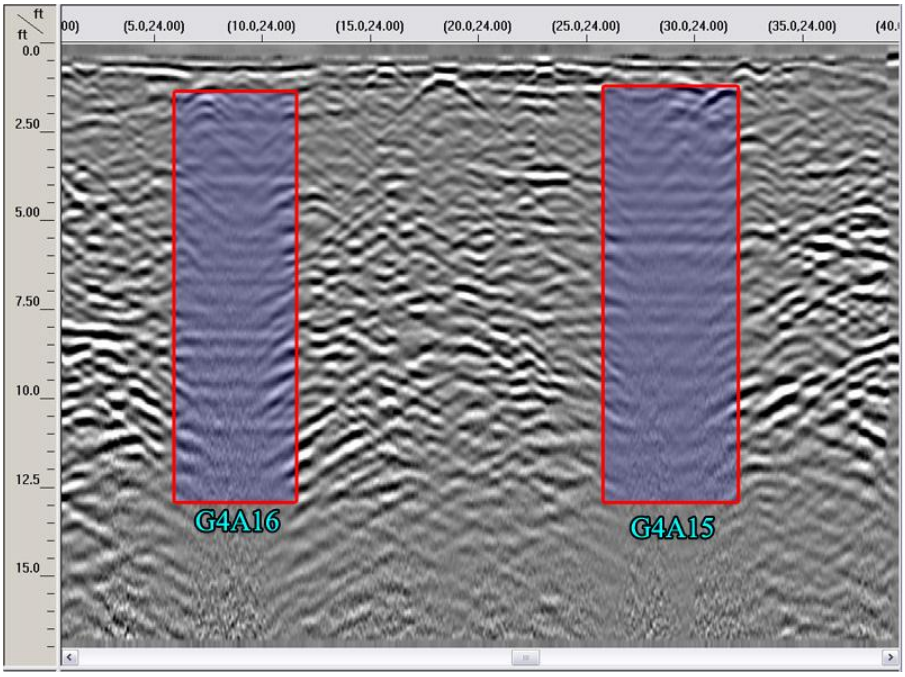


Figure 102. GPR Anomalies G4A15 & G4A16.

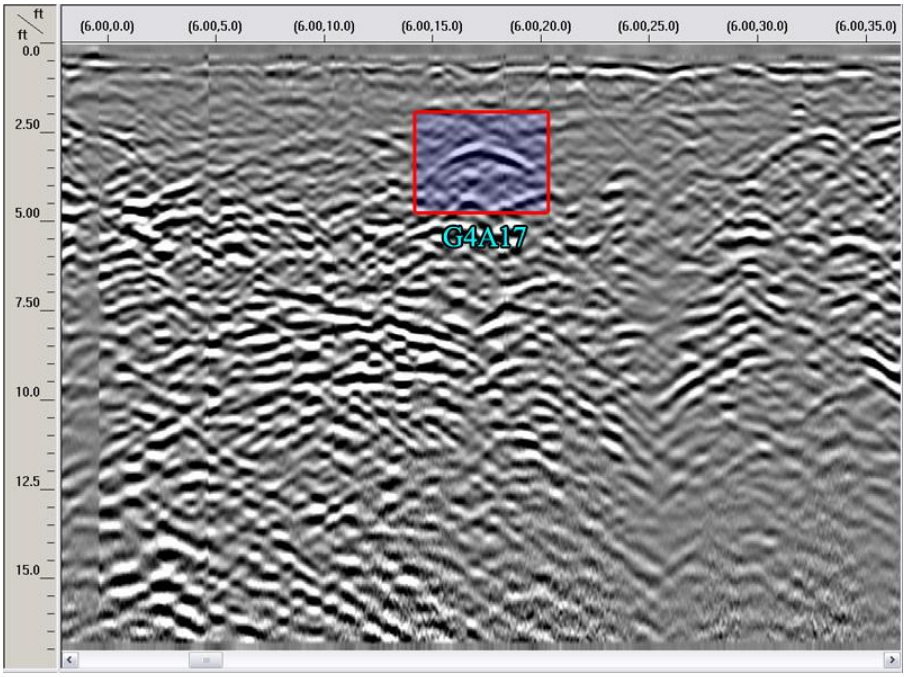


Figure 103. GPR Anomaly G4A17.

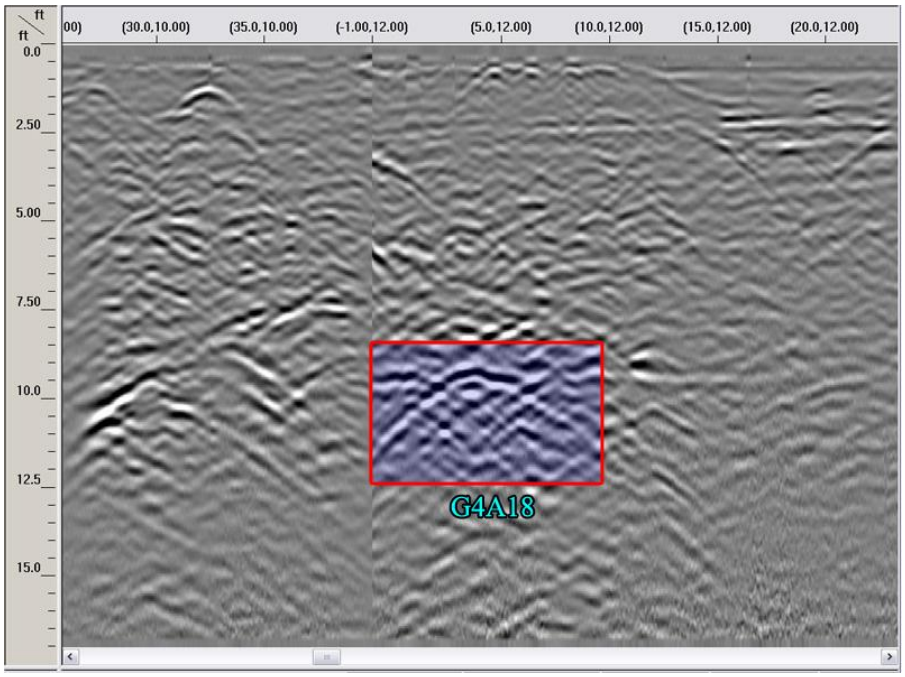


Figure 104 GPR Anomaly G4A18.

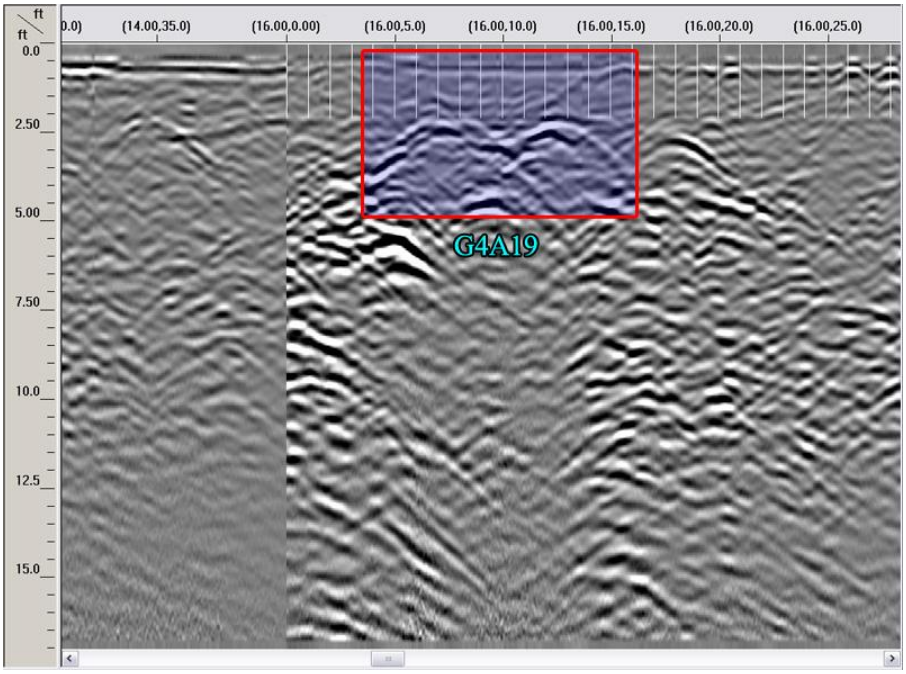


Figure 105 GPR Anomaly G4A19.

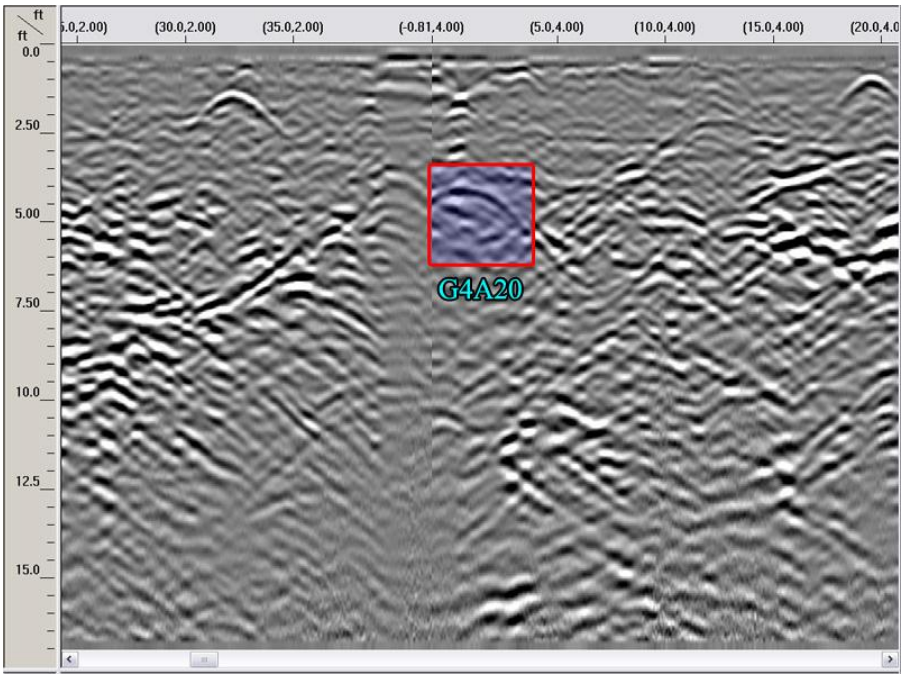


Figure 106. GPR Anomaly G4A20.

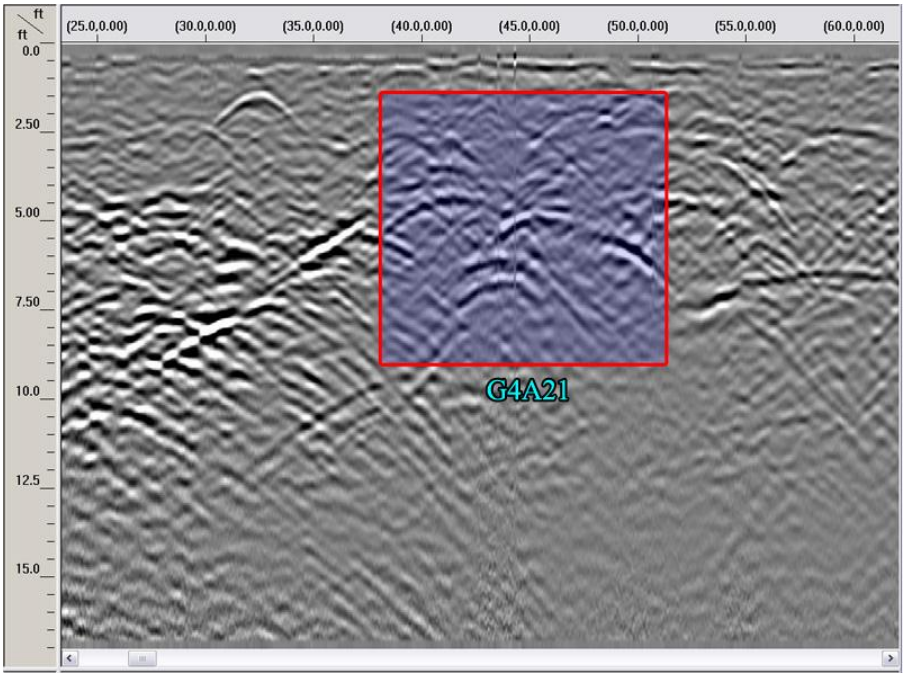


Figure 107. GPR Anomaly G4A21.

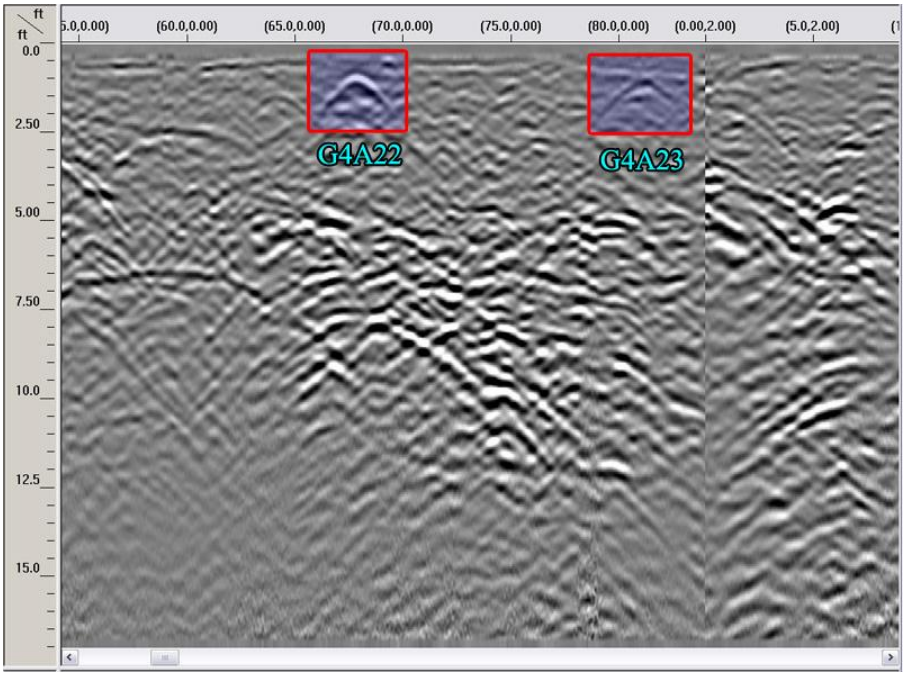


Figure 108. GPR Anomalies G4A22 & G4A23.

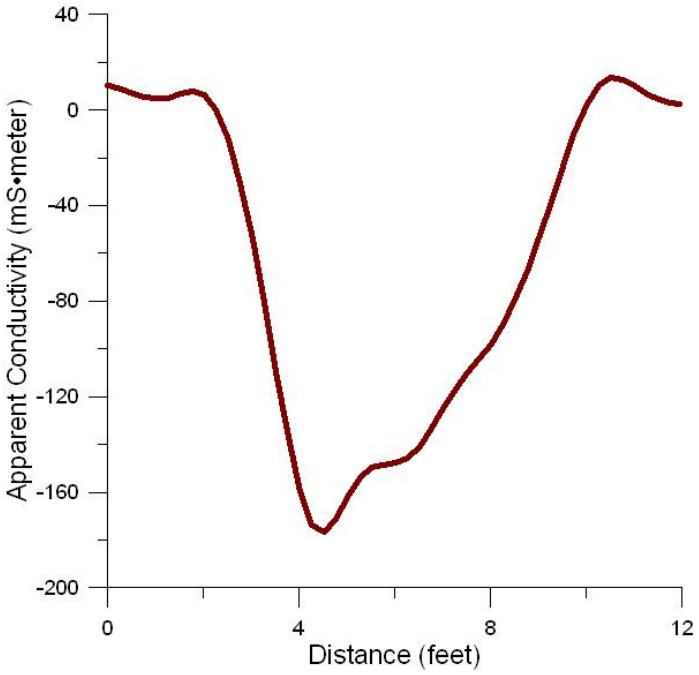


Figure 109. EM38-DD Anomaly G4A24.

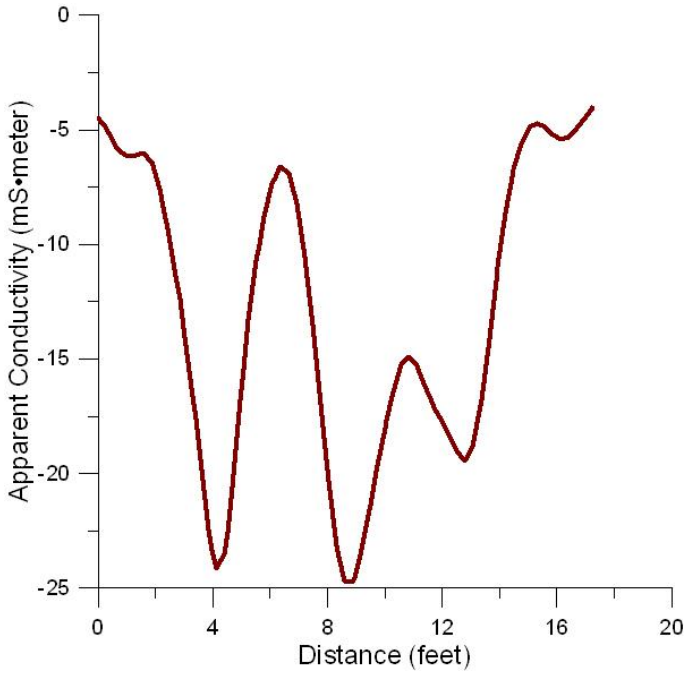


Figure 110. EM38-DD Anomaly G4A25.

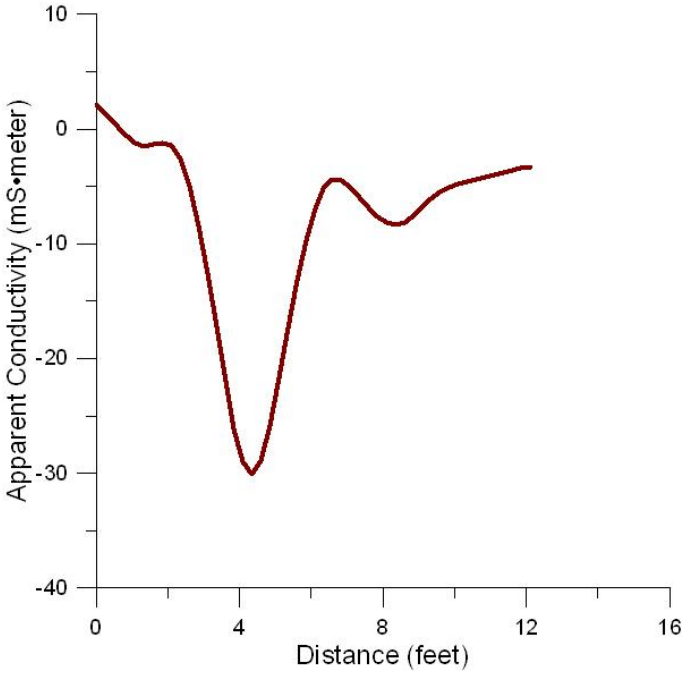


Figure 111. EM38-DD Anomaly G4A26.

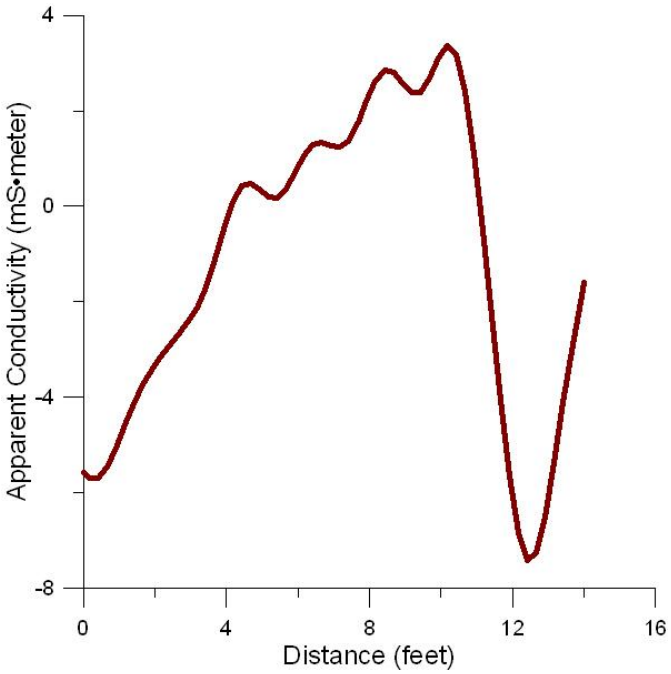


Figure 112. EM38-DD Anomaly G4A27.

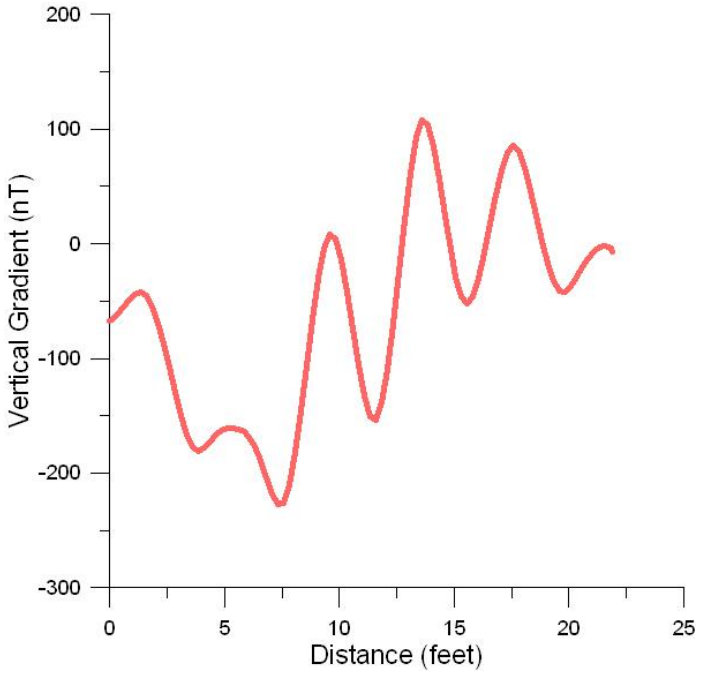


Figure 113. MAG Anomaly G4A28.

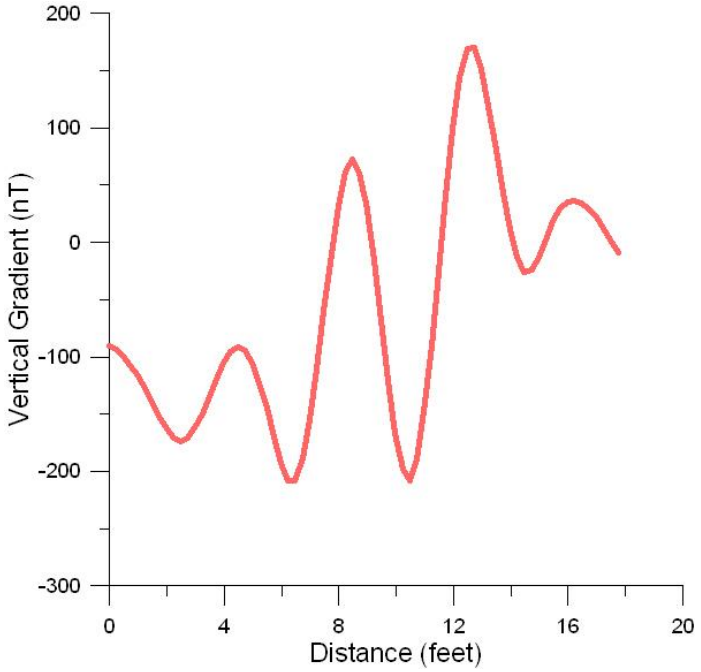


Figure 114. MAG Anomaly G4A29.

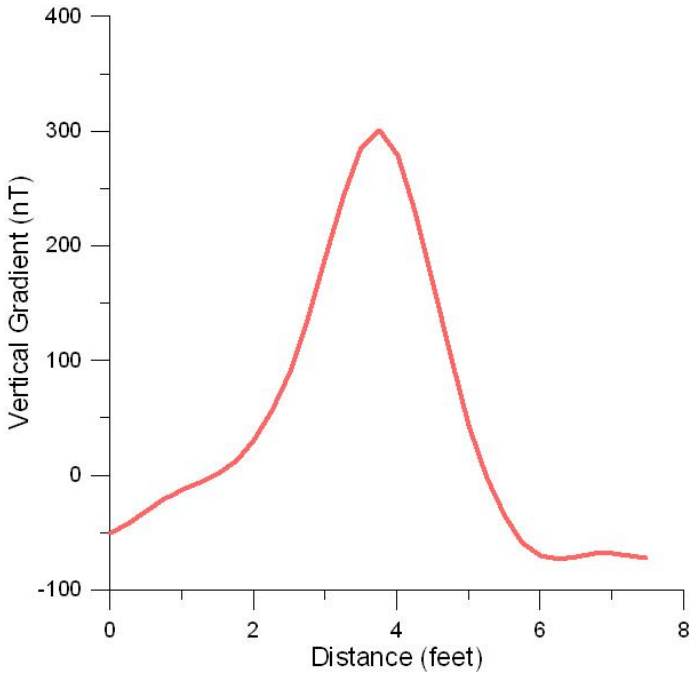


Figure 115. MAG Anomaly G4A30.

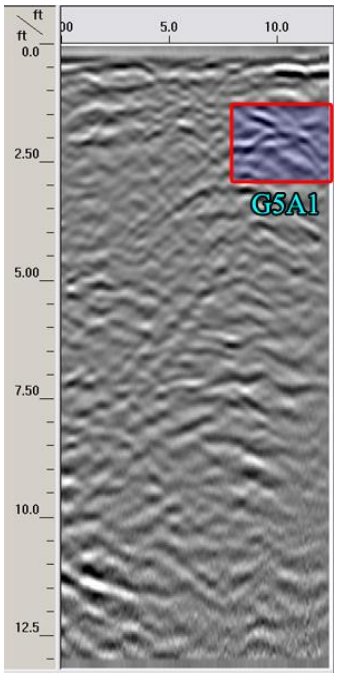


Figure 116. GPR Anomaly G5A1.

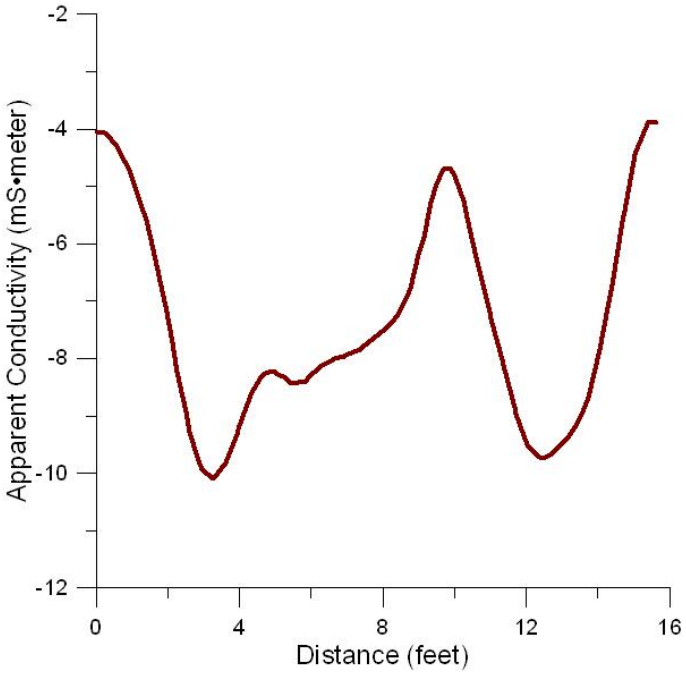


Figure 117. EM38-DD Anomaly G5A2.

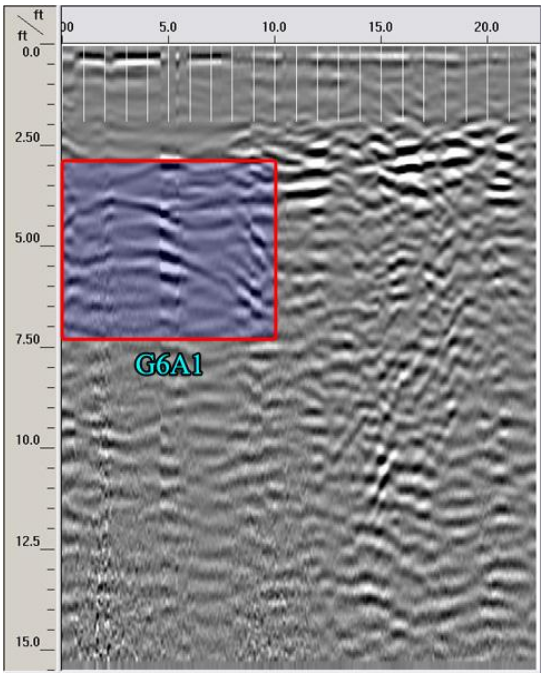


Figure 118. GPR Anomaly G6A1.

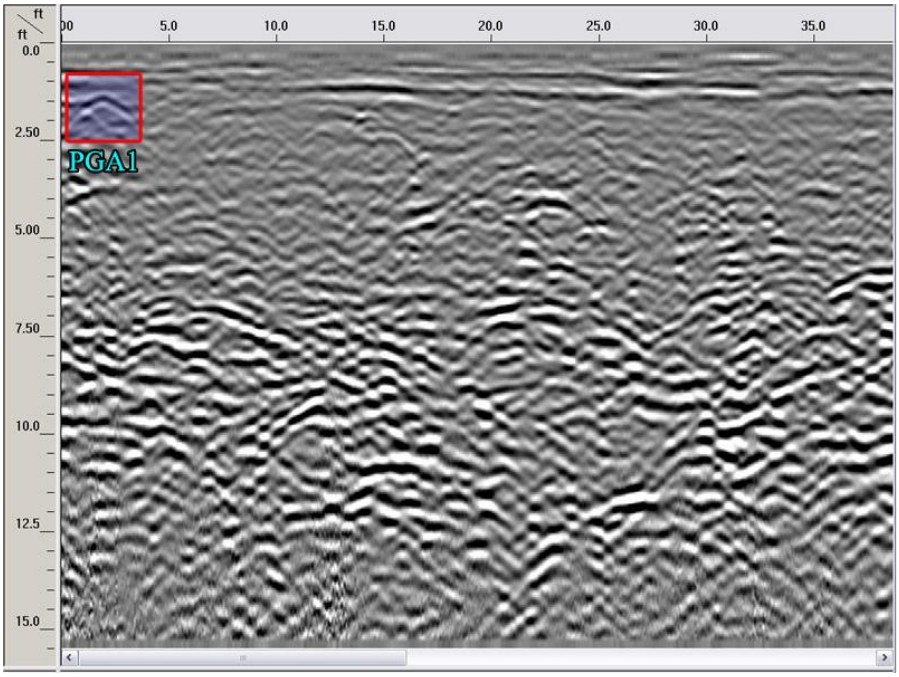


Figure 119. GPR Anomaly PGA1.

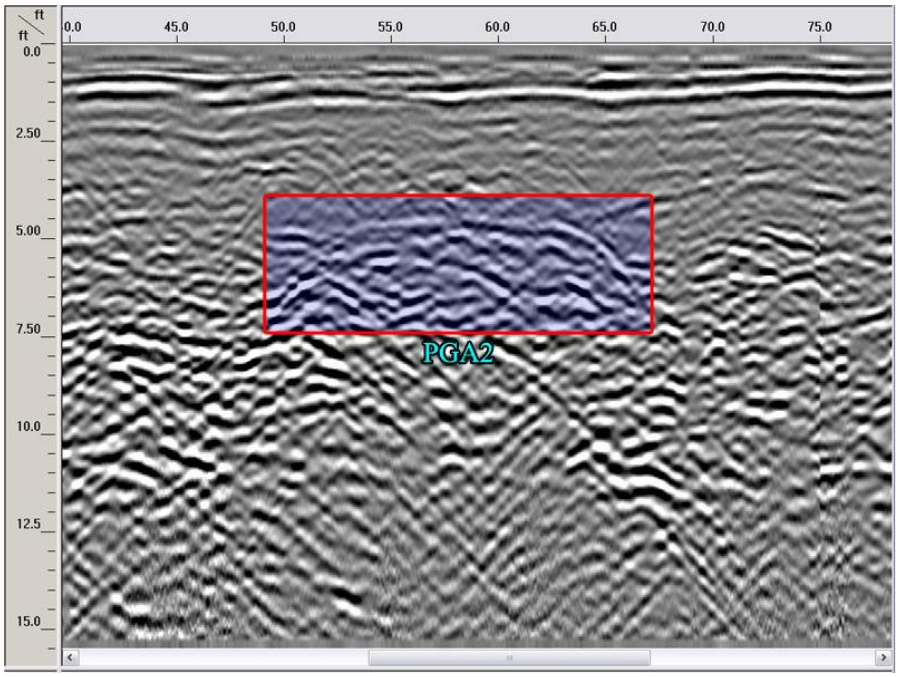


Figure 120. GPR Anomaly PGA2.

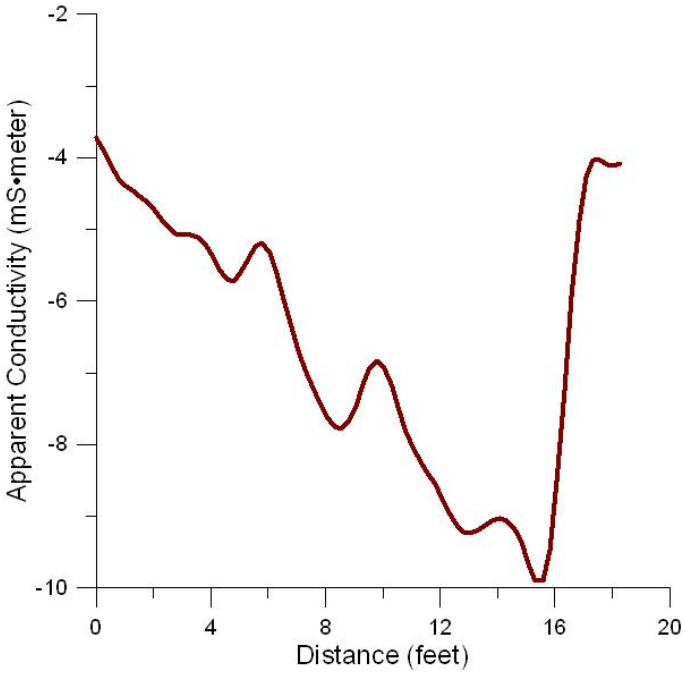


Figure 121. EM38-DD Anomaly PGA3.

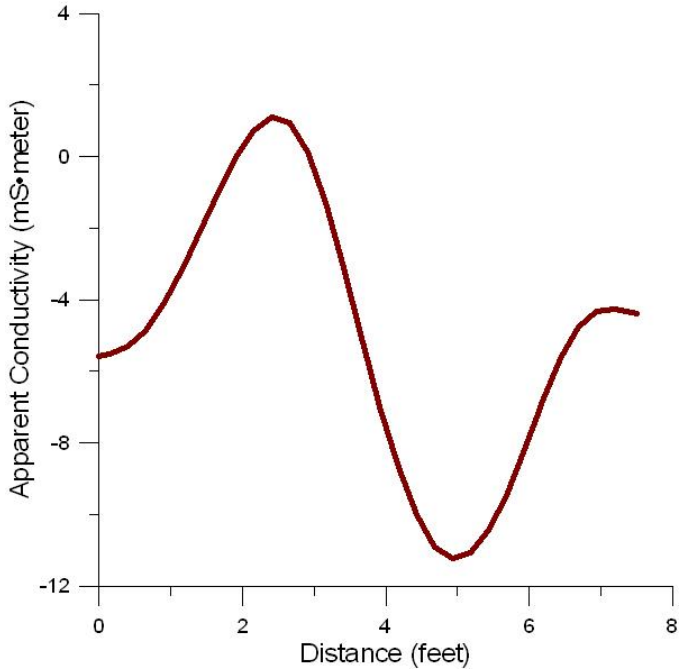


Figure 122. EM38-DD Anomaly PGA4.

APPENDIX B: ANOMALY 2D PROFILES

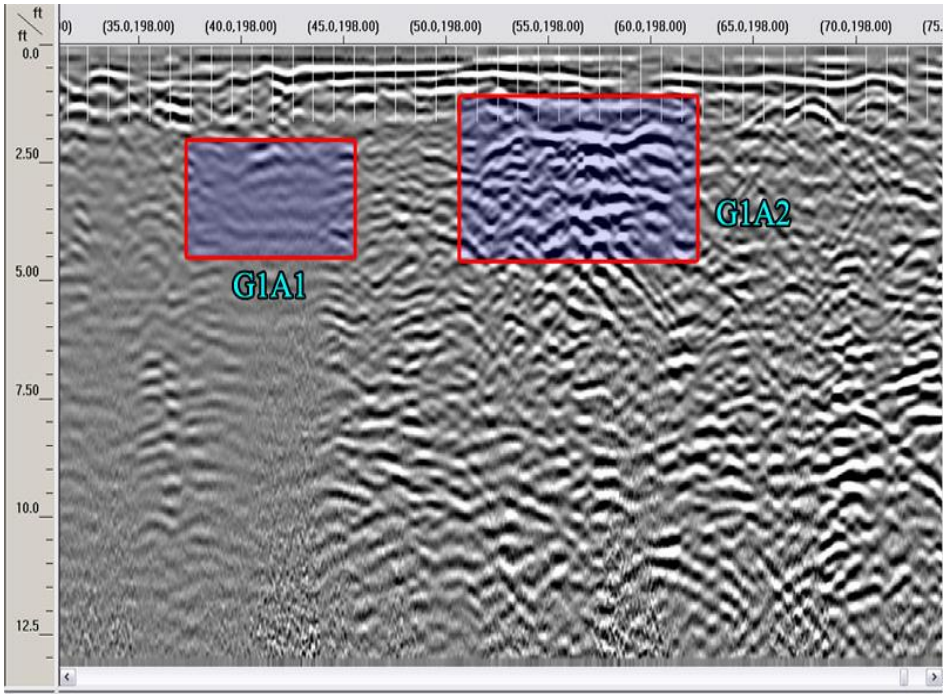


Figure 1. GPR Anomalies G1A1 & G1A2.

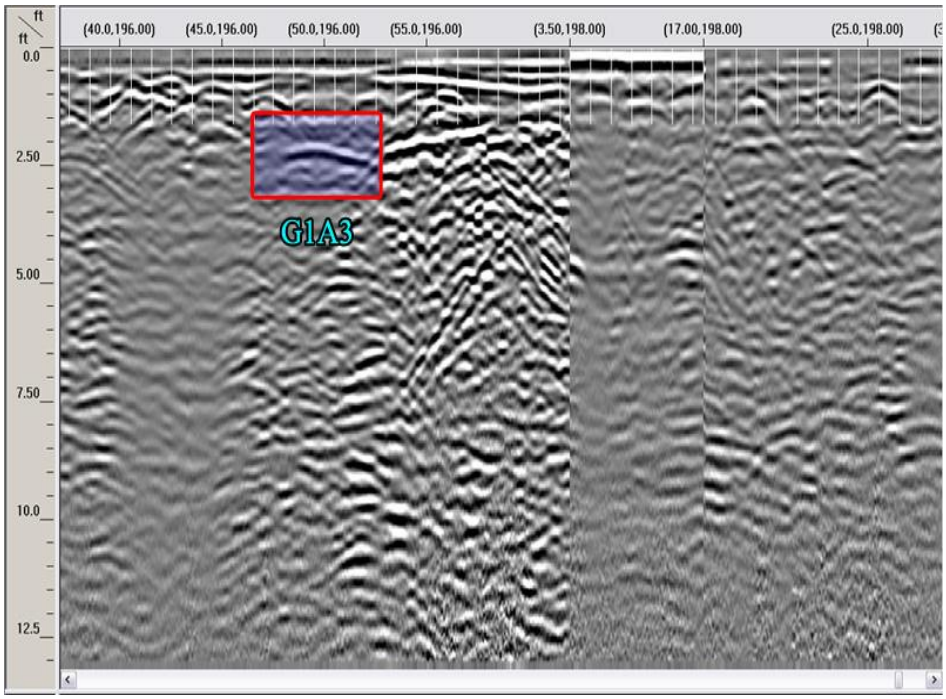


Figure 2. GPR Anomaly G1A3.

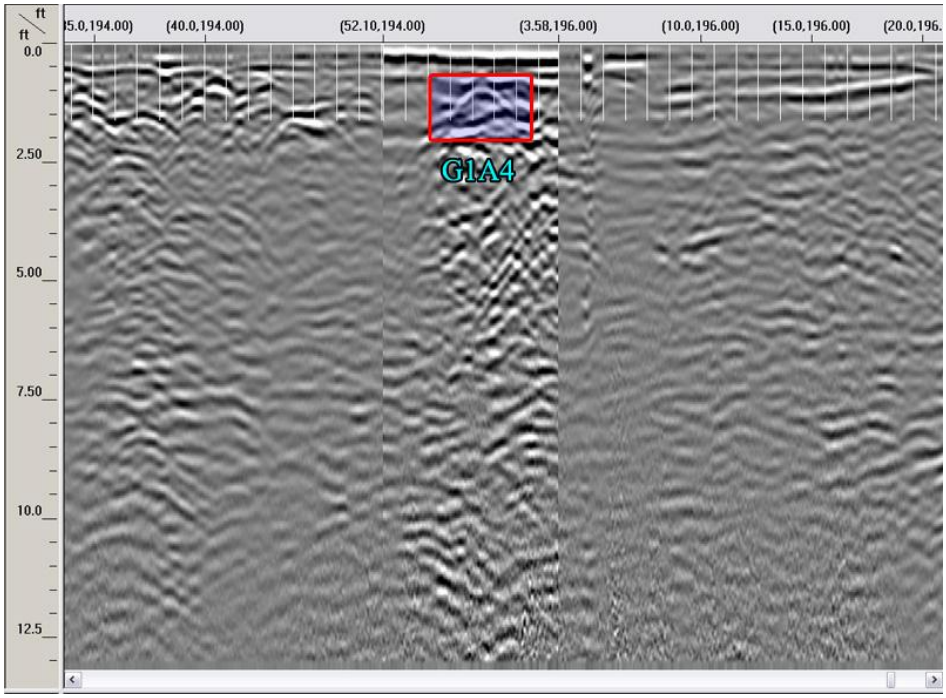


Figure 3. GPR Anomaly G1A4.

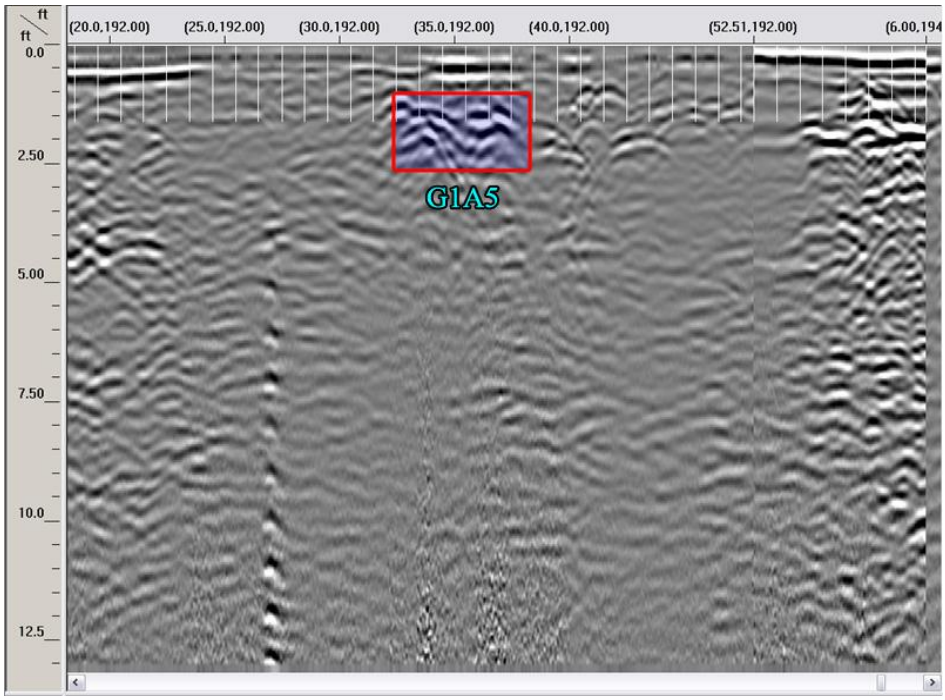


Figure 4. GPR Anomaly G1A5.

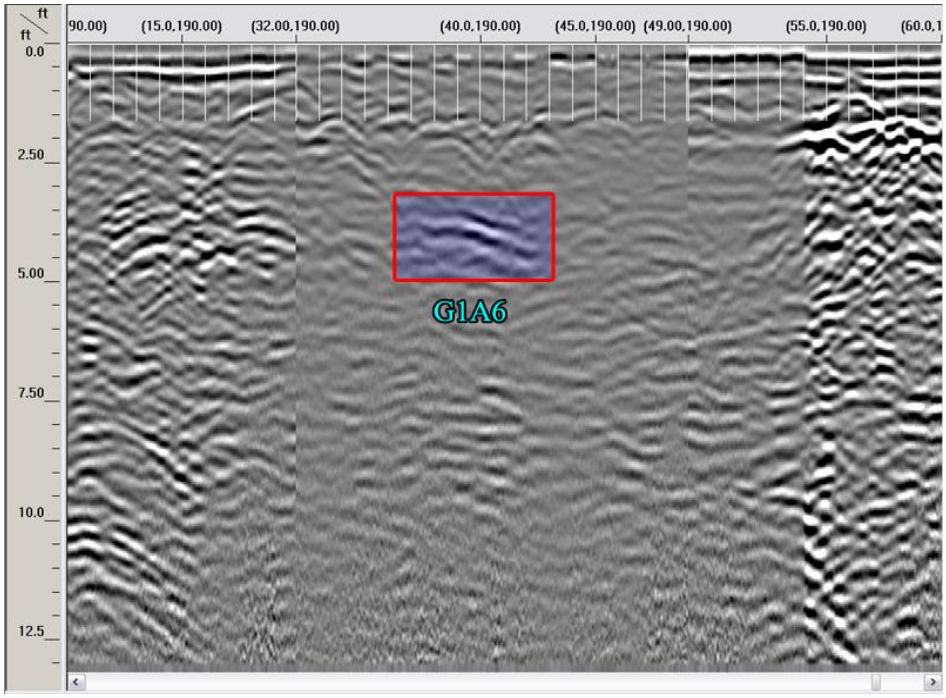


Figure 5. GPR Anomaly G1A6.

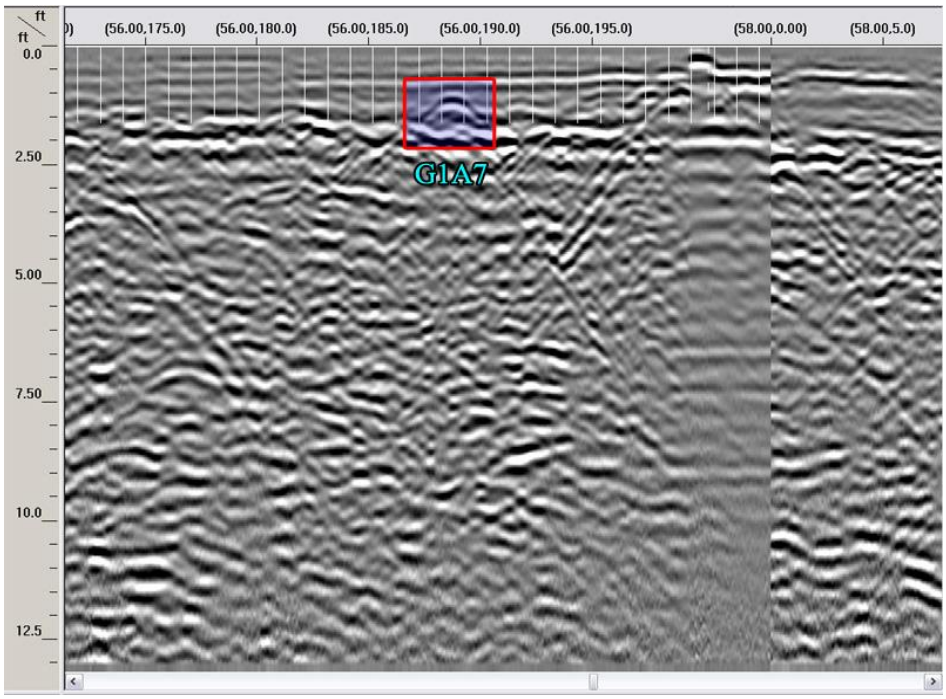


Figure 6. GPR Anomaly G1A7.

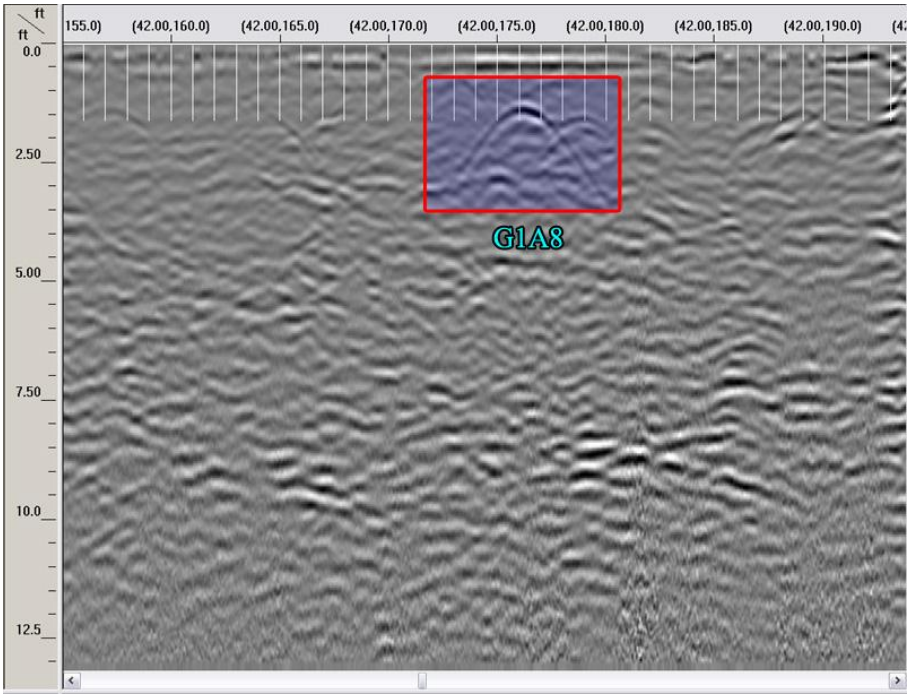


Figure 7. GPR Anomaly G1A8.

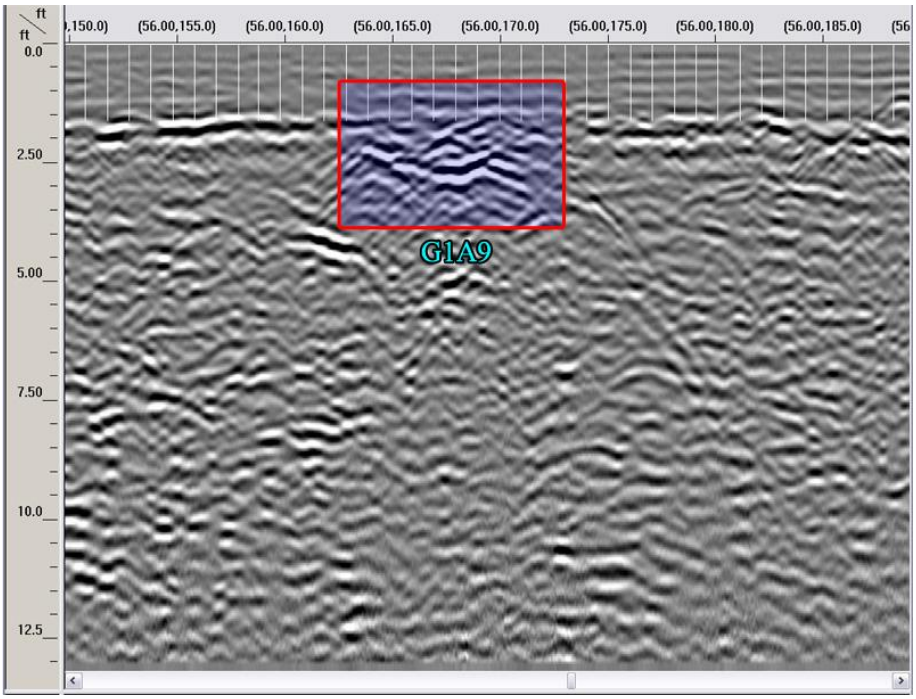


Figure 8. GPR Anomaly G1A9.

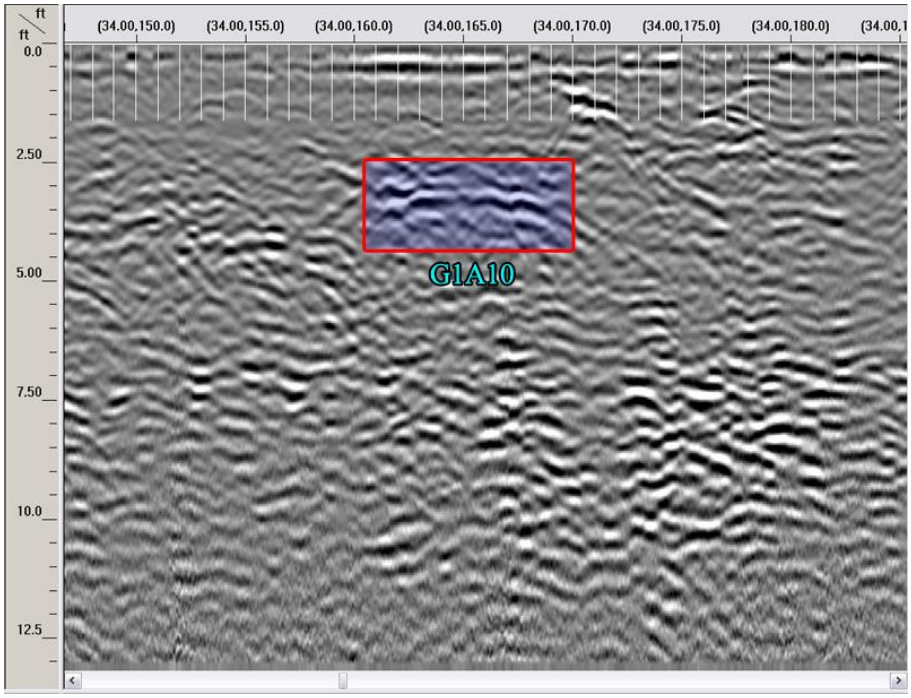


Figure 9. GPR Anomaly G1A10.

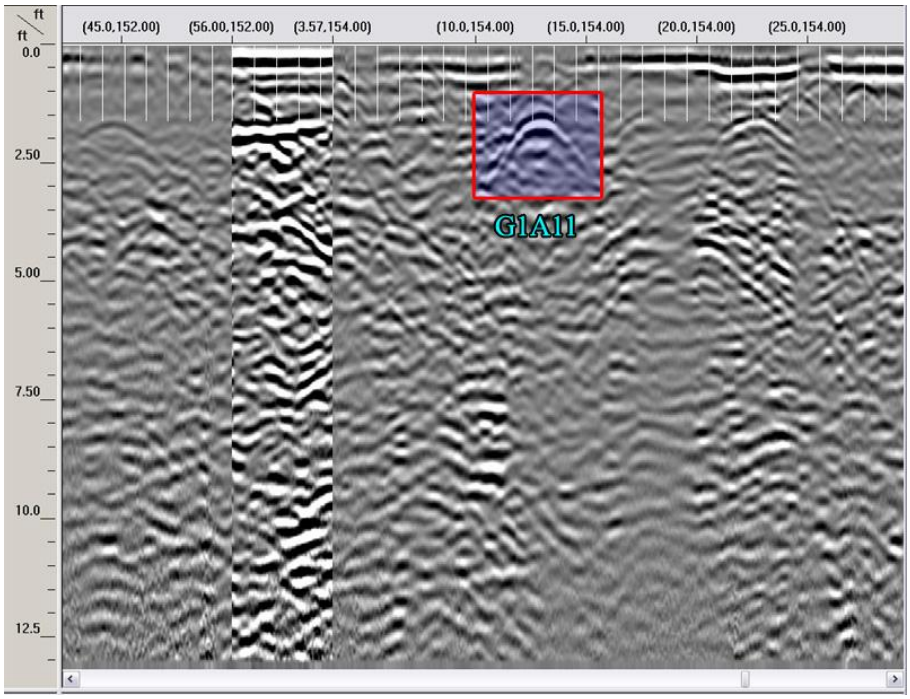


Figure 10. GPR Anomaly G1A11.

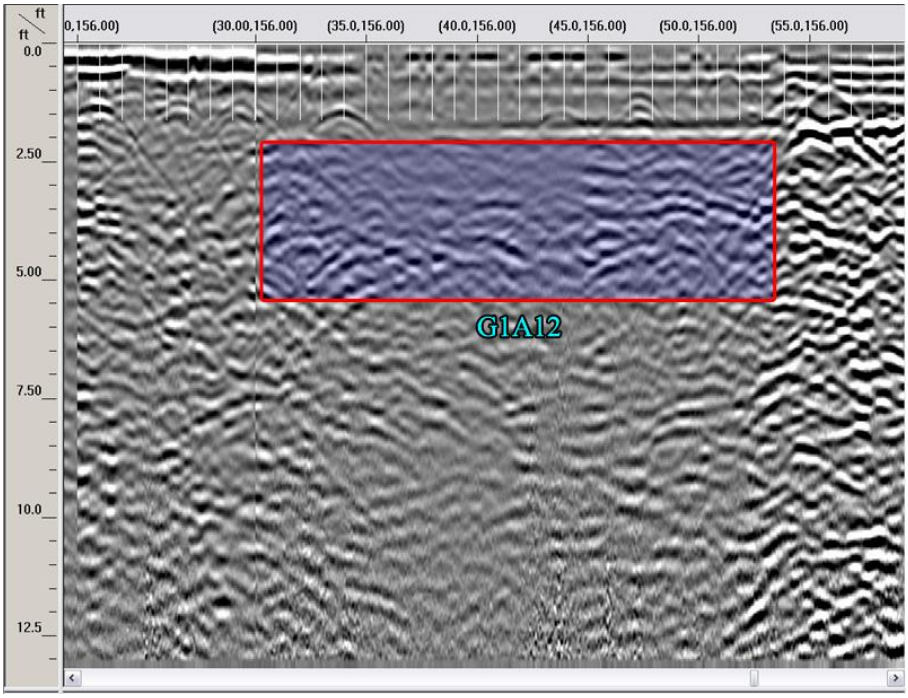


Figure 11. GPR Anomaly G1A12.

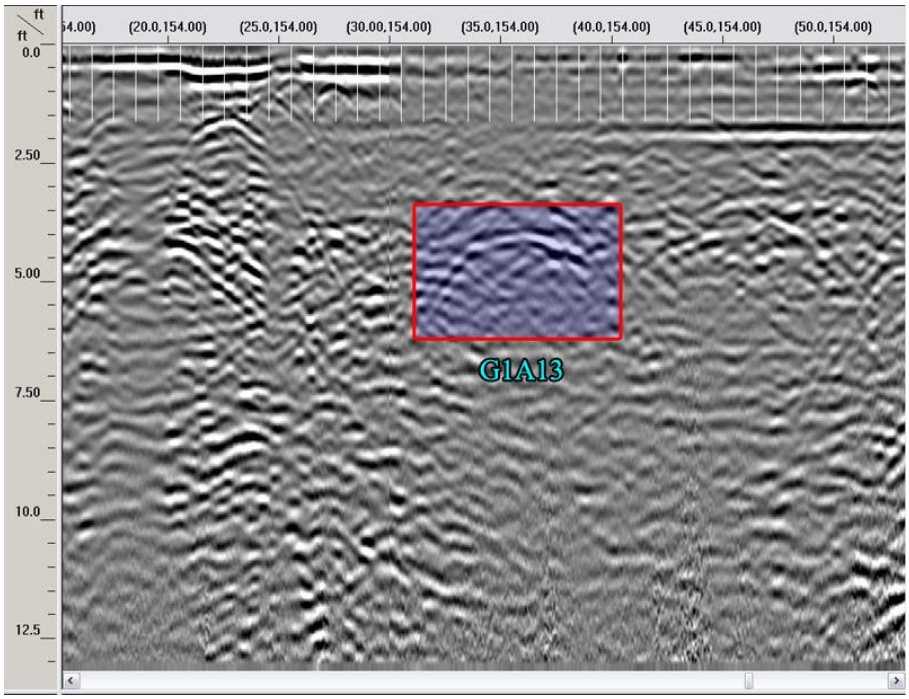


Figure 12. GPR Anomaly G1A13.

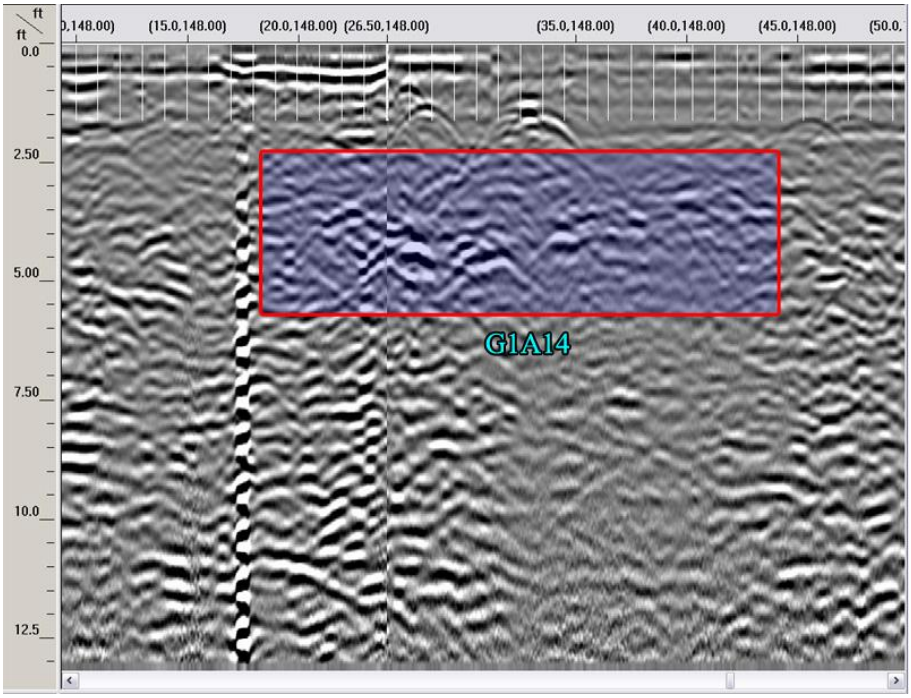


Figure 13. GPR Anomaly G1A14.

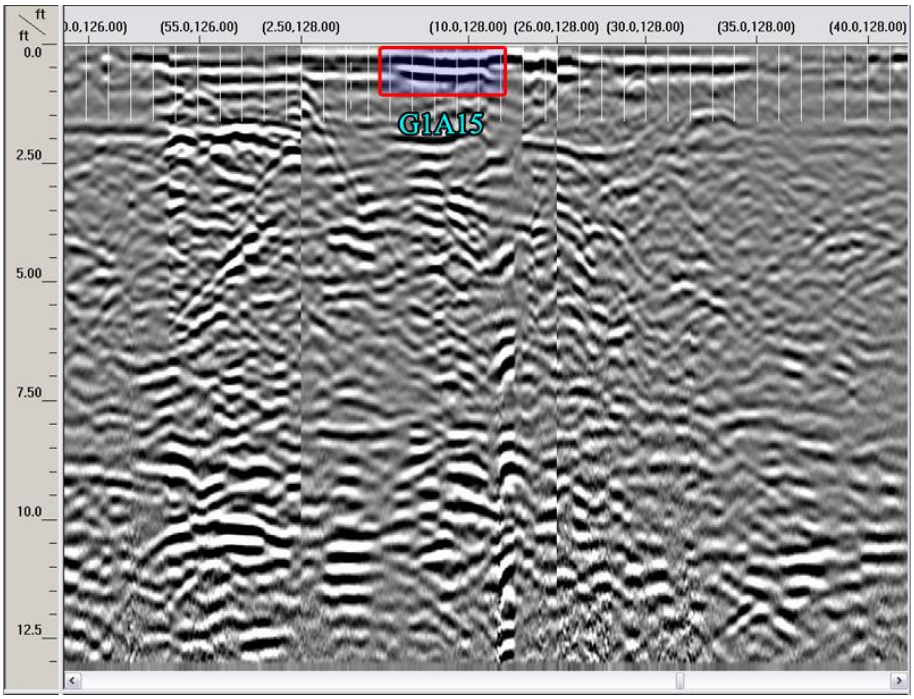


Figure 14. GPR Anomaly G1A15.

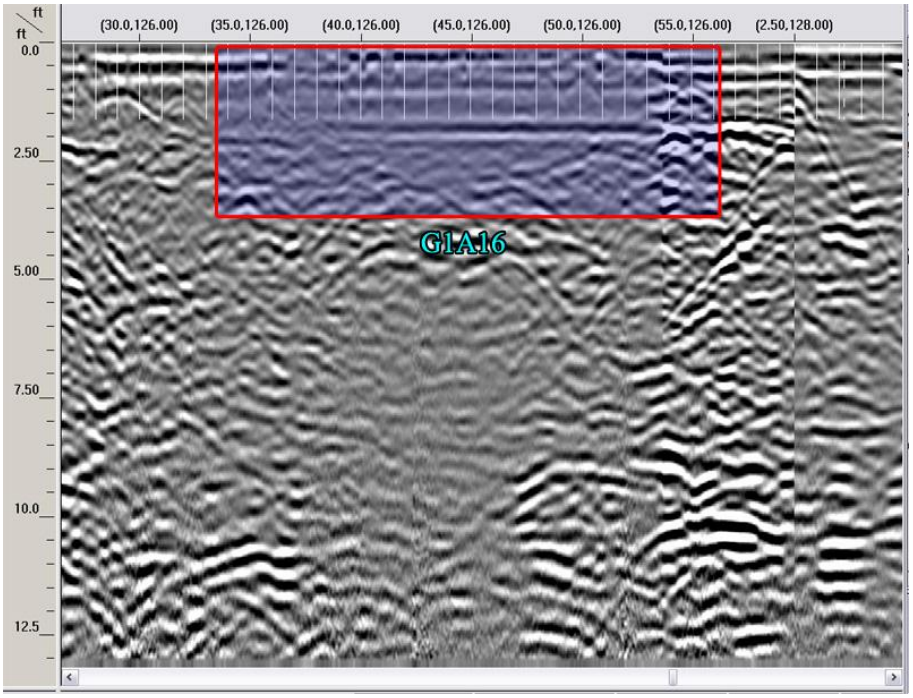


Figure 15. GPR Anomaly G1A16.

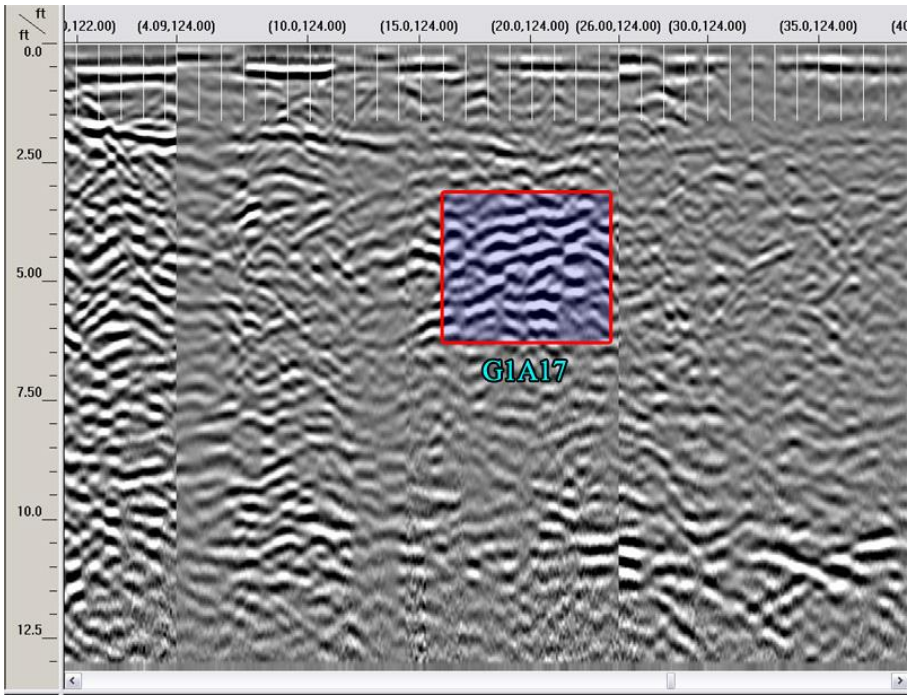


Figure 16. GPR Anomaly G1A17.

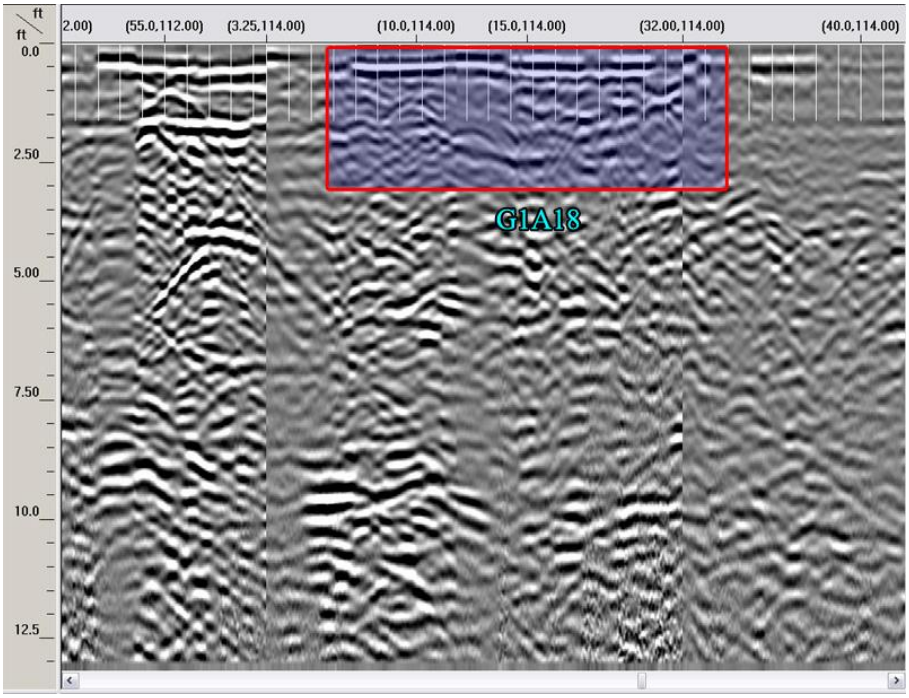


Figure 17. GPR Anomaly G1A18.

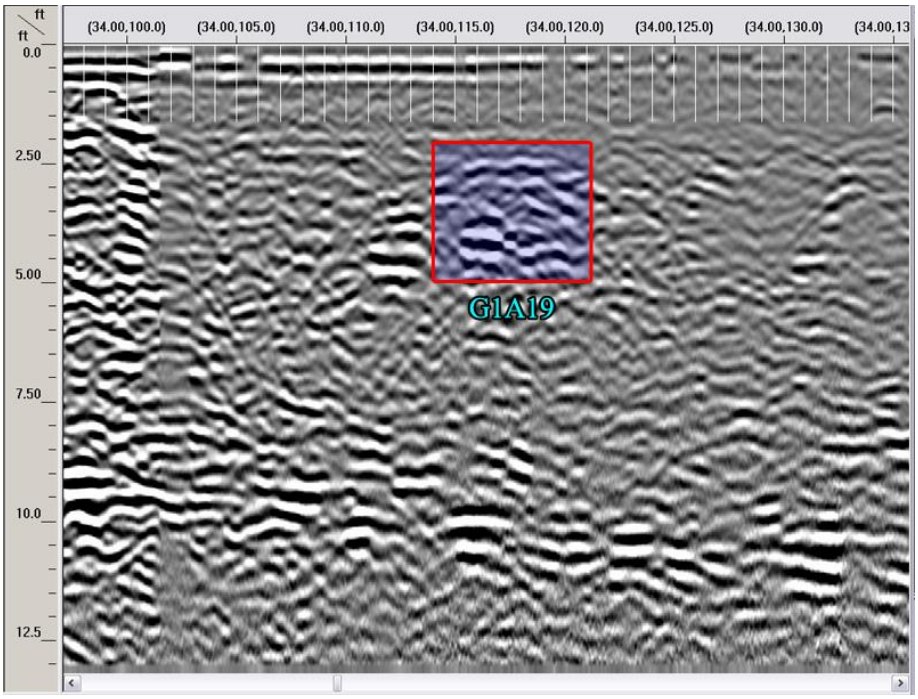


Figure 18. GPR Anomaly G1A19.

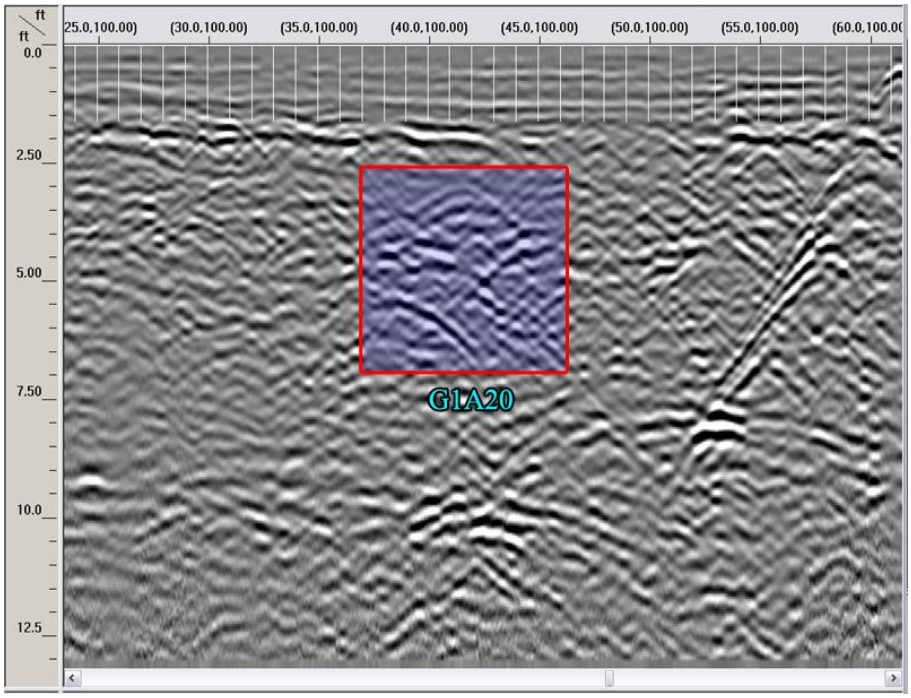


Figure 19. GPR Anomaly G1A20.

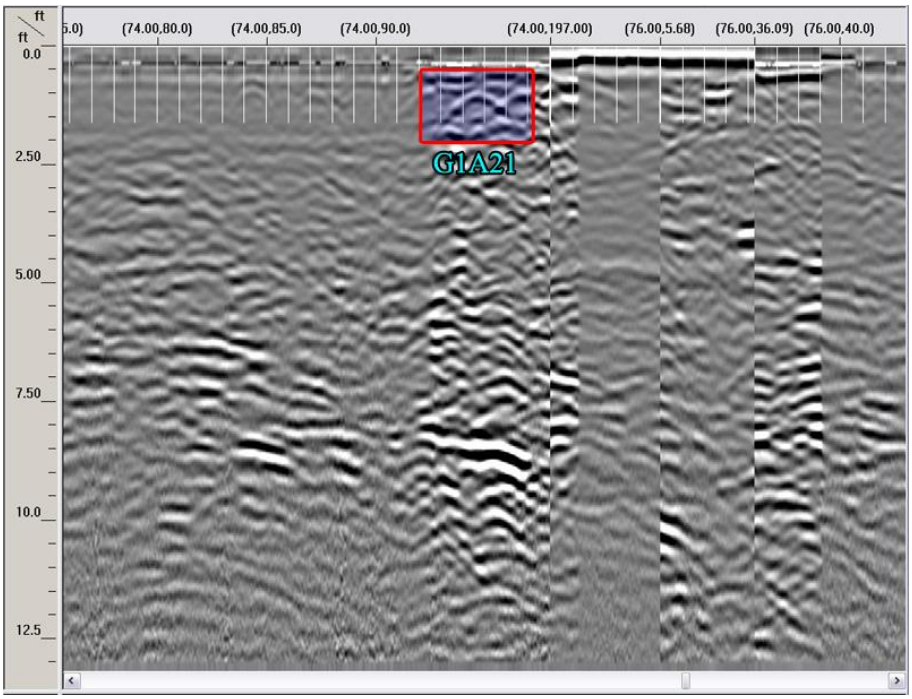


Figure 20. GPR Anomaly G1A21.

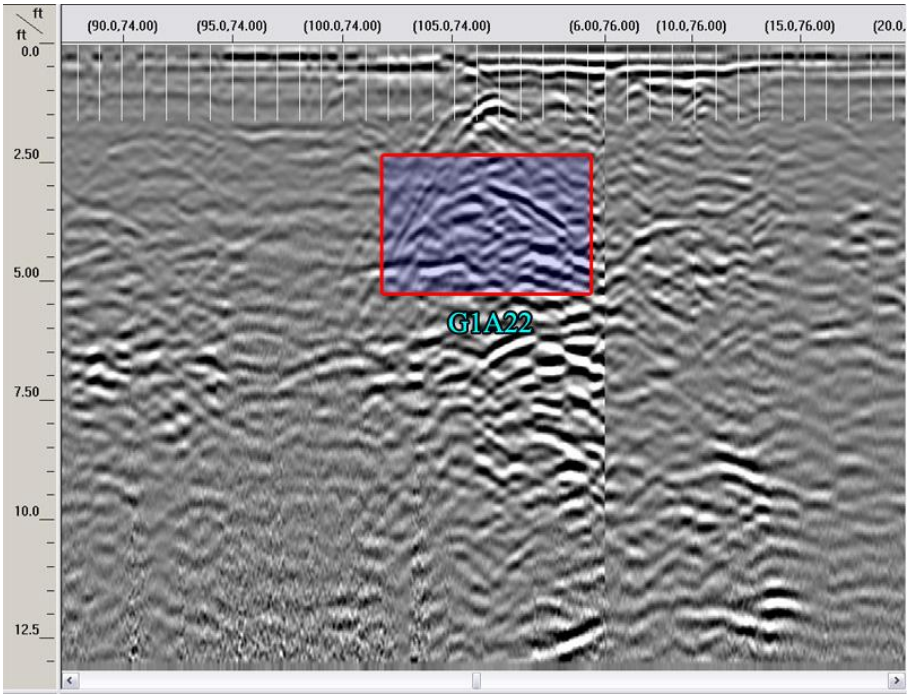


Figure 21. GPR Anomaly G1A22.

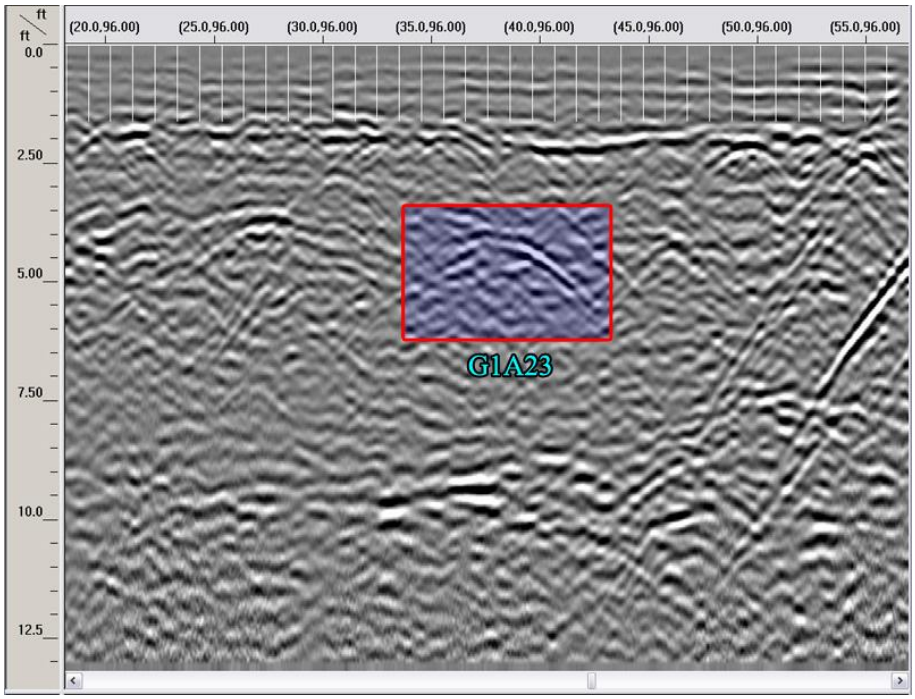


Figure 22. GPR Anomaly G1A23.

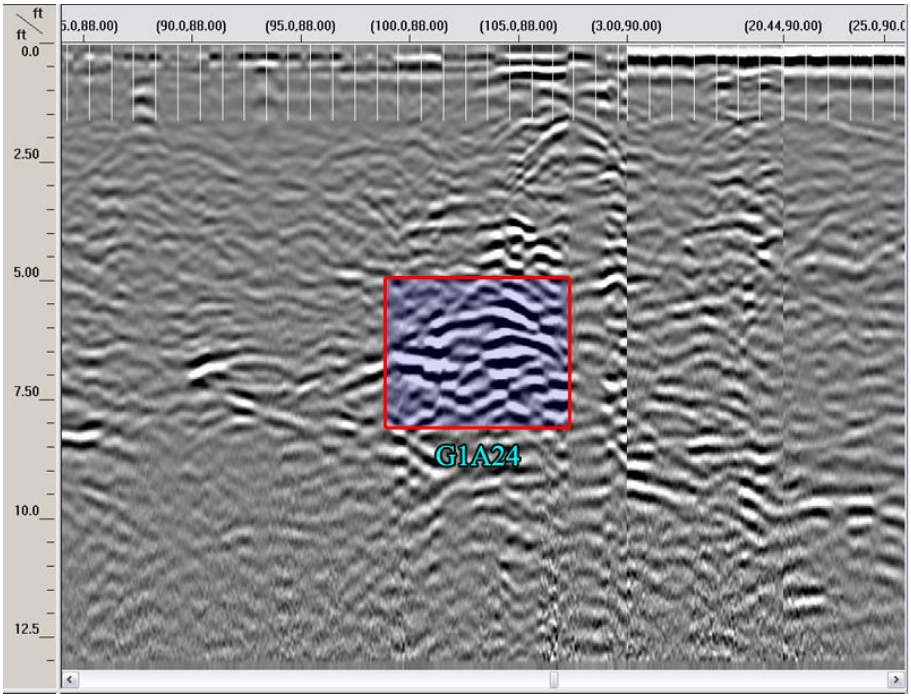


Figure 23. GPR Anomaly G1A24.

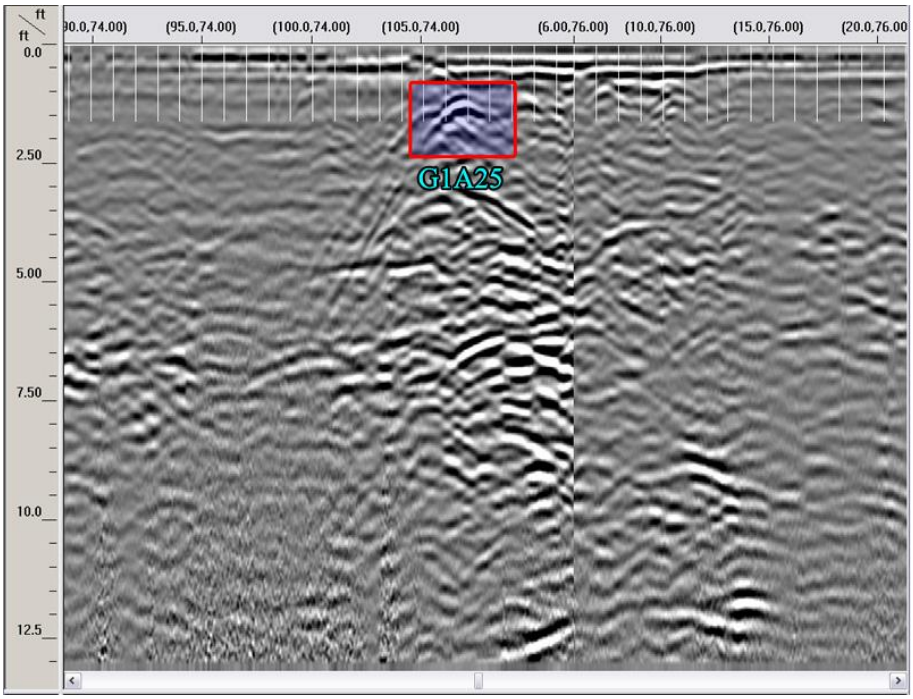


Figure 24. GPR Anomaly G1A25.

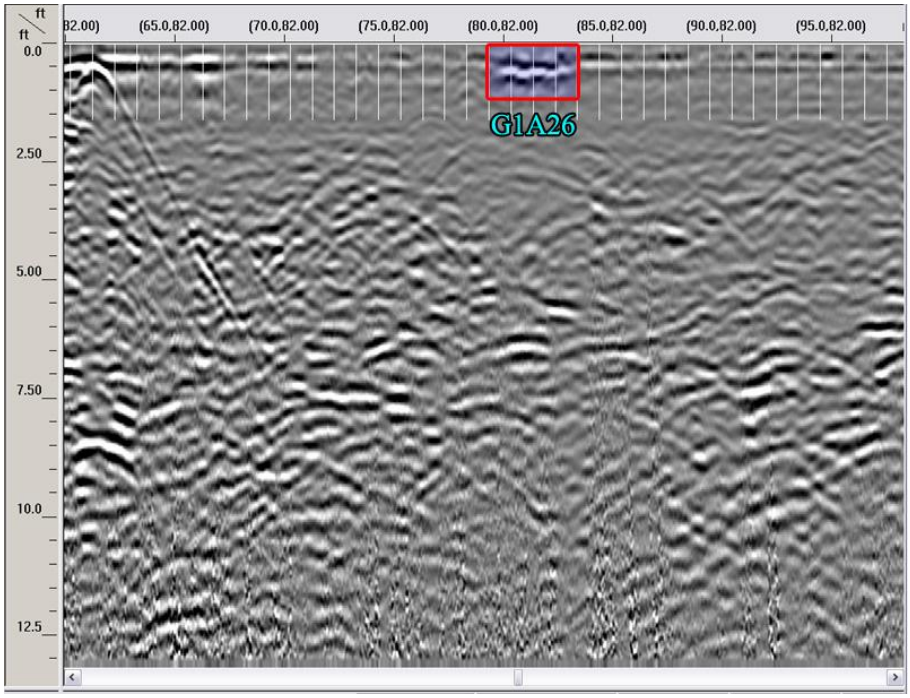


Figure 25. GPR Anomaly G1A26.

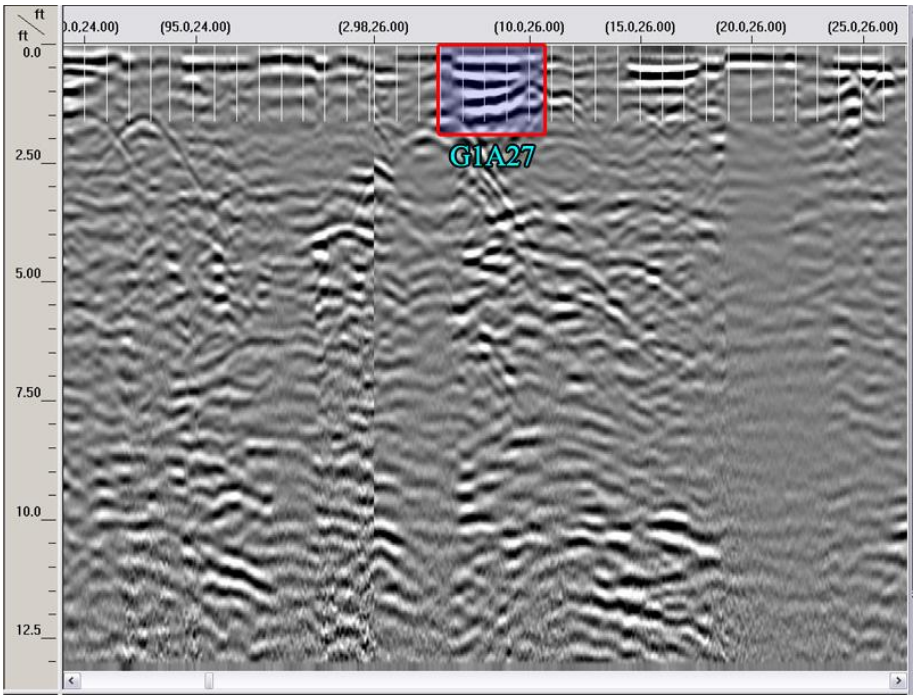


Figure 26. GPR Anomaly G1A27.

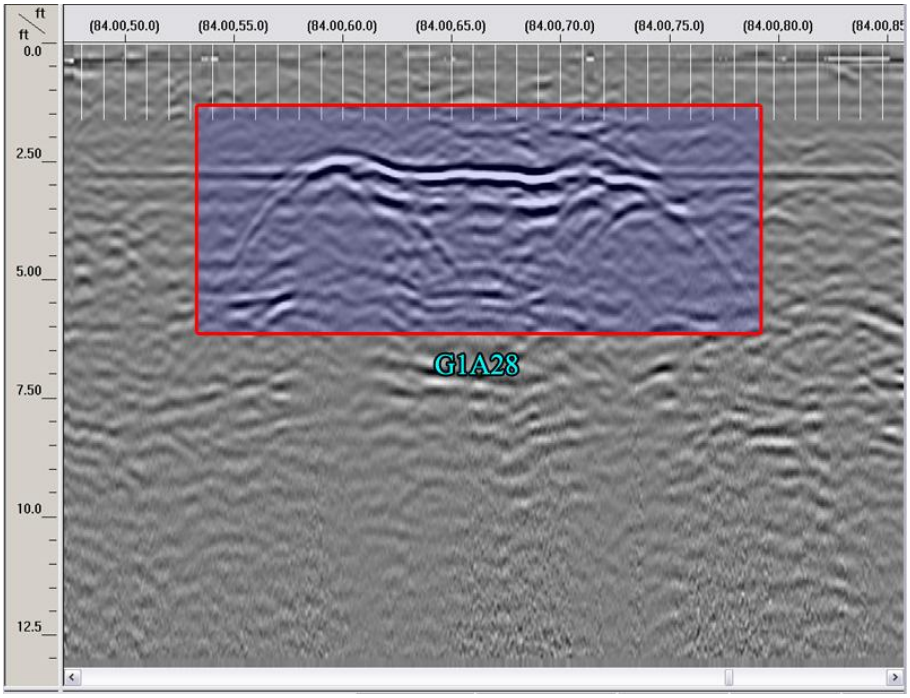


Figure 27. GPR Anomaly G1A28.

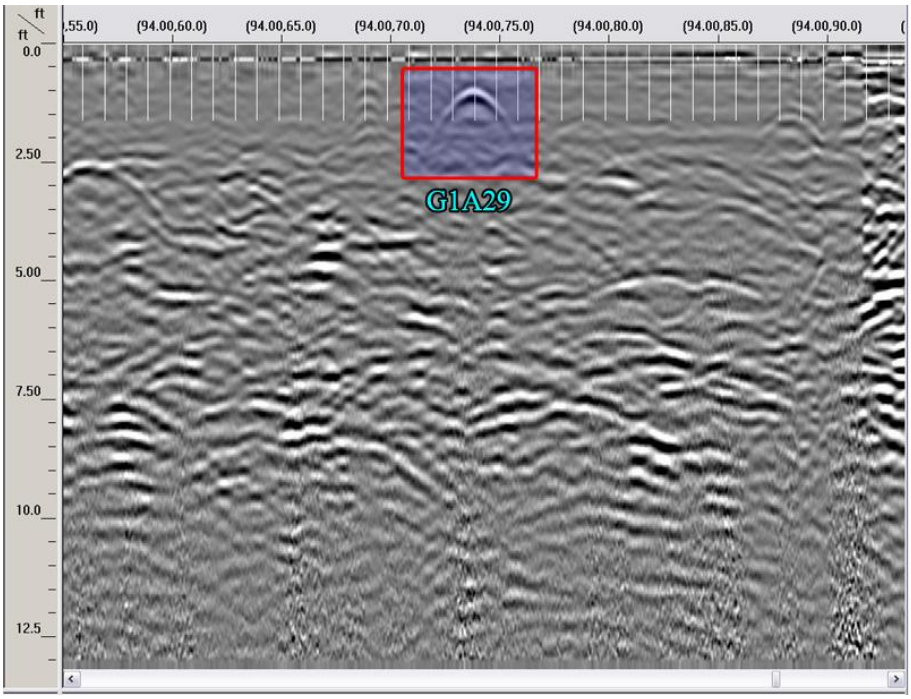


Figure 28. GPR Anomaly G1A29.

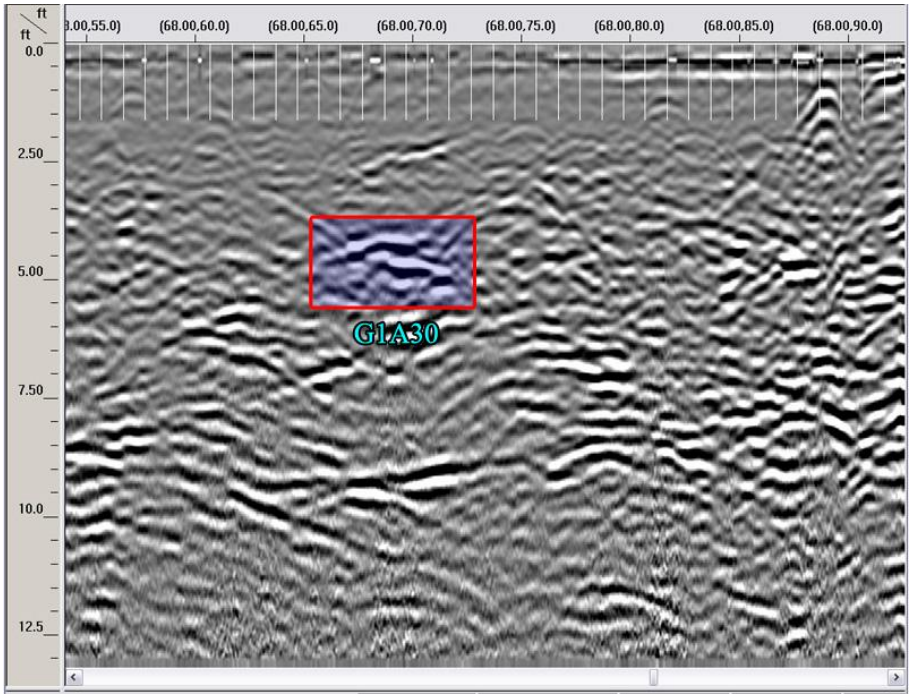


Figure 29. GPR Anomaly G1A30.

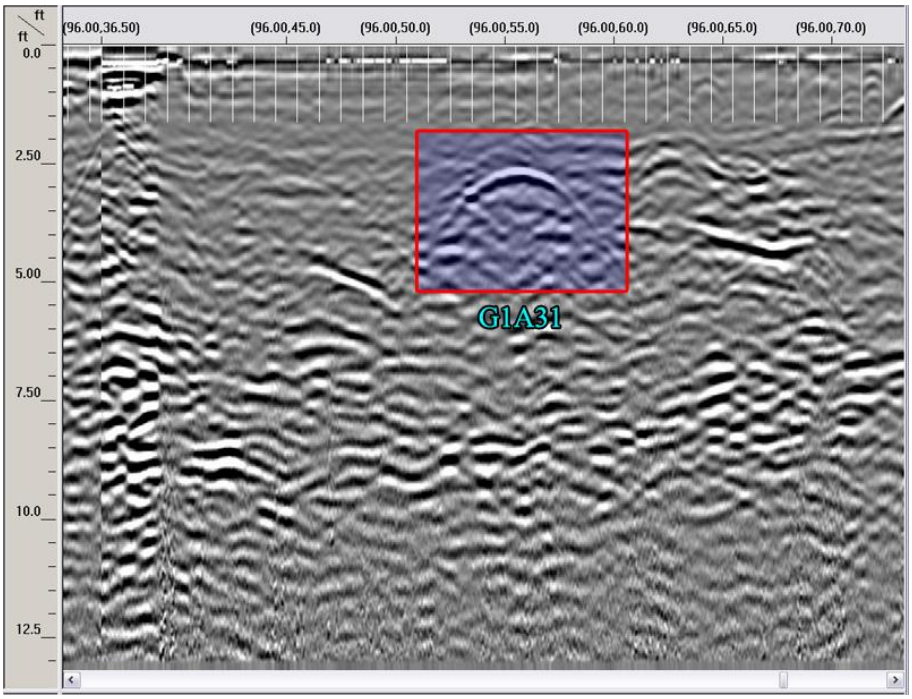


Figure 30. GPR Anomaly G1A31.

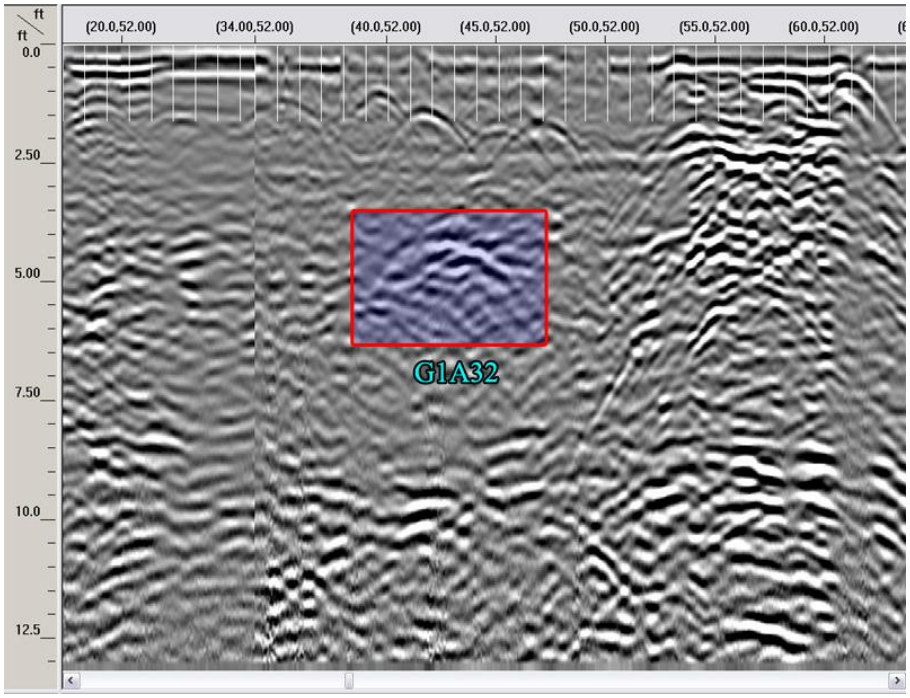


Figure 31. GPR Anomaly G1A32.

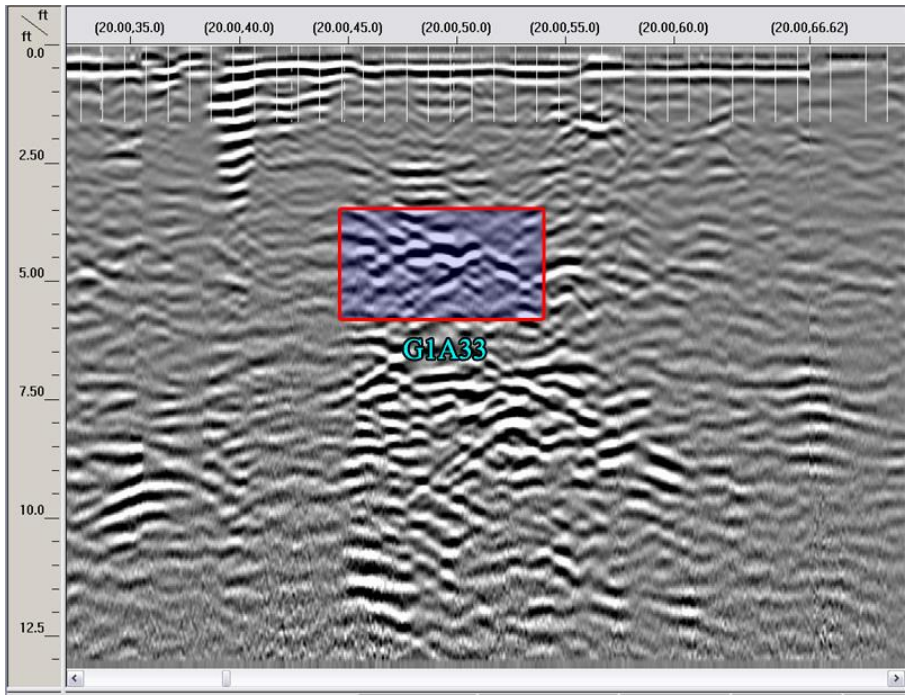


Figure 32. GPR Anomaly G1A33.

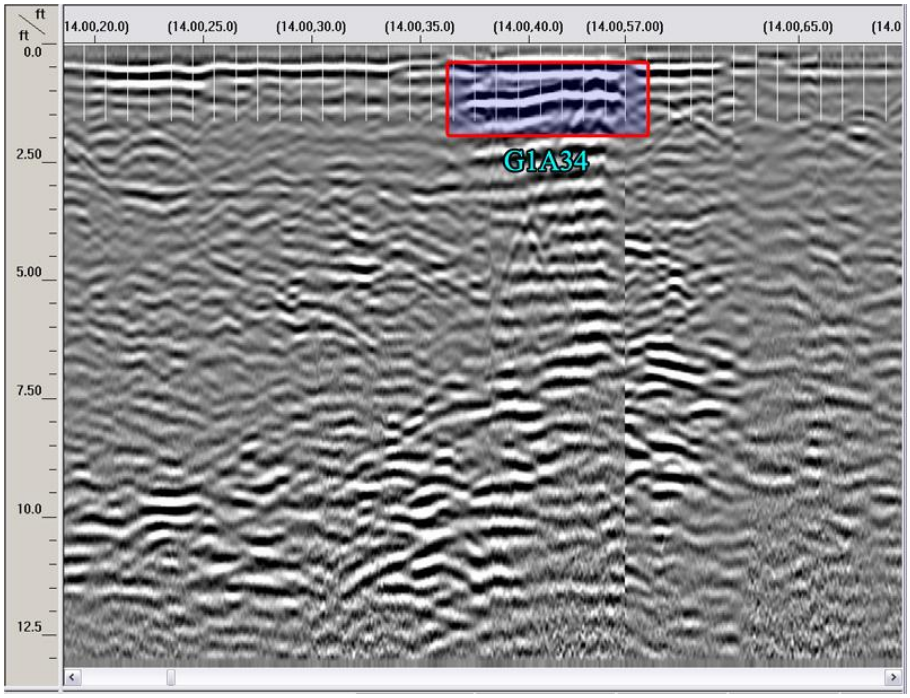


Figure 33. GPR Anomaly G1A34.

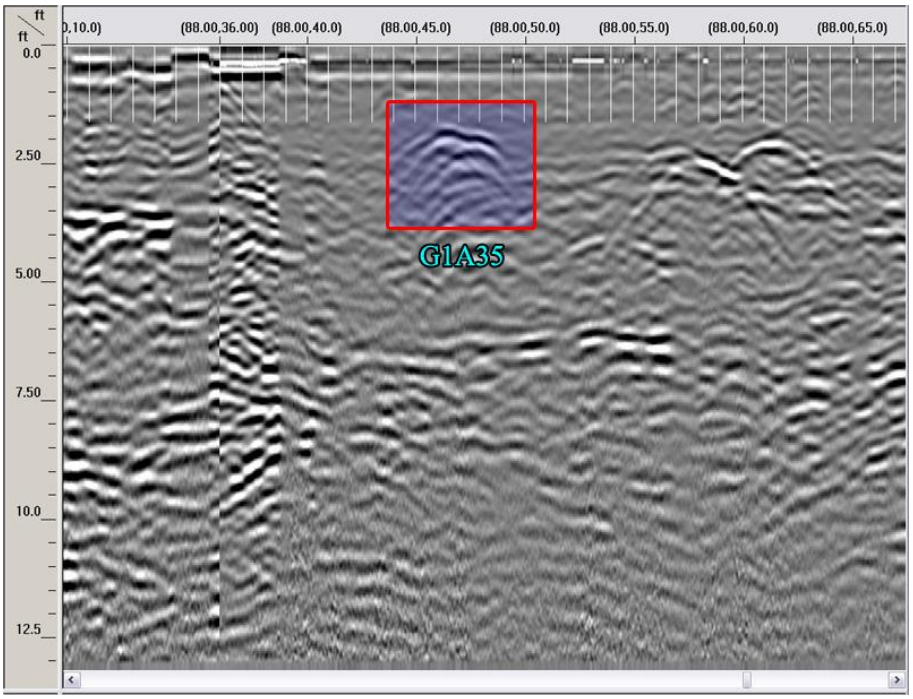


Figure 34. GPR Anomaly G1A35.

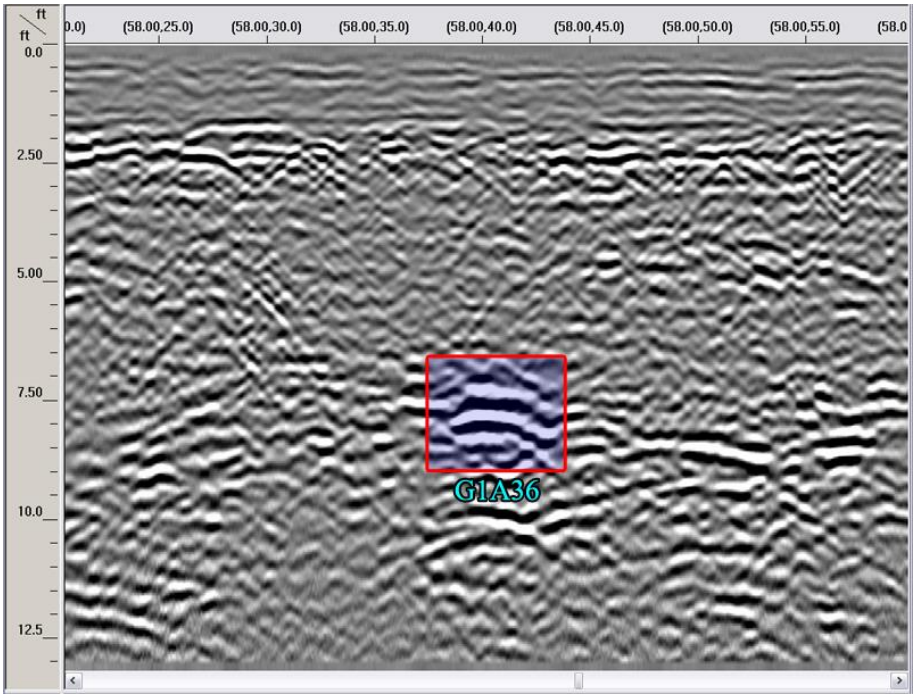


Figure 35. GPR Anomaly G1A36.

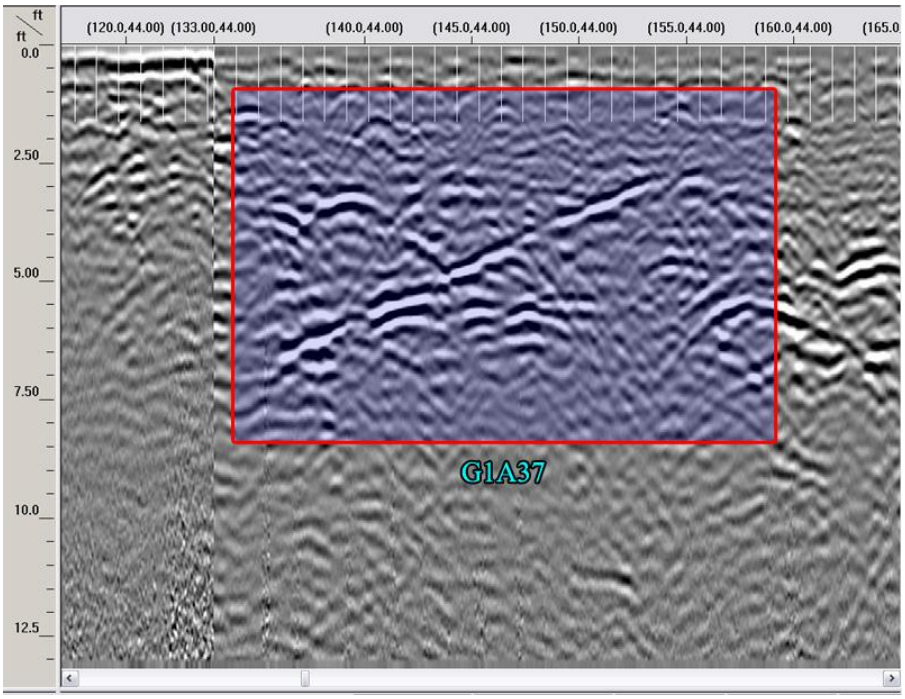


Figure 36. GPR Anomaly G1A37.

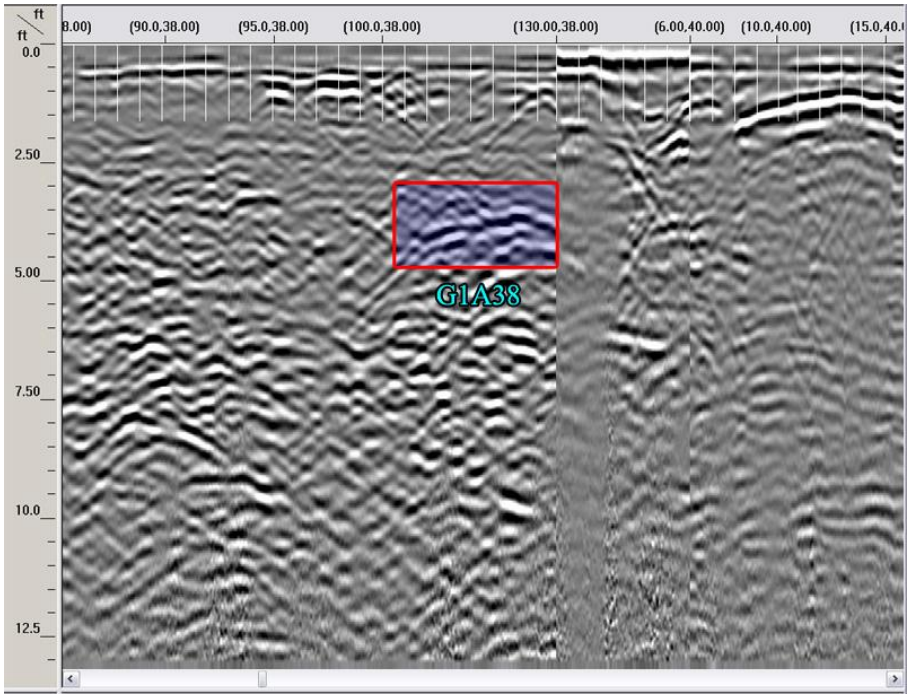


Figure 37. GPR Anomaly G1A38.

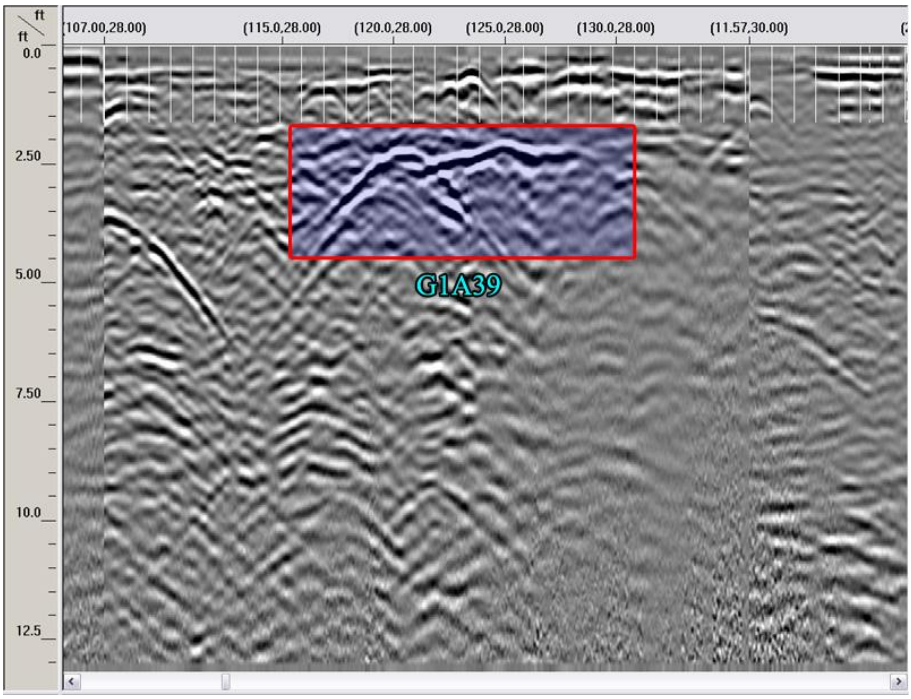


Figure 38. GPR Anomaly G1A39.

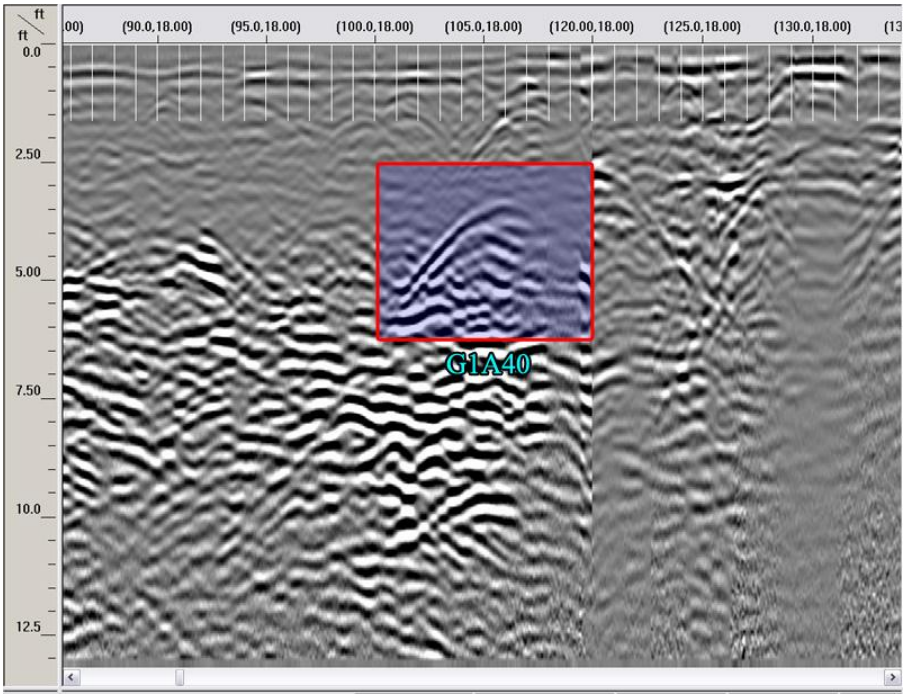


Figure 39. GPR Anomaly G1A40.

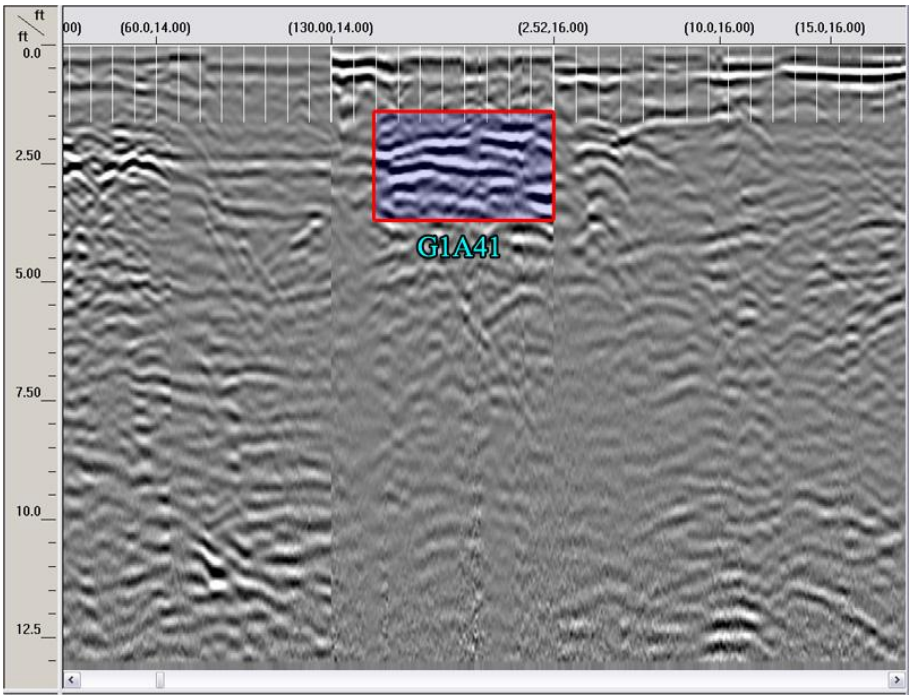


Figure 40. GPR Anomaly G1A41.

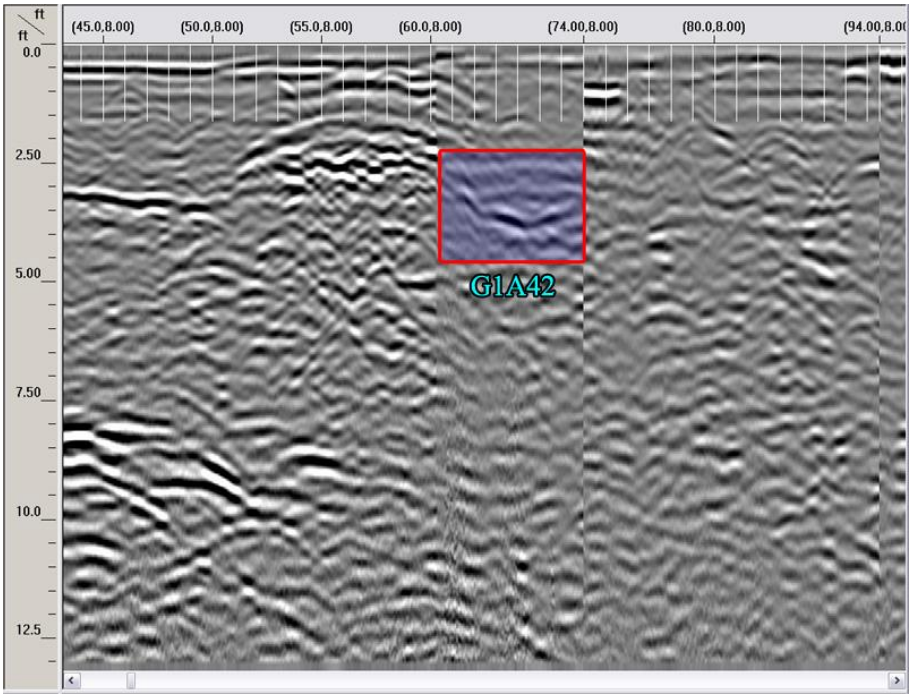


Figure 41. GPR Anomaly G1A42.

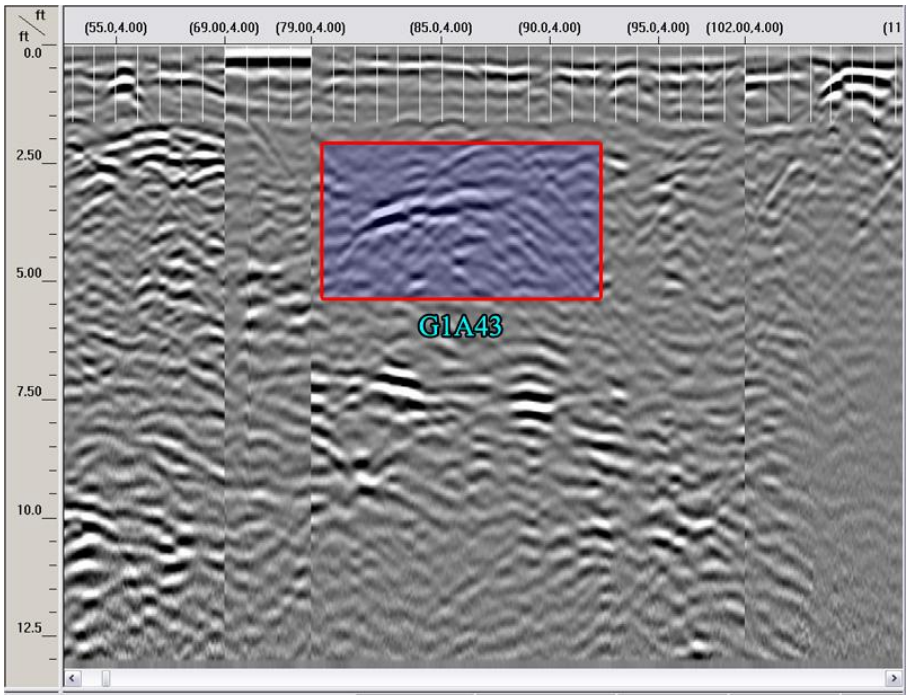


Figure 42. GPR Anomaly G1A43.

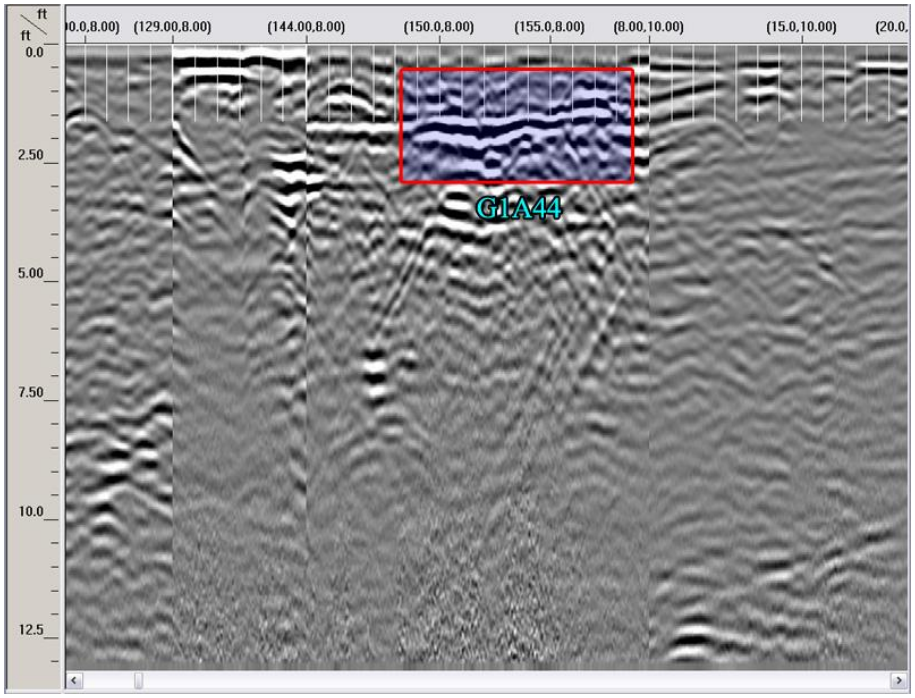


Figure 43. GPR Anomaly G1A44.

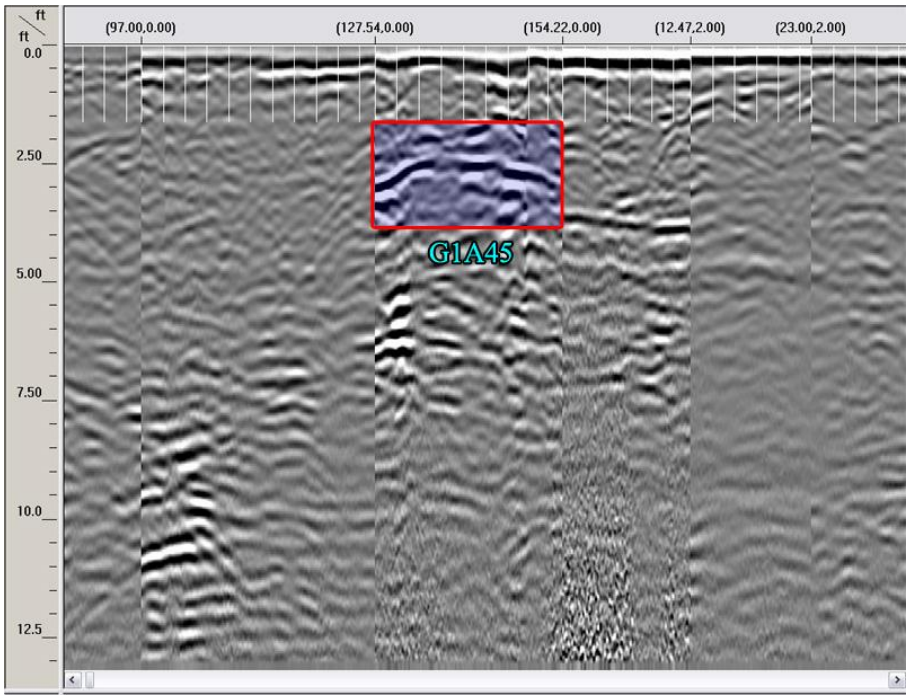


Figure 44. GPR Anomaly G1A45.

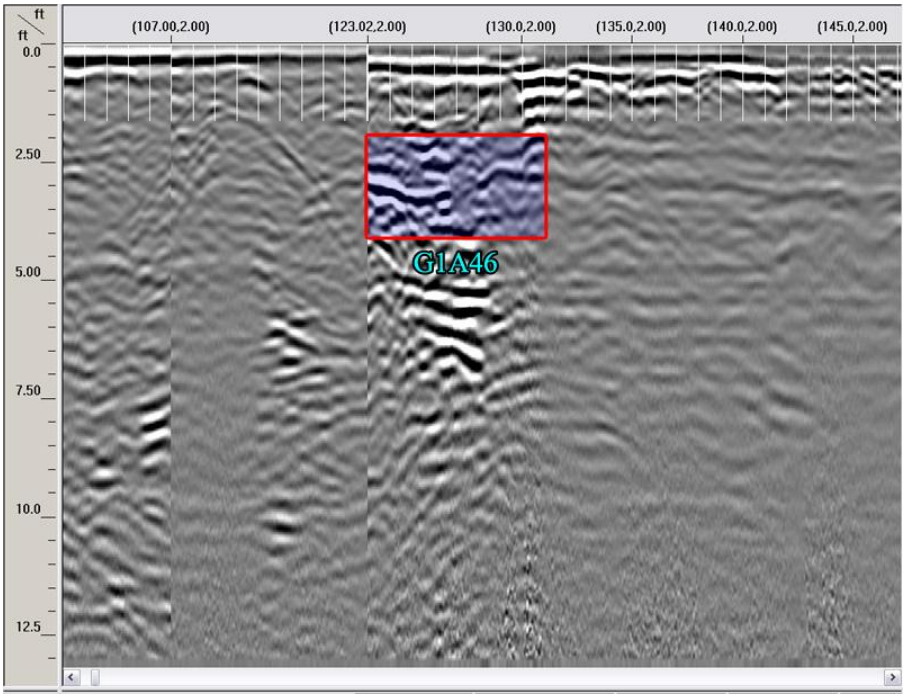


Figure 45. GPR Anomaly G1A46.

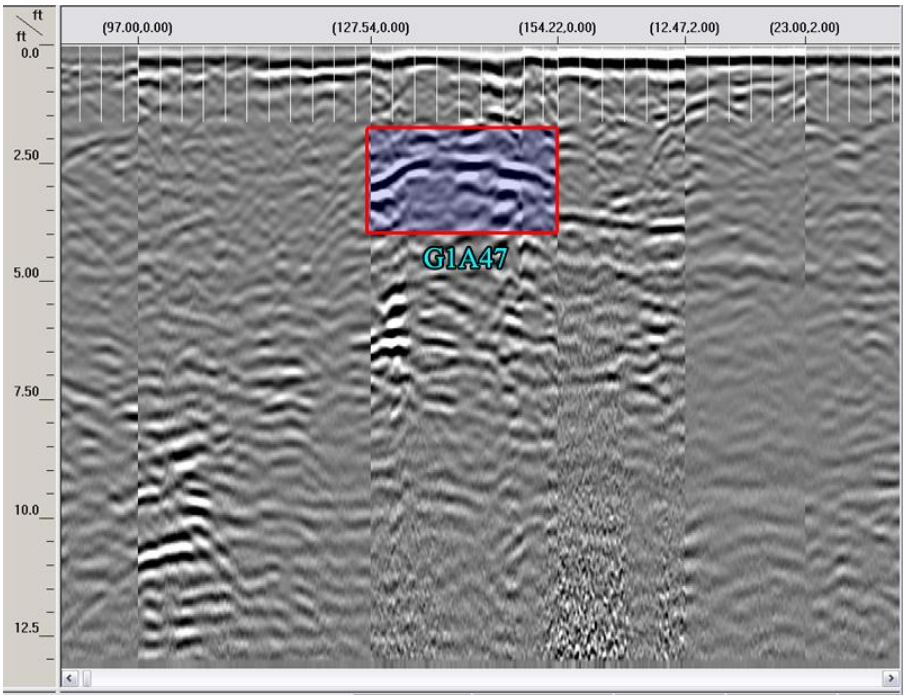


Figure 46. GPR Anomaly G1A47.

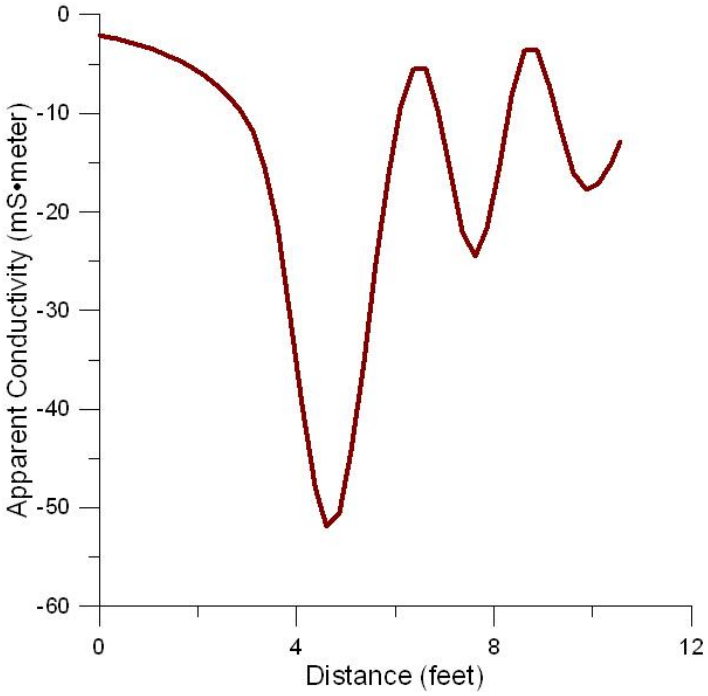


Figure 47. EM38-DD-DD Anomaly G1A48.

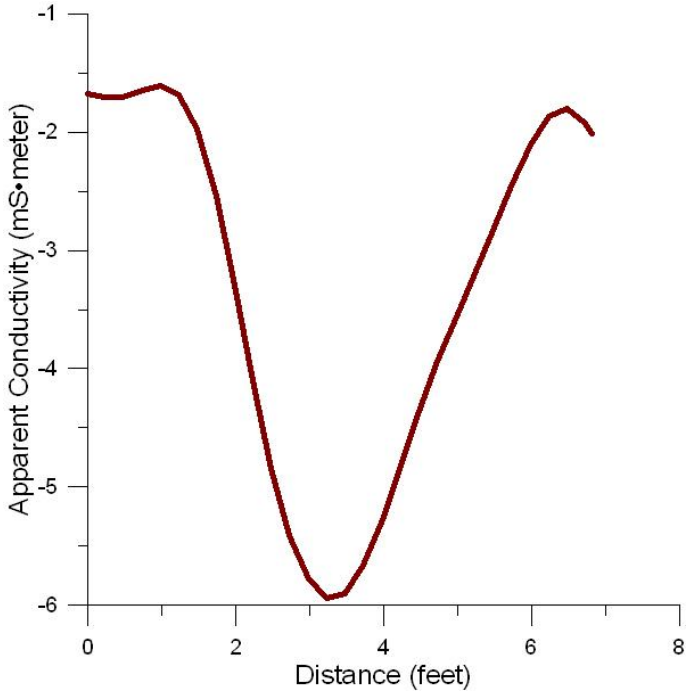


Figure 48. EM38-DD Anomaly G1A49.

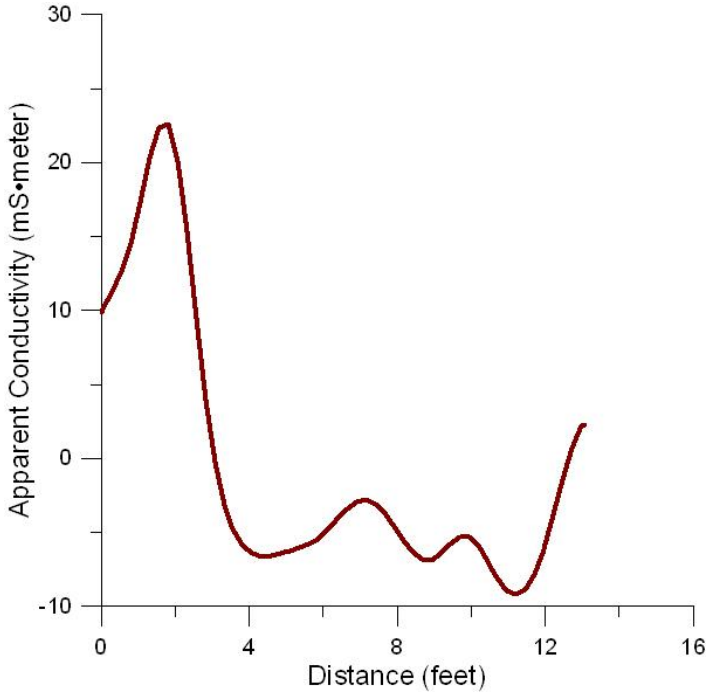


Figure 49. EM38-DD Anomaly G1A50.

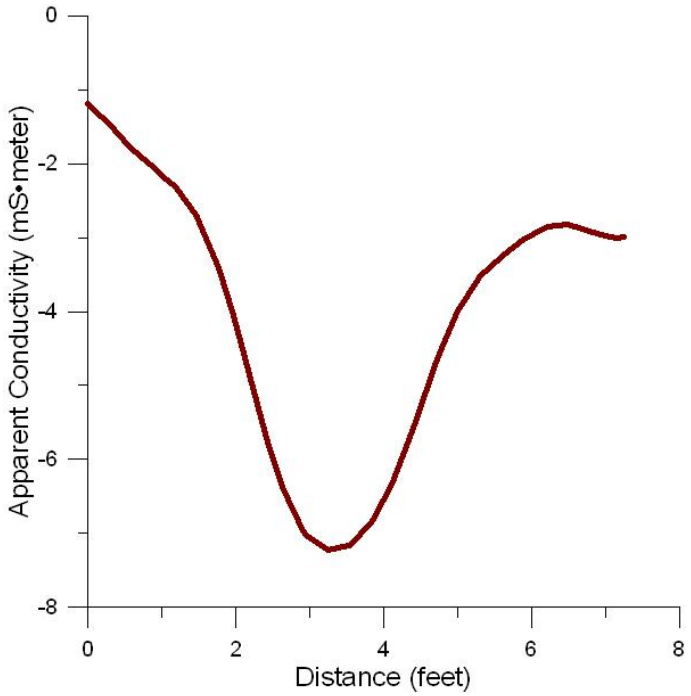


Figure 50. EM38-DD Anomaly G1A51.

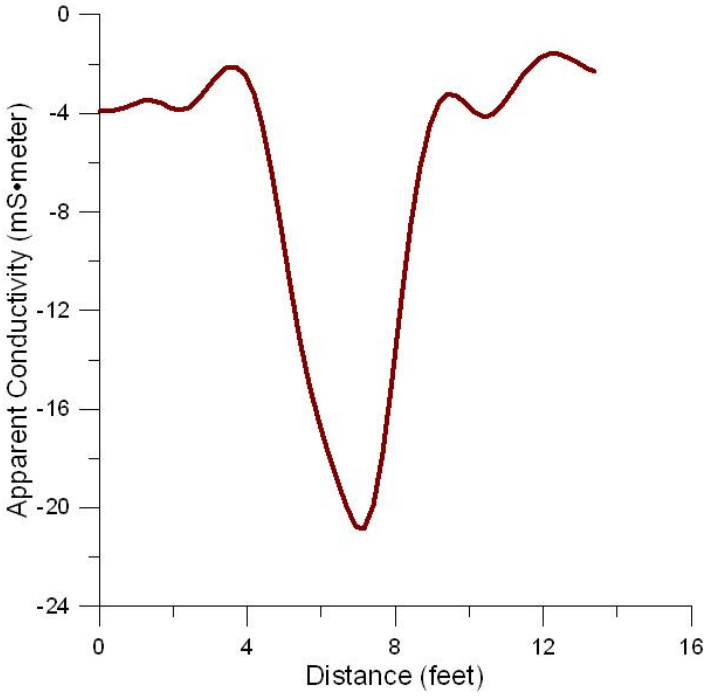


Figure 51. EM38-DD Anomaly G1A52.

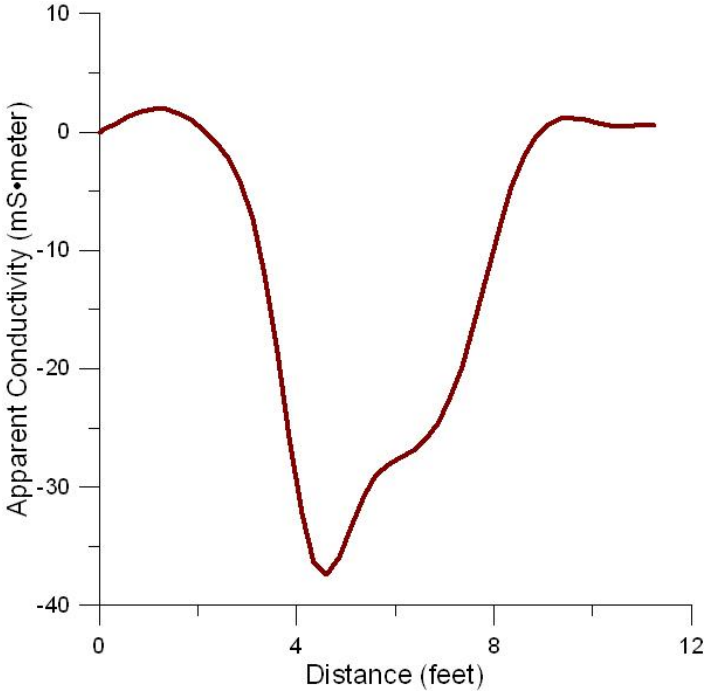


Figure 52. EM38-DD Anomaly G1A53.

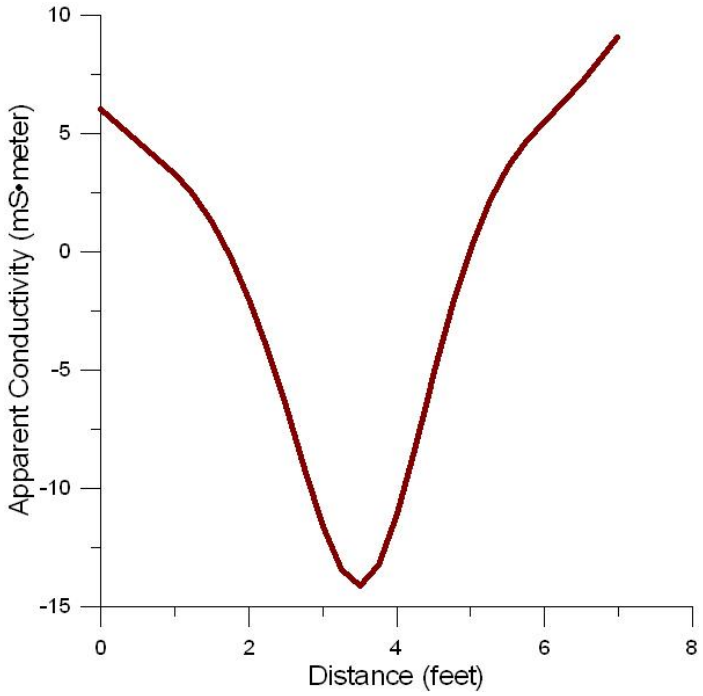


Figure 53. EM38-DD Anomaly G1A54.

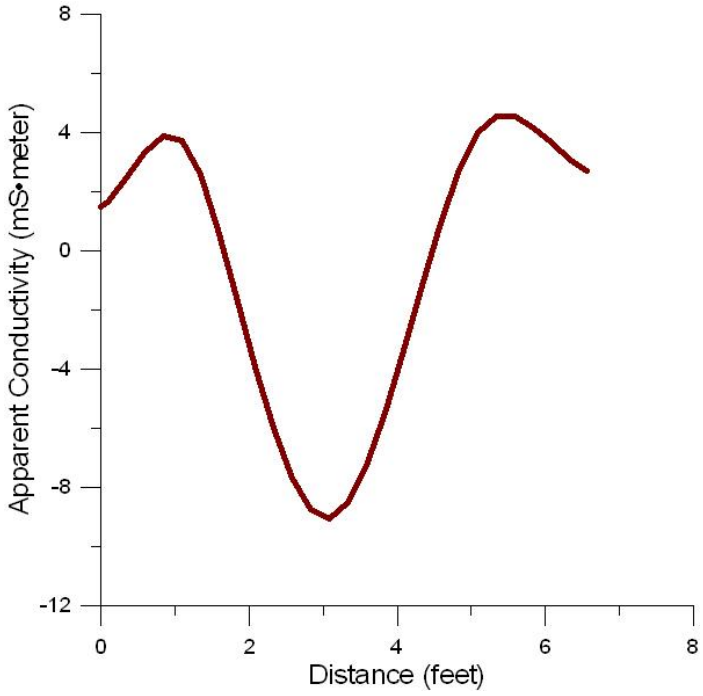


Figure 54. EM38-DD Anomaly G1A55.

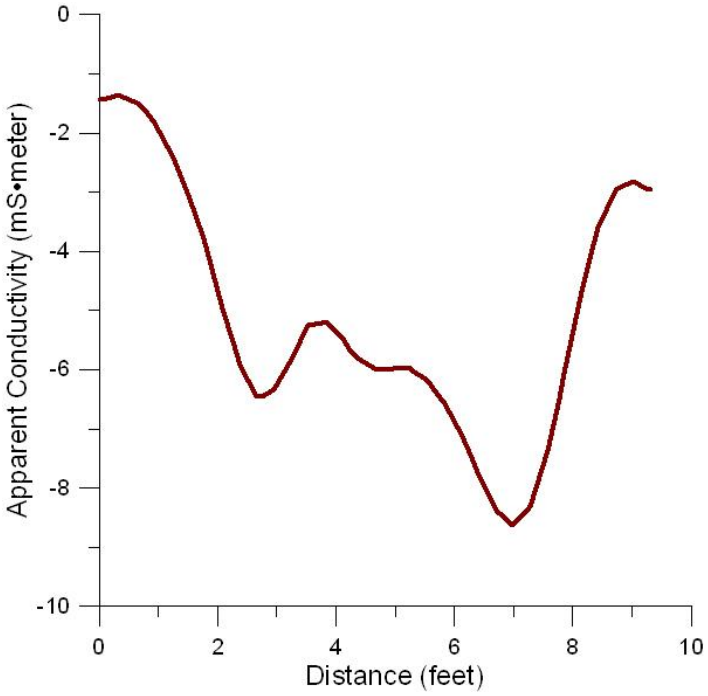


Figure 55. EM38-DD Anomaly G1A56.

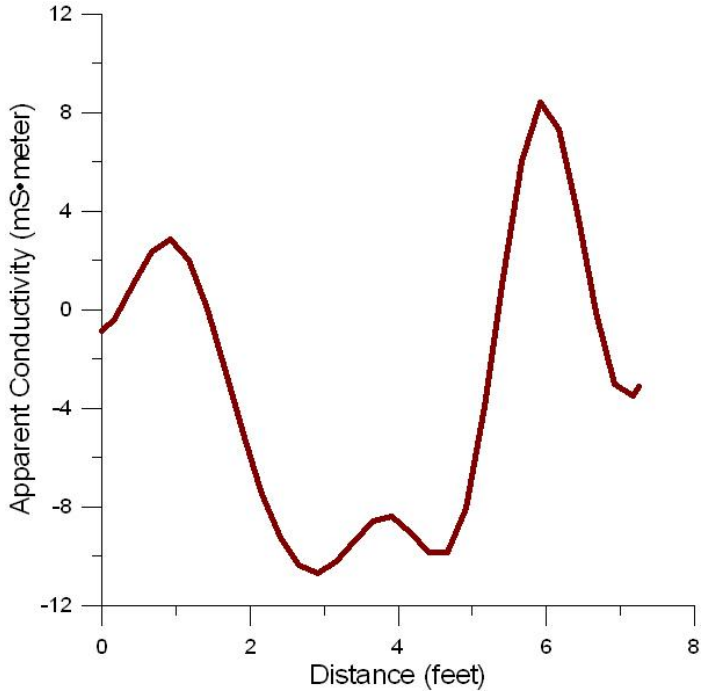


Figure 56. EM38-DD Anomaly G1A57.

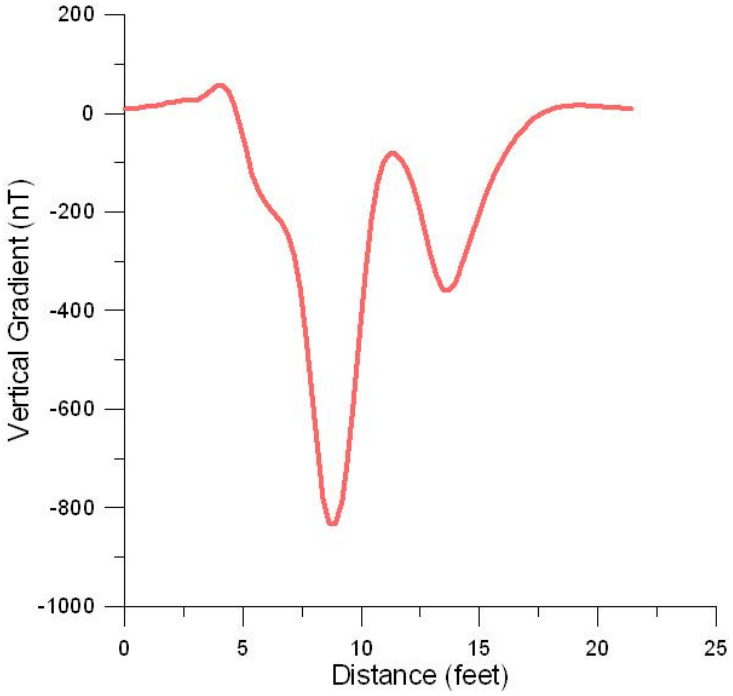


Figure 57. MAG Anomaly G1A58.

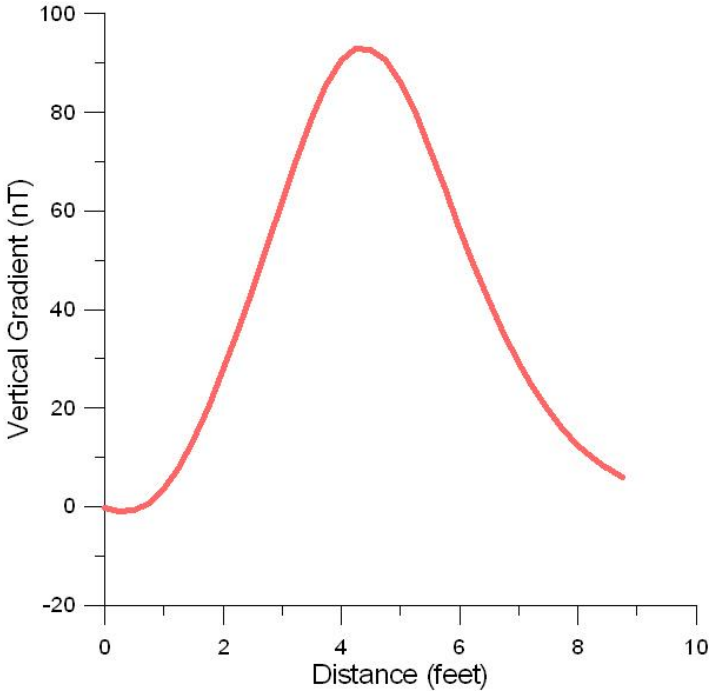


Figure 58. MAG Anomaly G1A59.

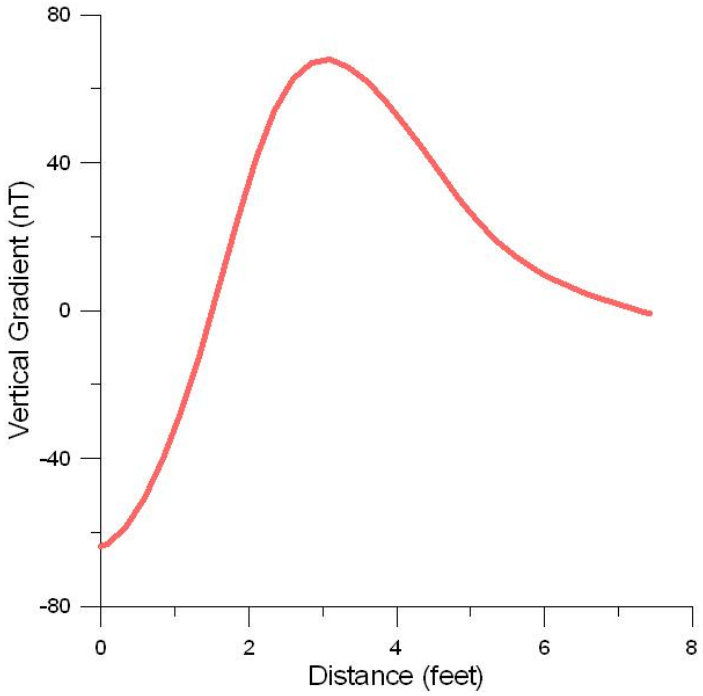


Figure 59. MAG Anomaly G1A60.

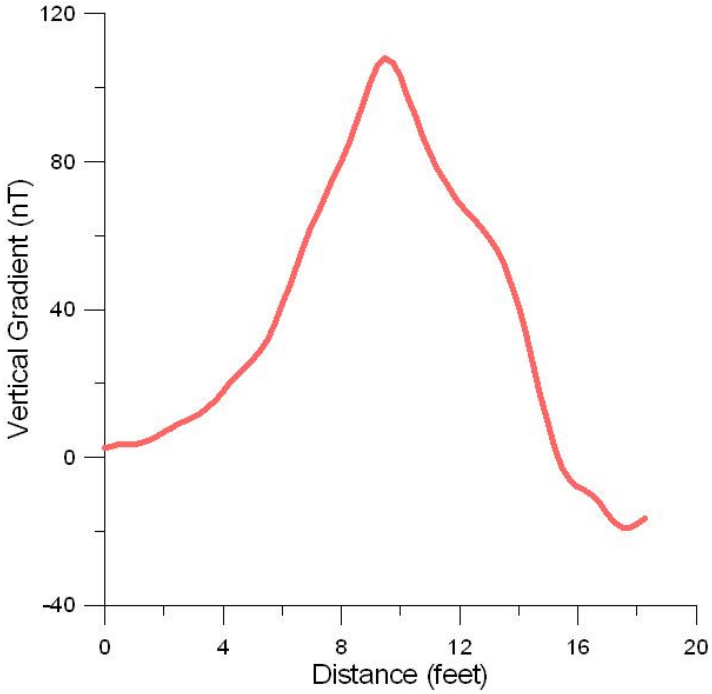


Figure 60. MAG Anomaly G1A61.

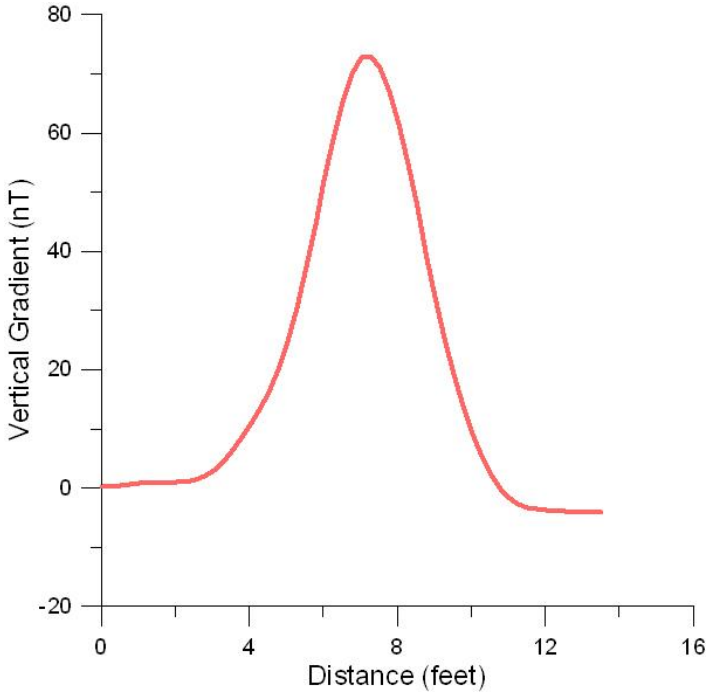


Figure 61. MAG Anomaly G1A62.

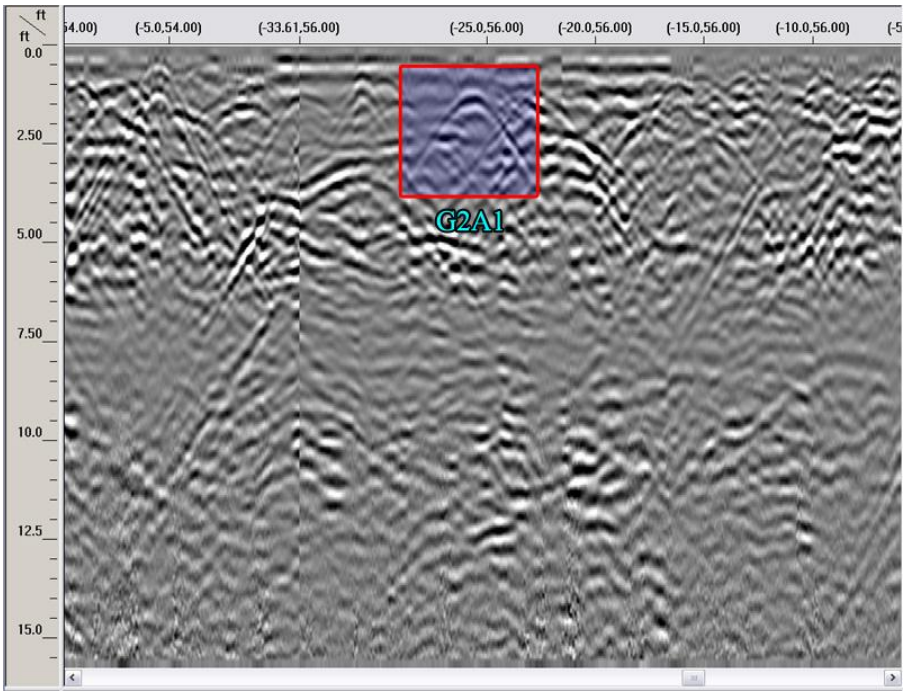


Figure 62. GPR Anomaly G2A1.

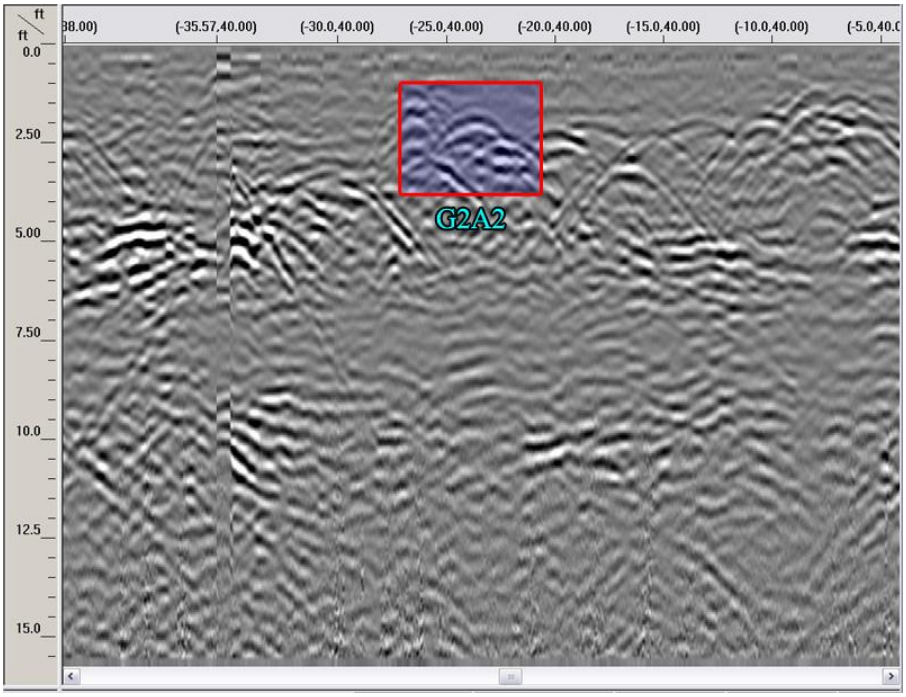


Figure 63. GPR Anomaly G2A2.

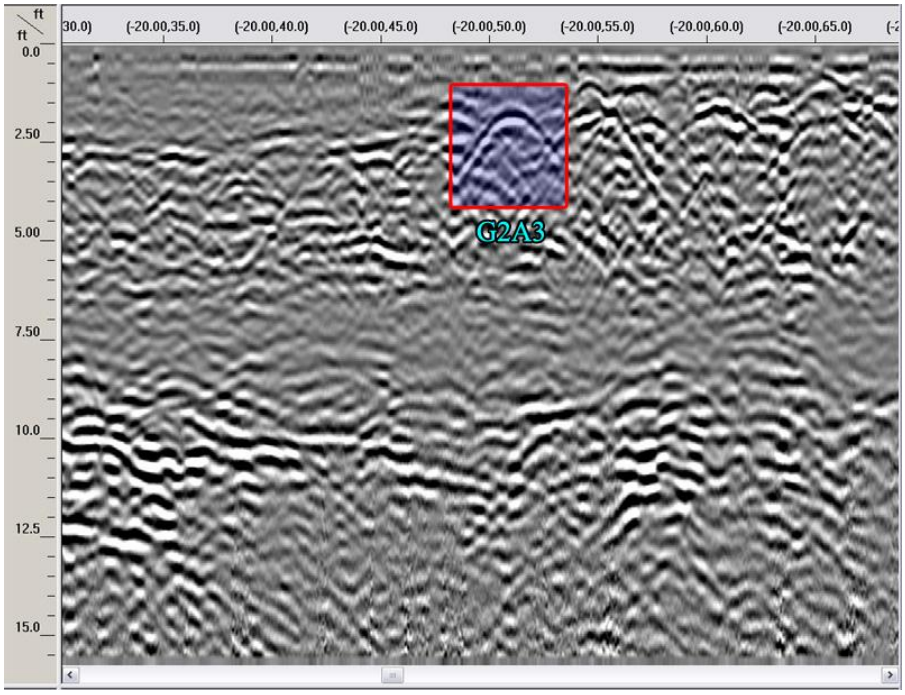


Figure 64. GPR Anomaly G2A3.

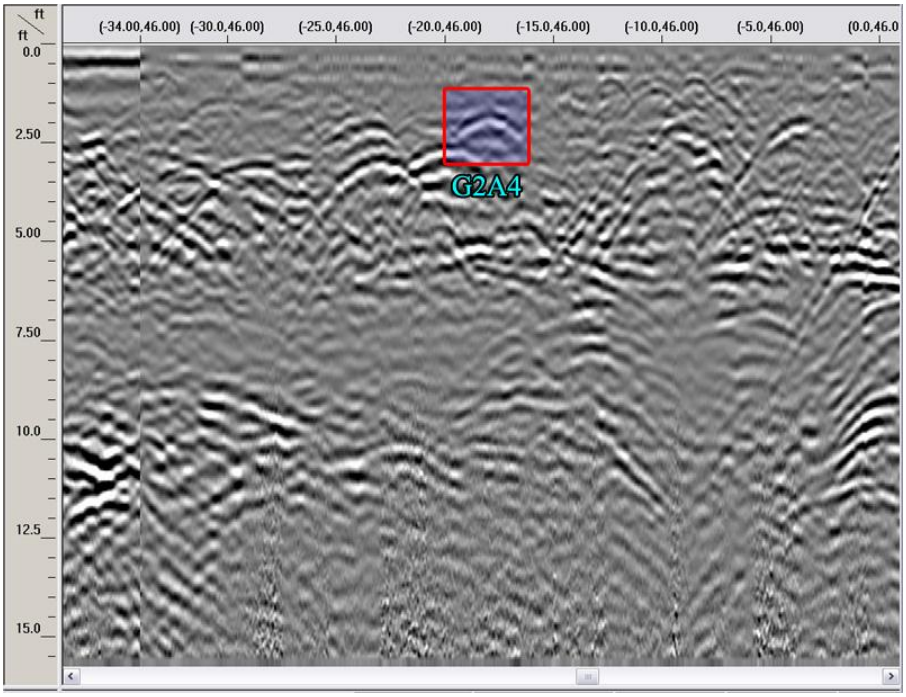


Figure 65. GPR Anomaly G2A4.

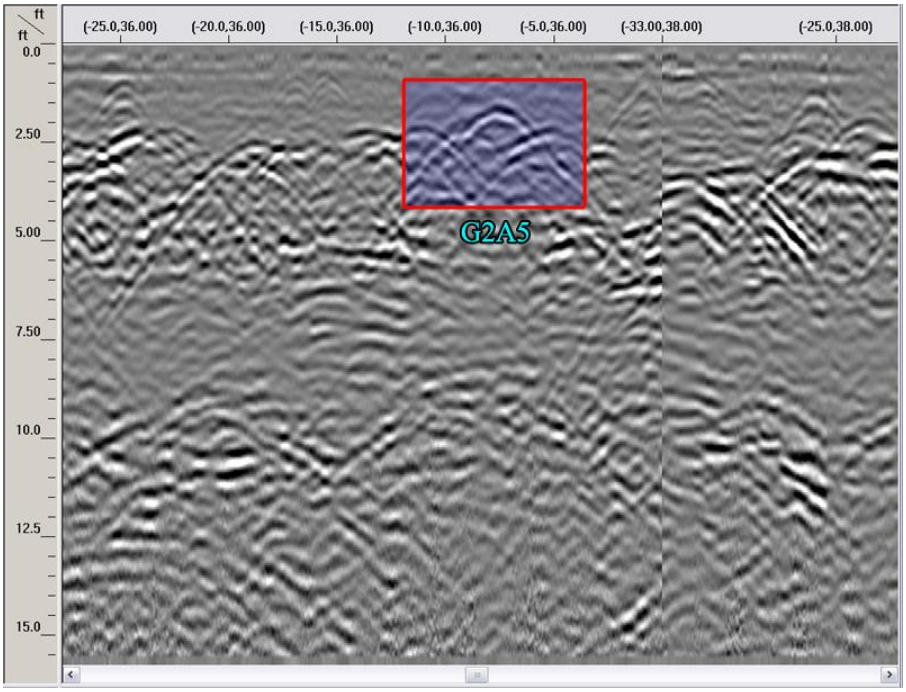


Figure 66. GPR Anomaly G2A5.

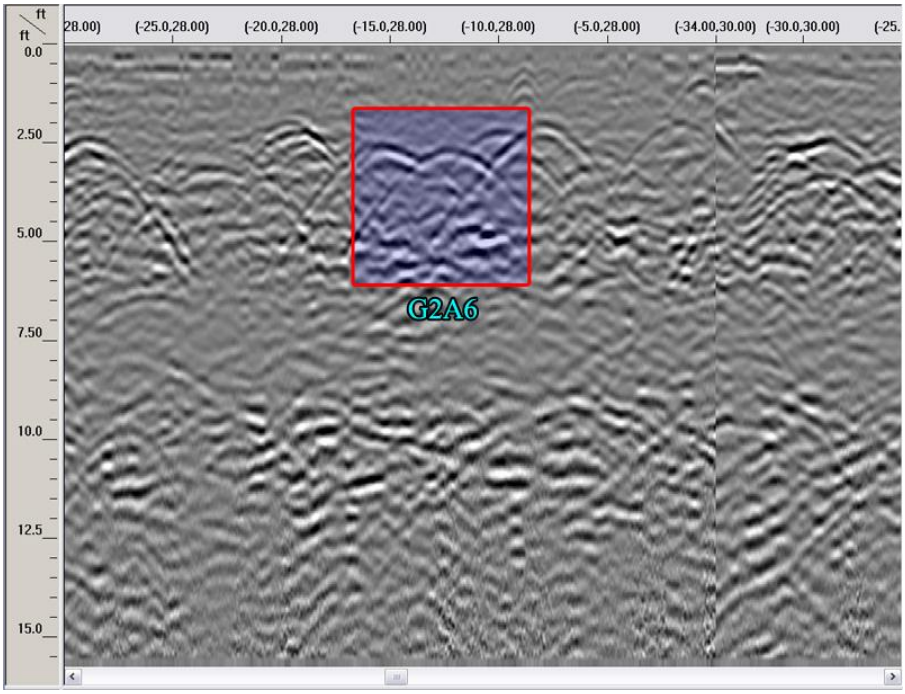


Figure 67. GPR Anomaly G2A6.

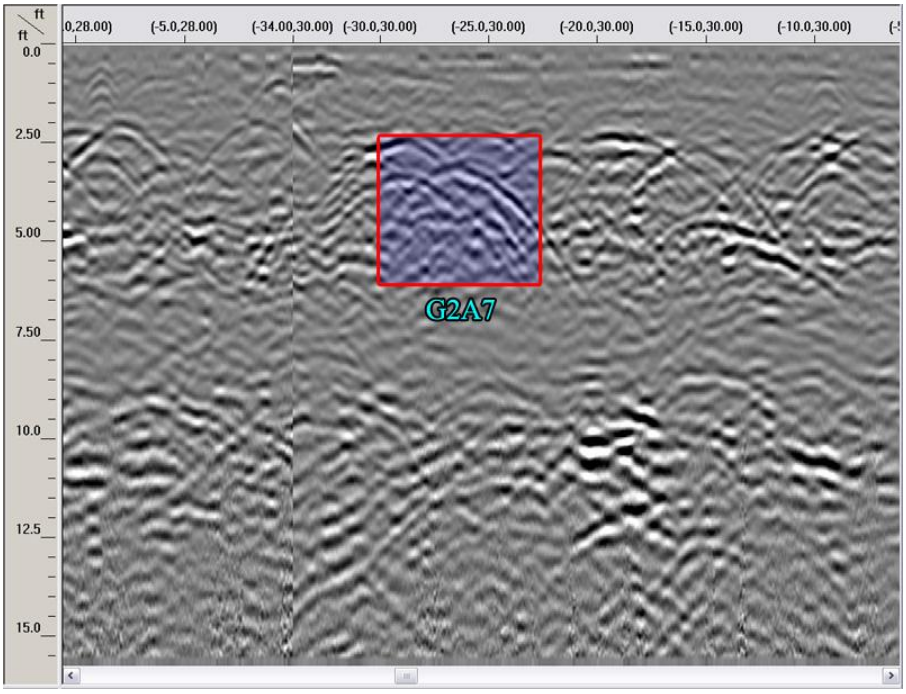


Figure 68. GPR Anomaly G2A7.

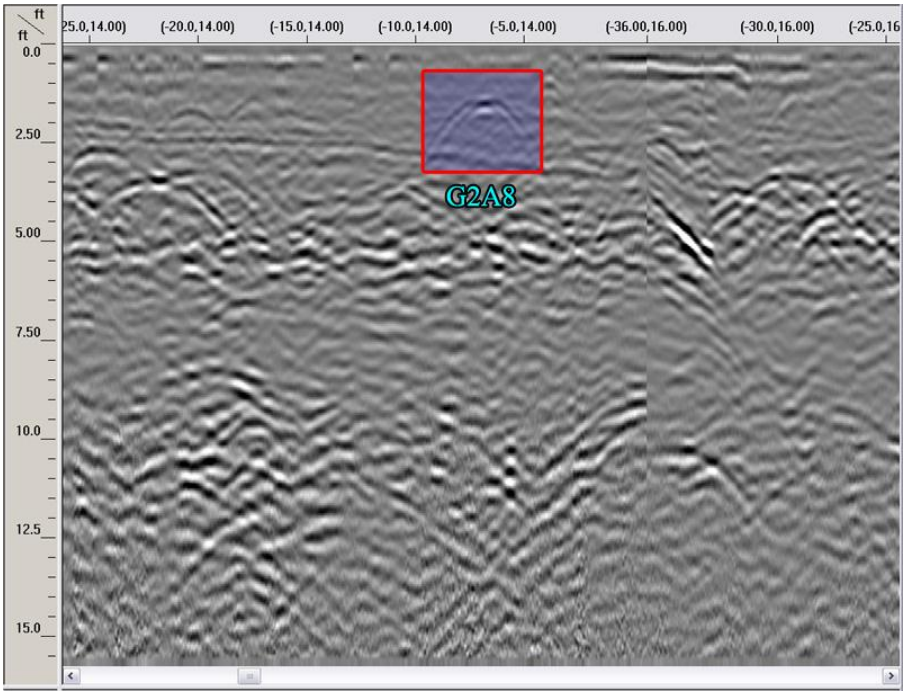


Figure 69. GPR Anomaly G2A8.

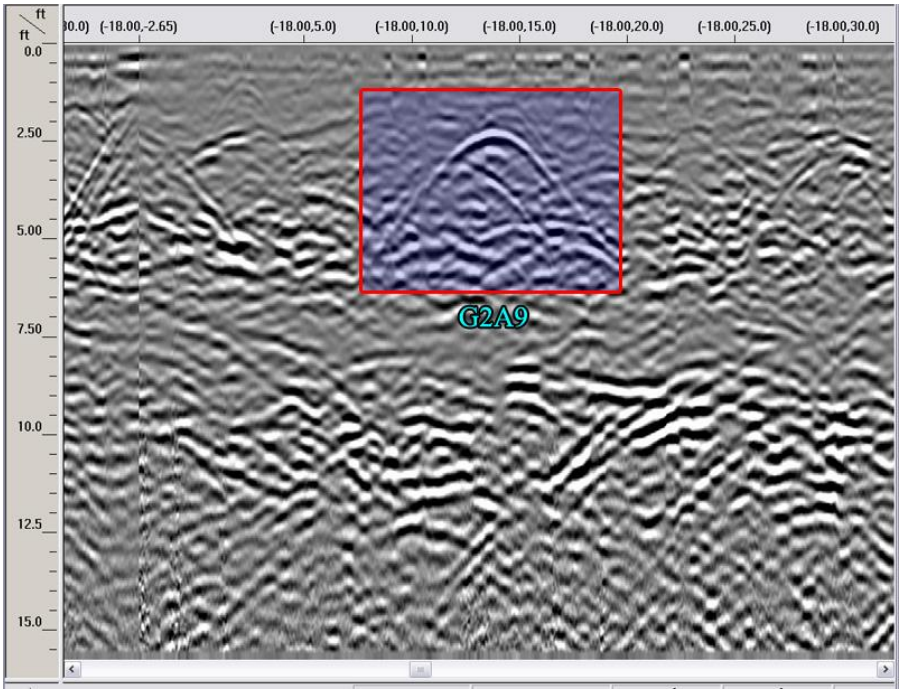


Figure 70. GPR Anomaly G2A9.

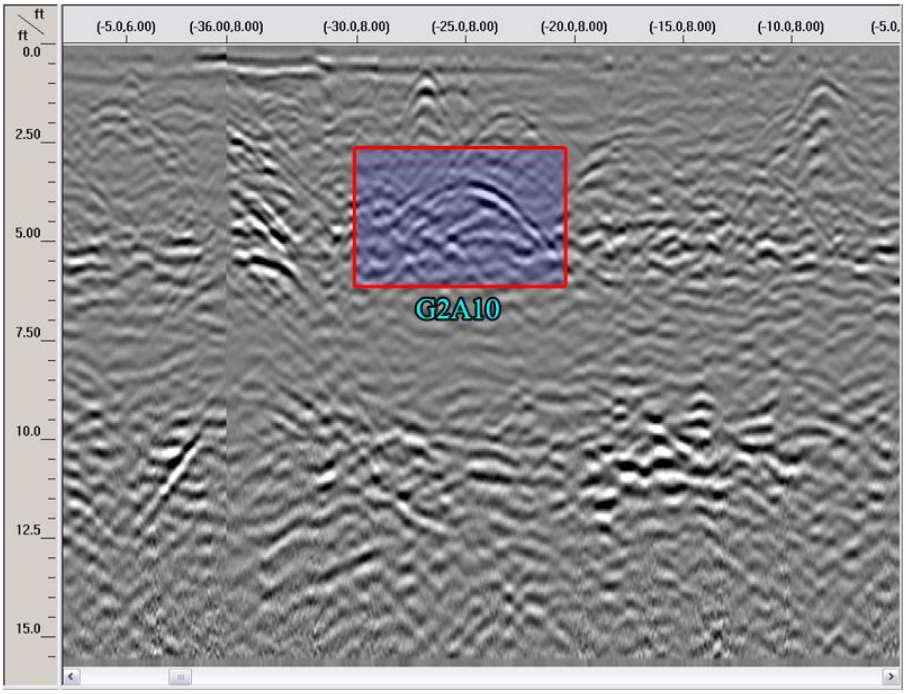


Figure 71. GPR Anomaly G2A10.

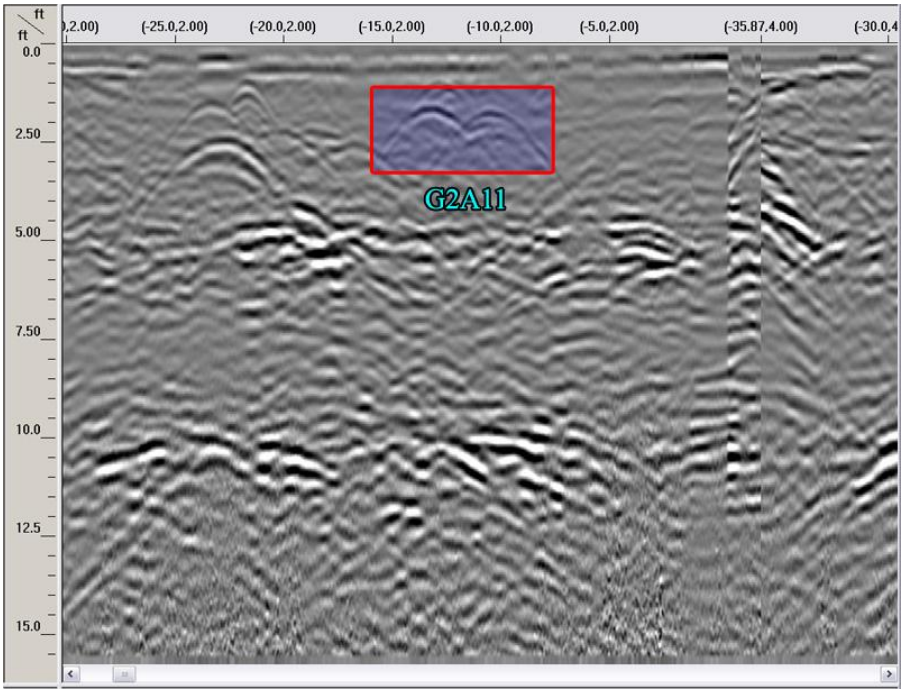


Figure 72. GPR Anomaly G2A11.

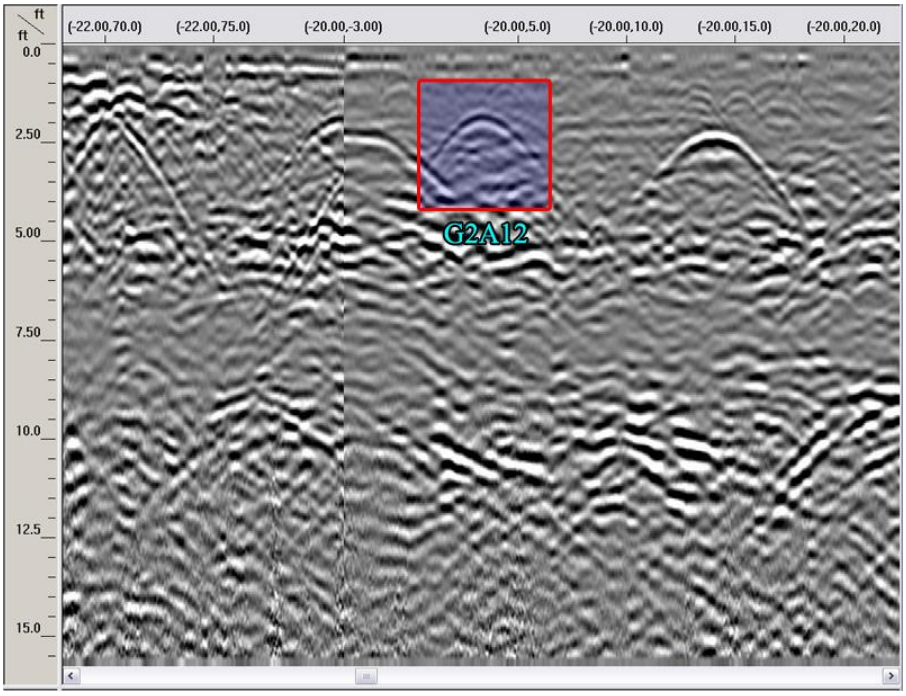


Figure 73. GPR Anomaly G2A12.

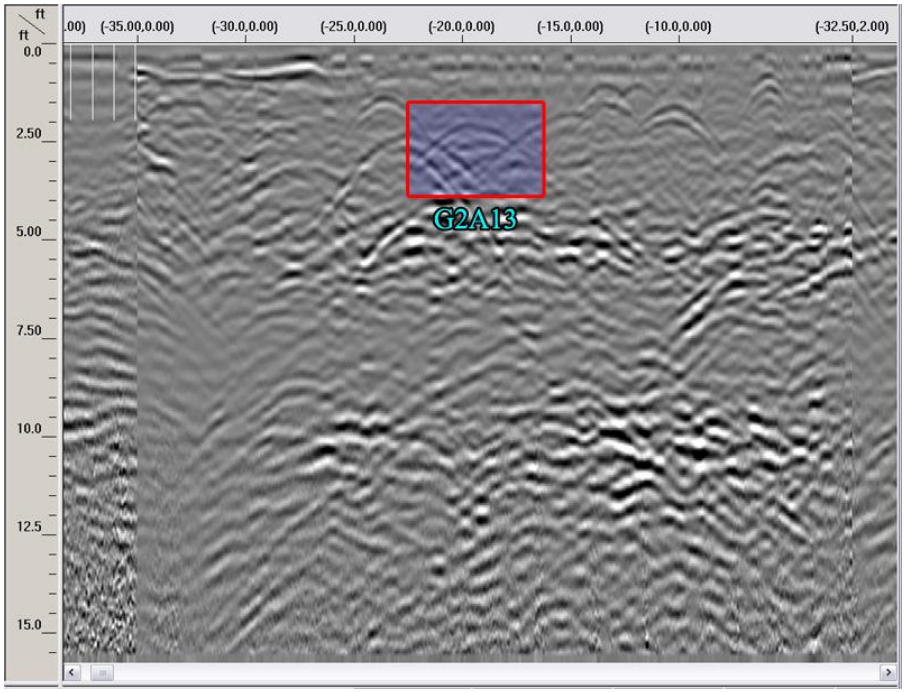


Figure 74. GPR Anomaly G2A13.

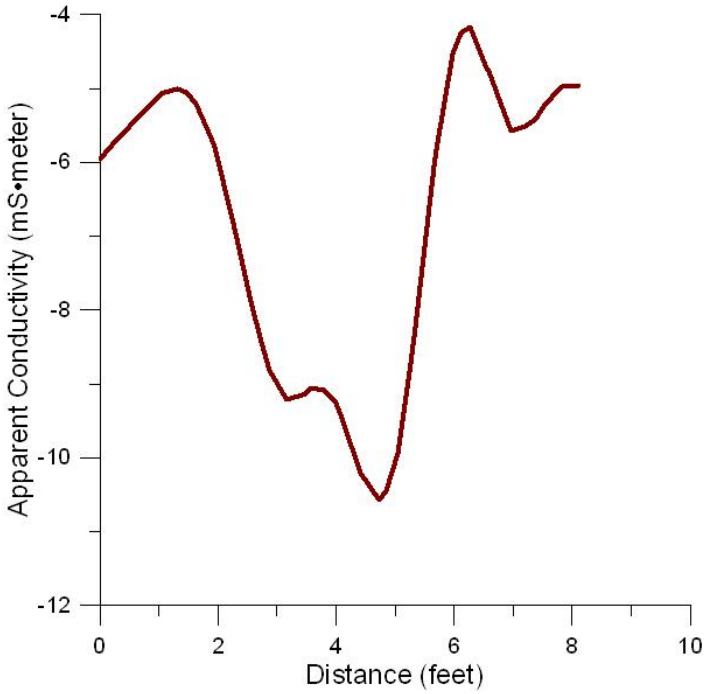


Figure 75. EM38-DD Anomaly G2A14.

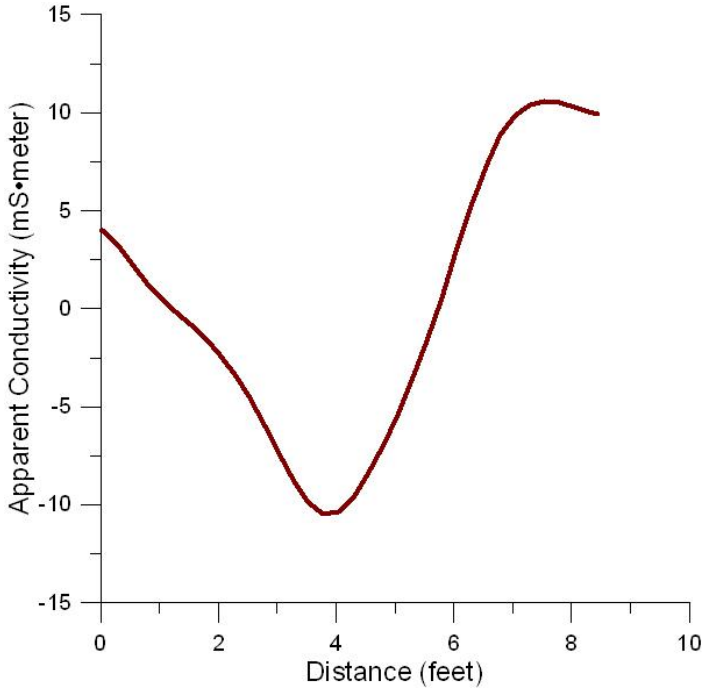


Figure 76. EM38-DD Anomaly G2A15.

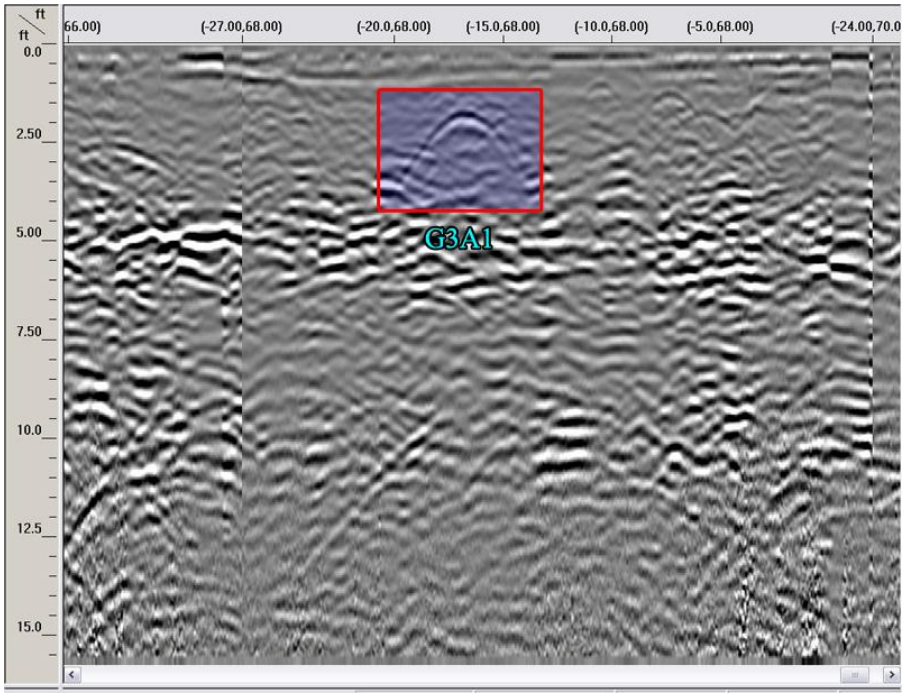


Figure 77. GPR Anomaly G3A1.

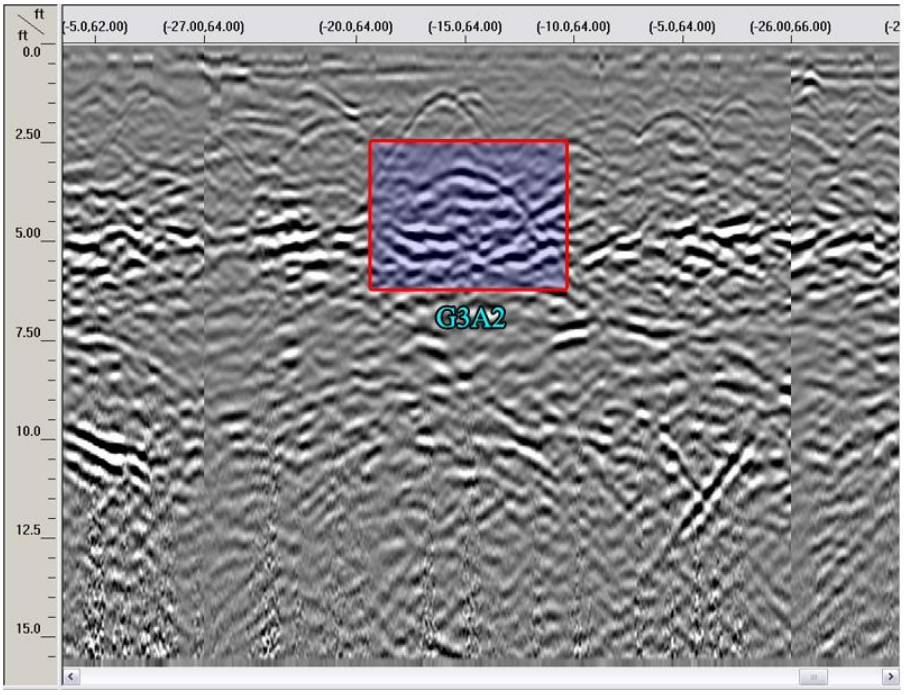


Figure 78. GPR Anomaly G3A2.

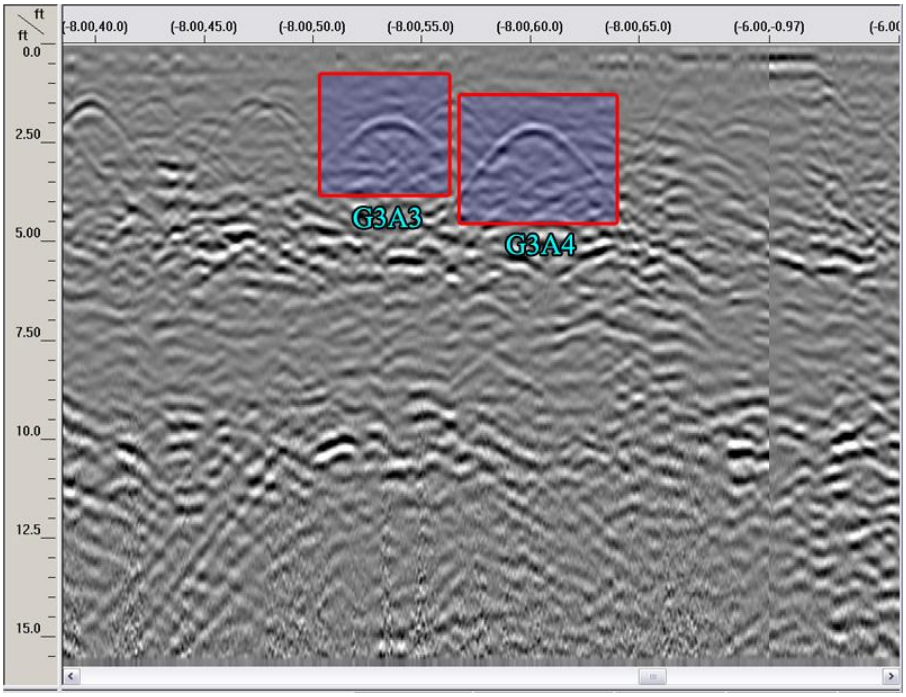


Figure 79. GPR Anomalies G3A3 & G3A4.

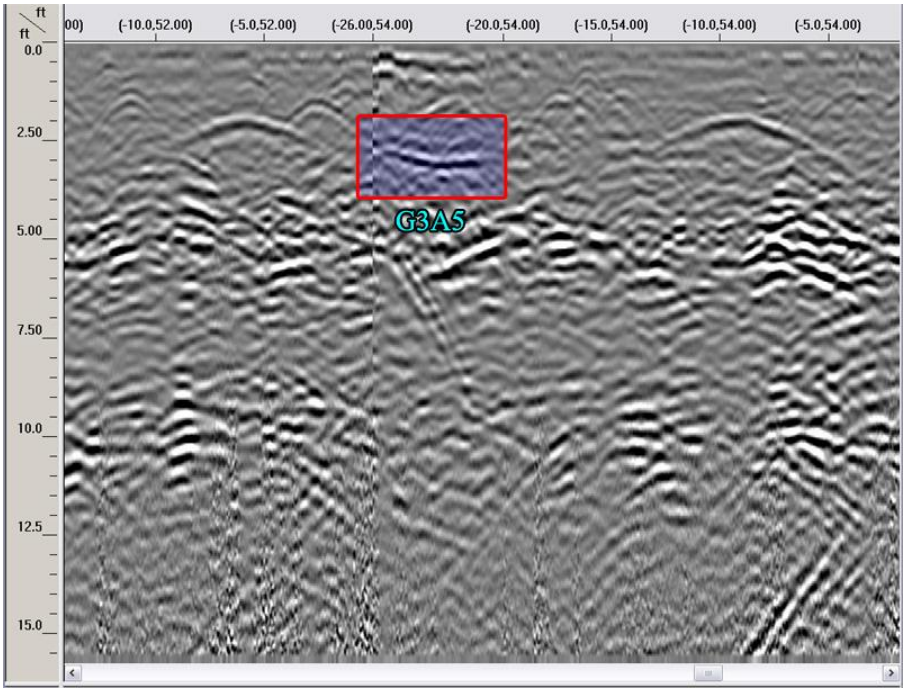


Figure 80. GPR Anomaly G3A5.

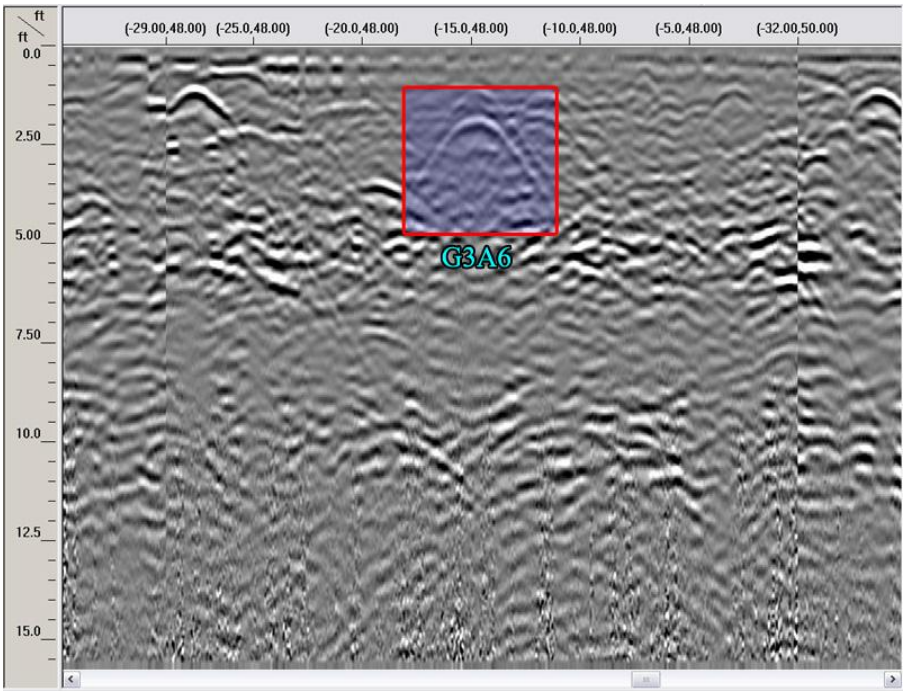


Figure 81. GPR Anomaly G3A6.

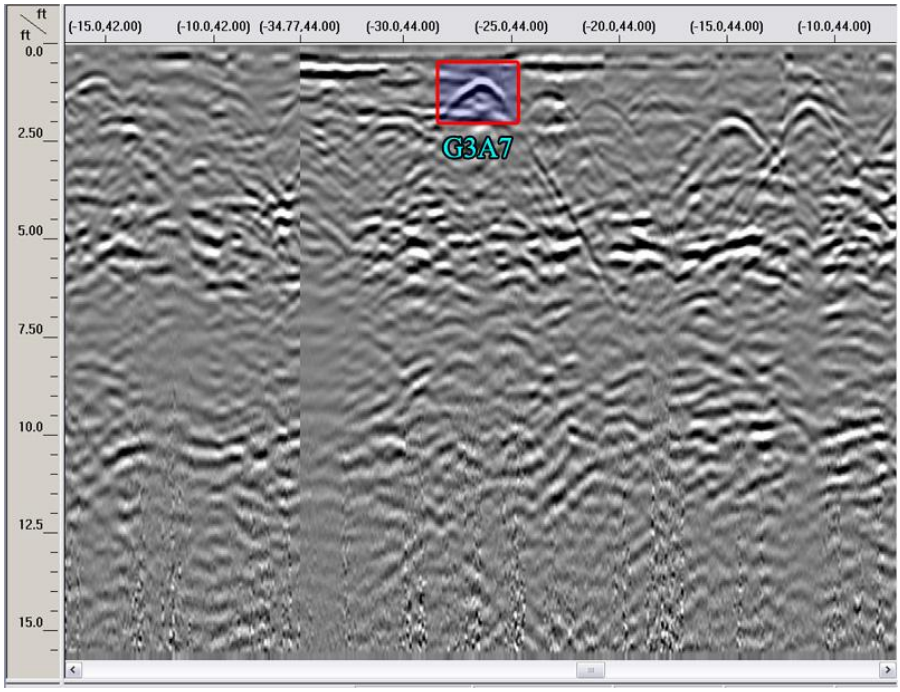


Figure 82. GPR Anomaly G3A7.

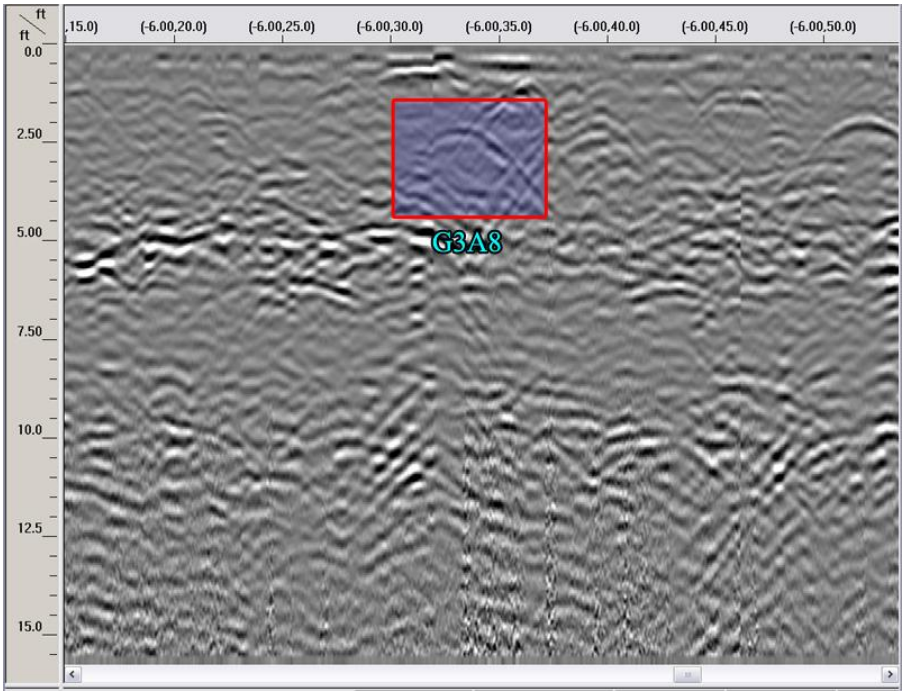


Figure 83. GPR Anomaly G3A8.

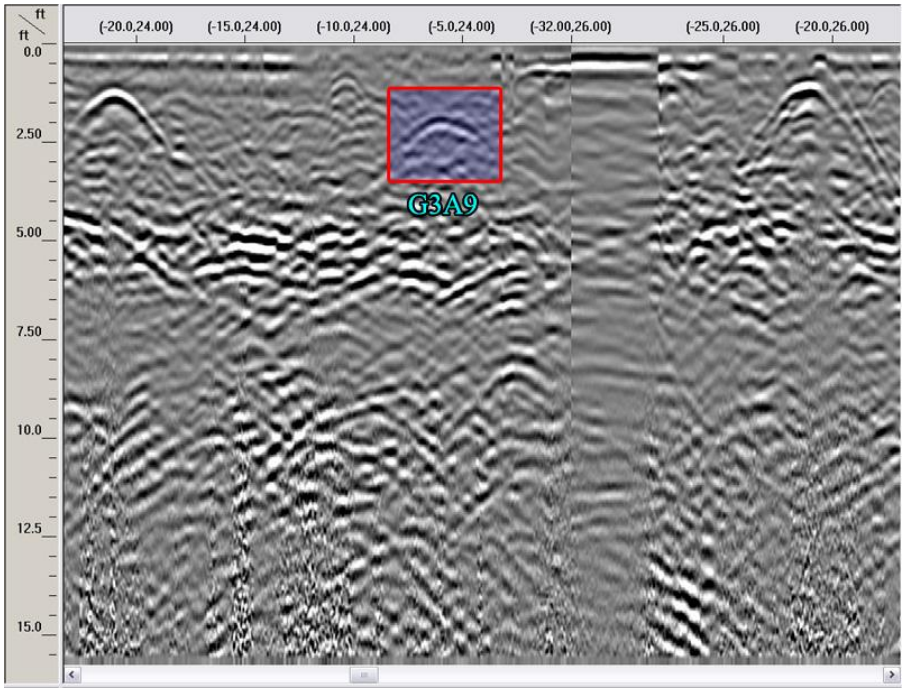


Figure 84. GPR Anomaly G3A9.

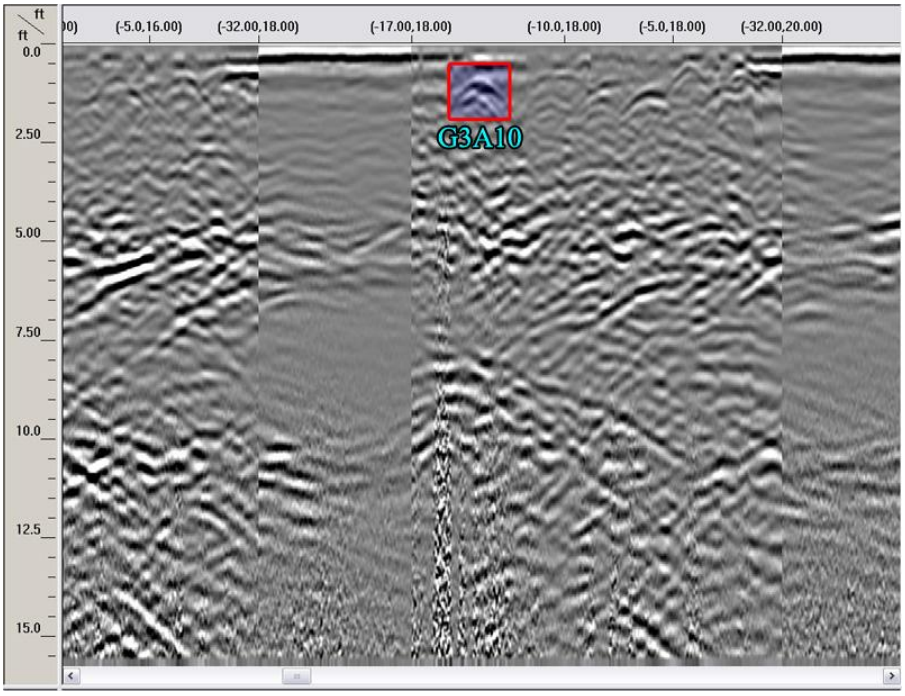


Figure 85. GPR Anomaly G3A10.

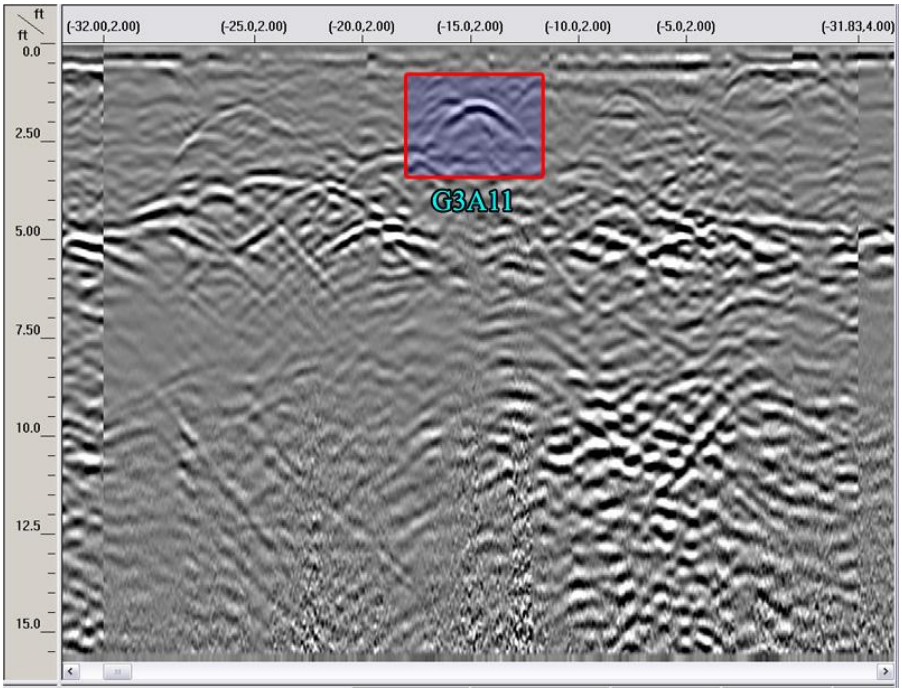


Figure 86. GPR Anomaly G3A11.

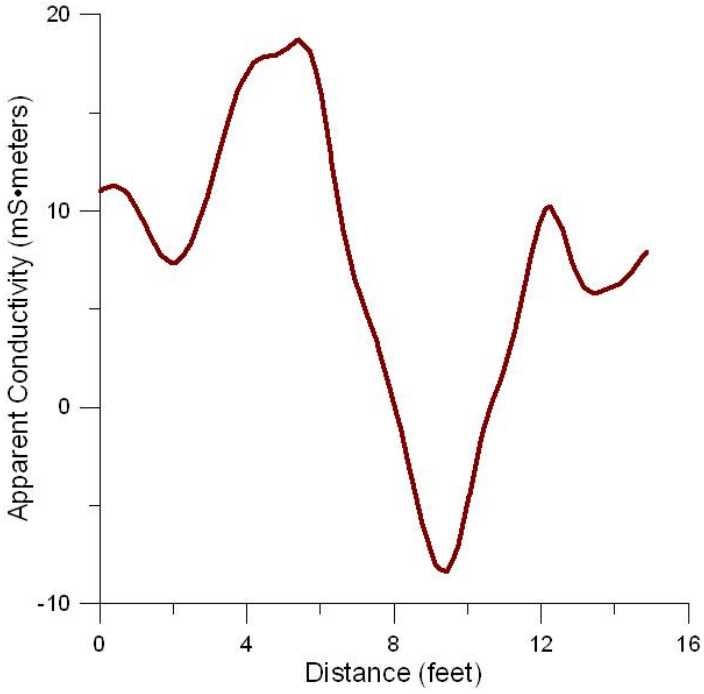


Figure 87. EM38-DD Anomaly G3A12.

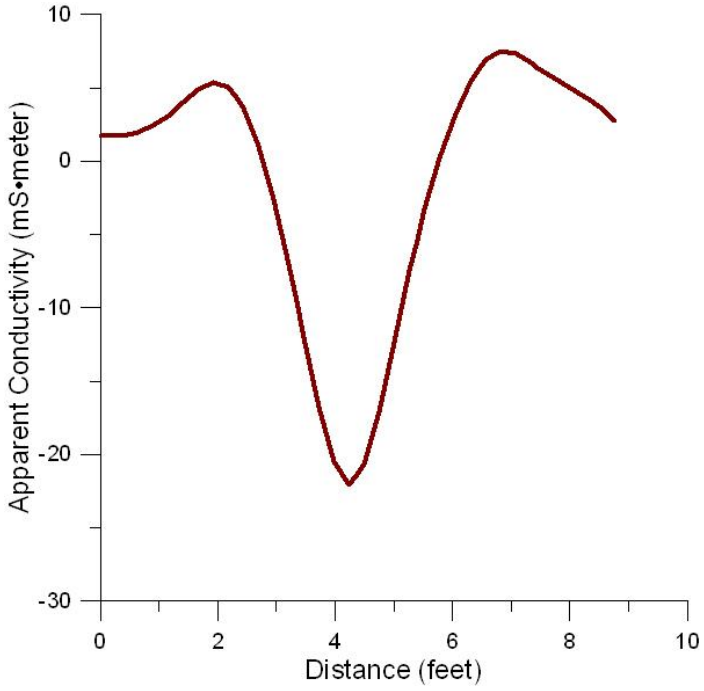


Figure 88. EM38-DD Anomaly G3A13.

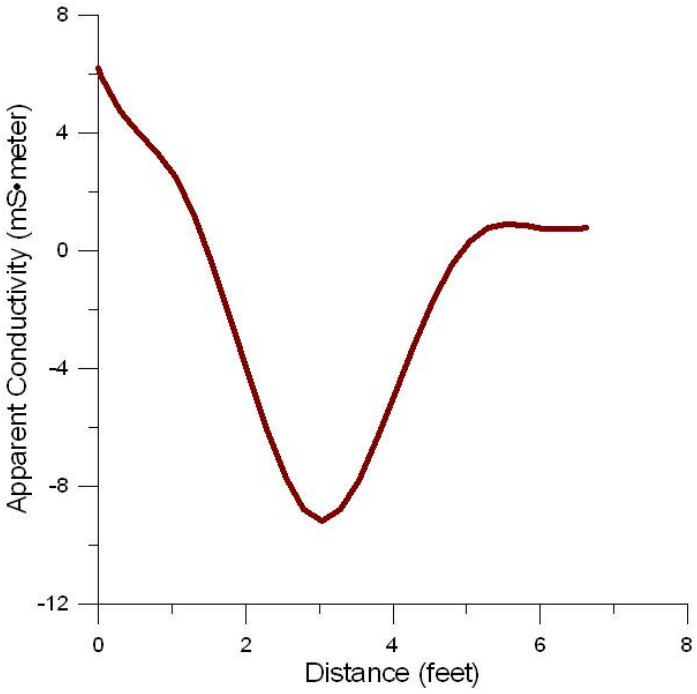


Figure 89. EM38-DD Anomaly G3A14.

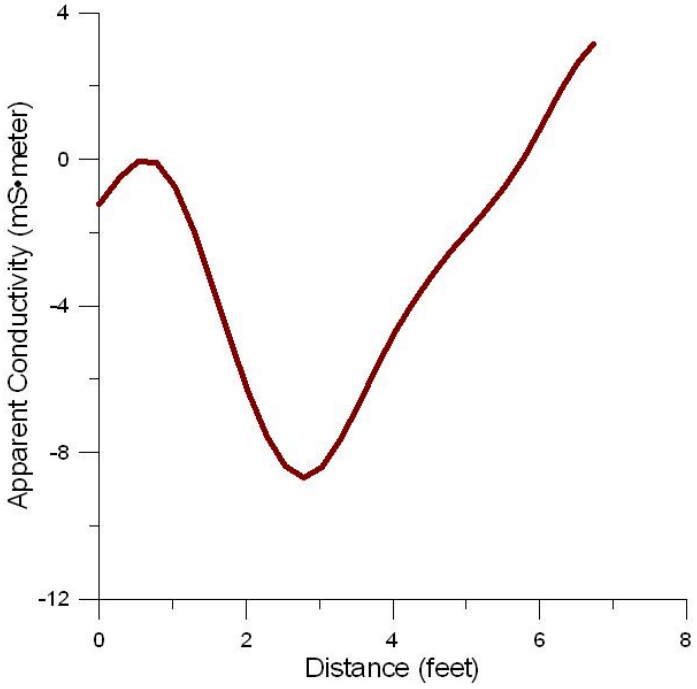


Figure 90. EM38-DD Anomaly G3A15.

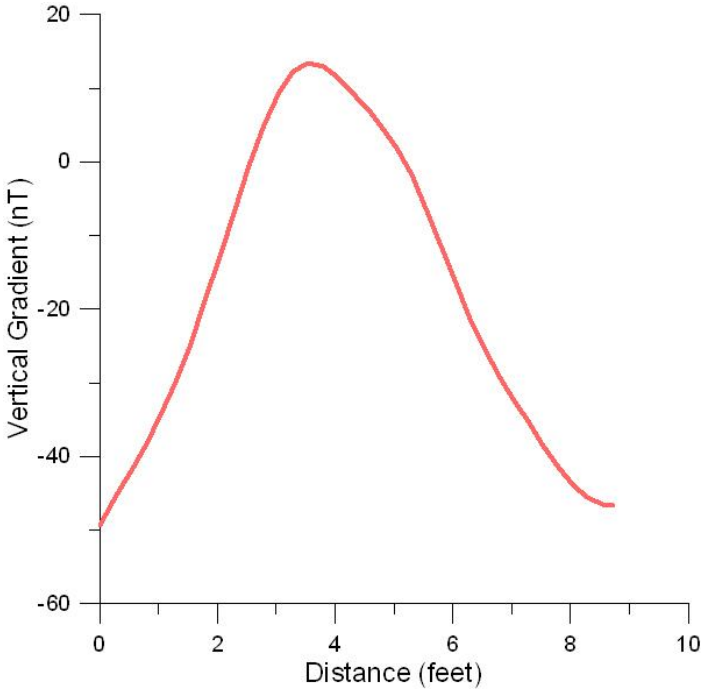


Figure 91. MAG Anomaly G3A16.

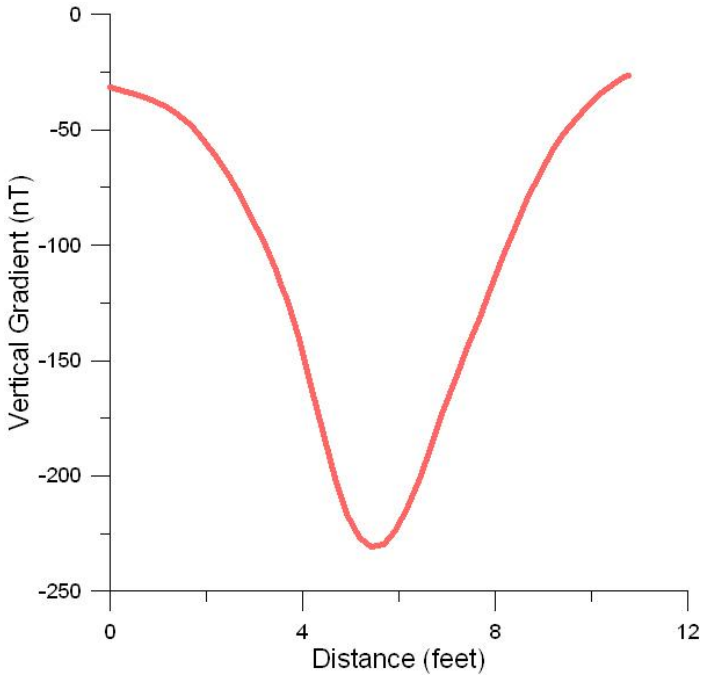


Figure 92. MAG Anomaly G3A17.

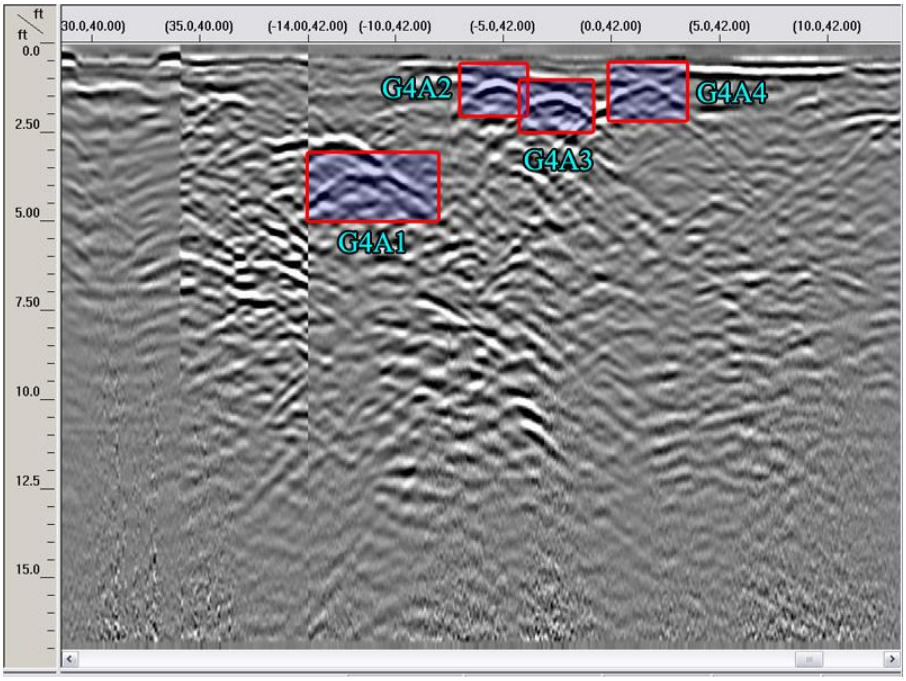


Figure 93. GPR Anomalies G4A1, G4A2, G4A3, & G4A4.

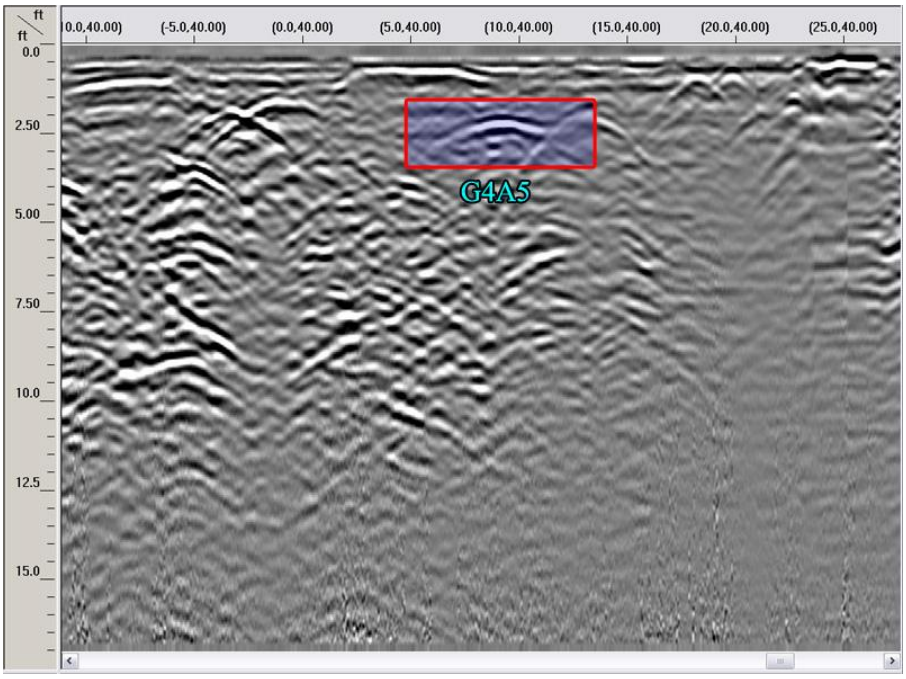


Figure 94. GPR Anomaly G4A5.

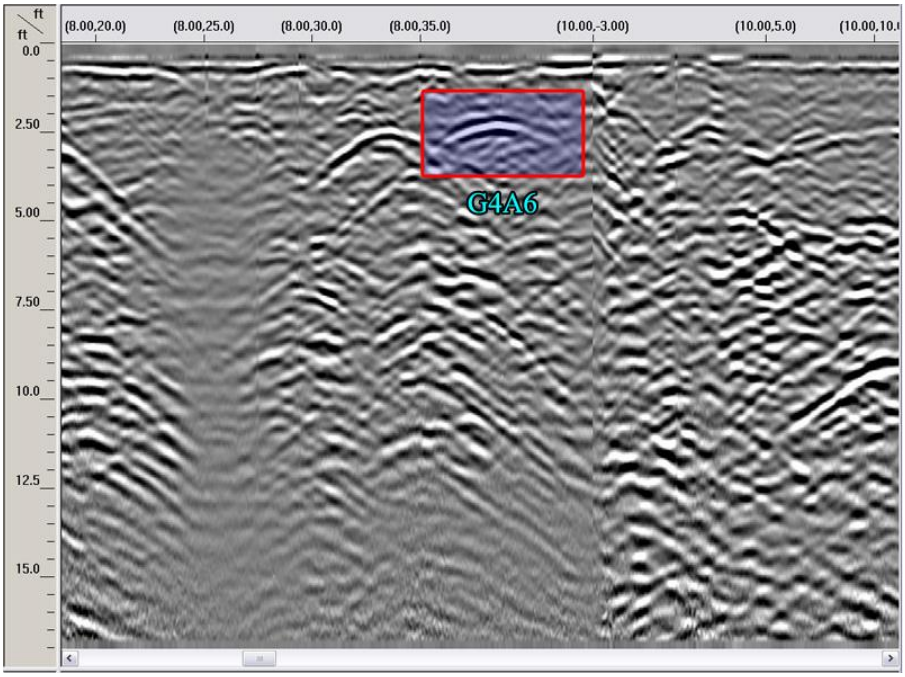


Figure 95. GPR Anomaly G4A6.

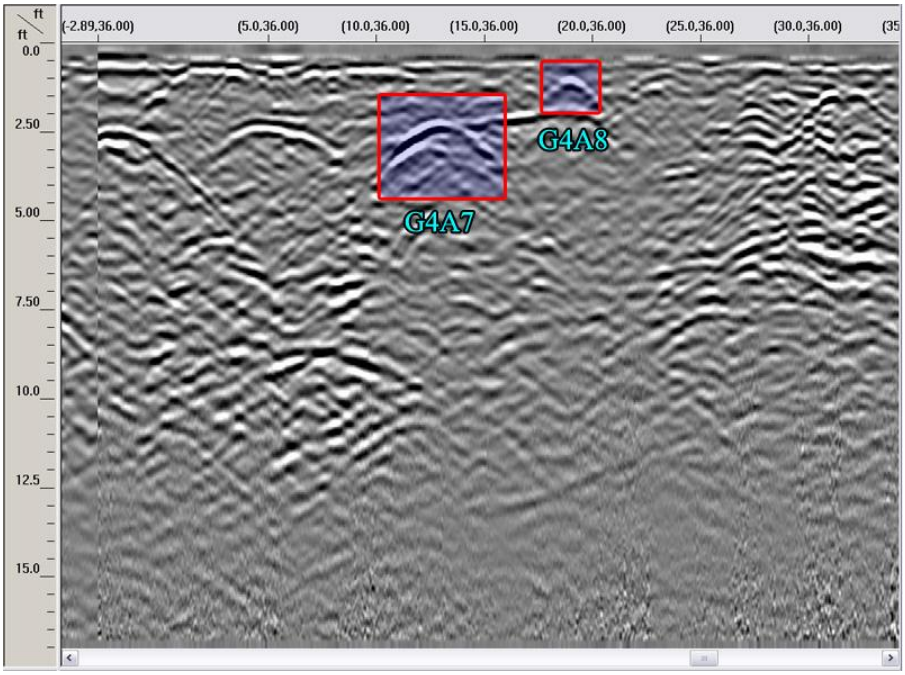


Figure 96. GPR Anomalies G4A7 & G4A8.

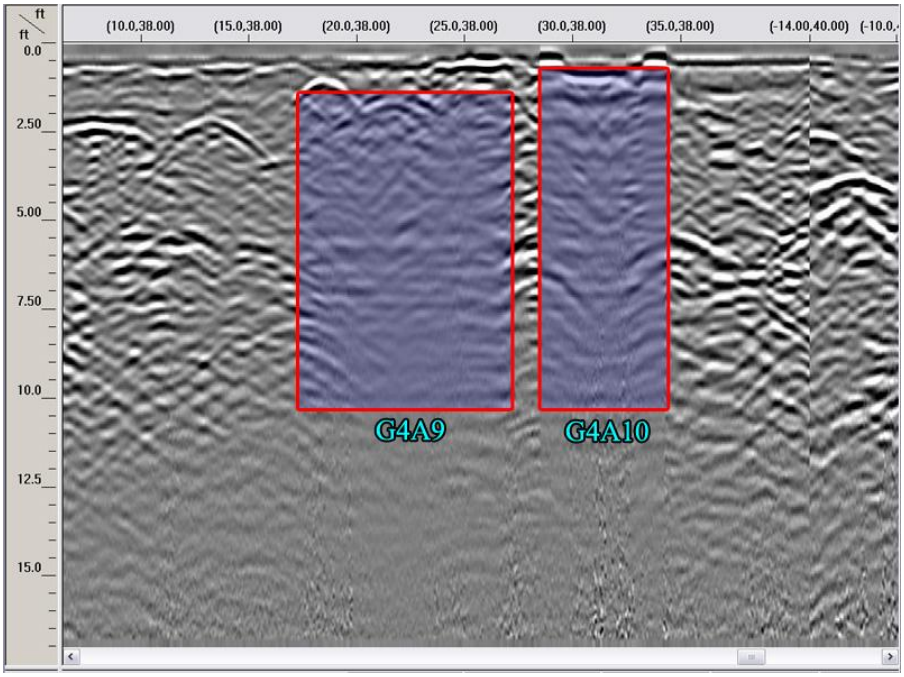


Figure 97. GPR Anomalies G4A9 & G4A10.

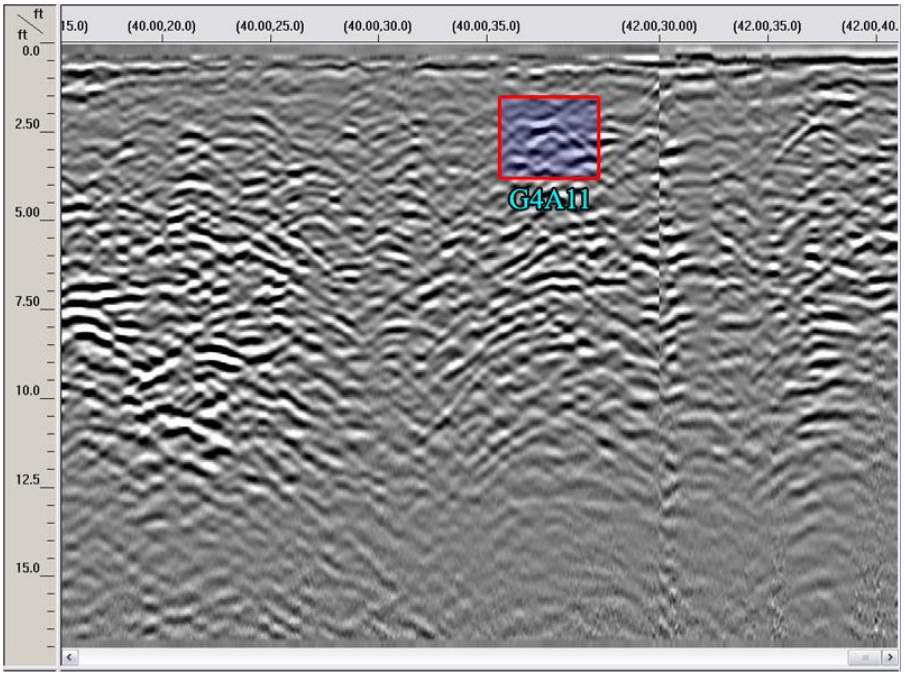


Figure 98. GPR Anomaly G4A11.

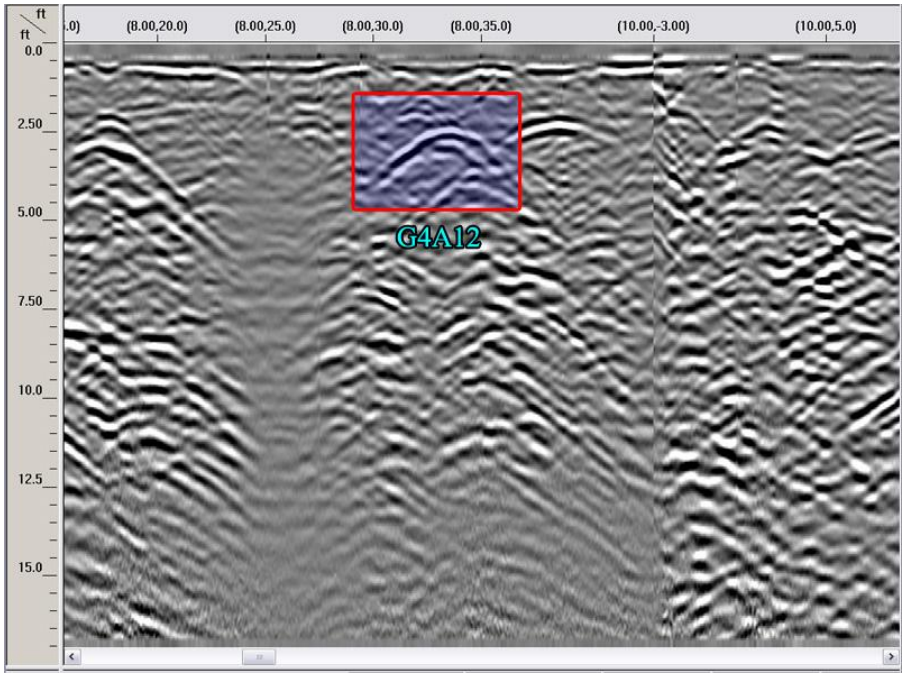


Figure 99. GPR Anomaly G4A12.

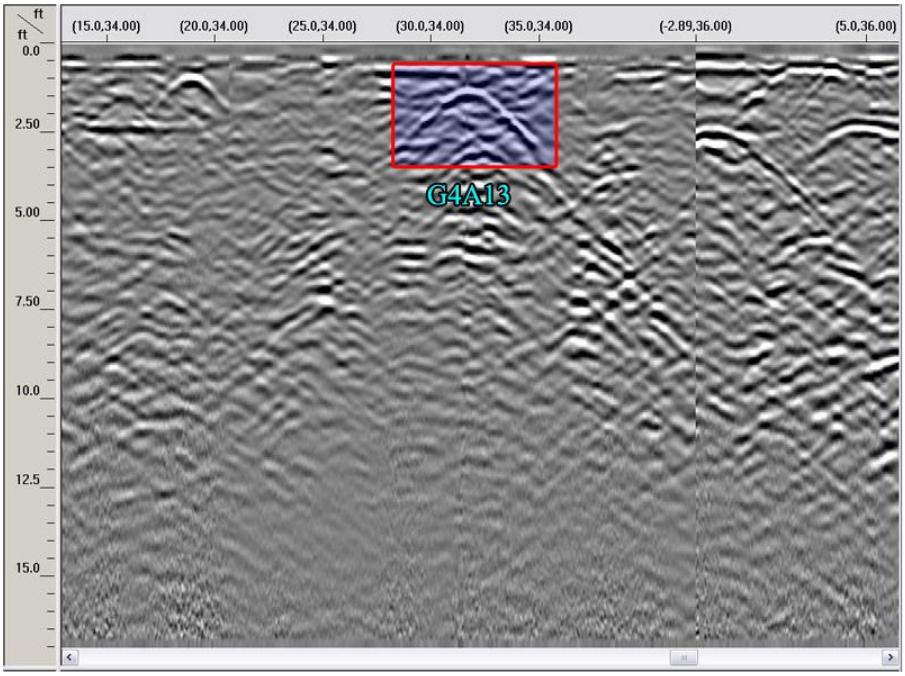


Figure 100. GPR Anomaly G4A13.

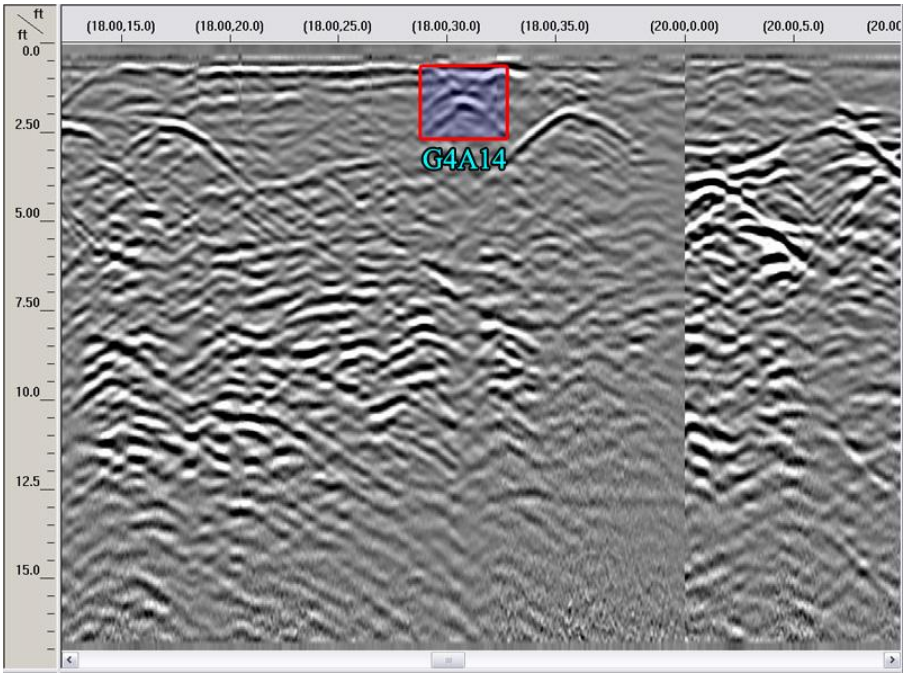


Figure 101. GPR Anomaly G4A14.

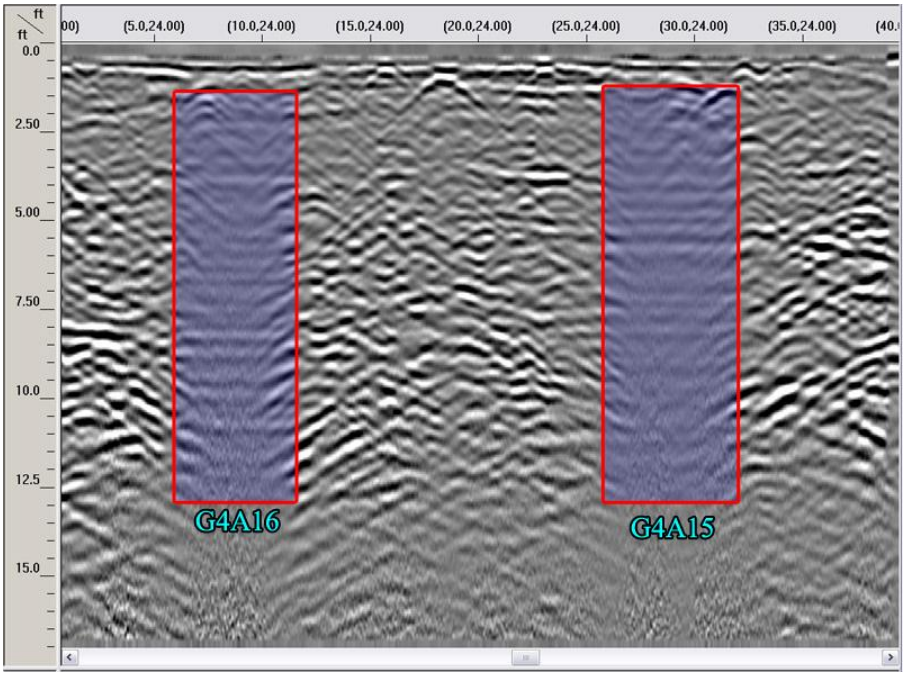


Figure 102. GPR Anomalies G4A15 & G4A16.

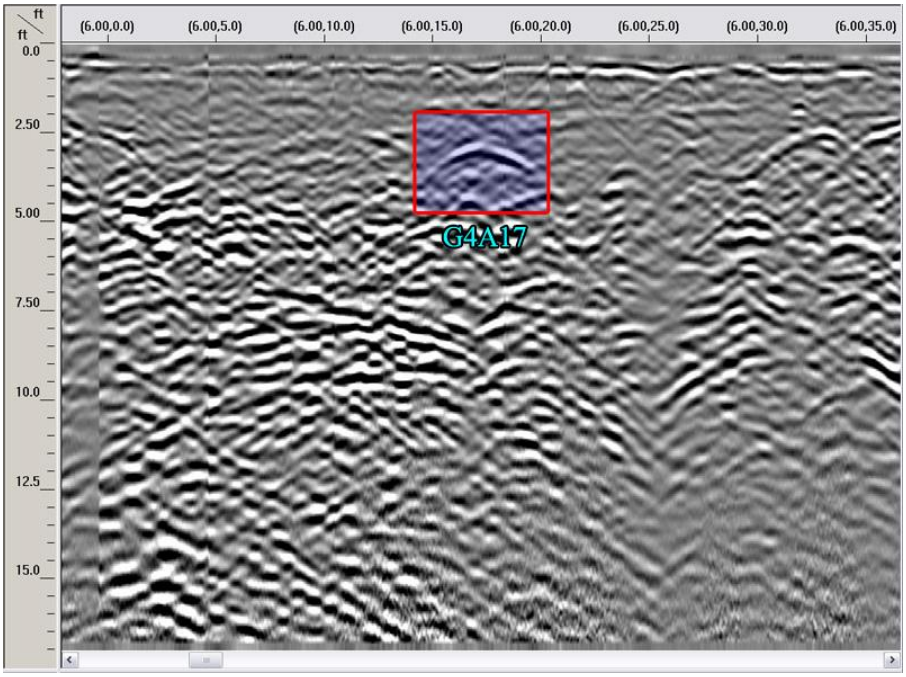


Figure 103. GPR Anomaly G4A17.

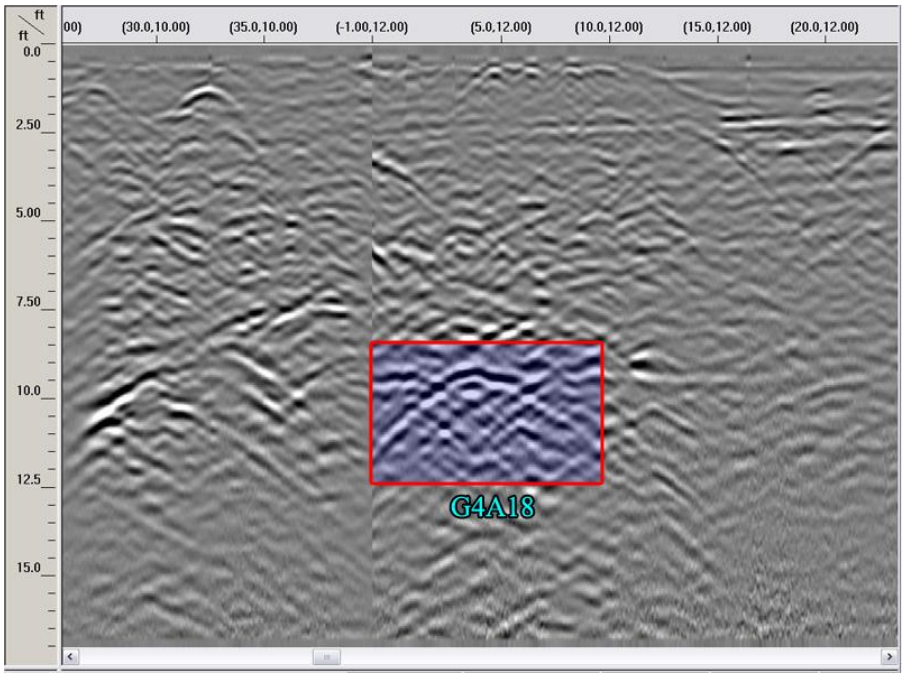


Figure 104 GPR Anomaly G4A18.

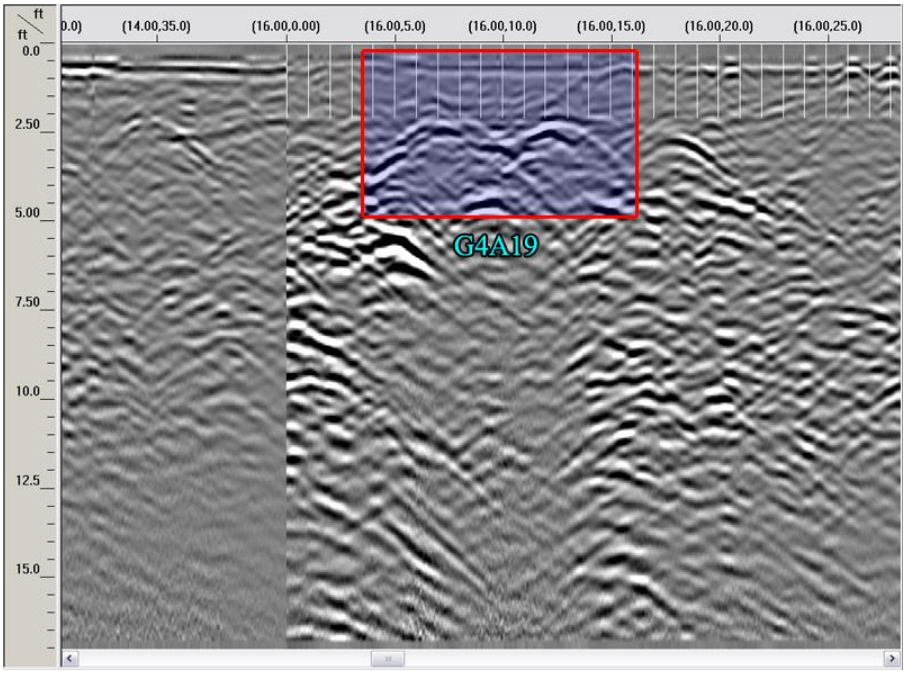


Figure 105 GPR Anomaly G4A19.

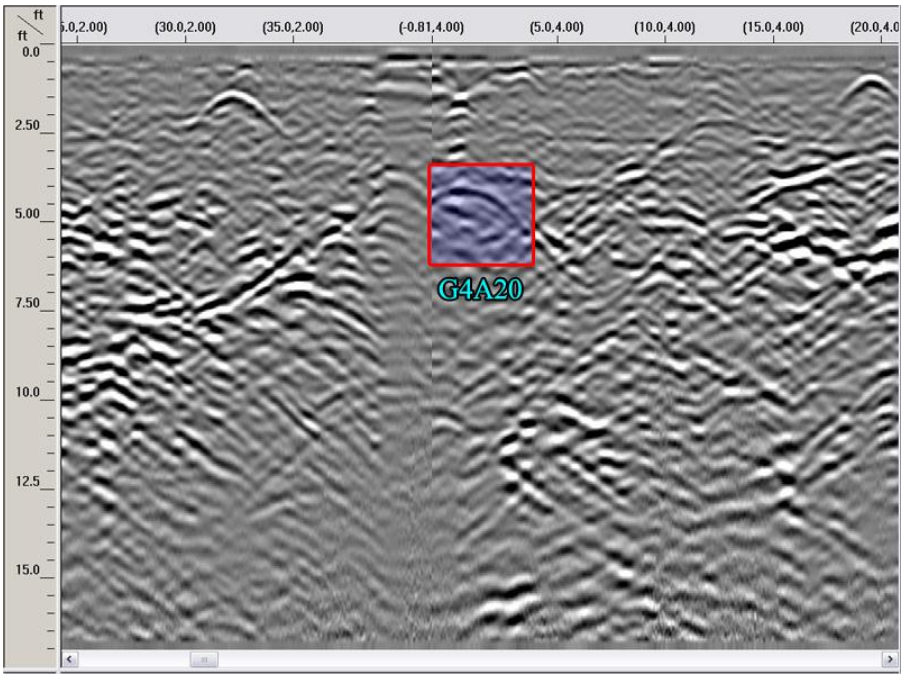


Figure 106. GPR Anomaly G4A20.

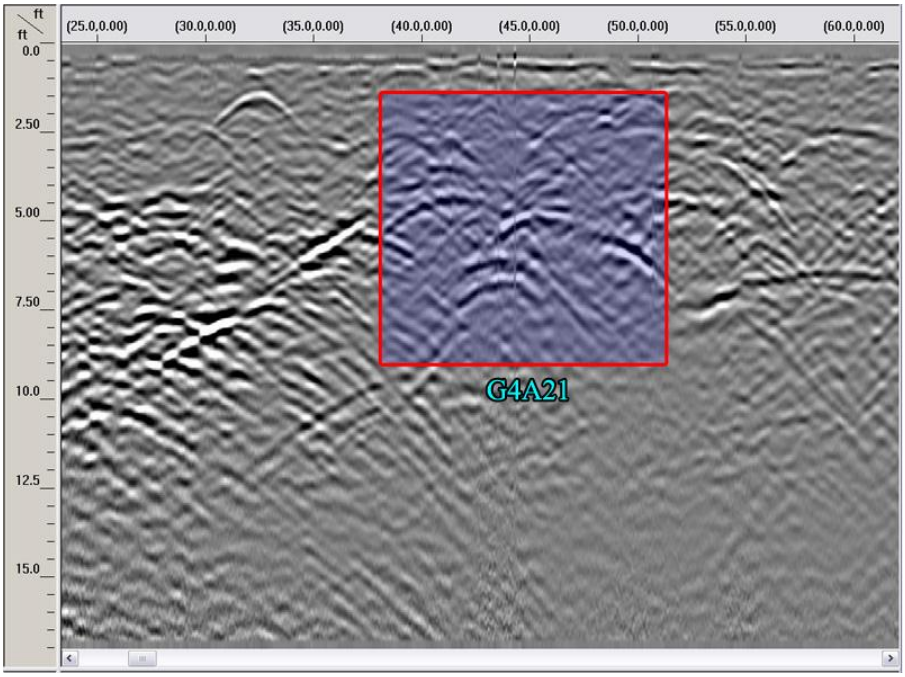


Figure 107. GPR Anomaly G4A21.

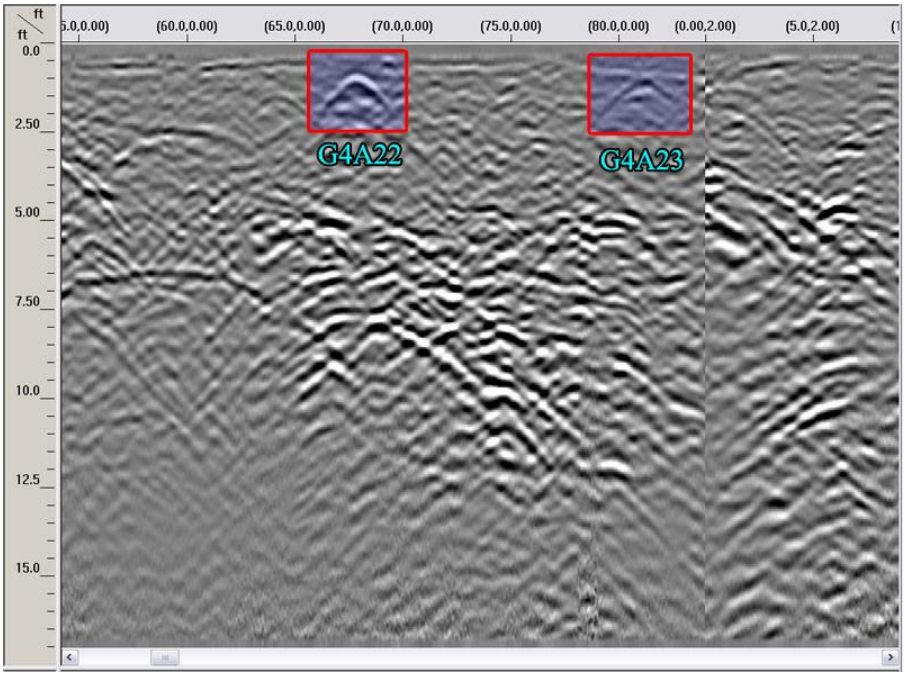


Figure 108. GPR Anomalies G4A22 & G4A23.

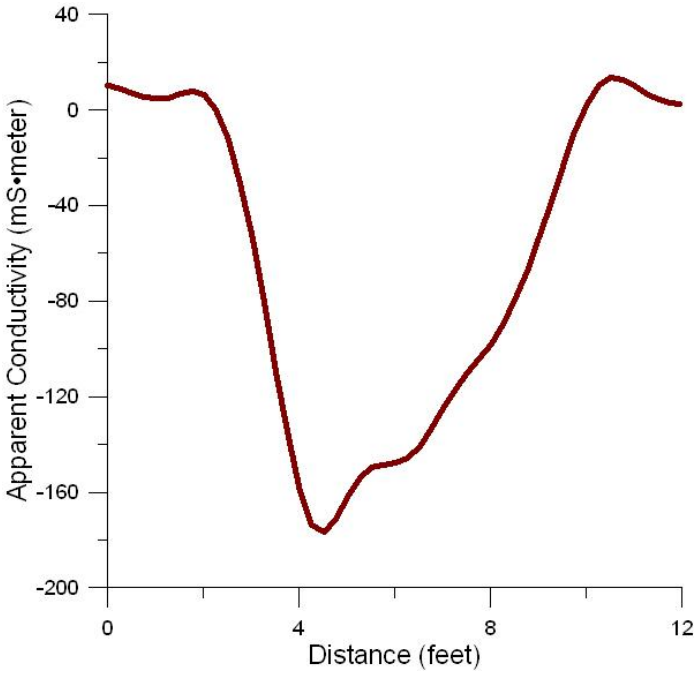


Figure 109. EM38-DD Anomaly G4A24.

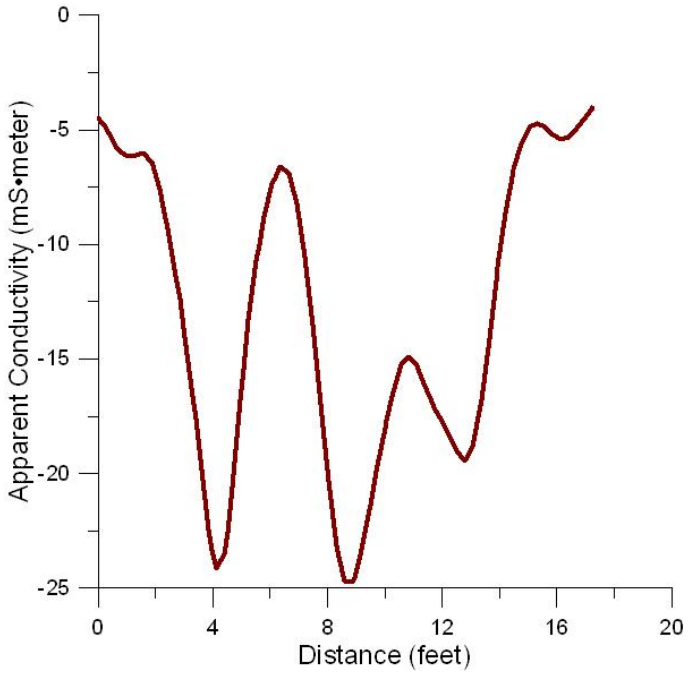


Figure 110. EM38-DD Anomaly G4A25.

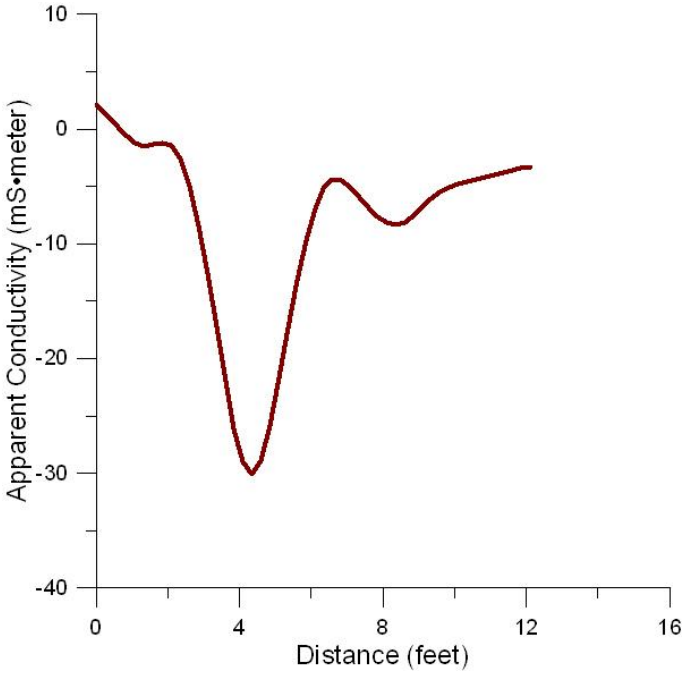


Figure 111. EM38-DD Anomaly G4A26.

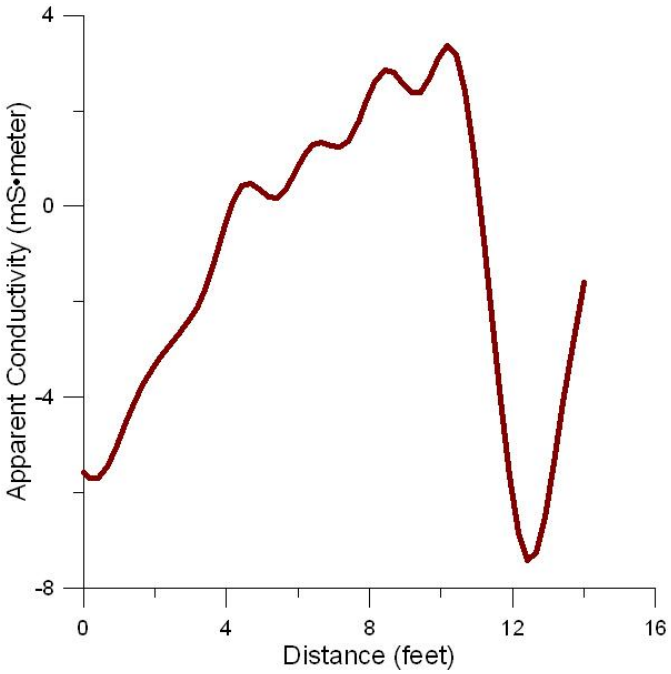


Figure 112. EM38-DD Anomaly G4A27.

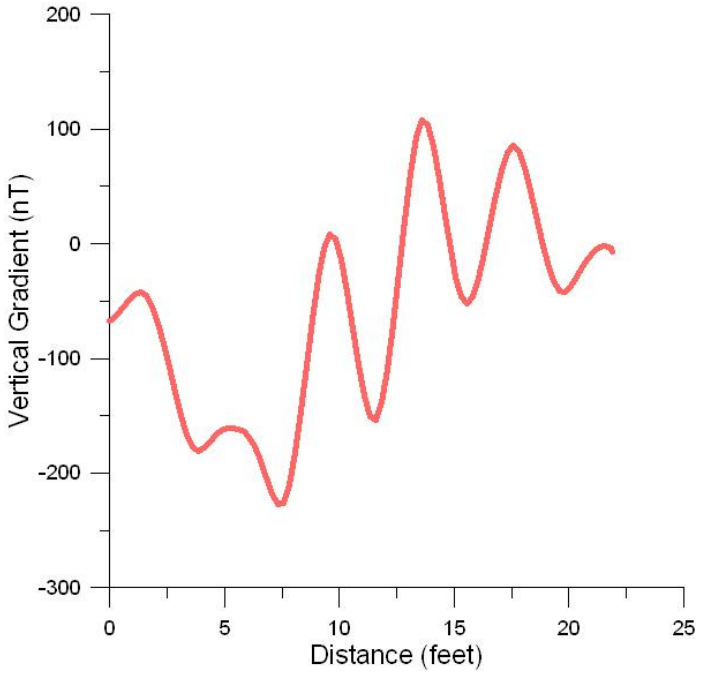


Figure 113. MAG Anomaly G4A28.

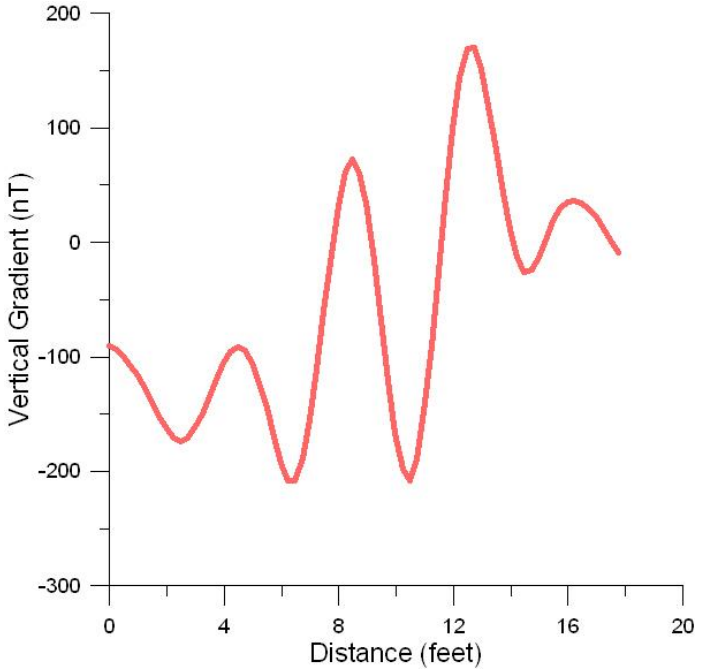


Figure 114. MAG Anomaly G4A29.

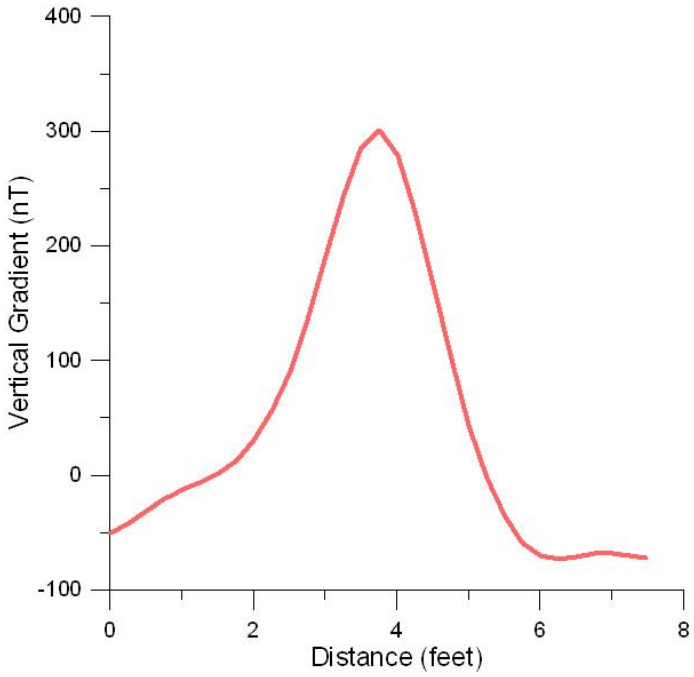


Figure 115. MAG Anomaly G4A30.

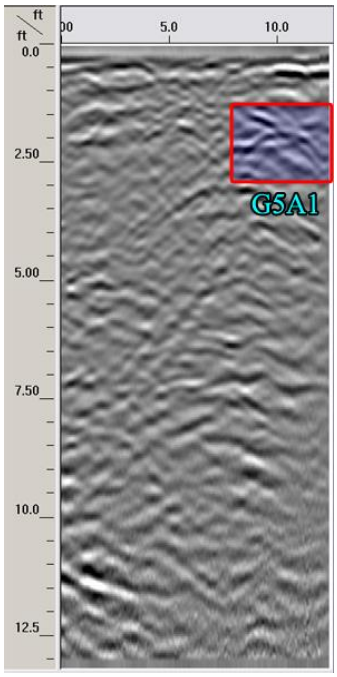


Figure 116. GPR Anomaly G5A1.

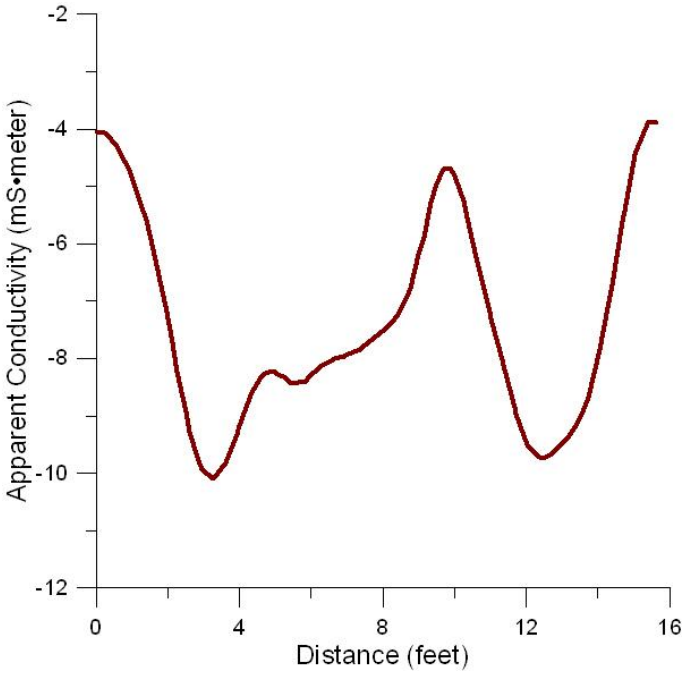


Figure 117. EM38-DD Anomaly G5A2.

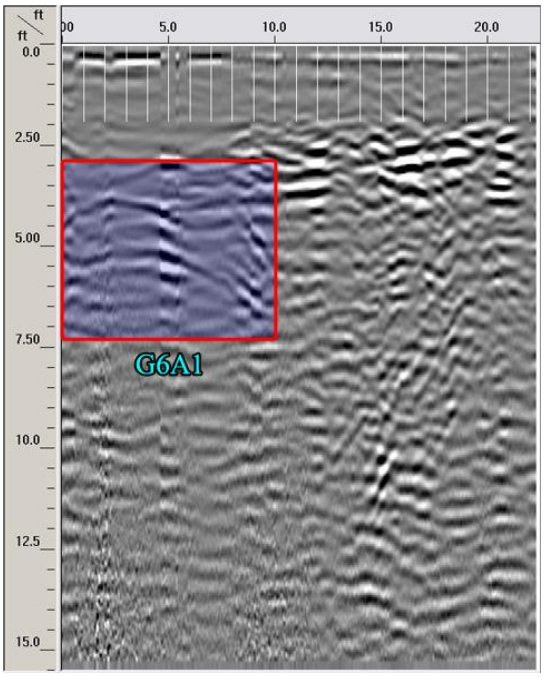


Figure 118. GPR Anomaly G6A1.

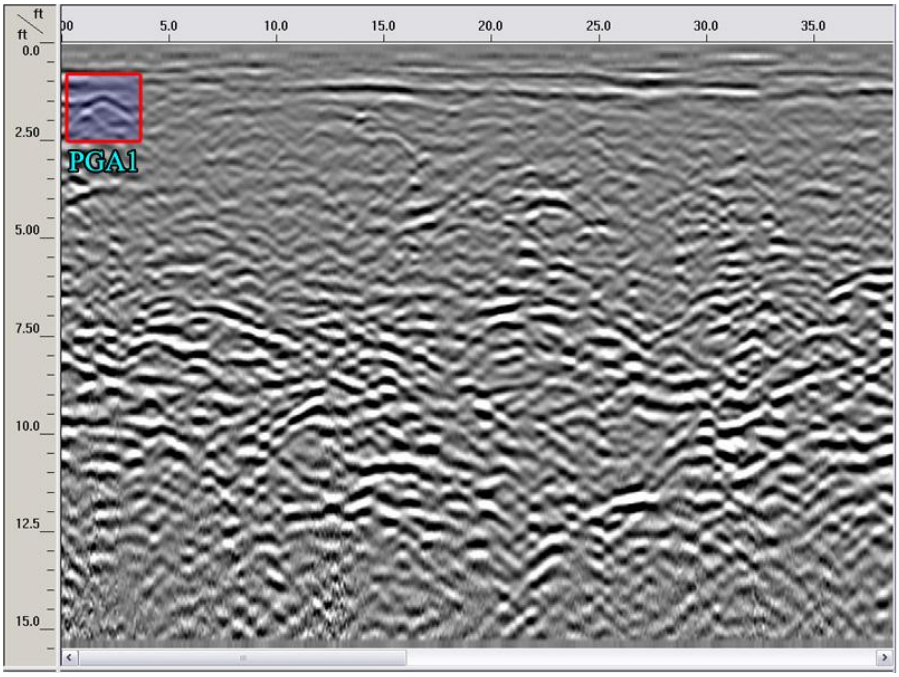


Figure 119. GPR Anomaly PGA1.

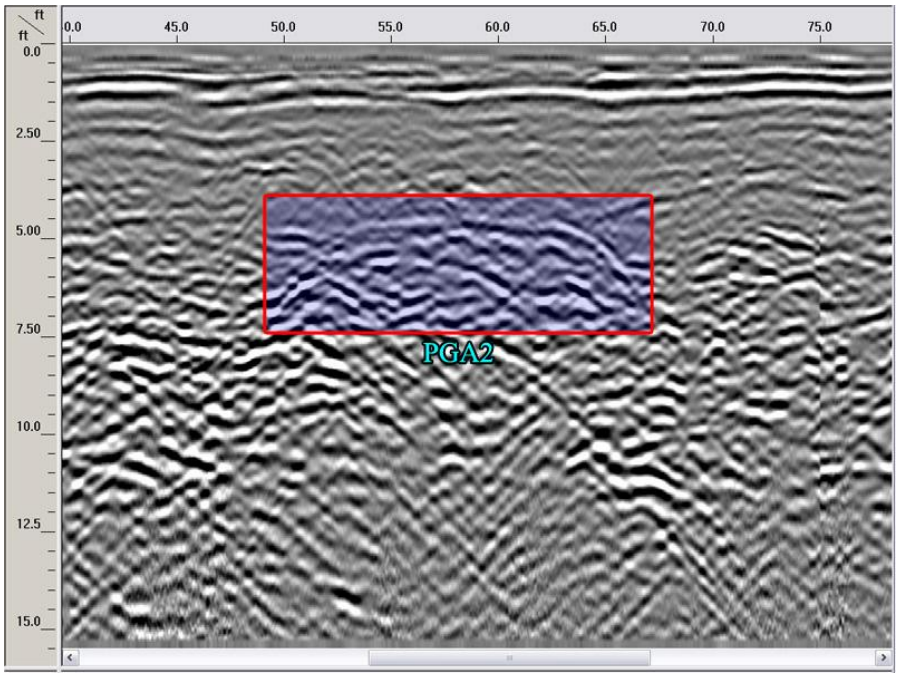


Figure 120. GPR Anomaly PGA2.

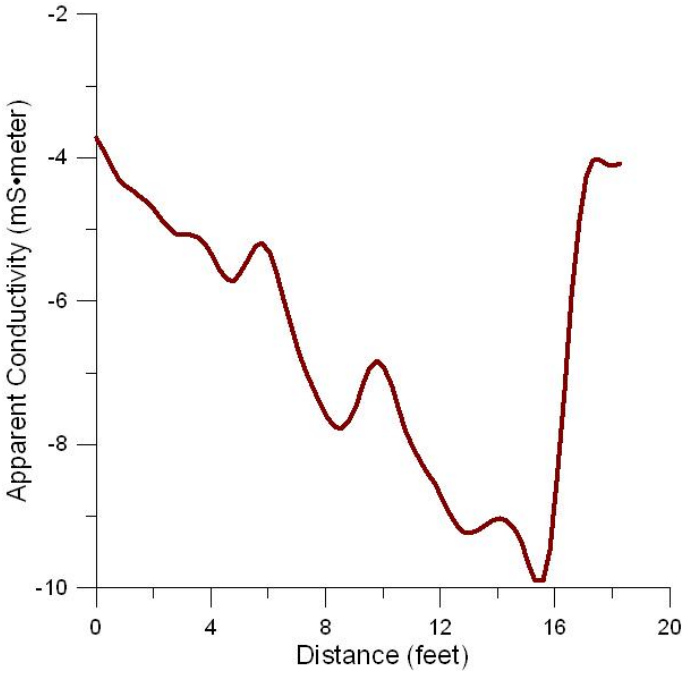


Figure 121. EM38-DD Anomaly PGA3.

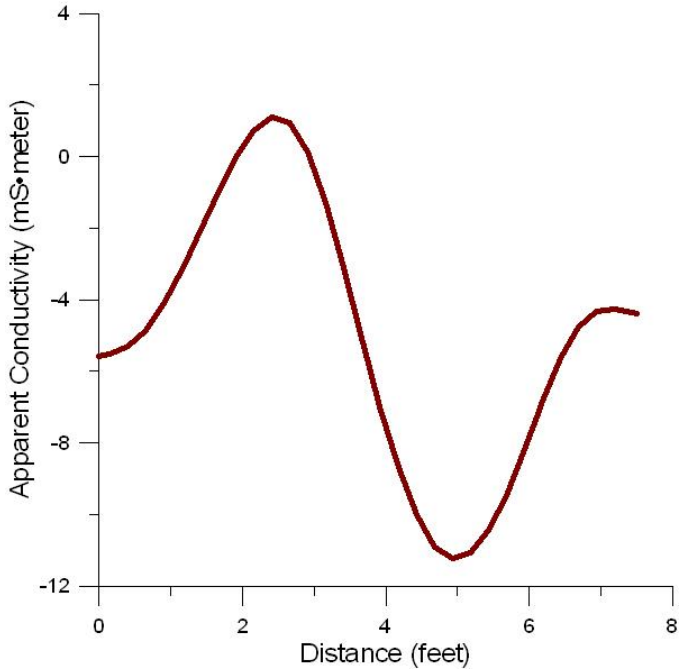


Figure 122. EM38-DD Anomaly PGA4.

APPENDIX C: REFERENCE FIGURES

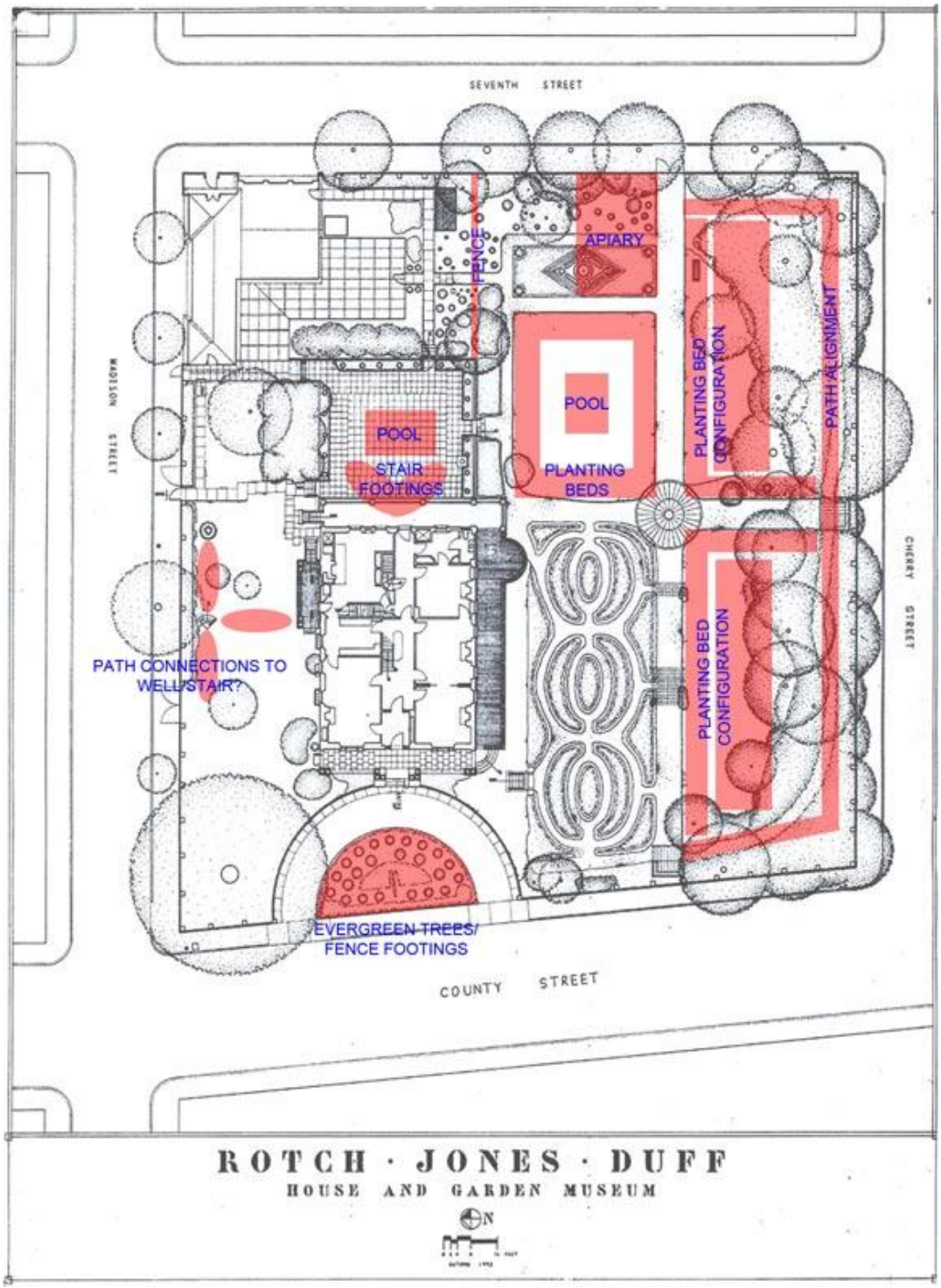


Figure 1. Site plan with potential locations of historic features (provided by Pressley).

Figure 2. Photograph of a former pool (lower right) and flat fieldstones (lower left) identified as anomalies G1A26 and G1A28 respectively (provided by Pressley).

Figure 3. Photograph of a former pool and one of two former stairways on the stone patio (provided by Pressley). This pool was identified as anomalies G4A19, G4A27, and G4A29. The footing for the stairway pictured was identified as anomalies G4A16 and G4A26. The footing for the stairway not pictured (off to the right) was identified as anomalies G4A15 and G4A25.

TABLE 3: DESCRIPTIONS OF THE ANOMALIES

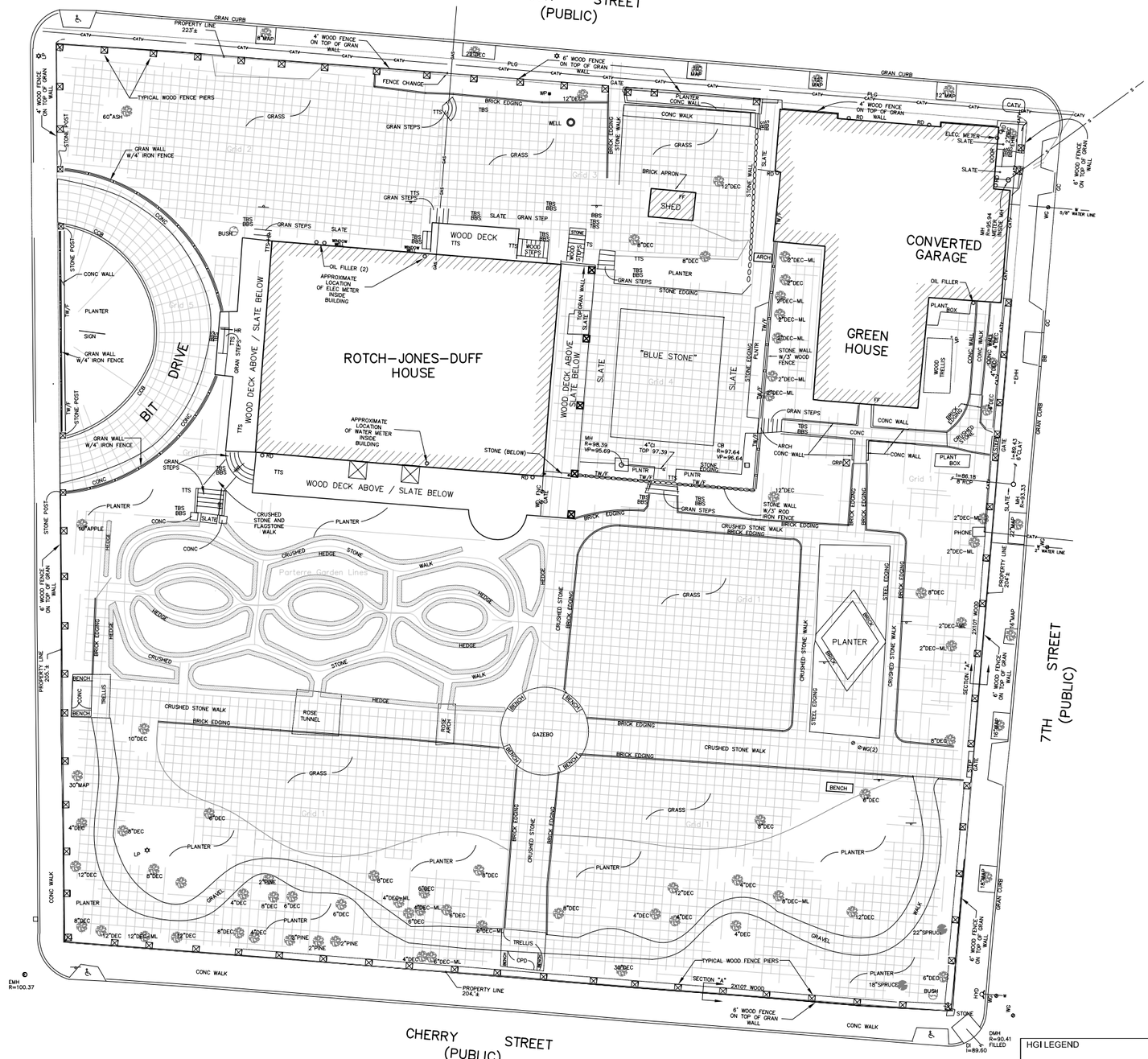
Anomaly ID	Method	Grid/Area	Depth to Top (ft)	Category	Confidence Level	Notes
G1A1	GPR	Grid 1	2.5-3.0'	Anomaly	Lower	
G1A2	GPR	Grid 1	2.0'	Anomaly	Higher	
G1A3	GPR	Grid 1	2.0'	Anomaly	Lower	
G1A4	GPR	Grid 1	0.2-1.0	Linear Anomaly/Potential Utility	Higher	
G1A5	GPR	Grid 1	1.3'	Anomaly	Lower	
G1A6	GPR	Grid 1	3.5-4.0'	Anomaly	Lower	
G1A7	GPR	Grid 1	0.5-1.0'	Linear Anomaly/Potential Utility	Lower	
G1A8	GPR	Grid 1	1.0-1.5'	Linear Anomaly/Potential Utility	Lower	
G1A9	GPR	Grid 1	2.0-2.5'	Anomaly	Higher	Potential Excavation
G1A10	GPR	Grid 1	3.0'	Anomaly	Lower	
G1A11	GPR	Grid 1	1.0-1.5'	Linear Anomaly/Potential Utility	Higher	
G1A12	GPR	Grid 1	2.0-5.0'	Anomaly	Lower	Potential Excavation
G1A13	GPR	Grid 1	4.0'	Anomaly	Lower	
G1A14	GPR	Grid 1	2.5-4.0'	Anomaly	Lower	Potential Excavation
G1A15	GPR	Grid 1	0.2-0.5'	Anomaly	Lower	Potential Former Walkway
G1A16	GPR	Grid 1	1.0-4.0'	Anomaly	Higher	Potential Excavation
G1A17	GPR	Grid 1	3.5-4.0'	Anomaly	Lower	
G1A18	GPR	Grid 1	1.0-3.0'	Anomaly	Higher	Potential Excavation
G1A19	GPR	Grid 1	2.3'	Anomaly	Lower	
G1A20	GPR	Grid 1	3.0-5.0'	Anomaly	Lower	
G1A21	GPR	Grid 1	0.5-1.0	Linear Anomaly/Potential Utility	Higher	
G1A22	GPR	Grid 1	2.5-3.5'	Water Utility	Higher	
G1A23	GPR	Grid 1	4.0'	Anomaly	Lower	
G1A24	GPR	Grid 1	5.5-6.0'	Anomaly	Lower	
G1A25	GPR	Grid 1	1.0-1.5'	Communication Utility	Higher	

Anomaly ID	Method	Grid/Area	Depth to Top (ft)	Category	Confidence Level	Notes
G1A26	GPR	Grid 1	0.2-0.5'	Anomaly	Higher	Potential Flat Landscape Fieldstones
G1A27	GPR	Grid 1	0.3-0.5'	Anomaly	Lower	Potential Former Walkway
G1A28	GPR	Grid 1	2.0-3.0'	Anomaly	Higher	Potential Former Pool
G1A29	GPR	Grid 1	1.0-1.5'	Linear Anomaly/Potential Utility	Higher	
G1A30	GPR	Grid 1	4.0-4.5'	Anomaly	Lower	
G1A31	GPR	Grid 1	2.0-2.5'	Water Utility	Higher	
G1A32	GPR	Grid 1	4.0'	Anomaly	Higher	
G1A33	GPR	Grid 1	2.5-4.5'	Anomaly	Lower	
G1A34	GPR	Grid 1	0.5-1.0'	Anomaly	Lower	
G1A35	GPR	Grid 1	1.5-2.0'	Anomaly	Lower	
G1A36	GPR	Grid 1	7.2'	Anomaly	Higher	
G1A37	GPR	Grid 1	2.5-5.5'	Anomaly	Lower	
G1A38	GPR	Grid 1	3.5'	Anomaly	Higher	
G1A39	GPR	Grid 1	2.0-2.5'	Anomaly	Higher	
G1A40	GPR	Grid 1	3.3'	Anomaly	Higher	
G1A41	GPR	Grid 1	1.5-2.0'	Anomaly	Lower	
G1A42	GPR	Grid 1	3.5'	Anomaly	Lower	
G1A43	GPR	Grid 1	3.5'	Anomaly	Lower	
G1A44	GPR	Grid 1	1.0-1.5'	Anomaly	Lower	
G1A45	GPR	Grid 1	2.0'	Anomaly	Lower	
G1A46	GPR	Grid 1	2.5-3.0'	Anomaly	Lower	
G1A47	GPR	Grid 1	2.0-3.0'	Anomaly	Lower	
G1A48	EM	Grid 1		Anomaly	Higher	
G1A49	EM	Grid 1		Anomaly	Higher	Potential Utility
G1A50	EM	Grid 1		Anomaly	Higher	
G1A51	EM	Grid 1		Anomaly	Lower	

Anomaly ID	Method	Grid/Area	Depth to Top (ft)	Category	Confidence Level	Notes
G1A52	EM	Grid 1		Anomaly	Higher	Potential Utility
G1A53	EM	Grid 1		Anomaly	Higher	
G1A54	EM	Grid 1		Anomaly	Higher	
G1A55	EM	Grid 1		Anomaly	Lower	
G1A56	EM	Grid 1		Anomaly	Lower	
G1A57	EM	Grid 1		Anomaly	Lower	
G1A58	MAG	Grid 1		Anomaly	Higher	
G1A59	MAG	Grid 1		Anomaly	Lower	
G1A60	MAG	Grid 1		Anomaly	Higher	
G1A61	MAG	Grid 1		Anomaly	Higher	
G1A62	MAG	Grid 1		Anomaly	Higher	
G2A1	GPR	Grid 2	1.2'	Linear Anomaly/Potential Utility	Lower	
G2A2	GPR	Grid 2	1.5-2.0'	Linear Anomaly/Potential Utility	Lower	
G2A3	GPR	Grid 2	1.6'	Anomaly	Lower	
G2A4	GPR	Grid 2	1.5-2.0'	Linear Anomaly/Potential Utility	Lower	
G2A5	GPR	Grid 2	1.6'	Anomaly	Lower	
G2A6	GPR	Grid 2	2.0-2.5'	Anomaly	Lower	
G2A7	GPR	Grid 2	3.0-3.5'	Linear Anomaly/Potential Utility	Lower	
G2A8	GPR	Grid 2	1.0-1.5'	Linear Anomaly/Potential Utility	Lower	
G2A9	GPR	Grid 2	2.0-2.5'	Linear Anomaly/Potential Utility	Higher	
G2A10	GPR	Grid 2	3.5'	Linear Anomaly/Potential Utility	Higher	
G2A11	GPR	Grid 2	1.5'	Anomaly	Lower	
G2A12	GPR	Grid 2	1.6'	Anomaly	Lower	
G2A13	GPR	Grid 2	2.0'	Anomaly	Lower	
G2A14	EM	Grid 2		Anomaly	Lower	
G2A15	EM	Grid 2		Anomaly	Higher	Potential Utility
G3A1	GPR	Grid 3	1.0-1.5'	Linear Anomaly/Potential Utility	Higher	
G3A2	GPR	Grid 3	3.3'	Linear Anomaly/Potential Utility	Higher	

Anomaly ID	Method	Grid/Area	Depth to Top (ft)	Category	Confidence Level	Notes
G3A3	GPR	Grid 3	1.5-2.0'	Linear Anomaly/Potential Utility	Higher	
G3A4	GPR	Grid 3	2.0-2.5'	Linear Anomaly/Potential Utility	Higher	
G3A5	GPR	Grid 3	2.5-3.0'	Anomaly	Lower	
G3A6	GPR	Grid 3	1.7'	Linear Anomaly/Potential Utility	Lower	
G3A7	GPR	Grid 3	1.0'	Linear Anomaly/Potential Utility	Higher	
G3A8	GPR	Grid 3	1.5-2.5'	Anomaly	Lower	
G3A9	GPR	Grid 3	1.5-2.0'	Anomaly	Lower	
G3A10	GPR	Grid 3	1.0'	Linear Anomaly/Potential Utility	Lower	
G3A11	GPR	Grid 3	0.5-1.5'	Linear Anomaly/Potential Utility	Higher	
G3A12	EM	Grid 3		Anomaly	Higher	Potential Utility
G3A13	EM	Grid 3		Anomaly	Higher	Potential Utility
G3A14	EM	Grid 3		Anomaly	Lower	
G3A15	EM	Grid 3		Anomaly	Lower	
G3A16	MAG	Grid 3		Anomaly	Lower	
G3A17	MAG	Grid 3		Anomaly	Lower	
G4A1	GPR	Grid 4	3.0-4.0'	Anomaly	Higher	
G4A2	GPR	Grid 4	1.0'	Anomaly	Higher	
G4A3	GPR	Grid 4	1.0-2.5'	Linear Anomaly/Potential Utility	Higher	
G4A4	GPR	Grid 4	1.0'	Anomaly	Higher	
G4A5	GPR	Grid 4	1.5-2.5'	Anomaly	Higher	
G4A6	GPR	Grid 4	1.5-2.5'	Linear Anomaly/Potential Utility	Higher	
G4A7	GPR	Grid 4	1.5-2.5'	Linear Anomaly/Potential Utility	Lower	
G4A8	GPR	Grid 4	0.5-1.5'	Linear Anomaly/Potential Utility	Lower	
G4A9	GPR	Grid 4	1.5'+	Anomaly	Higher	
G4A10	GPR	Grid 4	1.0'+	Anomaly	Higher	
G4A11	GPR	Grid 4	2.2'	Anomaly	Lower	
G4A12	GPR	Grid 4	1.5-2.5'	Linear Anomaly/Potential Utility	Higher	
G4A13	GPR	Grid 4	1.0-1.5'	Linear Anomaly/Potential Utility	Higher	

Anomaly ID	Method	Grid/Area	Depth to Top (ft)	Category	Confidence Level	Notes
G4A14	GPR	Grid 4	1.5'	Anomaly	Higher	
G4A15	GPR	Grid 4	1.0'+	Anomaly	Higher	Potential Former Stair Footing
G4A16	GPR	Grid 4	1.0'+	Anomaly	Higher	Potential Former Stair Footing
G4A17	GPR	Grid 4	2.0-3.0'	Linear Anomaly/Potential Utility	Higher	
G4A18	GPR	Grid 4	8.0-9.0'	Anomaly	Lower	
G4A19	GPR	Grid 4	0.5'+	Anomaly	Higher	Potential Former Pool
G4A20	GPR	Grid 4	4.0'	Linear Anomaly/Potential Utility	Lower	
G4A21	GPR	Grid 4	2.0-6.0	Anomaly	Lower	
G4A22	GPR	Grid 4	1.0'	Linear Anomaly/Potential Utility	Higher	
G4A23	GPR	Grid 4	1.0'	Linear Anomaly/Potential Utility	Higher	
G4A24	EM	Grid 4		Anomaly	Higher	
G4A25	EM	Grid 4		Anomaly	Higher	
G4A26	EM	Grid 4		Anomaly	Higher	Potential Former Stair Footing
G4A27	EM	Grid 4		Anomaly	Higher	Potential Former Pool
G4A28	MAG	Grid 4		Anomaly	Higher	
G4A29	MAG	Grid 4		Anomaly	Higher	Potential Former Pool
G4A30	MAG	Grid 4		Anomaly	Higher	
G5A1	GPR	Grid 5	3.0'	Linear Anomaly/Potential Utility	Lower	
G5A2	EM	Grid 5		Anomaly	Lower	
G6A1	GPR	Grid 6	4.0-5.0'	Anomaly	Lower	
PGA1	GPR	Parterre Garden	1.5'	Anomaly	Higher	
PGA2	GPR	Parterre Garden	5.0'	Anomaly	Lower	
PGA3	EM	Parterre Garden		Anomaly	Lower	
PGA4	EM	Parterre Garden		Anomaly	Lower	

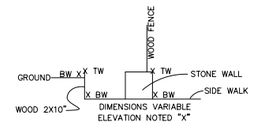


LEGEND

	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
X 100.00	SPOT GRADE
D	SURFACE DRAIN
E	ELECTRIC
T	TELEPHONE
W	WATER MAIN
PLG	PAINT LINE GAS
PLE	PAINTED LINE ELECTRIC
	WOOD FENCE (WD FNC)
	IRON FENCE
	STONE WALL
CB	CATCH BASIN
DMH	DRAIN MANHOLE
EHH	ELECTRIC HAND HOLE
EMH	ELECTRIC MANHOLE
UG	UNKNOWN GATE
LP	LIGHT POLE
MH	MANHOLE
POST	POST
POST	POST
SIGN	SIGN
SMH	SEWER MANHOLE
OIL	OIL FILLER
TMH	TELEPHONE MANHOLE
	DECIDUOUS
	CONIFEROUS
WG	WATER GATE
WPST	WOOD POST

NAD 83
Massachusetts State Plan Coordinate System

SECTION "A"



ABBREVIATIONS

BB	BITUMINOUS BERM
BBS	BOTTOM BOTTOM STEP
BIT	BITUMINOUS CONCRETE
BW	BOTTOM WALL
CONC	CONCRETE
CI	CAST IRON
FF	FINISHED FLOOR ELEVATION
FD	FLOOR DRAIN
FP	FLAG POLE
GC	GRANITE CURB
GRAN	GRANITE
HR	HAND RAIL
I	INVERT
NPV	NO PIPES VISIBLE
PA	PLANTER AREA
PVC	POLYVINYL CHLORIDE
R	RIM
RD	ROOF DRAIN
REC	RECORD
RCP	REINFORCED CONCRETE PIPE
S	SUMP
TBS	TOP BOTTOM STEP
TTS	TOP TOP STEP
TW	TOP WALL
TW/F	TOP WALL FLUSH
VP	VERTICAL PIPE

REFERENCES:

- DEED BOOK 1917 PAGE 543.
- PLAN BOOK 119 PAGE 142.
- NSTAR GAS PLAN OF AREA.
- COMCAST PLAN OF AREA.
- TOWN PLAN OF WATER AND SEWER.

NOTES:

1) THE SURFACE EVIDENCE OF THE UTILITIES SHOWN HEREON HAVE BEEN LOCATED BY FIELD SURVEY. THE LINEWORK REPRESENTING UNDERGROUND STRUCTURES AND PIPES HAVE BEEN SHOWN IN THEIR APPROXIMATE LOCATION BASED ON AVAILABLE RECORD PLANS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. (THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE SUBSURFACE UTILITIES).

2) NO UTILITY RECORDS WERE PROVIDED OR FOUND ON SITE. A SUBSURFACE INVESTIGATION IS BEING PERFORMED BY HAGER GEOSCIENCE. INFORMATION FROM THAT INVESTIGATION HAS NOT BEEN SHOWN HEREON.

3) NO PLAN LAYOUT FOR MADISON, 7TH AND CHERRY STREET FOUND.

4) OIL FILLERS FOUND ON SITE, LOCATION OF SUB SURFACE OIL TANKS (IF EXISTING) WERE NOT DETERMINED AS A PART OF THIS SURVEY.

EXISTING CONDITIONS PLAN OF LAND
AT
ROTCH-JONES-DUFF HOUSE & GARDEN MUSEAM
IN
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR
PRESSLEY ASSOCIATES
APRIL 1, 2010
BY

BRYANT ASSOCIATES, INC.
98 NORTH WASHINGTON STREET, SUITE B-1 BOSTON, MA 02114
TEL. 617-248-0300, FAX 617-248-0212
WWW.BRYANT-ENGRS.COM

0 5 10 20 40
1" = 10 FT

SIGNED: _____ DATE _____
GARY JOHN HAMILTON, P.L.S.
FOR: BRYANT ASSOCIATES, INC.

HGI LEGEND

GPR Traverse

Notes:
1) The base map, "3-19-10-PROGRESSFILE-RJD-HOUSE.DWG", was provided by Bryant Associates, Inc.
2) All information provided by Hager GeoScience, Inc., is show in the HGI legend all other features were provided by Bryant Associates, Inc.
3) Geophysical survey positions and related surface features were located by Hager GeoScience, Inc., using a subfoot GPS system.
4) All GPS locating was performed using a Sokkia 2700ISX RTK system with points collected in the MA State Coordinate System.
5) HGI information was overlaid on the base map using the surface features located in the field.
6) GPR data were collected along orthogonal traverses spaced two feet apart.
7) GPR data were collected in all accessible areas of the grids.

PLATE 1A

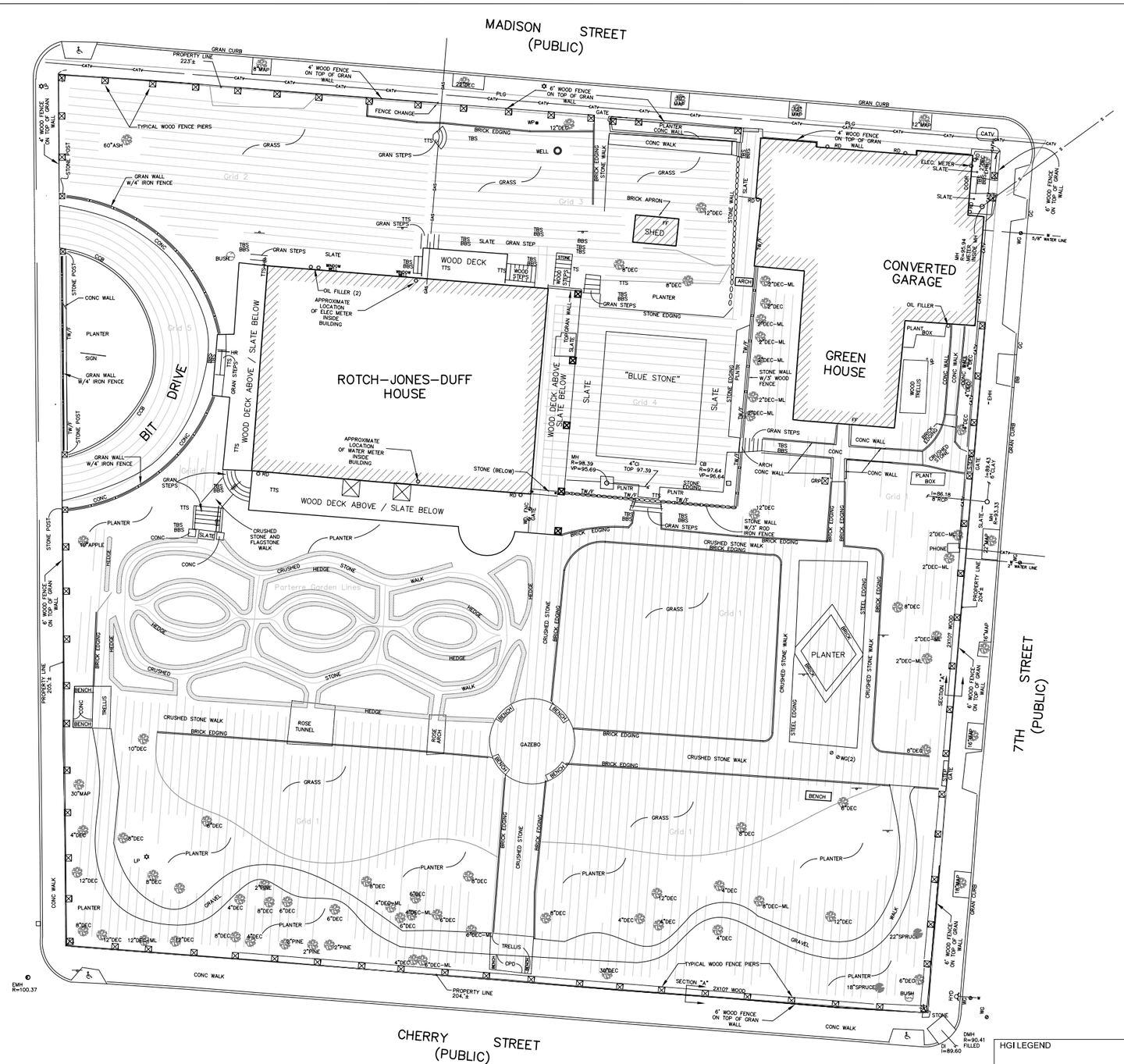
SEPTEMBER 2010 | FILE NO. 2009099

Geophysical Survey Locations
GPR Traverses
Rotch-Jones-Duff House
396 County Street
New Bedford, MA

Hager GeoScience, Inc.
596 Main Street, Woburn, MA 01801
(781)-935-8111 hgi@hagergeoscience.com

NOT ALL SUBSURFACE FEATURES MAY BE DEPICTED ON THIS MAP

H:\p\09059-Rotch Jones House\survey\taskno100\dwg\09059T01.dwg 1/5/2010 1:54:55 PM EST

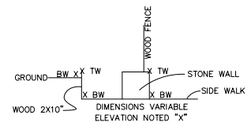


LEGEND

	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
X 100.00	SPOT GRADE
D	SURFACE DRAIN
E	ELECTRIC
T	TELEPHONE
W	WATER MAIN
PLG	PAINT LINE GAS
PLE	PAINTED LINE ELECTRIC
	WOOD FENCE (WD FNC)
	IRON FENCE
	STONE WALL
CB	CATCH BASIN
DMH	DRAIN MANHOLE
EHH	ELECTRIC HAND HOLE
EMH	ELECTRIC MANHOLE
UG	UNKNOWN GATE
LP	LIGHT POLE
MH	MANHOLE
POST	POST
POST	POST
SIGN	SIGN
SMH	SEWER MANHOLE
OIL	OIL FILLER
TMH	TELEPHONE MANHOLE
	DECIDUOUS
	CONIFEROUS
WG	WATER GATE
WPST	WOOD POST

NAD 83
Massachusetts State Plan Coordinate System

SECTION "A"



ABBREVIATIONS

BB	BITUMINOUS BERM
BBS	BOTTOM BOTTOM STEP
BIT	BITUMINOUS CONCRETE
BW	BOTTOM WALL
CONC	CONCRETE
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GRAN	GRANITE
HR	HAND RAIL
I	INVERT
NPV	NO PIPES VISIBLE
PA	PLANTER AREA
PVC	POLYVINYL CHLORIDE
R	RIM
RD	ROOF DRAIN
REC	RECORD
RCP	REINFORCED CONCRETE PIPE
S	SUMP
TBS	TOP BOTTOM STEP
TTS	TOP TOP STEP
TW	TOP WALL
TW/F	TOP WALL FLUSH
VP	VERTICAL PIPE

REFERENCES:

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- PLAN BOOK 119 PAGE 142.
- NSTAR GAS PLAN OF AREA.
- COMCAST PLAN OF AREA.
- TOWN PLAN OF WATER AND SEWER.

NOTES:

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3) NO PLAN LAYOUT FOR MADISON, 7TH AND CHERRY STREET FOUND.

4) OIL FILLERS FOUND ON SITE, LOCATION OF SUB SURFACE OIL TANKS (IF EXISTING) WERE NOT DETERMINED AS A PART OF THIS SURVEY.

EXISTING CONDITIONS PLAN OF LAND
AT
ROTCH-JONES-DUFF HOUSE & GARDEN MUSEAM
IN
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR
PRESSLEY ASSOCIATES
APRIL 1, 2010
BY

BRYANT ASSOCIATES, INC.
98 NORTH WASHINGTON STREET, SUITE B-1 BOSTON, MA 02114
TEL. 617-248-0300, FAX 617-248-0212
WWW.BRYANT-ENGRS.COM

0 5 10 20 40
1" = 10 FT

SURVEY DATE: 11-11-09
CHECKED BY: GJH
DRAWN BY: RRD
APPROVED BY: GJH

SHEET 1 OF 1

SIGNED: _____ DATE _____
GARY JOHN HAMILTON, P.L.S.
FOR: BRYANT ASSOCIATES, INC.

PLATE 1B

HGI LEGEND

EM38-DD Traverse

Notes:
1) The base map, "3-19-10-PROGRESSFILE-RJD-HOUSE.DWG", was provided by Bryant Associates, Inc.
2) All information provided by Hager GeoScience, Inc. is show in the HGI legend all other features were provided by Bryant Associates, Inc.
3) Geophysical survey positions and related surface features were located by Hager GeoScience, Inc. using a subfoot GPS system.
4) All GPS locating was performed using a Sokkia Z700ISX RTK system with points collected in the MA State Coordinate System.
5) HGI information was overlaid on the base map using the surface features located in the field.
6) EM data were collected along unidirectional traverses spaced two feet apart.
7) EM data were collected in all accessible areas of the grids.

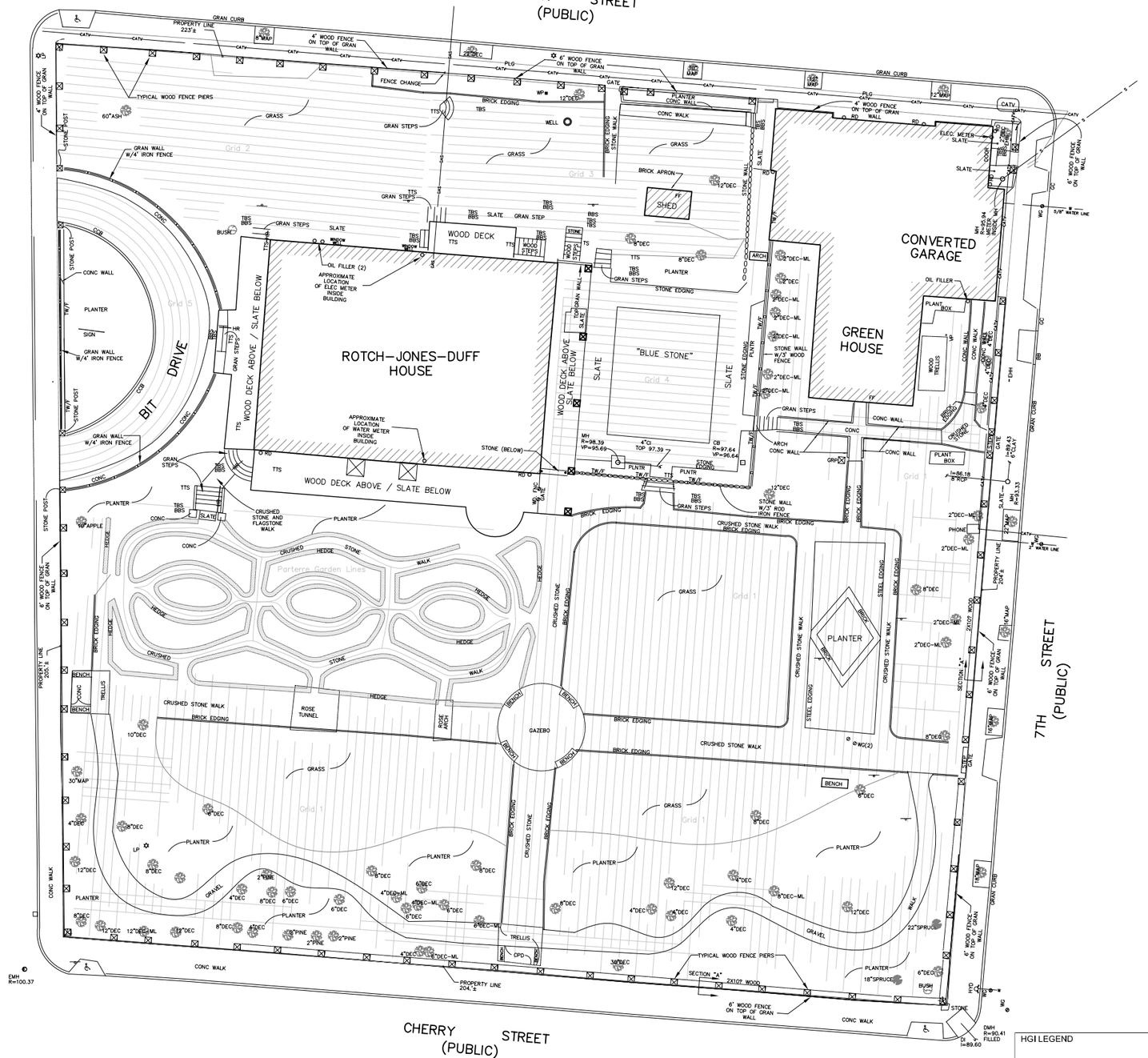
SEPTEMBER 2010 | FILE NO. 2009099

Geophysical Survey Locations
EM38-DD Traverses
Rotch-Jones-Duff House
396 County Street
New Bedford, MA

Hager GeoScience, Inc.
596 Main Street, Woburn, MA 01801
(781)-935-8111 hgi@hagergeoscience.com

NOT ALL SUBSURFACE FEATURES MAY BE DEPICTED ON THIS MAP

H:\p\09059-Rotch Jones House\survey\taskno100\dwg\09059T01.dwg 1/5/2010 1:54:55 PM EST

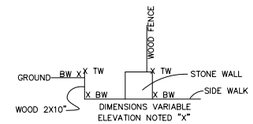


LEGEND

	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
X 100.00	SPOT GRADE
D	SURFACE DRAIN
E	ELECTRIC
T	TELEPHONE
W	WATER MAIN
PLG	PAINT LINE GAS
PLE	PAINTED LINE ELECTRIC
	WOOD FENCE (WD FNC)
	IRON FENCE
	STONE WALL
CB	CATCH BASIN
DMH	DRAIN MANHOLE
EHH	ELECTRIC HAND HOLE
EMH	ELECTRIC MANHOLE
UG	UNKNOWN GATE
LP	LIGHT POLE
MH	MANHOLE
POST	POST
POST	POST
SIGN	SIGN
SMH	SEWER MANHOLE
OIL	OIL FILLER
TMH	TELEPHONE MANHOLE
	DECIDUOUS
	CONIFEROUS
WG	WATER GATE
WPST	WOOD POST

NAD 83
Massachusetts State Plan Coordinate System

SECTION "A"



ABBREVIATIONS

BB	BITUMINOUS BERM
BBS	BOTTOM BOTTOM STEP
BIT	BITUMINOUS CONCRETE
BW	BOTTOM WALL
CONC	CONCRETE
CI	CAST IRON
FF	FINISHED FLOOR ELEVATION
FD	FLOOR DRAIN
FP	FLAG POLE
GC	GRANITE CURB
GRAN	GRANITE
HR	HAND RAIL
I	INVERT
NPV	NO PIPES VISIBLE
PA	PLANTER AREA
PVC	POLYVINYL CHLORIDE
R	RIM
RD	ROOF DRAIN
REC	RECORD
RCP	REINFORCED CONCRETE PIPE
S	SUMP
TBS	TOP BOTTOM STEP
TTS	TOP TOP STEP
TW	TOP WALL
TW/F	TOP WALL FLUSH
VP	VERTICAL PIPE

REFERENCES:

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- PLAN BOOK 119 PAGE 142.
- NSTAR GAS PLAN OF AREA.
- COMCAST PLAN OF AREA.
- TOWN PLAN OF WATER AND SEWER.

NOTES:

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4) OIL FILLERS FOUND ON SITE, LOCATION OF SUB SURFACE OIL TANKS (IF EXISTING) WERE NOT DETERMINED AS A PART OF THIS SURVEY.

EXISTING CONDITIONS PLAN OF LAND
AT
ROTCH-JONES-DUFF HOUSE & GARDEN MUSEAM
IN
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR
PRESSLEY ASSOCIATES
APRIL 1, 2010
BY

BRYANT ASSOCIATES, INC.
98 NORTH WASHINGTON STREET, SUITE B-1 BOSTON, MA 02114
TEL. 617-248-0300, FAX 617-248-0212
WWW.BRYANT-ENGRS.COM

0 5 10 20 40
1" = 10 FT

SURVEY DATE: 11-11-09
CHECKED BY: GJH
DRAWN BY: RRD
APPROVED BY: GJH

SHEET 1 OF 1

SIGNED: _____ DATE _____
GARY JOHN HAMILTON, P.L.S.
FOR: BRYANT ASSOCIATES, INC.

PLATE 1C

HGI LEGEND

Magnetometer Traverse

Notes:
1) The base map, "3-19-10-PROGRESSFILE-RJD-HOUSE.DWG", was provided by Bryant Associates, Inc.
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4) All GPS locating was performed using a Sokkia Z700ISX RTK system with points collected in the MA State Coordinate System.
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6) Magnetometer data were collected along unidirectional traverses spaced two feet apart.
7) Magnetometer data were collected in all accessible areas of the grids.

SEPTEMBER 2010 | FILE NO. 2009099

Geophysical Survey Locations
Magnetometer Traverses
Rotch-Jones-Duff House
396 County Street
New Bedford, MA

Hager GeoScience, Inc.
596 Main Street, Woburn, MA 01801
(781)-935-8111 hgi@hagergeoscience.com

NOT ALL SUBSURFACE FEATURES MAY BE DEPICTED ON THIS MAP

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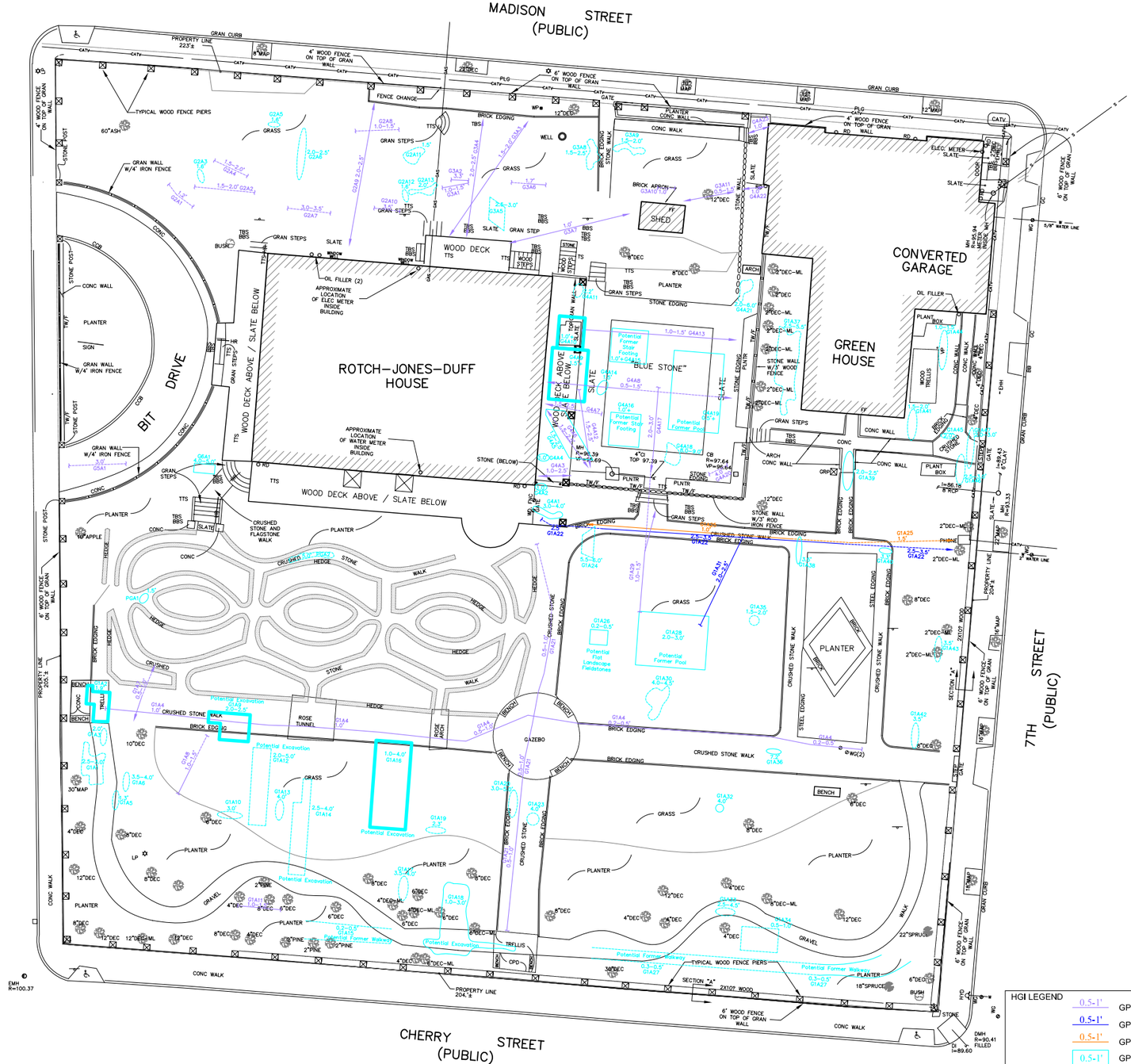

LEGEND

	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
X 100.00	SPOT GRADE
D	SURFACE DRAIN
E	ELECTRIC
T	TELEPHONE
W	WATER MAIN
PLG	PAINT LINE GAS
PLE	PAINTED LINE ELECTRIC
	WOOD FENCE (WD FNC)
	IRON FENCE
	STONE WALL
CB	CATCH BASIN
DMH	DRAIN MANHOLE
EHH	ELECTRIC HAND HOLE
EMH	ELECTRIC MANHOLE
UG	UNKNOWN GATE
LP	LIGHT POLE
MH	MANHOLE
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POST	POST
SIGN	SIGN
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OIL	OIL FILLER
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	DECIDUOUS
	CONIFEROUS
WG	WATER GATE
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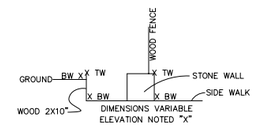
NAD 83
Massachusetts State Plan Coordinate System

SECTION "A"



ABBREVIATIONS

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REFERENCES:

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EXISTING CONDITIONS PLAN OF LAND
AT
ROTCH-JONES-DUFF HOUSE & GARDEN MUSEAM
IN
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR
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APRIL 1, 2010
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0 5 10 20 40
1" = 10 FT

SURVEY DATE: 11-11-09
CHECKED BY: GJH
DRAWN BY: RRD
APPROVED BY: GJH

SHEET 1 OF 1

SIGNED: _____ DATE _____
GARY JOHN HAMILTON, P.L.S.
FOR: BRYANT ASSOCIATES, INC.

HGI LEGEND

0.5-1'	GPR-Identified Linear Anomaly/Potential Utility w/ Approximate Depth
0.5-1'	GPR-Identified Water Utility w/ Approximate Depth
0.5-1'	GPR-Identified Communication Utility w/ Approximate Depth
0.5-1'	GPR-Identified Anomaly w/ Approximate Depth
0.5-1'	GPR-Identified Anomaly w/ Approximate Depth - Recommended for Ground-Truthing

Notes:
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2) All Information provided by Hager GeoScience, Inc, is show In the HGI legend all other features were provided by Bryant Associates, Inc.
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4) All GPS locating was performed using a Sokkia 2700ISX RTK system with points collected in the MA State Coordinate System.
5) HGI information was overlaid on the base map using the surface features located in the field.
6) The type of a utility was based on its alignment with a known utility entering the property on the Bryant base map.
7) The " ~ " symbol indicates the termination of a linear feature.
8) The arrow symbol indicates that a linear feature may continue beyond the survey area.
9) Dashed lines indicate a lower confidence GPR-identified feature.
10) GPR anomalous features are identified by their geometry and/or signal strength.
11) Values listed with GPR anomalies are approximate depths in feet below the ground surface and are converted from GPR travel time.
12) The GPR anomalies are tagged with labels for identification purposes, further information can be found in Appendix B and Table 3.

PLATE 2

SEPTEMBER 2010	FILE NO. 2009099

Geophysical Interpretation Plot
GPR - 400 MHz
Rotch-Jones-Duff House
396 County Street
New Bedford, MA

Hager GeoScience, Inc.
596 Main Street, Woburn, MA 01801
(781)-935-8111 hgi@hagergeoscience.com

NOT ALL SUBSURFACE FEATURES MAY BE DEPICTED ON THIS MAP

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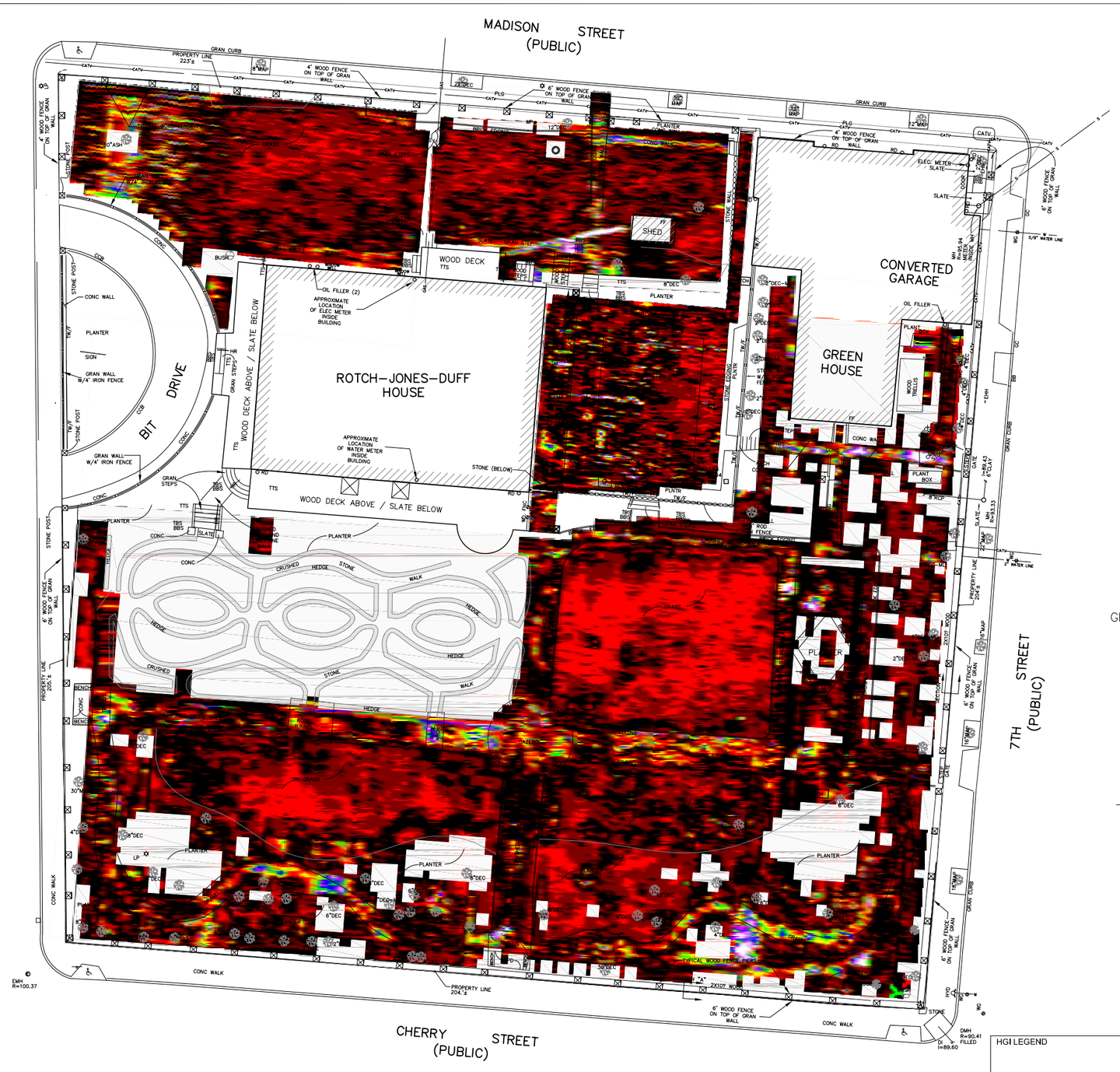
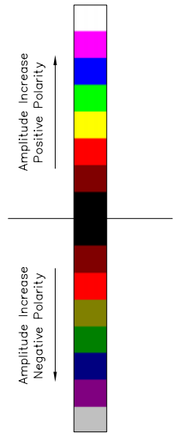


GPR Signal Amplitude

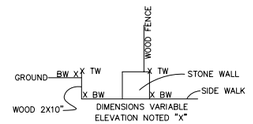


LEGEND

	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
X 100.00	SPOT GRADE
D	SURFACE DRAIN
E	ELECTRIC
T	TELEPHONE
W	WATER MAIN
PLG	PAINT LINE GAS
PLE	PAINTED LINE ELECTRIC
	WOOD FENCE (WD FNC)
	IRON FENCE
	STONE WALL
CB	CATCH BASIN
DMH	DRAIN MANHOLE
EHH	ELECTRIC HAND HOLE
EMH	ELECTRIC MANHOLE
UG	UNKNOWN GATE
LP	LIGHT POLE
MH	MANHOLE
POST	POST
POST	POST
SIGN	SIGN
SMH	SEWER MANHOLE
OIL	OIL FILLER
TMH	TELEPHONE MANHOLE
	DECIDUOUS
	CONIFEROUS
WG	WATER GATE
WPST	WOOD POST

NAD 83
Massachusetts State Plan Coordinate System

SECTION "A"



ABBREVIATIONS

BB	BITUMINOUS BERM
BBS	BOTTOM BOTTOM STEP
BIT	BITUMINOUS CONCRETE
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REFERENCES:

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3) NO PLAN LAYOUT FOR MADISON, 7TH AND CHERRY STREET FOUND.

4) OIL FILLERS FOUND ON SITE. LOCATION OF SUB SURFACE OIL TANKS (IF EXISTING) WERE NOT DETERMINED AS A PART OF THIS SURVEY.

EXISTING CONDITIONS PLAN OF LAND
AT
ROTCH-JONES-DUFF HOUSE & GARDEN MUSEAM
IN
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR
PRESSLEY ASSOCIATES
APRIL 1, 2010
BY

BRYANT ASSOCIATES, INC.
98 NORTH WASHINGTON STREET, SUITE B-1 BOSTON, MA 02114
TEL. 617-248-0300, FAX 617-248-0212
WWW.BRYANT-ENGRS.COM

0 5 10 20 40
1" = 10 FT

SURVEY DATE: 11-11-09
CHECKED BY: GJH
DRAWN BY: RRD
APPROVED BY: GJH

SHEET 1 OF 1

SIGNED: _____ DATE _____
GARY JOHN HAMILTON, P.L.S.
FOR: BRYANT ASSOCIATES, INC.

HGI LEGEND

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PLATE 3A

SEPTEMBER 2010	FILE NO. 2009099

3D GPR Slice
Depth 1.0 Feet - NS Traverses
Rotch-Jones-Duff House
396 County Street
New Bedford, MA

Hager GeoScience, Inc.
596 Main Street, Woburn, MA 01801
(781)-935-8111 hgi@hagergeoscience.com

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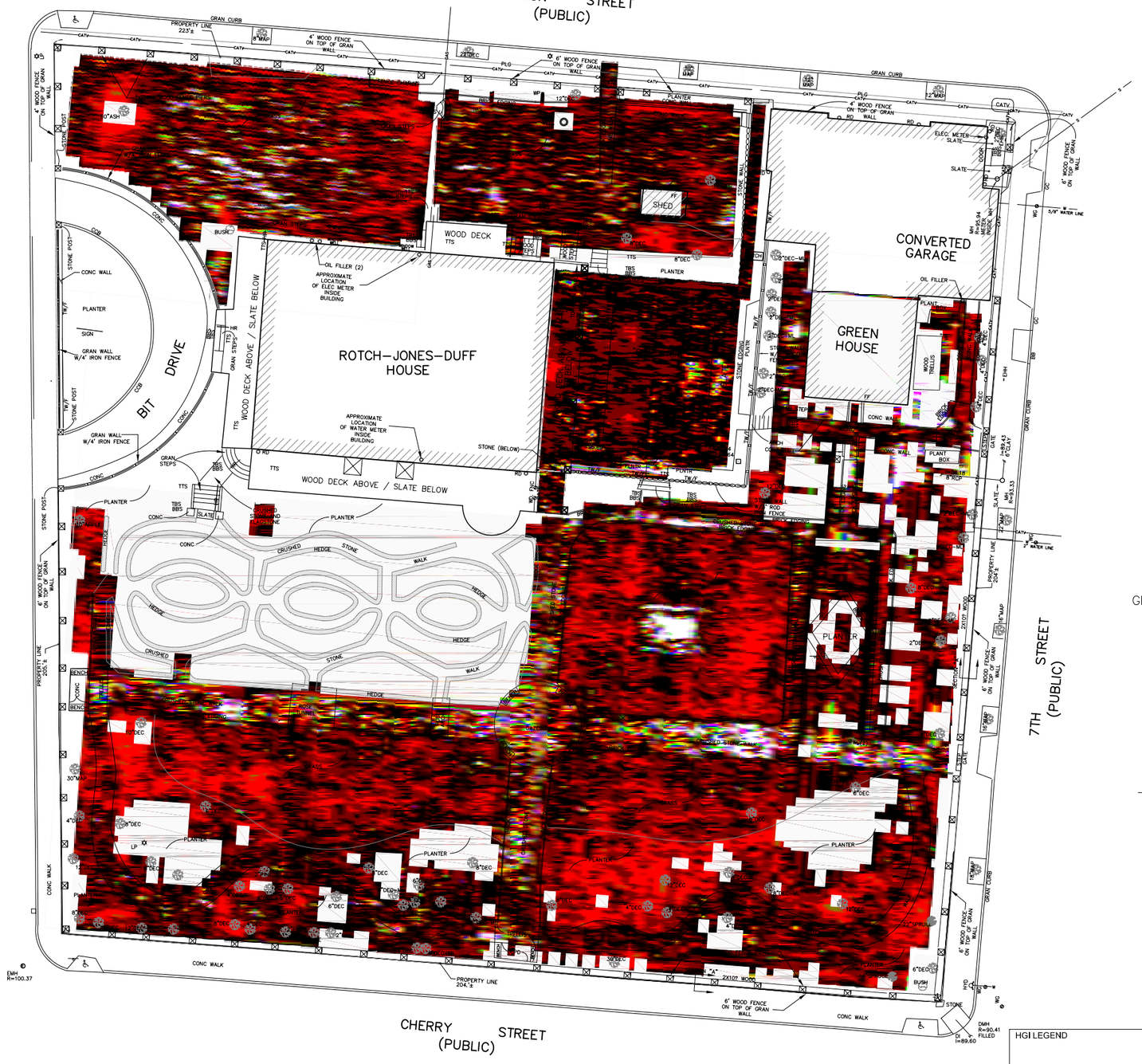

LEGEND

	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
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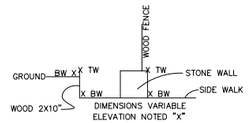
NAD 83
Massachusetts State Plan Coordinate System

SECTION "A"



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AT
ROTCH-JONES-DUFF HOUSE & GARDEN MUSEAM
IN
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR
PRESSLEY ASSOCIATES
APRIL 1, 2010
BY

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TEL. 617-248-0300, FAX 617-248-0212
WWW.BRYANT-ENGRS.COM

0 5 10 20 40
1" = 10 FT

SURVEY DATE: 11-11-09
CHECKED BY: GJH
DRAWN BY: RRD
APPROVED BY: GJH

SHEET 1 OF 1

SIGNED: _____ _____
GARY JOHN HAMILTON, P.L.S. DATE
FOR: BRYANT ASSOCIATES, INC.

PLATE 3B

HGI LEGEND	SEPTEMBER 2010 | FILE NO. 2009099
Notes: 1) The base map, "3-19-10-PROGRESSFILE-RJD-HOUSE.DWG", was provided by Bryant Associates, Inc. 2) All Information provided by Hager GeoSclence, Inc., is show In the HGI legend all other features were provided by Bryant Associates, Inc. 3) Geophysical survey positions and related surface features were located by Hager GeoScience, Inc. using a subfoot GPS system. 4) All GPS locating was performed using a Sokkia 2700ISX RTK system with points collected in the MA State Coordinate System. 5) HGI information was overlaid on the base map using the surface features located in the field.	3D GPR Slice Depth 3.0 Feet - NS Traverses Rotch-Jones-Duff House 396 County Street New Bedford, MA
	Hager GeoScience, Inc. 596 Main Street, Woburn, MA 01801 (781)-935-8111 hgi@hagergeoscience.com
	NOT ALL SUBSURFACE FEATURES MAY BE DEPICTED ON THIS MAP

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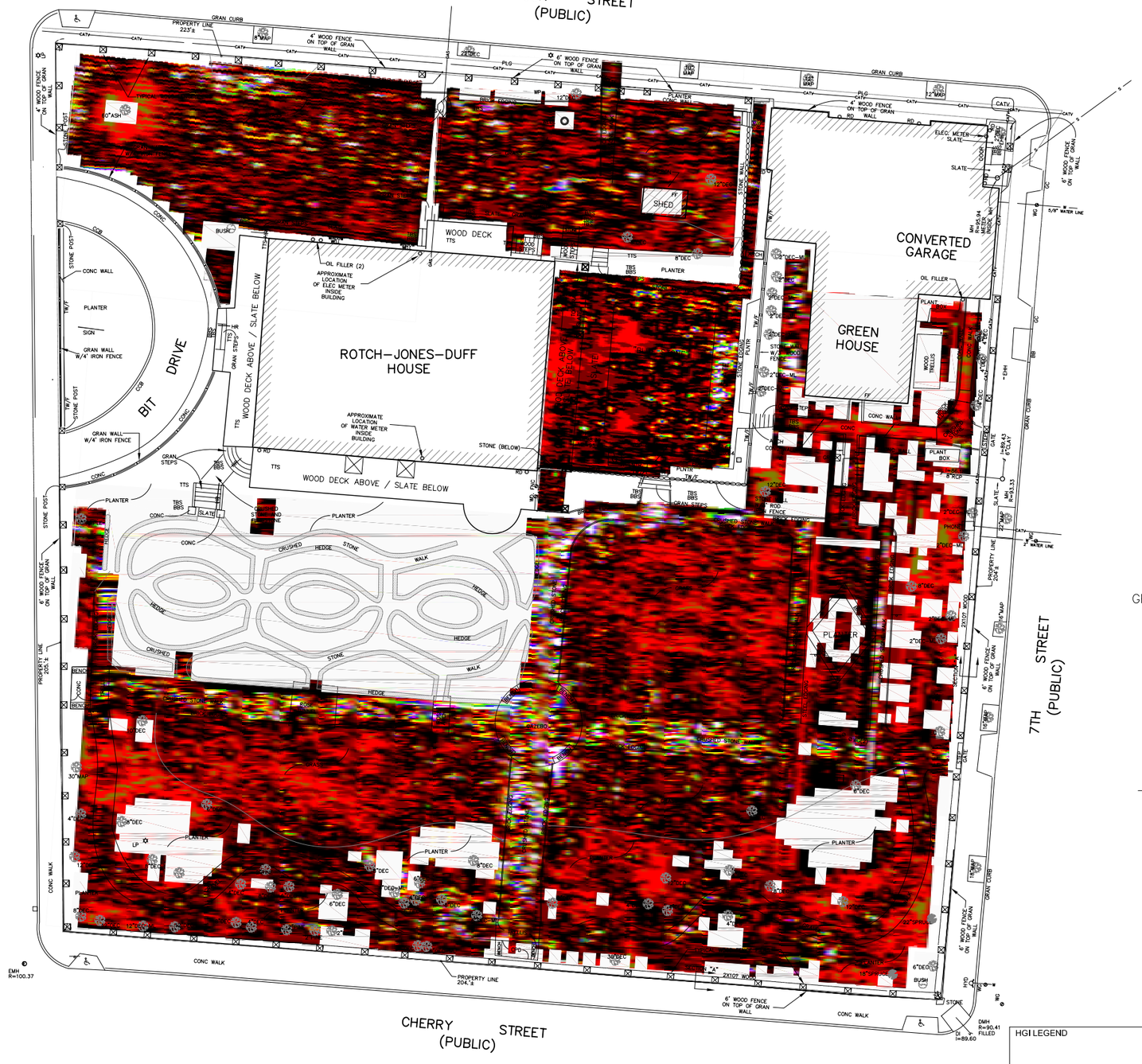

LEGEND

	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
X 100.00	SPOT GRADE
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OIL	OIL FILLER
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	DECIDUOUS
	CONIFEROUS
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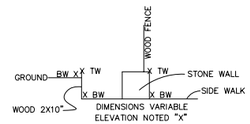
NAD 83
Massachusetts State Plan Coordinate System

SECTION "A"



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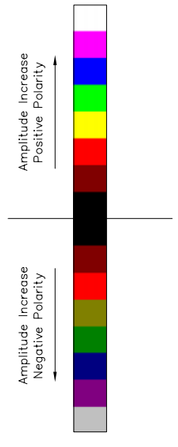
GPR Signal Amplitude



EXISTING CONDITIONS PLAN OF LAND
AT
ROTCH-JONES-DUFF HOUSE & GARDEN MUSEAM
IN
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR
PRESSLEY ASSOCIATES
APRIL 1, 2010
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0 5 10 20 40
1" = 10 FT

SURVEY DATE: 11-11-09
CHECKED BY: GJH
DRAWN BY: RRD
APPROVED BY: GJH

SHEET 1 OF 1

SIGNED: _____ DATE _____
GARY JOHN HAMILTON, P.L.S.
FOR: BRYANT ASSOCIATES, INC.

PLATE 3C

HGI LEGEND

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SEPTEMBER 2010 | FILE NO. 2009099

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Depth 5.0 Feet - NS Traverses
Rotch-Jones-Duff House
396 County Street
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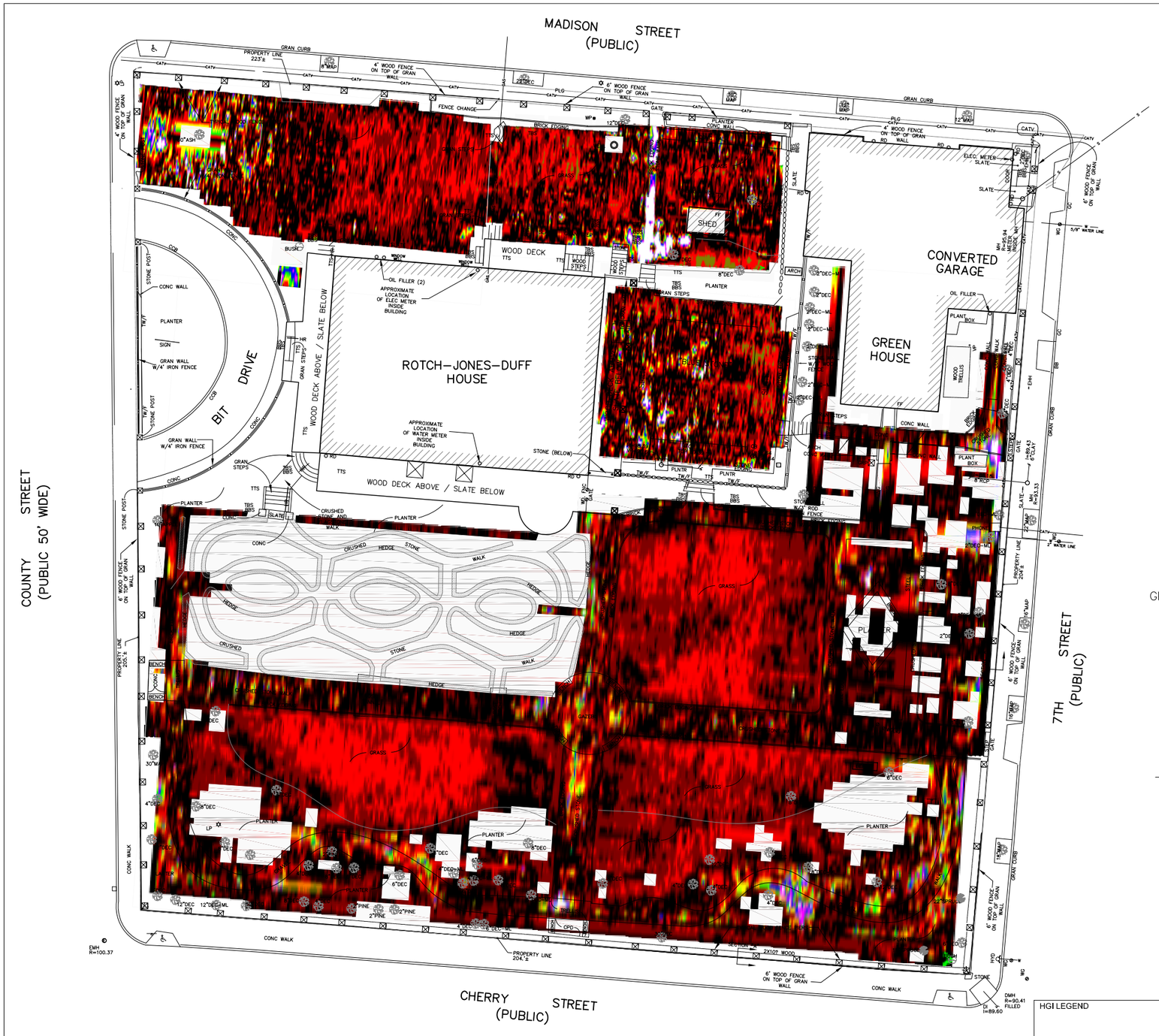

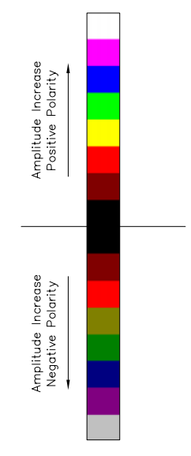

NAD 83
Massachusetts State Plan Coordinate System

LEGEND

	EXISTING CONTOUR
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SECTION "A"

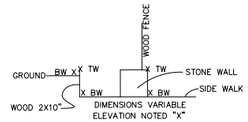

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PLATE 3D

SEPTEMBER 2010 | FILE NO. 2009099

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Depth 1.0 Feet - EW Traverses
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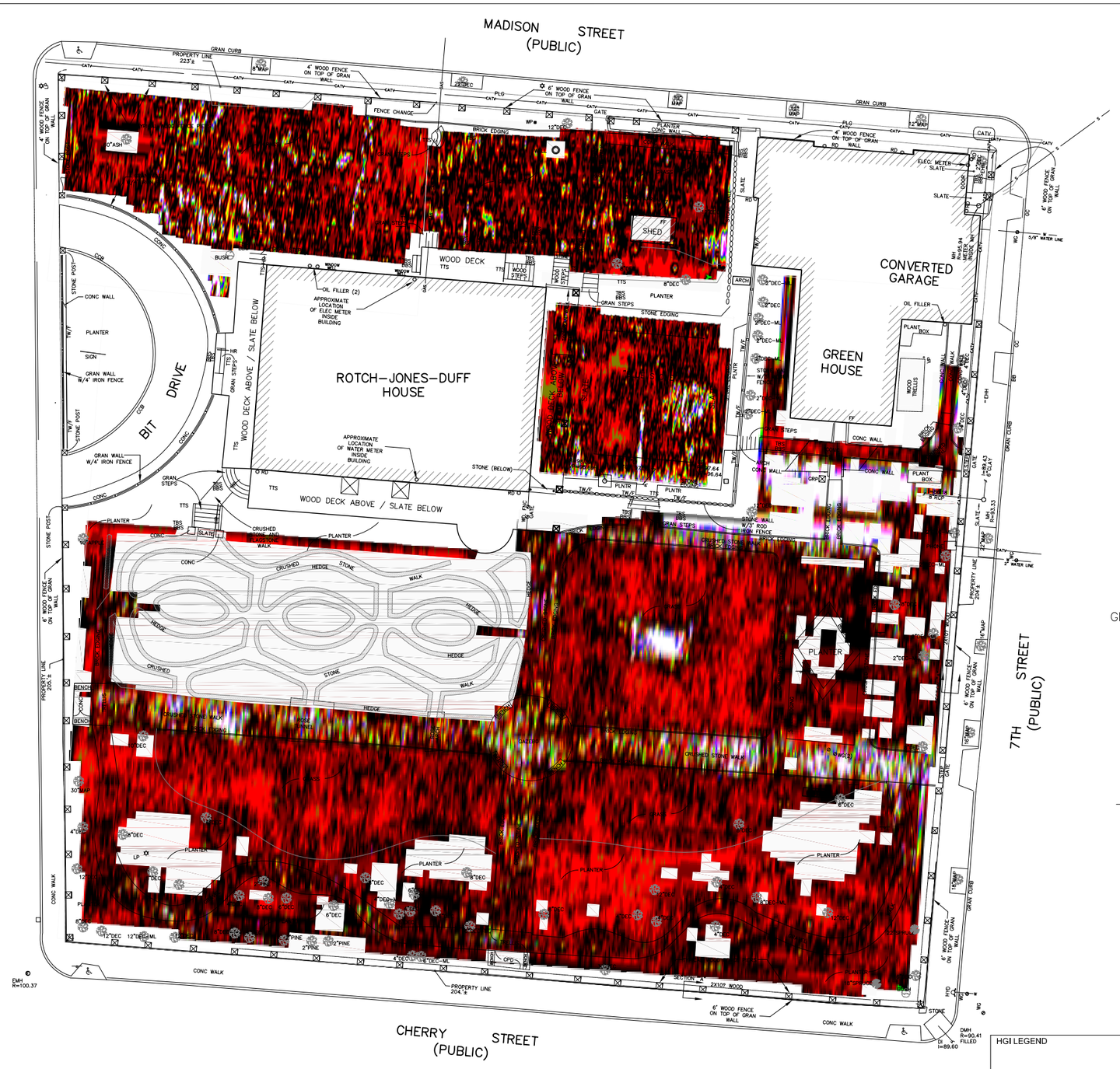

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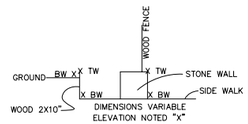
NAD 83
Massachusetts State Plan Coordinate System

SECTION "A"



ABBREVIATIONS

BB	BITUMINOUS BERM
BBS	BOTTOM BOTTOM STEP
BIT	BITUMINOUS CONCRETE
BW	BOTTOM WALL
CONC	CONCRETE
CI	CAST IRON
FF	FINISHED FLOOR ELEVATION
FD	FLOOR DRAIN
FP	FLAG POLE
GC	GRANITE CURB
GRAN	GRANITE
HR	HAND RAIL
I	INVERT
NPV	NO PIPES VISIBLE
PA	PLANTER AREA
PVC	POLYVINYL CHLORIDE
R	RIM
RD	ROOF DRAIN
REC	RECORD
RCP	REINFORCED CONCRETE PIPE
S	SUMP
TBS	TOP BOTTOM STEP
TTS	TOP TOP STEP
TW	TOP WALL
TW/F	TOP WALL FLUSH
VP	VERTICAL PIPE

REFERENCES:

- DEED BOOK 1917 PAGE 543.
- PLAN BOOK 119 PAGE 142.
- NSTAR GAS PLAN OF AREA.
- COMCAST PLAN OF AREA.
- TOWN PLAN OF WATER AND SEWER.

GPR Signal Amplitude

Amplitude Increase Positive Polarity

Amplitude Increase Negative Polarity

NOTES:

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2) NO UTILITY RECORDS WERE PROVIDED OR FOUND ON SITE. A SUBSURFACE INVESTIGATION IS BEING PERFORMED BY HAGER GEOSCIENCE. INFORMATION FROM THAT INVESTIGATION HAS NOT BEEN SHOWN HEREON.

3) NO PLAN LAYOUT FOR MADISON, 7TH AND CHERRY STREET FOUND.

4) OIL FILLERS FOUND ON SITE, LOCATION OF SUB SURFACE OIL TANKS (IF EXISTING) WERE NOT DETERMINED AS A PART OF THIS SURVEY.

EXISTING CONDITIONS PLAN OF LAND
AT
ROTCH-JONES-DUFF HOUSE & GARDEN MUSEAM
IN
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR
PRESSLEY ASSOCIATES
APRIL 1, 2010
BY

BRYANT ASSOCIATES, INC.
98 NORTH WASHINGTON STREET, SUITE B-1 BOSTON, MA 02114
TEL. 617-248-0300, FAX 617-248-0212
WWW.BRYANT-ENGRS.COM

0 5 10 20 40
1" = 10 FT

SURVEY DATE: 11-11-09
CHECKED BY: GJH
DRAWN BY: RRD
APPROVED BY: GJH

SHEET 1 OF 1

SIGNED: _____ DATE _____
GARY JOHN HAMILTON, P.L.S.
FOR: BRYANT ASSOCIATES, INC.

PLATE 3E

HGI LEGEND

Notes:
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5) HGI information was overlaid on the base map using the surface features located in the field.

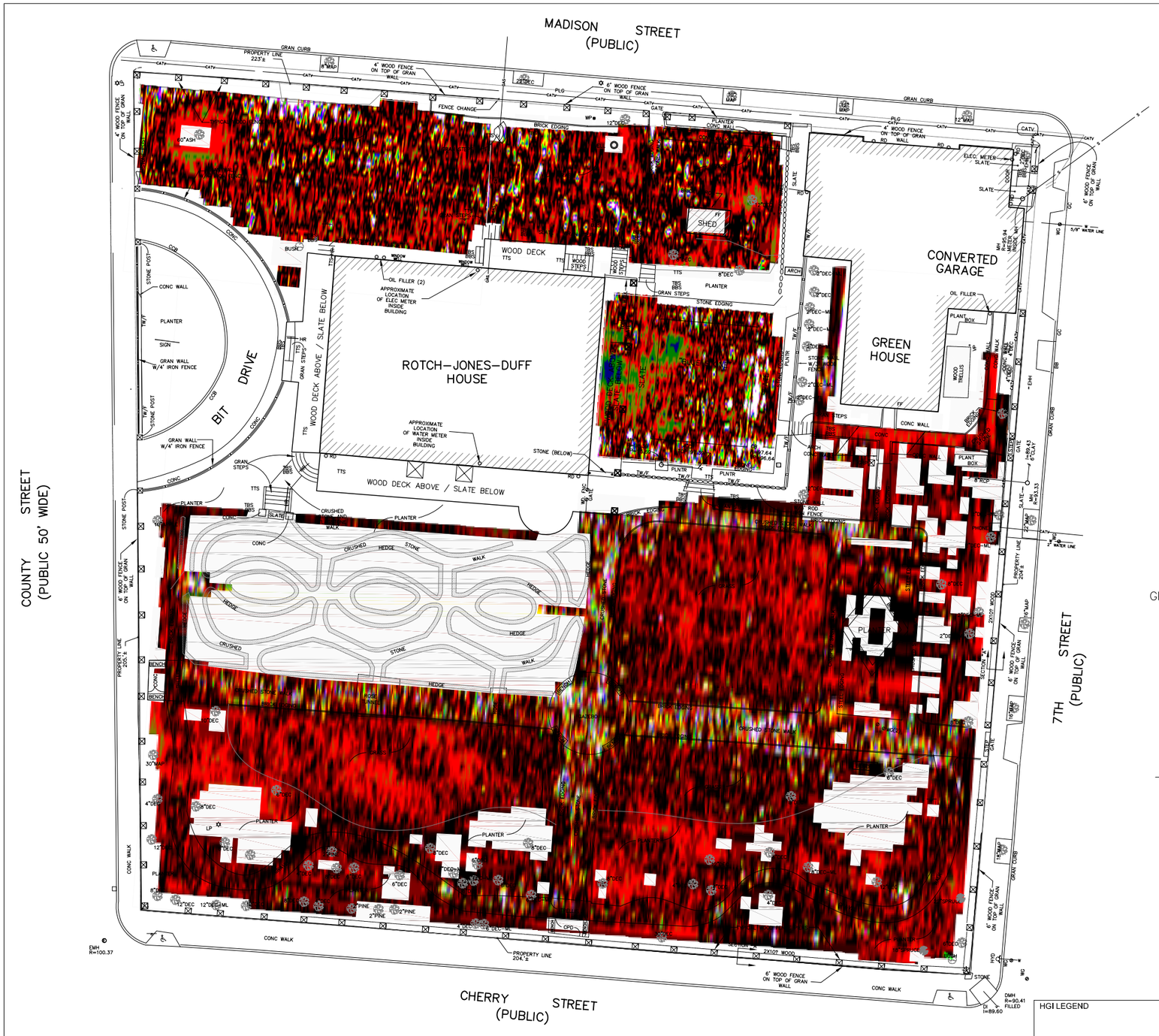
SEPTEMBER 2010 | FILE NO. 2009099

3D GPR Slice
Depth 3.0 Feet - EW Traverses
Rotch-Jones-Duff House
396 County Street
New Bedford, MA

Hager GeoScience, Inc.
596 Main Street, Woburn, MA 01801
(781)-935-8111 hgi@hagergeoscience.com

NOT ALL SUBSURFACE FEATURES MAY BE DEPICTED ON THIS MAP

H:\p\09059-Rotch Jones House\survey\taskno100\dwg\09059T01.dwg 1/5/2010 1:54:55 PM EST

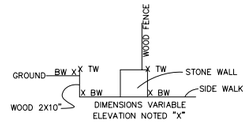


LEGEND

	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
X 100.00	SPOT GRADE
D	SURFACE DRAIN
E	ELECTRIC
T	TELEPHONE
W	WATER MAIN
PLG	PAINT LINE GAS
PLE	PAINTED LINE ELECTRIC
	WOOD FENCE (WD FNC)
	IRON FENCE
	STONE WALL
CB	CATCH BASIN
DMH	DRAIN MANHOLE
EHH	ELECTRIC HAND HOLE
EMH	ELECTRIC MANHOLE
UG	UNKNOWN GATE
LP	LIGHT POLE
MH	MANHOLE
POST	POST
POST	POST
SIGN	SIGN
SMH	SEWER MANHOLE
OIL	OIL FILLER
TMH	TELEPHONE MANHOLE
	DECIDUOUS
	CONIFEROUS
WG	WATER GATE
WPST	WOOD POST

NAD 83
Massachusetts State Plan Coordinate System

SECTION "A"



ABBREVIATIONS

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BBS	BOTTOM BOTTOM STEP
BIT	BITUMINOUS CONCRETE
BW	BOTTOM WALL
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GRAN	GRANITE
HR	HAND RAIL
I	INVERT
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PA	PLANTER AREA
PVC	POLYVINYL CHLORIDE
R	RIM
RD	ROOF DRAIN
REC	RECORD
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REFERENCES:

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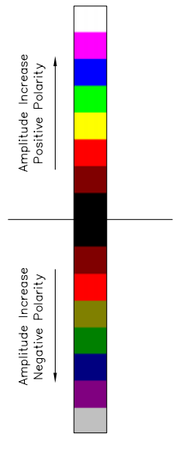
GPR Signal Amplitude



EXISTING CONDITIONS PLAN OF LAND
AT
ROTCH-JONES-DUFF HOUSE & GARDEN MUSEAM
IN
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR
PRESSLEY ASSOCIATES
APRIL 1, 2010
BY

BRYANT ASSOCIATES, INC.
98 NORTH WASHINGTON STREET, SUITE B-1 BOSTON, MA 02114
TEL. 617-248-0300, FAX 617-248-0212
WWW.BRYANT-ENGRS.COM

0 5 10 20 40
1" = 10 FT

SURVEY DATE: 11-11-09
CHECKED BY: GJH
DRAWN BY: RRD
APPROVED BY: GJH

SHEET 1 OF 1

SIGNED: _____ DATE _____
GARY JOHN HAMILTON, P.L.S.
FOR: BRYANT ASSOCIATES, INC.

HGI LEGEND

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PLATE 3F

SEPTEMBER 2010 | FILE NO. 2009099

3D GPR Slice
Depth 5.0 Feet - EW Traverses
Rotch-Jones-Duff House
396 County Street
New Bedford, MA

Hager GeoScience, Inc.
596 Main Street, Woburn, MA 01801
(781)-935-8111 hgi@hagergeoscience.com

NOT ALL SUBSURFACE FEATURES MAY BE DEPICTED ON THIS MAP

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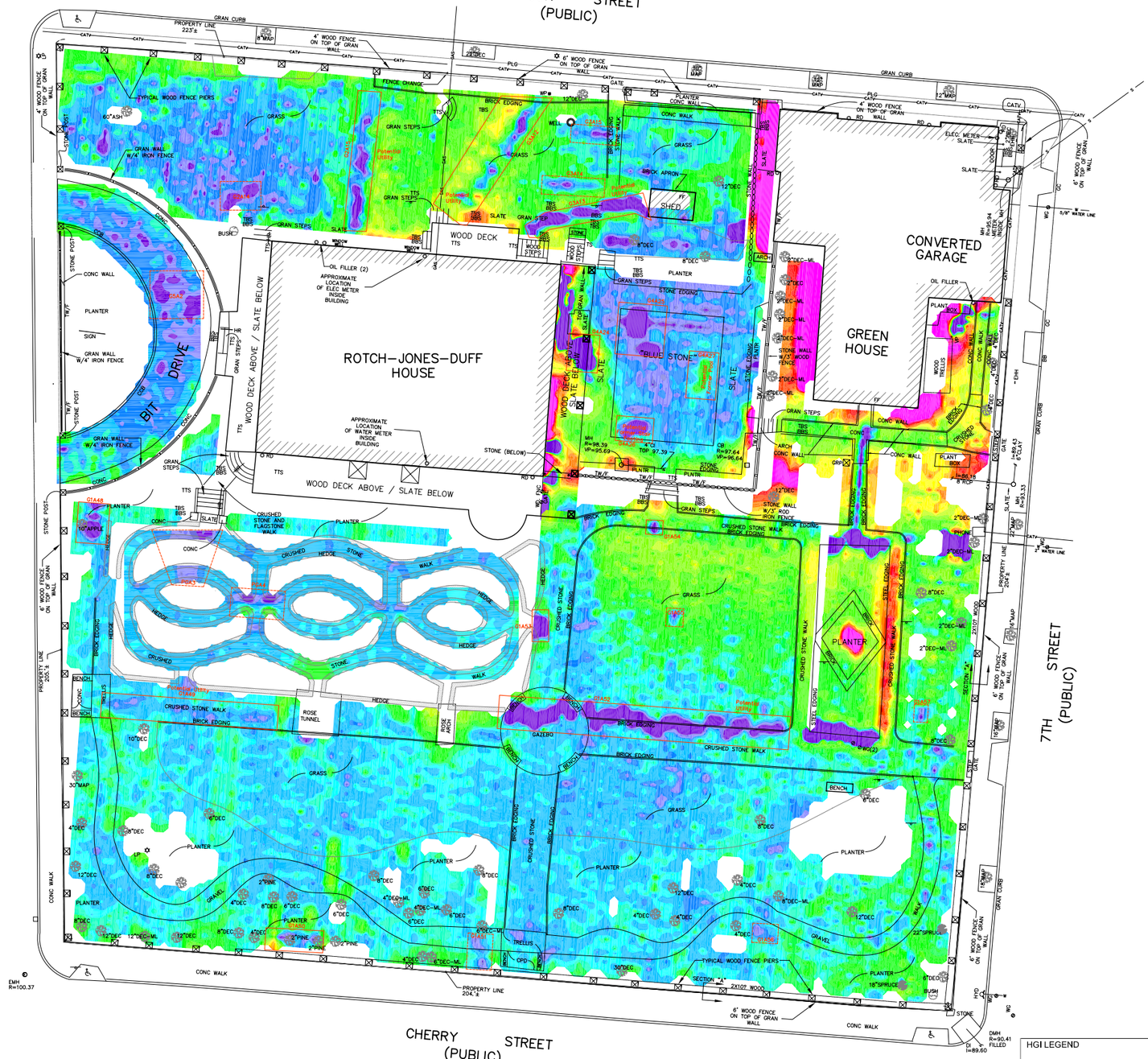
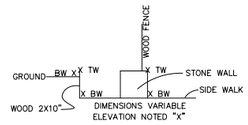


LEGEND

	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
X 100.00	SPOT GRADE
D	SURFACE DRAIN
E	ELECTRIC
T	TELEPHONE
W	WATER MAIN
PLG	PAINT LINE GAS
PLE	PAINTED LINE ELECTRIC
	WOOD FENCE (WD FNC)
	IRON FENCE
	STONE WALL
CB	CATCH BASIN
DMH	DRAIN MANHOLE
EHH	ELECTRIC HAND HOLE
EMH	ELECTRIC MANHOLE
UG	UNKNOWN GATE
LP	LIGHT POLE
MH	MANHOLE
POST	POST
POST	POST
SIGN	SIGN
SMH	SEWER MANHOLE
OIL	OIL FILLER
TMH	TELEPHONE MANHOLE
	DECIDUOUS
	CONIFEROUS
WG	WATER GATE
WPST	WOOD POST

NAD 83
Massachusetts State Plan Coordinate System

SECTION "A"



ABBREVIATIONS

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FP	FLAG POLE
GC	GRANITE CURB
GRAN	GRANITE
HR	HAND RAIL
I	INVERT
NPV	NO PIPES VISIBLE
PA	PLANTER AREA
PVC	POLYVINYL CHLORIDE
R	RIM
RD	ROOF DRAIN
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Apparent Conductivity Vertical Dipole (mS-meter)

50 45 40 35 30 25 20 15 10 5 0 -5 -10

EXISTING CONDITIONS PLAN OF LAND

AT

ROTCH-JONES-DUFF HOUSE & GARDEN MUSEAM

IN

NEW BEDFORD, MASSACHUSETTS

PREPARED FOR

PRESSLEY ASSOCIATES

APRIL 1, 2010

BY

BRYANT ASSOCIATES, INC.
98 NORTH WASHINGTON STREET, SUITE B-1 BOSTON, MA 02114
TEL. 617-248-0300, FAX 617-248-0212
WWW.BRYANT-ENGRS.COM

0 5 10 20 40
1" = 10 FT

SURVEY DATE: 11-11-09
CHECKED BY: GJH

DRAWN BY: RRD
APPROVED BY: GJH

SHEET 1 OF 1

SIGNED: _____ DATE _____
GARY JOHN HAMILTON, P.L.S.
FOR: BRYANT ASSOCIATES, INC.

HGI LEGEND

EM-Identified Anomaly

Notes:
1) The base map, "3-19-10-PROGRESSFILE-RJD-HOUSE.DWG", was provided by Bryant Associates, Inc.
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6) EM anomalous features are identified by their geometry and/or signal strength.
7) All EM signal highs and lows not selected as anomalies are caused by surface metal.
8) Dashed lines indicate a lower confidence EM-identified feature.
9) The EM anomalies are tagged with labels for identification purposes, further information can be found in Appendix B and Table 3.

PLATE 4

SEPTEMBER 2010	FILE NO. 2009099

Geophysical Interpretation Plot
EM38-DD Data
Rotch-Jones-Duff House
396 County Street
New Bedford, MA

Hager GeoScience, Inc.
596 Main Street, Woburn, MA 01801
(781)-935-8111 hgi@hagergeoscience.com

NOT ALL SUBSURFACE FEATURES MAY BE DEPICTED ON THIS MAP

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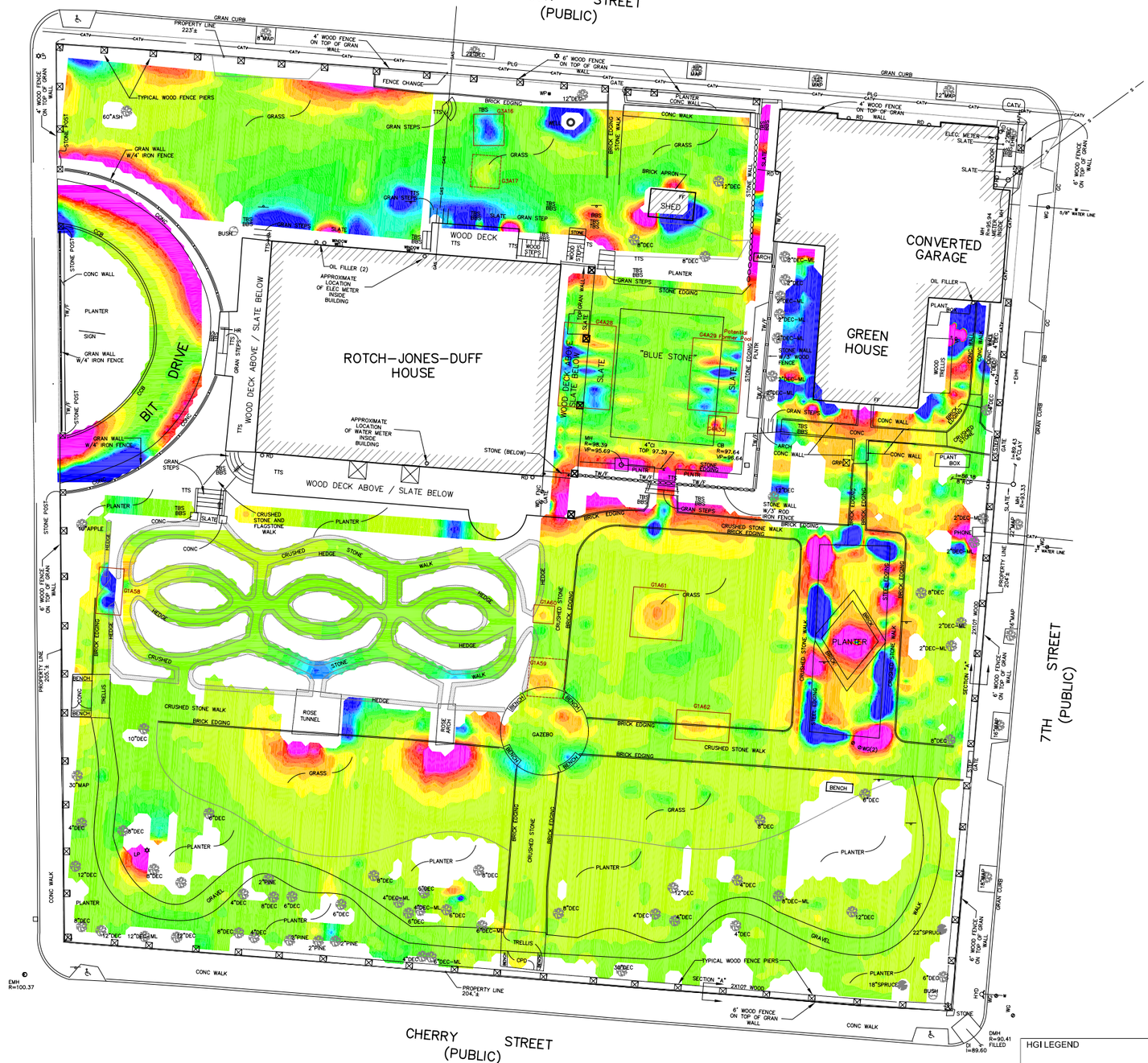

Vertical Gradient (nT)

280
240
200
160
120
80
40
0
-40
-80
-120
-160
-200

NAD 83
Massachusetts State Plan Coordinate System

LEGEND

	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
X 100.00	SPOT GRADE
D	SURFACE DRAIN
E	ELECTRIC
T	TELEPHONE
W	WATER MAIN
PLG	PAINT LINE GAS
PLE	PAINTED LINE ELECTRIC
	WOOD FENCE (WD FNC)
	IRON FENCE
	STONE WALL
CB	CATCH BASIN
DMH	DRAIN MANHOLE
EHH	ELECTRIC HAND HOLE
EMH	ELECTRIC MANHOLE
UG	UNKNOWN GATE
LP	LIGHT POLE
MH	MANHOLE
POST	POST
POST	POST
SIGN	SIGN
SMH	SEWER MANHOLE
OIL	OIL FILLER
TMH	TELEPHONE MANHOLE
	DECIDUOUS
	CONIFEROUS
WG	WATER GATE
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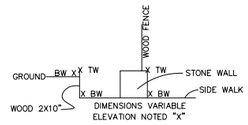
SECTION "A"



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EXISTING CONDITIONS PLAN OF LAND
AT
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APPROVED BY: GJH

SHEET 1 OF 1

SIGNED: _____ DATE _____
GARY JOHN HAMILTON, P.L.S.
FOR: BRYANT ASSOCIATES, INC.

HGI LEGEND

MAG-Identified Anomaly

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PLATE 5

SEPTEMBER 2010	FILE NO. 2009099

Geophysical Interpretation Plot
Magnetometer Data
Rotch-Jones-Duff House
396 County Street
New Bedford, MA

Hager GeoScience, Inc.
596 Main Street, Woburn, MA 01801
(781)-935-8111 hgi@hagergeoscience.com

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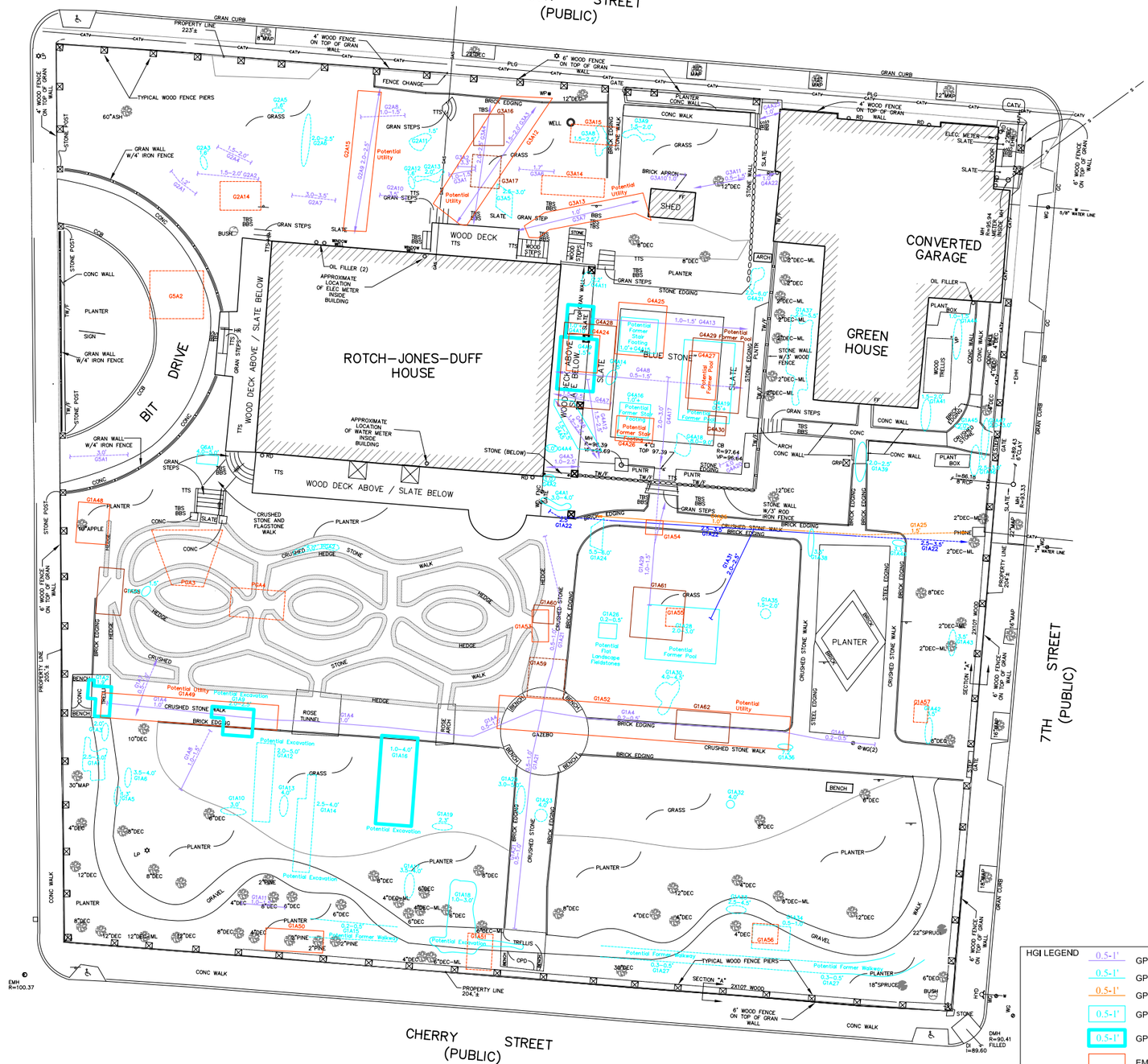
MADISON STREET (PUBLIC)
COUNTY STREET (PUBLIC 50' WIDE)
CHERRY STREET (PUBLIC)
7TH STREET (PUBLIC)
ROTCH-JONES-DUFF HOUSE
CONVERTED GARAGE
GREEN HOUSE
BLUE STONE
SHED
GAZEBO
PLANTER
WOOD DECK
WOOD DECK ABOVE / SLATE BELOW
BIT DRIVE
TYPICAL WOOD FENCE PIERS
SECTION "A"
PROPERTY LINE 223'±
PROPERTY LINE 204'±
PROPERTY LINE 205'±
6' WOOD FENCE ON TOP OF GRAN WALL
4' WOOD FENCE ON TOP OF GRAN WALL
GRAN WALL W/4' IRON FENCE
FENCE CHANGE
GRAN CURB
CONC WALK
GRAN STEPS
STONE WALL
BRICK EDGING
CRUSHED STONE WALK
STEEL EDGING
CRUSHED STONE
GRASS
HEDGE
TRELLIS
ROSE TUNNEL
OIL FILLER (2)
APPROXIMATE LOCATION OF ELEC METER INSIDE BUILDING
APPROXIMATE OF WATER METER INSIDE BUILDING
Potential Utility
Potential Excavation
Potential Former Pool
Potential Former Walkway
Potential Former Stair Footing
Potential Former Stone Steps
Potential Flat Landscape Fieldstones
Potential Former Stair
Potential Former Slate Walk
Potential Former Stone Walk
Potential Former Stone Pool
EMH R=100.37
CB R=97.64 VP=96.64 TOP 97.39
MH R=96.39 VP=95.69
DMH R=90.41 FILLED
CB I=89.60
I=86.16 8"RCP
I=89.43 6"CLAY
I=85.33
I=85.43
I=85.53
I=85.63
I=85.73
I=85.83
I=85.93
I=86.03
I=86.13
I=86.23
I=86.33
I=86.43
I=86.53
I=86.63
I=86.73
I=86.83
I=86.93
I=87.03
I=87.13
I=87.23
I=87.33
I=87.43
I=87.53
I=87.63
I=87.73
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I=88.73
I=88.83
I=88.93
I=89.03
I=89.13
I=89.23