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PAL

February 16, 2007

Gary Fortier
Gordon R. Archibald Inc.
200 Main Street
Pawtucket, Rhode Island 02860

Re: Bayside Sewer Project
Warwick Sewers
PAL # 1835.01
Phase I(c) Survey Summary Report

Dear Mr. Fortier:

Enclosed please find a summary report detailing the methodology, results, and recommendations following Phase I(c) archaeological survey of the Bayside Sewer project area in Warwick, Rhode Island. The survey has resulted in the identification of potentially significant Native American and historic period archaeological sites that will require evaluation and for eligibility to the National Register of Historic Places, as the project proceeds.

We are prepared to forward copies of the summary report to the Rhode Island Historical Preservation and Heritage Commission and the Narragansett Indian Tribal Historic Preservation Office upon your authorization.

If you have any questions or require additional information please do not hesitate to contact Deborah C. Cox, President, or me at your convenience.

Sincerely,

Alan Leveillee, RPA
Senior Archaeologist

/dg

Public Archaeology Laboratory

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# Summary Report

Warwick Sewers Bayside Segment
Warwick, Rhode Island

Machine-Assisted Phase I(c) Archaeological Survey

Evaluation and Mitigation Plan

*February 2, 2007*

Submitted to:
**Gordon R. Archibald, Inc.**
200 Main Street
Pawtucket, RI 02860

## Introduction

The Warwick Sewer Authority is planning and coordinating the construction of sewer lines within the Bayside community of the City of Warwick, Rhode Island, situated on northeastern Warwick Neck (Figure 1). The funding for the Warwick Sewer projects includes federal monies. Accordingly, the undertakings are subject to Section 106 of the National Historic Preservation Act of 1966, as amended, and subject to review by the State Historic Preservation Officer (SHPO). The firm of Gordon R. Archibald, Inc, (GRA) contracted with PAL for a cultural resource management survey to consider potential historic properties within the undertaking's Area of Potential Effect (APE), pursuant to requirements under Section 106 of the National Historic Preservation Act.

PAL completed the Phase I(a) Archaeological Assessment survey in March 2006. Areas of high and moderate sensitivity were identified across the Bayside Sewer Segment (Figure 2). PAL recommended a Phase I(c) archaeological survey to sample areas of assigned sensitivity, refine the assigned sensitivity if necessary, and determine the presence/absence and range of features and site types that may exist within the planned sewer easements. PAL conducted the Phase I(c) survey in the fall and early winter of 2006. Because the sewer lines will be constructed beneath existing roadways, the proposed survey included excavations with a flat-bladed backhoe. This summary report details the methodology, results, interpretations of those results, and recommendations for further considerations of identified resources identified during the survey.

## Native American Context

The first Europeans arrived in Warwick between 1638 and 1640. They encountered at least four major subdivisions of the larger Narragansett tribe: Shawomets, Potowomuts, Cowesetts, and Pawtuxets. Each group was led by a sachem. Pomham ruled the Shawomets, Taccoman ruled the Cowesetts and Potowomuts, and Saconoco presided over the Pawtuxets. Native American settlement at the time of European contact focused on near-coastal and coastal confluences of rivers and streams. Relatively large concentrations of dwellings were surrounded by a network of fields

and collecting territories. The importance of waterways in Native landscape perspectives is reflected in their use as territorial and boundary markers as lands were transferred from Native to European possession.

The Native American settlement and subsistence patterns observed by arriving Europeans can be traced archaeologically to at least the Transitional Archaic Period (3800–2800 B.P. [years before present]), when pre-contact populations began to optimize marine resources and focus occupations and exploitative forays within the coastal margin of Narragansett Bay. Occupation as early as 8,000 years ago is suggested by bifurcated projectile points found in Apponaug, at the multi-component Sweet Meadow Brook Site (Fowler 1956). Stark-like and Neville-like points, chronologically diagnostic of the Middle Archaic Period (7000–5500 B.P.), have also been found along western Narragansett Bay. Local Native American land use prior to the Transitional Archaic Period is characterized by relatively limited occupations and activities that focused on inland-based floral and faunal resources along river and stream drainages. Evidence of PaleoIndian (10,000–8500 B.P.) occupation is rare, but interpretation of the limited data indicates a focus on glacial lake shores that once existed in the present-day Wickford Cove area, long since inundated by rising sea levels following glacial retreat.

Excavations in Warwick along Potowomut, and at the Maskerchugg Site, Lambert Farm, Sweet Meadow Brook, Locust Spring, and Greenwich Cove indicate long-term semipermanent, perhaps seasonal, settlements along the near-interior and coast, with significant populations occupying them. Sites include evidence of domestic structures, processing and storage areas, individual and collective burial locations, and lithic processing workshops. Surface finds at numerous locations along the coast (Goddard Park, Nausauket) and along near-interior bodies of water (Gorton Pond, Three Ponds) indicate the intensity of site densities along this section of the Bay. Fishing supplemented hunting, collecting, and planting with particular population concentrations at the falls (Pawtuxet) of rivers during spring fish runs. Inland and coastal ponds were fished in the winter while shell fish beds in sheltered coves could be exploited year-round. Archaeological evidence of campsites, habitations, and burials has been found throughout Warwick, and has been confirmed through survey within other sewer segments.

State site files housed at the Rhode Island Historical Preservation & Heritage Commission (RIHPHC) record numerous Native American archaeological sites within or in immediate proximity to the Bayside sewer segment. These include rockshelter and shoreline sites within the former Rocky Point Amusement Park, RI 1584, on Old Mill Creek, to the north. Late Archaic and Woodland Period cultural materials including projectile points and several pottery fragments were collected from the site. Furthermore, a Middle Archaic radiocarbon date of 7170 ± 205 B.P. was produced from charcoal collected from the site. Native American cultural materials have also been collected from the Elkhound Site (RI 1718) located nearby, on Warwick Neck. Lithic debitage and Late Archaic Squibnocket triangle projectile points were recovered, and radiocarbon analyses on charcoal collected from the site produced Late Woodland dates of 600 ± 80 and 710 ± 130 radiocarbon years B.P. Similar Late Archaic Squibnocket Complex and Woodland Period occupations were recently identified at the Wickes Site situated along the north side of West Shore Road between Oakland Beach Avenue and Warwick Avenue (Leveillee 2001). Native American chipping debris was collected south of the Conimicut West Sewer System project area from the Warner Homestead Site, located west of West Shore Road between Buckeye Brook and Sandy Lane (Waller and Leveillee 2002). Remnants of a seventeenth-century Narragansett Indian burial ground have been rediscovered in the Horse Neck section of the city (Leveillee 2001).

**Historic Context**

Historically, Warwick includes the original Shawomet Purchase lands, executed in January 1642 (43?) between Samuel Gorton and eleven followers and the Narragansett Indian sachem Miantonomi, with the sub-sachem Pomham witnessing the deed. Shortly after the Shawomet Purchase, William Arnold and other Pawtuxet settlers attempted to drive Gorton and his followers from the area, and convinced Pomham to place his lands under the jurisdiction of the Massachusetts Colony. Massachusetts sent troops to seize the cattle of the Gortonists, arrested Gorton and six followers, and took them to Boston for trial on counts of heresy and sedition. After being put in irons and forced to work in various towns throughout the colony for a winter Gorton and his followers were set free, but were banished from all territory under the jurisdiction of the Massachusetts and Plymouth Colonies. Gorton lived briefly on Aquidneck Island, and in 1644–1645 sailed to England to petition Parliament to secure his Shawomet lands. In 1646 Massachusetts was ordered by Parliament to reinstate the Shawomet purchasers their lands and was barred from further attempts to exercise jurisdiction over them. In gratitude Gorton changed the name of the settlement to Warwick, commemorating the supportive Earl of Warwick.

During the time that Gorton was being held prisoner in Massachusetts, the Narragansett Sachem Miantonomi was murdered by rival Mohegans, probably with the support of Massachusetts Colony political factions. When the Narragansetts saw that Gorton was freed by Massachusetts they believed he had powerful allies in England and placed themselves under the "protection of the English," seeking relief against Massachusetts Colony. Pomham however, remained allied with Massachusetts and refused to leave his Shawomet territory, located at today's Warwick Neck. He asked Massachusetts for assistance against the Gortonists and protection from the Narragansett Indians, fearing reprisals from them for his role in the killing of Miantonomi. Massachusetts Colony sent 11 men to help Pomham erect a fort. Today's Paine Street and Fort Street intersection is the reputed site of the fortification, known historically as Pomham's Fort.

In 1665, after constant conflicts between the Shawomets and the Gortonists, the King's Commissioners ordered that Pomham and his people remove themselves. They remained however until more widespread hostilities broke out during the King Philip's War (1675–1676).

In July 1676, a force of approximately 80 Narragansetts, who had joined King Philip's struggle against the English, were camped on Warwick Neck, awaiting coordination for an attack on Newport. A force of 300 Colonial soldiers and Indian auxiliaries marched under the leadership of John Talcott and killed or captured 67 of the Narragansetts. By August of 1676, Philip had been killed and the Native attempts to regain their former holdings had ceased. In the spring of 1677, Gorton and his followers returned to Warwick Neck.

Warwick grew quickly in the years following King Philip's War. Without the threat of Indian attack, settlers moved to the more remote parts of the town. In Buttonwoods, James Greene, Jr., of Potowomut, built a two-room farmhouse, between 1687 and 1710, with a brick-end chimney. The bricks are said to have been made on the premises from Warwick Cove clay and mortared with shells burnt to produce lime (D'Amato 1992). The house still stands as one of the oldest in the city. By 1715, a schoolhouse stood at the southwest corner of West Shore Road and Sandy Lane. The Quakers built a meetinghouse on West Shore Road opposite Warwick Neck Avenue in 1716. Mills were built along the Pawtuxet River and in Apponaug through the late seventeenth century, and Inns and taverns were established along Post Road.

During the Revolutionary War, fortifications were set up at the head of Brush Neck Cove near Tuskatucket Brook on present day West Shore Road (D'Amato 1992:76).

The nineteenth century was an era of industrial expansion throughout much of Warwick, particularly in the western sections, along the Pawtuxet (today's West Warwick). By the late nineteenth century, the Bayside area was sparsely populated with isolated farms (Beers 1870). In the last half of the nineteenth century, Rocky Point became Rhode Island's premiere summer resort and amusement park, following a national trend of beach and coastal leisure time activity. It operated through the nineteenth century and into the last decades of the twentieth, becoming regionally famous as an amusement park and shore dinner hall. The Rocky Point property changed hands several times with new owners adding attractions to the resort and park. By the end of the century, many of Rhode Island's mills would close for two weeks in the summer and provide transportation to Rocky Point to their employees, for what Warwick historian Don D'Amato describes as "the most enjoyable day of the year" (1992:76). In 1883, a fire destroyed the hotel, the shore dinner hall, boathouse, and much of the amusement park. The property changed owners in 1888, and Col. Randall A. Harrington rebuilt the park through the first two decades of the twentieth century. It continued to grow and prosper until September 1938, when the region was devastated by one of the most severe hurricanes of the century. After the storm swept through the state, the *Providence Journal* reported that "Rocky Point, the Mecca of politicians and shore dinner consumers, fell like a house of cards before the southeast fury. The roller coaster was shattered, the great dining hall . . . was a soggy mass of lumber . . . and the oldest and most famous shore resort of the state was no more" (D'Amato 1992:140). The resort was rebuilt through the middle twentieth century, and was again reduced by Hurricane Carol in 1954. It remained a smaller-scale amusement park, dining hall, and local recreational center until its permanent close in the last decades of the twentieth century.

The building of electric trolley lines through Warwick, between 1892 and 1910, opened Warwick to residential development. The automobile then transformed what had been agricultural land and resort communities into suburbs of greater Providence.

The Bayside Sewer Segment is planned within residential neighborhoods east of West Shore Road, south of Mill Cove, and north of Rocky Point. The neighborhoods are characterized as a twentieth-century residential community. The dwellings along the streets in the greater project area include mid- to late-twentieth-century modest contemporary single-family dwellings, apartments, light industry and commercial centers, punctuated by isolated remnant late-nineteenth- and early-twentieth-century farm houses.

As noted in the contexts above, the coast and near-interior of Warwick have been focal points of human activity for more than 5,000 years. It was an area rich in shellfish, attracting Native Americans beginning in the Late Archaic Period and continuing into the seventeenth century. The Sweet Meadow Brook Site, immediately west of the West Shore Road and Long Street junction in Apponaug, was a large multicomponent site, and a core of population, possibly a village, in the Late Woodland Period. The Gallo Collection, from Nausauket Point Beach, contains projectile points from the Laurentian, Susquehanna, and Small Stemmed lithic traditions. Archaeological investigations of sewer-related work in the Horse Neck section of the city resulted in the identification of a seventeenth-century Narragansett burial ground.

In the post-contact period, the greater project area has supported agricultural subsistence farms, residential subdivisions, light industry, and commercial growth as the landscape character shifted from historical farms to suburbs. It was considered likely to encounter archaeological evidence resulting from all of the land uses that occurred here. The principal question will be the integrity of the deposits. It will be a goal of the assessment survey to determine the likely places where disturbances are minimal and recommend further action for those sections that are determined likely to retain good stratigraphic integrity and are likely to have archaeological sites within meaningful contexts.

**Phase I(a) Archaeological Assessment Results**

A walkover and windshield survey of the Bayside Sewer Segment was conducted by PAL staff in March 2006 along each of the 73 streets where sewers are proposed and at the each of the three newly proposed pump stations. The walkover served to familiarize PAL staff with the environmental and existing conditions of the Bayside, Longmeadow, Riverview, and Highland Beach areas where sewer lines will be installed. During the walkover, PAL staff noted environmental features (i.e., the presence and extent of water resources; drainage characteristics; presence of level terraces; degree of disturbances and filling, steepness of slopes, etc.), within the project area. The current physical condition of the area is largely defined by the absence or degree of natural or human disturbances to the landscape; disturbances that reduce the probability for encountering contextually intact archaeological sites.

The walkover of the Bayside Sewer Segment project area demonstrated that the project is planned within predominately residential neighborhoods. The dwellings along side streets in the project area include mid- to late-twentieth-century ranch and colonial style single-family residences, 1920s to 1940s summer cottages converted for year-round occupation near the coastal margins, and isolated late-nineteenth- and early-twentieth-century farmhouses.

Overall, the majority of the project area was assessed as archaeologically sensitive and exhibits environmental conditions (distances to fresh and salt water and wetlands, generally level terrain, well-drained sandy sediments) that correlate with reported pre-contact Native American archaeological sites. Those areas that are the most archaeologically sensitive are those situated within areas of fine sandy outwash along Old Mill Creek and Knowles Brook in the Riverview and Bayside sections of the city, areas adjacent to the Narragansett Bay shoreline, and those areas that border interior freshwater wetlands such as those west of Palmer Avenue. Furthermore, the Bayside and Riverview sections of the city correlate with the area of expected Shawomet Indian occupation during the early to mid-seventeenth century and post-contact period Native American sites could be expected in these areas as well. Areas of post-contact period Euro-American archaeological sensitivity are those that are situated near concentrated late nineteenth/early twentieth century development along Cady, Grove, Longmeadow, and Samuel Gorton avenues.

Less sensitive sections of the Bayside Sewer Segment project area include areas of rocky till and ledge outcrops in the southern limits of the project area in the vicinity of Ogden, Surf, and Brinton avenues. Late-twentieth-century residential development and construction appears to have disturbed areas along Seacrest Avenue, Lighthouse Lane, and Harborview Drive, in the general area of the former Palmer estate. These areas exhibit low archaeological potential, and pre-contact Native American and post-contact period cultural materials that may once have been present in the area have likely been destroyed.

The Bayside Sewer Segment proposes new sewer lines beneath roughly 13 miles of paved Warwick roadways. Figure 2 illustrates the assessed archaeological sensitivity within the Bayside Sewer Segment. PAL recommended machine-assisted Phase I(c) investigations within a representative sample of areas assessed as moderately and highly sensitive to contain archaeological deposits in good contexts.

The Bayside Pump Stations 2 and 3 are situated in areas of previous disturbance. PAL recommended no further archaeological investigations for either of these pump stations. Bayside Pump station 1 and the proposed Cady Avenue to Pender Avenue interceptor are located in an area of high archaeological sensitivity. These areas appear to have been only minimally impacted by previous construction and likely maintain stratigraphic integrity. Consequently, PAL recommended that these areas be subject to Phase I(c) subsurface archaeological testing prior to construction.

**Phase I(c) Machine Trenching**

Figure 3 illustrates selected representative segments within areas of high sensitivity that we targeted for machine-assisted removal of road surfaces, and excavation to below the roadbed/soil interface to search for archaeological materials and/or features. This method has been successfully employed in other sewer segments throughout the city (Warwick Vets, Conimicut West, and Warwick Cove).

A total of 14 machine trenches were dug. In addition, six 50-x-50-cm shovel test pits were hand excavated at the location of the planned Bayside 1 Pump Station, off Mill Cove Road, and two transects that included eight test pits were excavated along a planned easement connecting Cody Avenue and Pender Avenue. Figure 3 illustrates the areas where PAL completed machine-assisted and hand testing in the Bayside Sewer Segment. For the machine testing, a flat-bladed backhoe was used to remove the asphalt and topsoil strata in 100 foot (ft) sections in representative areas along the sewer easements within areas earlier assessed as highly sensitive to contain archaeological deposits. The topsoil/subsoil interface was exposed to determine the presence/absence of features and anomalies. Exposed features were documented in plans and digital images. Each area of testing is discussed below. Cultural materials were collected from units, whenever encountered. Exposed anomalies were further investigated to determine if they represented natural processes or cultural activity. In cases where they were confirmed to be cultural, they were drawn and/or photographed, but not excavated further. Their locations were mapped, they were covered, and remain in situ following filling and re-paving.

Machine trenches 1 and 2 were dug along Tidewater Drive, approximately 100 ft north and south of the Mill Creek crossing; Trench 1 was to the south of the bridge and trench 2 was to the north (Figures 4 and 5). The stratigraphy in both trenches consisted of disturbed soils, characterized as construction fills associated with road, bridge, and utility work along Tidewater Drive. No cultural materials were collected from trenches 1 and 2, and no remnant features were noted in the disturbed contexts.

Machine Trench 3 was excavated on Height Avenue (see Figure 3). The northern half of the exposed trench was disturbed by former utility trenching. Evidence of a surface fire of probable Native American origins was noted in the southern section of the trench, in front of house # 32 on Height Avenue. The remnant feature was noted within in-tact $B_1$ subsoil, beneath the road fill stratum. One fragment of a bifacially worked quartz tool and a piece of quartz debitage (shatter) were collected from the trench. Figure 6 illustrates the exposed subsoil in Machine Trench 3.

Machine Trench 4 was dug on the east side of Friendship Avenue in front house numbers 16 to 8. Topsoils had been removed when the street was being paved, and fill associated with the roadwork extended to depth of approximately 43 centimeters (cm) below the road surface. $B_1$ subsoils were intact beneath the road fill, and extended to depth of approximately 70 cm in the trench. The homeowner of # 17 Friendship Avenue talked with PAL staff during the trenching and noted that when his house was being built, "many arrowheads were found in the top 2 feet of soil." During our excavation of Machine Trench 4, eight pieces of chipping debris (quartz, argillite, rhyolite) and two small calcined bone fragments were collected. No truncated features wee observed in the exposed surface of the $B_1$ subsoils (Figure 7).

Machine Trench 5 was dug from south to north on Posner Avenue, beginning approximately 100 ft from the Posner Avenue and Riverview intersection (see Figure 3). The asphalt and road fill extend to a depth of 15 cm, where an intact plow zone topsoil stratum was noted. The plow zone extended to 30 cm, and $B_1$ subsoils extended to 55 cm, the vertical extent of the unit. Twenty-nine pieces of Native American cultural material including quartz, quartzite, and rhyolite chipping debris, a quartz core, and two fragments of calcined mammal bone (see Appendix A) were collected in general association with a cluster of several features in the north end of the trench (Figures 8 and 9).

Machine Trenches 6 and 7 were excavated along segments of River Vue Road, between a small brook into Mill Cove and the coastal edge (see Figure 3). Intact $B_1$ subsoils exist, in both trenches, below the roadbed fill. No cultural materials were recovered from Trench 6, but several faint remnants of small truncated features were noted during trenching (Figure 10). Three artifacts were recovered from Machine Trench 7 including a fragment of an argillite pestle, a granitic hammerstone, and a possible shaft abrader. These artifacts were recovered in association with several truncated circular features and post molds (Figure 11).

Machine Trenches 8 and 9 were dug on Mill Cove Road; Trench 8 was placed on the west bank of a small brook and Trench 9 was located centrally between Wentworth Avenue and the Bay shoreline (see Figure 3). In both trenches 8 and 9, topsoils and subsoils were intact beneath the road surface and roadbed fill level. Loam extended between 40 and 65 cm, where $B_1$ subsoils were noted, which then extended to a depth of 95 cm where water was encountered. Twenty-one pieces of quartz chipping debris and a quartz chopper were recovered from Trench 8, in association with nine remnant features in the western half of the unit (Figures 12 and 13). No features were observed in Machine Trench 9 and no cultural materials were recovered. The contrasting results between trenches 8 and 9, may suggest that Native peoples were concentrating their activity in closer proximity to the freshwater sources at this location, than they were to the east, closer to the Bay.

Machine Trench 10 was excavated along Lippitt Avenue, to the east of the small brook into Mill Cove that passes beneath the road. While there was evidence of a former utility trench that occupied an estimated 75 percent of the machine trench, in-tact pre-contact Native American activity in the area is indicated by several remnant features that have been truncated by road construction and were exposed in $B_1$ subsoils during our trenching. The features within Machine Trench 10 include shell deposits, post molds, burnt rock concentrations and a probable refuse pit (Figure 14). Three pieces of lithic shatter and 24 shell fragment samples were collected from features in Machine Trench 10.

Machine Trenches 11 and 12 were excavated along Whipple Avenue; Trench 11 on the east side of a small stream and Trench 12 on the west side of the stream (see Figure 3). The soils in Trench 11 included a disturbed fill zone from beneath the road surface to depths of approximately 70 cm, beneath which a buried wet lens of A soils extended to 125 cm where gray clay and sand were encountered (Figure 15). No cultural materials were recovered from the soils in Trench 11.

The soils in Machine Trench 12 included zones of rocky disturbed fills and smaller pockets of remnant buried topoils where truncated soil anomalies and Native American cultural materials were recovered. Two small pockets of shell were noted; 16 pieces of quartz, one quartz biface fragment, and one piece of aboriginal ceramic were all collected from the remnant intact A soils in the trench (Figure 16).

Machine Trench 13 was dug on Cady Avenue, and Machine Trench 14 was dug on Van Zandt Avenue (see Figure 3). Soils across both trenches were observed to be disturbed and mixed fills over rocky and gravelly subsoils. Some subsoils in the eastern extent along Van Zandt may be old storm deposits of marine sand. No cultural materials were recovered from Trenches 13 and 14, and no features were observed in exposed subsoils.

Shovel test pits were hand excavated within the Bayside Sewer segment in areas other than beneath existing pavement; these included the planned location of the Bayside Pump Station # 1, off Mill Cove Road, and along an easement that will traverse residential properties connecting Cady Avenue and Pender Avenue (see Figure 3).

Two test pits transects (A and B) were dug along the Cady Avenue and Pender Avenue easement (Figure 17). A high density of post-contact cultural materials was recovered from the side and back yards of the house at 76 Cady Avenue. A lens of late-nineteenth- and early-twentieth-century domestic refuse extended between 30 and 110 cm in test pit TA-04, from which 103 artifacts were collected. The assemblage from this and adjacent pit TA-03 included a large percentage of toys and toy fragments along with jewelry, sewing implements (thimble, scissors, fasteners), ceramics, glass, and other household goods (Appendix A).

The location of the planned Bayside Pump Station was investigated through the excavation of six test pits in two generally parallel transects perpendicular to Mill Cove Road, east (Transect D) and west (Transect C) of a perc test location (B-66) (Figure 18). Soil profiles indicate that plowing and some landscaping have taken place in the area surrounding the planned substation location. Both Native American as well as nineteenth- and twentieth-century cultural materials were collected from the test pits in the substation construction zone. Two projectile points, chipping debris, and shell fragments were recovered from plow zone and subsoil strata in pits TC-01 and TC-03, and

from the landscaped topsoils in TD-01. Most of the Native materials were concentrated in and around TC-03 (see Appendix A).

No archaeological deposits and/or cultural features in meaningful contexts were in evidence in machine trenches dug along Tidewater Drive, and no further archeological investigations are recommended for that area. Similarly, with the exception of River Vue Road, the archaeological deposits do no appear to extend east from the brook between Wentworth Avenue and the shore of the Bay. Accordingly we do not recommend further work in sewer construction easements along Whipple Avenue, Lippitt Avenue, Mill Cove Road, and Bolster Avenue, east of Wentworth Avenue. No further investigations are recommended along Van Zandt Avenue, Pender Avenue, Burns Avenue, Cady Avenue, or Wentworth Avenue. Based on previous assessment survey, PAL recommends no further archaeological investigations along planned easements west of Tidewater Drive within the Bayside Sewer Contract 1 Segment. In all of these areas recommended for no evaluation or mitigation archeological survey, PAL recommends that protocols for addressing unanticipated archaeological finds be developed as an element of the construction plans. Such plans have been developed and integrated within other segments of Warwick Sewers Authority projects.

**Interpretations and Recommendations for Further Archeological Survey within the Bayside Contract 1 Segment**

The results of machine-assisted and hand testing within the Bayside Sewer Segment have resulted in the identification of archaeological deposits that reflect Native American occupation and activity along the streams and Narragansett Bay coastal zone within the project area. The brook that drains the central sections of the segment, from south to north into Mill Cove appears to have been a focal point for Native American activity as reflected by stone tools, chipping debris, and shell and bone fragments, all collected in proximity to features created by processing foods and subsequent refuse during and following occupation along the slightly elevated banks of the brook. Collection of shellfish likely occurred along the shore and mudflats in today's Mill Cove and along the shoreline that borders the project area to the east. Parsonage Brook, Buckeye Brook, and Old Mill Creek, all just east of this sewer segment, were more substantial than the Mill Cove Brook, relative to length, flow volume, and resource productivity, and were no doubt also frequently occupied during the Late Archaic through the Woodland periods.

The results of machine-assisted trenching, and in particular Machine Trenches 10 (Lippitt Ave), 5 (Posner Ave), 7 (River Vue Ave), 8 (Mill Cove Rd), and 12 (Whipple Ave) demonstrate that planned sewer line construction along the slightly elevated banks of the Mill Cove Brook could impact material culture deposits and in situ Native American features that contain potentially significant data. Collectively, the archaeology remains along this small brook are designated as the Mill Cove Brook Site. Archaeological evaluation and, if necessary, mitigation excavations should be conducted along the roads that flank this minor watercourse.

The Mill Cove Brook Site includes the location of the planned Bayside Pump Station, off Mill Cove Road, where two projectile points, chipping debris, and bone and shell fragments were recovered from test pits TC-02 and TC-03 (Figure 18). Further excavations are recommended to evaluate this concentration of materials along the east-central segment of the brook.

The Mill Cove Brook Site is a significant cultural resource in terms of National Register criteria in that it has yielded information important to prehistory, and it has potential to add further data relative to dates of occupation, target floral and faunal resources, and specifics of settlement and site types within the larger Greenwich Bay archaeological context. Any undiscovered elements of the site within the planned sewer easement should be documented, evaluated, and if necessary excavated, as a mitigation strategy of the undertaking.

The concentration of nineteenth- and twentieth-century domestic materials recovered from test pit TA-04 along Easement 1B behind the house at 76 Cady Avenue should be further investigated and evaluated. The high density of child-related materials may represent a potentially significant deposit. The assemblage of this deposit could provide comparative and/or contrasting data relative to ongoing research being conducted by Rhode Island College archaeologists on the site and material remains from the Rhode Island Children's Home Site.

**Proposed Evaluation and Mitigation Methods**

The remainder of this document is the recommended plan to further identify, document, evaluate, and recover significant data from as yet undiscovered features associated with the Native American occupation of the Mill Cove Brook Site. It will include recommendations for further systematic machine trenching and exposure of subsoils to determine the extent to which the site exists and extends along the planned construction easements in proximity to Mill Cove Brook. And it will detail the research design for excavation of exposed features to document their morphology, determine their function, sample and analyze their contents, and interpret the behavior that resulted in their origins.

Following saw cutting of asphalt and removal of the road and gravel bed, a flat-bladed backhoe or gradall will be used to open additional machine trenches and to determine the presence/absence of features beneath the following streets:

- The length of Posner Avenue from Friendship Street to River View Road;
- The length of River Vue Road from Mill Cove Brook west to Posner Avenue and from Mill Cove Brook east for the length of the easement to the shore;
- Mill Cove Road from the Mill Cove Brook west for 200 ft and from Mill Cove Brook east to Wentworth Avenue;
- Lippitt Avenue west of Mill Cove Brook for 100 ft and east of Mill Cove Brook to Wentworth Avenue;
- Whipple Avenue from Mill Cove Brook west for 300' and east of Mill Cove Brook for 100 ft.

In each machine trench, the subsoils will be exposed to determine the presence/absence of features and anomalies. Any exposed features or suspected features will be further investigated by hand to verify if they are cultural. Confirmed features will be documented in plans and digital photography. They will be inventoried by shape, color, size in plan, and content. In cases where

multiple similar features are present, a representative sample of the feature type will be selected for further excavation. Excavated features will be sectioned to provide plans and profiles, and to collect chronological and/or culturally diagnostic data.

Hand testing including shovel test pits and 1-x-1-m excavation units will be conducted at the planned construction location of the Bayside Pump Station #1, and along Easement 1B, behind the house at 76 Cady Avenue. We estimate that 13 shovel test pits and two 1-x-1-m excavation units will be required at the pump station, and one hand excavation unit measuring 2-x-2 m (possibly broken into four 1-x-1-m units depending upon the spatial extent of the feature) will be utilized to investigate and evaluate material culture deposits along Easement 1B.

Excavations will be coordinated with RIHPHC and NITHPO. Any features that are considered potential ceremonial or burial-related deposits will be identified as such and in those cases, excavation will be suspended following consultation with RIHPHC and NITHPO.

**Laboratory Processing and Analyses**

All cultural materials and information recovered from the project area during the field investigations will be returned to the PAL facility for laboratory processing and analyses. These activities will include:

- cleaning, identification, and cataloging of any recovered cultural materials;
- analysis of spatial distributions of cultural materials;
- map and graphics production.

Appropriate conservation measures of artifacts will be taken when necessary. These conservation measures will be in accordance with the RIHPHC's *Standards for Storage and Custody of Archaeological Collections* (RIHPHC 1986).

**Work Products**

An analytical and technical report for the Bayside Sewer Segment will be prepared after laboratory processing and analyses are completed. The report will detail the results and interpretations of the evaluation/mitigation of specific features, as they relate to the significance of the Mill Cove Brook Site, and will conclude with recommended protocols to be followed relative to unanticipated archaeological discoveries during construction.

**Project Schedule**

PAL will submit this scope of work to RIHPHC with a request to expand the duration and parameters of the existing archaeological permit. Upon receipt of the permit, fieldwork will be scheduled to begin within two weeks, dependant on weather conditions. The fieldwork will be completed within four weeks. A technical report will be submitted within 45 days after the completion of fieldwork.

**Project Personnel**

The archaeological investigations will be overseen by a principal investigator. The fieldwork will be supervised by a project archaeologist. All PAL project personnel meet the qualifications set by the National Park Service (36 CFR Part 66, Appendix C). Project archaeologists have at least two years of supervisory experience and two years of field experience in New England.

**Cost**

An effort and cost proposal will be generated following review and comment of this report.

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**Figure 1. Location of the Bayside Sewers Segment, Warwick, RI.**

**Figure 2. Assessed archaeological sensitivity within the Bayside Sewer Segment.**

**Figure 3. Locations of Phase I(c) archeological investigations within the Bayside Sewer Segment.**

**Figure 4. Trench 1 on Tidewater Drive.**

**Figure 5. Excavating Trench 2 on Tidewater Drive.**

**Figure 6. Remnant feature (foreground) in Machine Trench 3 on Height Avenue.**

**Figure 7. Machine Trench 4 on Friendship Avenue.**

**Figure 8. Feature (foreground) in Trench 5.**

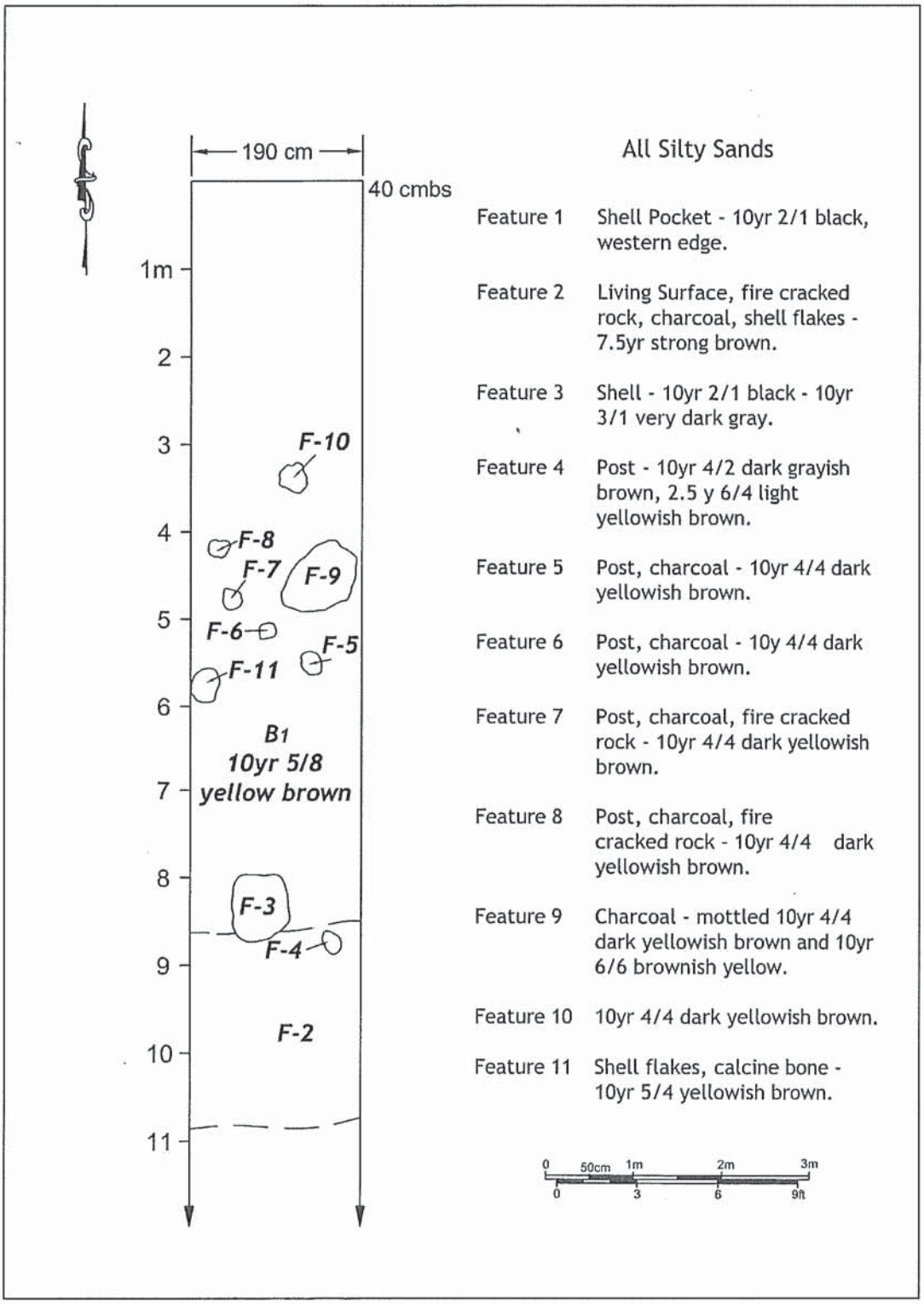


**Figure 9. Plan of features in Trench 5.**

**Figure 10. Remnant feature (foreground) in Machine Trench 6.**

**Figure 11. Features in Machine Trench 7.**

**Figure 12. Features (foreground) in Machine Trench 8 on Mill Cove Road.**

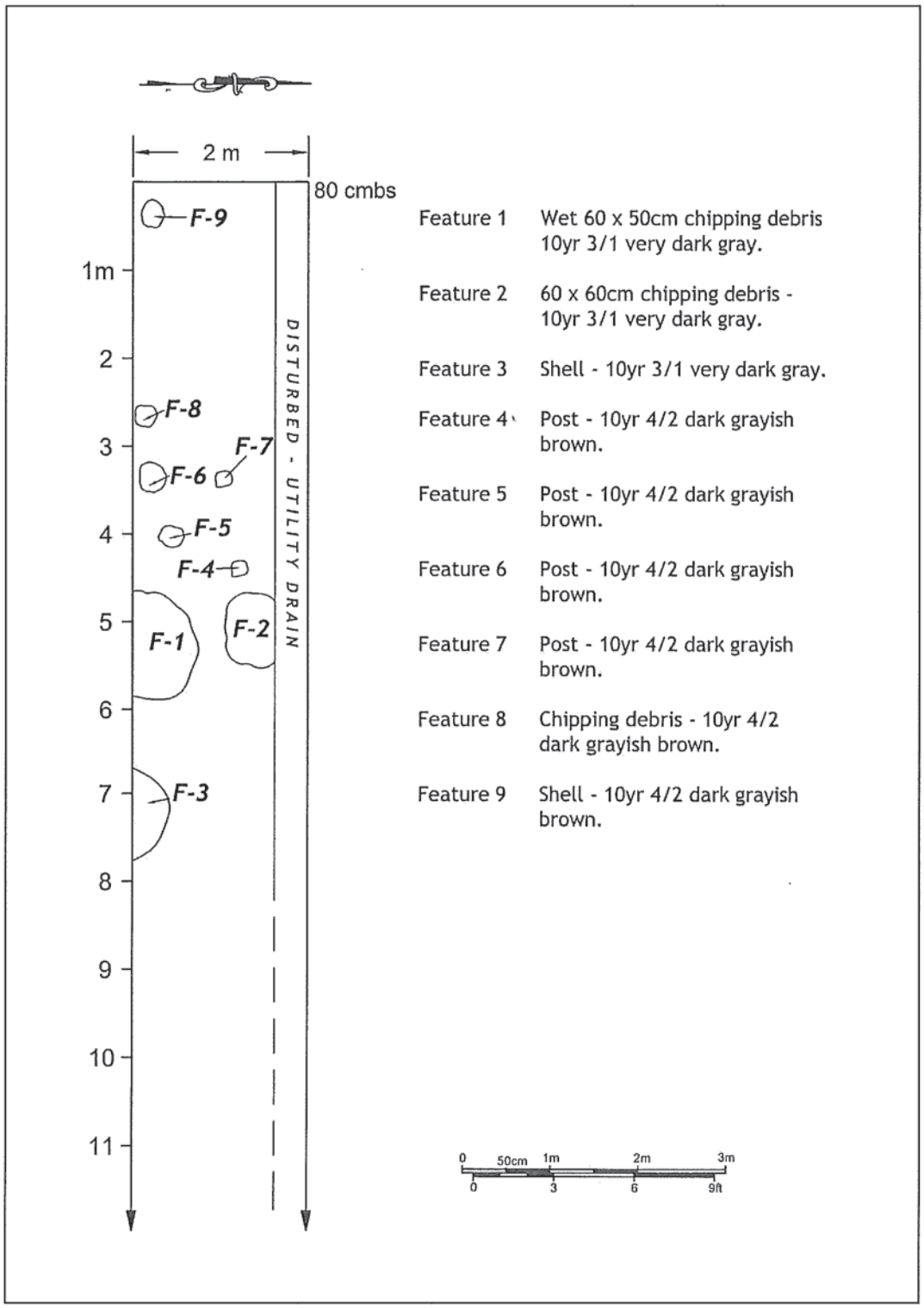


**Figure 13. Sketch plan of features clustered in west half of Machine Trench 8.**

**Figure 14. Features in Machine Trench 10 on Lippitt Avenue.**

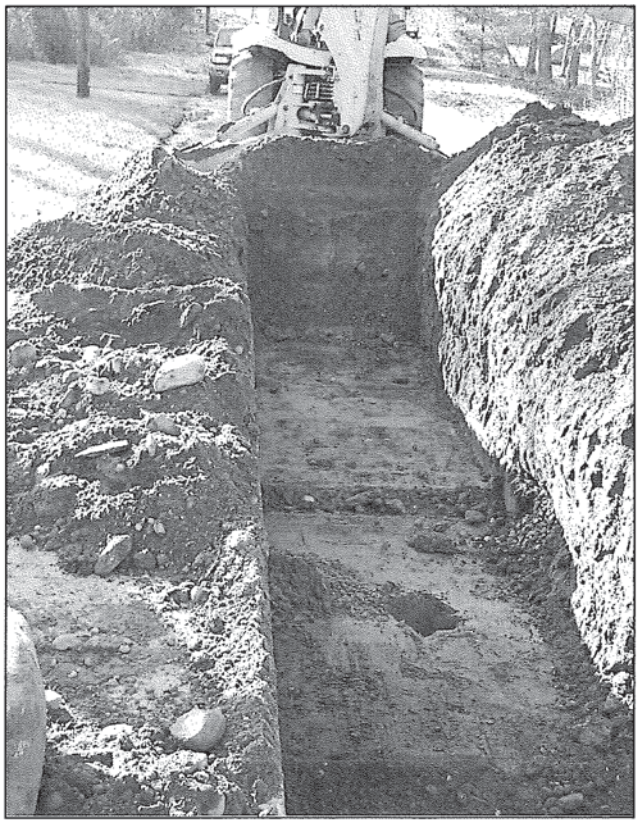

**Figure 15. Soil conditions in Machine Trench 11.**

**Figure 16. Remnant features in Machine Trench 12.**

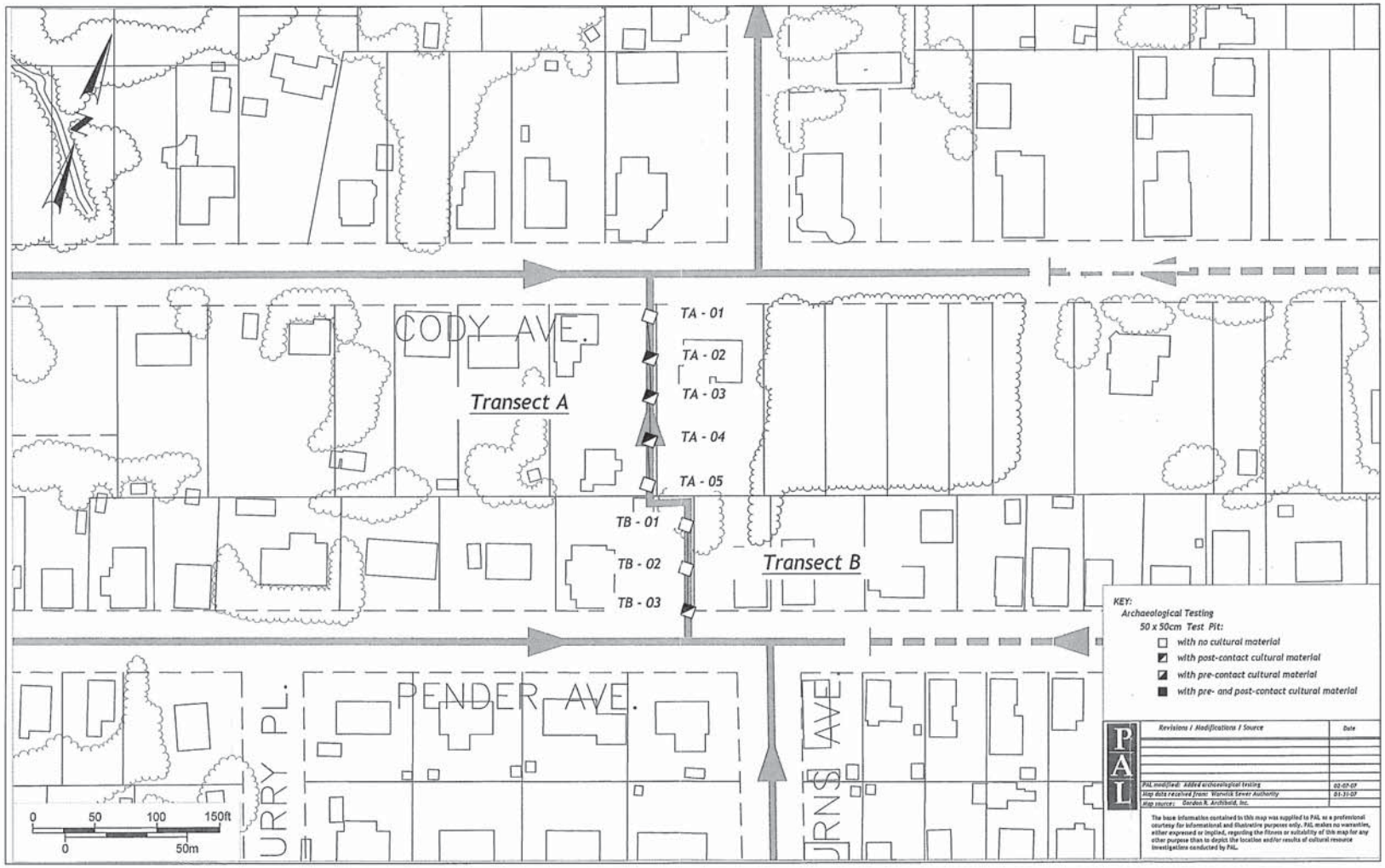


**Figure 17. Archaeological testing along the Cady Avenue to Pender Avenue cross-country easement.**

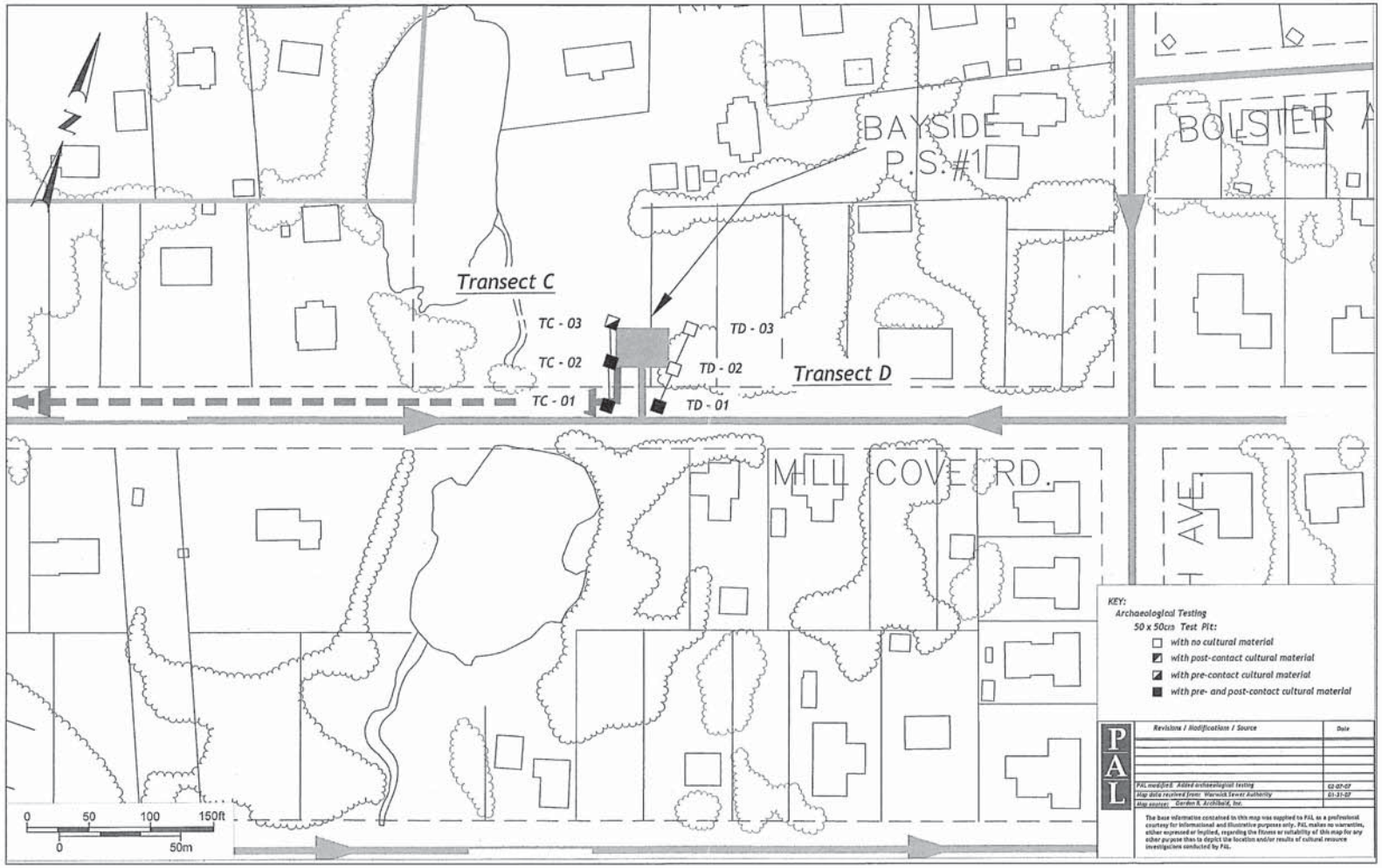


**Figure 18. Archaeological Testing at the location of the planned Bayside Pump Station #1.**