

INTERPRETATION OF AERIAL PHOTOGRAPHS 1934 to 1980 Newhall Street Area, Hamden, Connecticut

This description of the Newhall area was prepared solely from an examination of aerial or other applicable photographs from 1934 to 1980. Its purpose is to serve as an independent source of detailed, specific, historical information on the physical properties of this area against which other, potentially less accurate information (typically documentary or originally anecdotal) can be compared. There are few physical changes in this area after 1980 and they are well known so later photos were not examined. Figures are attached.

Most of the aeriels were taken vertically and stereo pairs were available allowing the retrieval of topographic information rather than just geographic and tonal. Most of the aeriels were taken at medium altitudes and are typically 9X9-inch contact prints that provide good resolution of the area. Supplementing the vertical stereo pairs are five oblique photos, two (1939 and 1957) are aeriels looking northward from New Haven that show the area of interest in the background and are found in the book "Cities From the Sky: An Aerial Portrait of America" by Thomas J. Campanella (Princeton Architectural Press, New York. 2001). The other three oblique photos were taken in 1939 and 1946 from Mill Rock looking downward towards the south and although taken from the ground essentially provide a close-up, low altitude (elev. 150 or so) oblique aerial view of Mill Rock Park and Rochford Park area. Details of the photos and Figures they appear on are tabulated below.

<u>Date</u>	<u>Attitude</u>	<u>Approx. scale of original</u>	<u>Figures</u>
April 26, 1934	Vertical	1" = 1200'	3, 16
1939	2 Obliques	1" = ~80-100' (in middle ground)	4
April 23, 1939	Oblique	1" = ~600' (in area of interest)	5
1943 or 44	Vertical	1" = 300'	6
1946	Oblique	1" = ~80-100' (in middle ground)	7
April 21, 1949	Vertical	1" = 1417'	8, 17
August 2, 1951	Vertical	1" = 1667'	9
March 23, 1957	Oblique	1" = ~600' (in area of interest)	10
October 29, 1959	Vertical	1" = 5000'	11
July 6, 1963	Vertical	1" = 1667'	12
April 1, 1964	Vertical	1" = 250'	13, 14
April 25, 1965	Vertical	1" = 1500'	18
March 1, 1970	Vertical	1" = 1000'	19
March 27, 1975	Vertical	1" = 1000'	15, 20
April 6, 1980	Vertical	1" = 1000'	21

Figure 1 is key to block identification and other site features.

Figure 2 contains enlargements of the 1892 and 1914 topographic maps.

Figures 3 through 15 detail the entire study area.

Figures 15 to 21 focus on changes at the Hamden Middle school area.

Figure 22 summarizes the progression of filling in the Hamden Middle School area and includes enlargements of the 1947 (photographed 1943) and 1954 (photographed 1949) topographic maps.

Also examined were topographic maps dated 1892, 1914, 1947, and 1954. The 1892 and 1914 maps are 15' quadrangles with a scale of 1:62,500 and a contour interval of 20 feet. These maps were made from manual surveys done in 1889-90, the 1914 map has updated cultural features. Because of the scale and contour interval, they lack the detail necessary to confirm the presence of topography discussed in contemporary documents. The 1947 and 1954 topographic maps are 7.5' quadrangles with much better resolution than the earlier maps (1:31,680, 10-foot contour interval). These maps were made photogrammetrically from aerial photographs taken in 1943 and 1949, respectively (see Figure 17), and therefore show details consistent with contemporary aerial photographs (especially 1949, those we examined were likely the ones used to generate the topo maps).

For each block, the following summary presents the physical changes as they appear throughout this period of time. Figure 1 includes a key to the block identifications.

Block G
Hamden Middle School/Community Center

1934

The original school is situated near the intersection of Morse and Newhall on the apex of a rectangular patch of high ground a few feet higher than Newhall. To the north of the school the high ground is undeveloped and covered by trees and it slopes down to the north and west. North of this high ground, west of Newhall, and south of Block T are splotchy, mottled areas of fill with a sinuous drainage channel separating them. The channel originates on the east side of Newhall and connects the wetland at Blocks C, D, and F with large wetland west of old school. Based on the present elevation of the wetland drainage to the north (38 feet), the water surface elevation of the drainage channel and wetland is inferred to be the same, although the bottom of the wetland may be deeper.

There are higher and lower mottled terraces of fill that have generally flat upper surfaces and steep embankments where they terminate in the wetlands. The higher terraces abut and have about the same surface elevation as Newhall Street and the northeastern fill lobe is separated from the residential parcels at Block T by a swale. Newhall Street appears to predate the filling and apparently has the same elevation as today (44 to 45 feet). Consequently, because the higher terraces have the same elevation as the road and the water surface elevation is inferred to be 38 feet, the higher fill terraces are at least about 6 to 7 feet thick. The lower, darker area of fill lies to the west of both the higher fill terraces and the high ground surrounding the old school. Its surface appears to be only about one third as high above the wetland as the higher fill terraces, so is inferred to have an elevation of about 40 feet and a minimum thickness of about 2 feet. For all of these fill lobes, additional thicknesses may lie below the water level.

The 1924 sewer pipe on the west side of Block T is visible crossing the west end of the sinuous channel and overlies the lower fill terrace and a portion of the higher fill terrace. Where it's southern end is not exposed, it is covered by a low mound of fill that joins a collinear disturbed area along the west flank of the high ground west of the old school.

The wetland to the west of the filling is surrounded on the north, west, and south sides by undisturbed and wooded slopes. The wetland is contiguous with the approximately 300-

foot-wide, north-trending, linear wetland west of Block T. The southern end of this wetland, and thus the water surface in the (former) wetland on the school parcel, is at about elevation 38. The surrounding north, west, and south slopes have the same upper elevation as today (60+/- feet), so the depression they enclose is at least 22 feet deep. The slopes at the extreme northwest corner of the wetland are very steep and show evidence of erosion from small gullies draining the field to the north. The slopes on the west and south sides have swales that lead up into Block U and the homes along Morse (Block A). From the south slope a low-lying peninsula comes to a point near the center of the unfilled wetland.

April 23, 1939 to 1946

The 1939 and 1946 oblique photographs taken from Mill Rock just shows the edge of the area of fill across Newhall from Rochford Field, though there are no apparent changes. The better quality 1946 image shows a shack on the fill area. The wooded hill north of the old school is also visible.

April 21, 1949

By this date the high ground north of the school is level and grassy with large trees bordering the east, north and part of the west side of this feature, demarcating the edge of original high terrain.

The filling within the eastern half of the HMS parcel is now a larger, two-tiered fill lobe extending westward from Newhall on the east and directly bordering the high ground around the school, large swale west of the school, 259 to 271 Morse, and 596 Newhall and 20 Harris to the north. The upper, larger tier of fill (elev. about 50-55, mostly higher than Newhall, thickness at least 12-17 feet) is multi-shaded and splotchy, hummocky, devoid of vegetation, and exhibits numerous striations, which are interpreted as roads, paths, and/or bulldozer scrapes, radiating out to the raised western edge. The raised edge is essentially a circular arc that extends from its northeastern corner southwestward past the wetland west of Block T (but leaving a swale between the fill and homes within Block T) and curving southward to 271 Morse. A road enters this upper tier from Newhall just north of the slightly higher school terrain. The surface features are slightly degraded, indicating an absence of very recent activity. To the east, the upper fill tier slopes down to a strip along Newhall with about the same elevation as the adjacent road (elev. 45, about the same as the higher 1934 lobe). The upper tier of fill completely overlies the dark lower fill area seen in the 1934 photos. The smaller, lower tier of fill is visible in 1949 is located to the west of the upper tier and extends farther into the wetland to cover the low peninsula seen extending north from the south slope in 1934. This lower lobe also has a generally flat, multi-shaded surface with an elevation of about 46-48 (minimum thickness of 8-10 feet) and a raised edge with numerous hummocky piles of material. The features are sharper than those on the upper tier, suggesting very recent activity, and a distinct road leads from around the northeastern corner of 259 Morse westward down to the lower fill tier.

The northwestern corner of the wetland appears to have undergone some filling from erosion of soils and/or from disposal leading from the field to the north. Low-lying vegetation has grown on the soil/fill within the NW corner of the wetland.

August 2, 1951

The high ground with the original school and along Morse appear much the same as in 1949, with the large trees demarcating the high ground fully leafed out. The northern addition to the school is complete.

The upper fill level shows little change, the surface markings have faded more indicating a continued absence of activity. However the lower fill tier has fresh radiating striations and more hummocky piles along its edge. The fill lobe has been further expanded westward into the wetland, which is still connected to the wetland leading out to the north.

March 23, 1957

This single oblique photograph shows the new school, upper fill lobe (with mottled surface), wetland and surrounding slopes, and other features consistent with the description given for 1959 below.

October 29, 1959

The Hamden Middle School construction is complete and most of the upper tier of the fill lobe has been graded (including basketball and tennis courts) and generally has an even, dark gray tone (mowed grass). Visible are a dark spot southeast of the tennis courts and light areas on the north side near the north-trending wetland and on the south side north of the strip of high ground along Morse. The dark spot suggests a depression while the light areas suggest recent disturbance. Indeed the northern edge of the upper fill lobe has been modified apparently because of storm water drainage pipes that now discharge to the north-trending wetland. The swale separating Block T from the HMS site is filled and covered by an unpaved road (Mill Rock Road Extension).

The road to the lower, western fill lobe, which is larger than in 1951 and covered with low, shrubby vegetation, appears to be disused. These features suggest no recent filling activity. There is still a triangular remnant of the original western wetland that connects to the wetland west of Block T via a narrow channel along the northern edge of the upper, expanded fill lobe. The northwestern portion of the original high ground around the former school (community center) was cut back to accommodate the southern wing of the new school and the tall trees were removed, leaving a grassy, triangular high area that merges with the strip along Morse to its west.

July 6, 1963

The parcel appears similar to 1959 except that the upper fill lobe has been expanded and shows features (hummocks and disturbed areas) suggesting continued expansion westward over the lower fill lobe and into the remnant wetland. A light-toned, unpaved path now extends westward from Mill Rock Road Extension along the northern border of the upper fill lobe and into the undeveloped field north of the wetland, this appears to be the sewer pipeline right-of-way from the SNET area to the west. The dark spot visible in 1959 now appears as an elliptical depression.

April 1, 1964

These very low altitude photos show details of the school parcel, especially the continuing, westward expansion of the upper fill lobe. The disturbance along the northern edge of the upper fill lobe has been graded and numerous dark and light hummocky piles of fine-grained material and coarse-grained debris line the northwestern and western edges of the fill lobe. Numerous striations radiate outward to the upper fill's edge while the lower fill lobe appears overgrown and inactive. The remnant wetland to the northwest is correspondingly smaller. The dark elliptical depression southeast of the tennis courts persists.

1965

The site is similar to 1964; the upper fill lobe shows additional expansion and the continued presence of numerous hummocky piles along the northwestern edge and surface striations from grading.

March 1, 1970

The site is similar to 1965; the upper fill lobe shows additional expansion and the continued presence of numerous hummocky piles along its northwestern edge and surface striations from grading.

March 27, 1975

The site is similar to 1970; showing the continued expansion and modification of the upper fill area west of the school. The northern edge of the fill lobe has merged with most of the natural slope bounding the former wetland to the north. The lower fill lobe to the west has been covered by fresh material. New fill has also encroached up to the toe of the western and southern natural slopes, some of which are denuded. As a result of this expansion of the fill, only a small remnant of the former low-lying wetland and natural slopes are visible at the northwest corner of the site. In addition, the original tennis and basketball courts west of the school are gone and the entire surface of the fill area west of the school is a few feet lower than before. New courts with a different orientation are present in this lower area, consistent with those there today.

April 6, 1980

By 1980 the filling and grading of the western portion of this parcel is complete and the athletic fields present today are visible with their surface grade of elevation 50 to 53. Based on an original inferred water elevation of 38 feet in the former wetland, the fill thickness over the wetland is at least 12 to 15 feet, although additional fill thickness may lie below the former water level. A dark, water-filled depression on top of the new fill is visible covering part of the northwestern ball field. Remnants of the upper parts of the former natural slopes bordering the site have been denuded and graded obliterating the former topography and leaving a bare, two to six-foot-high scarp around the northern, western, and southern field perimeter.

Block A
Homes Along the North Side of Morse Street

There are 15 homes (numbers 259-321) along the north side of Morse that border the south side of the municipal school parcel. The 1934 through 1975 aerial photos show that these homes bordered the natural, wooded slope leading down to the wetland on the western half of the municipal school parcel before that area was filled (see Block G). Fences and shrubs along their common northern boundary are visible in the photos, indicating an absence of encroachment onto these private parcels by the adjacent filling. Swales in the slope generally continue up into the home parcels and are still visible in the present day topography. The level, terraced backyards have stepped elevations relative to each other suggesting some grading/filling of these parcels before 1934.

This activity is most clearly visible in the high-resolution 1964 aerials. Nearly all of these lots are level and the central ones that border local depressions (holes) within the natural hilly, wooded terrain around the wetland to the north show steep fill slopes dropping down into these holes. These fill slopes are typically associated with scattered debris. Filling in these lots clearly predates and is physically unrelated to the filling of the municipal parcel to the north. The natural wooded slope and steep cut made for the road leading down to the wetland separates these parcels from the ever expanding school parcel fill lobe.

The 1980 aerials show that when filling to the north was completed, a denuded, six-foot-high scarp (down to the athletic fields) was created along the northern boundary of these properties but not encroaching onto them. The school filling evidently abuts the north side of the residential fill areas by this time and remains this way to the present.

Block B – Rochford Field

In 1934, the aerial photographs show filling throughout the parcel except for a dark channel crossing east-west through the north-central part. This apparently water-filled (black) channel connects partially filled wetland area to the east at Blocks C, D, and F with the sinuous channel crossing the fill areas within the northeast part of the Middle school parcel across Newhall. Most of the filling is still slightly below the adjacent road levels, a low, light-toned slope is visible along the east side of Newhall, suggesting that this road is underlain by fill placed across the wetland before the creation of the fill lobes visible in 1934. The fill lobe present along the south side of unpaved Mill Rock Road appears slightly higher than this road. Thus the inferred historic elevations of the tops of these fill lobes are about 43 to 46 feet. If the water elevation is the same as within the former wetland west of Newhall (about 38 feet), then these fill lobes are at least 5 to 8 feet thick near the center of the wetland. At the eastern part of the southern end of the block, an unpaved path now occupied by Newbury Street is visible cutting across the toe of higher ground to the south indicating that filling pinches out in that area. However, filling does appear to continue to the south of the western part of Newbury Street (see Block E).

The 1939 oblique aerial photo and the oblique photos taken from Mill Rock show the field completely filled. These and all subsequent aerials show this parcel fully developed with two ball fields and topography consistent with today's appearance.

Blocks C, D, F, R and S

The 1934 aerial photos shows this area as mostly wetland undergoing filling from the northwest, southwest, and south. No homes are present and Winchester is an unpaved path that does not extend north past what will be the western extension of Bryden. A black area interpreted to be water occupies the central and northwestern part of the blocks and merges with a channel leading westward through what will be Rochford Field (see Block B). Based on relationships to the west and the drainage pattern, the water is inferred to be at about elevation 38.

Land just west of Wadsworth (an unpaved road) is mostly dark gray wetland vegetation with dome ditching that grades into the central black area, and thus has elevations sloping up from 38 feet to less than about 45. Wadsworth itself consists of a level path between low escarpments on the east (cut into higher ground) and on the west (fill spoils deposited in the lower wetlands). It appears to be at the same elevation as it is today (50 to 54 feet).

Gray, sharp-edged lobes of fill occupy the southern and western sides of Block F and terminate at Morse, Winchester, and Wadsworth. These fill lobes are at or slightly above the adjacent road elevations and post-date the roads. Given that their upper surfaces appear to be at about the same elevation as today (48 to 51 feet), and assuming that the wetland under them sloped upward toward Morse to about elevation 48, then these fill lobes are about 0 to 11 feet thick.

A white fill lobe extends southward from Mill Rock Road into the northwestern part of the future Mill Rock Park. Based on similar relationships to the fill lobes immediately to the west at Block B, this fill lobe is inferred to be at elevation 46 and at least about 5 to 8 feet thick.

No filling is apparent immediately west of Winchester (Block E), east of Wadsworth or south of Morse (Blocks R and S), where there are fields, homes, and wooded areas with the same topography as today. Another unpaved path extends northeastward from the intersection of Winchester and Morse into the water. This path and Winchester are shown on the 1892 and 1914 topographic maps as extending all the way north to Mill Rock Road, however their northern portions were underwater on the early spring date of the 1934 aerials.

The 1939 oblique aerial photo shows the future residential parcels as vacant land, indicating that filling is largely complete, but not much detail can be discerned. This aerial shows the Mill Rock Park parcel as very light-toned, suggesting filling and disturbance rather than wetland/swamps. The 1939 oblique taken from the top of Mill Rock shows an active fill area within the future Bryden Terrace area, with a smoke plume from a fire at the southern edge of the fill area. The future Mill Rock Park (Block D) area is obscured by trees, but both areas are seen in the 1943 vertical and 1946 oblique photographs as completely filled and graded to road level.

In the 1949 aerials, the western extension of Bryden Terrace did not exist. Blocks C, D, and F were contiguous and mostly undeveloped except for 10 homes along the southern edge and corners (12 Wadsworth, 95-135 Morse, 1019-1027 Winchester). The area is vacant, apparently grassy with small shrubs and multiple gray-tones in irregular patterns. The majority of the area is generally level, with a slightly irregular, shallow depression near the center with more shrubs, which appears to be surrounded by four slightly

hummocky lobes of fill that extend inward from the surrounding streets and park. But overall the topography is consistent with today's indicating that no substantial filling occurred after 1943. The highest ground within these blocks lies at the southwest corner (elev. 56), which is just across Winchester from the natural-appearing high ground on Block E. The lowest ground is at the south-central border of Block F along Morse (elev. 48), although this elevation is higher than on Morse (elev. 46). Ground to the east across Wadsworth is higher; in fact, the photos show Wadsworth under construction with scarps cut into the higher ground all along the east side of this road. The 1949 topography of the land east and south of Blocks C, D, and F are consistent with today's and include a heavy, continuous cover of large trees and consistent gray-tone. These topographic relationships and other features suggest that filling contiguous with that on Rochford Field and Mill Rock Park covers most of these parcels, but does not appear to extend past Wadsworth to the east and Morse on the south. Assuming that the center of the former underlying wetland area was at or above elevation 38, the underlying fill in the vicinity of Bryden (elevation 48) is inferred to be up to about 10 feet.

In 1949 Mill Rock Park is a level field with mostly an even gray tone suggesting mowed grass. A darker area and some splotches are present at the northwestern corner that have no topographic expression and may represent relic features from filling activities. The elevation is the same as the surrounding roads (elev. 48-52 sloping up to the east). A low fence is present along part of the southern boundary.

In 1951 the blocks appear similar to 1949, except that leafed out shrubs and small trees obscure the surface details.

After 1951 a ball field is present in Mill Rock Park and the Park has generally even gray-tones (grass) without shrubs or trees.

In 1959 the sewer pump station is first visible and tennis courts appear at the eastern end by 1970.

By 1957, Bryden Terrace has been extended westward through these blocks and by 1959 all of the homes present there today are visible in this and subsequent photos.

Block E

The 1934 aerial photos shows that this block contains high ground (up to elevation 59) on the east side and lower-lying dark gray to black areas on the west side. The high ground slopes down to the north from Morse, with Newbury Street as an unpaved path cut into the toe of this slope. There are five homes on the high ground bordering Winchester (1028-1032) and Morse (165-173); the former is unpaved. The western part of the block is slightly lower than Newhall and slopes up from about the same elevation (45 feet) as the filling within the future Rochford Field to the north (Block B) to almost the elevation of Morse Street to the south (57 feet). The gray tones and patterns are similar to this fill lobe suggesting that the western part of this block has also been filled, almost to the height of Newhall and Morse Streets. However the fill thickness cannot be inferred because there is no information on the elevation of the original underlying ground surface.

In the 1939 oblique, much of this block is obscured by higher foreground terrain, but filling at Rochford Field to the north appears complete implying that any contiguous

filling within Block C is also complete.

The 1949, 1951, 1957, 1959, 1963, 1964, 1970, 1975, 1980 aerials show topography within this block that is generally consistent with today's, high ground at elevation 59 occupies the southeastern corner, which slopes down to the northwest, along with the adjacent roads, to elevation 47 at the northwestern corner. By 1949 the western part of this block has been filled and brought up to surrounding road level, the northward-sloping ground is covered with shrubs and a few large trees, especially in the middle along Newbury. A low retaining wall is present along the south side of the eastern part of Newbury and around the corner along Winchester where these roads were cut into the toe of the sloping hill. In 1949 there are eight homes on the block, all on the higher ground bordering Winchester (1028-1042), Morse (165-173), and Newhall (499). 22 Newbury was added before 1951 and nearly all the rest are present in 1959 except 18 and 26 Newbury, which appear by 1963.

Blocks P and Q

In all photographs the topography and development are consistent with today's appearance so there is no visible evidence to determine if fill is present there, except for the construction of the Christian Tabernacle Baptist Church rectory by 1943 and the church in 1975. Any other filling was completed before 1934. The 10-foot-high escarpment bordering the south side of the yards on the south side of Marlboro just north of the church (Block Q) appears anomalously steep and the northerly trend of the low-lying topography at and around the church parcel to the south looks like a remnant of a larger feature. A northerly extension of this swale would connect it to the low land at the west side of Block E, suggesting the presence of fill in the western part of the intervening Block P.

In 1934 the land now occupied by the rectory and church in Block Q was a depression at about elevation 50, similar to the topo to the east of this parcel and sloping very steeply up to Newhall to the west. The 1943 photo shows the addition of the rectory with perhaps some local filling. The 1975 photos show the construction of the Baptist Church and the addition of a few feet of fill to the eastern and southern parts of this parcel. This filling postdates anything that occurred to the north.

Blocks H, J, K L, M

In all photos from 1934 and afterward, the site topography appears essentially as it does today, so no evidence of filling is apparent. The "coke lot" within block L is unpaved in 1934 and appears flat or slightly depressed, which it still is today, even after the construction of the factory by 1970.

Block T

The 1892 topographic map does not show any development of roads or buildings in this area west of Newhall Street, but the 1914 map shows a westward extension of Augur Street and the presence of Harris Street as far west as the future Remington Street. From 1934 and afterward, the topography and level of development in this parcel is consistent with today's appearance. The 1934 photos show disturbance from the installation of the sewer pipe located along the west side of the block, within and parallel to the slope to the wetland. The filling visible at HMS does not appear to encroach on the homes that were

already there since 1934. These parcels are at a higher elevation (up to 68) than the surrounding streets, wetland, and school. Until the 1963, a swale separated 20 Harris and 596 Newhall from fill in the adjacent school parcel to the south. By 1963 the swale was filled and an unpaved road (Mill Rock Road Extension) continued westward from Newhall, which became a paved road leading to the rear of the school by 1964. If filling occurred within Block T then it was over by 1934 and it is not contiguous with filling at HMS.