GROUNDWATER USE INVESTIGATION REPORT
LOCKHEED MARTIN MIDDLE RIVER COMPLEX

2323 Eastern Boulevard
Middle River, Maryland



LOCKHEED MARTIN

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Groundwater Use Investigation Report
Lockheed Martin Middle River Complex
2323 Eastern Boulevard
Middle River, Maryland

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Section 1
Introduction

This document presents the Groundwater Use Investigation conducted for Lockheed Martin Corporation's (Lockheed Martin) Middle River Complex (MRC), Middle River, Maryland. This report is part of Lockheed Martin's applications to the State of Maryland's Voluntary Cleanup Program (VCP) for eight contiguous properties at MRC.

The objectives of the investigation are to fulfil Maryland's VCP's application requirement for submitting a Groundwater Use Investigation by locating private or public water-supply wells within a 0.5-mile radius of the boundaries of MRC, identify current use of each off-site well, determine the well construction information, and obtain information to document areas receiving public water service. The investigation included searching and obtaining records of wells from State, County, and municipal government agency databases and plotting the wells on a map and tabulating selected well information. Well and groundwater use data were obtained from the Maryland Department of the Environment (MDE) well database search; supplemented by reviews of well completion reports, aerial photographs, topographic maps, and Maryland Geological Survey publications. Tetra Tech contacted Baltimore County Department of Public Works (BCDPW) and Baltimore City Department of Public Works (BCiDPW), which supply public water to residences and businesses in the Middle River area of Baltimore County. A field reconnaissance of the area was also conducted to identify and confirm the presence of any wells and public water utilities.

MDE provides guidelines for completing the Groundwater Use Investigation in the VCP application checklist (MDE, 2005). The guidelines recommend obtaining documentation from the county, municipality, and water authority concerning existing potable wells, the availability of municipal water, and potential future groundwater use areas within 0.5-miles of the property boundary. This includes providing copies of the county and municipality water plan maps that depicts existing service areas, planned service areas, and no-service-planned areas within a

minimum of 0.5-miles from the property boundary. The guidelines also suggest contacting MDE to request a survey for all area wells and other available information pertaining to groundwater use within a 0.5-mile radius of the proposed property. The guidance also recommends locating each identified well (excluding test or observation wells) on a scaled map, and providing the permit number, screen depth and current use of each well, if available.

1.1 SURVEY AREA LOCATION

MRC is located in southeastern Baltimore County, Maryland. The property is east of Baltimore City and is bordered on the west and south by Cow Pens Creek and Dark Head Cove and on the north and east by Eastern Boulevard and Martin State Airport (Figure 1-1).

The Groundwater Use Investigation area includes all lands within 0.5-mile of the MRC property boundary. Generally, commercial development is concentrated along Eastern Boulevard, and dense residential development, such as rowhouses and condominiums, is found in areas west and northwest of MRC. Middle River, a tidal estuary of the Chesapeake Bay, is located south of the property and is the major surface water feature in this region. Tributaries of Middle River within the survey area include Cow Pens Creek and Dark Head Cove. Development south of Eastern Boulevard is primarily residential and is concentrated along the waterfront on relatively narrow peninsulas west and south of these creeks. Open fields, undeveloped land, and sparse residential development are present north and northeast of MRC.

1.2 GEOLOGIC SETTING

The survey area is located within the Coastal Plain physiographic province, which is underlain by unconsolidated sediments of Lower and Upper Cretaceous ages. The Coastal Plain sediments were deposited unconformably on the southeastward-sloping surface of crystalline basement rocks forming a wedge-shaped mass that thickens progressively from northwest to southeast. The strike of the Cretaceous age formations parallels the boundary (also referred to as the Fall Line) between the Piedmont Plateau (or outcrop area for the crystalline rocks) and the Coastal Plain. The Cretaceous age sediments, which consist essentially of irregular and lenticular beds of sand, gravel, and clay of continental origin, may be divided into three formations: the Patuxent

Formation of Lower Cretaceous age, and the Arundel and Patapsco formations of the Upper Cretaceous age.

Additional details of the geology and hydrogeology of the survey area are presented in Section 4.1.1.

1.3 LOCAL WATER SUPPLY

The majority of the survey area is supplied by Baltimore County public water. Three reservoirs, Loch Raven, Pretty Boy, and Liberty, located in the central, northern and western part of the County, are surface water impoundments for the public water supply (Baltimore County, 2004). Water from these reservoirs is piped to the City of Baltimore reservoir, which services the survey area. Most residential properties in the survey area are supplied with public water; only a limited number of private potable wells appear to be in use.

FIGURE 1-1
STUDY AREA



Section 2
Groundwater Use Regulations

Both MDE and the Baltimore County Department of Environmental Protection and Resource Management (BCDEP) were contacted concerning groundwater use regulations. The State has promulgated regulations concerning wells under Code of Maryland Regulation (COMAR) Title 26, Department of the Environment, Subtitle 04. COMAR 26.04.04, Well Construction, provides standards for well construction activities, well development, equipment installation, yield testing, submittal of well completion reports, and in the case of potable water-supply wells, disinfection and final approval of a well for use. The regulation pre-empts local authorities; therefore, the COMAR regulations are the only procedures and standards applicable to the construction of wells in the State of Maryland. The regulation can be accessed at the following website:

http://www.dsd.state.md.us/comar/26/26.04.04.00.htm.

Pertinent information obtained from the regulation and from conversations with representatives of the regulatory agency is summarized below:

- All new wells installed in the State of Maryland must apply for and obtain approval (in the form of a well construction permit and pre-printed well tag) to drill and install a well.
- Well construction standards have been established for each of five hydrogeologic areas within the State. Wells in the vicinity of MRC fall within either Hydrogeologic Area 1 or Hydrogeologic Area 2, where unconfined or confined (artesian) aquifers of the Maryland Coastal Plain are of major importance.
- All water supply wells must meet certain bacteriological, chemical and physical requirements in order to obtain a Certificate of Potability. The Certificates are issued at the County level for a domestic or commercial supply well. Following well installation, the well is sampled either by the County or by the homeowner for coliforms and nitrate. The Certificate of Potability is issued once acceptable results are received from the laboratory (BCDEP, 2006 and 2004a).
- Regulations concerning well abandonment standards are outlined in COMAR 26.04.04.11. A well abandonment form must be submitted to the regulating agency once the procedure is completed.

If requested by the MDE, the County may sample an existing well for contaminants other than coliforms and nitrates. However, this rarely occurs. County records are not organized in such a fashion where they can easily find well sampling data for a large area. Records for a given street or residence can be retrieved upon request (BCDEP, 2006 and 2004a). At the State level, the MDE does not maintain a database of domestic well sampling data and only samples wells if they feel that the well may be potentially impacted from environmental activities at a nearby site.

Typically, when the County plans to provide public water to a given residential area, a letter is issued to the homeowners indicating that public water will be available. The homeowner has up to a year to connect to the public water supply and to abandon their wells. It is not uncommon for well abandonment reports to not be submitted to the regulating authorities. Many homeowners are not aware that well abandonments should be performed by a licensed well driller and, as a result, may have the well removed by a plumber or other person not familiar with State regulations. In essence, the well abandonment regulation often is a "soft" requirement (BCDEP, 2004a).

Some homeowners will submit a request to the County to maintain their existing well after connecting to public water. The County will issue a letter approving such a request as long as the well is completely disconnected from the homeowners water supply. The well may only be used to water gardens, wash cars, etc. Approval letters issued by the County have been maintained electronically over the past 7 years and records can be accessed by providing a specific residential address to the County (BCDEP, 2004a).

In the part of Baltimore County around MRC, a new home must be connected to a public water supply. However, special exceptions are allowed. A "Justification for Variation" of the Master Water and Sewer Plan is issued when public water is not directly available to a new residence and the cost to extend the water line to the residence would be prohibitive. In this case, an interim agreement is established between the County and the homeowner where the homeowner is allowed to continue to operate a well until such time as the water line is extended. When the water line is installed within a reasonable distance, the homeowner must connect to the public water supply (BCDEP, 2006 and 2004a).

Baltimore County has established an agreement with Baltimore City for the City Public Works Department to read water meters and bill homeowners for their public water supply use. Representatives of the City's Utility Billing Section of the Water and Wastewater Department can search their records for a given address to determine if the residence is billed for public water use (BCiDPW, 2006 and 2004).

Section 3
Methodology

Several tasks were performed to construct a listing of wells and documentation of public water delivery in the survey area. Elements of this Groundwater Use Investigation include:

- Obtaining and reviewing water-supply well records available at MDE and BCDEP to identify wells installed and/or abandoned, to determine the current use of the wells, and to locate well construction information;
- Obtaining and reviewing documents from Baltimore County and Baltimore City public works department to identify areas within the survey with public water connections;
- Obtaining and reviewing aerial photos and topographic maps to identify historic and current well locations;
- Summarizing pertinent regulations and policies concerning permitting, compliance, and operating requirements for private and public groundwater users in the survey area (see Section 2); and
- Performing field reconnaissance in an attempt to verify the status of the wells identified in the public records and document searches (specified above) and to locate additional wells that might be present in the area. All wells identified in the public records were checked in the field. No contacts were made with residents or business owners within the study area regarding available water supplies.

3.1 METHODS TO RECOGNIZE AND LOCATE POTENTIAL GROUNDWATER USERS

As an initial step, a map was produced showing the perimeter of the survey area 0.5-mile from the MRC property boundary (Figure 1-1). The base map shows the names of all roads within the survey area.

Agency Records

MDE and other state agencies, specifically the Maryland Geological Survey (MGS), maintain records of wells drilled in the State of Maryland. Permits have been required to install a well in the state since June 1945. Originally, reports were furnished by the drillers to the MGS until May

1964, at which time, the permitting authority was relinquished to the Department of Water Resources, which was part of what is now the Maryland Department of Natural Resources (MDNR). Data available from 1945 through 1969 is limited as the well location information is referenced only by the nearest town and/or property owner. Exact addresses (e.g., house number and street) were typically not provided. In 1970, in addition to requiring well completion report forms and more detailed information on the well permit applications, the Maryland Grid Coordinate system began to be used to provide greater accuracy in locating newly installed wells. In 1995, the MDNR Division of Water Rights (the former Department of Water Resources) merged with the MDE, all well records were consolidated, and MDE now provides oversight for the program. The Groundwater Management section of the BCDEP is responsible for permitting and approving all well permit requests and keeps a database of all groundwater users in Baltimore County.

Various MGS publications concerning Baltimore County reference wells in the survey area (Bennett and Meyer, 1952; Laughlin, 1966; and MGS, 1978). Because of limitations in the source data, the well locations were not included in the final well listing for the survey area. A discussion of the findings of the literature search is provided in Section 4.1.

An electronic list of well records from 1970 to the present (as well as copies of the well permit applications, and well completion and abandonment reports) available from the MDE were obtained as follows. Maryland Grid Coordinates (north and east) were determined for the northwest and southeast corners of a quadrilateral polygon that encompasses the area of the 0.5 mile radius around the MRC property. The complete well listing generated is provided in Appendix A. Data fields from the list include the following:

- Permit number (which is the same number posted on the completed well in the form of a pre-printed well tag);
- Maryland State Grid Coordinates. In many cases, the coordinates are not measured precisely by the driller, and often only approximate the well location; and
- Specific location of the well, optimally with a house or building number and street. Occasionally, the house or property number is not listed in the road name data field. Therefore, some wells may only be identified as being on a specific road, rather than at a specific property on that road;

- Other information obtained from the well completion report, such as the well completion date, total depth of the well, gallons per minute produced when the well is developed, and the water level before pumping and during pumping.

This information is followed by a series of codes that indicate: (1) what the well will be used for, e.g., drinking water (DW), industrial (I), public or private water company, municipal, or monitoring well, and (2) whether a well is replacing an existing well, whether the original well will be abandoned, or whether the original well will be used as a standby well. Finally, there are codes describing the relative success of the drilling effort, such as whether an existing well was deepened, the new well was unsuccessful or more than one hole was drilled in order to obtain sufficient water, or a successful well was later abandoned. A key to the codes used has been included at the front of Appendix A.

Well Identification

A total of 44 wells were identified within the database search request of the 0.5-mile MRC boundary. Each of the well listings was reviewed to determine whether the well was outside, near (requiring field confirmation), or inside the survey area. Elimination of a well from further consideration was based on one of three factors: (1) either the street was outside the survey area, (2) the coordinates provided for a given well on a street that crossed through the survey area were well outside the survey area boundary, or (3) the house or commercial property number was outside the numbered blocks shown on the map. If a given well appeared to be located inside the boundary or because of a lack of complete address the well could not be located as either inside or outside the survey area, it was retained and its general location plotted on a survey area site map.

A total of 18 wells were retained for further investigation following this initial review. Additionally, a well observed at 1010 Hillpine Road during the field reconnaissance was retained for further investigation. As a check, Tetra Tech also searched the BCDEP Groundwater Management well database to verify the wells provided in the MDE database and to search for any additional wells in the study area. Each street within the study area was researched using the county database to identify any potential wells not provided on the MDE list. The search resulted in finding an abandonment report for a shallow (11 feet deep), hand-dug well at 1002 Beech Drive. The report indicates that the well was abandoned in March 2001. The search also resulted in locating a County well inspection report for 4 Punte Lane. However, the well permit number on the inspection report was the permit number for the well installed at 5 Punte Lane. The inspection

report map indicated that there are wells at 3, 4, and 5 Punte Lane, although no permits or well completion reports for 3 and 4 Punte Lane were found in the County of MDE records.

Well completion, abandonment, and inspection reports on file at the MDE and the County were obtained for those wells that were confirmed to be present and those where the existence of a well was likely. The reports are organized numerically by permit number in Appendix B. A permit application or well completion report was not found for the residential well observed at 1010 Hillpine Road.

Public Water Supply Documentation

Public works departments for Baltimore County and Baltimore City were visited to obtain records and documentation of areas where public water is supplied to residences and businesses. Public water supply maps (or key maps) and more detailed public water distribution maps were obtained from the BCDPW (BCDPW, 1997). These maps provide information on which areas are supplied by public water and/or how far the water mains extended within a given area. The key maps and detailed distribution maps for the study area are provided in Appendix C.

Furthermore, the Baltimore County 10-Year Water Supply and Sewerage Plan for 2000-2010 (Water Plan; BCDPW, 2004) was reviewed for details related to the study area. The Water Plan details the county's present and planned water supply for the county. Pertinent maps from the Water Plan are provided in Appendix D.

In a cooperative agreement with Baltimore County, Baltimore City invoices residences and businesses for public water supplied in the Middle River area. Baltimore City can provide information on billing for an address on their system, which demonstrates that the residence is on the public water system. As part of Tetra Tech's visit to the City public works department, billing information was requested for the list of addresses on the MDE well list (Appendix A and Table 4-1) to determine if these residences presently receive public water. Billing information was not obtained for all public water users in the study area because the city can only access the information based on a request for an individual address. Accessing the billing information for public water for the entire study area by this method is not practical considering the large number of public water users in the study area.

Aerial Photographs

Historical aerial photographs available at the MGS in Baltimore, Maryland were also reviewed. The photographs provide visual information on the relative distribution of undeveloped (such as farmland or apparently undisturbed forested areas) and developed lands through time. However, the resolution of these photographs (e.g., 1:20,000) does not provide the level of detail necessary to locate wells on specific properties. Potential locations for domestic wells or farm wells based on land use were identified during this review.

Other Reference Reports

Various references such as Water Resource reports generated by either the MGS in cooperation with the U.S. Geological Survey (USGS) were also reviewed, as was the geologic map of the Middle River quadrangle. The documents included listings of wells, and/or information provided on the geology of the area. This information is provided as Appendix E

Field Reconnaissance

On March 15 and 16, 2006, the water-supply wells within the survey area were investigated as part of a field reconnaissance. The field reconnaissance consisted of driving or walking by a given property to identify whether any wells could be located. Well locations to be field checked were compared to the county key maps to determine whether they were in an area now supplied with public water or not. In several instances, the key maps did not indicate the presence of a public water main; however, fire hydrants near the residences and water meters at some of the residences were observed. Such observations are noted on the final list of wells and are discussed in Section 4. Whether a well still existed (if it could not be seen) and, of those that were located, whether the well was still used for water supply purposes could not be confirmed.

Section 4
Discussion of Findings

The following section includes a summary of information obtained from the literature search and the review of aerial photographs and topographic maps. In addition, the results of the well survey and field reconnaissance effort are also presented in this section.

4.1 LITERATURE SEARCH

4.1.1 Geology and Hydrogeology of the Survey Area

A majority of the information available on the geology and hydrogeology of the Baltimore Area is contained in the MGS publication entitled Geology and Ground-Water Resources of the Baltimore Area (Bennett and Meyer, 1952). Since most large groundwater developments are found in the industrial districts in and near Baltimore, these areas were the focus of the research. The industrial area encompasses the tidal portion of the Patapsco River and includes portions of the Back River, both of which are large watersheds adjacent to and southwest of the MRC survey area. In addition, the geological map of the Middle River quadrangle (Reinhardt, 1977) was consulted.

The Geologic Map of the Middle River Quadrangle (Reinhardt, 1977) maps the entire survey area as either the clay or sand facies of the Patapsco Formation. The sands are more concentrated on the peninsulas east of Frog Mortar Creek and areas north of Eastern Boulevard; whereas, all of the peninsulas to the west of the MRC are mapped as belonging to the clay facies.

From a hydrogeologic standpoint, the sand and gravel in the Coastal Plain sediments form relatively uniform and widespread aquifers. In general, water table conditions occur in the outcrop areas of the sediments, but down dip from the outcrops the groundwater occurs under artesian or confined conditions. In the outcrop areas, the water table in general conforms to the shape of the land surface, being high in the interstream parts of the area and not far above stream level in the valleys. Prior to the development of groundwater resources in the Baltimore area, the configuration of piezometric surfaces (or imaginary surface to which water will rise in artesian

wells) were relatively "featureless". "Although the exact shape of these surfaces before large groundwater developments is not known, it is reasonably certain that in general they sloped gently toward the southeast", perpendicular to the trend of the outcrops of the aquifers (Bennett and Meyer, 1952).

The Patuxent Formation is the most important water-bearing formation in the Baltimore area. Its thickness is approximately 150 to 250 feet, and industrial wells in the southeastern part of the Baltimore area, specifically Curtis Bay and Sparrows Point, yield from 500 to 900 gallons per minute. Transmissivities and measurements of the coefficient of storage in confined portions of the aquifer in these industrialized areas average about 50,000 gallons per day per foot and 0.00026, respectively.

The Arundel clay is described as a dark-gray to red clay with some indurated iron nodules. The Arundel clay does not serve as a water-bearing formation; but rather acts as a confining layer between the deeper Patuxent formation and the shallower Patapsco formation. The Arundel clay crops out just northwest of the survey area and trends northeast/southwest. The thickness of the clay ranges from 25 to 200 feet and the formation is generally thinnest near the outcrop. In the survey area, the top of the Arundel clay is estimated to range from near the ground surface (in the northwest) to a depth of approximately 150 feet below the ground surface (in the southeast).

The Patapsco formation is also an important water-bearing formation in industrialized Baltimore, where it is separated by clay into a lower and upper aquifer. The lower aquifer yields as much as 500 to 750 gallons per minute to industrial wells, and a transmissivity of 25,000 gallons per day per foot has been estimated. The upper aquifer yields similar quantities of water to industrial wells, and since it has a greater thickness than the lower aquifer, it likely has a higher overall transmissivity.

4.1.2 Well Information Obtained From Publications

Several MGS publications list well locations in Baltimore County. Pertinent information from these documents is contained in Appendix E. From the 1950s to the 1970s when these documents were produced, well location information was not based on the standard USGS 7.5-minute topographic maps; rather it was based on 5-minute quadrangles of latitude and longitude

designated from north to south in uppercase letters and from west to east in lowercase letters. The private potable well survey area includes portions of quadrangles Ef, Eg, Ff, and Fg in Baltimore County. The MGS publications that referenced wells within these quadrangles also included maps showing the location of the wells as accurately as possible. However, as stated in one publication (Bennett and Meyer, 1952), the well information "was obtained from many sources and is of varying degrees of completeness and accuracy. The wells are located as accurately as possible, but many old wells are no longer visible and can be located only approximately." Maps showing these well locations and the source well data and logs for the wells are also provided in Appendix E. It is suspected that many of these wells no longer exist or have been replaced with newer wells. However, data from these wells, such as the well logs, may provide a greater understanding of the geology of the survey area. In order to prevent any well duplication and to maintain the integrity of the completed well survey listing, these wells were not included in the final survey list.

Data from the MGS well logs indicate that a majority of the wells in the survey area are screened in the Patapsco formation. Depths for these wells range from 57 feet to 140 feet below the ground surface. In the area south of Eastern Boulevard, wells that extend into the Patuxent formation generally range in depth from 176 to 224 feet. North of Eastern Boulevard, two wells located in the survey area (ranging in depth from 105 to 135 feet) are described as being screened in the Patuxent formation.

Limited chemical data are also available from the MGS publication, Maryland Ground-Water Information: Chemical Quality Data (MGS, 1978), for a selection of wells located within the survey area (wells Ff36 and Ff39). Analyses were performed for general groundwater characteristics such as hardness, conductivity, pH, iron, bicarbonate, and nitrate.

Other sampling data were not requested from Baltimore County because the analyses include only coliform and nitrates, which are generally not a concern at the MRC.

4.2 RESULTS OF REVIEW OF HISTORICAL AERIAL PHOTOGRAPHS AND TOPOGRAPHIC MAPS

Aerial photographs taken in 1938, 1952, 1964, 1971, and 1991, show the progression of development in the survey area through time. Considering the span of time, relatively little

change in land use has occurred. However, there is a new residential development in Mars Run west of MRC. A summary of the aerial photographs reviewed is presented below.

1938 Aerial Photograph

In 1938, the area south of Eastern Boulevard was relatively rural. MRC was in its infancy and Martin State Airport did not exist. A majority of the development, while somewhat less than the present day, was found along the waterfront of Middle River and its tributaries, with forested areas and open fields along the axes of the peninsulas. An area referred to as Bengies north of Eastern Boulevard was more developed in 1938 than it is today.

1952 Aerial Photograph

Major development of the area occurred between 1938 and 1952, likely in response to the war. The MRC had expanded significantly and both Martin State Airport and the U.S. Army Depot (on the north side of Eastern Boulevard) were constructed by 1952. Increased residential development had occurred along Wilson Point Road southeast of MRC, and along Susquehanna Avenue on the east side of Frog Mortar Creek.

1964, 1971 and 1991 Aerial Photographs

From 1952 to 1964, a drive-in movie theatre was built southeast of the former Army Depot. Development of a fairly dense residential area in the northeastern part of the survey area, adjacent to Carroll Island Road, had begun. From 1964 to 1971, very few changes occurred; however, a mobile home development north of Eastern Boulevard across from Carroll Island Road was under construction in the 1971 photograph. From 1971 to 1991, a shopping center at the intersection of Carroll Island and Bowleys Quarters Road, and the expansion of the residential development in areas east of the survey area, adjacent to Carroll Island Road, is noted.

A majority of the land within the survey area that was undeveloped (open fields and forested areas) in the late 1930s, remains undeveloped. Overall, it does not appear that farming has ever been a significant economy in the area.

Topographic Maps

The topographic map for the survey area is the USGS 7.5-minute quadrangle for Middle River, Maryland (USGS, 1982). No wells were noted on the current topographic map of the area.

4.3 IDENTIFICATION OF WELLS

Within the survey area, groundwater withdrawals from wells located on numerous small waterfront lots has been discontinued because the Patapsco aquifer has been overused (MDE, 2004). Apparently, many of the residences were using shallow, hand dug wells for their water supply. Given the density of residential development and the corresponding number of septic systems in the area (many of which had failed and contaminated shallow groundwater), public water and sewer were brought into the area primarily to address health concerns (BCDEP, 2004b).

A review of the well completion reports available from the MDE for wells within the survey area indicates that roughly 90 percent of the wells are probably screened in the Patapsco Formation. Well depths range from 50 feet to 140 feet in depth appear to be screened in the Patapsco formation. Lithologic descriptions indicate the presence of red and white clays interfingered with water-bearing sand units. The clays are the predominant lithology within the first 100 feet of the ground surface. Shallower wells installed in the Patapsco appear to be driven more by economics than by lithology (i.e., the shallower wells are likely low yielding).

For purposes of the field reconnaissance effort and to discuss the findings of the survey, the survey area was divided into two areas:

- Wells north of Eastern Boulevard; and
- Wells south of Eastern Boulevard and west/southwest of MRC.

Each area is discussed below and the wells are shown in Figure 4-1. A listing of the wells retained following the well records review and field reconnaissance for each of these areas is provided in Table 4-1

4.3.1 Wells North of Eastern Boulevard

A majority of the residences identified as potentially having wells in this region are located on sparsely developed single lane paved or unpaved roads beyond the end of public water supply mains. This area, referred to as Wampler Village and Bengies, appears to have been more

accessible and more developed around the 1930s. Several plowed fields are evident in historical photographs, and many of the roads which now have no outlet and are overgrown were connected at one time. A brief summary of the well findings is presented below.

Wells 1 through 6

Well 1 is located on Bourque Road beyond where the road has been closed off with asphalt road debris. One abandoned house was observed beyond the road closure and a well may still be present at this former residence. Water meters were observed on the other residences on Bourque Road (300-320) and they appear to be on the public water supply. Wells 2 through 6 are located on the intersecting Hillpine Road, which is not supplied by public water. Of these, one domestic well was observed at 1010 Hillpine.

Wells 7 and 8

Wells 7 and 8 are located off Wampler Road, down a narrow gravel road leading to three residences. One of these, 535 Wampler Road, was thought to have been abandoned, but on closer examination of the well records, it was found that the original well had been replaced. A well was noted in the front yard of 601 Wampler and it is therefore assumed that another well (for which a well permit was issued) is present at 601A Wampler.

Wells 9 through 12

Wells 9 through 12 are located on Leland and Magnolia Avenues. A water main is present on Leland Avenue and it is presumed that the residences at 1923 through 2011 Leland Avenue are on public water. Neither of the two permitted wells listed for the properties were observed. No water main is indicated on the key map for Evergreen and Magnolia (which is just one house at the end of Evergreen; there is no evidence of the former Magnolia Avenue), and therefore it is assumed that these homes are serviced by wells.

4.3.2 Wells South of Eastern Boulevard and West/Southwest of MRC

This area is characterized primarily by residential development. Dense residential areas are found along the Wilson Point peninsula, east and southeast of MRC. Southwest of the MRC, between Middle River and Dark Head Creek, there is an extensive townhouse development dating back to about the 1960s. Overall, the remaining land consists of waterfront areas along the west bank of Middle River, and various peninsulas that are surrounded by tributaries of the Middle River. The residential lots are somewhat larger and development is organized into subdivisions that encompass an entire peninsula. These areas appear to have been provided access to public water some time ago. A brief summary of the well findings is presented below.

Well 13

This well was not located during the field reconnaissance. A vacant lot adjacent to a package store at 1902 Old Eastern Avenue is possibly 1900. The next even address on Old Eastern Ave. is 1806. The well completion report indicates that this well was installed on Punta Road off of 1900 Old Eastern Avenue. The well is reported to be located on the south side of Old Eastern Avenue 1,600 feet from the road. However, the map shows the well near Old Eastern Avenue. The owner is listed as Marine Basin, which may be referring to Cutter Marine Yacht Basin shown on the map (presently Riley's Marina) or Buedels Marina Prop Shop located in a large open lot off of Old Eastern Avenue. The well was not observed during the field reconnaissance. The area is serviced by public water.

Wells 14 and 15

The exact address for Well 14 could not be found, but it appears to be an open lot with mature trees that formerly surrounded a home. No well was observed on the property, which is located within an area supplied by public water. A well abandonment report was found for a shallow, hand-dug well at 1002 Beech Drive. Well 15 is located on East Kingston Park Road at a small home with a small, asphalt-covered front yard. No well was noted here and the area is supplied with public water.

Well 16

Eight small, single-story, cottage-style residences are located at the end of Punte Lane beyond the public water main, which appears to end at a hydrant near Riley's Marina (Cutter Marine Yacht

Basin on the map). Well 16 is a well reportedly installed at 5 Punte Road. No Trespassing signs prevented access to the properties. No wells were observed from the unpaved roadway in front of the homes. A 1989 county well inspection report (see Appendix B) also shows that a replacement well was installed at 4 Punte Lane. However, the inspection report references the well permit number for 5 Punte Lane. The inspection report map also depicts wells at 3, 4, and 5 Punte Lane. Therefore, other wells likely exist in this area.

4.4 PUBLIC WATER DISTRIBUTION

The Baltimore County Water Supply and Sewerage Plan (Baltimore County, 2004) provides information on the present and planned water service areas for Baltimore County. Maps of current and planned public water supply are found in Appendix D. County water distribution maps (Appendix C) also provide details of installed public water utilities for the study area. The maps demonstrate that public water is supplied to the residential areas surrounding MRC in the study area. North of MRC, this includes homes and apartments in the Village of Pawnee and Wampler Village. The streets without available public water are Hillpine Road in the northwestern corner of the study area. Public water is available along Leland Avenue but several of the homes along Evergreen Street and Magnolia have chosen not to connect to the system. A search of public water billing records for the residences north of Eastern Avenue (wells 1 through 12) indicates that these residences are not on the public water system. A water main and hydrants were observed along the undeveloped eastern portion of Leland Avenue. According to the county representatives, any new development in the area will be required to be connected to the public water supply.

Public water is available in the residential and commercial developments southeast of MRC along Wilson Point Road and west of MRC along Kingston Road and west of Middle River. A search of public water billing records for the residences listed as having wells south of Eastern Avenue (wells 13 through 16) indicates that these residences are not on the public water system. However, southeast of MRC, wells 14 and 15 are in areas of public water, and are either not present or may not be actively used wells. Wells in the well 16 area (Punte Lane) are considered to in use and this may be the case for well 13. Insufficient information is available to locate and determine the use of well 13 located off of Old Eastern Avenue west of MRC.

Table 4-1

List of Potential Off-Site Water-Supply Wells Within One-Half Mile of the Property Boundary
Middle River Complex, Middle River Maryland

Well ID	List Ref. No.[1]	Map Ref. No.[2]	Address	Well Screen Interval (Feet) [3]	Well Observed	Access	Type	Public Water	Construction Data[4]	Water Level Data[4]	Comments
Wells North of Eastern Boulevard											
BA-81-2047	32	1	201 Bourque Avenue	105 - 115	No	Private Property	Domestic	No	Yes	Yes	This address is beyond where the road is blocked with asphalt road debris. A well may still be present near the abandoned and delapidated house on the property. However, the well could not be observed due to the presence of dense vegetal overgrowth.
Unknown, likely BA-71-0101	20	2	919 Hillpine Rd	60 - 65	No	Private Property	Domestic	No	Yes	Yes	There is no public water supply indicated for Hillpine Rd. A domestic well was observed at 1010. It is assumed that all of the houses on this road do not have public water. The residence at 1012 is beyond a metal gate (but it does have a mailbox) and cannot be seen. Permit number BA-71-0101 is listed as Wampler Road; however the map associated with the application shows the well to be on Hillpine. Based on the location, it is presumed this well is at 919 Hillpine.
BA-73-5119	21	3	1000 Hillpine Rd (Gardner)	80 - 85	No	Private Property	Domestic	No	Yes	Yes	
BA-73-5176	--	4	1004 Hillpine Rd (Preston)	74 - 81	No	Private Property	Domestic	No	Yes	Yes	
Unknown N/A	--	5	1010 Hillpine Rd	N/A	Yes	Private Property	Domestic	No	No	No	
BA-94-7179	34	6	1012 Hillpine Rd	73 - 80	No	Private Property	Domestic	No	Yes	Yes	
BA-94-2207	38	7	535 Wampler Rd	85 - 92	Yes	Private Property	Domestic	Yes	Yes	Yes	Three residences, accessed by a narrow gravel drive, are located behind houses bordering Wampler Rd. The addresses are 535, 601 and 601A Wampler. An abandoned well was replaced by a new well drilled under permit BA-94-2207. A well was observed in the front yard of 601 Wampler and it is presumed there is also a well at 601A Wampler.
BA-88-0550	36	8	601 Wampler Rd (Harper)	115 - 125	Yes	Private Property	Domestic	Yes	Yes	Yes	
BA-88-3474	37	8 (colocated)	601A Wampler Rd (Kawich)	83 - 90	No	Private Property	Domestic	Yes	Yes	Yes	
BA-94-1468	35	9	1906 Magnolia Ave	113 - 120	No	Private Property	Domestic	Yes	Yes	Yes	Leland Avenue is supplied by public water. 1902 Leland faces Leland Avenue. There are two houses with driveways fronting Evergreen Rd. A third house is at the end of Evergreen, where the maps shows where Evergreen meets Magnolia. Wells may be in use at these residences.
BA-81-4665	31	10	Evergreen Street (likely 1908 Leland)	80 - 90	No	Private Property	Domestic	Yes	Yes	Yes	
BA-73-5701	22	11	1910 Leland Ave (McDaniel)	90 - 95	No	Private Property	Domestic	Yes	Yes	Yes	
BA-81-6255	--	12	1902 Leland Ave (Hughes)	108 - 115	No	Private Property	Domestic	Yes	Yes	Yes	
BA-70-0353	17	N/A	Martin Blvd (900 block)	123 - 130	Yes	Private Property	Commercial (Abandoned)	Yes	Yes	Yes	According to the well completion report, this well was installed at a former Twin Kiss Ice Cream drive-in near the intersection of Martin Blvd. (900 block) and Beacon Rd. This location is northwest and outside of the invesigation area. The well was found in a grass median strip in a parking lot between a Wendy's Restaurant and a Blockbuster store in the Victory Village Shopping Center. The 9-inch steel casing and electrical conduit are cut flush with the ground surface and are presently covered with a small piece of wood. The well is not in use and the casing appears to be backfilled. Cobble-size pieces of asphalt were observed in the casing about 2 feet below the ground surface.

Table 4-1

List of Potential Off-Site Water-Supply Wells Within One-Half Mile of the Property Boundary
Middle River Complex, Middle River Maryland

Well ID	List Ref. No.[1]	Map Ref. No.[2]	Address	Well Screen Interval (Feet) [3]	Well Observed	Access	Type	Public Water	Construction Data[4]	Water Level Data[4]	Comments
Wells South of Eastern Boulevard and South and West of MRC											
BA-72-0290	2	13	1900 Old Eastern Avenue	67 - 74	No	Private Property	Commerical	Yes	Yes	Yes	This address could not be located during the field reconnaissance. A vacant lot adjacent to a package store at 1902 Old Eastern Avenue is possibly 1900. The next even address on Old Eastern Ave. is 1806. The well completion report indicates that this well was installed on Punta Lane off of 1900 Old Eastern Avenue. The well is reported to be located on the south side of Old Eastern Avenue 1,600 feet from the road. However, the map shows the well near Old Eastern Avenue. The owner is listed as Marine Basin. This well may be associated with Riley's Marina (formerly Cutter Marine Yacht Basin) or Buedels Marina Prop Shop located in a large open lot off of Old Eastern Avenue. The well was not observed during the field reconnaissance. The area is serviced by public water.
BA-72-0157	--	14	1045 Beech Dr	77 - 84	No	Private Property	Domestic	Yes	Yes	Yes	Address was not found. Between 1027 and Cypress Rd, there is a large empty lot with mature trees where a house may have stood at some time in the past. No well was observed on the property. A well abandonment report also shows that a shallow (11 ft) hand-dug wells was abandoned at 1002 Beech Dr. No well completion report was cited for this well.
BA-71-0011	6	15	136 Kingston Park Lane East	45 - 50	No	Private Property	Domestic	Yes	Yes	Yes	In dense residential area; unlikely the well is there.
BA-88-1848	13	16	5 Punte Lane	133 - 140	No	Private Property	Domestic	No	Yes	Yes	Eight small single-story, cottage-style residences are located at the end of Punte Lane beyond the public water main. No Trespassing signs prevented access to the properties. No wells were observed. A 1989 County well inspection report (see Appendix B) shows that a replacement well was installed at 4 Punte Lane. The report map also depicts wells at 3, 4, and 5 Punte Lane. Other wells likely exist in this area.
BA-72-0077	23	N/A	Eastern Avenue	N/A	N/A	Private Property	N/A	N/A	N/A	N/A	This permit application is actually for 121 Hughs Shore Road, which is off of Eastern Ave east of Frog Mortar Creek. This address is outside of the investigation area and is not included on Figure 4-1. The permit is stamped cancelled and a completion report was not available. However, it appears that a well was installed at this property by another drilling firm under permit BA-72-0092. The county key map shows houses in this street are not supplied by public water. However, there are fire hydrants on either end of the area and the area appears to be on public water.

Notes:

N/A = Not available or not applicable.

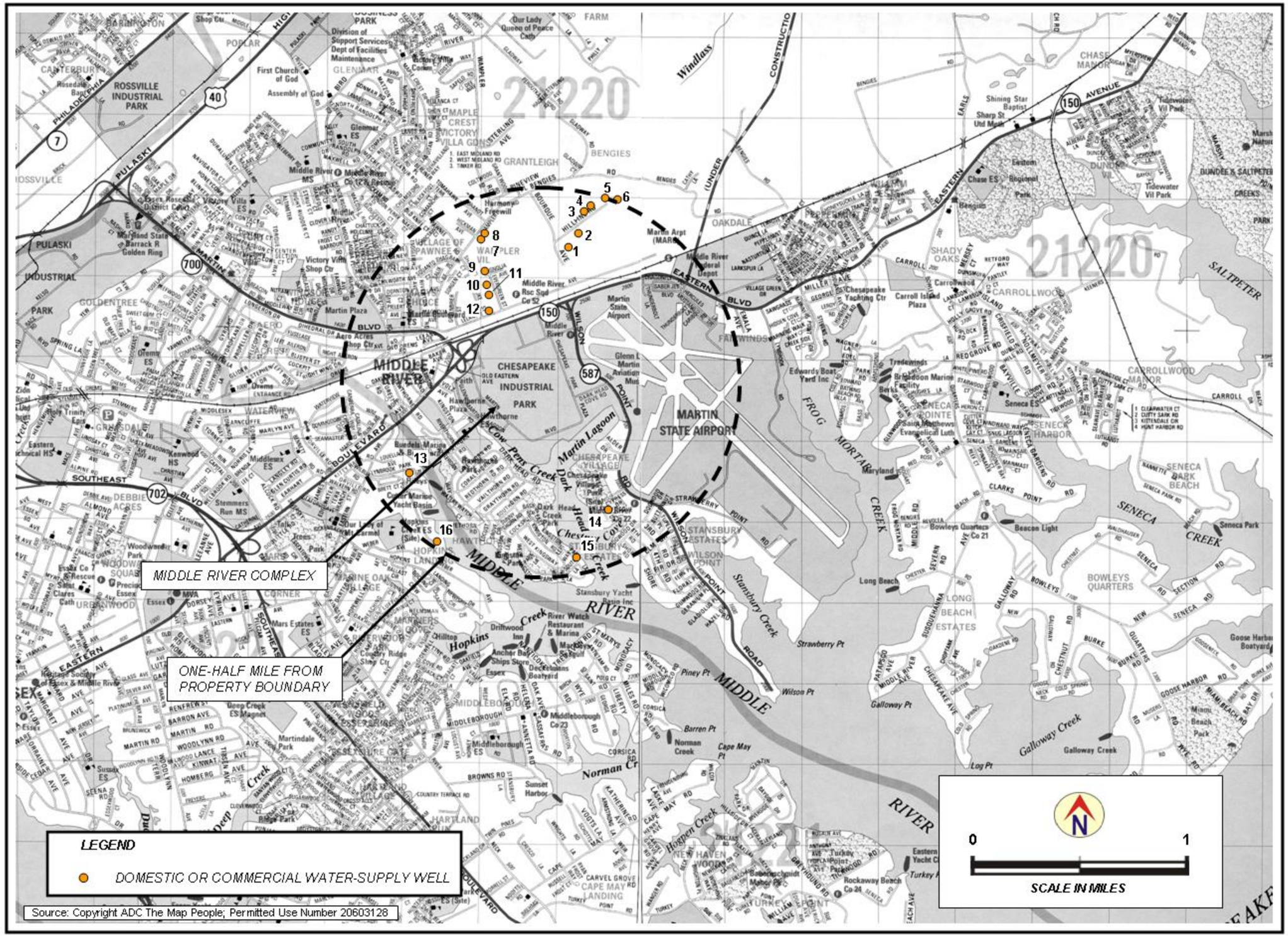
(1) The numbers shown in this column refer to the well listing provided electronically by MDE (Appendix A).

(2) The numbers shown in this column identify the wells shown on Figure 4-1.

(3) The well depths are with respect to the ground surface and were taken from the well completion reports provided in Appendix B.

(4) The construction and water level data are shown on the well completion reports provided in Appendix B.

FIGURE 4-1
MAP OF POTENTIAL OFF-SITE WATER-SUPPLY WELLS WITHIN ONE-HALF MILE OF MRC



Section 5
Conclusions

A total of 19 water-supply wells were initially investigated as potentially being located within the 0.5-mile radius around the property boundary of MRC. Upon further review of well completion reports, two of the wells (Martin Boulevard and Eastern Avenue permit addressed) were determined to be located outside of the survey area. Therefore, 17 wells were investigated further. A search of Baltimore City water billing records indicates that none of the potential well addresses are billed for water use, and are therefore not considered to be on the public water supply system. Reviews of county documents and a site reconnaissance suggest that 14 of the 17 wells in the 0.5-mile survey area may be in use. Three of the 17 wells do not appear to be in use (Bourque Avenue, Beech Drive, Kingston Park Lane East). Those properties which apparently have not connected to public water and have records of wells on the properties are located beyond public lines. Residences north of MRC on Hillpine Road are clearly not supplied by public water. In addition, residences at the end of Punte Lane are also beyond the area supplied by public water. Insufficient information is available to locate and determine the use of one well located off of Old Eastern Avenue west of MRC.

Section 6
References

1. ADC, 20th Edition. ADC's Street Map of Baltimore City and County, Maryland, Copyright ADC the Map People Permitted Use Number 20603128.

2. BCDEP (Baltimore County Department of Environmental Protection and Resource Management), 2006 and 2004a. Office visit by Mr. Doub (2006) of Tetra Tech, Inc. and several telephone conversations between Ms. Carrie Smith/Ms. Jennifer Thomas of Tetra Tech, Inc. and Mr. Kevin Koepenick of the Baltimore County Department of Environmental Protection and Resource Management, March 15 and November. Phone (410) 887-2762.

3. BCDEP (Baltimore County Department of Environmental Protection and Resource Management), 2004b. Telephone conversation between Ms. Jennifer Thomas of Tetra Tech, Inc. and Ms. Sue Farinetti, Supervisor of the Well Program, December 9. Phone (410) 887-2762.

4. BCDPW (Baltimore County Department of Public Works), 2004. 10-Year Baltimore County Water Supply and Sewerage Plan 2000-2010, 2004 Triennial Review Update, Baltimore County Department of Public Works, Towson, Maryland, September 23.

5. BCDPW (Baltimore County Department of Public Works), Revised 1997. Key Maps of Water Mains, Maps I NE; I SE, Z NW, and Z SW. No date. Phone (410) 887-3758.

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7. Bennett, R. R. and Meyer, R.R., 1952. Geology and Ground-Water Resources of the Baltimore Area. Bulletin 4, State of Maryland, Department of Geology, Mines and Water Resources, Baltimore, Maryland, 1952.

8. Laughlin, Charles P., 1966. Records of Wells and Springs in Baltimore County, Maryland. Maryland Geological Survey Water Resources Basic Data Report No. 1, published by the U.S. Geological Survey in cooperation with the Baltimore County Department of Public Works, Baltimore, Maryland, 1966.

9. MDE (Maryland Department of the Environment), 2004. Telephone conversation and visit with Ms. Marsha Smith, Hydrogeologist with the MDE Water Supply Program, November 6 and in person visit by Ms. Jennifer Thomas, December 2. Phone (410) 537-3065.

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12. Reinhardt, Juergen, 1977. Geologic Map of the Middle River Quadrangle, Maryland. Maryland Geological Survey, Baltimore, Maryland.

13. USGS (U.S. Geological Survey), 1982. 7.5-minute Topographic Map of the Middle River Quadrangle.

Appendix A - Electronic Well Listing Produced by MDE

Actual well location — Depth — Gen water levels — CASing depth

PERMIT	N GRID	E GRID	ROAD NAME	RO	ROAD	TOTAL	PUM	LEVEL	LEVEL	CAS	LOT	COMPLET	Use	ABANDON	AB
HA731827	540000	955000	JARRETTSVILLE RD	E	40	200	2	22	190	71	17	09/09/1974	DW		
BA720290	540000	955000	1900 OLD EASTERN AV	S	1600FT	74	35	9	74	69		12/22/1971	I		
~~HA731625~~	~~540000~~	~~955000~~	~~DUXBERRY CT~~	~~S~~	~~40 FT~~	~~140~~	~~2~~	~~18~~	~~60~~	~~27~~	~~15~~	~~06/19/1974~~	~~DW~~		
BA737376	540000	955000	6624 MT VISTA RD	N	50 FT	250	2	28	200	21		06/05/1980	DW		
HA730976	540000	955000	JARRETTSVILLE RD	E	40 FT	125	3	29	123	36	18	10/10/1973	DW		
BA710011	540000	960000	136 KINGSTON PARK R	S	30 FT	50	20	13		50		08/12/1970	DW		
BA735786	540000	965000	EDWARD LA	S	25 FT	50	21	3	15	45		05/25/1978	I		
BA920842	541000	958000	8 WEBER AVENUE	S	60 FT	50	20	11	21	43		09/14/1992	DW		
BA942973	541000	959000	61 WEBER AVE	E	200 FT	110	60	16	22	103		01/09/1998	DW		
BA883961	541000	959000	WEBER AVE	S	27 FT	80	20	15	26	73		01/15/1993	DW		
BA883254	541000	959000	WEBER AVE	N	100 FT	108	20	16	28	101		04/25/1991	DW		
BA883255	542000	957000	WEBER	N	100 FT	48	30	13	19	41		04/19/1991	DW	10/16/1998	Y
BA881848	542000	958000	PUNTE LANE	E	100 FT	140				133		01/04/1990	DW		
BA883998	543000	958000	59 WEBER AVE	N	100 FT	87	20	15	22	80		04/16/1993	DW		
BA941143	544000	955000	STEMMERS RUN RD	E	120 FT								DW		
BA947036	545000	955000	2026 ROCKY POINT RD	N	15 FT	110	75	20	31	103		10/22/2002	DW		
BA700353	545000	955000	MARTIN BLVD	N	75 FT	250	50	42		245		07/03/1970	I		
BA946534	545000	955000	2022 ROCKY POINT RD	W	15 FT	110	75	20	38	103		06/04/2002	DW		
BA738064	545000	955000	GLADWAY	S	30 FT	55	30	11	21	45		03/24/1981	DW		
BA710101	545000	960000	WAMPLER ROAD	S	50 FT	65	10	31	38	58	X	10/24/1970	DW		
BA735119	545000	960000	HILLPINE RD	S	120 FT	87	60	38	58	80	14	11/21/1977	DW		
BA735701	545000	960000	LELAND AVE	N	3000FT	95	15	15	25	90		04/25/1978	DW		
BA720077	545000	965000	EASTERN AVE	S	75 FT					X			DW		
BA737310	545000	965000	STEVENS RD	S	20 FT	110	30	3	13	103		03/04/1980	DW		
BA731592	545000	965000	119 HUGHES SHORE R	S	25 FT	110	25	1	30	105		09/30/1974	DW		
BA720092	545000	965000	HUGHES SHORE ROAD	S	50 FT								DW		
BA730108	545000	965000	STEVENS RD	E	25 FT	104	15	5	100	99		08/22/1972	DW		
BA920216	546000	965000	222 STEVENS ROAD	E	40 FT	114	25	1	10	109	12	03/04/1992	DW		
BA812012	546000	966000	HUGHES SHORE	S	20 FT	115	60	2	12	105		09/09/1983	DW		
BA944581	547000	957000	CALLO LANE	W	45 FT	22				2		09/21/2000	DW		
BA814665	547000	959000	EVERGREEN ST	W	30 FT	90	60	12	21	80	13	04/14/1986	DW		
BA812047	548000	961000	BOURQUE AVE	E	200 FT	115	30	22	32	105		09/26/1983	DW		
BA737964	548000	963000	HUGHES SHORE	E	80 FT	115	30	3	13	105		02/25/1981	DW		
BA947179	548000	963000	1012 HILLPINE ROAD	N	75 FT	80	40	40	52	73	4	12/23/2002	DW		
BA941468	549000	957000	1906 MAGNOLIA AVE	S	1000FT	120	75	15	23	113		02/01/1996	DW		
BA880550	549000	958000	WAMPLER RD	E	600 FT	125	50	20	30	115		01/23/1989	DW		
BA883474	549000	959000	WAMPLER RD	E	100 FT	90	20	20	28	83		07/11/1991	DW		
BA942207	549000	959000	535 WAMPLER RD	S	1000FT	92	60	19	31	85		10/31/1996	DW		
BA812662	549000	961000	BENGIES RD	S	800 FT	208	30	85	93	198		05/11/1984	DW		
BA730365	550000	960000	EBENEZER RD	N	1 MI	80	14	14	30	73		12/15/1973	DW		
BA733977	550000	960000	BENGIES RD	S	10 FT	85	20	40	50	78		02/12/1977	DW		

Mar-10-2006 11:51am From-MDE WMA 410 537 3163 T-398 P 002/003 F-230

PERMIT#	N-GRID	E-GRID	ROAD NAME	RO	ROAD	TOTAL	PUM	LEVEL	LEVEL	CAS	LOT	COMPLET	Use	ABANDON	AB
BA710502	550000	960000	EARLES RD	S	200 FT	95	25	35	50	88	4	07/20/1971	DW		
BA811481	550000	962000	149 BENGIES	E	200 FT	103	30	20	30	93		04/12/1983	DW		
BA812212	550000	966000	3016 BENGIES RD	E	180 FT	97	15	41	51	87		11/25/1983	DW		

Mar-10-2006 11:51am From-MDE WMA 410 537 3163 T-398 P 003/003 F-230

No.	PERMIT	N_GRID27	E_GRID27	ROAD_NAME	ROAD_SIDE	ROAD_DISTANCE	TOTAL_DEPTH	PUMPING_RATE	LEVEL_BEFORE	LEVEL_DURING	CASING_DEPTH	LOT	COMPLETION_DATE	Use_for_water_simp	ABANDON_DATE	ABANDONED
1	HA731827	540000	955000	JARRETTSVILLE RD	E	40	200	2	22	190	71	17	09-Sep-74	DW		
2	BA720290	540000	955000	1900 OLD EASTERN AVE	S	1600FT	74	35	9	74	69		22-Dec-71	I		
3	HA731625	540000	955000	DUXBERRY CT	S	40 FT	140	2	18	60	27	15	19-Jun-74	DW		
4	BA737376	540000	955000	6624 MT VISTA RD	N	50 FT	250	2	28	200	21		05-Jun-80	DW		
5	HA730976	540000	955000	JARRETTSVILLE RD	E	40 FT	125	3	29	123	36	18	10-Oct-73	DW		
6	BA710011	540000	960000	136 KINGSTON PARK RD	S	30 FT	50	20	13		50		12-Aug-70	DW		
7	BA735786	540000	965000	EDWARD LA	S	25 FT	50	21	3	15	45		25-May-78	I		
8	BA920842	541000	958000	8 WEBER AVENUE	S	60 FT	50	20	11	21	43		14-Sep-92	DW		
9	BA942973	541000	959000	61 WEBER AVE	E	200 FT	110	60	16	22	103		09-Jan-98	DW		
10	BA883961	541000	959000	WEBER AVE	S	27 FT	80	20	15	26	73		15-Jan-93	DW		
11	BA883254	541000	959000	WEBER AVE	N	100 FT	108	20	16	28	101		25-Apr-91	DW		
12	BA883255	542000	957000	WEBER	N	100 FT	48	30	13	19	41		19-Apr-91	DW	16-Oct-98	Y
13	BA881848	542000	958000	PUNTE LANE	E	100 FT	140				133		04-Jan-90	DW		
14	BA883998	543000	958000	59 WEBER AVE	N	100 FT	87	20	15	22	80		16-Apr-93	DW		
15	BA941143	544000	955000	STEMMERS RUN RD	E	120 FT								DW		
16	BA947036	545000	955000	2026 ROCKY POINT RD	N	15 FT	110	75	20	31	103		22-Oct-02	DW		
17	BA700353	545000	955000	MARTIN BLVD	N	75 FT	250	50	42		245		03-Jul-70	I		
18	BA946534	545000	955000	2022 ROCKY POINT RD	W	15 FT	110	75	20	38	103		04-Jun-02	DW		
19	BA738064	545000	955000	GLADWAY	S	30 FT	55	30	11	21	45		24-Mar-81	DW		
20	BA710101	545000	960000	WAMPLER ROAD	S	50 FT	65	10	31	38	58	X	24-Oct-70	DW		
21	BA735119	545000	960000	HILLPINE RD	S	120 FT	87	60	38	58	80	14	21-Nov-77	DW		
22	BA735701	545000	960000	LELAND AVE	N	3000FT	95	15	15	25	90		25-Apr-78	DW		
23	BA720077	545000	965000	EASTERN AVE	S	75 FT						X		DW		
24	BA737310	545000	965000	STEVENS RD	S	20 FT	110	30	3	13	103		04-Mar-80	DW		
25	BA731592	545000	965000	119 HUGHES SHORE RD	S	25 FT	110	25	1	30	105		30-Sep-74	DW		
26	BA720092	545000	965000	HUGHES SHORE ROAD	S	50 FT								DW		
27	BA730108	545000	965000	STEVENS RD	E	25 FT	104	15	5	100	99		22-Aug-72	DW		
28	BA920216	546000	965000	222 STEVENS ROAD	E	40 FT	114	25	1	10	109	12	04-Mar-92	DW		
29	BA812012	546000	966000	HUGHES SHORE	S	20 FT	115	60	2	12	105		09-Sep-83	DW		
30	BA944581	547000	957000	CALLO LANE	W	45 FT	22				2		21-Sep-00	DW		
31	BA814665	547000	959000	EVERGREEN ST	W	30 FT	90	60	12	21	80	13	14-Apr-86	DW		
32	BA812047	548000	961000	BOURQUE AVE	E	200 FT	115	30	22	32	105		26-Sep-83	DW		
33	BA737964	548000	963000	HUGHES SHORE	E	80 FT	115	30	3	13	105		25-Feb-81	DW		
34	BA947179	548000	963000	1012 HILLPINE ROAD	N	75 FT	80	40	40	52	73	4	23-Dec-02	DW		
35	BA941468	549000	957000	1906 MAGNOLIA AVE	S	1000FT	120	75	15	23	113		01-Feb-96	DW		
36	BA880550	549000	958000	WAMPLER RD	E	600 FT	125	50	20	30	115		23-Jan-89	DW		
37	BA883474	549000	959000	WAMPLER RD	E	100 FT	90	20	20	28	83		11-Jul-91	DW		
38	BA942207	549000	959000	535 WAMPLER RD	S	1000FT	92	60	19	31	85		31-Oct-96	DW		
39	BA812662	549000	961000	BENGIES RD	S	800 FT	208	30	85	93	198		11-May-84	DW		
40	BA730365	550000	960000	EBENEZER RD	N	1 MI	80	14	14	30	73		15-Dec-73	DW		
41	BA733977	550000	960000	BENGIES RD	S	10 FT	85	20	40	50	78		12-Feb-77	DW		
42	BA710502	550000	960000	EARLES RD	S	200 FT	95	25	35	50	88	4	20-Jul-71	DW		
43	BA811481	550000	962000	149 BENGIES	E	200 FT	103	30	20	30	93		12-Apr-83	DW		
44	BA812212	550000	966000	3016 BENGIES RD	E	180 FT	97	15	41	51	87		25-Nov-83	DW		

Here are some tables &

useful information to

use with CD

MARYLAND DEPARTMENT of the ENVIRONMENT

DENISE SWATZBAUGH
ADMINISTRATIVE SPECIALIST
GROUNDWATER PERMITS DIVISION
dswatzbaugh@mde.state.md.us

MDE

1800 Washington Blvd., Ste. 455 Phone: 410-537-3784
Baltimore MD 21230-1708 Fax: 410-537-3163

www.mde.state.md.us

County	County Code Abbreviation
Anne Arundel	AA
Allegany	AL
Baltimore	BA
Baltimore City	BC
Calvert County	CA
Caroline	CO
Carroll	CL
Cecil	CE
Charles	CH
Dorchester	DO
Frederick	FR
Garrett	GA
Harford	HA
Howard	HO
Kent	KE
Montgomery	MO
Prince George's	PG
Queen Anne's	QA
St. Mary's	SM
Somerset	SO
Talbot	TA
Washington	WA
Wicomico	WI
Worcester	WO

Interpretation of Well Codes

A successful well later abandoned
C Permit cancelled
D Deepened an existing well
U Unsuccessful new well
R Reworked or redrilled well under same permit
X More than one hole drilled before a sufficient yield

WATER USE CODE

DW Combination code for: Home or Public Use
F Farm (livestock watering & Agricultural Irrigation)
G Geo-thermal
I Industrial, Commercial, State and Federal Gov. (required an appropriation permit)
M Municipal
T Test, Observation, Monitoring (may require an appropriation)

REPLACEMENT OR DEEPEN WELLS

N This well will not replace an existing well (new well)
Y Yes, this well will replace a will that will be abandoned & sealed.
S This well will replace a well that will be used as a standby

LAST WELL # FOR EACH COUNTY – SERIES 88, 92 & 93

AA-88-9999
AA-92-2200
AA-93-1500
AA-94-9999

AL-88-0700
AL-92-0298
No 93 series
AL-94-1500

BA-88-4082
BA-92-1100
BA-93-0700
BA-94-9000

BC-88-2400
BC-92-0900
No 93 series
BC-94-2200

CA-88-4600
CA-92-1100
No 93 series
CA-94-5800

CE-88-2700
CE-92-0500
CE-93-0400
CE-94-6600

CH-88-2100
CH-92-1000
CH-93-0500
CH-94-7000

CL-88-3400
CL-92-0900
CL-93-0900
CL-94-5800

DO-88-2100
DO-92-0800
no 93 Series
DO-94-1400

FR-88-5000
FR-92-0023
No 93 Series
FR-94-5200

GA-88-1500
GA-92-0499
No 93 Series
GA-94-2800

HA-88-2195
HA-92-1000
HA-93-1000
HA-94-7400

HO-88-2400
HO-92-0723
HO-93-0400
HO-94-4800

KE-88-0900
KE-92-0300
No 93 Series
KE-94-1700

MO-88-2500
MO-92-0900
MO-93-0800
MO-94-3900

PG-88-3400
PG-92-1400
no 93 series
PG-94-3300

QA-88-2200
QA-92-0500
No 93 Series
QA-94-3700

SM-88-2600
SM-92-0800
SM-93-1000
SM-94-6000

SO-88-0400
SO-92-0400
No 93 Serie
SO-94-1400

TA-88-1800
TA-92-0500
No 93 Series
TA-94-2500

WA-88-1600
WA-92-0400
WA-93-0400
WA-94-4800

WI-88-3200
WI-92-2338
WI-93-1000
WI-94-6600

WO-88-1100
WO-92-0200
WO-93-0800
WO-94-3300

CO-88-1000
CO-92-0300
no 93 series
CO-94-3000

COLUMN_NAME	DESC_NAME	DATA_TYPE	DATA_LENG	DESCRIPTION
COUNTY_LETTER	COUNTY LETTER CODE	VARCHAR2	2	COUNTY IN WHICH PERMIT WAS ISSUED
PERMIT	WELL PERMIT	VARCHAR2	8	WELL TAG OR WELL PERMIT
MGS_ID	MGS ID	VARCHAR2	10	ID OF SOURCE ASSIGNED BY MD GEOLOGIC SURVEY/USGS
B1_SEQ	APPLICATION SEQUENCE NUMBER	VARCHAR2	4	B1 NUMBER ON PERMIT APPLICATION
B1_RECD	APPLICATION RECEIVED DATE	DATE	8	DATE (MMDDYYYY) APPLICATION RECEIVED BY STATE OR COUNTY
OWNER_NAME	OWNER'S NAME	VARCHAR2	30	NAME OF APPLICANT ON APPLICATION FOR PERMIT
ADDRESS1	ADDRESS LINE 1	VARCHAR2	30	LINE 1 OF APPLICANT ADDRESS
ADDRESS2	ADDRESS LINE 2	VARCHAR2	30	LINE 2 OF APPLICANT ADDRESS
CITY	CITY	VARCHAR2	30	APPLICANT ADDRESS - CITY
STATE	STATE	VARCHAR2	2	2-DIGIT ABBREVIATION - APPLICANT STATE
ZIP	ZIP	VARCHAR2	10	APPLICANT ZIPCODE

COLUMN_NAME	DESC_NAME	DATA_TYPE	DATA_LENG	DESCRIPTION
DRILLER_NAME	WELL DRILLER NAME	VARCHAR2	30	NAME OF WELL DRILLER
DRILLER_ID	WELL DRILLER ID	VARCHAR2	8	WELL DRILLER CERTIFICATION ID
EST_GPM_PRODUCED	ESTIMATED GPM PRODUCED	NUMBER	5	AN ESTIMATE OF HOW MUCH WATER THE WELL WILL PRODUCE
EST_GPM_NEEDED	ESTIMATED GPM NEEDED	NUMBER	7	AN ESTIMATE OF HOW MUCH WATER IS NEEDED
USE_FOR_WATER	INTENDED USE FOR WATER	VARCHAR2	1	CODED VALUE FOR TYPE OF USE FOR WATER
APPROX_DEPTH	APPROXIMATE DEPTH	NUMBER	5	ESTIMATED DEPTH OF WELL
DRILL_METHOD	WELL DRILLING METHOD	VARCHAR2	8	CODED VALUE FOR METHOD OF DRILLING
REPLACEMENT	REPLACEMENT_CODE	VARCHAR2	1	CODED VALUE FOR TYPE OF REPLACEMENT
REPLACE_PERMIT	REPLACED PERMIT	VARCHAR2	12	PERMIT OF WELL THAT IS BEING REPLACED
WAPID	WATER APPROPRIATION ID	VARCHAR2	12	WATER APPROPRIATION PERMIT (FORMERLY GAP)
WAPID_USE_PCT	WAPID USE PERCENTAGE	NUMBER	4	PERCENT OF APPROPRIATED AMOUNT WITHDRAWN FROM A PARTICULAR SOURCE

COLUMN_NAME	DESC_NAME	DATA_TYPE	DATA_LENG	DESCRIPTION
PWSID	PWSID	VARCHAR2	7	PWSID (7-DIGIT NUMERIC)
PLANT_ID	PLANT ID	VARCHAR2	2	STATE ASSIGNED PLANT ID (2-DIGIT NUMERIC)
SOURCE_ID	SOURCE ID	VARCHAR2	2	STATE ASSIGNED SOURCE ID (2-DIGIT NUMERIC)
SOURCE_WATER_TYPE	SOURCE WATER TYPE	VARCHAR2	2	CODED VALUE FOR TYPE OF SOURCE WATER
SOURCE_NAME	SOURCE NAME	VARCHAR2	30	NAME OF SOURCE
ENTITY_TYPE	ENTITY TYPE	VARCHAR2	1	CODED VALUE FOR TYPE OF SOURCE
USE_CODE	USE CODE	VARCHAR2	1	CODED VALUE FOR STATUS OR USE OF SOURCE BY PWS
HYDRO_UNIT	HYDROLOGIC UNIT	VARCHAR2	8	CODED VALUE FOR AQUIFER OR DRAINAGE BASIN
AQUIFER_TYPE	AQUIFER TYPE	VARCHAR2	1	CODED VALUE FOR AQUIFER TYPE (CONFINED,UNCONFINED)
STREAM_CODE	STREAM CODE	VARCHAR2	3	CODED VALUE FOR STREAM
RESERVOIR_CAPACITY	RESERVOIR CAPACITY	NUMBER	5	RESERVOIR CAPACITY IN MILLIONS OF GALLONS

COLUMN_NAME	DESC_NAME	DATA_TYPE	DATA_LENG	DESCRIPTION
SWTR_GROUP	SWTR GROUP	VARCHAR2	1	RISK ASSESSMENT CATEGORY FOR SURFACE WATER INFLUENCE
DISTANCE_FROM_SW	DISTANCE FROM SURFACE WATER	NUMBER	5	DISTANCE IN FEET TO NEAREST SURFACE WATER
SUBDIVISION	SUBDIVISION	VARCHAR2	20	SUBDIVISION IN WHICH WELL IS TO BE DRILLED
SECTION	SECTION	VARCHAR2	3	SECTION OF SUBDIVISION IN WHICH WELL IS TO BE DRILLED
LOT	LOT	VARCHAR2	3	SUBDIVISION LOT IN WHICH WELL IS TO BE DRILLED
NEAREST_TOWN	NEAREST TOWN	VARCHAR2	30	TOWN NEAREST TO THE WELL SITE
TOWN_DISTANCE	TOWN DISTANCE	VARCHAR2	6	DISTANCE (IN MILES) TO TOWN NEAREST TO WELL SITE
TOWN_DIRECTION	TOWN DIRECTION	VARCHAR2	2	CODED VALUE FOR DIRECTION FROM NEAREST TOWN
ROAD_NAME	ROAD NAME	VARCHAR2	30	NAME OF ROAD NEAREST WELL SITE
ROAD_SIDE	ROAD SIDE	VARCHAR2	1	CODED VALUE FOR SIDE OF THE ROAD THE WELL SITE IS ON
ROAD_DISTANCE	DISTANCE FROM ROAD	VARCHAR2	6	DISTANCE FROM ROAD TO WELL SITE

COLUMN_NAME	DESC_NAME	DATA_TYPE	DATA_LENG	DESCRIPTION
TAX_MAP	TAX MAP NUMBER	VARCHAR2	10	TAX MAP NUMBER FROM COUNTY TAX MAPS
BLOCK	TAX MAP BLOCK NUMBER	VARCHAR2	10	TAX MAP BLOCK NUMBER FROM COUNTY TAX MAP
PARCEL	TAX MAP PARCEL	VARCHAR2	60	TAX MAP PARCEL NUMBER(S) FROM COUNTY TAX MAP
N_GRID27	NORTH GRID NAD27 FEET	NUMBER	7	NORTHING IN STATE PLANE COORDINANTS NAD27 FEET
E_GRID27	EAST GRID NAD27 FEET	NUMBER	7	EASTING IN STATE PLANE COORDINANTS NAD27 FEET
N_GRID83	NORTH GRID NAD83 METERS	NUMBER	7	NORTHING IN STATE PLANE COORDINANTS NAD83 METERS
E_GRID83	EAST GRID NAD83 METERS	NUMBER	7	NORTHING IN STATE PLANE COORDINANTS NAD83 METERS
LAT_DEC_DEG	LATITUDE -DECIMAL DEGREES	NUMBER	8	LATITUDE - DECIMAL DEGREES NAD83
LON_DEC_DEG	LONGITUDE - DECIMAL DEGREES	NUMBER	9	LONGITUDE - DECIMAL DEGREES NAD83
MAD	METHOD/ACCURACY/DATUM	VARCHAR2	2	CODED VALUE FOR LAT-LON METHOD/ACCURACY/DATUM VALUES
STATE_APPROVAL	STATE APPROVAL	VARCHAR2	1	PERMIT REQUIRES STATE APPROVAL (Y/N)

COLUMN_NAME	DESC_NAME	DATA_TYPE	DATA_LENG	DESCRIPTION
ISSUE_DATE	ISSUE DATE	DATE	8	DATE PERMIT WAS ISSUED
SPECIAL_FLAG	SPECIAL FLAG	VARCHAR2	1	FLAG FOR SPECIAL CONDITIONS
C1_SEQ	COMPLETION REPORT SEQUENCE NUMBER	VARCHAR2	4	C1 NUMBER OF WELL COMPLETION REPORT
C1_RECD	COMPLETION REPORT RECEIVED DATE	DATE	8	DATE (MMDDYYYY) COMPLETION REPORT RECEIVED BY STATE
COMPLETION_DATE	WELL COMPLETION DATE	DATE	8	DATE (MMDDYYYY) WELL WAS COMPLETED
TOTAL_DEPTH	TOTAL DEPTH	NUMBER	5	TOTAL DEPTH (FEET) OF COMPLETED WELL
NUM_UNSUCCESSFUL	NUMBER OF UNSUCCESSFUL WELLS	NUMBER	2	NUMBER OF UNSUCCESSFULL (DRY) WELLS DRILLED
HYDROFRACTURE	HYDROFRACTURE	VARCHAR2	1	INDICATES WELL WAS HYDROFRACTURED (Y/N)
GROUTED	GROUTED	VARCHAR2	1	INDICATES WELL WAS GROUTED (Y/N)
GROUT_TYPE	GROUT TYPE	VARCHAR2	2	CODED VALUE FOR TYPE OF GROUT USED
GROUT_TOP	GROUT TOP	NUMBER	5	DISTANCE (FEET) FROM SURFACE TO TOP OF GROUTING

COLUMN_NAME	DESC_NAME	DATA_TYPE	DATA_LENG	DESCRIPTION
GROUT_BOTTOM	GROUT BOTTOM	NUMBER	5	DEPTH (FEET) TO WHICH WELL WAS GROUTED
CASING_TYPE	CASING TYPE	VARCHAR2	2	CODED VALUE FOR TYPE OF CASING
CASING_DIAM	CASING DIAMETER	NUMBER	2	DIAMETER OF CASING (INCHES)
CASING_DEPTH	CASING DEPTH	NUMBER	5	DEPTH (FEET) TO WHICH WELL IS CASED
CASING_HEIGHT	CASING HEIGHT	VARCHAR2	5	HEIGHT (FEET) CASING EXTENDS ABOVE GRADE
SCREEN_TYPE_1	SCREEN TYPE (FIRST SCREEN)	VARCHAR2	2	CODED VALUE FOR SCREEN TYPE (FIRST SCREEN)
TOP_SCREEN_1	TOP SCREEN 1	NUMBER	5	DISTANCE (FEET) TO TOP OF FIRST SCREEN
BOTTOM_SCREEN_1	BOTTOM SCREEN 1	NUMBER	5	DISTANCE (FEET) TO BOTTOM OF FIRST SCREEN
SCREEN_TYPE_2	SCREEN TYPE (SECOND SCREEN)	VARCHAR2	2	CODED VALUE FOR SCREEN TYPE (SECOND SCREEN)
TOP_SCREEN_2	TOP SCREEN 2	NUMBER	5	DISTANCE (FEET) TO TOP OF SECOND SCREEN
BOTTOM_SCREEN_2	BOTTOM SCREEN 2	NUMBER	5	DISTANCE (FEET) TO BOTTOM OF SECOND SCREEN

COLUMN_NAME	DESC_NAME	DATA_TYPE	DATA_LENG	DESCRIPTION
SCREEN_TYPE_3	SCREEN TYPE (THIRD SCREEN)	VARCHAR2	2	CODED VALUE FOR SCREEN TYPE (THIRD SCREEN)
TOP_SCREEN_3	TOP SCREEN 3	NUMBER	5	DISTANCE (FEET) TO TOP OF THIRD SCREEN
BOTTOM_SCREEN_3	BOTTOM SCREEN 3	NUMBER	5	DISTANCE (FEET) TO BOTTOM OF THIRD SCREEN
SCREEN_DIAM	SCREEN DIAMETER	NUMBER	5	DIAMETER (INCHES) OF SCREENS
FLOWING_WELL	FLOWING WELL	VARCHAR2	1	INDICATES WELL IS A FLOWING WELL (Y/N)
TELESCOPING	TELESCOPING	VARCHAR2	1	INDICATES TELESCOPE CASING (Y/N)
LOG_TYPE	LOG TYPE	VARCHAR2	1	INDICATES TYPE OF WELL LOG OBTAINED
HRS_PUMPED	HOURS PUMPED	NUMBER	2	HOURS OF PUMPING DURING WELL TEST
PUMPING_RATE	PUMPING RATE	NUMBER	5	PUMPING RATE (GPM) DURING WELL TEST
LEVEL_BEFORE	LEVEL BEFORE	NUMBER	5	WATER LEVEL (FEET) IN WELL BEFORE TEST
LEVEL_DURING	LEVEL DURING	NUMBER	5	WATER LEVEL (FEET) IN WELL DURING TEST

COLUMN_NAME	DESC_NAME	DATA_TYPE	DATA_LENG	DESCRIPTION
TEST_PUMP_TYPE	TEST PUMP TYPE	VARCHAR2	1	CODED VALUE FOR TYPE OF PUMP USED FOR TEST
PUMP_INSTALLED	PUMP INSTALLED	VARCHAR2	1	INDICATES A PUMP WAS INSTALLED (Y/N)
INSTALL_PUMP_TYPE	TYPE OF PUMP INSTALLED	VARCHAR2	1	CODED VALUE FOR TYPE OF PUMP INSTALLED
CAPACITY	CAPACITY	NUMBER	5	PUMPING CAPACITY OF THE WELL (GPM)
PUMP_HP	PUMP HORSEPOWER	NUMBER	5	HORSEPOWER RATING OF INSTALLED PUMP
COLUMN_LENGTH	COLUMN LENGTH	NUMBER	5	TOTAL LENGTH OF PUMP COLUMN PIPING
CLOSED	CLOSED	VARCHAR2	1	
ABANDONED	ABANDONED	VARCHAR2	1	INDICATES WELL HAS BEEN ABANDONED (Y/N)
ABANDON_DATE	ABANDONMENT DATE	DATE	8	DATE THE WELL WAS PROPERLY ABANDONED
REMARK	REMARK	VARCHAR2	80	MDE STAFF REMARKS (USUALLY INDICATING RECORD MODIFICATIONS)
PWS_SOURCE_KEY	PWS SOURCE KEY	VARCHAR2	9	CONCATENATION OF PWSID AND SOURCE_ID

Appendix B - Well Permits and Completion Reports for the Survey Area on File at the MDE

BA-E-47

101-19

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BUILDING
ANNAPOLIS, MARYLAND 21401

PERMIT TO DRILL WELL

ISSUE DATE- 03/03/70
MO DA YR

****
* PERMIT NUMBER- BA-70-0353 *
****

ISSUED TO DRILLER-

WM LEONARD
742 BUSH ST
WHITE MARSH MD 21162

DRILLER
ID. NUMBER- 32

THE ABOVE NAMED DRILLER IS HEREBY AUTHORIZED TO DRILL A WELL TO BE OWNED BY-

BROWN, JOEL
530 BAY DR RT 15
BALTIMORE MD 21220

THIS WELL IS TO BE LOCATED IN BALTIMORE COUNTY,
VICORY VILLA SUBDIVISION, SECTION- , LOT- ,
NEAR THE TOWN OF VICTORY VILLA

THE WATER IS TO BE USED FOR A COMMERCIAL/INDUSTRIAL SUPPLY. "TWIN-KISS ICE CREAM" DRIVE-IN

THIS WELL WILL REPLACE A WELL WHICH WILL BE A STANDBY.

****SPECIAL CONDITIONS****

THIS PERMIT IS SUBJECT TO THE FOLLOWING SPECIAL CONDITIONS-

1. NOTIFY DEPT. 48 HOURS BEFORE DRILLING WELL, CALL 268-3371.
2. PROVIDE OPENING FOR TAPE MEASUREMENT OF WATER LEVELS (MIN. INSIDE DIAM. OF ONE-HALF INCH) SEALED BY REMOVABLE CAP/PLUG.
3. A TAP FOR RAW WATER SAMPLES MUST BE PLACED BEFORE WATER ENTERS A TREATMENT FACILITY, PRESSURE OR STORAGE TANK.

THIS PERMIT IS VALID UNTIL 09/03/70. A WELL COMPLETION REPORT MUST BE SUBMITTED TO THE DEPARTMENT WITHIN 30 DAYS AFTER COMPLETION OF THE WELL

GROUNDWATER APPROPRIATION
PERMIT NUMBER- BA70GAP016

PAUL W. MCKEE
DIRECTOR, MARYLAND
DEPARTMENT OF WATER
RESOURCES

DWR COPY

B 1 9742 SEQUENCE NO. (DWR USE ONLY)
1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-0 ON ALL CARDS)

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

APPLICATION MUST BE SUBMITTED AND PERMIT RECEIVED BEFORE DRILLING IS STARTED.
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (DWR USE ONLY) 022070

OWNER Brown (COL 15 LAST NAME) Joel (FIRST NAME COL 34)
STREET OR RFD 530 Bay Drive Rt 15 (COL 36, COL 55)
POST OFFICE Balto Md 21220 BA-70-0853. (COL 57, COL 80)
8-13

B 2 DRILLER INFORMATION
1 2 3 (SEQ. NO.) 6
Wm (FIRST NAME) Leonard (DRILLER LAST NAME 27) IDENTITY NUMBER 32 (29 32)
74 Bush St (STREET OR RFD 34 53)
White Marsh Md 21162 (POST OFFICE 55, ZIP CODE 80)
DATE OF APPLICATION

B 3 WELL INFORMATION
1 2 3 (SEQ. NO.) 6
MAXIMUM PUMPING RATE (GALLONS PER MINUTE) 10 (8 12)
AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY) 1500 (14 20)

USE FOR WATER (CIRCLE APPROPRIATE BOX)
D DOMESTIC, HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
F FARMING, AGRICULTURE, IRRIGATION
I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT. (21 22)
M MUNICIPAL WATER SUPPLY
P PRIVATE WATER COMPANY
} MUST HAVE STATE HEALTH DEPT. APPROVAL
T TEST

APPROXIMATE DEPTH OF WELL 100 FEET (24 28)

METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD) (30-37)
BORED (OR AUGERED) JETTED DRIVEN
AIR-ROTARY AIR-PERCUSSION ROTARY (HYDRAULIC ROTARY)
CABLE REVERSE ROTARY
OTHER (DESCRIBE)

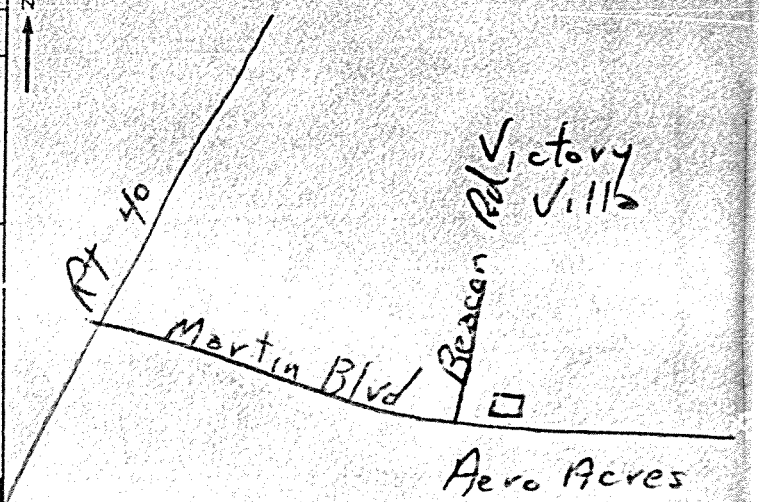
REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)
N THIS WELL WILL NOT REPLACE AN EXISTING WELL
R THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED (38)
S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
D THIS WELL WILL DEEPEN AN EXISTING WELL
PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE) (41 52)

NOT TO BE FILLED IN BY DRILLER (DWR USE ONLY)
APPROPRIATION PERMIT NUMBER BA7&GAP016 (GAP) (54 63)
ENGINEER REVIEW (WRITE DISTRICT NO. IN BOX) (65)
FORCE AS (WRITE INITIALS IN BOX) (67 68)
CONDITIONS A E N S G W Q: I N WQ (70 71 72 73 74 75 76 77 78 79)

B 4 LOCATION OF WELL
1 2 3 (SEQ. NO.) 6
COUNTY Baltimore (8 21) (DO NOT ABBREVIATE COUNTY NAME)
SUBDIVISION ~~Aero Acres~~ Victory Villa (23 42)
SECTION (44 46) LOT (48 50)
NEAREST TOWN ~~Aero Acres~~ Victory Villa (52 71)
MILES FROM TOWN (ENTER 0 IF IN TOWN) 0 (73 76) M I (77 78)

B 5 DIRECTION FROM TOWN (CIRCLE APPROPRIATE BOX)
1 2 3 (SEQ. NO.) 6
N NORTH E EAST NE NORTHEAST SE SOUTHEAST
S SOUTH W WEST NW NORTHWEST SW SOUTHWEST (8 9)
NEAR WHAT ROAD Martin Blvd at Beacon Rd (11 30)
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) NORTH (N) (32) SOUTH (S) (32) EAST (E) (32) WEST (W) (32)
DISTANCE FROM ROAD (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX) 75 (34 37) F T M I (38 39)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS, ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW, AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON THE SKETCH. DISTANCE MAY BE APPROXIMATE, BUT MUST BE INDICATED.



09535
545

B 5 CONTINUED
1 2 3 (SEQ. NO.) 6
41 S STATE DEPARTMENT OF HEALTH (CIRCLE BOX IF STATE HEALTH)
DATE MO. 02 DAY 17 YR. 70 (43 45)

HEALTH DEPARTMENT APPROVAL (NOT TO BE FILLED IN BY DRILLER)
Baltimore COUNTY DEPT. OF HEALTH
APPROVED BY J. Fowler TITLE Asst Chief

LATITUDE 39 20 20 (50 51 52 53 54 55) DEG MIN SEC
LONGITUDE 076 27 00 (57 58 59 60 61 62 63)
ELEVATION AT WELL HEAD (FEET) 0100 (64 66 67 68)

B 6 (SEQ. NO.) 6
SPECIAL CONDITIONS 5-63 (DWR USE ONLY)

ORIGINAL

101-19

WR-W-4 5-69

C 1 4145 — SEQUENCE NO. (DWR USE ONLY) — (SEQ. NO.) — THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 30 DAYS AFTER COMPLETION OF THE WELL

FILL IN THIS FORM COMPLETELY

DATE RECEIVED (DWR USE ONLY) 03 13 70

DATE WELL COMPLETED 12/27/70 — 0 2 2 7 7 0

DEPTH OF WELL 130 (TO NEAREST FOOT)

PERMIT NO. FROM PERMIT TO DRILL WELL B A - 7 0 - 0 3 5 3

DRILLERS IDENTIFICATION NO. 32

OWNER Brown (LAST NAME) Joel (FIRST NAME)

STREET OR RFD 530 Bay Dr Rt 15 — POST OFFICE Belle Md 21220

WELL DESCRIPTION

WELL LOG

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (USE ADDITIONAL SHEETS IF NECESSARY)	FEET FROM	FEET TO	CHECK IF WATER BEARING
Sand	0	15	
Red clay	15	63	
Sand	63	67	
Red Clay	67	83	
Sand	83	85	
Red Clay	85	123	
Sand	123	130	✓

3' Tail + packer

Special conditions do not apply as per instruction of Mr Schiffman

SEE CORRECTED COMPLETION REPORT

GROUTING RECORD

WELL HAS BEEN GROUTED (CIRCLE APPROPRIATE BOX) — YES (Y) — NO (N) 46

DEPTH OF GROUT SEAL (TO NEAREST FOOT)

FROM ~~15~~ 2 FT. (48–52) TO 126 FT. (54–58)

(ENTER 0 IF FROM SURFACE)

CASING RECORD

CASING TYPES (INSERT APPROPRIATE CODE BELOW): STEEL (ST), CONCRETE (CO), PLASTIC (PL), OTHER (OT)

MAIN CASING TYPE	NOMINAL DIAMETER TOP (MAIN) CASING (NEAREST INCH)	TOTAL DEPTH OF MAIN CASING (NEAREST FOOT)
ST (60–61)	4 (63–64)	125 (66–70)

OTHER CASING (IF USED)

	DIAMETER (INCH)	DEPTH (FEET) FROM	TO
EACH CASING			

SCREEN RECORD

SCREEN TYPE OR OPEN HOLE (INSERT APPROPRIATE CODE BELOW): STEEL (ST), BRASS OR BRONZE (BR), OPEN HOLE (HO), PLASTIC (PL), OTHER (OT)

C 2 (SEQ. NO.)

	SCREEN TYPE	DEPTH (NEAREST WHOLE FOOT) FROM	TO
EACH SCREEN 1	PL (8–9)	123 (11–15)	130 (17–21)
2	(23–24)	(26–30)	(32–36)
3	(38–39)	(41–45)	(47–51)
4	(53–54)	(56–60)	(62–66)

SLOT SIZE .020 2. ____ 3. ____ 4. ____

IF WELL DRILLED WAS A FLOWING WELL CIRCLE BOX (68 F)

DWR USE ONLY (NOT TO BE FILLED IN BY DRILLER) (F.R.O.)

T (70) TELESCOPE CASING — (72) LOG INDICATOR

W Q — OTHER DATA AVAILABLE (74 75 76)

C 3 (SEQ. NO.)

PUMPING TEST

HOURS PUMPED (TO NEAREST HOUR) 2 (8–9)

PUMPING RATE (GALLONS PER MINUTE TO NEAREST GALLON) 5 (11–15)

METHOD USED TO MEASURE PUMPING RATE bucket

WATER LEVEL: (DISTANCE FROM LAND SURFACE)

BEFORE PUMPING 40 (17–20) (NEAREST FOOT)

WHEN PUMPING ____ (22–25) (NEAREST FOOT)

TYPE OF PUMP USED (CIRCLE APPROPRIATE BOX)

A AIR (27) — P PISTON (27) — T TURBINE (27) — C CENTRIFUGAL (27) — R ROTARY (27) — O OTHER (DESCRIBE BELOW) (27) — J JET (27) — S SUBMERSIBLE (27)

PUMP INSTALLED

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX — SEE ABOVE: A, C, J, P, R, S, T, O) S (29)

CAPACITY: GALLONS PER MINUTE (TO NEAREST GALLON) 5 (31–35)

PUMP HORSE POWER 1/3 (37–41)

PUMP COLUMN LENGTH (NEAREST FOOT) 100 (43–47)

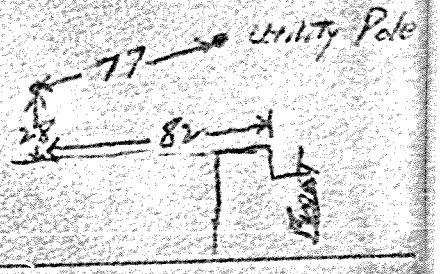
CASING HEIGHT (CIRCLE APPROPRIATE BOX AND ENTER CASING HEIGHT)

+ ABOVE / − BELOW LAND SURFACE 2 (50–51) (NEAREST FOOT)

LOCATION OF WELL ON LOT

N

SHOW PERMANENT STRUCTURE SUCH AS BUILDINGS, SEPTIC TANKS, AND/OR OTHER LAND MARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL).



CIRCLE APPROPRIATE BOXES

A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E ELECTRIC LOG OBTAINED

C COPY OF ELECTRIC LOG ATTACHED

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

DRILLERS NAME Walter Frank

(PLEASE PRINT) Wm. Leonard

SIGNATURE Wm. Leonard

ORIGINAL

WR-W-4 3-69

CHECK OUT !

C 1 8253 — SEQUENCE NO. (DWR USE ONLY) — (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 30 DAYS AFTER COMPLETION OF THE WELL

FILL IN THIS FORM COMPLETELY

DATE RECEIVED (DWR USE ONLY): 072070

DATE WELL COMPLETED: 7/3/70 (070370)

DEPTH OF WELL: 240 (TO NEAREST FOOT)

PERMIT NO. FROM PERMIT TO DRILL WELL: BA-70-0363

DRILLERS IDENTIFICATION NO.: 32

OWNER: Brown, Joe (LAST NAME, FIRST NAME)

STREET OR RFD: 530 Bay Drive RT 15 POST OFFICE: Bel Air Md 21014

WELL DESCRIPTION

WELL LOG

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (USE ADDITIONAL SHEETS IF NECESSARY)	FEET FROM	FEET TO	CHECK IF WATER BEARING
Sand	0	15	
Red clay	15	63	
Sand	63	67	
Red clay	67	83	
Sand	83	85	
Red clay	85	123	
Sand	123	130	
Red clay	130	154	
Sand	154	160	
White Clay	160	238	
Rock	238	240	
Sand	240	250	

Corrected Copy

GROUTING RECORD
WELL HAS BEEN GROUTED (CIRCLE APPROPRIATE BOX): YES (Y) 46 — NO (N) 46

DEPTH OF GROUT SEAL (TO NEAREST FOOT): FROM 2 FT. (48, 52) TO 44 FT. (54, 58) (ENTER 0 IF FROM SURFACE)

CASING RECORD
CASING TYPES (INSERT APPROPRIATE CODE BELOW): ST STEEL; CO CONCRETE; PL PLASTIC; OT OTHER

MAIN CASING TYPE	NOMINAL DIAMETER TOP (MAIN) CASING (NEAREST INCH)	TOTAL DEPTH OF MAIN CASING (NEAREST FOOT)
ST (60, 61)	4 (63, 64)	244 (66, 70)

OTHER CASING (IF USED)

EACH CASING	DIAMETER (INCH)	DEPTH (FEET) FROM	TO
1			
2			
3			

SCREEN RECORD
SCREEN TYPE OR OPEN HOLE (INSERT APPROPRIATE CODE BELOW): ST STEEL; BR BRASS OR BRONZE; HO OPEN HOLE; PL PLASTIC; OT OTHER

C 2 (1 2 3 SEQ. NO. 6)

DEPTH (NEAREST WHOLE FOOT)

SCREEN EACH		FROM	TO
1	PL (8, 9)	144 (11, 15)	150 (17, 21)
2	(23, 24)	(26, 30)	(32, 36)
3	(38, 39)	(41, 45)	(47, 51)
4	(53, 54)	(56, 60)	(62, 66)

SLOT SIZE 1. .020 2. ____ 3. ____ 4. ____

IF WELL DRILLED WAS A FLOWING WELL CIRCLE BOX: 68 F

DWR USE ONLY (NOT TO BE FILLED IN BY DRILLER) (E,R,O.)
70 T TELESCOPE CASING; 72 LOG INDICATOR
74 75 76 W Q OTHER DATA AVAILABLE

C 3 (1 2 3 SEQ. NO. 6)

PUMPING TEST
HOURS PUMPED (TO NEAREST HOUR): 8 (9, 9)

PUMPING RATE (GALLONS PER MINUTE TO NEAREST GALLON): 50 (11, 15)

METHOD USED TO MEASURE PUMPING RATE: bucket

WATER LEVEL: (DISTANCE FROM LAND SURFACE)
BEFORE PUMPING: 47 (-17, 20) (NEAREST FOOT)
WHEN PUMPING: (22, 25) (NEAREST FOOT)

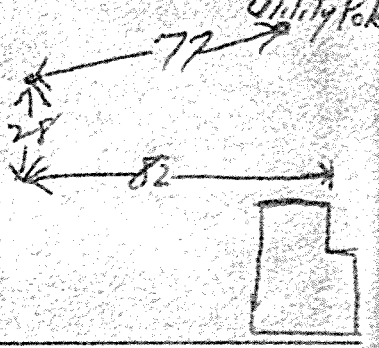
TYPE OF PUMPED USED (CIRCLE APPROPRIATE BOX)
A AIR (27); P PISTON (27); T TURBINE (27); C CENTRIFUGAL (27); R ROTARY (27); O OTHER (DESCRIBE BELOW) (27); J JET (27); S SUBMERSIBLE (27)

PUMP INSTALLED
TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX — SEE ABOVE: A, C, J, P, R, S, T, O)
29 S

CAPACITY:
GALLONS PER MINUTE (TO NEAREST GALLON): 8 (31, 35)
PUMP HORSE POWER: 1/3 (37, 41)
PUMP COLUMN LENGTH (NEAREST FOOT): 80 (43, 47)

CASING HEIGHT (CIRCLE APPROPRIATE BOX AND ENTER CASING HEIGHT)
+ ABOVE; (−) BELOW (48) LAND SURFACE
3 (50, 51) (NEAREST FOOT)

LOCATION OF WELL ON LOT
N — SHOW PERMANENT STRUCTURE SUCH AS BUILDINGS, SEPTIC TANKS, AND/OR OTHER LAND MARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL).



CIRCLE APPROPRIATE BOXES
A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
E ELECTRIC LOG OBTAINED
C COPY OF ELECTRIC LOG ATTACHED

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

DRILLERS NAME (PLEASE PRINT): Walter Frank Wm. Leonard

SIGNATURE: Wm Leonard

ORIGINAL

WR-W-3 3-69

B 1 9756 SEQUENCE NO. (DWR USE ONLY)
1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

APPLICATION MUST BE SUBMITTED AND PERMIT RECEIVED BEFORE DRILLING IS STARTED.
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (DWR USE ONLY): 070970
8-13

OWNER: Mc Neal (COL 15 LAST NAME) Clarence (FIRST NAME) COL 34
STREET OR RFD: 810 Orems Rd (COL 36) BA-71-0011 (COL 55)
POST OFFICE: Balto Md (COL 57) 21221 (COL 80)

B 2 DRILLER INFORMATION
1 2 3 (SEQ. NO.) 6

Wm. Leonard (FIRST NAME, DRILLER, LAST NAME) IDENTITY NUMBER 32
742 Bush St (STREET OR RFD)
White Marsh Md (POST OFFICE) 21162 (ZIP CODE)
DATE OF APPLICATION 7/6/70

B 4 LOCATION OF WELL
1 2 3 (SEQ. NO.) 6

COUNTY: Baltimore (DO NOT ABBREVIATE COUNTY NAME)
SUBDIVISION: Kingston Park
SECTION: LOT:
NEAREST TOWN: Hawthorne
MILES FROM TOWN (ENTER 0 IF IN TOWN): 1/4 M I

B 3 WELL INFORMATION
1 2 3 (SEQ. NO.) 6

MAXIMUM PUMPING RATE (GALLONS PER MINUTE): 10
AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY): 1000

B 5 DIRECTION FROM TOWN (CIRCLE APPROPRIATE BOX)
1 2 3 (SEQ. NO.) 6

N NORTH, E EAST, N E NORTHEAST, S E SOUTHEAST
S SOUTH, W WEST, N W NORTHWEST, S W SOUTHWEST

NEAR WHAT ROAD: 136 Kingston Park Rd
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): NORTH N, SOUTH S, EAST E, WEST W
DISTANCE FROM ROAD (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX): 30 F T M I

USE FOR WATER (CIRCLE APPROPRIATE BOX)

D DOMESTIC, HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
F FARMING, AGRICULTURE, IRRIGATION
I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT.
M MUNICIPAL WATER SUPPLY
P PRIVATE WATER COMPANY
} MUST HAVE STATE HEALTH DEPT. APPROVAL
T TEST

APPROXIMATE DEPTH OF WELL: 60 FEET

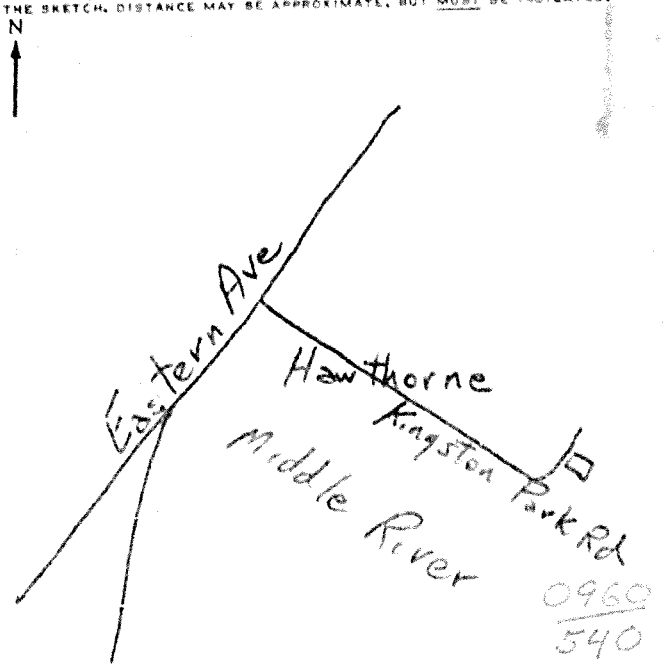
METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD)

BORED (OR AUGERED) JETTED DRIVEN
AIR-ROTARY AIR-PERCUSSION ROTARY (HYDRAULIC ROTARY)
CABLE REVERSE ROTARY
OTHER (DESCRIBE)

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)

N THIS WELL WILL NOT REPLACE AN EXISTING WELL
Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
D THIS WELL WILL DEEPEN AN EXISTING WELL
PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS, ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW, AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON THE SKETCH. DISTANCE MAY BE APPROXIMATE, BUT MUST BE INDICATED.



0960
540

NOT TO BE FILLED IN BY DRILLER (DWR USE ONLY)

APPROPRIATION PERMIT NUMBER: G A P
ENGINEER REVIEW (WRITE DISTRICT NO. IN BOX)
FORCE (WRITE INITIALS IN BOX)
CONDITIONS: A E N S G W Q

B 5 CONTINUED
1 2 3 (SEQ. NO.) 6

HEALTH DEPARTMENT APPROVAL (NOT TO BE FILLED IN BY DRILLER)

Baltimore COUNTY DEPT. OF HEALTH
S STATE DEPARTMENT OF HEALTH (CIRCLE BOX IF STATE HEALTH)
DATE MO. DAY YR. 07 07 70
APPROVED BY Fan J. Forrest TITLE Sect. Chief
LATITUDE 39 19 10 (DEG MIN SEC)
LONGITUDE 0 76 25 50 (DEG MIN SEC)
ELEVATION AT WELL HEAD (FEET) 0050

B 6 (DWR USE ONLY)
1 2 3 (SEQ. NO.) 6
SPECIAL CONDITIONS 8-63

ORIGINAL

102-12

WR-W-4 3-69

C 1 2118 (SEQ. NO.) SEQUENCE NO. (DWR USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 30 DAYS AFTER COMPLETION OF THE WELL

FILL IN THIS FORM COMPLETELY

DATE RECEIVED (DWR USE ONLY): 081770

DATE WELL COMPLETED: 8/12/70 — 081270

DEPTH OF WELL (TO NEAREST FOOT): 50

PERMIT NO. FROM PERMIT TO DRILL WELL: 64-71-0011

DRILLERS IDENTIFICATION NO.: 32

OWNER: McNeal (LAST NAME) Clarence (FIRST NAME)

STREET OR RFD: 810 Orems Rd POST OFFICE: Balto. Md 21221

WELL DESCRIPTION

WELL LOG

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (USE ADDITIONAL SHEETS IF NECESSARY)	FEET FROM	FEET TO	CHECK IF WATER BEARING
Sand	0	4	
Grey + White Clay	4	28	
Sand	28	50	✓

GROUTING RECORD

WELL HAS BEEN GROUTED (CIRCLE APPROPRIATE BOX): YES (Y) NO (N)

DEPTH OF GROUT SEAL (TO NEAREST FOOT): FROM 0 FT. TO 22 FT. (ENTER 0 IF FROM SURFACE)

CASING RECORD

CASING TYPES (INSERT APPROPRIATE CODE BELOW): ST STEEL, CO CONCRETE, PL PLASTIC, OT OTHER

MAIN CASING TYPE: ST — NOMINAL DIAMETER TOP (MAIN) CASING (NEAREST INCH): 4 — TOTAL DEPTH OF MAIN CASING (NEAREST FOOT): 50

OTHER CASING (IF USED)

EACH CASING — DIAMETER (INCH) — DEPTH (FEET) FROM TO

SCREEN RECORD

SCREEN TYPE OR OPEN HOLE (INSERT APPROPRIATE CODE BELOW): ST STEEL, BR BRASS OR BRONZE, HO OPEN HOLE, PL PLASTIC, OT OTHER

C 2 (SEQ. NO.)

DEPTH (NEAREST WHOLE FOOT)

EACH SCREEN: 1 PL — FROM 45 — 50; 2; 3; 4

SLOT SIZE: 30 M.

IF WELL DRILLED WAS A FLOWING WELL CIRCLE BOX: F

DWR USE ONLY (NOT TO BE FILLED IN BY DRILLER): T TELESCOPE C SING; (E.R.O.) LOG INDICATOR; W Q OTHER DATA AVAILABLE

C 3 (SEQ. NO.)

PUMPING TEST

HOURS PUMPED (TO NEAREST HOUR): 1 ~~3~~

PUMPING RATE (GALLONS PER MINUTE TO NEAREST GALLON): 20

METHOD USED TO MEASURE PUMPING RATE: Bucket

WATER LEVEL: (DISTANCE FROM LAND SURFACE)

BEFORE PUMPING: 13 (NEAREST FOOT)

WHEN PUMPING: (NEAREST FOOT)

TYPE OF PUMPED USED (CIRCLE APPROPRIATE BOX): A AIR, P PISTON, T TURBINE, C CENTRIFUGAL, R ROTARY, O OTHER (DESCRIBE BELOW), J JET, S SUBMERSIBLE

PUMP INSTALLED

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX - SEE ABOVE: A, C, J, P, R, S, T, O)

CAPACITY: GALLONS PER MINUTE (TO NEAREST GALLON)

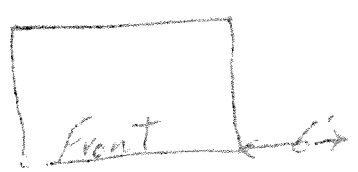
PUMP HORSE POWER

PUMP COLUMN LENGTH (NEAREST FOOT)

CASING HEIGHT (CIRCLE APPROPRIATE BOX AND ENTER CASING HEIGHT): + ABOVE, − BELOW — LAND SURFACE 2 (NEAREST FOOT)

LOCATION OF WELL ON LOT

N — SHOW PERMANENT STRUCTURE SUCH AS BUILDINGS, SEPTIC TANKS, AND/OR OTHER LAND MARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL).



CIRCLE APPROPRIATE BOXES

A — A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E — ELECTRIC LOG OBTAINED

C — COPY OF ELECTRIC LOG ATTACHED

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

DRILLERS NAME: Walter Frank

(PLEASE PRINT): Wm. Leonard

SIGNATURE: Wm Leonard

ORIGINAL

WR-W-3 3-69

B 1 1983 — SEQUENCE NO. (DWR USE ONLY)
1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

APPLICATION MUST BE SUBMITTED AND PERMIT RECEIVED BEFORE DRILLING IS STARTED.
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (DWR USE ONLY): 09 24 70

OWNER: Jean P. William — COL 15 LAST NAME — FIRST NAME — COL 34
STREET OR RFD: Box 17 Wampler Road — COL 36 — COL 58
POST OFFICE: Baltimore Maryland 12220 — COL 57 — COL 80
BA-71-010

B 2 — DRILLER INFORMATION
1 2 3 (SEQ. NO.) 6
William H. Eiler — FIRST NAME — DRILLER LAST NAME — IDENTITY NUMBER: 27 (26–32)
XX River Neck Road — STREET OR RFD (34–53)
Baltimore Maryland — POST OFFICE — ZIP CODE (55–60)
DATE OF APPLICATION: Sept. 25/70

B 3 — WELL INFORMATION
1 2 3 (SEQ. NO.) 6
MAXIMUM PUMPING RATE (GALLONS PER MINUTE): 5 (8–12)
AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY): 300 (14–20)

USE FOR WATER (CIRCLE APPROPRIATE BOX)
(D) DOMESTIC, HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
(F) FARMING, AGRICULTURE, IRRIGATION
(I) INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT
(M) MUNICIPAL WATER SUPPLY
(P) PRIVATE WATER COMPANY
} MUST HAVE STATE HEALTH DEPT. APPROVAL
(T) TEST
22

APPROXIMATE DEPTH OF WELL: 100 FEET (24–28)

METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD)
BORED (OR AUGERED) — JETTED — DRIVEN
AIR-ROTARY — AIR-PERCUSSION — (ROTARY) HYDRAULIC ROTARY
CABLE — REVERSE ROTARY
OTHER (DESCRIBE) (30–37)

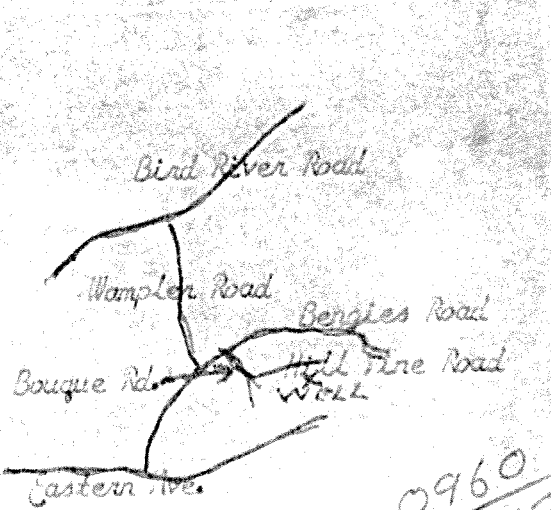
REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)
(N) THIS WELL WILL NOT REPLACE AN EXISTING WELL
(Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
(S) THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
(D) THIS WELL WILL DEEPEN AN EXISTING WELL
PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE) (41–52)
39

NOT TO BE FILLED IN BY DRILLER (DWR USE ONLY)
APPROPRIATION PERMIT NUMBER: G A P (54–63)
ENGINEER REVIEW (WRITE DISTRICT NO. IN BOX) (65)
FORCE (67 68) — WRITE INITIALS IN BOX
CONDITIONS: A E N S G W Q (70–79)

B 4 — LOCATION OF WELL
1 2 3 (SEQ. NO.) 6
COUNTY: Baltimore (DO NOT ABBREVIATE COUNTY NAME) (8–21)
SUBDIVISION (23–42)
SECTION (44) — LOT: X (45–50)
NEAREST TOWN: Middle River (52–71)
MILES FROM TOWN (ENTER 0 IF IN TOWN): 1/2 (73–75) — M I (76–78)

B 5 — DIRECTION FROM TOWN (CIRCLE APPROPRIATE BOX)
1 2 3 (SEQ. NO.) 6
(N) NORTH (E) EAST (NE) NORTHEAST (SE) SOUTHEAST
(S) SOUTH (W) WEST (NW) NORTHWEST (SW) SOUTHWEST
8 9
NEAR WHAT ROAD: WAMPLER ROAD (11–30)
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): (N) (S) (E) (W) (31–34)
DISTANCE FROM ROAD (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX): 50 (34–37) — (F) (T) — M I (38 39)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS, ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW, AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON THE SKETCH. DISTANCE MAY BE APPROXIMATE, BUT MUST BE INDICATED.



0960/545

B 5 CONTINUED
1 2 3 (SEQ. NO.) 6
41 (S) STATE DEPARTMENT OF HEALTH (CIRCLE BOX IF STATE HEALTH)
DATE: MO. 09 DAY 23 YR. 70 (43–48)

HEALTH DEPARTMENT APPROVAL (NOT TO BE FILLED IN BY DRILLER)
Baltimore COUNTY DEPT. OF HEALTH
APPROVED BY: [signature] TITLE Sanitarian
LATITUDE: 39 20 40 (50–55) DEG MIN SEC
LONGITUDE: 076 25 50 (57–63)
ELEVATION AT WELL HEAD (FEET): 0050 (64–68)

B 6 — SPECIAL CONDITIONS 8-69 (DWR USE ONLY) (69–80)
1 2 3 (SEQ. NO.) 6

ORIGINAL

102-69

FORM 2002

C 1 6456 SEQUENCE NO. (DNRUSE ONLY)
1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401

WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 30 DAYS AFTER COMPLETION OF THE WELL.
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (DNRUSE ONLY) 3 13 72 83

DATE WELL COMPLETED: Dec 24 72

DEPTH OF WELL: 55 (TO NEAREST FOOT) 22 28

PERMIT NO. FROM PERMIT TO DRILL WELL: NA-71-0111 (28 29 30 31 32 33 34 35 36 37)

DRILLERS IDENTIFICATION NO.: 102470 (48 52)

OWNER: Jean (LAST NAME) William L. (FIRST NAME)

STREET OR RFD: 6x 11 Harper Rd Baltimore, Md. POST OFFICE: 21222

WELL DESCRIPTION

WELL LOG

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (USE ADDITIONAL SHEETS IF NECESSARY)	FEET FROM	FEET TO	CHECK IF WATER BEARING
Sand	0	7	
Red Clay	7	23	
Sand & Gravel	53	55	

GROUTING RECORD

WELL HAS BEEN GROUTED (CIRCLE APPROPRIATE BOX): YES Y (46) NO N (46)

DEPTH OF GROUT SEAL (TO NEAREST FOOT)

FROM 0 (48 52) FT. TO 50 (54 58) FT.

(ENTER 0 IF FROM SURFACE)

CASING RECORD

CASING TYPE: INSERT APPROPRIATE CODE BELOW

ST STEEL; CO CONCRETE; PL PLASTIC; OT OTHER

MAIN CASING TYPE	NOMINAL DIAMETER TOP (MAIN) CASING (NEAREST INCH)	TOTAL DEPTH OF MAIN CASING (NEAREST FOOT)
ST (60 61)	4 (63 64)	55 (66 70)

OTHER CASING (IF USED)

EACH CASING	DIAMETER (INCH)	DEPTH (FEET) FROM	TO
1			
2			
3			

SCREEN RECORD

SCREEN TYPE OR OPEN HOLE: INSERT APPROPRIATE CODE BELOW

ST STEEL; BR BRASS OR BRONZE; NO OPEN HOLE; PL PLASTIC; OT OTHER

C 2 (1 2 3 (SEQ. NO.) 6)

DEPTH (NEAREST WHOLE FOOT)

EACH SCREEN		FROM	TO
1	BR (8 9)	60 (11 12)	65 (13 14)
2	(22 24)	(26 30)	(32 36)
3	(38 39)	(41 45)	(47 51)
4	(53 54)	(56 60)	(62 66)

SLOTSIZE 1. ____ 2. ____ 3. ____ 4. ____

IF WELL DRILLED WAS A FLOWING WELL CIRCLE BOX: F (43)

DNR USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (70) TELESCOPE CASING; (F, G, O) (72) LOG INDICATOR

W Q (74 75 76) OTHER DATA AVAILABLE

CIRCLE APPROPRIATE BOXES

A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E ELECTRIC LOG OBTAINED

C COPY OF ELECTRIC LOG ATTACHED

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

DRILLER'S NAME (PLEASE PRINT): W. H. Eckert

SIGNATURE: W. H. Eckert

C 3 (1 2 3 (SEQ. NO.) 6)

PUMPING TEST

HOURS PUMPED (TO NEAREST HALF): 1 (51 52)

PUMPING RATE GALLONS PER MINUTE (TO NEAREST GALLON): 10 (53 55)

METHOD USED TO MEASURE PUMPING RATE: Air Line

WATER LEVEL (DISTANCE FROM LAND SURFACE)

BEFORE PUMPING: 31 (NEAREST FOOT) (17 20)

WHEN PUMPING: 38 (NEAREST FOOT) (22 25)

TYPE OF PUMP USED (CIRCLE APPROPRIATE BOX)

A AIR (27); P PISTON (27); T TURBINE (27); C CENTRIFUGAL (27); R ROTARY (27); O OTHER (DESCRIBE BELOW) (27); JET (27); S SUBMERSIBLE (27)

PUMP INSTALLED

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX — SEE ABOVE: A, C, J, P, R, S, T, O): J (29)

CAPACITY:

GALLONS PER MINUTE (TO NEAREST GALLON): 5 (31 35)

PUMP HORSE POWER: 3/4 (37 41)

PUMP COLUMN LENGTH (NEAREST FOOT): 45 (43 47)

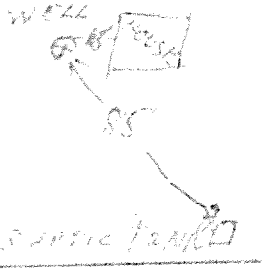
CASING HEIGHT (CIRCLE APPROPRIATE BOX AND ENTER CASING HEIGHT)

+ ABOVE; − BELOW (49) LAND SURFACE

1 (INEAREST FOOT) (50 51)

LOCATION OF WELL ON LOT

SHOW PERMANENT STRUCTURE SUCH AS BUILDINGS, SEPTIC TANKS, AND/OR OTHER LAND MARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL).



ORIGINAL

104-74

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BUILDING
ANNAPOLIS, MARYLAND 21401

PERMIT TO DRILL WELL

****
* PERMIT NUMBER- BA-72-0077 *
****

ISSUE DATE- 07/27/71
MO DA YR

ISSUED TO DRILLER-

EASTERN WELL DRLG CO
824 BACK RIVER NECK RD
BALTIMORE MD 21221

DRILLER
ID. NUMBER- 27

THE ABOVE NAMED DRILLER IS HEREBY AUTHORIZED TO DRILL A WELL TO BE OWNED BY-

SAUERWALD, CHARLES E
121 HUGHES SHORE RD
BALTIMORE MD

THIS WELL IS TO BE LOCATED IN BALTIMORE COUNTY,
SUBDIVISION, SECTION- , LOT- X ,
NEAR THE TOWN OF MIDDLE RIVER

THE WATER IS TO BE USED FOR A DOMESTIC SUPPLY.

THIS WELL WILL REPLACE A WELL WHICH WILL BE ABANDONED & SEALED.

****SPECIAL CONDITIONS****

THIS PERMIT IS SUBJECT TO THE FOLLOWING SPECIAL CONDITIONS-

NONE.

THIS PERMIT IS VALID UNTIL
01/27/72. A WELL COMPLETION
REPORT MUST BE SUBMITTED TO
THE DEPARTMENT WITHIN 30 DAYS
AFTER COMPLETION OF THE WELL

PAUL W. MCKEE
DIRECTOR, MARYLAND
DEPARTMENT OF WATER
RESOURCES

Charge card processed

CANCELLED

DWR COPY

WR-W-3 9-70

B 1 4844 — SEQUENCE NO. (DWR USE ONLY)
1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

BA-72-0077
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (DWR USE ONLY) 07 26 71

OWNER Sawgrawld — COL. 15 LAST NAME — Charles E. — FIRST NAME — COL. 34

STREET OR RFD 121 Hughes Shore Road — COL. 36 — COL. 55

POST OFFICE Baltimore Maryland 12220 — COL. 57 — COL. 76

8-13

B 1 CONTINUED — DRILLER INFORMATION
1 2 3 (SEQ. NO.) 6

DATE July 19 71 — LICENSE NUMBER 27 (77–80)

William H. Eiler
FIRST NAME — DRILLER — LAST NAME

SIGNATURE W. H. Eiler

B 2 — WELL INFORMATION
1 2 3 (SEQ. NO.) 6

MAXIMUM PUMPING RATE (GALLONS PER MINUTE) 5 (6–12)

AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY) 500 (14–20)

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- (D) DOMESTIC, HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- F FARMING, AGRICULTURE, IRRIGATION
- I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT
- M MUNICIPAL WATER SUPPLY
- P PRIVATE WATER COMPANY
- T TEST

(M, P: MUST HAVE STATE HEALTH DEPT. APPROVAL) (22)

APPROXIMATE DEPTH OF WELL 90 FEET (24–28)

APPROXIMATE DIAMETER OF WELL ____ (NEAREST INCH)

METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD) (30-37)

BORED (OR AUGERED)	JETTED	DRIVEN
AIR-ROTARY	AIR-PERCUSSION	(ROTARY) (HYDRAULIC ROTARY)
CABLE	REVERSE ROTARY	DRIVE-POINT

OTHER (DESCRIBE) ____

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX) (39)

- N THIS WELL WILL NOT REPLACE AN EXISTING WELL
- (Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- D THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE) (41–53)

NOT TO BE FILLED IN BY DRILLER (DWR USE ONLY)

APPROPRIATION PERMIT NUMBER GAP (54–63) — ENGINEER REVIEW DISTRICT NO. (65)

FORCE (67 68) — WRITE INITIALS IN BOX

CONDITIONS A E N S G W Q C L U (70 71 72 73 74 75 76 77 78 79)

B 4 CONTINUED — HEALTH DEPARTMENT APPROVAL
1 2 3 (SEQ. NO.) 6

41 S (CIRCLE BOX) STATE HEALTH

Baltimore — COUNTY NAME — COUNTY NO.

DATE MO. 09 DAY 21 YR. 71 (43–48) — Hoyt K Brown — APPROVED BY

B 5 — SPECIAL CONDITIONS 8-93 (DWR USE ONLY)
1 2 3 (SEQ. NO.) 6

B 3 — LOCATION OF WELL
1 2 3 (SEQ. NO.) 6

COUNTY Baltimore (8–21) (DO NOT ABBREVIATE COUNTY NAME)

SUBDIVISION (23–42)

SECTION (44–46) — LOT X (48–50)

NEAREST TOWN Middle River (52–71)

MILES FROM TOWN (ENTER 0 IF IN TOWN) One (73–76) — M I (77 78)

B 4 — DIRECTION FROM TOWN (CIRCLE APPROPRIATE BOX)
1 2 3 (SEQ. NO.) 6

N NORTH	(E) EAST	NE NORTHEAST	SE SOUTHEAST
S SOUTH	W WEST	NW NORTHWEST	SW SOUTHWEST

(8) (8) (69) (89)

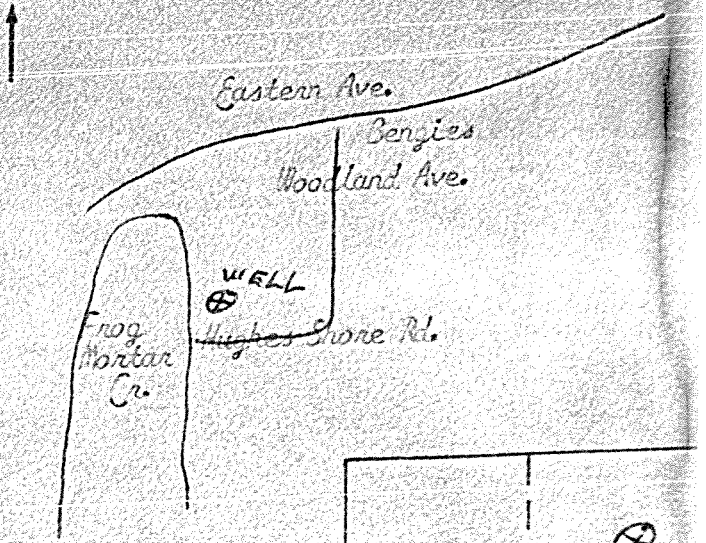
NEAR WHAT ROAD Eastern Ave. (11–30)

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)

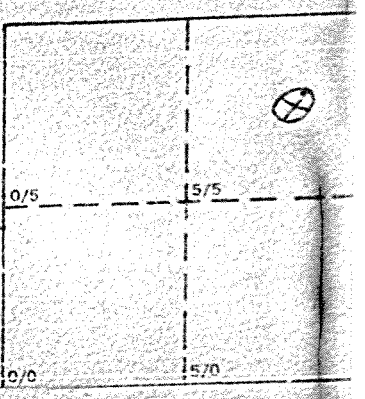
NORTH	SOUTH	EAST	WEST
N (32)	(S) (33)	E (32)	W (32)

DISTANCE FROM ROAD (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX) 75' (34–37) — F T M I (38 39)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS, ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW, AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON THE SKETCH. ALSO SHOW, BY MEANS OF AN "X," THE WELL LOCATION IN THE BOX BELOW, AND THE BOX NUMBER FROM THE WELL LOCATION MAP



BOX NUMBER E 960 N 540



NORTH CORDINATE 54 5000 (50–55) DEG MIN SEC

EAST CORDINATE 0 96 5 000 (57–63)

ELEVATION AT WELL HEAD (FEET) (64–68)

104-24

ORIGINAL

105-06

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BUILDING
ANNAPOLIS, MARYLAND 21401

PERMIT TO DRILL WELL

****
* PERMIT NUMBER- BA-72-0157 *
****

ISSUE DATE- 09/08/71
MO DA YR

ISSUED TO DRILLER-

LEONARD WELL DRLG
BOX 742 BUSH STREET
WHITE MARSH MD 21162

DRILLER
ID. NUMBER- 32

THE ABOVE NAMED DRILLER IS HEREBY AUTHORIZED TO DRILL A WELL TO BE OWNED BY-

NICKERSON, HARRY
1045 BEECH DR
WHITE MARSH MD 21162

THIS WELL IS TO BE LOCATED IN BALTIMORE COUNTY,
NEAR THE TOWN OF WHITE MARSH

THE WATER IS TO BE USED FOR A DOMESTIC SUPPLY.

THIS WELL WILL REPLACE A WELL WHICH WILL BE A STANDBY.

****SPECIAL CONDITIONS****

THIS PERMIT IS SUBJECT TO THE FOLLOWING SPECIAL CONDITIONS-

NONE.

THIS PERMIT IS VALID UNTIL
03/08/72. A WELL COMPLETION
REPORT MUST BE SUBMITTED TO
THE DEPARTMENT WITHIN 30 DAYS
AFTER COMPLETION OF THE WELL

PAUL W. MCKEE
DIRECTOR, MARYLAND
DEPARTMENT OF WATER
RESOURCES

DWR COPY

WR-W-4 9/70

C 1 ~~7805~~ 7954 SEQUENCE NO. (DWR USE ONLY)

1 2 3 (SEQ. NO.) 6

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 30 DAYS AFTER WELL COMPLETION

FILL IN THIS FORM COMPLETELY

PERMIT NO. FROM "PERMIT TO DRILL WELL" BA 72 0152

28 29 30 31 32 33 34 35 36 37

DATE RECEIVED (DWR USE ONLY) 08237 8-13

DATE WELL COMPLETED 8/12/72 (15 20) 08/13/72

DEPTH OF WELL 84 (22 (TO NEAREST FOOT) 26)

DRILLERS IDENTIFICATION NO. 32

OWNER Nickerson (LAST NAME) Harry (FIRST NAME)

STREET OR RFD 1045 Beech Dr POST OFFICE White Marsh Md

WELL DESCRIPTION

WELL LOG

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (USE ADDITIONAL SHEETS IF NECESSARY)	FEET FROM	FEET TO	CHECK IF WATER BEARING
Brown Dirt	0	6	
Clay	6	10	
Rock	10	13	
Red clay	13	30	
White Sand	30	38	
Red clay	38	58	
Fine Sand & clay	58	62	✓
Sand	62	84	✓

Corrected Copy
1st report void

GROUTING RECORD

WELL HAS BEEN GROUTED (CIRCLE APPROPRIATE BOX) YES [Y] (44) NO [N] (44)

TYPE OF GROUTING MATERIAL (CIRCLE BOX) CEMENT [C M] (45 46) BENTONITE CLAY [B C] (45 46)

NO. OF BAGS 1 NO. OF POUNDS 100

GALLONS OF WATER 10

DEPTH OF GROUT SEAL (TO NEAREST FOOT)

FROM 0 (48) FT. TO 30 (52 54 58) FT.

(ENTER 0 IF FROM SURFACE)

CASING RECORD

CASING TYPES (INSERT APPROPRIATE CODE BELOW)

[S T] STEEL [C O] CONCRETE [P L] PLASTIC [O T] OTHER

MAIN CASING TYPE	NOMINAL DIAMETER TOP (MAIN) CASING (NEAREST INCH)	TOTAL DEPTH OF MAIN CASING (NEAREST FOOT)
S T (60 61)	4 (63 64)	78 (66 70)

OTHER CASING (IF USED)

EACH CASING

	DIAMETER (INCH)	DEPTH (FEET) FROM	TO

SCREEN RECORD

SCREEN TYPE OR OPEN HOLE (INSERT APPROPRIATE CODE BELOW)

[S T] STEEL [B R] BRASS OR BRONZE [H O] OPEN HOLE [P L] PLASTIC [O T] OTHER

C 2 (1 2 3 (SEQ. NO.) 6)

EACH SCREEN

	DEPTH (NEAREST WHOLE FOOT) FROM	TO
1 [P L] (8 9)	77 (11 15)	84 (17 21)
2 (23 24)	(26 30)	(32 36)
3 (38 39)	(41 45)	(47 51)

SLOT SIZE 1. .XOM 3.

DIAMETER OF SCREEN 2 (56 60) (NEAREST INCH)

GRAVEL PACK FROM [illegible] TO [illegible]

IF WELL DRILLED WAS A FLOWING WELL CIRCLE BOX (68) [F]

DWR USE ONLY (NOT TO BE FILLED IN BY DRILLER)

(F.R.O.S.)

T (70)	(72)	W Q (74 75 76)
TELESCOPE CASING	LOG INDICATOR	OTHER DATA AVAILABLE

C 3 (1 2 3 (SEQ. NO.) 6)

PUMPING TEST

HOURS PUMPED (TO NEAREST HOUR) 2 (8 9)

PUMPING RATE (GALLONS PER MINUTE TO NEAREST GALLON) 40 (11 15)

METHOD USED TO MEASURE PUMPING RATE Bucket

WATER LEVEL: (DISTANCE FROM LAND SURFACE)

BEFORE PUMPING 30 (17 20) (NEAREST FOOT)

WHEN PUMPING 70 (22 25) (NEAREST FOOT)

TYPE OF PUMP USED (CIRCLE APPROPRIATE BOX)

[A] AIR (27) [P] PISTON (27) [T] TURBINE (27)

[C] CENTRIFUGAL (27) [R] ROTARY (27) [O] OTHER (DESCRIBE BELOW) (27)

[J] JET (27) [S] SUBMERSIBLE (27)

PUMP INSTALLED

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX — SEE ABOVE: A, C, J, P, R, S, T, O) S (29)

DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX) YES [Y] NO [N]

CAPACITY:

GALLONS PER MINUTE (TO NEAREST GALLON) 7 (31 35)

PUMP HORSE POWER ¼ WEH (37 41)

PUMP COLUMN LENGTH (NEAREST FOOT) 60 (43 47)

CASING HEIGHT (CIRCLE APPROPRIATE BOX AND ENTER CASING HEIGHT)

[+] ABOVE [−] BELOW (49) LAND SURFACE 1 (50 51) (NEAREST FOOT)

LOCATION OF WELL ON LOT

N ↑ SHOW PERMANENT STRUCTURE SUCH AS BUILDINGS, SEPTIC TANKS, AND/OR OTHER LAND MARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL).

P.T less Adp.
Front of House

CIRCLE APPROPRIATE BOXES

[A] A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

[E] ELECTRIC LOG OBTAINED

[C] COPY OF ELECTRIC LOG ATTACHED

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

DRILLERS NAME (PLEASE PRINT) Wm. Leonard

SIGNATURE Wm Leonard

ORIGINAL

WR-W-3 9-70

B 1 0287 SEQUENCE NO. (DWR USE ONLY)
1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

BA-72-0157
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (DWR USE ONLY) 090871

OWNER Nickerson (COL. 15 LAST NAME) Harry (FIRST NAME) COL. 34
STREET OR RFD 1045 Beech Dr (COL. 36) COL. 55
POST OFFICE White Marsh Md 211 62 (COL. 57) COL. 76

8-13

B 1 CONTINUED — DRILLER INFORMATION
1 2 3 (SEQ. NO.) 6

DATE 9/1/71 LICENSE NUMBER 32 (77 80)
Wm. (FIRST NAME) Leonard (LAST NAME) DRILLER
SIGNATURE Wm Leonard

B 2 — WELL INFORMATION
MAXIMUM PUMPING RATE (GALLONS PER MINUTE) (8 12)
AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY) 750 (18 20)

USE FOR WATER (CIRCLE APPROPRIATE BOX)
(D) DOMESTIC, HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
(F) FARMING, AGRICULTURE, IRRIGATION
(I) INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT.
22
(M) MUNICIPAL WATER SUPPLY
(P) PRIVATE WATER COMPANY
} MUST HAVE STATE HEALTH DEPT. APPROVAL
(T) TEST

APPROXIMATE DEPTH OF WELL 70 FEET (24 28)
APPROXIMATE DIAMETER OF WELL 4 (NEAREST INCH)

METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD)
BORED (OR AUGERED) JETTED DRIVEN
30-37 AIR-ROTARY AIR-PERCUSSION (ROTARY (HYDRAULIC ROTARY))
CABLE REVERSE ROTARY DRIVE-POINT
OTHER (DESCRIBE)

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)
(N) THIS WELL WILL NOT REPLACE AN EXISTING WELL
(Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
39
(S) THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
Hand Dug
(D) THIS WELL WILL DEEPEN AN EXISTING WELL
PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE)
(41 52)

NOT TO BE FILLED IN BY DRILLER (DWR USE ONLY)
APPROPRIATION PERMIT NUMBER GAP (54 63) ENGINEER REVIEW DISTRICT NO. (65)
FORCE (67 68) WRITE INITIALS IN BOX
CONDITIONS A E N S G W Q C L U (70 71 72 73 74 75 76 77 78 79)

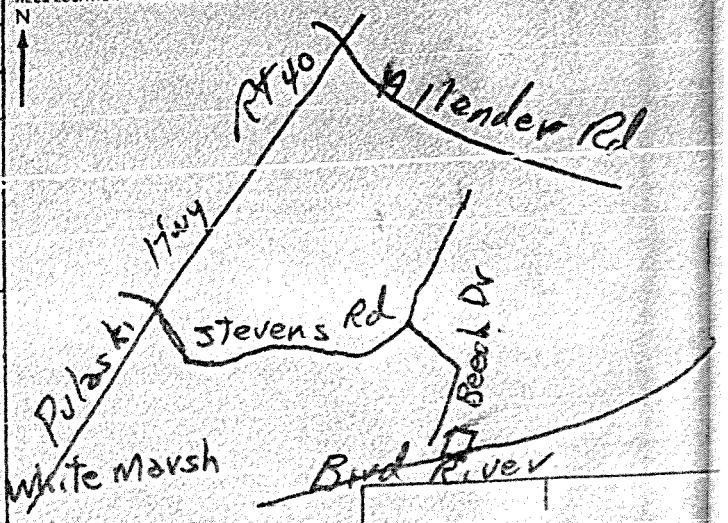
B 4 CONTINUED — HEALTH DEPARTMENT APPROVAL
1 2 3 (SEQ. NO.) 6
41 (S) STATE HEALTH (CIRCLE BOX)
Baltimore COUNTY NAME COUNTY NO.
DATE MO. 09 DAY 03 YR. 72 (43 48)
Hoyt V. Bowers APPROVED BY

B 5 SPECIAL CONDITIONS 8-63 (DWR USE ONLY)
1 2 3 (SEQ. NO.) 6

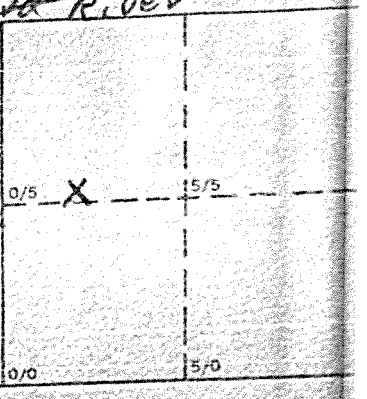
B 3 — LOCATION OF WELL
1 2 3 (SEQ. NO.) 6
COUNTY Baltimore (8 21) (DO NOT ABBREVIATE COUNTY NAME)
SUBDIVISION (23 42)
SECTION (44 46) LOT (48 50)
NEAREST TOWN White Marsh (52 71)
MILES FROM TOWN (ENTER 0 IF IN TOWN) 1/2 (73 76 77 78) (M) (I)

B 4 — DIRECTION FROM TOWN (CIRCLE APPROPRIATE BOX)
1 2 3 (SEQ. NO.) 6
(N) NORTH (E) EAST (NE) NORTHEAST (SE) SOUTHEAST
8 8 8 9
(S) SOUTH (W) WEST (NW) NORTHWEST (SW) SOUTHWEST
8 8 8 9
NEAR WHAT ROAD 1045 Beech Dr (11 30)
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) NORTH (N) (32) SOUTH (S) (32) EAST (E) (32) WEST (W) (32)
DISTANCE FROM ROAD (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX) 30 (34 37) (FT) (M) (I) (38 39)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS, ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW, AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON THE SKETCH. ALSO SHOW, BY MEANS OF AN "X," THE WELL LOCATION IN THE BOX BELOW, AND THE BOX NUMBER FROM THE WELL LOCATION MAP.



BOX NUMBER E 970 N 560



NORTH CORDINATE 560000 (50 55) DEG MIN SEC
EAST CORDINATE 097000 (57 62)
ELEVATION AT WELL HEAD (FEET) (65 68)

105-06

ORIGINAL

MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION
2500 BROENING HIGHWAY, BALTIMORE, MARYLAND 21224, (410) 631-3784

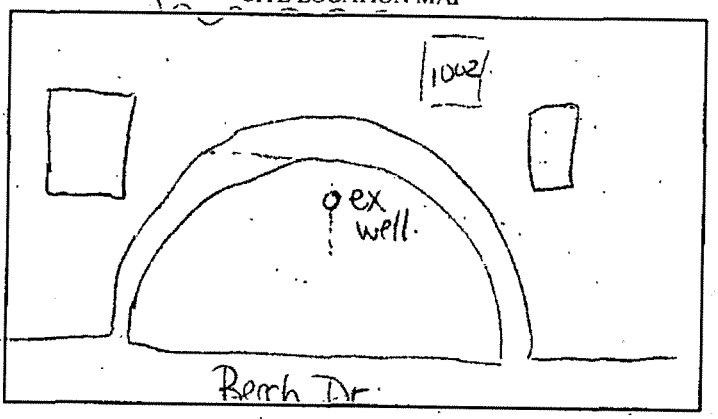
WATER WELL ABANDONMENT-SEALING REPORT FORM

SUBMIT COPIES OF COMPLETED FORM TO:
* COUNTY ENVIRONMENT AGENCY (contact MDE, WMA if address needed)
* WELL OWNER
* MDE, WATER MANAGEMENT ADMINISTRATION, WELL PROGRAM

DATE WELL ABANDONED: 3/19/01 (month/day/year)

* PERMIT NUMBER OF ABANDONED WELL (if any) NONE -
* PERMIT NUMBER OF REPLACEMENT WELL — —
* PERSON ABANDONING WELL: Mark Slawinski
WELL DRILLERS LICENSE NUMBER:
CIRCLE: MWD/MSD/MGD
* OWNER'S NAME: Balto Co.
* WELL LOCATION:
COUNTY: Balto.
NEAREST TOWN:
TAX MAP ____ BLOCK ____ PARCEL ____
SUBDIVISION: Wilson Point
SECTION: ____ LOT: ____
NEAREST ROAD: 1002 Birch Dr

SITE LOCATION MAP



* TYPE OF WELL BEING ABANDONED:
____ DRILLED ____ JETTED
____ BORED/AUGERED X HAND DUG
____ OTHER (specify) ____

* USE CODE:
X DOMESTIC ____ MUNICIPAL/PUBLIC
____ IRRIGATION ____ INDUSTRIAL
____ TEST/OBSERVATION ____ GEOTHERMAL

* TYPE OF CASING:
____ STEEL ____ PLASTIC
____ CONCRETE X OTHER (specify) BRICK

* SIZE OF CASING: 36 INCHES IN DIAMETER
* DEPTH OF WELL: 11 FEET DEEP
* WAS ANY CASING REMOVED? ____ YES X NO
if yes, length removed, in feet: ____
* WAS CASING RIPPED OR PERFORATED? ____ YES X NO

LOG OF SEALING MATERIAL

MATERIAL	FEET FROM	FEET TO
Stone	11	6
Concrete	6	3
Top Soil	3	0

VOLUME OF MATERIAL USED

Inspected 3/21/01

Jerome Kirinetta RS 486 MWD/MSD/MGD 3/19/01
SIGNATURE-MASTER WELL DRILLER OR SUPERVISING SANITARIAN LICENSE # CIRCLE ONE DATE

DENV 828 JULY 1997 2) COUNTY ENVIRONMENTAL AGENCY

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BUILDING
ANNAPOLIS, MARYLAND 21401

PERMIT TO DRILL WELL

****
* PERMIT NUMBER- BA-72-0290 *
****

ISSUE DATE- 12/08/71
MO DA YR

ISSUED TO DRILLER-

LEONARD WELL DRLG
BOX 742 BUSH STREET
WHITE MARSH MD 21162

DRILLER
ID. NUMBER- 32

THE ABOVE NAMED DRILLER IS HEREBY AUTHORIZED TO DRILL A WELL TO BE OWNED BY-

MARINE BASIN
1900 OLD EASTERN AVE
ESSEX MD 21121

THIS WELL IS TO BE LOCATED IN BALTIMORE COUNTY, NEAR THE TOWN OF MARS ESTATES

THE WATER IS TO BE USED FOR A COMMERCIAL/INDUSTRIAL SUPPLY.

THIS WELL WILL NOT REPLACE ANOTHER WELL.

****SPECIAL CONDITIONS****

THIS PERMIT IS SUBJECT TO THE FOLLOWING SPECIAL CONDITIONS-

1. DEPARTMENT REPRESENTATIVES SHALL HAVE ACCESS TO THE WELL TO CONDUCT SCIENTIFIC TESTS AND MEASUREMENTS DURING DRILLING.
2. NOTIFY DEPT. 48 HOURS BEFORE DRILLING WELL, CALL 267-5872.
3. PROVIDE OPENING FOR TAPE MEASUREMENT OF WATER LEVELS (MIN. INSIDE DIAM. OF ONE-HALF INCH) SEALED BY REMOVABLE CAP/PLUG.
4. A TAP FOR RAW WATER SAMPLES MUST BE PLACED BEFORE WATER ENTERS A TREATMENT FACILITY, PRESSURE OR STORAGE TANK.

GROUNDWATER APPROPRIATION
PERMIT NUMBER- BA72GAP008

THIS PERMIT IS VALID UNTIL 06/08/72. A WELL COMPLETION REPORT MUST BE SUBMITTED TO THE DEPARTMENT WITHIN 30 DAYS AFTER COMPLETION OF THE WELL

PAUL W. MCKEE
DIRECTOR, MARYLAND
DEPARTMENT OF WATER
RESOURCES

DWR COPY

WR-W-3 9-70

B 1 9876 SEQUENCE NO. (DWR USE ONLY)
1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

3A-72-0590
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (DWR USE ONLY) 120771 8-13

OWNER: Marine Basin (~~Chester Weaver~~) COL. 15 LAST NAME FIRST NAME COL. 34
STREET OR RFD: 1900 Old Eastern Ave COL. 36 COL. 55
POST OFFICE: Essex Md 21121 COL. 57 COL. 76

B 1 CONTINUED — DRILLER INFORMATION
1 2 3 (SEQ. NO.) 6
DATE: 11/30/71 LICENSE NUMBER: 32 77 80
Wm. Leonard
FIRST NAME DRILLER LAST NAME
SIGNATURE: Wm Leonard

B 2 — WELL INFORMATION
1 2 3 (SEQ. NO.) 6
MAXIMUM PUMPING RATE (GALLONS PER MINUTE): 20 8 12
AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY): 5000 14 20

USE FOR WATER (CIRCLE APPROPRIATE BOX)
- D DOMESTIC, HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- F FARMING, AGRICULTURE, IRRIGATION
- I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT. 22
- M MUNICIPAL WATER SUPPLY
- P PRIVATE WATER COMPANY
- T TEST

MUST HAVE STATE HEALTH DEPT. APPROVAL

APPROXIMATE DEPTH OF WELL: 200 24 28 FEET
APPROXIMATE DIAMETER OF WELL: 4 (NEAREST INCH)

METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD)
BORED (OR AUGERED) JETTED DRIVEN
30-37 AIR-ROTARY AIR-PERCUSSION ROTARY (HYDRAULIC ROTARY)
CABLE REVERSE ROTARY DRIVE-POINT
OTHER (DESCRIBE)

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)
- N THIS WELL WILL NOT REPLACE AN EXISTING WELL
- Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED 39
- S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- D THIS WELL WILL DEEPEN AN EXISTING WELL

Replace Drive Point

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE) 41 52

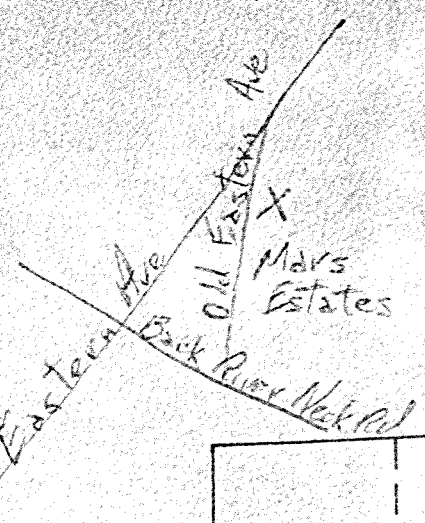
NOT TO BE FILLED IN BY DRILLER (DWR USE ONLY)
APPROPRIATION PERMIT NUMBER: BA72GAP008 (GAP) 54 63
ENGINEER REVIEW DISTRICT NO. 65
FORCE: J V WRITE INITIALS IN BOX 67 68
CONDITIONS: A E N S G W Q C L U — A N W Q 70 71 72 73 74 75 76 77 78 79

B 3 — LOCATION OF WELL
1 2 3 (SEQ. NO.) 6
COUNTY: Baltimore 8 (DO NOT ABBREVIATE COUNTY NAME)
SUBDIVISION: 23
SECTION: 44 46 LOT: 48
NEAREST TOWN: Mars Estates 52
MILES FROM TOWN (ENTER O IF IN TOWN): 1 73 76 77

B 4 — DIRECTION FROM TOWN (CIRCLE APPROPRIATE BOX)
1 2 3 (SEQ. NO.) 6
N NORTH E EAST N E NORTHEAST S E SOUTHEAST
S SOUTH W WEST N W NORTHWEST S W SOUTHWEST 8 9
NEAR WHAT ROAD: 1900 Old Eastern Ave 11
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): NORTH N 32 SOUTH S 32 EAST E 32 WEST W 32
DISTANCE FROM ROAD (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX): 1600 34 37 38

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS, ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW, AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON THE SKETCH. ALSO SHOW, BY MEANS OF AN "X," THE WELL LOCATION IN THE BOX BELOW, AND THE BOX NUMBER FROM THE WELL LOCATION MAP.

N On Punta Rd off 1900 Old Eastern Ave



BOX NUMBER E 950 N 540

NORTH CORDINATE: 540000 (DEG MIN SEC) 50 51 52 53 54 55
EAST CORDINATE: 0955000 57 58 59 60 61 62 63
ELEVATION AT WELL HEAD (FEET) 65 66 67 68

0/5 5/5 0/0 5/0 X

B 4 CONTINUED — HEALTH DEPARTMENT APPROVAL
1 2 3 (SEQ. NO.) 6
41 S STATE HEALTH (CIRCLE BOX)
COUNTY NAME: Baltimore COUNTY NO.
DATE: MO. DAY YR. 12 06 71 43 49
APPROVED BY: Hoyt V Bonner

B 5 (DWR USE ONLY)
1 2 3 (SEQ. NO.) 6
SPECIAL CONDITIONS 8-63

105-66

15

ORIGINAL

WR-W-4 9/70

C 1 5525 (SEQUENCE NO. (DWR USE ONLY)) (SEQ. NO.)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED IN 30 DAYS AFTER WELL COMPLETION

FILL IN THIS FORM COMPLETELY

DATE RECEIVED (DWR USE ONLY) 123071

DATE WELL COMPLETED 12/22/71

DEPTH OF WELL 74 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" BA-73-0520

DRILLERS IDENTIFICATION NO. 37

OWNER Marine Basin (LAST NAME) c/o Chester Weaver-Dicks (FIRST NAME) Plbg

STREET OR RFD 1900 Old Eastern Ave POST OFFICE Essex Md 21221

WELL DESCRIPTION

WELL LOG

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (USE ADDITIONAL SHEETS IF NECESSARY)	FEET FROM	FEET TO	CHECK IF WATER BEARING
white clay	0	5	
Red+white cl	5	15	
Red "	15	35	
Sand	35	37	
white clay	37	46	
Sand	46	48	
white clay	48	50	
Sand	50	74	

GROUTING RECORD

WELL HAS BEEN GROUTED (CIRCLE APPROPRIATE BOX) YES (Y) NO (N)

TYPE OF GROUTING MATERIAL (CIRCLE BOX): CEMENT (C M) BENTONITE CLAY (B C)

NO. OF BAGS 3 NO. OF POUNDS 300

GALLONS OF WATER 30

DEPTH OF GROUT SEAL (TO NEAREST FOOT)

FROM 0 FT. TO 25 FT.

(ENTER 0 IF FROM SURFACE)

CASING RECORD

CASING TYPES (INSERT APPROPRIATE CODE BELOW): STEEL (S T), CONCRETE (C O), PLASTIC (P L), OTHER (O T)

MAIN CASING TYPE	NOMINAL DIAMETER TOP (MAIN) CASING (NEAREST INCH)	TOTAL DEPTH OF MAIN CASING (NEAREST FOOT)
S T	4	69

OTHER CASING (IF USED)

EACH CASING	DIAMETER (INCH)	DEPTH (FEET) FROM	TO

SCREEN RECORD

SCREEN TYPE OR OPEN HOLE (INSERT APPROPRIATE CODE BELOW): STEEL (S T), BRASS OR BRONZE (B R), OPEN HOLE (H O), PLASTIC (P L), OTHER (O T)

C 2 (SEQ. NO.)

DEPTH (NEAREST WHOLE FOOT)

EACH SCREEN		FROM	TO
1	P L	67	74
2			
3			

SLOT SIZE 1. 30 2. ____ 3. ____

DIAMETER OF SCREEN 2 (NEAREST INCH)

GRAVEL PACK FROM 60 TO 74

IF WELL DRILLED WAS A FLOWING WELL CIRCLE BOX (F)

CIRCLE APPROPRIATE BOXES

(A) A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

(E) ELECTRIC LOG OBTAINED (Elliston)

(C) COPY OF ELECTRIC LOG ATTACHED

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

DRILLERS NAME Walter Franks

(PLEASE PRINT) Wm Leonard

SIGNATURE Wm Leonard

DWR USE ONLY (NOT TO BE FILLED IN BY DRILLER)

(E.S.O.S.) TELESCOPE CASING (T) LOG INDICATOR (W Q) OTHER DATA AVAILABLE

C 3 (SEQ. NO.)

PUMPING TEST

HOURS PUMPED (TO NEAREST HOUR) 2

PUMPING RATE (GALLONS PER MINUTE TO NEAREST GALLON) 35

METHOD USED TO MEASURE PUMPING RATE Bucket

WATER LEVEL: (DISTANCE FROM LAND SURFACE)

BEFORE PUMPING 9 (NEAREST FOOT)

WHEN PUMPING 74 (NEAREST FOOT)

TYPE OF PUMP USED (CIRCLE APPROPRIATE BOX)

(A) AIR (P) PISTON (T) TURBINE (C) CENTRIFUGAL (R) ROTARY (O) OTHER (DESCRIBE BELOW) (J) JET (S) SUBMERSIBLE

PUMP INSTALLED

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX — SEE ABOVE: A, C, J, P, R, S, T, O)

DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX) YES (Y) NO (N)

CAPACITY:

GALLONS PER MINUTE (TO NEAREST GALLON)

PUMP HORSE POWER

PUMP COLUMN LENGTH (NEAREST FOOT)

CASING HEIGHT (CIRCLE APPROPRIATE BOX AND ENTER CASING HEIGHT)

(+) ABOVE (−) BELOW LAND SURFACE 2 (NEAREST FOOT)

LOCATION OF WELL ON LOT

N ↑ SHOW PERMANENT STRUCTURE SUCH AS BUILDINGS, SEPTIC TANKS, AND/OR OTHER LAND MARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL).

P.Tless Adp.

ORIGINAL

OWR 131 (7-77) EMERGENCY NO. (If any) –

B 1 6236 SEQUENCE NO. (WRA USE ONLY)
1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 2-6 ON ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

WRA PERMIT NUMBER BA-73-5119
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (WRA USE ONLY) 10 26 77
9-13

OWNER Milton Gardner (COL. 15 LAST NAME) (FIRST NAME COL. 34)
STREET OR RFD 1000 Hillpine Rd. (COL. 36) (COL. 55)
POST OFFICE Baltimore, Maryland 21220 (COL. 57) (COL. 76)

B 1 CONTINUED (1 2 3 SEQ. NO. 6)

DRILLER INFORMATION
DATE October 18, 1977 LICENSE NUMBER 80 (77 80)
John E. Bramkamp (FIRST NAME DRILLER LAST NAME)
SIGNATURE John E Bramkamp

B 2 (1 2 3 SEQ. NO. 6)

WELL INFORMATION
MAXIMUM PUMPING RATE (GALLONS PER MINUTE) 10 (6 12)
AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY) 600 (14 20)

USE FOR WATER (CIRCLE APPROPRIATE BOX)
(D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
F FARMING, AGRICULTURE, IRRIGATION
I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT.
M MUNICIPAL WATER SUPPLY
P PRIVATE WATER COMPANY
} MUST HAVE STATE HEALTH DEPT. APPROVAL
T TEST
(22)

APPROXIMATE DEPTH OF WELL 85' (24 28) FEET
APPROXIMATE DIAMETER OF WELL 4" (NEAREST INCH)

METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD)
BORED (OR AUGERED) JETTED DRIVEN
(30-37) AIR-ROTARY AIR-PERCUSSION (ROTARY) (HYDRAULIC ROTARY)
CABLE REVERSE-ROTARY DRIVE-POINT
OTHER (DESCRIBE)

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)
N THIS WELL WILL NOT REPLACE AN EXISTING WELL
(Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
(38)
S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
D THIS WELL WILL DEEPEN AN EXISTING WELL
PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE)
(41 52)

NOT TO BE FILLED IN BY DRILLER (WRA USE ONLY)
APPROPRIATION PERMIT NUMBER C A P (54 63)
ENGINEER REVIEW DISTRICT NO. (65)
FORCE WRITE INITIALS IN BOX (67 68)
CONDITIONS A E N S G W Q C L U (70 71 72 73 74 75 76 77 78 79)

B 4 CONTINUED (1 2 3 SEQ. NO. 6)

HEALTH DEPARTMENT APPROVAL
(41) S STATE HEALTH (CIRCLE BOX)
COUNTY NAME BALTIMORE COUNTY NO.
DATE MO. 02 DAY 17 YR. 77 (43 48)
APPROVED BY L.A. Schmidt

B 5 SPECIAL CONDITIONS S-63 (WRA USE ONLY) (1 2 3 SEQ. NO. 6)
(8) (63)

B 3 (1 2 3 SEQ. NO. 6)

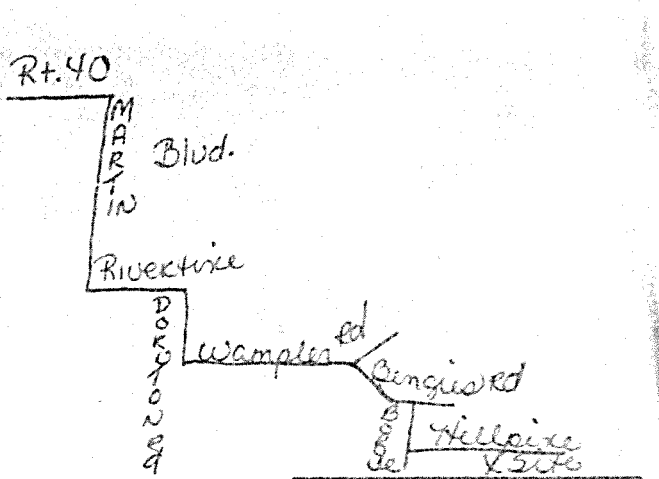
LOCATION OF WELL
COUNTY Baltimore County (8 DO NOT ABBREVIATE COUNTY NAME 21)
SUBDIVISION (23 42)
SECTION (44 46) LOT 14 (48 50)
NEAREST TOWN Essex (52)
MILES FROM TOWN (ENTER 0 IF IN TOWN) 3 (73 75) (M) (72,76)

B 4 (1 2 SEQ. NO. 6)

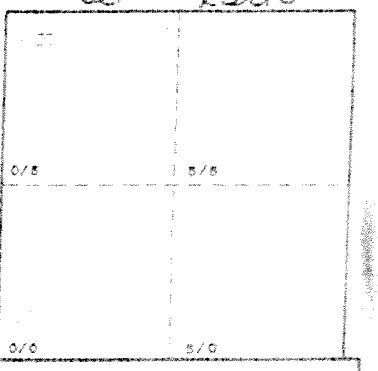
DIRECTION FROM TOWN (CIRCLE APPROPRIATE BOX)
N NORTH E EAST (NE) NORTHEAST SE SOUTHEAST
S SOUTH W WEST NW NORTHWEST SW SOUTHWEST
(8) (8) (8 9) (8 9)

NEAR WHAT ROAD Hillpine Rd. (11)
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) NORTH (N) SOUTH (S) EAST (E) WEST (W) (32)
DISTANCE FROM ROAD (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX) 120' (34 37) (FT) (M) (38,39)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWN ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW, AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON SKETCH. ALSO SHOW, BY MEANS OF AN "X", THE WELL LOCATION IN THE BOX BELOW AND THE BOX NUMBER FROM THE WELL LOCATION MAP.



BOX NUMBER E 960 N 540



NORTH COORDINATE 5 4 5 0 0 0 (50 51 52 53 54 55)
EAST COORDINATE 0 9 6 0 0 0 0 (57 58 59 60 61 62 63)
ELEVATION AT WELL HEAD (FEET) (65 66 67 68)

ORIGINAL

15

C 1 9033 (WRA USE ONLY)
1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MD. 21401
WELL COMPLETION REPORT

FILL IN THIS FORM COMPLETELY
COUNTY NUMBER

DATE RECEIVED (WRA USE ONLY) 1-20577 6-13

DATE WELL COMPLETED November 21,1977 (15) 11/21/77 (16)

DEPTH OF WELL 87' (22 TO NEAREST FOOT 26)

PERMIT NO. FROM "PERMIT TO DRILL WELL" -BA-A3-5179 (25 29 30 31 32 33 34 35 36 37)

DRILLERS IDENTIFICATION NO. 80

OWNER Gardner, Milton (LAST NAME, FIRST NAME)

STREET OR RFD 1000 Hillpine Rd. POST OFFICE Balto.Maryland 21220

WELL DESCRIPTION

WELL LOG

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (use additional sheets if necessary)	FEET FROM	FEET TO	CHECK IF WATER BEARING
Brown Sand	0	10	
White Clay	10	30	
White Sand	30	40	
White Clay	40	65	
Brown Sand	65	87	x

GROUTING RECORD

WELL HAS BEEN GROUTED (CIRCLE APPROPRIATE BOX) (YES) Y NO N (44)

TYPE OF GROUTING MATERIAL (CIRCLE B) CEMENT C M (45 46) BENTONITE CLAY B C (47 48)

NO. OF BAGS 1 NO. OF POUNDS 100

GALLONS OF WATER 50

DEPTH OF GROUT SEAL (TO NEAREST FOOT)

FROM 5 (48) FT. TO 45 (52 54) FT. (58)

(ENTER 0 IF FROM SURFACE)

CASING RECORD

CASING TYPES (INSERT APPROPRIATE CODE BELOW)

S T STEEL; C O CONCRETE; P L PLASTIC; O T OTHER

MAIN CASING TYPE	NOMINAL DIAMETER TOP (MAIN) CASING (NEAREST INCH)	TOTAL DEPTH OF MAIN CASING (NEAREST FOOT)
P L (60 61)	4" (63 64)	80' (66 70)

OTHER CASING (IF USED)

EACH CASING	DIAMETER (INCH)	DEPTH (FEET) FROM	TO

SCREEN RECORD

SCREEN TYPE OR OPEN HOLE (INSERT APPROPRIATE CODE BELOW)

S T STEEL; B R BRASS OR BRONZE; H O OPEN HOLE; P L PLASTIC; O T OTHER

C 2 (1 2 3 SEQ. NO. 6)

DEPTH (NEAREST WHOLE FOOT)

EACH SCREEN		FROM	TO
1	P L (8 9)	80 (11 15)	87 (17 21)
2	(23 24)	(26 30)	(32 36)
3	(38 39)	(41 45)	(47 51)

SLOT SIZE 1. .030 (2.) 3.

DIAMETER OF SCREEN 2" (56 60 NEAREST INCH)

GRAVEL PACK FROM 71 TO 87

IF WELL DRILLED WAS A FLOWING WELL CIRCLE BOX (68) F

WRA USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (70) TELESCOPE CASING; (E.P.O.S.) (72) LOG INDICATOR; W Q (74 75 76) OTHER DATA AVAILABLE

C 3 (1 2 3 SEQ. NO. 6)

PUMPING TEST

HOURS PUMPED (TO NEAREST HOUR) 2 (8 9)

PUMPING RATE (GALLONS PER MINUTE TO NEAREST GALLON) 60 (11 15)

METHOD USED TO MEASURE PUMPING RATE air

WATER LEVEL: (DISTANCE FROM LAND SURFACE)

BEFORE PUMPING 38 (17 20 NEAREST FOOT)

WHEN PUMPING 58 (22 25 NEAREST FOOT)

TYPE OF PUMP USED (CIRCLE APPROPRIATE BOX) (FOR PUMPING TEST)

A (27) AIR; P (27) PISTON; T (27) TURBINE; C (27) CENTRIFUGAL; R (27) ROTARY; O (27) OTHER (DESCRIBE BELOW); J (27) JET; S (27) SUBMERSIBLE

PUMP INSTALLED

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX — SEE ABOVE: A, C, J, P, R, S, T, O) S (29)

DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX) YES Y NO N

CAPACITY:

GALLONS PER MINUTE (TO NEAREST GALLON) 6 (31 35)

PUMP HORSE POWER 1/3 (37 41)

PUMP COLUMN LENGTH (NEAREST FOOT) 78' (43 47)

CASING HEIGHT

(CIRCLE APPROPRIATE BOX AND ENTER CASING HEIGHT)

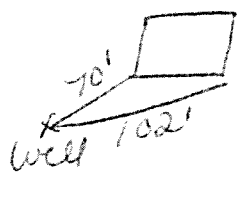
+ (49) ABOVE; - (49) BELOW LAND SURFACE 1 (50 51 NEAREST FOOT)

LOCATION OF WELL ON LOT

N

SHOW PERMANENT STRUCTURE SUCH AS BUILDINGS, SEPTIC TANKS, AND/OR OTHER LAND MARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL).

Hillpine Rd



CIRCLE APPROPRIATE BOXES

A (1) WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E ELECTRIC LOG OBTAINED

P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

DRILLERS NAME (PLEASE PRINT) Doug Kinder

SIGNATURE John E Braham

ORIGINAL

EMERGENCY NO. (If any) ~ BA-70-5701

B 1 4093 SEQUENCE NO. (WRA USE ONLY)

1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 OF ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

WRA PERMIT NUMBER
BA-70-5701
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (WRA USE ONLY)
APR 27 1978

OWNER (COL 10) Ira Devil (LAST NAME) C. James (FIRST NAME) (COL. 36)
STREET OR RFD (COL 56) 1910 Leland Avenue (COL. 65)
POST OFFICE (COL 57) Baltimore, Md. 21220 (COL. 75)

B 1 CONTINUES (SEQ. NO.)

DRILLER INFORMATION

DATE 4-24-78 LICENSE NUMBER 5
WALTER (FIRST NAME) J. (DRILLER) FRANK (LAST NAME)
SIGNATURE Walter J Frank

B 2 (SEQ. NO.)

WELL INFORMATION

MAXIMUM PUMPING RATE (GALLONS PER MINUTE) 10
AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY) 1000

USE FOR WATER (CIRCLE APPROPRIATE BOX)

D HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
F FARMING, AGRICULTURE, IRRIGATION
I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT
M MUNICIPAL WATER SUPPLY
P PRIVATE WATER COMPANY
(M AND P MUST HAVE STATE HEALTH DEPT. APPROVAL)
T TEST

APPROXIMATE DEPTH OF WELL 100 (NEAREST FOOT)
APPROXIMATE DIAMETER OF WELL 4 (NEAREST INCH)

METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD)

BORED (OR AUGERED) JETTED DRIVEN
AIR-ROTARY AIR-PERCUSSION ROTARY (HYDRAULIC ROTARY)
CABLE REVERSE-ROTARY DRIVE-POINT
OTHER (DESCRIBE)

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)

N THIS WELL WILL NOT REPLACE AN EXISTING WELL
Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
D THIS WELL WILL DEEPEN AN EXISTING WELL
PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE)

NOT TO BE FILLED IN BY DRILLER (WRA USE ONLY)

APPROPRIATION PERMIT NUMBER
ENGINEER REVIEW DISTRICT NO.
A E N S O W Q C L U
POWER WRITE IN INITIALS
CONDITIONS

B 4 CONTINUES (SEQ. NO.)

HEALTH DEPARTMENT APPROVAL

AT (CIRCLE BOX) S
COUNTY NAME BALTIMORE COUNTY NO.
DATE 04 24 78 (MO. DAY YR.)
APPROVED BY

B 3 (SEQ. NO.)

LOCATION OF WELL

COUNTY 2 Baltimore (DO NOT ABBREVIATE COUNTY NAME) 21
SUBDIVISION 23 42
SECTION 44 LOT 49 50
NEAREST TOWN 52 Middle River
MILES FROM TOWN (ENTER 0 IF IN TOWN) 0 (M OR T) 76 77 78

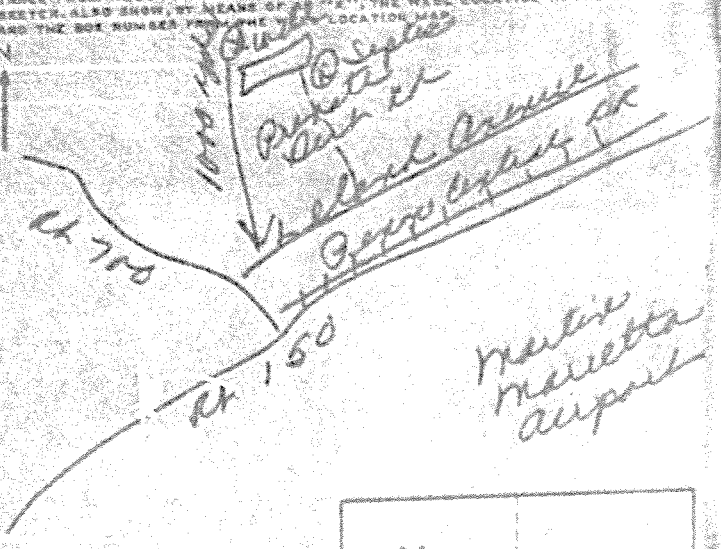
B 4 (SEQ. NO.)

DIRECTION FROM TOWN (CIRCLE APPROPRIATE BOX)

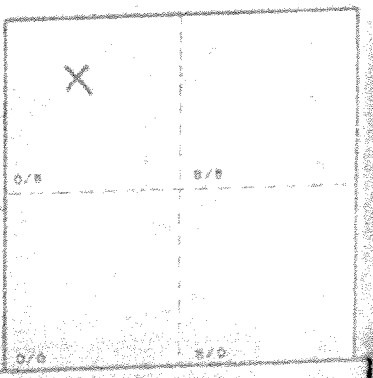
N NORTH E EAST NE NORTHEAST SE SOUTHEAST
S SOUTH W WEST NW NORTHWEST SW SOUTHWEST

NEAR WHAT ROAD 31 Leland Avenue
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) NORTH (N) 32 SOUTH (S) 32 EAST (E) 33 WEST (W) 33
DISTANCE FROM ROAD (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX) 34 2220 (FT OR M) 37 38 39

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWN ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW, AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON THE SKETCH. ALSO SHOW, BY MEANS OF AN "X", THE WELL LOCATION IN THE BOX BELOW AND THE BOX NUMBER FROM THE WELL LOCATION MAP.



BOX NUMBER E 960 N 540



NORTH COORDINATE 5145000 (80 81 82 83 84 85)
EAST COORDINATE 0960000 (87 88 89 90 91 92 93 94)
ELEVATION AT WELL HEAD (FEET) (95 96 97 98)

B 5 (SEQ. NO.) SPECIAL CONDITIONS (WRA USE ONLY)

ORIGINAL

DNR-21-4 (7-77)

C 1 | 0125 | SEQUENCE NO. (WRA USE ONLY)
(SEQ. NO.)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MD. 21401
WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED TO WRA WITHIN 30 DAYS AFTER WELL COMPLETION

FILL IN THIS FORM COMPLETELY

COUNTY NUMBER

DATE RECEIVED (WRA USE ONLY): SEP 20 1978

DATE WELL COMPLETED: 4-25-78

DEPTH OF WELL: 95 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": BA - 503-1978 01

DRILLER'S IDENTIFICATION NO.: 5

OWNER: Mr. Dyrid (LAST NAME) Lenzer (FIRST NAME)

STREET OR RFD: 1910 Leland Avenue POST OFFICE: Bel Air, Md. 21014

WELL DESCRIPTION

WELL LOG
STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (USE ADDITIONAL SHEETS IF NECESSARY)	FEET FROM	FEET TO	CHECK IF WATER BEARING
Sand	0	8	
White clay	8	23	
Sand	23	40	
White clay	40	55	
Red clay	55	65	
White clay	65	90	
Water bearing sand	90	95	✓

GROUTING RECORD
WELL HAS BEEN GROUTED (CIRCLE APPROPRIATE BOX): YES (Y) NO (N)

TYPE OF GROUTING MATERIAL (CIRCLE APPROPRIATE BOX): CEMENT (C M) BENTONITE CLAY (B C)

NO. OF BAGS: 3 NO. OF POUNDS: 150

GALLONS OF WATER: 70

DEPTH OF GROUT SEAL (TO NEAREST FOOT): FROM 0 FT. TO 20 FT.

(ENTER 0 IF FROM SURFACE)

CASING RECORD
CASING TYPES (INSERT APPROPRIATE CODE BELOW): STEEL (S T) CONCRETE (C O) PLASTIC (P L) OTHER (O T)

MAIN CASING TYPE	NOMINAL DIAMETER (TOP) (MAIN) CASING (NEAREST INCH)	TOTAL DEPTH OF MAIN CASING (NEAREST FOOT)
P L	4	90

OTHER CASING (IF USED)
CASABLE

DIAMETER (INCH)	DEPTH (FEET) FROM	TO

SCREEN RECORD
SCREEN TYPE OR OPEN HOLE (INSERT APPROPRIATE CODE BELOW): STEEL (S T) BRASS OR BRONZE (B R) OPEN HOLE (N O) PLASTIC (P L) OTHER (O T)

C 2 (SEQ. NO.)

EACH SCREEN

	DEPTH (NEAREST WHOLE FOOT)	
1	P K 90	95
2		
3		

SLOT SIZE: .030

DIAMETER OF SCREEN: 2 (NEAREST INCH)

GRAVEL PACK: 90 to 95

IF WELL DRILLED WAS A FLOWING WELL CIRCLE BOX: SE (F)

WRA USE ONLY - NOT TO BE FILLED IN BY DRILLER

(E, A, O, L): FLOWSCOPE CASING | LOG INDICATOR | W Q (78, 79, 80 OTHER DATA AVAILABLE)

C 3 (SEQ. NO.)

PUMPING TEST
HOURS PUMPED (TO NEAREST HOUR): 2

PUMPING RATE (GALLONS PER MINUTE TO NEAREST GALLON): 15

METHOD USED TO MEASURE PUMPING RATE: 5 gal bucket

WATER LEVEL (DISTANCE FROM LAND SURFACE)

BEFORE PUMPING: 15 (NEAREST FOOT)

WHEN PUMPING: 25 (NEAREST FOOT)

TYPE OF PUMP USED (CIRCLE APPROPRIATE BOX OF PUMP USED IN TEST): A (AIR) P (PISTON) T (TURBINE) C (CENTRIFUGAL) R (ROTARY) O (OTHER (DESCRIBE BELOW)) J (JET) S (SUBMERSIBLE)

PUMP INSTALLED
TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX - SEE ABOVE): S

DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX): YES (Y) NO (N)

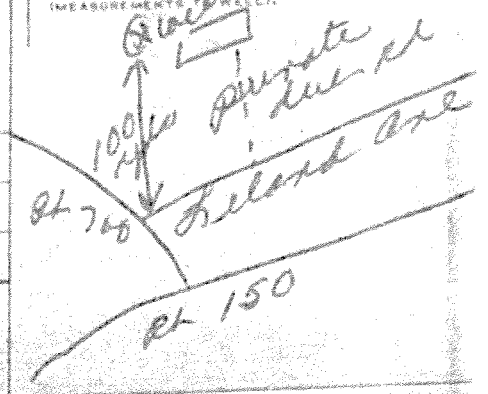
CAPACITY:
GALLONS PER MINUTE (TO NEAREST GALLON): 7

PUMP HORSE POWER: ½

PUMP COLUMN LENGTH (NEAREST FOOT): 40

CASING HEIGHT (CIRCLE APPROPRIATE BOX AND ENTER CASING HEIGHT)
(+) ABOVE / (−) BELOW LAND SURFACE: 1 (NEAREST FOOT)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDINGS, SEPTIC TANKS, AND/OR OTHER LAND MARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS) TO WELL.



CIRCLE APPROPRIATE BOXES
(A) A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

(E) ELECTRIC LOG OBTAINED

(P) TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF.

DRILLER'S NAME (PLEASE PRINT): WALTER J. FRANK

SIGNATURE: Walter J. Frank

ORIGINAL

STATE OF MARYLAND
DEPARTMENT OF NATURAL RESOURCES
WATER RESOURCES ADMINISTRATION
TAWES OFFICE BUILDING, ANNAPOLIS, MARYLAND

PERMIT TO DRILL WELL

ISSUE DATE- 11/22/77
MO DA YR

PERMIT NUMBER- BA-79-5176

ISSUED TO DRILLER- BRANHAM WELL DRLG
8133 HOG NECK RD.
PASADENA, MD.

DRILLER ID. NUMBER- 80

THE ABOVE NAMED DRILLER IS HEREBY AUTHORIZED TO DRILL A WELL TO BE OWNED BY-

PRESTON, CALVIN S
1004 HILLPINE RD
BALTIMORE MD 21220

THIS WELL IS TO BE LOCATED IN BALTIMORE COUNTY,
MIDDLE RIVER SUBDIVISION, SECTION- , LOT- B ,
NEAR THE TOWN OF ESSEX

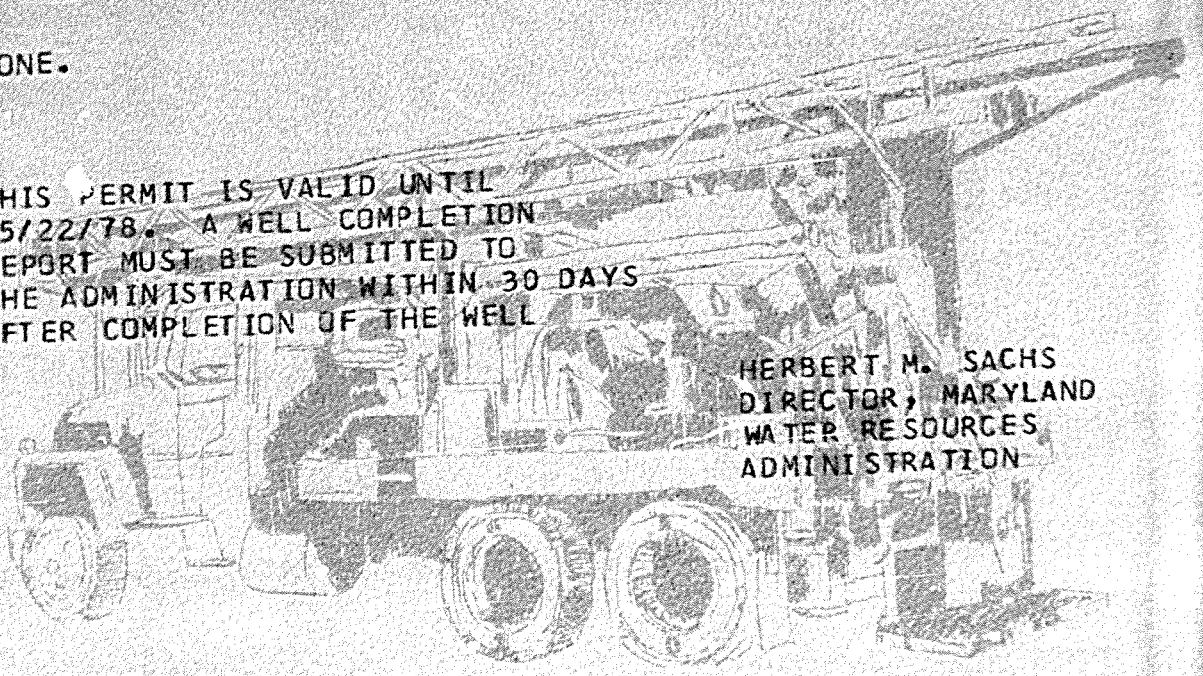
THE WATER IS TO BE USED FOR A DOMESTIC SUPPLY.

THIS WELL WILL REPLACE A WELL WHICH WILL BE ABANDONED & SEALED.

SPECIAL CONDITIONS

FAILURE TO COMPLY WITH THE FOLLOWING CONDITIONS WILL CAUSE THIS PERMIT TO BECOME NULL AND VOID.

NONE.



THIS PERMIT IS VALID UNTIL 05/22/78. A WELL COMPLETION REPORT MUST BE SUBMITTED TO THE ADMINISTRATION WITHIN 30 DAYS AFTER COMPLETION OF THE WELL

HERBERT M. SACHS
DIRECTOR, MARYLAND
WATER RESOURCES
ADMINISTRATION

DRILLER COPY

DNR-131 (7-77) EMERGENCY NO. (If any) –

B 1 6722 SEQUENCE NO. (WRA USE ONLY)
1 2 3 (SEQ. NO.) 6
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MARYLAND 21401
APPLICATION FOR PERMIT TO DRILL WELL

WRA PERMIT NUMBER BA-73-5176
FILL IN THIS FORM COMPLETELY

DATE RECEIVED (WRA USE ONLY) 11 22 77

OWNER Preston, Calvin S. (COL 15 LAST NAME) (FIRST NAME COL. 34)
STREET OR RFD 1000 Hillpine Rd. (COL. 38) (COL. 58)
POST OFFICE Baltimore, Maryland 21220 (COL. 57) (COL. 76)

B 1 CONTINUED (1 2 3 SEQ. NO. 6) — DRILLER INFORMATION

DATE November 14, 1977 LICENSE NUMBER 80 (77 80)

John E. Branham (FIRST NAME DRILLER LAST NAME)

SIGNATURE John E Branham

B 2 (1 2 3 SEQ. NO. 6) — WELL INFORMATION

MAXIMUM PUMPING RATE (GALLONS PER MINUTE) 10 (8 12)

AVERAGE DAILY QUANTITY NEEDED (GALLONS PER DAY) 600 (14 20)

USE FOR WATER (CIRCLE APPROPRIATE BOX)

(D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
F FARMING, AGRICULTURE, IRRIGATION
I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOVERNMENT.
M MUNICIPAL WATER SUPPLY
P PRIVATE WATER COMPANY
} MUST HAVE STATE HEALTH DEPT. APPROVAL
T TEST

APPROXIMATE DEPTH OF WELL 85' (24 28 FEET)

APPROXIMATE DIAMETER OF WELL 4" (NEAREST INCH)

METHOD OF DRILLING USED (CIRCLE APPROPRIATE METHOD)

BORED (OR AUGERED) JETTED DRIVEN
AIR-ROTARY AIR-PERCUSSION (ROTARY) (HYDRAULIC ROTARY)
CABLE REVERSE-ROTARY DRIVE-POINT

OTHER (DESCRIBE)

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)

N THIS WELL WILL NOT REPLACE AN EXISTING WELL
(Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
D THIS WELL WILL DEEPEN AN EXISTING WELL
PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE)
(41 52)

NOT TO BE FILLED IN BY DRILLER (WRA USE ONLY)

APPROPRIATION PERMIT NUMBER G A P (54 63) ENGINEER REVIEW DISTRICT NO. (65)

FORCE WRITE INITIALS IN BOX (67 68) CONDITIONS A E N S G W Q C L U (70 71 72 73 74 75 76 77 78 79)

B 4 CONTINUED (1 2 3 SEQ. NO. 6) — HEALTH DEPARTMENT APPROVAL

41 (S) DATE HEALTH (CIRCLE BOX)
DATE MO. 11 DAY 11 YR. 77 (43 46)
BALTIMORE COUNTY NAME
COUNTY NO.
APPROVED BY R.A. Schmidt

B 3 (1 2 3 SEQ. NO. 6) — LOCATION OF WELL

COUNTY Baltimore County (5 DO NOT ABBREVIATE COUNTY NAME 21)
SUBDIVISION Middle River (23 42)
SECTION (44 46) LOT B (48 50)
NEAREST TOWN Essex (52)
MILES FROM TOWN (ENTER 0 IF IN TOWN) 3 (73) (M) (I) (76 77 78)

B 4 (1 2 3 SEQ. NO. 6) — DIRECTION FROM TOWN (CIRCLE APPROPRIATE BOX)

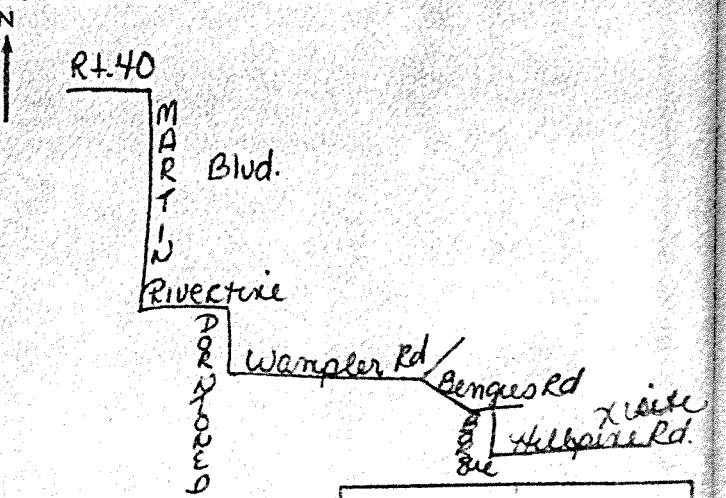
N NORTH E EAST (NE) NORTHEAST SE SOUTHEAST
S SOUTH W WEST NW NORTHWEST SW SOUTHWEST
(8) (8) (8 9) (8 9)

NEAR WHAT ROAD Hillpine Rd. (11 30)

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) (N) (S) (E) (W) (33) (32) (32) (32)

DISTANCE FROM ROAD (ENTER DISTANCE AND CIRCLE APPROPRIATE BOX) 100' (34 37) (FT) (MI) (38 39)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS, ROADS AND STREAMS WITH NORTH IN THE DIRECTION OF THE ARROW, AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION OR STREAM CROSSING SHOWN ON THE SKETCH. ALSO SHOW, BY MEANS OF AN "X", THE WELL LOCATION IN THE BOX BELOW AND THE BOX NUMBER FROM THE WELL LOCATION MAP.



BOX NUMBER E 960 N 540

NORTH COORDINATE 0 1 5 0 0 0 0 (80 51 52 53 54 55)

EAST COORDINATE 0 9 6 0 0 0 0 (57 58 59 60 61 62 63)

ELEVATION AT WELL HEAD (FEET) (66 66 67 68)

B 5 (1 2 3 SEQ. NO. 6) SPECIAL CONDITIONS 8-63 (WRA USE ONLY) (8 63)

ORIGINAL

15

DNR-314 (7-77)

C 1 9588 — SEQUENCE NO. (WRA USE ONLY) — (SEQ. NO.) — (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-8 ON ALL CARDS)

STATE OF MARYLAND
WATER RESOURCES ADMINISTRATION
TAWES STATE OFFICE BLDG., ANNAPOLIS, MD. 21401
WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 30 DAYS AFTER WELL COMPLETION

FILL IN THIS FORM COMPLETELY

COUNTY NUMBER BA-23-176

DATE RECEIVED BY WRA: JUL 21 1978 — 0 1 0 9 7 8

December 17,1977 — DATE WELL COMPLETED — 7/21/77

DEPTH OF WELL 85' (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" BA-73-5475

DRILLERS IDENTIFICATION NO. 80

OWNER Preston, Calvin S. (LAST NAME, FIRST NAME)

STREET OR RFD 1004 Hillpine Rd. POST OFFICE Balto. Maryland 21220

WELL DESCRIPTION

WELL LOG

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (USE ADDITIONAL SHEETS IF NECESSARY)	FEET FROM	FEET TO	CHECK IF WATER BEARING
Brown Sand	0	20	
White Clay	20	70	
Brown Sand	70	85	x

GROUTING RECORD

WELL HAS BEEN GROUTED (CIRCLE APPROPRIATE BOX) — YES (Y) NO (N)

TYPE OF GROUTING MATERIAL (CIRCLE BOX) — CEMENT (C M) BENTONITE CLAY (B C)

NO. OF BAGS 1/2 NO. OF POUNDS 50

GALLONS OF WATER 25

DEPTH OF GROUT SEAL (TO NEAREST FOOT)

FROM 5 FT. TO 25 FT.

(ENTER 0 IF FROM SURFACE)

CASING RECORD

CASING TYPES (INSERT APPROPRIATE CODE BELOW): STEEL (S T), CONCRETE (C O), PLASTIC (P L), OTHER (O T)

MAIN CASING TYPE	NOMINAL DIAMETER TOP (MAIN) CASING (NEAREST INCH)	TOTAL DEPTH OF MAIN CASING (NEAREST FOOT)
P L	4"	74'

OTHER CASING (IF USED)

EACH CASING

DIAMETER (INCH)	DEPTH (FEET) FROM	TO

SCREEN RECORD

SCREEN TYPE OR OPEN HOLE (INSERT APPROPRIATE CODE BELOW): STEEL (S T), BRASS OR BRONZE (B R), OPEN HOLE (H O), PLASTIC (P L), OTHER (O T)

C 2 (SEQ. NO.)

DEPTH (NEAREST WHOLE FOOT)

EACH SCREEN

		FROM	TO
1	P L	74	81
2			
3			

SLOT SIZE 1. .030 2. ____ 3. ____

DIAMETER OF SCREEN 2" (NEAREST INCH)

GRAVEL PACK FROM 65 TO 85

IF WELL DRILLED WAS A FLOWING WELL CIRCLE BOX (68 F)

CIRCLE APPROPRIATE BOXES

(A) WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

(E) ELECTRIC LOG OBTAINED

(P) TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH ALL CONDITIONS STATED ON THE ABOVE-CAPTIONED "PERMIT TO DRILL WELL", AND THAT INFORMATION CONTAINED IN THIS REPORT IS TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

DRILLERS NAME

(PLEASE PRINT) Doug Kinder

SIGNATURE John E Bracken

WRA USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T — TELESCOPE CASING

(E.R.O.S.) — LOG INDICATOR

W O — OTHER DATA AVAILABLE

C 3 (SEQ. NO.)

PUMPING TEST

HOURS PUMPED (TO NEAREST HOUR) 2

PUMPING RATE (GALLONS PER MINUTE TO NEAREST GALLON) 40

METHOD USED TO MEASURE PUMPING RATE air

WATER LEVEL: (DISTANCE FROM LAND SURFACE)

BEFORE PUMPING 18 (NEAREST FOOT)

WHEN PUMPING 38 (NEAREST FOOT)

TYPE OF PUMP USED (CIRCLE APPROPRIATE BOX FOR PUMPING TEST)

(A) AIR — (P) PISTON — (T) TURBINE — (C) CENTRIFUGAL — (R) ROTARY — (O) OTHER (DESCRIBE BELOW) — (J) JET — (S) SUBMERSIBLE

PUMP INSTALLED

TYPE OF PUMP (WRITE APPROPRIATE LETTER IN BOX — SEE ABOVE: A, C, J, P, R, S, T, O) S

DRILLER WILL INSTALL PUMP (CIRCLE APPROPRIATE BOX) YES (Y) NO (N)

CAPACITY:

GALLONS PER MINUTE (TO NEAREST GALLON) 6

PUMP HORSE POWER 1/3

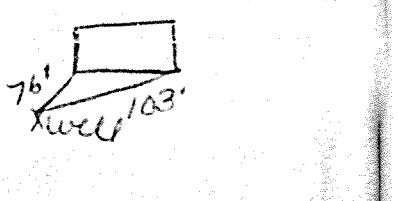
PUMP COLUMN LENGTH (NEAREST FOOT) 58

CASING HEIGHT (CIRCLE APPROPRIATE BOX AND ENTER CASING HEIGHT)

(+) ABOVE (−) BELOW LAND SURFACE 1 (NEAREST FOOT)

LOCATION OF WELL ON LOT

N — SHOW PERMANENT STRUCTURE SUCH AS BUILDINGS, SEPTIC TANKS, AND/OR OTHER LAND MARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL).



ORIGINAL

B 1 | 2108 | SEQUENCE NO. (DEP USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
APPLICATION FOR PERMIT TO DRILL WELL

please print or type

BA-81-2047

fill in this form completely

Date Received [illegible]

OWNER INFORMATION

HA[illegible] JAMES

Last Name / Owner / First Name

201 BOURQUE AVENUE

Street or RFD

MIDDLE RIVER MD 21220

Town / State / Zip

DRILLER INFORMATION

WALTER J. FRANK — 5

Driller's Name / License No.

FRANK'S WELL DRILLING, INC.

Firm Name

[illegible] FT. SMALLWOOD BALTO. 21226

Address

Walter J Frank — 9-13-83

Signature / Date

B 2 WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.) 10

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) 1000

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- (D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- [F] FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
- [I] INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
- [P] PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
- [T] TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL 70 FEET

APPROXIMATE DIAMETER OF WELL 4 NEAREST INCH

METHOD OF DRILLING (circle one)

BORED (or Augered) — JETTED — Jetted & DRIVEN

AIR-ROTary — AIR-PERcussion — (ROTARY) (Hydraulic Rotary)

CABLE — REVerse-ROTary — DRive-POINT

other ROTARY

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)

- [N] THIS WELL WILL NOT REPLACE AN EXISTING WELL
- (Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED Dug well
- [S] THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- [D] THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENDED (IF AVAILABLE)

Not to be filled in by driller (DEP USE ONLY)

APPROP. PERMIT NUMBER GAP

FORCE SF WRI INITIALS IN BOX — PERMIT No. BA-81-2047

B 3 LOCATION OF WELL

BALTIMORE

COUNTY

SUBDIVISION

SECTION — LOT

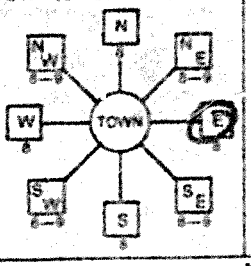
MIDDLE RIVER

NEAREST TOWN

MILES FROM TOWN (enter 0 if in town) 0.6 MI

B 4

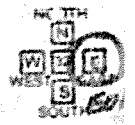
DIRECTION OF WELL FROM TOWN (CIRCLE BOX)



Bourque Ave.

NEAR WHAT ROAD

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)



200

DISTANCE FROM ROAD

ENTER FT or MI FT

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL

COUNTY NAME Baltimore — COUNTY NO. 003

DEP SIGNATURE — STATE HEALTH INSERT S

DATE ISSUED 092083 — Susan Farinetti

ADD SIGNATURE — EXP. DATE

NORTH GRID 548 000 — EAST GRID 0968 000

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X



SOURCES OF DRILLING WATER

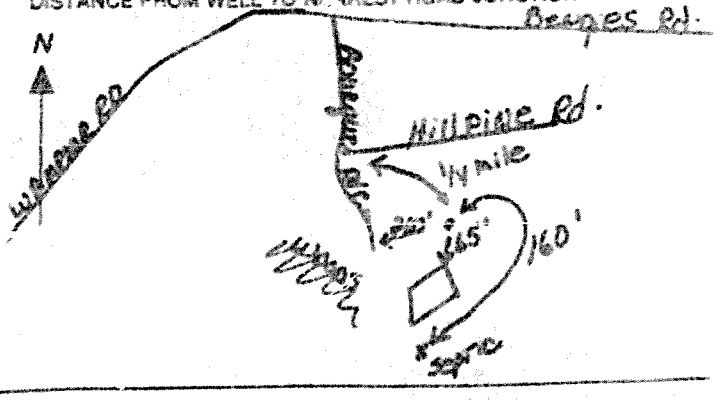
1.
2.
3.

WRITE THE BOX NUMBER FROM THE MAP HERE

E 968

N 548

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



SPECIAL CONDITIONS

ORIGINAL

C1 7705 SEQUENCE NO. (OEP USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

COUNTY NUMBER 003

DATE Received FEB 29 1983

DATE WELL COMPLETED 092683

Depth of Well 115 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WE BA-81-204

OWNER Ham James
last name first name
STREET OR RFD 201 Bourque Ave TOWN Middle River 21220
SUBDIVISION SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
sand	0	6	
sand, white clay	6	15	
white clay	15	20	
white clay	20	30	
sand, clay	30	40	
red clay	40	50	
red clay	50	65	
gray clay	65	70	
sand, white clay	70	80	
sand, red clay	80	90	
white clay	90	100	
white clay	100	105	
sand	105	110	
sand	110	115	✓

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) Y N
TYPE OF GROUTING MATERIAL
CEMENT CM BENTONITE CLAY BC
NO. OF BAGS 4 NO. OF POUNDS 200
GALLONS OF WATER 100
DEPTH OF GROUT SEAL (to nearest foot)
from 0 ft. to 30 ft. (enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below
ST STEEL CO CONCRETE PL PLASTIC OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	4	105

OTHER CASING (if used)

EACH CASING	diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole insert appropriate code below
ST STEEL BR BRASS BRONZE HO OPEN HOLE PL PLASTIC OT OTHER

C2

EACH SCREEN	DEPTH (nearest ft.)		
1	PL	105	115
2			
3			

SLOT SIZE 1 .0in 2 3
DIAMETER OF SCREEN 2 (NEAREST INCH)

GRAVEL PACK from 105 to 115
IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

C3
PUMPING TEST
HOURS PUMPED (nearest hour) 3
PUMPING RATE (gal. per min. to nearest gal.) 30
METHOD USED TO MEASURE PUMPING RATE 5 gal buc
WATER LEVEL (distance from land surface)
BEFORE PUMPING 22
WHEN PUMPING 32
TYPE OF PUMP USED (for test)
A air P piston T turbin
C centrifugal R rotary O other (descr below
J jet S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) YES N
IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE
TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX-SEE ABOVE: S
CAPACITY: GALLONS PER MINUTE (to nearest gallon) 7
PUMP HORSE POWER 433
PUMP COLUMN LENGTH (nearest ft.) 60
CASING HEIGHT (circle appropriate box and enter casing height)
+ above
− below
LAND SURFACE 1 (neare foot)

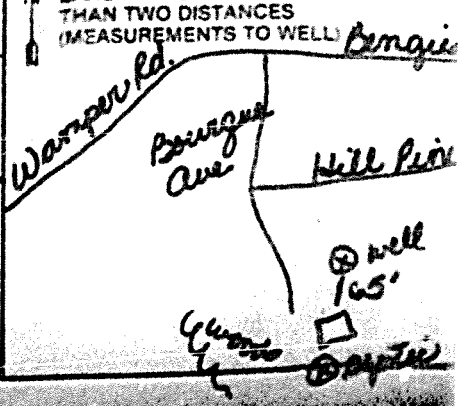
CIRCLE APPROPRIATE LETTER
A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
E ELECTRIC LOG OBTAINED
P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. 5
Walter J Leach
DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)
T TELESCOPE CASING (E.R.O.S.) LOG INDICATOR WQ OTHER DATA

ORIGINAL

EMERGENCY/TEMP NO. IF ANY

B 1 2110 SEQUENCE NO. (OEP USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
APPLICATION FOR PERMIT TO DRILL WELL

please print or type

OEP PERMIT NUMBER: BA-81-4665

fill in this form completely

Date Received: 022086

OWNER INFORMATION

DUMER JOHN
Last Name / Owner / First Name

200 WAMPLER RD
Street or RFD

BALTIMORE MD 21220
Town / State / Zip

DRILLER INFORMATION

WALTER J. FRANK — 5
Driller's Name / License No.

FRANK'S WELL DRILLING
Firm Name

7014 FT. SMALLWOOD RD. BALTO, MD. 21226
Address

Walter J. Frank — 2-11-86
Signature / Date

B 2 WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.): 10

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY): 1000

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- (D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- F FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
- I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
- P PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
- T TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL: 90 FEET

APPROXIMATE DIAMETER OF WELL: 4 NEAREST INCH

METHOD OF DRILLING (circle one)

BORED (or Augered) — JETTED — Jetted & DRIVEN
AIR-ROTary — AIR-PERcussion — (ROTARY) (Hydraulic Rotary)
CABLE — REVerse-ROTary — DRive-POINT

other

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)

- (N) THIS WELL WILL NOT REPLACE AN EXISTING WELL
- Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- D THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENDED (IF AVAILABLE)

Not to be filled in by driller (OEP USE ONLY)

APPROP. PERMIT NUMBER: GAP

FORCE: SE — WRITE INITIALS IN BOX — PERMIT No. BA-81-4665

B 3 LOCATION OF WELL

BALTIMORE
COUNTY

SUBDIVISION

SECTION 11 — LOT 13, 14+15 — BLOCK 11

MIDDLE RIVER
NEAREST TOWN

MILES FROM TOWN (enter 0 if in town): 0.4 MI

B 4

DIRECTION OF WELL FROM TOWN (CIRCLE BOX): N, NE, E, SE, S, SW, W, NW — TOWN

EVERGREEN ST.
NEAR WHAT ROAD

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): NORTH, WEST, EAST, SOUTH

DISTANCE FROM ROAD: 30

ENTER FT or MI: FT

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL

COUNTY NAME: Baltimore — COUNTY NO: 003

OEP SIGNATURE — STATE HEALTH INSERT S

DATE ISSUED: 022686 — Susan Farinetti
CO-SIGNATURE — EXP. DATE

NORTH GRID: 547000 — EAST GRID: 0959000

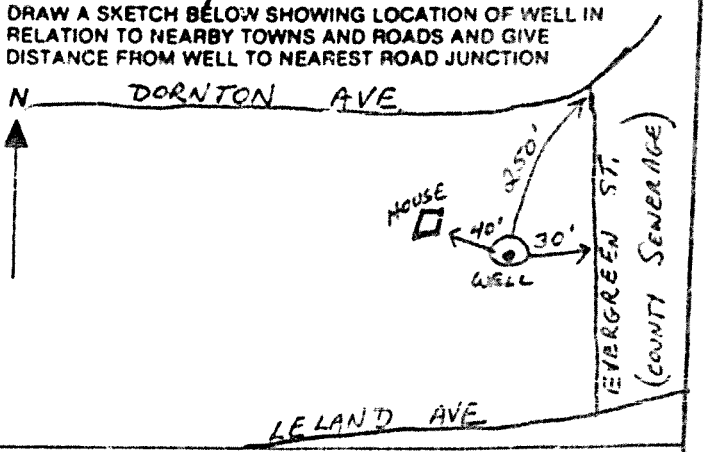
SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

SOURCES OF DRILLING WATER
1.
2.
3.

WRITE THE BOX NUMBER FROM THE MAP HERE

E 950
N 540

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



SPECIAL CONDITIONS

15

C 1 5211 SEQUENCE NO. (OEP USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED

COUNTY NUMBER

DATE Received: APR 22 1986

DATE WELL COMPLETED: 04/14/86

Depth of Well: 90 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": BA-81-4665

OWNER: Dumer John

STREET OR RFD: 200 Wampler Rd (last name / first name) TOWN: Balto 21220

SUBDIVISION: Evergreen st SECTION: LOT: lot 13-15

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
RED CLAY + SAND	0	20	
SAND	20	25	
RED CLAY	25	30	
RED + WHITE CLAY	30	40	
RED + WHITE CLAY, SAND	40	50	
WHITE CLAY	50	65	
GRAY CLAY	65	70	
GRAY CLAY	70	80	
SAND	80	90	xxx

GROUTING RECORD

WELL HAS BEEN GROUTED (Circle Appropriate Box): (YES) Y / N

TYPE OF GROUTING MATERIAL

CEMENT CM BENTONITE CLAY BC

NO OF BAGS 4 NO OF POUNDS 200

GALLONS OF WATER 100

DEPTH OF GROUT SEAL (to nearest foot)

from 0 ft. to 30 ft. BOTTOM (enter 0 if from surface)

CASING RECORD

casing types insert appropriate code below

ST STEEL, CO CONCRETE, PL PLASTIC, OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	4	80

OTHER CASING (if used)

	diameter inch	depth (feet) from	to

SCREEN RECORD

screen type or open hole — insert appropriate code below

ST STEEL, BR BRASS BRONZE, HO OPEN HOLE, PL PLASTIC, OT OTHER

EACH SCREEN	SCREEN TYPE	DEPTH (nearest ft.)	
1	PL	80	90
2			
3			

SLOT SIZE .020

DIAMETER OF SCREEN 2 (NEAREST INCH)

GRAVEL PACK from 80 to 90

IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

C 3

PUMPING TEST

HOURS PUMPED (nearest hour) 3

PUMPING RATE (gal. per min. to nearest gal.) 60

METHOD USED TO MEASURE PUMPING RATE 5 Gal. Bucket

WATER LEVEL (distance from land surface)

BEFORE PUMPING 12

WHEN PUMPING 21

TYPE OF PUMP USED (for test)

A air, P piston, T turbine, C centrifugal, R rotary, O other (describe below), J jet, S submersible

PUMP INSTALLED AT A LATER DATE.

DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO): (YES) NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE

CAPACITY GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

CASING HEIGHT (circle appropriate box and enter casing height) + above / - below LAND SURFACE (nearest foot) 1

CIRCLE APPROPRIATE LETTER

A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E ELECTRIC LOG OBTAINED

P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 - WELL CONSTRUCTION AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE

DRILLERS IDENT. NO. 5

Walter J. Frank

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

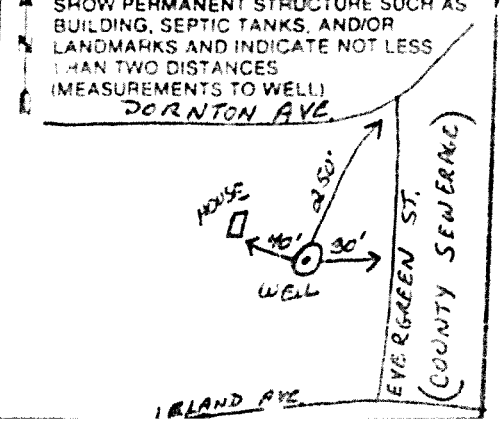
SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T TELESCOPE CASING | (E.R.O.S.) LOG INDICATOR | W.Q. OTHER DATA

LOCATION OF WELL ON LOT

SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



B 1 7964 SEQUENCE NO. (OEP USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
APPLICATION FOR PERMIT TO DRILL WELL

please print or type

OEP PERMIT NUMBER: BA-81-6255

fill in this form completely

Date Received: 010681

OWNER INFORMATION

HUGHES STEPHEN
Last Name / Owner / First Name

E1567 BELAIR RD
Street or RFD

KINGSVILLE MD 21087
Town / State / Zip

DRILLER INFORMATION

WALTER J. FRANK — 5 License No.
Driller's Name

FRANK'S WELL DRILLING, INC.
Firm Name

7014 FT. SMALLWOOD RD, BALTO, MD 21226
Address

Walter J. Frank — 1-5-87
Signature / Date

B 2 WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.): 10

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY): 1000

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- (D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- [F] FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
- [I] INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
- [P] PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
- [T] TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL: 70 FEET

APPROXIMATE DIAMETER OF WELL: 4 NEAREST INCH

METHOD OF DRILLING (circle one)

BORED (or Augered) — JETTED — Jetted & DRIVEN

AIR-ROTary — AIR-PERcussion — (ROTARY) (Hydraulic Rotary)

CABLE — REVerse-ROTary — DRive-POINT

other

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)

- [N] THIS WELL WILL NOT REPLACE AN EXISTING WELL
- (Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED DUG WELL - OWNER WILL ABANDON
- [S] THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- [D] THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENDED (IF AVAILABLE)

Not to be filled in by driller (OEP USE ONLY)

APPROP. PERMIT NUMBER: GAP

FORCE: SE (WRITE INITIALS IN BOX) PERMIT No. BA-81-6255

B 3 LOCATION OF WELL

BALTIMORE
COUNTY

SUBDIVISION

SECTION — LOT

MIDDLE RIVER
NEAREST TOWN

MILES FROM TOWN (enter 0 if in town): 2 MI

B 4

DIRECTION OF WELL FROM TOWN (CIRCLE BOX): N, NE, E, SE, S, SW, W, NW — TOWN

1902 LELAND AVE.
NEAR WHAT ROAD

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): NORTH, WEST, EAST, SOUTH

DISTANCE FROM ROAD: 100

ENTER FT or MI: FT

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL

COUNTY NAME: Balto — COUNTY NO.: 003

OEP SIGNATURE — STATE HEALTH INSERT S

DATE ISSUED: 012087 — Susan Farinetti (CO SIGNATURE) — EXP. DATE

NORTH GRID: 551000 — EAST GRID: 0965000

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

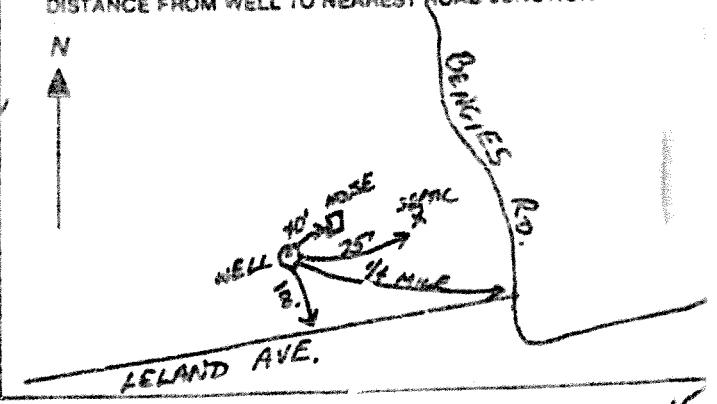
SOURCES OF DRILLING WATER
1.
2.
3.

WRITE THE BOX NUMBER FROM THE MAP HERE

960 E — 960
550 N — 550

000
000

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



SPECIAL CONDITIONS: no pump fee

15

ORIGINAL

C 1 | 8937 | SEQUENCE NO. (OEP USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED

COUNTY NUMBER

DATE Received: JUL 20 1987

DATE WELL COMPLETED: 03/18/87

Depth of Well: 115 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": BA-81-1655

OWNER: Hughes (surname) Stephen (first name)

STREET OR RFD: 11567 Bola Rd TOWN: Kingsville 21087

SUBDIVISION: 1902 Leland Ave SECTION: LOT:

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
BROWN CLAY	0	8	
RED CLAY	8	15	
GRAY CLAY	15	20	
BROWN CLAY	20	30	
BROWN CLAY	30	35	
BROWN CLAY + SAND	35	50	
BROWN CLAY + SAND	50	60	
WHITE CLAY	60	70	
WHITE CLAY + SAND	70	80	
WHITE CLAY	80	90	
WHITE CLAY + SAND	90	100	
SAND	100	115	XXX

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box): (YES) Y / N
TYPE OF GROUTING MATERIAL
CEMENT CM — BENTONITE CLAY BC
NO. OF BAGS 3 NO. OF POUNDS 150
GALLONS OF WATER 25
DEPTH OF GROUT SEAL (to nearest foot) from 0 ft. to 30 ft.
(enter 0 if from surface)

CASING RECORD
casing types — insert appropriate code below
ST STEEL; CO CONCRETE; PL PLASTIC; OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	4	108

OTHER CASING (if used) — BACK CASING

diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole — insert appropriate code below
ST STEEL; BR BRASS BRONZE; HO OPEN HOLE; PL PLASTIC; OT OTHER

C 2

SCREEN	TYPE	DEPTH (nearest ft.)	
1	PL	108	115
2			
3			

SLOT SIZE: .020
DIAMETER OF SCREEN: 2 (NEAREST INCH)

GRAVEL PACK from 108 to 115
IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

C 3

PUMPING TEST
HOURS PUMPED (nearest hour): 3
PUMPING RATE (gal. per min. to nearest gal.): 40
METHOD USED TO MEASURE PUMPING RATE: 5 GAL BUCKET
WATER LEVEL (distance from land surface)
BEFORE PUMPING: 21
WHEN PUMPING: 30
TYPE OF PUMP USED (for test)
A air; P piston; T turbine; C centrifugal; R rotary; O other (describe below); J jet; S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES) or NO
IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE
TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE: S
CAPACITY GALLONS PER MINUTE (to nearest gallon): 7
PUMP HORSE POWER: .33
PUMP COLUMN LENGTH (nearest ft.): 51
CASING HEIGHT (circle appropriate box and enter casing height): + above / − below LAND SURFACE: 1 (nearest foot)

CIRCLE APPROPRIATE LETTER
A — A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
E — ELECTRIC LOG OBTAINED
P — TEST WELL CONVERTED TO PRODUCTION WELL

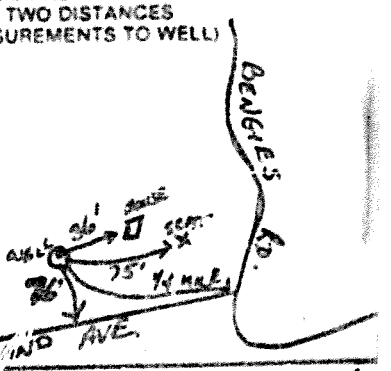
I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. 5

Walter J. Trout
DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

SITE SUPERVISOR (sign, if driller or journeyman responsible for sitework if different from permittee)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



OEP USE ONLY
(NOT TO BE FILLED IN BY DRILLER)
T | (E.R.O.S.) | W.Q.
TELESCOPE CASING | LOG INDICATOR | OTHER DATA

ORIGINAL

15

B 1 6907 SEQUENCE NO. (DP USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
PERMIT TO DRILL WELL
please print or type

STATE PERMIT NUMBER: BA-88-0550
fill in this form completely

Date Received (APA): 12 29 88

OWNER INFORMATION
HARPER (Last Name) JOYCE (First Name)
601 WAMPLER RD (Street or RFD)
BALTIMORE (Town) MD (State) 21220 (Zip)

DRILLER INFORMATION
WALTER J. FRANK (Driller's Name) License No. 5
FRANK'S WELL DRILLING, INC. (Firm Name)
7014 FT. SMALLWOOD RD. BALTO 21226 (Address)
Walter J. Frank (Signature) 12-28-88 (Date)

WELL INFORMATION
APPROX. PUMPING RATE (GAL. PER MIN.): 10
AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY): 1000

USE FOR WATER (CIRCLE APPROPRIATE BOX)
- D HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- F FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
- I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
- P PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
- T TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL: 60 FEET

APPROXIMATE DIAMETER OF WELL _____ NEAREST INCH

METHOD OF DRILLING (circle one)
BORED (or Augered) JETTED Jetted & DRIVEN
AIR-ROTary AIR-PERcussion ROTARY (Hydraulic Rotary)
CABLE REVerse-ROTary DRive-POINT
other _____

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)
- N THIS WELL WILL NOT REPLACE AN EXISTING WELL
- Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- D THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENDED (IF AVAILABLE)

Not to be filled in by driller (OEP USE ONLY)
APPROP. PERMIT NUMBER GAP
FORCE MZ (WRITE INITIALS IN BOX) PERMIT No. BA-88-0550

SPECIAL CONDITIONS

LOCATION OF WELL
8 COUNTY: BALTIMORE
23 SUBDIVISION:
SECTION: LOT:
52 NEAREST TOWN: MIDDLE RIVER
MILES FROM TOWN (enter 0 if in town): 0 MI

DIRECTION OF WELL FROM TOWN (CIRCLE BOX)
NW N NE W TOWN E SW S SE

NEAR WHAT ROAD: WAMPLER ROAD
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): NORTH WEST EAST SOUTH
DISTANCE FROM ROAD: 600
ENTER FT or MI: FT

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL

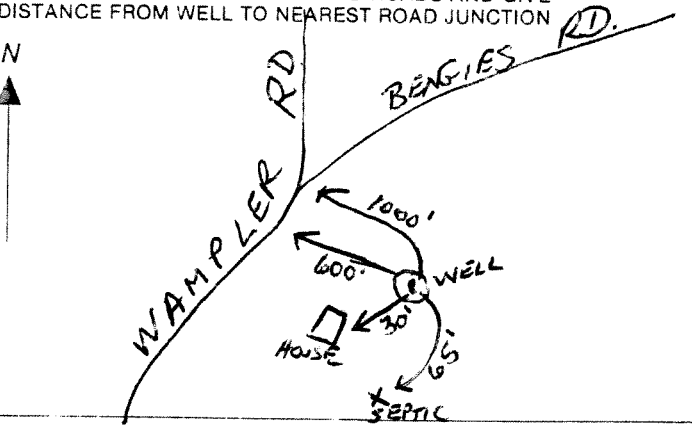
COUNTY NAME: Balto
COUNTY NO.: 003
STATE SIGNATURE _____ INSERT S
DATE ISSUED: 12 30 88
CO SIGNATURE M. Zenkoff EXP. DATE
NORTH GRID: 549000
EAST GRID: 0958000

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

SOURCES OF DRILLING WATER
1.
2.
3.

WRITE THE BOX NUMBER FROM THE MAP HERE
E 950
N 540
000 000

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



C 1 | 9691 | SEQUENCE NO. (DENV USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER

DATE Received 01/26/89

DATE WELL COMPLETED 01/23/89

Depth of Well 125 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" BA-88-0550

OWNER Harper Joyce
last name first name

STREET OR RFD 601 Wampler Rd. TOWN Baltimore Md 21220

SUBDIVISION Wampler Rd. SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
BROWN CLAY	0	6	
GRAY CLAY	6	20	
GRAY CLAY	20	30	
GRAY CLAY+GRAVEL	30	35	
RED CLAY	35	50	
RED CLAY + SAND	50	70	
WHITE CLAY + SAND	70	90	
WHITE CLAY + SAND	90	110	
SAND	110	125	XXX

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) (Yes) Y 44 / no N 44

TYPE OF GROUTING MATERIAL

CEMENT CM 45 46 BENTONITE CLAY (BC) 45 46

NO. OF BAGS 3 NO. OF POUNDS 150

GALLONS OF WATER 75

DEPTH OF GROUT SEAL (to nearest foot)

from 0 ft. (48 TOP 52) to 30 ft. (54 BOTTOM 58)

(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

ST STEEL 27 | CO CONCRETE 27 | PL PLASTIC 27 | OT OTHER 27

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL (60 61)	4 (63 64)	115 (66 70)

OTHER CASING (if used) — EACH CASING

diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole — insert appropriate code below

ST STEEL 27 | BR BRASS BRONZE 27 | HO OPEN HOLE 27 | PL PLASTIC 27 | OT OTHER 27

C 2

EACH SCREEN

	DEPTH (nearest ft.)	
1	PL (8 9)	115 (11 15) to 125 (17 21)
2	(23 24)	(26 30) to (32 36)
3	(38 39)	(41 45) to (47 51)

SLOT SIZE 1 .020 2 3

DIAMETER OF SCREEN 2 (56 60) (NEAREST INCH)

GRAVEL PACK from 115 to 125

IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68 (68)

C 3

PUMPING TEST
HOURS PUMPED (nearest hour) 3 (8 9)

PUMPING RATE (gal. per min. to nearest gal.) 50 (11 15)

METHOD USED TO MEASURE PUMPING RATE 5 GAL. BUCKET

WATER LEVEL (distance from land surface)

BEFORE PUMPING 20 (17 20)

WHEN PUMPING 30 (22 25)

TYPE OF PUMP USED (for test)

A air 27 | P piston 27 | T turbine 27 | C centrifugal 27 | R rotary 27 | O other (describe below) 27 | J jet 27 | S submersible 27

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) (YES) NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE: S 29

CAPACITY: GALLONS PER MINUTE (to nearest gallon) 7 (31 35)

PUMP HORSE POWER 3/3 (37 41)

PUMP COLUMN LENGTH (nearest ft.) 50 (43 47)

CASING HEIGHT (circle appropriate box and enter casing height)

(+) above 49 / (−) below 49 — LAND SURFACE 1 (50 51) (nearest foot)

CIRCLE APPROPRIATE LETTER

A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E ELECTRIC LOG OBTAINED

P TEST WELL CONVERTED TO PRODUCTION WELL

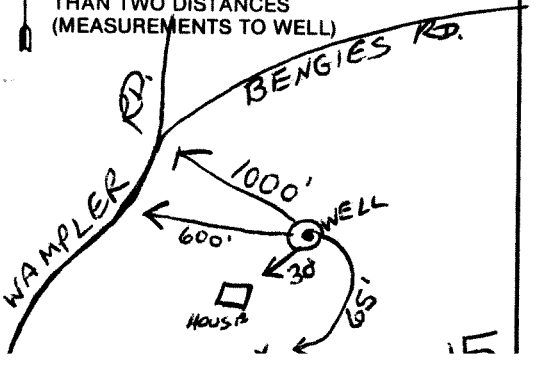
I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 10.17.13 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. 5

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T 70 TELESCOPE CASING | (E.R.O.S.) 72 LOG INDICATOR | WQ 74 75 76 OTHER DATA

B 1 | 6307 | SEQUENCE NO. (DP USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
APPLICATION FOR PERMIT TO DRILL WELL
please print or type

STATE PERMIT NUMBER: BA-85-1848
fill in this form completely

Date Received (APA): 120489

OWNER INFORMATION
VLECK (Last Name) ANNABELLE (First Name)
5 PUNTE LANE (Street or RFD)
BALTIMORE (Town) MD (State) 21221 (Zip)

DRILLER INFORMATION
MICHAEL G. FRANK (Driller's Name) 467 (License No.)
FRANK'S WELL DRILLING, INC. (Firm Name)
7014 FT. SMALLWOOD RD, BALTO. 21226 (Address)
Michael G Frank (Signature) 11-29-89 (Date)

WELL INFORMATION
APPROX. PUMPING RATE (GAL. PER MIN.): 10
AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY): 1000

USE FOR WATER (CIRCLE APPROPRIATE BOX)
- (D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- [F] FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
- [I] INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
- [P] PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
- [T] TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL: 60 FEET

APPROXIMATE DIAMETER OF WELL: 4 NEAREST INCH

METHOD OF DRILLING (circle one)
BORED (or Augered) JETTED Jetted & DRIVEN
AIR-ROTary AIR-PERcussion (ROTARY (Hydraulic Rotary))
CABLE REVerse-ROTary DRive-POINT
other

REPLACEMENT OR DEEPENED WELLS
(CIRCLE APPROPRIATE BOX)
- [N] THIS WELL WILL NOT REPLACE AN EXISTING WELL
- (Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- [S] THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- [D] THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENDED (IF AVAILABLE)

Not to be filled in by driller (OEP USE ONLY)
APPROP. PERMIT NUMBER: GAP
FORCE: ME (WRITE INITIALS IN BOX) PERMIT No. BA-85-1848

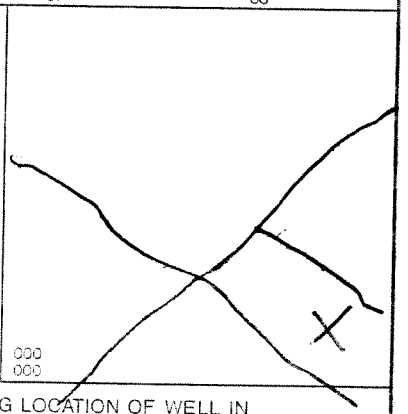
LOCATION OF WELL
8 COUNTY: BALTIMORE
23 SUBDIVISION:
SECTION: LOT:
52 NEAREST TOWN: MIDDLE RIVER
MILES FROM TOWN (enter 0 if in town): 2 MI

DIRECTION OF WELL FROM TOWN (CIRCLE BOX)
NW 8–9 | N 8 | NE 8–9
W 8 | TOWN | E 8
SW 8–9 | S 8 | SE 8–9

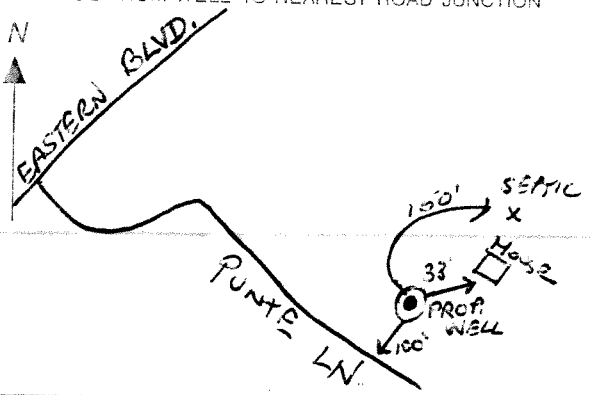
PUNTE LANE (NEAR WHAT ROAD)
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): NORTH (N) WEST (W) 32 (E) EAST (S) SOUTH
DISTANCE FROM ROAD: 100
ENTER FT or MI: FT

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL
COUNTY NAME: Balto COUNTY NO.: 003
STATE SIGNATURE: INSERT S
DATE ISSUED: 120489 CO SIGNATURE: EXP. DATE
NORTH GRID: 54200 EAST GRID: 09580

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X
SOURCES OF DRILLING WATER
1.
2.
3.
WRITE THE BOX NUMBER FROM THE MAP HERE
E 950
N 540



DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



SPECIAL CONDITIONS

C T L 4014 — SEQUENCE NO. (DENV USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER

ST/CO USE ONLY
DATE Received JAN x 9 1990

DATE WELL COMPLETED 01049 0

Depth of Well 140 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" PA-88-1848

OWNER Vleck Annabelle (last name, first name)
STREET OR RFD 5 Punte Ln. TOWN Bato., Md. 21221
SUBDIVISION ____ SECTION ____ LOT ____

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
RED CLAY	0	20	
RED+WHITE CLAY	20	30	
RED+WHITE CLAY+SAND	30	50	
GRAY CLAY	50	70	
GRAY CLAY	70	75	
WHITE CLAY+SAND	75	90	
WHITE CLAY	90	100	
WHITE CLAY+SAND	100	110	
WHITE CLAY+ SAND	110	130	
SAND	130	140	XXX

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes Y / no N
TYPE OF GROUTING MATERIAL
CEMENT CM — BENTONITE CLAY BC
NO. OF BAGS 4 NO. OF POUNDS 200
GALLONS OF WATER 100
DEPTH OF GROUT SEAL (to nearest foot)
from 0 ft. to 30 ft. (enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below:
ST STEEL; CO CONCRETE; PL PLASTIC; OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	4	133

OTHER CASING (if used) — EACH CASING

diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole — insert appropriate code below:
ST STEEL; BR BRASS BRONZE; HO OPEN HOLE; PL PLASTIC; OT OTHER

C2

EACH SCREEN		DEPTH (nearest ft.)	
1	PL	133	140
2			
3			

SLOT SIZE: 020
DIAMETER OF SCREEN 4 (NEAREST INCH)

GRAVEL PACK from 133 to 140
IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

C3

PUMPING TEST
HOURS PUMPED (nearest hour) 3
PUMPING RATE (gal. per min. to nearest gal.) 40
METHOD USED TO MEASURE PUMPING RATE 5 GAL. BUCKET
WATER LEVEL (distance from land surface)
BEFORE PUMPING 16
WHEN PUMPING 22

TYPE OF PUMP USED (for test)
A air; P piston; T turbine; C centrifugal; R rotary; O other (describe below); J jet; S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) YES / NO
IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE
TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE: S
CAPACITY: GALLONS PER MINUTE (to nearest gallon) 7
PUMP HORSE POWER .75
PUMP COLUMN LENGTH (nearest ft.) 40
CASING HEIGHT (circle appropriate box and enter casing height) + above / − below LAND SURFACE 1 (nearest foot)

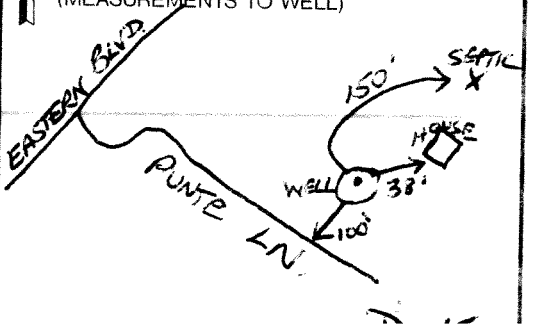
CIRCLE APPROPRIATE LETTER
A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
E ELECTRIC LOG OBTAINED
P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. 467
Michael & Frank
DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



OEP USE ONLY (NOT TO BE FILLED IN BY DRILLER)
T ____ (E.R.O.S.) ____ W Q ____
TELESCOPE CASING ____ LOG INDICATOR ____ OTHER DATA ____

BALTIMORE COUNTY
DEPARTMENT OF ENVIRONMENTAL PROTECTION & RESOURCE MANAGEMENT
COUNTY COURTS BUILDING - 401 Bosley Avenue, Towson, MD 21204

LOCATION AND INSPECTION OF A PRIVATE WATER WELL

Date of Request 12/14/89 Well Permit #BA-88-1548 Bldg.App. #_____ District # 15

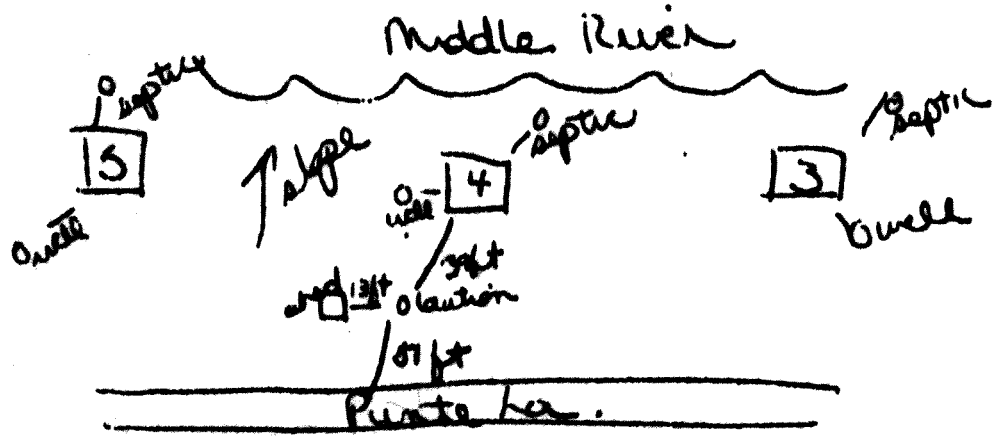
Original ☐ Replacement ☒ Additional ☐ Well Driller Franks /

Location of Property (Road): 4 Punte La.

Subdivision Name_____ Lot___ Block___ Plat___ Section___

Preliminary Comments (place add'l comments on back): Well located 39 ft from house, 51 ft from road, 10 ft from p/line 13 ft from shed. ex well in bad condition (pipe w/ stone on top) located 75 ft from septic over 100 ft from neighbors of septics. M. Gopo. 12/14/89

WELL SITE LOCATED AS PER SKETCH BELOW:



Additional Information Request For Replacement Wells:

1. Describe the well that is being replaced (i.e. well number, year drilled, owner, physical description): shallow drilled well - bad condition
2. State why the well is being replaced: community supply
3. Describe any water quantity problems: N/A
4. State how many people live in the house: 6 people to use water
5. Detail any high water use appliances (i.e. whirlpools, water treatment systems, etc.): N/A

WATER/SEWER 8-89

B 1 | 9285 | SEQUENCE NO. (DP USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
APPLICATION FOR PERMIT TO DRILL WELL
please print or type

STATE PERMIT NUMBER: BA-88-3474
fill in this form completely

Date Received (APA): 06 27 91

OWNER INFORMATION
KAWICH JAMES (Last Name / First Name)
6014 WAMPLER RD (Street or RFD)
BALTIMORE MD 21220 (Town / State / Zip)

DRILLER INFORMATION
Driller's Name: Virgil S. Ensminger 233 (77 License No. 80)
Firm Name: FRANK'S WELL DRILLING, INC.
Address: 2014 FT. SMALLWOOD RD, BALTO 21226
Signature: Virgil S. Ensminger Date:

WELL INFORMATION
APPROX. PUMPING RATE (GAL. PER MIN.): 10
AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY): 1000

USE FOR WATER (CIRCLE APPROPRIATE BOX)
- (D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- F FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
- I INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
- P PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
- T TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL: 60 FEET
APPROXIMATE DIAMETER OF WELL: 4 NEAREST INCH

METHOD OF DRILLING (circle one)
BORED (or Augered) JETTED Jetted & DRIVEN
AIR-ROTary AIR-PERcussion (ROTARY) (Hydraulic Rotary)
CABLE REVerse-ROTary DRive-POINT
other

REPLACEMENT OR DEEPENED WELLS
(CIRCLE APPROPRIATE BOX)
- N THIS WELL WILL NOT REPLACE AN EXISTING WELL
- (Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED BY OWNER
- S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- D THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENDED (IF AVAILABLE):

Not to be filled in by driller (OEP USE ONLY)
APPROP. PERMIT NUMBER: GAP
FORCE: ME (WRITE INITIALS IN BOX) PERMIT No. BA-88-3474

SPECIAL CONDITIONS

LOCATION OF WELL
8 COUNTY: BALTIMORE
23 SUBDIVISION: WAMPLER VILLAGE
SECTION: LOT:
52 NEAREST TOWN: MIDDLE RIVER
MILES FROM TOWN (enter 0 if in town): 1 MI

DIRECTION OF WELL FROM TOWN (CIRCLE BOX): N, NW 8–9, NE 8–9, W 8, TOWN, E 8, SW 8–9, SE 8–9, S 8

NEAR WHAT ROAD: WAMPLER RD

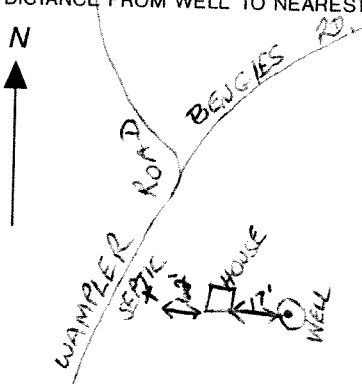
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): NORTH, WEST, EAST, SOUTH

DISTANCE FROM ROAD: 100 ENTER FT or MI: FT

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL
COUNTY NAME: Balto COUNTY NO.: 003
STATE SIGNATURE: INSERT S
DATE ISSUED: 06 27 91 CO SIGNATURE: M. Copps EXP. DATE
NORTH GRID: 54900 EAST GRID: 09589 000

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X
SOURCES OF DRILLING WATER
1.
2.
3.
WRITE THE BOX NUMBER FROM THE MAP HERE
E 950
N 540
000 000

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



C 1 7746 SEQUENCE NO. (DENV USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER

ST/CO USE ONLY
DATE Received: JUL 17 1991

DATE WELL COMPLETED: 07/1/91

Depth of Well: 90 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": BA-88-3474

OWNER: Kawich, James (last name / first name)
STREET OR RFD: 601 A Wampler Rd TOWN: Baltimore, Md. 21220
SUBDIVISION: SECTION: LOT:

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	Check if water bearing
SAND	0	3	
BROWN, RED CLAY AND SAND	3	10	
BROWN + WHITE CLAY	10	20	
SAND	20	28	
WHITE CLAY	28	30	
WHITE + RED CLAY	30	50	
RED CLAY	50	70	
RED CLAY	70	82	
SAND	82	90	XXX

CIRCLE APPROPRIATE LETTER
(A) A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
E ELECTRIC LOG OBTAINED
P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS IDENT. NO. 233

Virgil S Ernsberger
DRILLERS SIGNATURE
(MUST MATCH SIGNATURE ON APPLICATION)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes Y / no N
TYPE OF GROUTING MATERIAL
CEMENT CM BENTONITE CLAY BC
NO. OF BAGS 3 NO. OF POUNDS 150
GALLONS OF WATER 75
DEPTH OF GROUT SEAL (to nearest foot)
from 0 ft. to 30 ft. (TOP / BOTTOM) (enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below
ST STEEL, CO CONCRETE, PL PLASTIC, OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	4	83

EACH CASING — OTHER CASING (if used): diameter inch, depth (feet) from to

SCREEN RECORD
screen type or open hole insert appropriate code below
ST STEEL, BR BRASS BRONZE, HO OPEN HOLE, PL PLASTIC, OT OTHER

C 2

EACH SCREEN — DEPTH (nearest ft.)

1	PL	83	90
2			
3			

SLOT SIZE 1 .020 2 3
DIAMETER OF SCREEN 2 (NEAREST INCH)

GRAVEL PACK from 83 to 90
IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

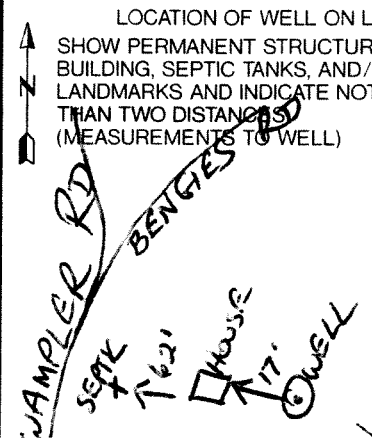
OEP USE ONLY
(NOT TO BE FILLED IN BY DRILLER)
T (E.R.O.S.) W Q

C 3

PUMPING TEST
HOURS PUMPED (nearest hour) 3
PUMPING RATE (gal. per min. to nearest gal.) 20
METHOD USED TO MEASURE PUMPING RATE 5 GAL. BUCKET
WATER LEVEL (distance from land surface)
BEFORE PUMPING 20
WHEN PUMPING 28
TYPE OF PUMP USED (for test)
(A) air, P piston, T turbine, C centrifugal, R rotary, O other (describe below), J jet, S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) YES NO
IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS EXCEPT HOME USE
TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX - SEE ABOVE: S
CAPACITY: GALLONS PER MINUTE (to nearest gallon) 7
PUMP HORSE POWER .33
PUMP COLUMN LENGTH (nearest ft.) 45
CASING HEIGHT (circle appropriate box and enter casing height)
(+) above / (−) below LAND SURFACE 1 (nearest foot)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



B 1 | 5250 | SEQUENCE NO. (DP USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
APPLICATION FOR PERMIT TO DRILL WELL
please print or type

STATE PERMIT NUMBER: BA-94-1468
fill in this form completely

Date Received (APA): 01/24/96

OWNER INFORMATION
Owner: OUMER C JOHN JR
Street or RFD: 1906 MAGNOLIA AVE
Town: BALTIMORE MD 21220
State: MD Zip: 21220

DRILLER INFORMATION
Driller's Name: MICHAEL G FRANK MSD 32 License No.
Firm Name: FRANK'S WELL DRILLING INC
Address: 8260 CRAIN HWY LA PLATA, MD 20646
Signature: Michael G Frank Date: 1/24/96

WELL INFORMATION
APPROX. PUMPING RATE (GAL. PER MIN.): 10
AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY): 1000

USE FOR WATER (CIRCLE APPROPRIATE BOX)
- (D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
- (F) FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
- (I) INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
- (P) PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
- (T) TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL: 80 FEET

APPROXIMATE DIAMETER OF WELL: 4 NEAREST INCH

METHOD OF DRILLING (circle one)
BORED (or Augered) JETTED Jetted & DRIVEN
AIR-ROTary AIR-PERcussion (ROTARY) (Hydraulic Rotary)
CABLE REVerse-ROTary DRive-POINT
other

REPLACEMENT OR DEEPENED WELLS
(CIRCLE APPROPRIATE BOX)
- (N) THIS WELL WILL NOT REPLACE AN EXISTING WELL
- (Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- (S) THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
- (D) THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENDED (IF AVAILABLE)

Not to be filled in by driller (OEP USE ONLY)
APPROP. PERMIT NUMBER: GAP
FORCE: ME (WRITE INITIALS IN BOX) PERMIT No. BA-94-1468

SPECIAL CONDITIONS

LOCATION OF WELL
8 COUNTY: BALTIMORE
23 SUBDIVISION:
SECTION: LOT:
52 NEAREST TOWN: MIDDLE RIVER
MILES FROM TOWN (enter 0 if in town): 5 MI

DIRECTION OF WELL FROM TOWN (CIRCLE BOX): N 8, NW 8-9, NE 8-9, W 8, TOWN, E 8, SW 8-9, S 8, SE 8-9

11 NEAR WHAT ROAD: 1906 MAGNOLIA AVE 30

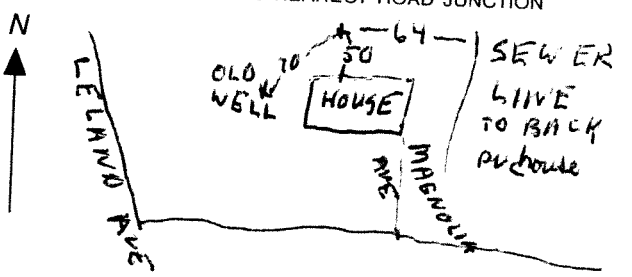
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): NORTH (N) WEST (W) 32 (E) EAST (S) SOUTH

34 DISTANCE FROM ROAD: 1000 37
ENTER FT or MI: FT 38 39

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL
COUNTY NAME: Bacto COUNTY NO.: 003
STATE SIGNATURE: INSERT S
DATE ISSUED: 01/24/96 SIGNATURE: M. Epps EXP. DATE
NORTH GRID: 5490000 EAST GRID: 0953700

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X
SOURCES OF DRILLING WATER
1.
2.
3.
WRITE THE BOX NUMBER FROM THE MAP HERE
E 459
N 546
000 000

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



C 1 | 7650 — SEQUENCE NO. (MDE USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER BA

ST/CO USE ONLY
DATE Received FEB 15 1996

DATE WELL COMPLETED 02 01 96

Depth of Well 120 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" BA - 94 - 1468

OWNER DUMER (last name) JOHN (first name)
STREET OR RFD 1906 MAGNOLIA AVE TOWN MIDDLE RIVER
SUBDIVISION SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
RED+WHITE CLAY	0	5	
RED+WHITE CLAY + SAND	5	10	
WHITE CLAY+SAND	10	20	
SAND	20	30	
WHITE CLAY	30	45	
WHITE CLAY+SAND	45	50	
WHITE CLAY	50	65	
GRAY CLAY	65	82	
SAND+GRAY CLAY	82	90	
GRAY/WHITE CLAY AND SAND	90	108	
SAND	108	120	XXX

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED yes (Y) no (N)

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

TYPE: MWD/(MSD)/MGD
DRILLERS LIC. NO. 32
Michael B Frank
DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)
LIC. NO.
SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes (Y) no (N)
TYPE OF GROUTING MATERIAL (Circle one)
CEMENT (CM) BENTONITE CLAY (BC)
NO. OF BAGS 2 NO. OF POUNDS 100
GALLONS OF WATER 50
DEPTH OF GROUT SEAL (to nearest foot)
from 0 ft. to 30 ft. (enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below
- ST STEEL
- CO CONCRETE
- PL PLASTIC
- OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)!	Total depth of main casing (nearest foot)
PL	4	113

OTHER CASING (if used)
EACH CASING

diameter inch	depth (feet) from	depth (feet) to

SCREEN RECORD
screen type or open hole insert appropriate code below
- ST STEEL
- BR BRASS BRONZE
- HO OPEN HOLE
- PL PLASTIC
- OT OTHER

C 2

EACH SCREEN

		DEPTH (nearest ft.)	
1	PL	113	120
2			
3			

SLOT SIZE 1 020 2 ____ 3 ____
DIAMETER OF SCREEN 2 (NEAREST INCH)

GRAVEL PACK from 113 to 120
IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

MDE USE ONLY
(NOT TO BE FILLED IN BY DRILLER)
T (E.R.O.S.) W Q
TELESCOPE LOG

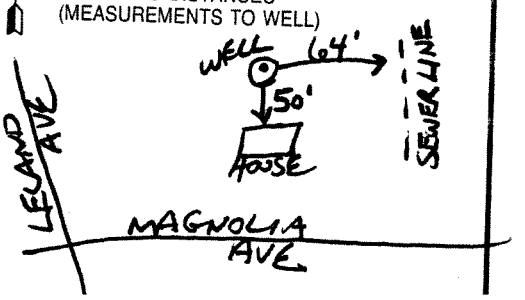
C 3

PUMPING TEST
HOURS PUMPED (nearest hour) 3
PUMPING RATE (gal. per min.) 75.
METHOD USED TO MEASURE PUMPING RATE 5 GAL BUCKET
WATER LEVEL (distance from land surface)
BEFORE PUMPING 15 ft.
WHEN PUMPING 23 ft.

TYPE OF PUMP USED (for test)
- (A) air
- P piston
- T turbine
- C centrifugal
- R rotary
- O other (describe below)
- J jet
- S submersible

PUMP INSTALLED
DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) (YES) NO
IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.
TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. S
CAPACITY: GALLONS PER MINUTE (to nearest gallon) 7
PUMP HORSE POWER .5
PUMP COLUMN LENGTH (nearest ft.) 50
CASING HEIGHT (circle appropriate box and enter casing height)
(+) above LAND SURFACE
(−) below
1 (nearest foot)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



EMERGENCY / TEMP NO. IF ANY

B 1 | 04059 | SEQUENCE NO. (DP USE ONLY)
(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
APPLICATION FOR PERMIT TO DRILL WELL
please print or type

STATE PERMIT NUMBER: BA-94-2207
fill in this form completely

Date Received (APA): 10/29/96

OWNER INFORMATION
STAHL (Last Name) D (Owner) WARDEN (First Name)
535 WAMPLER RD (Street or RFD)
BALTIMORE (Town) MD (State) 21220 (Zip)

DRILLER INFORMATION
MICHAEL G FRANK
Driller's Name
MSP 032 (License No.)
FRANK'S WELL DRILLING INC.
Firm Name
8260 CRAIN HWY LA PLATA, MD 20646
Address
Michael G Frank 10/28/96
Signature Date

WELL INFORMATION
APPROX. PUMPING RATE (GAL. PER MIN.): 10
AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY): 1000

USE FOR WATER (CIRCLE APPROPRIATE BOX)
(D) HOME (SINGLE OR DOUBLE HOUSEHOLD UNIT ONLY)
[F] FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
[I] INDUSTRIAL, COMMERCIAL, STATE AND FEDERAL GOV. OTHER (REQUIRES APPROPRIATION PERMIT)
[P] PUBLIC OR PRIVATE WATER COMPANY (REQUIRES APPROPRIATION PERMIT AND STATE HEALTH DEPARTMENT APPROVAL)
[T] TEST, OBSERVATION, MONITORING (MAY REQUIRE APPROPRIATION PERMIT)

APPROXIMATE DEPTH OF WELL: 80 FEET

APPROXIMATE DIAMETER OF WELL: 4" NEAREST INCH

METHOD OF DRILLING (circle one)
BORED (or Augered) JETTED Jetted & DRIVEN
AIR-ROTary AIR-PERcussion (ROTARY) (Hydraulic Rotary)
CABLE REVerse-ROTary DRive-POINT
other

REPLACEMENT OR DEEPENED WELLS
(CIRCLE APPROPRIATE BOX)
[N] THIS WELL WILL NOT REPLACE AN EXISTING WELL
(Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
[S] THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY
[D] THIS WELL WILL DEEPEN AN EXISTING WELL
PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENDED (IF AVAILABLE)

Not to be filled in by driller (OEP USE ONLY)
APPROP. PERMIT NUMBER: GAP
FORCE [ME] WRITE INITIALS IN BOX PERMIT No. BA-94-2207

SPECIAL CONDITIONS

LOCATION OF WELL
BALTIMORE (8 COUNTY)
23 SUBDIVISION
SECTION LOT
MIDDLE RIVER (52 NEAREST TOWN)
MILES FROM TOWN (enter 0 if in town): 1 MI

DIRECTION OF WELL FROM TOWN (CIRCLE BOX)
NW 8-9 | N 8 | NE 8-9
W 8 | TOWN | E 8
SW 8-9 | S 8 | SE 8-9

535 WAMPLER RD (NEAR WHAT ROAD)

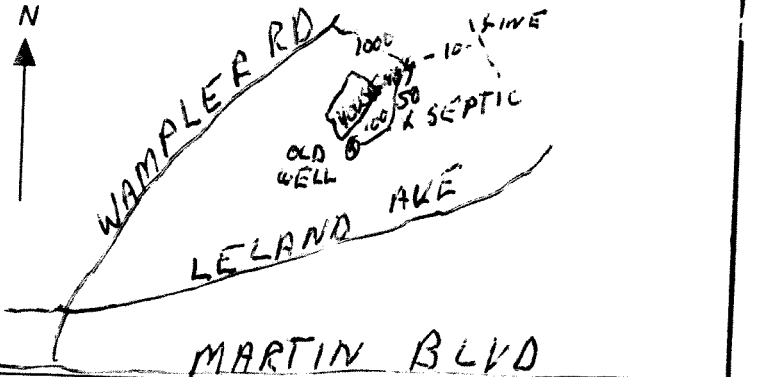
ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)
NORTH (N) WEST (W) (32) EAST (E) SOUTH (S)

DISTANCE FROM ROAD: 1000
ENTER FT or MI: FT

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL
COUNTY NAME: Balto
COUNTY NO.: 003
STATE SIGNATURE
INSERT S
DATE ISSUED: 10/29/96
CO SIGNATURE
EXP. DATE
NORTH GRID: 540000
EAST GRID: 0945900

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X
SOURCES OF DRILLING WATER
1.
2.
3.
WRITE THE BOX NUMBER FROM THE MAP HERE
E 950
N 540
000
000

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



C 1 | 1645 | SEQUENCE NO. (MDE USE ONLY)

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

STATE OF MARYLAND
WELL COMPLETION REPORT

FILL IN THIS FORM COMPLETELY
PLEASE PRINT OR TYPE

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

COUNTY NUMBER

ST/CO USE ONLY
DATE Received NOV X6 1996

DATE WELL COMPLETED 10 31 96

Depth of Well 92 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" BA-94-2207

OWNER STAHL (last name) WARDEN (first name)

STREET OR RFD 535 WAMPLER RD TOWN BALTIMORE

SUBDIVISION _____ SECTION _____ LOT _____

WELL LOG

Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
WHITE CLAY	0	2	
WHITE CLAY/SAND	2	10	
WHITE CLAY	10	15	
WHITE CLAY/SAND	15	30	
WHITE CLAY	30	35	
SAND	35	36	
WHITE/RED CLAY	36	65	
WHITE CLAY/SAND	65	82	
SAND	82	92	XXX

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED yes [Y] no (N)

CIRCLE APPROPRIATE LETTER

(A) A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
E ELECTRIC LOG OBTAINED
P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

TYPE: MWD (MSD) MGD

DRILLERS LIC. NO. 032

Michael B Ford

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO. _____

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD

WELL HAS BEEN GROUTED (Circle Appropriate Box) yes [Y] no [N]

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT [CM] BENTONITE CLAY [BC]

NO. OF BAGS 3 NO. OF POUNDS 150

GALLONS OF WATER 25

DEPTH OF GROUT SEAL (to nearest foot)

from 0 ft. to 30 ft.
(enter 0 if from surface)

CASING RECORD

casing types insert appropriate code below

[ST] STEEL [CO] CONCRETE [PL] PLASTIC [OT] OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)!	Total depth of main casing (nearest foot)
PL	4	85

OTHER CASING (if used)

EACH CASING	diameter inch	depth (feet) from	depth (feet) to

SCREEN RECORD

screen type or open hole insert appropriate code below

[ST] STEEL [BR] BRASS BRONZE [HO] OPEN HOLE [PL] PLASTIC [OT] OTHER

C 2

EACH SCREEN		DEPTH (nearest ft.)	
1	PL	85	92
2			
3			

SLOT SIZE 1 .020 2 _____ 3 _____

DIAMETER OF SCREEN 2 (NEAREST INCH)

GRAVEL PACK from 85 to 92

IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T [ ] (E.R.O.S.) [ ] W Q [ ] [A]

TELESCOPE LOG OTHER DATA

C 3

PUMPING TEST

HOURS PUMPED (nearest hour) 3

PUMPING RATE (gal. per min.) 60

METHOD USED TO MEASURE PUMPING RATE 5 GAL. BUCKET

WATER LEVEL (distance from land surface)

BEFORE PUMPING 19 ft.

WHEN PUMPING 31 ft.

TYPE OF PUMP USED (for test)

(A) air [P] piston [T] turbine
[C] centrifugal [R] rotary [O] other (describe below)
[J] jet [S] submersible

PUMP INSTALLED

DRILLER WILL INSTALL PUMP (CIRCLE) (YES or NO) (YES) NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. S

CAPACITY: GALLONS PER MINUTE (to nearest gallon) 10

PUMP HORSE POWER .5

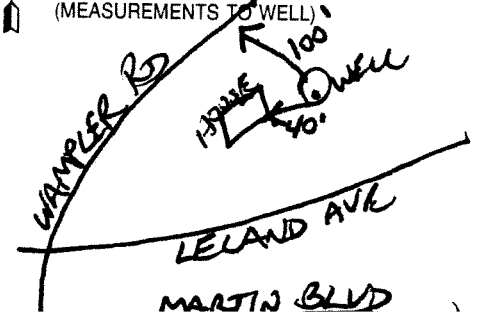
PUMP COLUMN LENGTH (nearest ft.) 50

CASING HEIGHT (circle appropriate box and enter casing height)

(+) above LAND SURFACE
(–) below 1 (nearest foot)

LOCATION OF WELL ON LOT

SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION
2500 BROENING HIGHWAY, BALTIMORE, MARYLAND 21224, (410) 631-3784

****

WATER WELL ABANDONMENT-SEALING REPORT FORM

****

NOV 1996
Received
Ind. Septic
Systems & Wells

SUBMIT COPIES OF COMPLETED FORM TO:

* COUNTY ENVIRONMENT AGENCY (contact MDE, WMA if address needed)
* WELL OWNER
* MDE, WATER MANAGEMENT ADMINISTRATION, WELL PROGRAM

DATE WELL ABANDONED: 10-31-96 (month/day/year)

* PERMIT NUMBER OF ABANDONED WELL (if any)

* PERMIT NUMBER OF REPLACEMENT WELL

BA-94-2207

* PERSON ABANDONING WELL: MICHAEL G. FRANK

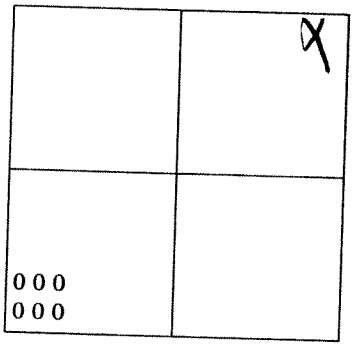
WELL DRILLERS LICENSE NUMBER: 032
CIRCLE: MWD / MSD / MGD

* OWNER'S NAME: WARDEN STAHL

* WELL LOCATION:

COUNTY: BALTIMORE
NEAREST TOWN: MIDDLE RIVER
TAX MAP ____ BLOCK ____ PARCEL ____
SUBDIVISION: ____
SECTION: ____ LOT: ____

MARYLAND GRID COORDINATES
BOX NUMBER
E 950
N 540



SHOW WELL LOCATION
BY X WITHIN BOX

* TYPE OF WELL BEING ABANDONED:

✓ DRILLED ____ JETTED
____ BORED/AUGUERED ____ HAND DUG
____ OTHER (specify) ____

* USE CODE:

✓
____ DOMESTIC ____ MUNICIPAL/PUBLIC
____ IRRIGATION ____ INDUSTRIAL
____ TEST/OBSERVATION

* TYPE OF CASING:

✓ STEEL ____ PLASTIC
____ CONCRETE ____ OTHER (specify)
____

* SIZE OF CASING: 4 INCHES IN DIAMETER

* DEPTH OF WELL: 96 FEET DEEP

* WAS ANY CASING REMOVED? ____ YES ✓ NO
if yes, length removed, in feet: ____

* WAS CASING RIPPED OR PERFORATED? ____ YES ✓ NO

LOG OF SEALING MATERIAL

MATERIAL	FEET FROM	FEET TO
CEMENT	96	3
BACKFILL	3	0

Michael G Frank
SIGNATURE-MASTER WELL DRILLER OR SUPERVISING SANITARIAN

MSD032
LICENSE #

MWD / MSD / MGD
CIRCLE ONE

11-5-96
DATE

DENV 828 JULY 1993

B 1 1239 — SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND
APPLICATION FOR PERMIT TO DRILL WELL
please type

STATE PERMIT NUMBER: BA-94-7179

fill in this form completely

Date Received (APA): 11/20/02

OWNER INFORMATION

Epps (Last Name) Duane (First Name)

715 Wampler Road (Street or RFD)

Middle River MD 21220 (Town, State, Zip)

DRILLER INFORMATION

Robert P Copsey — MSD 161 (License No.)

Driller's Name

Wolford's Well + Pump Svc

Firm Name

4429 Mountain Rd - 21122

Address

Robert P. Copsey — 11/8/02

Signature — Date

B 2 WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.): 8

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY): 300

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- (D) DOMESTIC POTABLE SUPPLY & RESIDENTIAL IRRIGATION
- (F) FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION
- (I) INDUSTRIAL, COMMERICIAL, DEWATERING
- (P) PUBLIC WATER SUPPLY WELL
- (T) TEST, OBSERVATION, MONITORING
- (G) GEO-THERMAL

B 3 LOCATION OF WELL

Baltimore (COUNTY)

Middle River Garden Farms (SUBDIVISION)

SECTION ____ LOT 4

Middle River (NEAREST TOWN)

MILES FROM TOWN (enter 0 if in town): 3 M I

B 4

DIRECTION OF WELL FROM TOWN (CIRCLE BOX): (NW 8-9) (N 8) (NE 8-9) (W 8) (TOWN) (E 8) (SW 8-9) (S 8) (SE 8-9)

1012 Hillpine Road

11 ON ~~NEAR~~ WHAT ROAD 30

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): (NORTH) (WEST) (EAST) (SOUTH)

DISTANCE FROM ROAD: 75 FT (ENTER FT OR MI)

TAX MAP: 90 BLK: ____ PARCEL 558

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL

COUNTY NAME: Balto — COUNTY NO.: 03

STATE SIGNATURE ____ INSERT S

DATE ISSUED: 12/7/02 — CO SIGNATURE: Susan Tarnetta — EXP. DATE

NORTH GRID: 548 000 — EAST GRID: 963 000

APPROXIMATE DEPTH OF WELL: 100 FEET

APPROXIMATE DIAMETER OF WELL: 4" NEAREST INCH

METHOD OF DRILLING (circle one)

BORED (or Augered)	JETTED	Jetted & DRIVEN
AIR-ROTary	AIR-PERcussion	(ROTARY (Hydraulic Rotary))
CABLE	REVerse-ROTary	DRive-POINT

other ____

REPLACEMENT OR DEEPENED WELLS
(CIRCLE APPROPRIATE BOX)

- (N) THIS WELL WILL NOT REPLACE AN EXISTING WELL
- (Y) THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- (S) THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY-CONTACT LOCAL APPROVING AUTHORITY FOR POLICY ON STANDBY WELLS
- (D) THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE) ____

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

We do Not have map

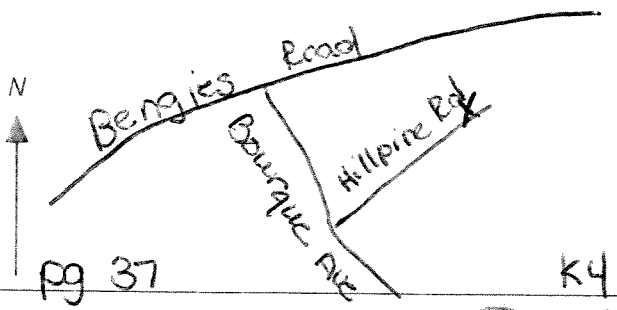
SOURCES OF DRILLING WATER
1. AA-81-0980
2. AA-81-9800
3.

WRITE THE BOX NUMBER FROM THE MAP HERE

E 960 000

N 540 000

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



Not to be filled in by driller (MDE OR COUNTY USE ONLY)

APPROP. PERMIT NUMBER ____

PERMIT No. BA-94-7179

SPECIAL CONDITIONS

D-15

DENV-Permit 97

C 1 5645 (1 2 3 6) SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE TYPE

THIS REPORT MUST BE SUBMITTED AFTER WELL IS COMPLETED.

COUNTY NUMBER 003

ST/CO USE ONLY
DATE Received MM DD YY FEB 25 2005 (8 13)

DATE WELL COMPLETED MM DD YY 12 23 02 (15 20)

Depth of Well 22 80' 26 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" BA - 94 - 7179 (28 29 30 31 32 33 34 35 36 37)

OWNER Epps (last name) Duane (first name)
STREET OR RFD 715 Wampler Rd.(1012 Hillpine Rd.) TOWN Middle River, MD 21220
SUBDIVISION SECTION LOT

WELL LOG
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Top Soil	0	2	
White Sand	2	20	
White Clay	20	30	
White Sand & Gravel	30	80	X

NUMBER OF UNSUCCESSFUL WELLS:

WELL HYDROFRACTURED (yes Y / no N)

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO. MSD 161
Robert P. Capsey
DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO. JSDOLL
Jerry L. Simpson
SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box) yes Y (44) / no N (44)
TYPE OF GROUTING MATERIAL (Circle one)
CEMENT CM (45 46) BENTONITE CLAY BC
NO. OF BAGS 3 1/2 NO. OF POUNDS 175
GALLONS OF WATER 80
DEPTH OF GROUT SEAL (to nearest foot)
from 3 (48 TOP 52) ft. to 30 (54 BOTTOM 59) ft.
(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below
ST STEEL; CO CONCRETE; PL PLASTIC; OT OTHER

MAIN CASING TYPE: PL (60 61)
Nominal diameter top (main) casing (nearest inch)!: 4 (63 64)
Total depth of main casing (nearest foot): 73 (66 70)

EACH CASING — OTHER CASING (if used)

	diameter inch	depth (feet) from	depth (feet) to

SCREEN RECORD
screen type or open hole — insert appropriate code below
ST STEEL; BR BRASS BRONZE; HO OPEN HOLE; PL PLASTIC; OT OTHER

C 2 — DEPTH (nearest ft.)

EACH SCREEN		DEPTH (nearest ft.)	
1	PL (8 9)	73 (11 15)	80 (17 21)
2	(23 24)	(26 30)	(32 36)
3	(38 39)	(41 45)	(47 51)

SLOT SIZE 1 .014 2 3
DIAMETER OF SCREEN 2 (56 60) (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68 — from 65 to 80

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)
T (70) (E.R.O.S.) (72) W Q (74 75 76)
TELESCOPE CASING; LOG INDICATOR; OTHER DATA

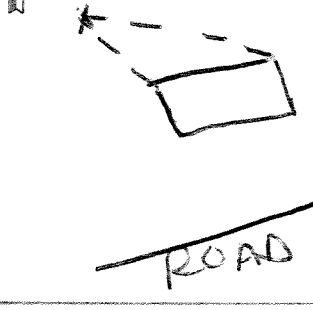
C 3

PUMPING TEST
HOURS PUMPED (nearest hour) 2 (8 9)
PUMPING RATE (gal. per min.) 40 (11 15)
METHOD USED TO MEASURE PUMPING RATE AIR
WATER LEVEL (distance from land surface)
BEFORE PUMPING 40' (17 20) ft.
WHEN PUMPING 52' (22 25) ft.

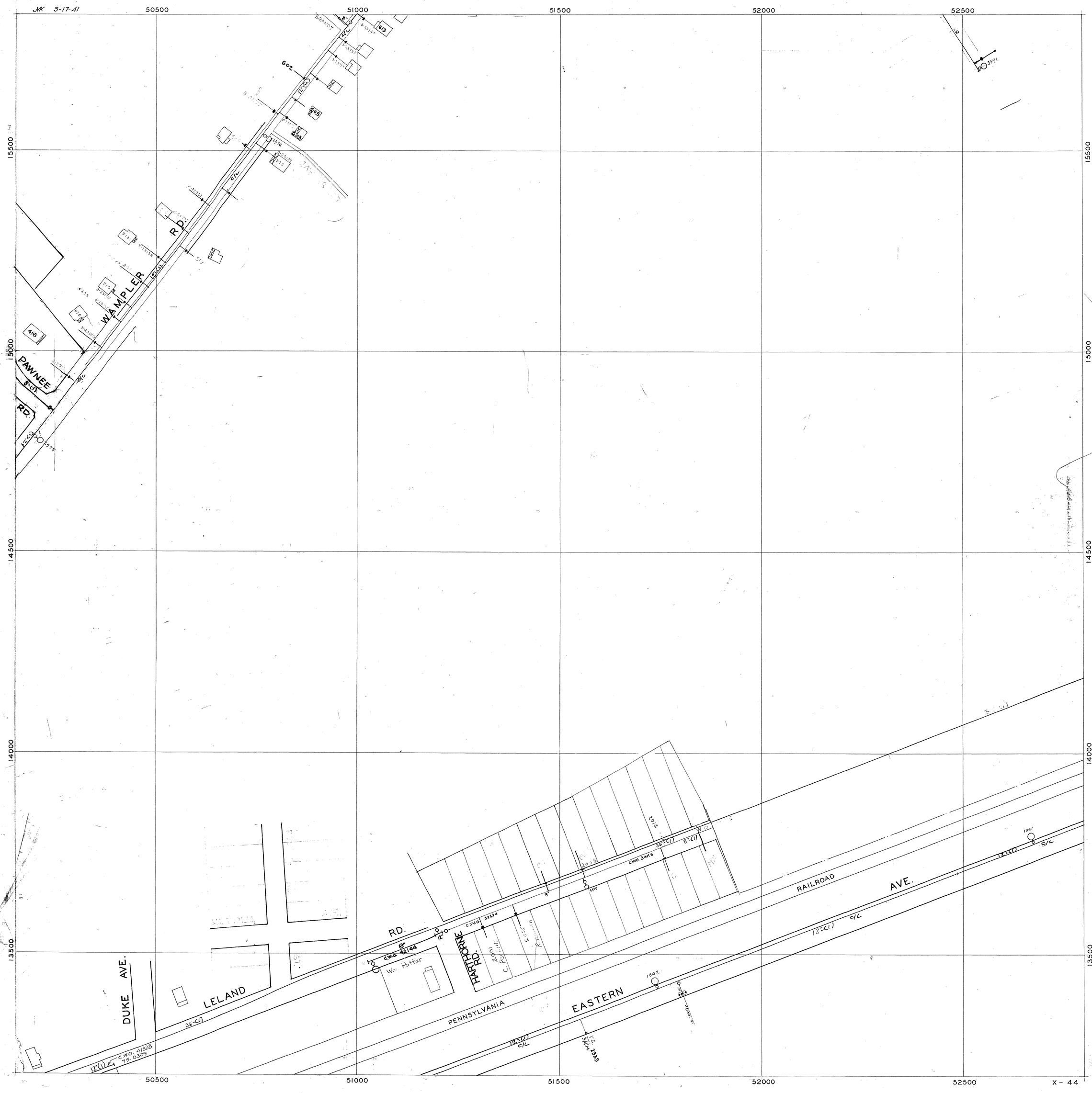
TYPE OF PUMP USED (for test)
A air (27); P piston (27); T turbine (27); C centrifugal (27); R rotary (27); O other (describe below) (27); J jet (27); S submersible (27)

PUMP INSTALLED
DRILLER INSTALLED PUMP (CIRCLE) (YES or NO) YES / NO
IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.
TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29. (29)
CAPACITY: GALLONS PER MINUTE (to nearest gallon) (31 35)
PUMP HORSE POWER (37 41)
PUMP COLUMN LENGTH (nearest ft.) (43 47)
CASING HEIGHT (circle appropriate box and enter casing height) above (+ 49) / below (− 49) LAND SURFACE 1 (nearest foot) (50 51)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURES AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



Appendix C - Baltimore County Public Water Supply Distribution Maps



JK 3-17-41
50500
51000
51500
52000
52500
15500
15000
14500
14000
13500
WAMPLER RD.
PAWNEE RD.
DUKE AVE.
LELAND RD.
HARTHORNE RD.
PENNSYLVANIA
EASTERN
RAILROAD
AVE.
C.W.O. 42144
C.W.O. 41328
75-0309
C.W.O. 32634
C.W.O. 34113

X-43

FILMED:_____REVISED:_____

48,000 E. 48,500 E. 49,000 E. 49,500 E. 50,000 E.

15,500 N. 15,000 N. 14,500 N. 14,000 N. 13,500 N.

CHATTUCK CT.
POCASSET CT.
GLOUCESTER CT.
TAOS CIR.
TAOS COURT
NAKOTA CT.
COMANCHE CT.
CHOCTAW CT.
PAWNEE
PEARSALL CT.
PAWNEE RD.
UTE CT.
FOLTZ AVE.
CHARLES FOLTZ
DANIEL J. FOLTZ
HOLCUMB AVE.
ALDENEY AVE.
BECKLOW AVE.
CHILWORTH AVE.
DORNTON AVE.
ENDSLEIGH AVE.
MIDDLE RIVER RD.
HARDING AVE
WINDLASS DR.
PIELERT RD.
BALLARD RD.
RIVERTON AVE.
MAGNOLIA AVE.
WAMPLER AVE.
FRANCES V. BAYER
MABEL A. PIELERT
ALBERT E. PITMAN
BOARD OF EDUCATION
TITLE HOLDING CO.
GEORGE C. [illegible]
C.W.O. 44647
C.W.O. 44045
C.W.O. 44682
C.W.O. 44694
C.W.O. 44996
C.W.O. 44994
C.W.O. 44995
C.W.O. 44993
C.W.O. 44962
C.W.O. 38938
C.W.O. 38903
C.W.O. 48294
C.W.O. 48234
C.W.O. 38926
C.W.O. 38968
C.W.O. 38894
C.W.O. 38898
C.W.O. 44906
C.W.O. 44907
C.W.O. 44908
C.W.O. 44909
C.W.O. 44910
C.W.O. 44911
C.W.O. 44912
C.W.O. 44913
C.W.O. 44914
C.W.O. 44915
C.W.O. 44916
C.W.O. 44917
C.W.O. 44918
C.W.O. 44919
C.W.O. 44920
C.W.O. 44921
C.W.O. 44922
C.W.O. 44923
C.W.O. 44924
C.W.O. 44925
C.W.O.

AA-44

4-5-90

50,500E 51,000E 51,500E 52,000E 52,500E

7,500N 7,000N 6,500N 6,000N 5,500N

COCKBURN RD.

KINGSTON RD.

KINGSWAY

WEST

PARK AREA

KINGSTON PARK LA.

HOPKINS LANDING

CR.

SAILAWAY

CIR.

WATER MAINS IN THIS AREA ARE PRIVATELY OWNED

NE 5-H NE 5-I NE 5-J
NE 4-H NE 4-I NE 4-J
NE 3-H NE 3-I NE 3-J

I N.W. Z N.W.

-LEGEND-

B.C.M.D. MAINS SHOWN
BALTIMORE CITY MAINS SHOWN
FIRE HYDRANTS SHOWN
VALVES SHOWN

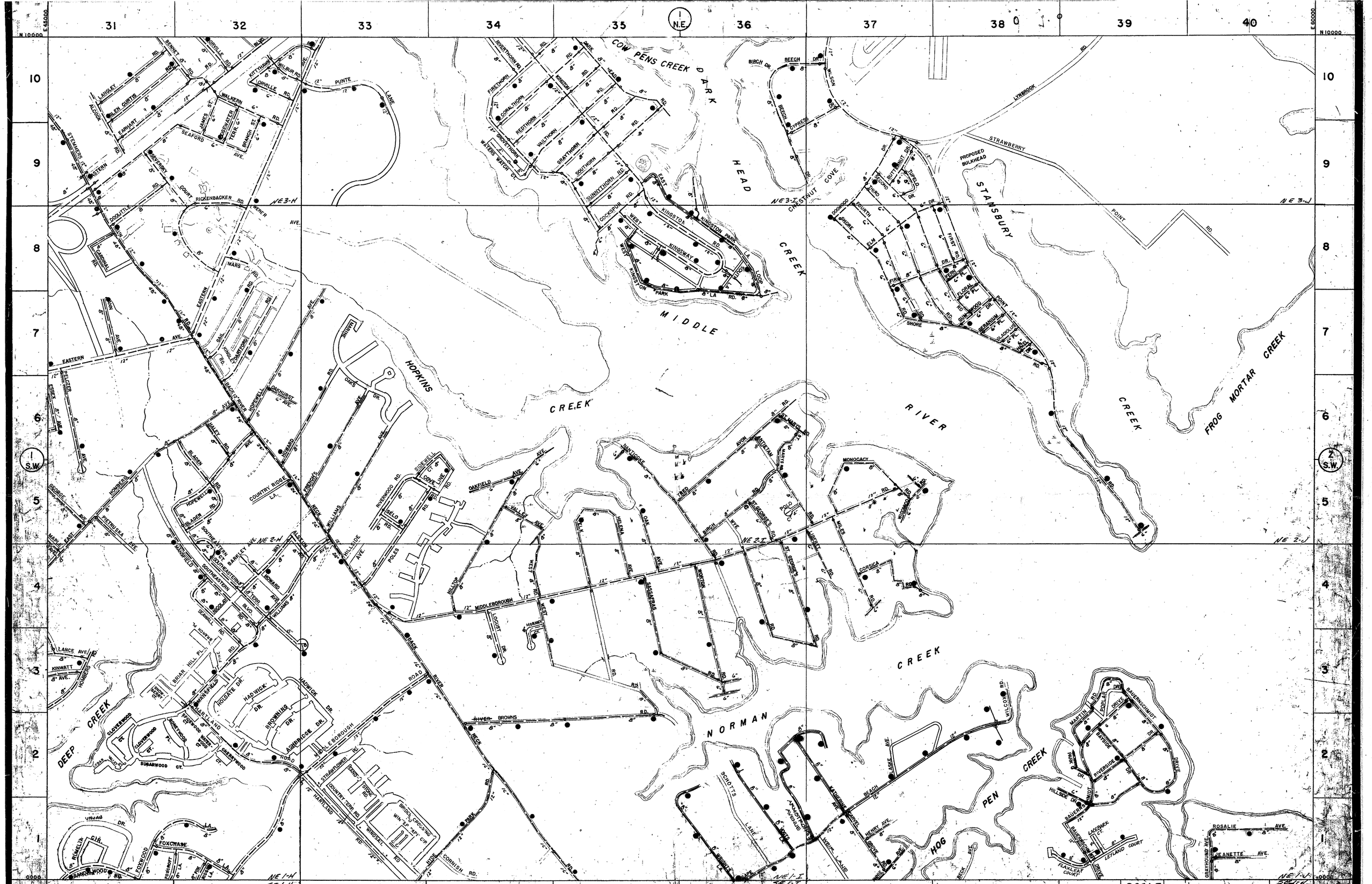
BALTIMORE COUNTY METROPOLITAN DISTRICT
KEY MAP
WATER MAINS

SCALE 1IN=500'

TOPO & PLAN SHEETS
N.E. 3-H 3-J
4-H 4-J
5-H 5-J
3-I
4-I
5-I

KEY SHEET N.E.

5/12/65



-LEGEND-

B.C.M.D. MAINS SHOWN

BALTIMORE CITY MAINS SHOWN

FIRE HYDRANTS SHOWN

VALVES SHOWN

BALTIMORE COUNTY METROPOLITAN DISTRICT
KEY MAP
WATER MAINS

SCALE	TOPO & PLAN SHEETS	KEY SHEET
1 IN=500'	N.E. 1-H 1-J 2-H 2-J 3-H 3-J 1-I 2-I 3-I	1 S.E.

REVISION DATE: 5-9-97

MICROFILMED

DRAWING NUMBER

RYAN HOLD CORPORATION • IRVINE, CALIFORNIA

RECORDED BY NUMBER D75AR

POSITION EDGE OF PRINT ON THIS LINE

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7500 N 7000 6500 6000 5500 N

WILSON

FIRST

SECOND

THIRD

FIR

FERN

FLORAL

GUMWOOD

SHORE

GERANIUM

GLADIOLUS

HAZEL

POINT

RD.

DR.

PL.

STANSBURY

CREEK

MIDDLE

RIVER

Note: Shaded by Lawyer for [illegible] of Service [illegible] Stansbury Manor

1701

1702

AA-46

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
RECORDER BY NUMBER O'DEAR
POSITION EDGE OF PRINT ON THIS LINE

A-A-46

AA-46 FILMED: 4/25/73 REVISED: _____

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WILSON

STANSBURY

POINT

CREEK

MIDDLE

RIVER

FIRST

SECOND

THIRD

FIR

FERN

FLORAL

GUMWOOD

SHORE

GERANIUM

GLADIOLUS

HAZEL

RD.

DR.

PL.

1304 1310 1312 1313 1322 1323 1400 1402 1403 1404 1408 1410 1412 1413 1416 1417 1420 1423 1500 1504 1508 1512 1516 1520 1525 1600 1432 1701 1702 1454 1715

Notes:
St. - Sketch by Beaverton
Fire Dept. of Service
Rte. - Wilson Stansbury Manor

A-A-46 Rev. 4-25-73

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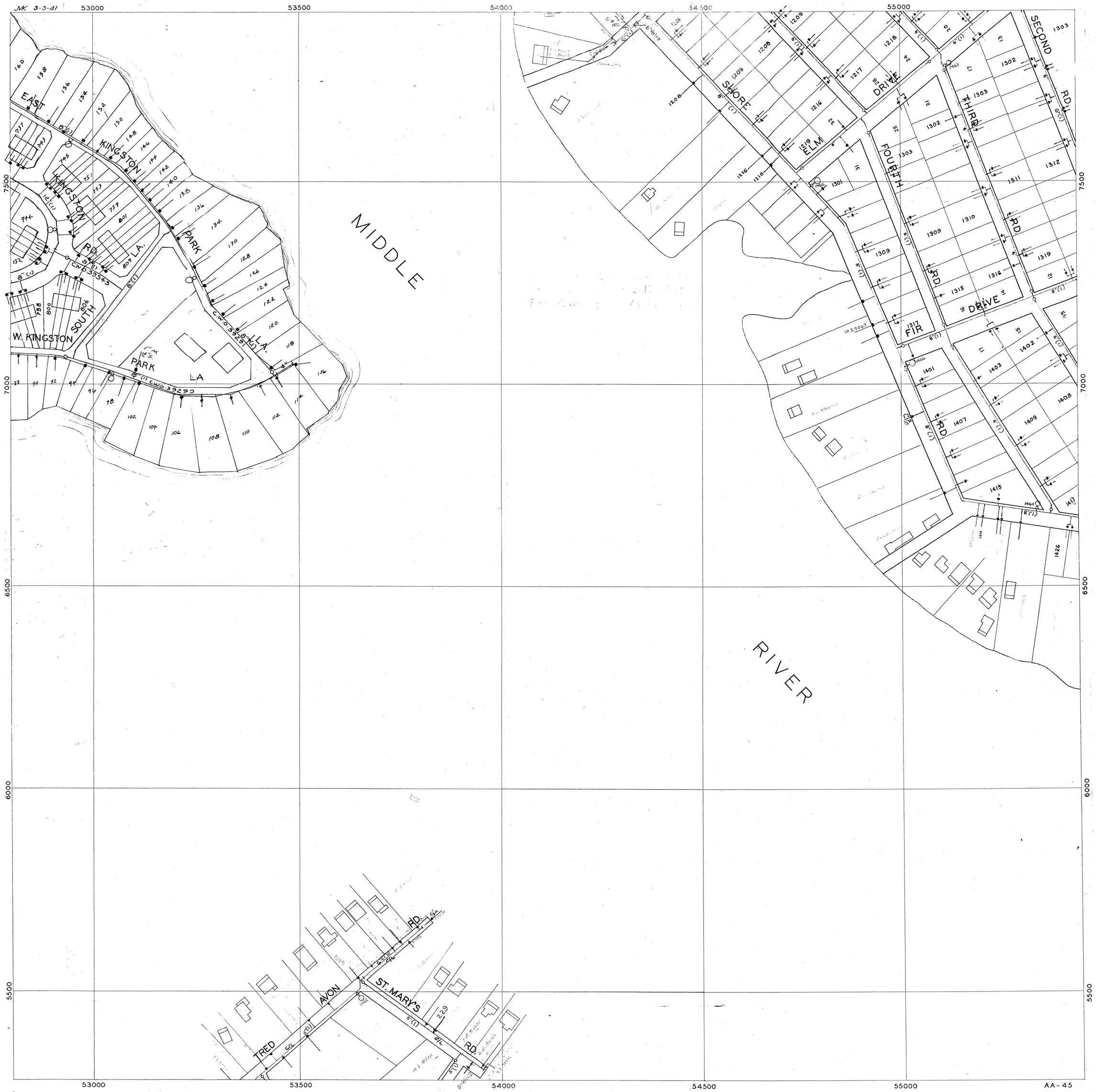
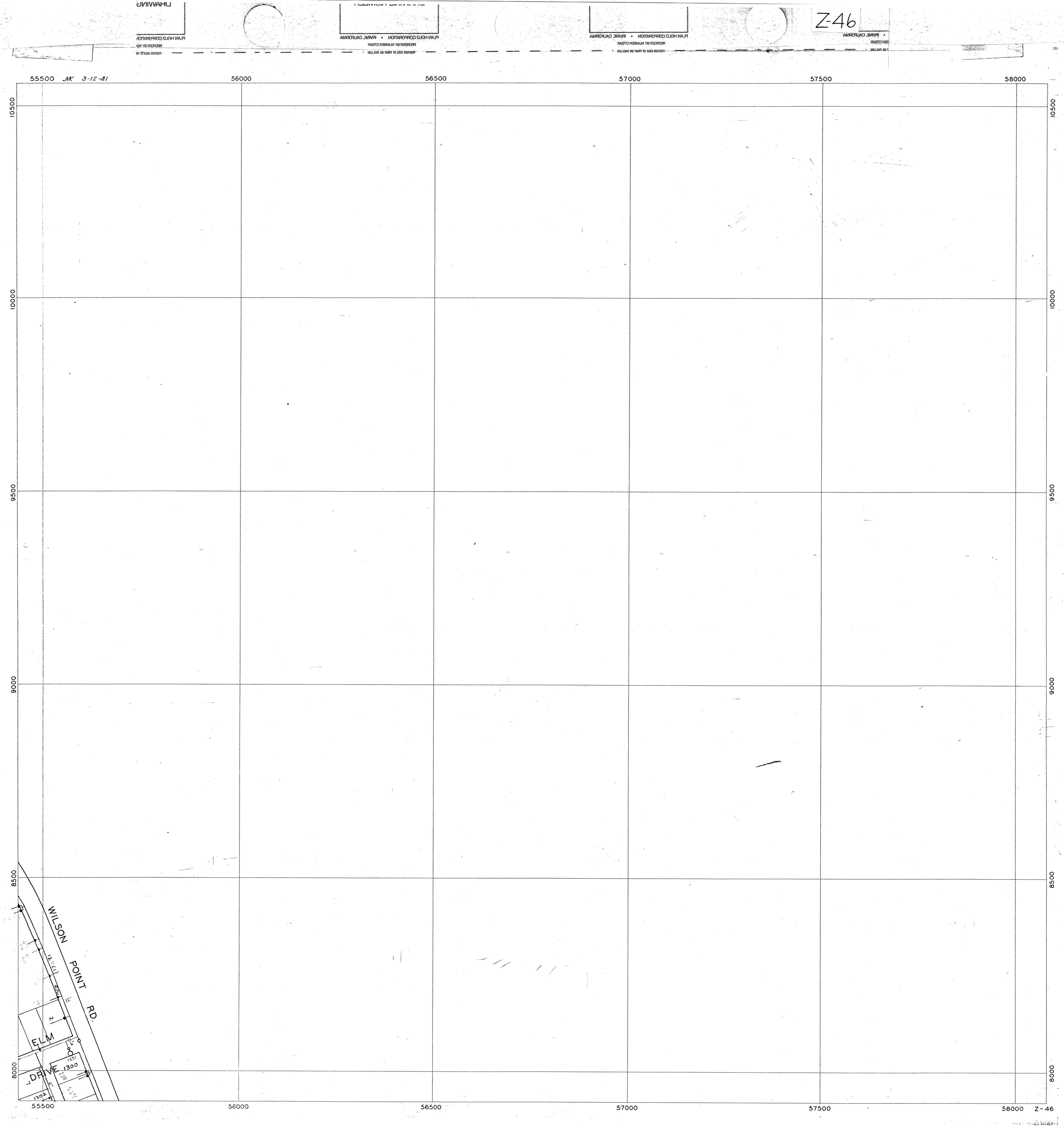


MIDDLE
RIVER
EAST KINGSTON PARK
KINGSTON RD.
W. KINGSTON SOUTH
PARK LA
SHORE DRIVE
ELM
FOURTH RD.
THIRD RD.
SECOND RD.
FIR DRIVE
TRED AVON RD.
ST. MARY'S RD.
53000
53500
54000
54500
55000
7500
7000
6500
6000
5500

AA-45


Z-46
55500 JK 3-12-41
56000
56500
57000
57500
58000
10500
10000
9500
9000
8500
8000
WILSON POINT RD.
ELM
DRIVE
1300
1302
Z-46

NK 3-11-E

53000 53500 54000 54500 55000

10500 10000 9500 9000 8500 8000

ALDER DRIVE

WILSON POINT RD.

BIRCH DR.

BEECH DR.

BEECH DRIVE

CYPRESS DRIVE

DRIVE

RD.

SECOND DRIVE

BUTTERNUT DR.

TUPELO PL.

THIRD RD.

FOURTH RD.

DOGWOOD RD.

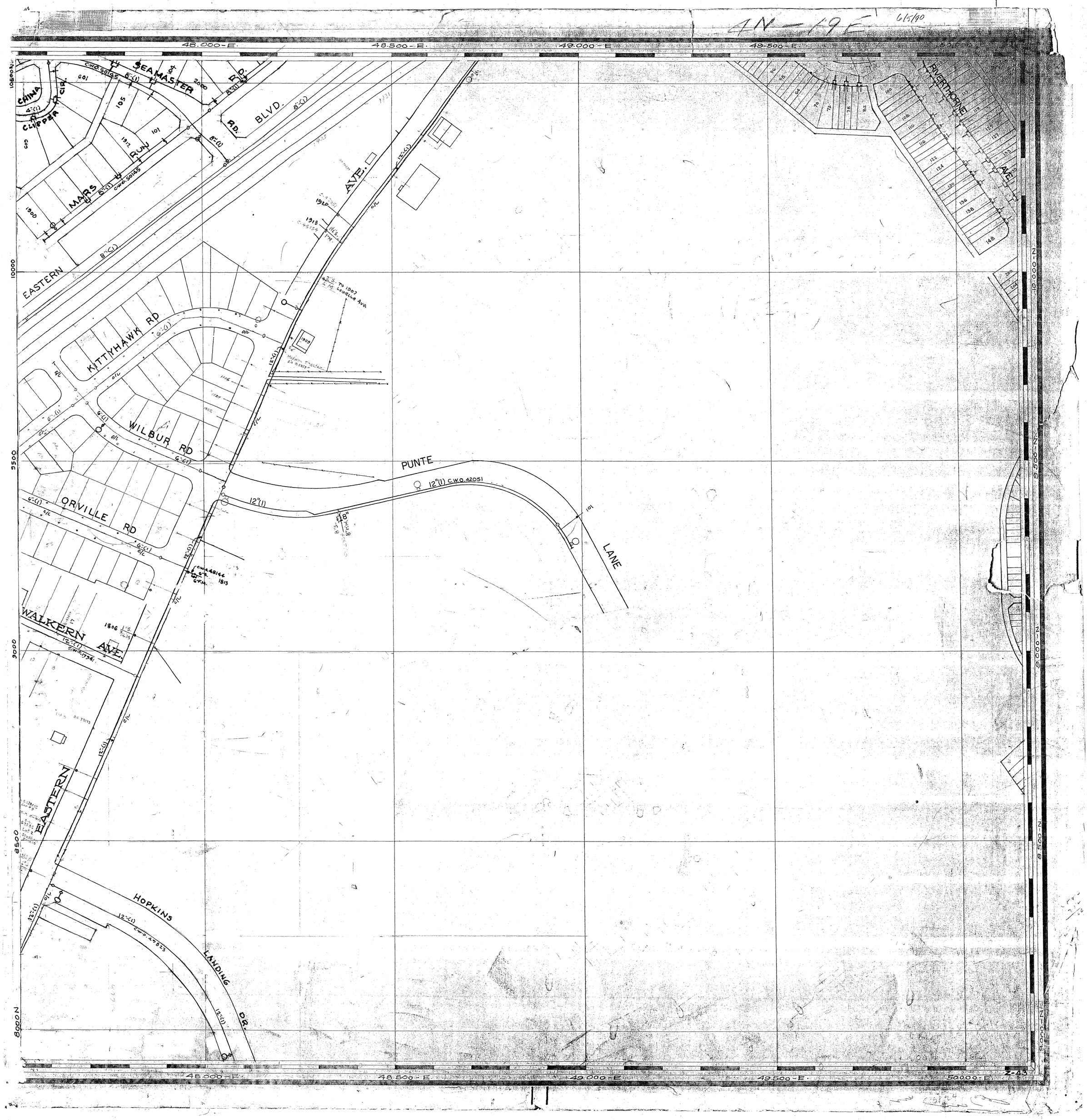
ELM DRIVE

DARK HEAD CREEK

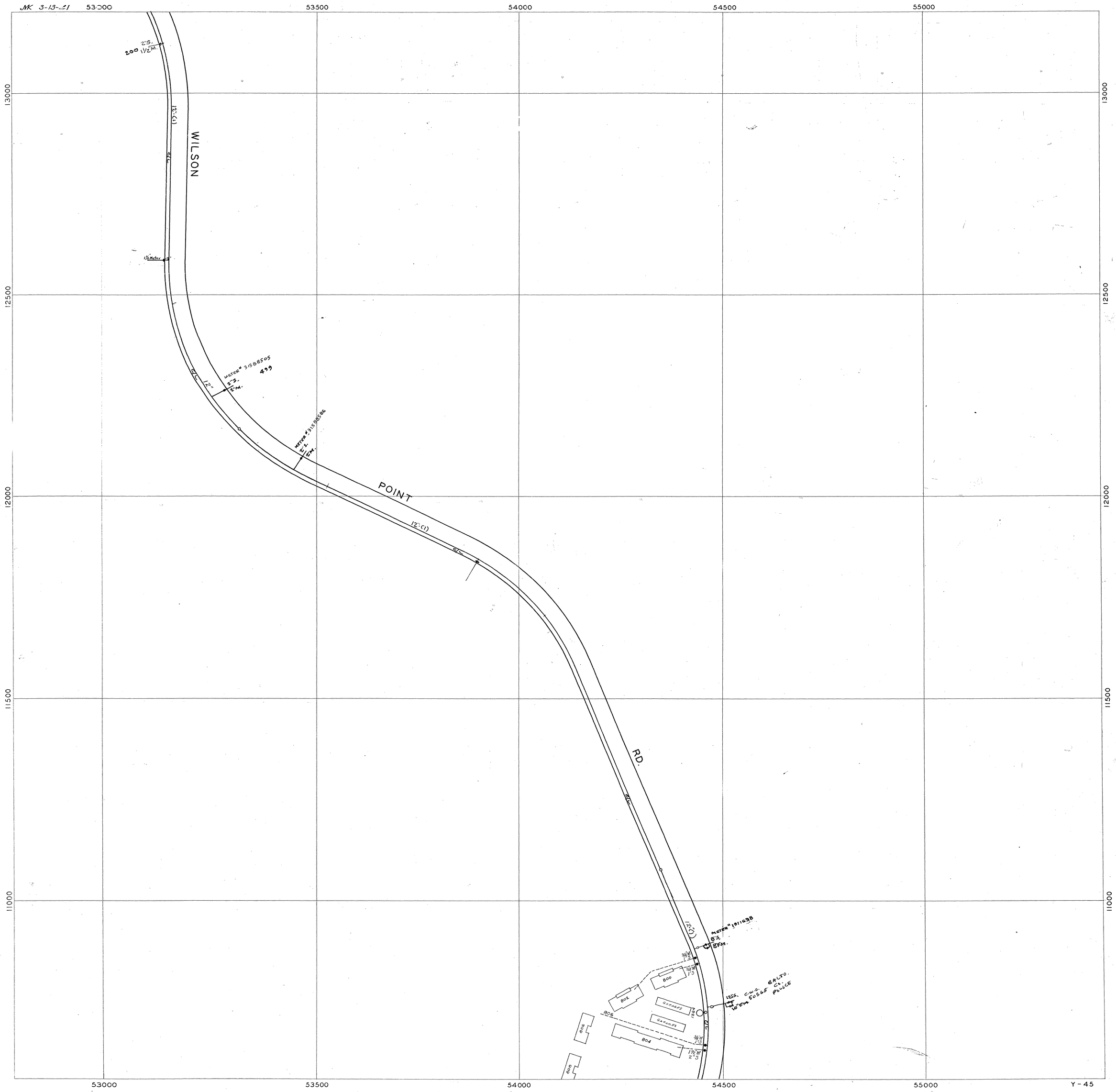
CHESTNUT COVE

Z - 45


DRAWN BY GEO. DONOHUE
STARTED--SEPT. 4 1952
FINISHED--SEPT. 4 1952
50500E
51000E
51500E
52000E
52500E
10500N
10000N
9500N
9000N
8500N
8000N
ELEMENTARY SCHOOL
KINGSTON
MIDTHORN RD.
RIVERTHORN
FIRETHORN
CORALTHORN
REDTHORN
GROVETHORN
VAILTHORN
GRAYTHORN
SOUTHORN
SUNNYTHORN
COCKSPUR
W. KINGSWAY
E. KINGSTON
PARK LA.
WATERS
WATCH CT.
DARK
HEAD
RD.



4N-19E
6/5/90
48.000-E
48.500-E
49.000-E
49.500-E
50.000-E
SEAMASTER RD.
CHINA CIR.
CLIPPER
MARS RUN
BLVD.
EASTERN
AVE.
KITTYHAWK RD
WILBUR RD
ORVILLE RD
WALKERN AVE.
PUNTE
LANE
12"(1) C.W.O. 42051
RIVERTHORNE AVE.
HOPKINS LANDING DR.
10000
9500
9000
8500
8000N
Z-43



Y-45
MK 3-13-21
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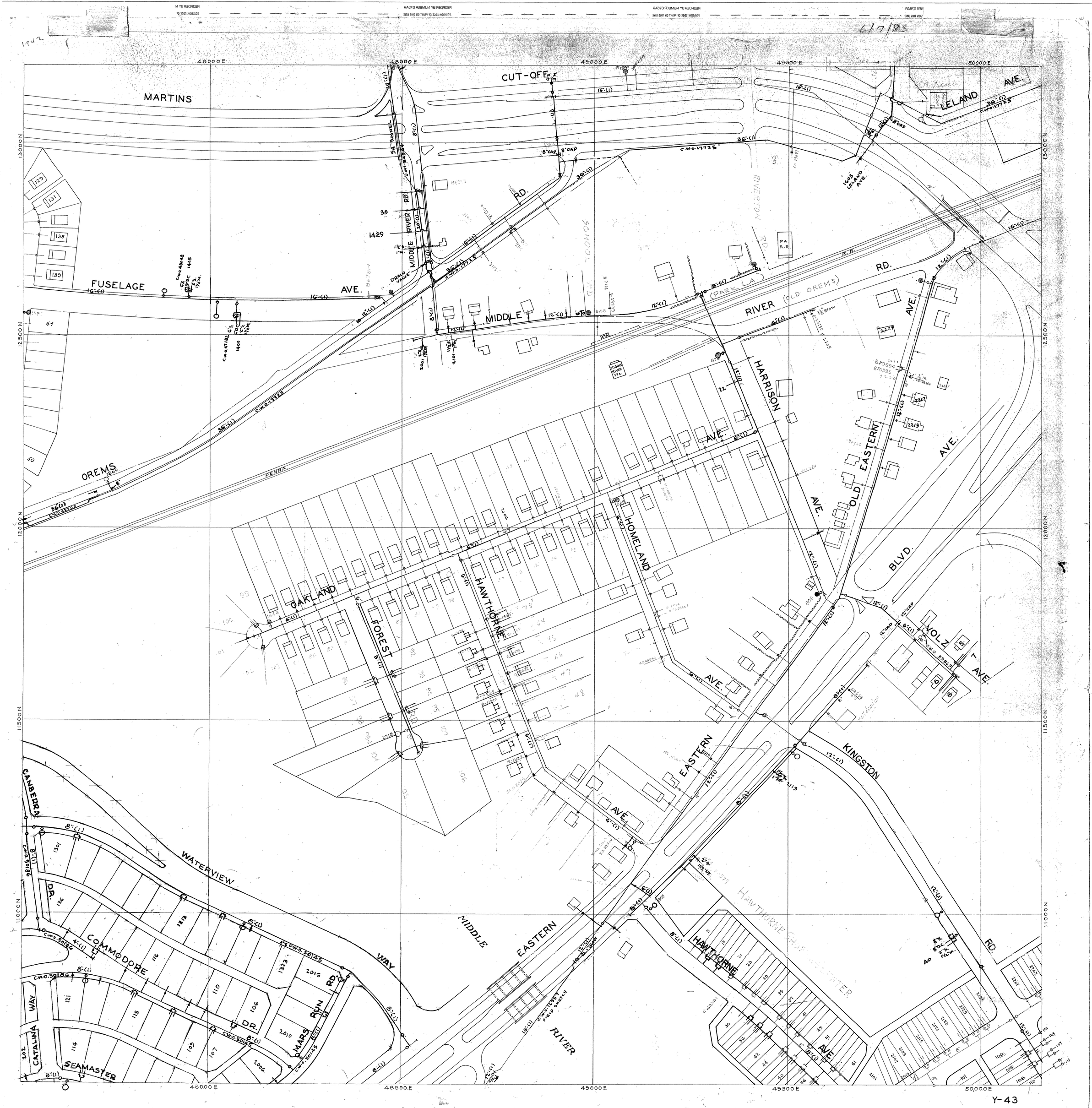
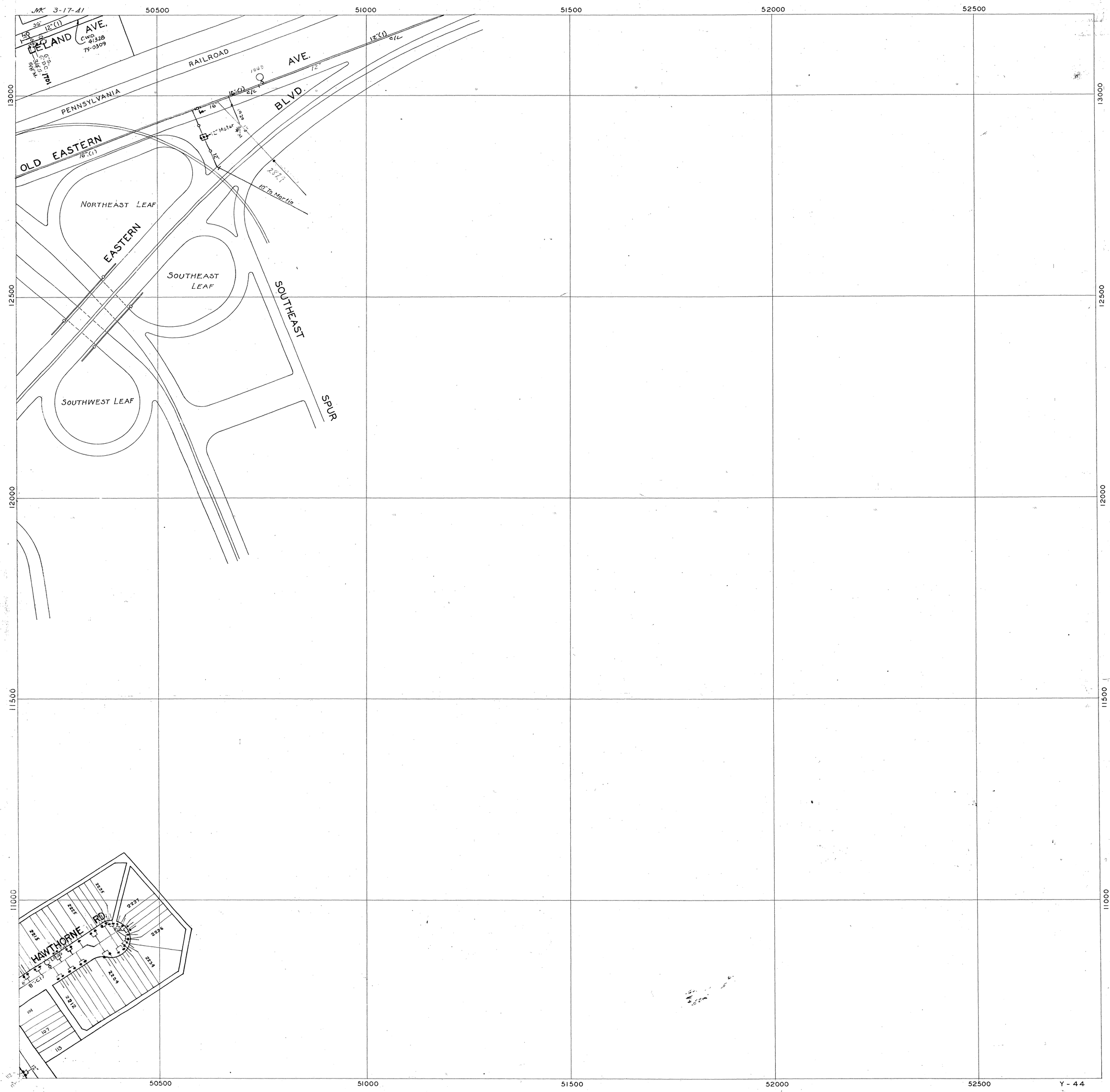
53500
54000
54500
55000
13000
12500
12000
11500
11000
WILSON
POINT
RD.
METER # 31588505
499
METER # 31588586
METER # 1911638
800
802
804
806
GARAGES
Y-45



6/7/83
MARTINS
CUT-OFF
LELAND AVE.
FUSELAGE AVE.
MIDDLE RIVER RD.
MIDDLE RIVER (OLD OREMS)
RIVERTON RD.
SCHOOL RD.
PA. R.R.
HARRISON AVE.
OLD EASTERN AVE.
BLVD.
OREMS
PENNA.
HOMELAND AVE.
OAKLAND
FOREST
HAWTHORNE
VOLZ AVE.
KINGSTON RD.
EASTERN AVE.
CANBERRA
WATERVIEW WAY
COMMODORE DR.
MARS RUN RD.
CATALINA WAY
SEAMASTER
MIDDLE RIVER
HAWTHORNE AVE.
48000 E
48500 E
49000 E
49500 E
50000 E
13000 N
12500 N
12000 N
11500 N
11000 N

Y-43



NK 3-17-41
50500
51000
51500
52000
52500
13000
12500
12000
11500
11000
LELAND AVE.
C.W.O. 41328
75-0309
PENNSYLVANIA RAILROAD
OLD EASTERN AVE.
BLVD.
NORTHEAST LEAF
EASTERN
SOUTHEAST LEAF
SOUTHWEST LEAF
SOUTHEAST SPUR
10" To Martin
HAWTHORNE RD.
2215
2225
2235
2237
2236
2234
2224
2212
101
107
113
Y-44

DRAWING NUMBER

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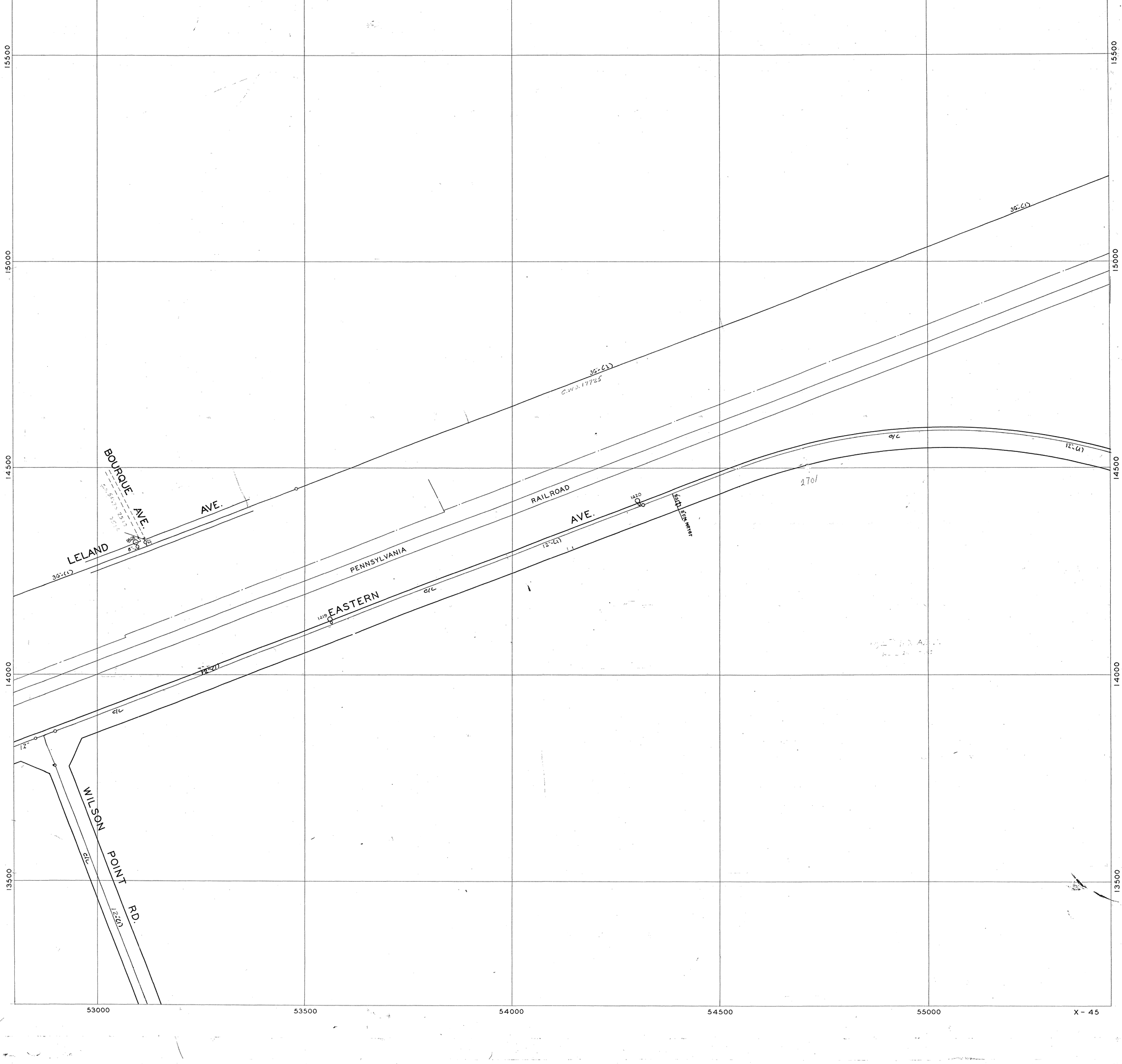

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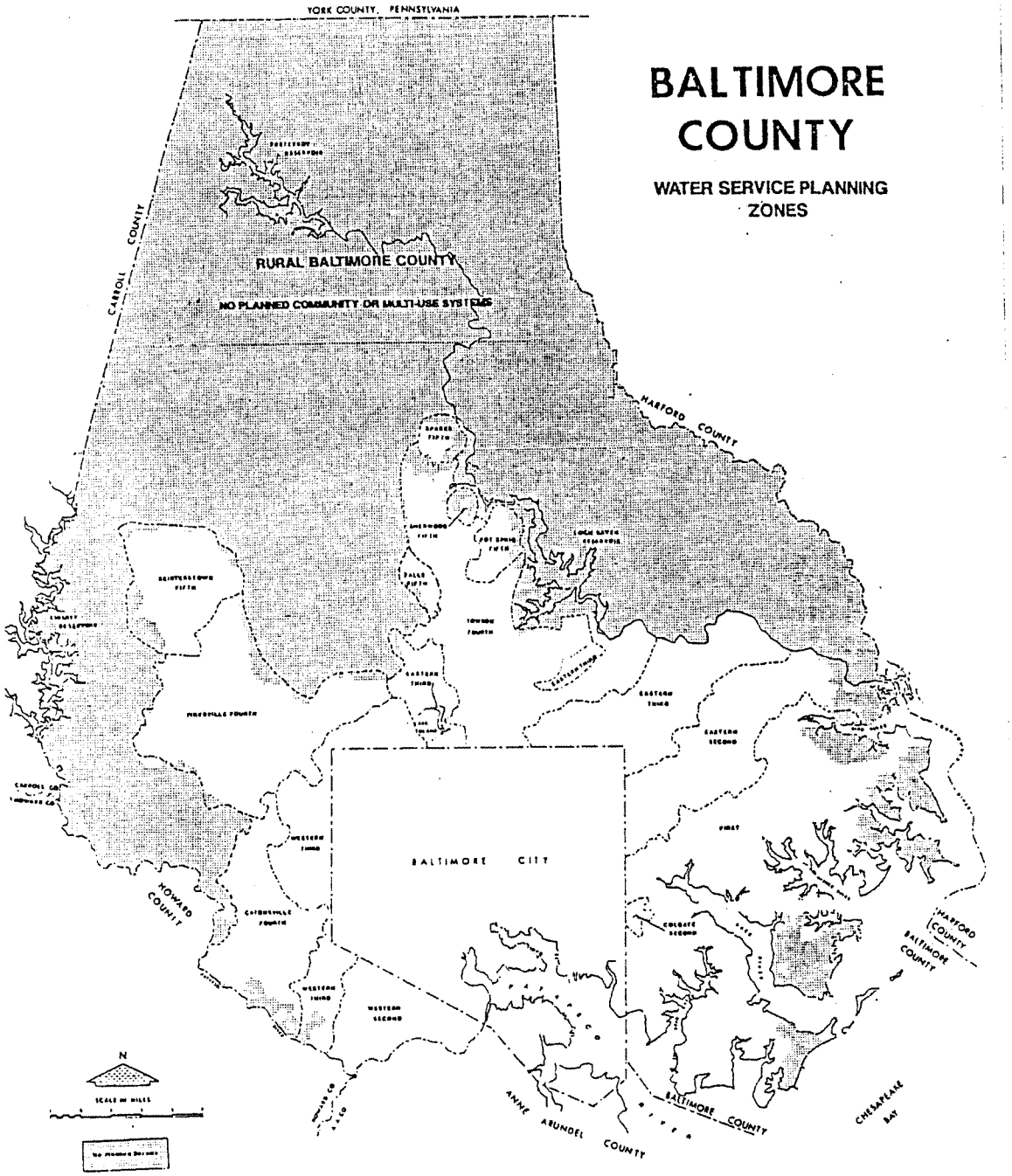
Appendix D - Baltimore County Water Plan Maps

10-YEAR BALTIMORE COUNTY WATER SUPPLY AND SEWERAGE PLAN 2000-2010

2004 Triennial Review Update

Draft Report of the Review
as submitted to the
Baltimore County Planning Board
September 23, 2004



February, 1993 III-6.03

Table No. 4
Inventory of Existing Community / Multi-use Wells

Water Supply	System Number	Aquifer	Coordinates (NAD 27)	Map No.	Depth (feet)	Diameter (Inches)	Maximum Safe Yield (gpd)	Pumping Capacity (gpd)
Bais Yaakov School for Girls (MU)		Well	877-581	W-16 A				
Baptist Home (MU)	0201	Wells	877-577	W-16 A				
Caves Valley Golf Club (MU)		Well	874-587	W-16 A				
Chapel Hill (MU)		Wells	840-569	W-15 B				
Chattolanee Hill Imp. Assoc. (CS)		Spring	873-574	W-16A			500,000	
Carroll Community Church (MU)		Well	841-616	W-9B				
Garrison Valley Center (MU)	0203	Well	869-572	W-16 A				
Granite Trailer Court (MU)	0204	Springs	838-544	W-15 B				
Greystone Country Club (MU)			911-655	W-4 B				
Hayfields (MU)		Well	892-608	W-10 B				
Hydes Road (CS)		Well	924-601	W-11 A				
Manor Shopping Center (MU)		Well	924-613	W-11 A			30,000	30,000
Montrose School (MU)	0007	Surface Impoundment	843-607	W-9 B			280,000	280,000
Notchcliff Lifecare Community (MU) (Glen Meadows Retirement Community)		Well	936-589	W-17 A				(40,000)
Oldfields School (MU)	0210	2 Wells	905-630	W-10 B				
Owings Mills Golf Community (MU)		Well	847-568	W-16 A				
Paper Mill Village (MU)		2 Wells	924-614	W-11 A				
Phoenix (CS)		Wells	918-610	W-11 A				
Rosewood Trailer Court (MU)	0205	Wells	960-560	W-17 B				
Schmidt Properties (Elmo Road) (CS)	0014	2 Wells	854-557	W-16 A				
St. Timothy's School (MU)	0209	Well	885-574	W-16 B			21,000	
Stevenson (CS)	0010	Spring	881-575	W-16 A			50,000	50,000
Sunnybrook (CS)	0011	Wells	923-606	W-11 A			80,000	80,000
Valley Water Supply (CS)		Well	942-590	W-11 A				18,000
Villa Julie College (CS)			883-579	W-16 B				
Whip-Poor-Will Trailer Park (MU)	0207	Well	958-563	W-17B				
Woodstock Job Corps Center (MU)		Well	837-547	W-15 B				

TABLE 8
BALTIMORE COUNTY WATER FACILITIES
CAPITAL IMPROVEMENT PROGRAM

Project Job Order	Fiscal Year	Priority	Coordinate Location	Map	Project Description	Estimated Costs		Proj. Const. Capital Budget Program	Status Start Future Program
						Total $	Baltimore County $		
					First Zone				
3-36-007	90	W-3	967-550 972-551	W17B	5,500 LF of 20" water main Leland Ave. from Bengies Rd. to Eastern Ave. to Earles Rd.	556,000	556,000		2007
3-36-008	91	W-5	950-550 961-564	W17B	25,000 LF of 24" & 30" supply main Rossville Blvd. to Ebenezr Rd.	4,538,000	4,538,000	98	2005
3-36-013	87	W-1 W-3	940-542 946-545	W17A W23A	9,500 LF of 12" main Kelso Road Pulaski Highway to Southwest Freeway	1,000,000	1,000,000		2006
3-36-017	93	W-5	933-538 967-550	W17A W17B	Rehabilitation of 37,000 LF of 36" main Pulaski-Orem-Leland from Golden Ring Rd. to Bengies Road	3,000,000	3,000,000		2007
3-36-016	92	W-3	956-560 959-558	W17B	2,200 LF of 20" water main in Campbell Blvd. between Philadelphia Rd. & Pulaski Highway	780,000	780,000		2006

Water Supply Plan Designations

Areal Designation

W-1 EXISTING SERVICE AREA

Metropolitan facilities are available to 90% or more of the properties in these areas.

W-3 CAPITAL FACILITIES AREA

Capital facilities are required and are possible within the framework of the six (6) year Capital Program, subject to annual budgeting, neighborhood petitions, determination of health hazards and the negotiation of Public Works Agreements.

W-5 MASTER PLAN AREA

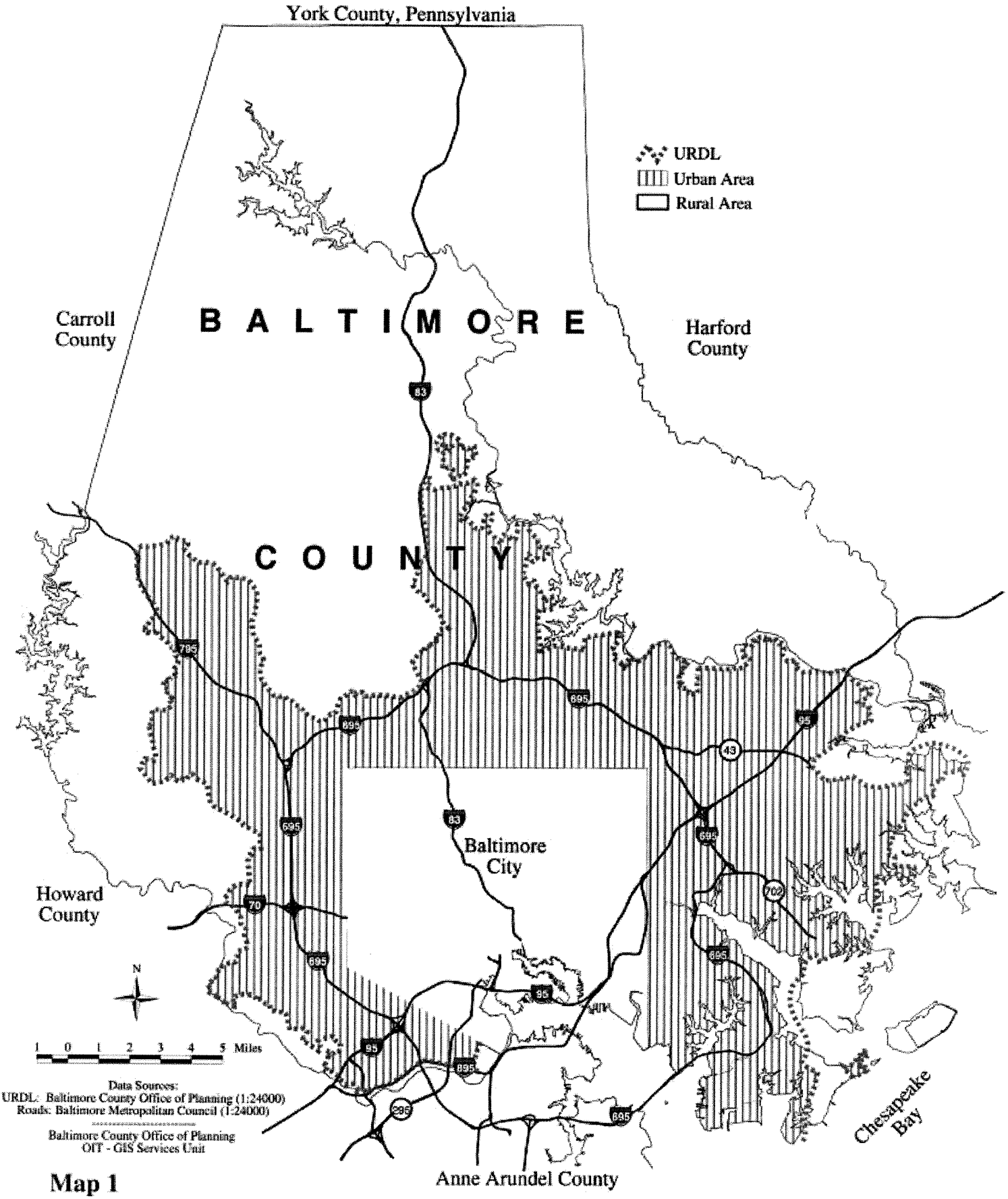
Capital facilities are required and are intended within the framework of the Baltimore County Master Plan.

W-6 AREAS OF FUTURE CONSIDERATION

Areas to be considered in the design of major facilities for growth and development beyond Land Use Master Plan.

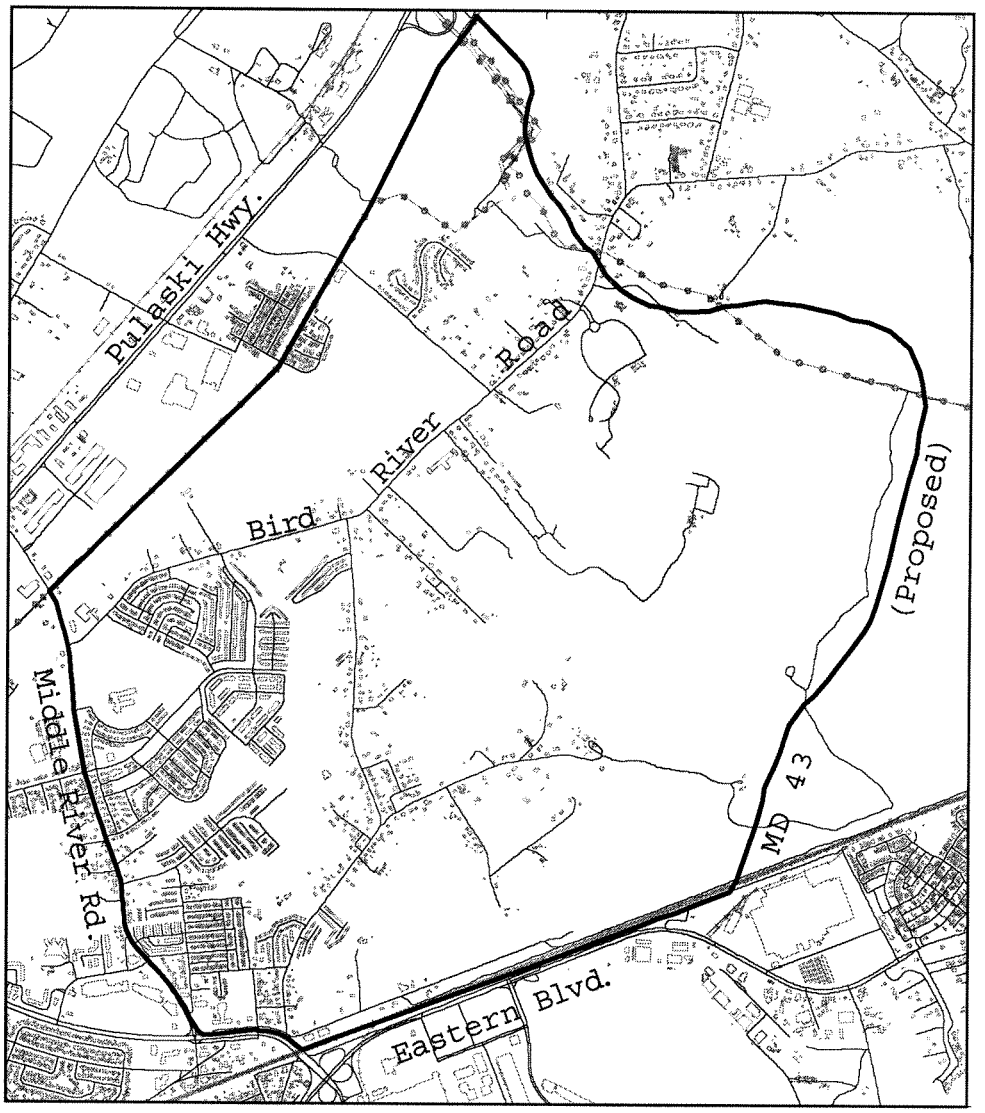
W-7 NO PLANNED COMMUNITY OR MULTI-USE SERVICE (NPS)

Areas of planned low-density growth (Resources Conservation Zoning) for which Metropolitan facilities extensions are not planned or intended.



Map 1
Urban Rural Demarcation Line (URDL)

Middle River - Bird River Area Plan



As Adopted by the Baltimore County Council
January 22, 2002

Figure 2
Existing Land Use

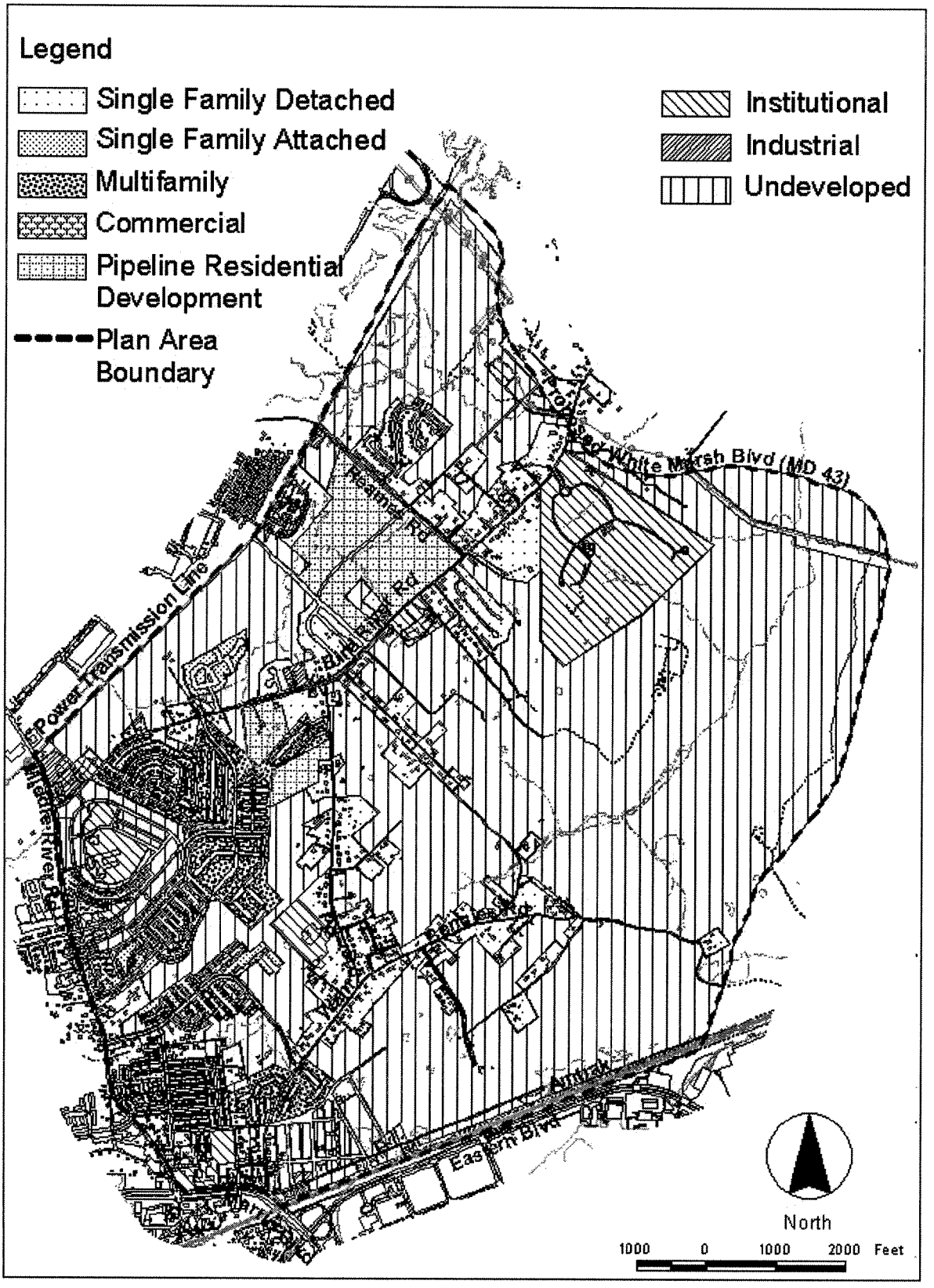


Figure 3
Existing Zoning (May 2000)

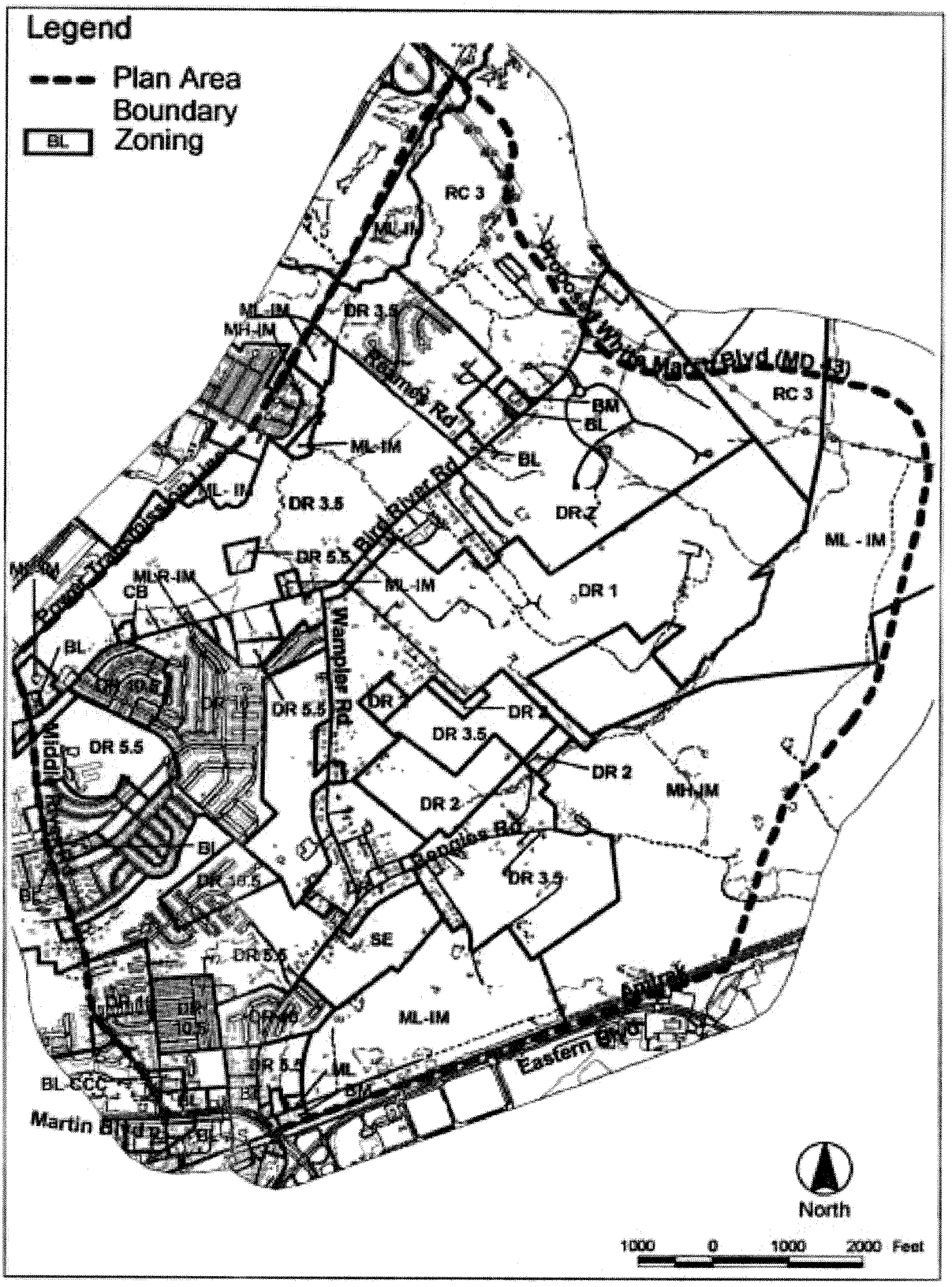


Figure 4
Existing Water Supply Designations

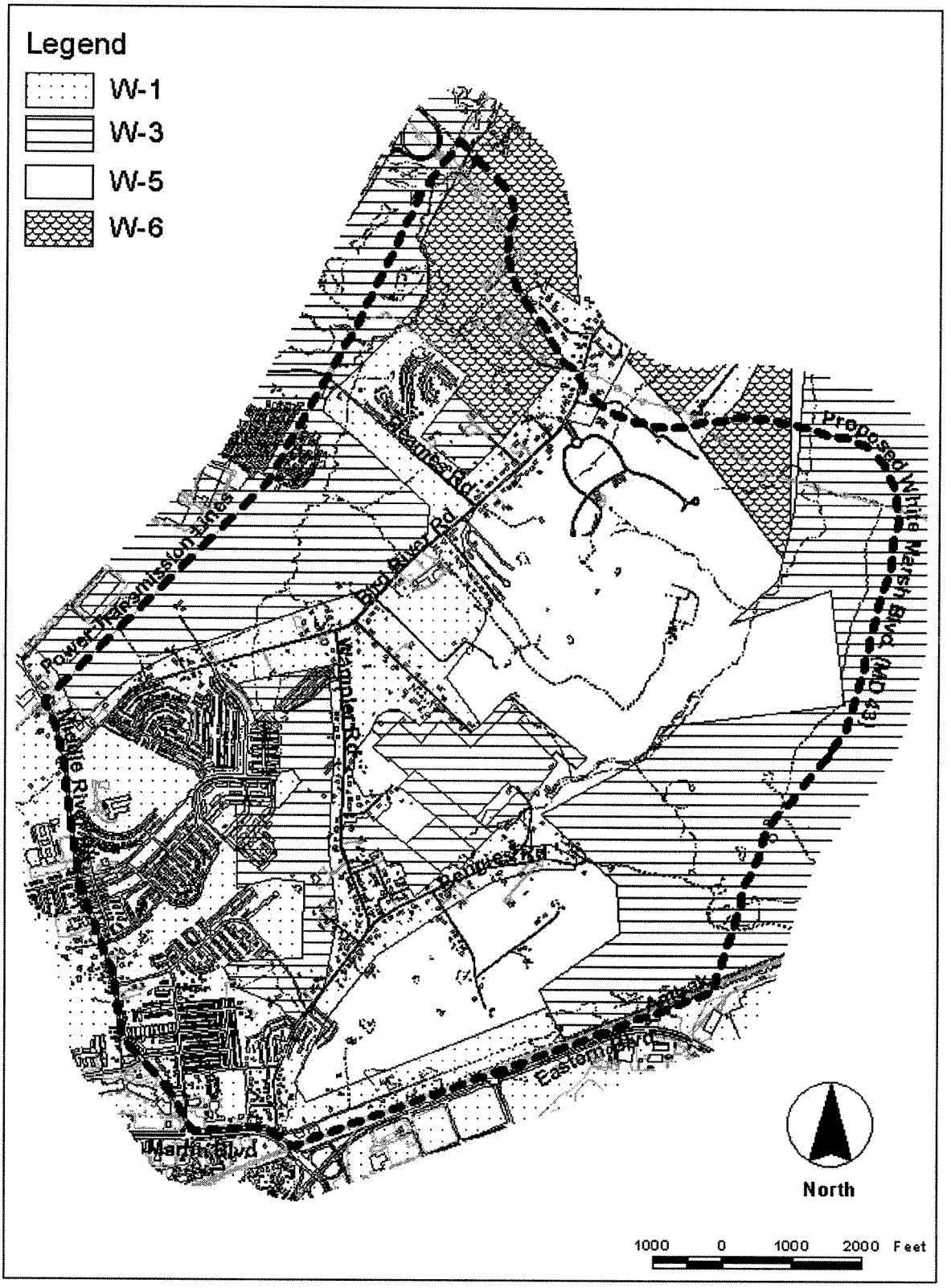


Figure 9
Recommended Water Supply Designations

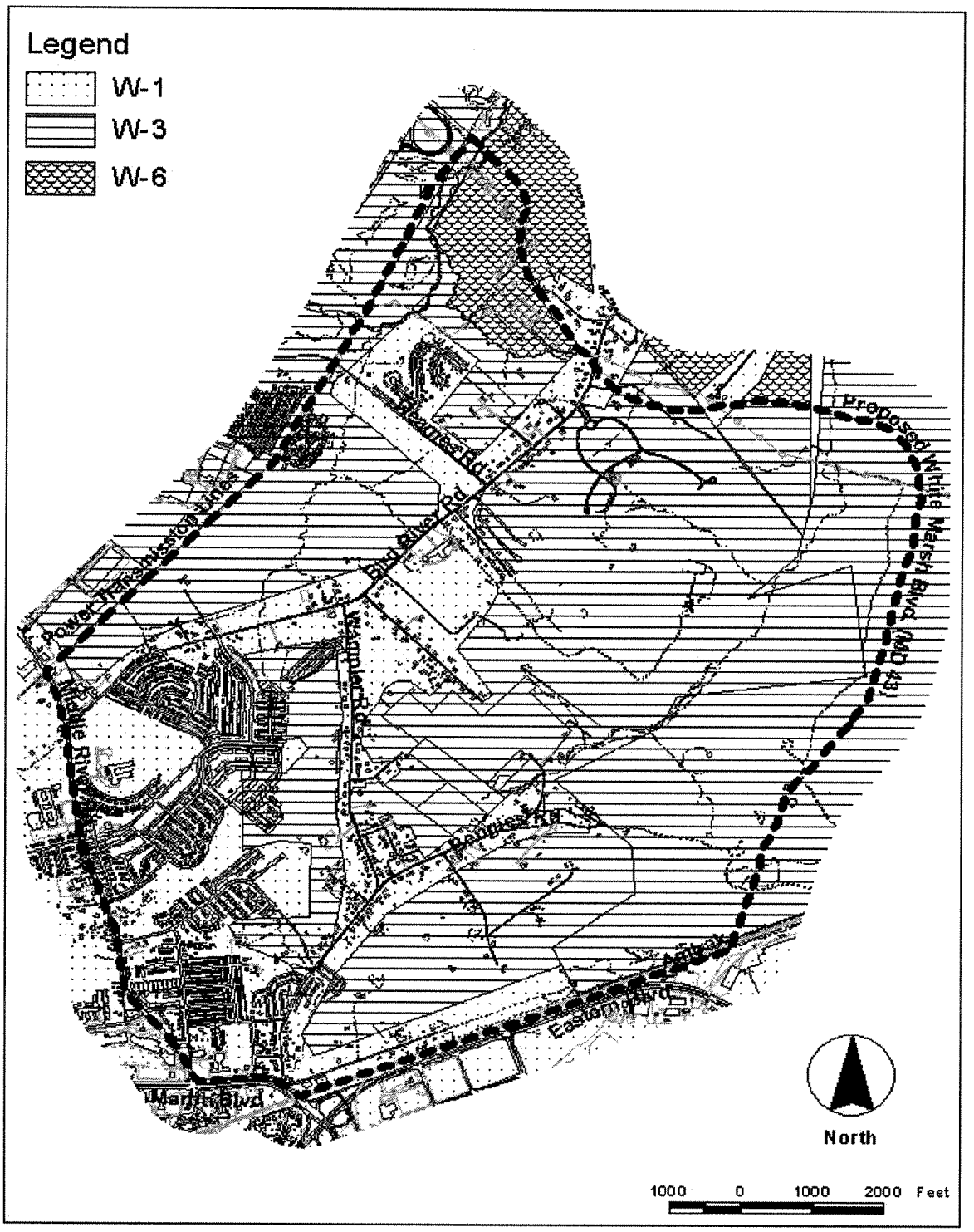


Table 6
Recommended Zoning Map Amendments
Middle River-Bird River Planning Area

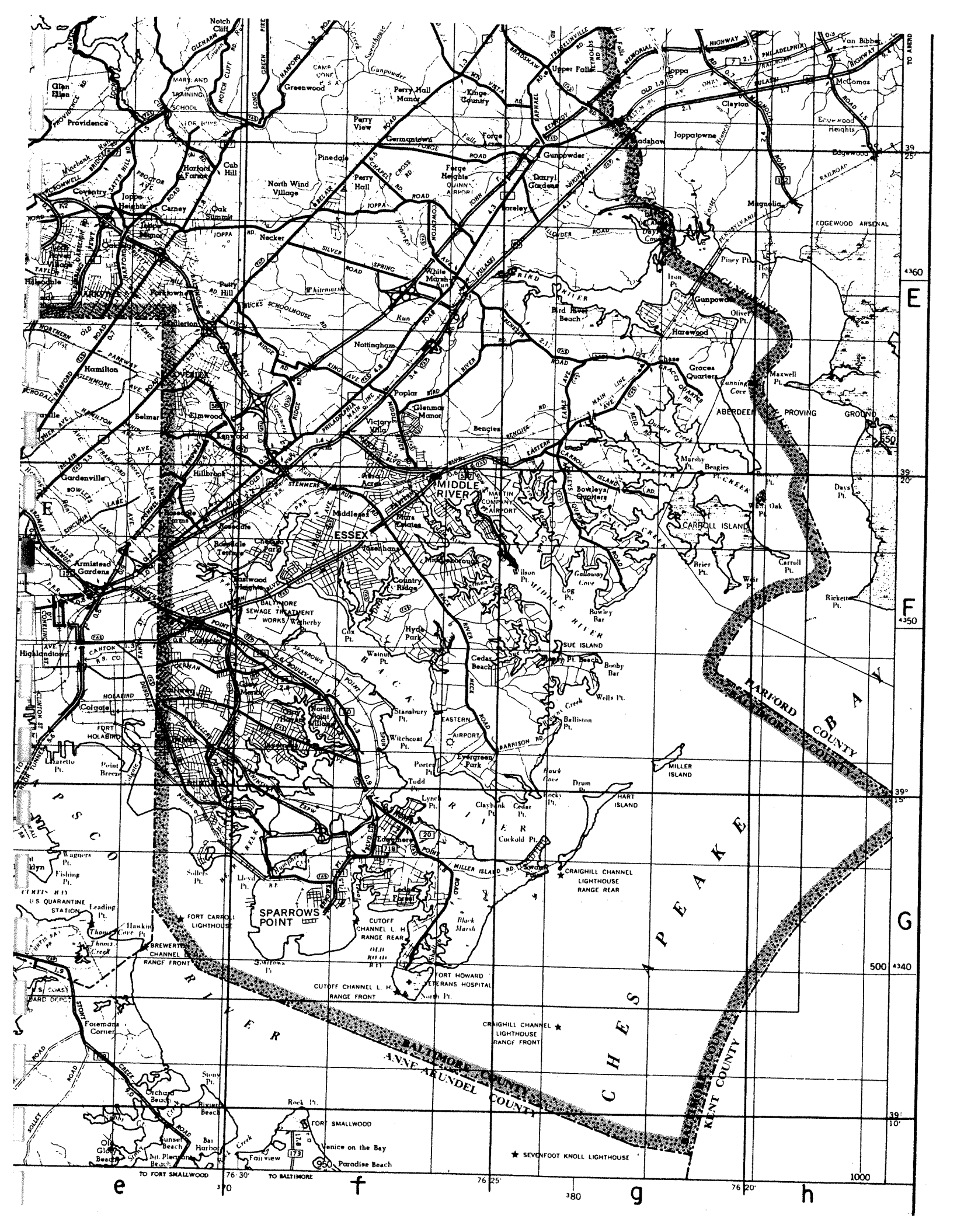
Item No. *	Location	Total Acres	Existing Zoning	Proposed Zoning	Comments
1	South side of planned extension of MD 43 and west of Windlass Run	95.9	DR 1, DR 2, RC 3	ML	Adjacent to, and accessible from, the planned extension of MD 43.
2	West of Windlass Run	41.6	ML-IM, MH-IM	DR 2	Not suitable for industrial development. Potentially suitable for DR 3.5 zoning provided access will be from Campbell Boulevard and Campbell Boulevard is extended from Bird River Road to connect with White Marsh Boulevard.
3	South of Bird River Road, north of Leland Ave, east of Compass Rd terminus	270.7	DR1, DR2, DR3.5, SE	DR2	Undeveloped parcels have poor access and/or severe environmental constraints. The DR2 classification is consistent with the density of existing residential development in this area.
4	North of Leland Ave	27.3	DR5.5, ML-IM, ML	DR3.5, ML, BM	The proposed BM zone should not be enacted unless a restrictive covenant agreement between the Windlass Run Improvement Association and the property owner is executed.
5	Bounded by Henderson Rd on the west, Victoria Rd on the north, Hickam Rd on the east, and Selfridge Rd on the south	2.2	DR16	Same as existing zoning	Defer pending Community Enhancement Plan.
6	Between Compass Rd and Victoria Rd, east of Hickam Rd to east of Mitchel Rd	3.2	DR16	Same as existing zoning	Defer pending Community Enhancement Plan.

Table 6 (continued)

Item No. *	Location	Total Acres	Existing Zoning	Proposed Zoning	Comments
7	South side of Bird River Rd, west of Maple Crest Dr	4.0	DR16	DR3.5	The DR3.5 classification is consistent with the existing zoning on the opposite side of Bird River Road.
8	South side of Bird River Rd, east of Maple Crest Dr	3.7	MLR-IM, DR3.5	DR3.5	Not suitable for industrial development. The DR3.5 classification is consistent with the existing zoning to the east and to the north.
9	East of Greenfield Way	3.6	DR5.5	DR3.5	The DR3.5 classification is consistent with the surrounding zoning.
10	South of Washington Irving La, east of power transmission lines	10.8	ML-IM	DR3.5	DR3.5 zoning is consistent with the surrounding residential zoning, and it will allow for the expansion of the Sleepy Hollow Mobile Home Park.
11	East of Washington Irving La	2.7	ML-IM	DR3.5	The DR3.5 classification is consistent with the surrounding residential zoning and adjacent residential development.
12	Northwest of Bird River Rd and northeast of Reames Rd and Buttonwood La	51.1	RC3	DR2	This area lies within the URDL. The RC3 classification may be applied only to land that lies beyond the URDL.
13	East of Middle River Rd and south of Bird River Rd	36.1	DR5.5, DR16	Same as existing zoning	Defer pending Community Enhancement Plan.
14	West of planned extension of MD 43 and north of Amtrak rail line.	493.0	ML-IM MH-IM	Same as existing zoning	Defer pending MD 43 Employment Area Study.
15	South of Bird River Rd and east of Gladway Rd	50.2	DR1	DR2	

Appendix E - Pertinent information obtained from Maryland Geological Survey Records

QUADRANGLE MAP


ESSEX
MIDDLE RIVER
SPARROWS POINT
CARROLL ISLAND
EDGEWOOD ARSENAL
ABERDEEN PROVING GROUND
BALTIMORE COUNTY
ANNE ARUNDEL COUNTY
KENT COUNTY
CHESAPEAKE BAY
PATAPSCO RIVER
MIDDLE RIVER
BACK RIVER
HARFORD COUNTY
MILLER ISLAND
HART ISLAND
SUE ISLAND
FORT HOWARD VETERANS HOSPITAL
FORT SMALLWOOD
FORT CARROLL LIGHTHOUSE
CRAIGHILL CHANNEL LIGHTHOUSE RANGE REAR
CRAIGHILL CHANNEL LIGHTHOUSE RANGE FRONT
CUTOFF CHANNEL L. H. RANGE REAR
CUTOFF CHANNEL L. H. RANGE FRONT
BREWERTON CHANNEL L. H. RANGE FRONT
SEVENFOOT KNOLL LIGHTHOUSE
TO FORT SMALLWOOD
TO BALTIMORE
TO ABERD
E
F
G
e
f
g
h
39° 25'
39° 20'
39° 15'
39° 10'
76° 30'
76° 25'
76° 20'

WELL RECORDS

OFFICE NO._____ FIELD NO. Bal-Mf 10

United States
DEPARTMENT OF THE INTERIOR
Geological Survey
in cooperation with
MARYLAND DEPARTMENT OF GEOLOGY, MINES AND WATER RESOURCES

Location_____

WELL RECORD

1. OWNER.....ADDRESS Middle River, Wampler Rd.
2. OWNER'S WELL NO.....DEPTH 135'
3. LOCATION.....SURFACE ELEVATION.....
4. DATE COMPLETED 1943 DRILLER Filer
5. METHOD OF DRILLING Jetting
6. CASING RECORD 2" @ 90'
7. SCREEN RECORD
8. GEOLOGIC FORMATION
9. PUMPING EQUIPMENT
   Type Hand pump Capacity.....gal/min.....
   How driven.....Horse power.....RPM.....
   Depth of pump in well.....Depth of footpiece in well.....
10. STATIC WATER LEVEL 30' feet reported, measured.....
    above, below.....
    which is.....feet above, below the land surface
11. PUMPING WATER LEVEL.....feet reported, measured.....
    above, below.....
    which is.....feet above, below the land surface.
12. DISTANCE BETWEEN PUMPING LEVEL AND BOTTOM OF PUMP SUCTION.....feet.
13. YIELD.....gal/min.....
14. DRAWDOWN.....feet. SPECIFIC CAPACITY.....gal/foot of drawdown
15. QUALITY OF WATER.....Temp.....
16. USE Household AMOUNT: Average.....gal/
    Maximum.....
    Minimum.....
    Average number of hours a day well is in use.....
17. LOG.....Samples.....
18. SOURCE OF DATA Filer, Driller
19. DATA OBTAINED BY R.R.M. Date September 1, 1944
20. REMARKS See field notes

Log:

10' Sand
70' Red clay
35' Sand

OFFICE NO._____ FIELD NO. Bal-Mf 10

United States
DEPARTMENT OF THE INTERIOR
Geological Survey
in cooperation with
MARYLAND DEPARTMENT OF GEOLOGY? MINES AND WATER RESOURCES

Location_____

WELL RECORD

1. OWNER.....ADDRESS Middle River, Wampler Rd.
2. OWNER'S WELL NO.....DEPTH 135'
3. LOCATION.....SURFACE ELEVATION.....
4. DATE COMPLETED 1943 DRILLER Eiler
5. METHOD OF DRILLING Jetting
6. CASING RECORD 2" @ 90'
7. SCREEN RECORD
8. GEOLOGIC FORMATION
9. PUMPING EQUIPMENT
   Type Hand pump Capacity.....gal/min.
   How driven.....Horse power.....RPM
   Depth of pump in well.....Depth of footpiece in well.....
10. STATIC WATER LEVEL 30' feet reported, measured.....
    above, below.....
    which is.....feet above, below the land surface
11. PUMPING WATER LEVEL.....feet reported, measured.....
    above, below.....
    which is.....feet above, below the land surface.
12. DISTANCE BETWEEN PUMPING LEVEL AND BOTTOM OF PUMP SUCTION.....Feet
13. YIELD.....gal/min.
14. DRAWDOWN.....feet. SPECIFIC CAPACITY.....gal/foot of drawdown
15. QUALITY OF WATER.....Temp.....
16. USE Household AMOUNT: Average.....gal.
    Maximum.....gal.
    Minimum.....gal.
    Average number of hours a day well is in use.....
17. LOG.....Samples.....
18. SOURCE OF DATA Eiler, Driller
19. DATA OBTAINED BY R.R.M. Date September 1, 1944
20. REMARKS See field notes

Log:

10' Sand
70' Red clay
35' Sand

OFFICE NO._____

United States
DEPARTMENT OF THE INTERIOR
Geological Survey
in cooperation with
MARYLAND DEPARTMENT OF GEOLOGY, MINES AND WATER RESOURCES

FIELD NO. Bal-Bf 22

Location_____

WELL RECORD

1. OWNER ... Mr. Shiebeck ... ADDRESS ... Wampler Road ...
2. OWNER'S WELL NO. ... DEPTH ... 105 ...
3. LOCATION ... Approximate ... SURFACE ELEVATION ... 60 ...
4. DATE COMPLETED ... 1943 ... DRILLER ... W. Filer ...
5. METHOD OF DRILLING ...
6. CASING RECORD ... 2 or 3 inch ...
7. SCREEN RECORD ...
8. GEOLOGIC FORMATION ...
9. PUMPING EQUIPMENT
   Type ... Capacity ... gal/min ...
   How driven ... Horse power ... RPM ...
   Depth of pump in well ... Depth of footpiece in well ...
10. STATIC WATER LEVEL ... feet reported, measured ... 19..
    above, below ...
    which is ... feet above, below the land surface.
11. PUMPING WATER LEVEL ... feet reported, measured ... 19..
    above, below ...
    which is ... feet above, below the land surface.
12. DISTANCE BETWEEN PUMPING LEVEL AND BOTTOM PUMP SUCTION ... Feet.
13. YIELD ... gal/min ... 19..
14. DRAWDOWN ... feet. SPECIFIC CAPACITY ... gal/foot of drawdown
15. QUALITY OF WATER ... Temp. ...
16. USE ... Household ... AMOUNT: Average ... gal/day
    ... Maximum ... gal/day
    ... Minimum ... gal/day
    Average number of hours a day well is in use ...
17. LOG. See reverse side ... Samples ...
18. SOURCE OF DATA ... W. Filer ...
19. DATA OBTAINED BY ... R.R.M. ... Date ... 1945 ...
20. REMARKS ...

Log:

0	- 10	Light red clay	10
10	- 20	Fine sand	10
20	- 35	Red clay	15
35	- 36	Sandstone	1
36	- 39	Red clay	3
39	- 40	Sandstone	1
40	- 46	Red clay	6
46	- 47	Sandstone	1
47	- 50	Red clay	3
50	- 51	Sandstone	1
51	- 63	Red clay	11
63	- 64	Sandstone	1
64	- 86	Red clay	22
86	- 87	Sandstone	1
87	- 90	Red clay	3
90	- 91	Sandstone, very hard	1
91	- 95	Yellow clay	4
95	- 96	Sandstone, very hard	1
96	- 102	Red clay	6
102	- 103	Cavity	
103	- 105	Coarse sand	

OFFICE NO._____ FIELD NO. Bal-Pr 7

United States
DEPARTMENT OF THE INTERIOR
Geological Survey
In cooperation with
MARYLAND DEPARTMENT OF GEOLOGY? MINES AND WATER RESOURCES

Location_____

WELL RECORD

1. OWNER.....ADDRESS.....Cape May Pt. Back River Neck
2. OWNER'S WELL NO.....DEPTH.....76
3. LOCATION.....SURFACE ELEVATION.....
4. DATE COMPLETED.....1943.....DRILLER.....Eiler
5. METHOD OF DRILLING.....Jetting
6. CASING RECORD 2" @ 76 feet
7. SCREEN RECORD
8. GEOLOGIC FORMATION
9. PUMPING EQUIPMENT
   Type Hand pump.....Capacity.....gal/min.
   How driven.....Horse power.....H.P.
   Depth of pump in well.....Depth of footpiece in well.....
10. STATIC WATER LEVEL 20' below surface.....feet reported measured.....
    above below
    which is.....feet above, below the land surface.
11. PUMPING WATER LEVEL.....feet reported, measured.....
    above, below.....
    which is.....feet above, below the land surface.
12. DISTANCE BETWEEN PUMPING LEVEL AND BOTTOM OF PUMP SUCTION.....feet
13. YIELD.....gal/min.....
14. DRAWDOWN.....feet. SPECIFIC CAPACITY.....gal/foot of drawdown
15. QUALITY OF WATER.....Temp.....
16. USE...Household..... AMOUNT: Average.....gal/day
    ..... Maximum.....gal/day
    ..... Minimum.....gal/day
    Average number of hours a day well is in use.....
17. LOG.....Samples.....
18. SOURCE OF DATA.....Eiler, Driller.....
19. DATA OBTAINED BY.....R.R.M.....Date September 1, 1944
20. REMARKS.....See field notes.....Log and data for well 500' away on reverse side

Log:

30' Sand
40' Red clay
8' Sand

Data for well 500' away:

W. L. 15' below surface
Casing 2" - 102'

Log:

15' Sand
86' Red clay
10' Sand

OFFICE NO._____ FIELD NO. Bal-Fc 11

United States
DEPARTMENT OF THE INTERIOR
Geological Survey
in cooperation with
MARYLAND DEPARTMENT OF GEOLOGY? MINES AND WATER RESOURCES

Location_____

WELL RECORD

1. OWNER..... ADDRESS Middleborough, Miles Rd.
2. OWNER'S WELL NO..... DEPTH 68
3. LOCATION..... SURFACE ELEVATION.....
4. DATE COMPLETED 1943 DRILLER Eiler
5. METHOD OF DRILLING Jetting
6. CASING RECORD 2"
7. SCREEN RECORD
8. GEOLOGIC FORMATION
9. PUMPING EQUIPMENT
   Type Hand pump Capacity ..... gal/min.
   How driven ..... Horse power ..... H.P.
   Depth of pump in well..... Depth of footpiece in well.....
10. STATIC WATER LEVEL..... feet reported, measured.....
    above, below.....
    which is ..... feet above, below the land surface.
11. PUMPING WATER LEVEL..... feet reported, measured.....
    above, below.....
    which is..... feet above, below the land surface.
12. DISTANCE BETWEEN PUMPING LEVEL AND BOTTOM OF PUMP SUCTION.....
13. YIELD..... gal/min.....
14. DRAWDOWN..... feet. SPECIFIC CAPACITY..... gal/foot of drawdown
15. QUALITY OF WATER..... Temp.....
16. USE Household AMOUNT: Average.....
    Maximum.....
    Minimum.....
    Average number of hours a day well is in use.....
17. LOG..... Samples.....
18. SOURCE OF DATA Eiler, driller
19. DATA OBTAINED BY R.R.M. Date September 1, 1944
20. REMARKS See field notes

Log:

15' Loamy sand
45' Red clay
8' Sand

OFFICE NO._____

United States
DEPARTMENT OF THE INTERIOR
Geological Survey
in cooperation with
MARYLAND DEPARTMENT OF GEOLOGY, MINES AND WATER RESOURCES

FIELD NO. Bal-Ff 16

Location_____

WELL RECORD

1. OWNER ...Mrs. Patterson.....ADDRESS.Miles Rd. Middleborough, Md.
2. OWNER'S WELL NO.....DEPTH.....140
3. LOCATION.By Eiler - approximate.....SURFACE ELEVATION....10
4. DATE COMPLETED.....1944.....DRILLER.....Eiler
5. METHOD OF DRILLING.....Jetting
6. CASING RECORD.....2 or 3 inch
7. SCREEN RECORD.....None
8. GEOLOGIC FORMATION
9. PUMPING EQUIPMENT
   Type.....Capacity.....gal/min.....
   How driven.....Horse power.....RPM.....
   Depth of pump in well.....Depth of footpiece in well.....
10. STATIC WATER LEVEL.....feet reported, measured.....19..
    above,below.....
    which is.....feet above, below the land surface.
11. PUMPING WATER LEVEL.....feet reported, measured.....19..
    above, below.....
    which is.....feet above, below the land surface.
12. DISTANCE BETWEEN PUMPING LEVEL AND BOTTOM PUMP SUCTION.....feet.
13. YIELD.....gal/min.....19..
14. DRAWDOWN.....feet. SPECIFIC CAPACITY.....gal/foot of drawdown
15. QUALITY OF WATER.....Temp.....
16. USE....Household..... AMOUNT: Average.....gal/day
    ..... Maximum.....gal/day
    ..... Minimum.....gal/day
    Average number of hours a day well is in use.....
17. LOG....See reverse side.....Samples.....at 140.....
18. SOURCE OF DATA.....W. Eiler.....
19. DATA OBTAINED BY.....R.R.M.....Date.....1945.....
20. REMARKS.....Well not visited.....

Log:

0	- 10	Coarse sand
10	- 20	Light red clay
20	- 34	Red clay
34	- 64	Fine sand
64	- 80	Light red clay
80	- 100	Hard gray clay
100	- 130	Loamy clay
130	- 140	Sand, changing to coarse

OFFICE NO._____

United States
DEPARTMENT OF THE INTERIOR
Geological Survey
in cooperation with
MARYLAND DEPARTMENT OF GEOLOGY, MINES AND WATER RESOURCES

FIELD NO. Bal-Ff 17

Location_____

WELL RECORD

1. OWNER ..R. Niller.....ADDRESS....Middleborough, Md.....
2. OWNER'S WELL NO.....DEPTH.....200.5.....
3. LOCATION.....By Eiler - approximate.....SURFACE ELEVATION....10.....
4. DATE COMPLETED.....1944.....DRILLER.....W. Eiler.....
5. METHOD OF DRILLING....Jetting.....
6. CASING RECORD.....2 or 3 inch.....
7. SCREEN RECORD.....None.....
8. GEOLOGIC FORMATION.....
9. PUMPING EQUIPMENT
   Type.....Capacity.....gal/min.....
   How driven.....Horse power.....RPM.....
   Depth of pump in well.....Depth of footpiece in well.....
10. STATIC WATER LEVEL.....feet reported, measured.....19..
    above, below.....
    which is.....feet above, below the land surface.
11. PUMPING WATER LEVEL.....feet reported, measured.....19..
    above, below.....
    which is.....feet above, below the land surface.
12. DISTANCE BETWEEN PUMPING LEVEL AND BOTTOM PUMP SUCTION.....feet.
13. YIELD.....gal/min.....19..
14. DRAWDOWN.....feet. SPECIFIC CAPACITY.....gal/foot of drawdown
15. QUALITY OF WATER.....Temp.....
16. USE.....Household..... AMOUNT: Average.....gal/day
    ..... Maximum.....gal/day
    ..... Minimum.....gal/day
    Average number of hours a day well is in use.....
17. LOG..See reverse side.....Samples.....at 200 feet.....
18. SOURCE OF DATA.....Eiler.....
19. DATA OBTAINED BY.....R.R.M.....Date.....1945.....
20. REMARKS....Well not visited.....

Log:

0 - 10	Sand
15 - 25	Light red clay
25 - 40	Red clay
40 - 42	White clay
42 - 58	Fine sand
58 - 60	Pink clay
60 - 80	Fine sand
80 - 82	Yellow clay
82 - 94	Fine sand
94 - 95	Pink clay
95 -105	Fine sand
105 -108	Light red clay
108 -119	Fine sand
119 -120	Light clay
120 -129	Fine sand
129 -130.5	Cavity
130.5 - 133.5	Pink clay
133.5 - 143.5	Fine sand
143.5 - 145.5	Yellow clay
145.5 - 153.5	Fine sand
153.5 - 156.5	Light red clay
156.5 - 160.5	Fine sand
160.5 - 170.5	Fine sand
170.5 - 172.5	White clay
172.5 - 180.5	Fine sand
180.5 - 183.5	White clay
183.5 - 190.5	Fine sand
190.5 - 194.5	White sand
194.5 - 199.5	Fine sand
199.5 - 200.5	Gravel

OFFICE NO._____

United States
DEPARTMENT OF THE INTERIOR
Geological Survey
in cooperation with
MARYLAND DEPARTMENT OF GEOLOGY, MINES AND WATER RESOURCES

FIELD NO. Bal-Ff 18

Location_____

WELL RECORD

1. OWNER Dr. Helldorfer ADDRESS Middleborough, Md.
2. OWNER'S WELL NO. DEPTH 176
3. LOCATION Piney Pt. SURFACE ELEVATION 10
4. DATE COMPLETED 1943 DRILLER Eiler
5. METHOD OF DRILLING Jetting
6. CASING RECORD 2 inch
7. SCREEN RECORD None
8. GEOLOGIC FORMATION
9. PUMPING EQUIPMENT
   Type Capacity gal/min
   How driven Horse power RPM
   Depth of pump in well Depth of footpiece in well
10. STATIC WATER LEVEL feet reported, measured 19..
    above, below
    which is feet above, below the land surface.
11. PUMPING WATER LEVEL feet reported, measured 19..
    above, below
    which is feet above, below the land surface.
12. DISTANCE BETWEEN PUMPING LEVEL AND BOTTOM PUMP SUCTION feet.
13. YIELD gal/min 19..
14. DRAWDOWN feet. SPECIFIC CAPACITY gal/foot of drawdown
15. QUALITY OF WATER Temp
16. USE Household AMOUNT: Average gal/day
    Maximum gal/day
    Minimum gal/day
    Average number of hours a day well is in use
17. LOG See reverse side Samples at 176
18. SOURCE OF DATA Eiler
19. DATA OBTAINED BY R.R.M. Date 1945
20. REMARKS Well visited during drilling operations

Log:

0	- 10	Coarse sand
10	- 16	Gray clay
16	- 17	Sandstone
17	- 21	Gray clay mixed with charcoal
21	- 33	Gray clay
33	- 35	Red clay
35	- 40	White clay
40	- 41	Fine sand
41	- 45	Brown clay
45	- 50	Orange clay
50	- 70	Fine sand
70	- 77	Light red clay
77	- 90	Fine sand
90	- 95	Light red clay
95	- 105	Fine sand
105	- 107	Red clay
107	- 151	Fine sand
151	- 152	Sandstone
152	- 154	Red clay
154	- 164	Light red clay
164	- 165	Gravel
165	- 170	Fine sand
170	- 171	Light clay
171	- 176	Coarse sand

OFFICE NO._____

United States
DEPARTMENT OF THE INTERIOR
Geological Survey
in cooperation with
MARYLAND DEPARTMENT OF GEOLOGY, MINES AND WATER RESOURCES

FIELD NO. Bal-Ff 20

Location_____

WELL RECORD

1. OWNER ....Mrs. Meyrs.....ADDRESS....Wilson Point.....
2. OWNER'S WELL NO.....DEPTH.....224.....
3. LOCATION..By Eiler - Approximate.....SURFACE ELEVATION....10.....
4. DATE COMPLETED.....1944.....DRILLER.....W. Eiler.....
5. METHOD OF DRILLING....Jetting.....
6. CASING RECORD.....2 or 3 inch.....
7. SCREEN RECORD.....None.....
8. GEOLOGIC FORMATION.....
9. PUMPING EQUIPMENT
   Type.....Capacity.....gal/min.....
   How driven.....Horse power.....RPM.....
   Depth of pump in well.....Depth of footpiece in well.....
10. STATIC WATER LEVEL.....feet reported, measured.....19..
    above, below.....
    which is.....feet above, below the land surface.
11. PUMPING WATER LEVEL.....feet reported, measured.....19..
    above, below.....
    which is.....feet above, below the land surface.
12. DISTANCE BETWEEN PUMPING LEVEL AND BOTTOM PUMP SUCTION.....feet.
13. YIELD.....gal/min.....19..
14. DRAWDOWN.....feet. SPECIFIC CAPACITY.....gal/foot of drawdown
15. QUALITY OF WATER.....Temp.....
16. USE..Household..... AMOUNT: Average.....gal/day
    ..... Maximum.....gal/day
    ..... Minimum.....gal/day
    Average number of hours a day well is in use.....
17. LOG.....See reverse side.....Samples.....at 224.....
18. SOURCE OF DATA...W. Eiler.....
19. DATA OBTAINED BY....R.R.M.....Date.....1945.....
20. REMARKS.....Well not visited.....

Log:

0	15	Red clay
15	22	Coarse sand
22	58	Red clay
58	61	Sandstone, First foot very hard
61	64	Fine sand
64	70	Red clay
70	74	Coarse sand
74	80	Red clay
80	84	Fine sand
84	94	Red clay
94	100	Fine sand
100	101	Sandstone, very hard
101	220	Red clay
220	224	Sandstone, first foot very hard
		Coarse sand

OFFICE NO._____

United States
DEPARTMENT OF THE INTERIOR
Geological Survey
in cooperation with
MARYLAND DEPARTMENT OF GEOLOGY, MINES AND WATER RESOURCES

FIELD NO. Bal-Ff 25

Location_____

WELL RECORD

1. OWNER .....ADDRESS....Cape May Rd. - Back River Neck
2. OWNER'S WELL NO. .....DEPTH.....102.....
3. LOCATION.....SURFACE ELEVATION....15.±.....
4. DATE COMPLETED...1943.....DRILLER.....Eiler.....
5. METHOD OF DRILLING.....
.....
6. CASING RECORD.....2 inch.....
.....
.....
7. SCREEN RECORD.....
.....
.....
8. GEOLOGIC FORMATION.....
9. PUMPING EQUIPMENT
   Type.....Capacity.....gal/min.....
   How driven.....Horse power.....RPM.....
   Depth of pump in well.....Depth of footpiece in well.....
10. STATIC WATER LEVEL.....18.....feet reported, ~~measured~~.....19..
   ~~above~~, below.....Land surface.....
   which is.....feet above, below the land surface.
11. PUMPING WATER LEVEL.....feet reported, measured.....19..
   above, below.....
   which is.....feet above, below the land surface.
12. DISTANCE BETWEEN PUMPING LEVEL AND BOTTOM PUMP SUCTION.....feet.
13. YIELD.....gal/min.....19..
14. DRAWDOWN.....feet. SPECIFIC CAPACITY.....gal/foot of drawdown
15. QUALITY OF WATER.....Temp.....
.....
.....
16. USE...Household..... AMOUNT: Average.....gal/day
.....Maximum.....gal/day
.....Minimum.....gal/day
   Average number of hours a day well is in use.....
17. LOG..See reverse side.....Samples.....
18. SOURCE OF DATA....W. Eiler.....
19. DATA OBTAINED BY.....R.R.M.....Date....9/1/44.....
20. REMARKS.....

Log:

0 - 15	Sand
15 -100	Red clay
100 -110	Sand

QUADRANGLE Middle River 7½ FIELD NO. Bal-Ff 36

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY P. 12,928
in cooperation with
MARYLAND DEPARTMENT OF GEOLOGY, MINES AND WATER RESOURCES

WELL RECORD

1. OWNER Mr. John Polek ADDRESS Middle River, Md.
2. OWNER'S WELL NO. DEPTH 60 ft.
3. LOCATION SURFACE ELEVATION 3 ft.
4. DATE COMPLETED 7/22/53 DRILLER H. H. Bunker, Jr.
5. METHOD OF DRILLING rotary
6. CASING RECORD 4" galv. pipe to 55 ft.
7. SCREEN RECORD 2" bronze screen 55 - 60 ft.
8. GEOLOGIC FORMATION
9. PUMPING EQUIPMENT
   Type jet Capacity 5 gal/min rept.
   How driven elec. Horse power R.P.M.
   Depth of pump in well 15 ft Depth of footpiece in well
10. STATIC WATER LEVEL 1 feet reported, measured July 1953
    above, below land surface
    which is feet above, below the land surface.
11. PUMPING WATER LEVEL 8 feet reported, measured July 1953
    above, below land surface
    which is feet above, below the land surface.
12. DISTANCE BETWEEN PUMPING LEVEL AND BOTTOM OF PUMP SUCTION ft.
13. YIELD rept. 60 gal/min on 1 hour test July 19 53
14. DRAWDOWN 7 ft. SPECIFIC CAPACITY 9± gal/min/foot of drawdown
15. QUALITY OF WATER See partial analysis Sample Yes
    Fe = 0.25 ppm Temp.
    pH = 6.4
16. USE Domestic AMOUNT Average gal/day
    Maximum gal/day
    Minimum gal/day
    Average number of hours a day well is in use
17. LOG (see over) Samples No
18. SOURCE OF DATA Compl. rept. and field observation
19. DATA OBTAINED BY E.O. DATE 5-7-54
20. REMARKS Well buried under lawn near main building in boatyard.

WELL LOG

Sand	0 - 3
Pink and white clay	3 - 8
Sand	8 - 10
White clay	10 - 15
Paint rock	15 - 17
Red clay	17 - 19
Gray clay	19 - 25
Red clay	25 - 30
Sand and clay	30 - 45
Sand	45 - 60

CHEMICAL ANALYSIS

SKETCH MAP

QUADRANGLE Middle River 7½ FIELD NO. Bal-Ff 39

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY P. 3940
in cooperation with
MARYLAND DEPARTMENT OF GEOLOGY, MINES AND WATER RESOURCES

WELL RECORD

1. OWNER Emil Horn ADDRESS
2. OWNER'S WELL NO. DEPTH 88 ft.
3. LOCATION Box 68C Wilson Pt. Rd. SURFACE ELEVATION 10± ft.
4. DATE COMPLETED May 1949 DRILLER MarylandDrilling Co.
5. METHOD OF DRILLING cable tool
6. CASING RECORD
   6" to 80 ft.
7. SCREEN RECORD 4 ft. of 6"(?) screen 84 to 88 ft.
   4 ft. of liner tube 80 to 84 ft.
8. GEOLOGIC FORMATION Patapsco fm.
9. PUMPING EQUIPMENT
   Type jet Capacity gal/min
   How driven electric Horse power R.P.M.
   Depth of pump in well Depth of footpiece in well
10. STATIC WATER LEVEL 3 feet reported, measured May 19 49
    above, below land surface
    which is feet above, below the land surface.
11. PUMPING WATER LEVEL feet reported, measured 19
    above, below
    which is feet above, below the land surface.
12. DISTANCE BETWEEN PUMPING LEVEL AND BOTTOM OF PUMP SUCTION ft.
13. YIELD 15 gal/min reported on bailer test May 1949
14. DRAWDOWN ft. SPECIFIC CAPACITY gal/min/foot of drawdown
15. QUALITY OF WATER See partial analysis Sample yes
    Temp.
16. USE domestic AMOUNT Average gal/day
    Maximum gal/day
    Minimum gal/day
    Average number of hours a day well is in use
17. LOG see over Samples No
18. SOURCE OF DATA Completion report and field observation
19. DATA OBTAINED BY E.O. DATE May 1954
20. REMARKS Located in pit at side of frame house

WELL LOG

Sandy earth	0 -	10
Gray clay	10 -	17
Sand	17 -	24
Red clay	24 -	50
Sand - some water	50 -	62
Red clay	62 -	69
Sand - water	69 -	88

CHEMICAL ANALYSIS

SKETCH MAP

WELL LISTING

MARYLAND GEOLOGICAL SURVEY

WATER RESOURCES BASIC DATA REPORT NO. 1

Kenneth N. Weaver, *Director*

RECORDS OF WELLS AND SPRINGS IN BALTIMORE COUNTY, MARYLAND

by

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UNITED STATES DEPARTMENT OF THE INTERIOR

in cooperation with the

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS

Baltimore, Maryland

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Introduction

Baltimore County is in north-central Maryland. It is bounded on the north by the Pennsylvania border, on the west by Carroll and Howard Counties, on the south by Baltimore City and the Chesapeake Bay and on the east by Harford County. About 80 percent of the area of Baltimore County lies in the Piedmont physiographic province. The remaining 20 percent of the area is in the Coastal Plain province. Baltimore City is not a political subdivision of Baltimore County, but is a political unit equivalent to a county. The county has a land area of 610 square miles, of which approximately 65 percent is used for agricultural purposes. The population of the county was 492,428 in 1960, most of which is concentrated in the urbanized areas adjacent to Baltimore City. Approximately 20 percent of the industry of Maryland is located in Baltimore County, and most of that is in the Coastal Plain segment.

This report presents well and spring records collected by the U.S. Geological Survey in cooperation with the Baltimore County Department of Public Works, and the Maryland Geological Survey. It makes available basic ground-water data that will be useful in the planning of water-resources development. The report is the result of an inventory of 5,265 wells and 48 springs. The fieldwork was done chiefly during 1952–54 and 1964-65. The basic source of the well information is the permits and completion reports furnished by the drillers to the Maryland Geological Survey during the period June 1945 to May 1964. Since 1964 well permits have been issued by the Maryland Department of Water Resources and a few wells included are based on records from this agency.

The earliest discussion of water resources of the area is in a report on the water resources of Maryland, Delaware, and the District of Columbia, by Clark, Mathews and Berry (1918, p. 413-420). The ground-water resources of the Coastal Plain part of the county were evaluated by R.R. Bennett and R. R. Meyer, and the results of that investigation were published as Bulletin 4 of the Maryland Department of Geology, Mines and Water Resources (1952, 573 p.).

The water resources of the County were studied extensively by R. J. Dingman, H. F. Ferguson and R.O.R. Martin, and the results of that study appear as Bulletin 17 of the Maryland Department of Geology, Mines and Water Resources (1956, 233 p.). The water resources of the Baltimore metropolitan area are described in U.S. Geological Survey publication, Water-Supply Paper 1499-F by E. G. Otton, R.O.R. Martin and W. H. Durum (1964, 105 p.).

Acknowledgments

The cooperation of the well drillers and well owners in supplying information is gratefully acknowledged. Thanks are due to personnel of the State and County agencies who assisted in providing the well-completion reports and the various plates and maps used. The support of Alfred B. Kaltenbach, Director of the Baltimore County Department of Public Works is acknowledged.

Special thanks are due to Mrs. Bettye Smith for the typing of the many pages of well tables and to Miss Catherine Manly for the able job of drafting.

Well-Numbering and Location System

The wells and springs inventoried are numbered according to a coordinate system in which the county is divided into 5-minute quadrangles of latitude and longitude designated from north to south in uppercase letters and from west to east in lowercase letters. The quadrangle designation is preceded by the abbreviation of the county name. To assist in locating a particular well, each 5-minute quadrangle is divided into four quarters designated NW, SW, SE, and NE. Thus, well Bal-Bc 25 NW is the twenty fifth well inventoried in quadrangle Bc and lies in the northwest quarter of the quadrangle.

Because of the large number of wells inventoried, a single map of the entire area could not be published on a usable scale that would show accurately the location of the wells. Therefore, a separate map was prepared to show wells and springs in each 5-minute quadrangle. In some cases, particularly in housing developments, the wells are so crowded they could not be mapped clearly on the 5-minute quandrangle. Therefore, wells in these developments are shown on a plat which is named on the 5-minute quadrangle. In cases where a development lies in more than one

5-minute quadrangle, the plat is designated as in the quadrangle containing the majority of wells in the development.

The source of the 5-minute quadrangle maps was the Baltimore County topographic map of the Maryland Geological Survey (original scale 1:62,500).

Records of inventoried wells are shown in table 3, which includes dry holes, test holes and water wells no longer in use. An exception to this is the Gf quadrangle, where more than 200 wells are known to have been drilled at the Bethlehem Steel Company plant at Sparrows Point. However, about 160 of these wells are now (1965) filled and abandoned, and the well location map of Sparrows Point shows only those wells known to be in existence in 1965. The locations of most of the filled and abandoned wells are shown in Maryland Department of Geology, Mines and Water Resources Bulletin 4 (1952, plate 4). The records of inventoried springs are in table 4. It is likely that other springs exist in the county of which no record is available.

General Geology and Hydrology

Baltimore County is underlain by crystalline rocks of Precambrian or early Paleozoic age, which are chiefly schist, gneiss and gabbro, with smaller amounts of quartzite, marble, granite, serpentine and dikelike intrusives of pegmatite and diabase. A mantle of disintegrated and decomposed rock overlies the fresh rock; in places this material is more than 100 feet thick, although average thickness is on the order of 20 to 30 feet.

Water commonly occurs in the crystalline rocks in joints, crevices, and related fractures. In the overlying mantle of weathered rock material water occurs in the pore spaces between the particles. Most of the ground water circulates in the more permeable mantle rock and in fractures in the upper part of the undecomposed rock. The upper few hundred feet of earth material thus constitutes the ground-water reservoir.

In the southeastern part of the county the crystalline rocks lie beneath Coastal Plain sediments which include the Patuxent Formation, the Arundel Clay, and the Patapsco Formation. These layered sediments dip to the southeast at a few tens of feet per mile forming a wedgelike mass which attains its maximum thickness of about 800 feet near Sparrows Point. Small areas near the southeast edge of the Piedmont are covered by strata of Cretaceous or Quaternary age which generally occur as isolated remnants capping hills.

In places thin deposits of gravel, sand and clay of Quaternary age cap hills, form valley-side terrace deposits, or occur as alluvium in the bottoms of valleys.

Water in the unconsolidated sedimentary deposits occurs in the pore spaces of the sand and gravel. Circulation of ground water is greatest in the permeable beds of sand and gravel, and least in the relatively impermeable beds of clay and sandy clay. Large volumes of ground water are stored in the sand and gravel aquifers, and these are tapped by many wells in the southeast part of the county.

The boundary between the Coastal Plain and Piedmont physiographic provinces is called the Fall Zone, which roughly coincides with the boundary between the crystalline rocks and the unconsolidated sediments.

Figure 1 is a generalized geologic map adapted from a similar map compiled by Dingman and Ferguson (1956, Pl. 3). The determination of the geologic units yielding water to wells and springs as shown on table 3 was made from a geologic map of Baltimore County published at a scale of 1:62,500 (1925). This map provides the basic knowledge of the geology of the area. Tables 1 and 2 describe the geologic units, their lithology and their water-bearing properties.

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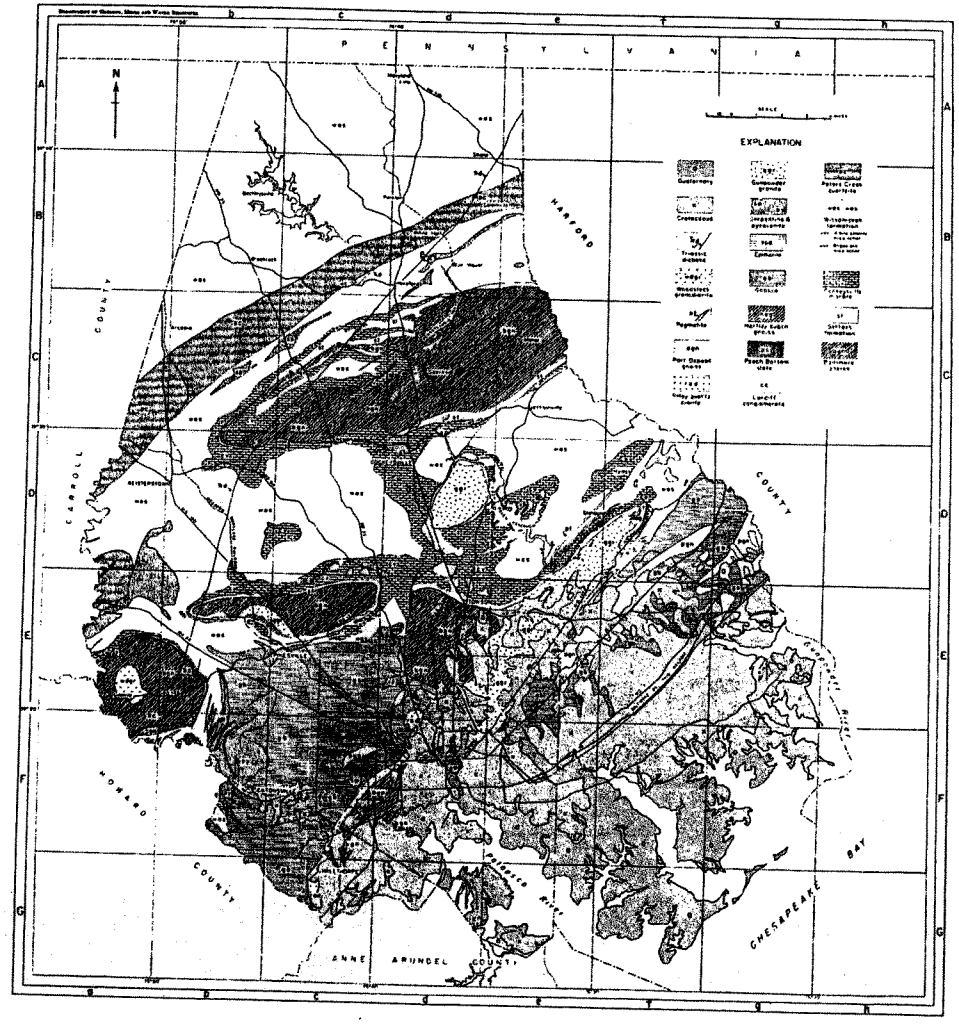


Figure 1—Generalized Geologic Map of Baltimore County

Table 1. Crystalline rocks in Baltimore County and their water-bearing properties[1]

Rock type	Geologic unit[2]	Map symbol	Lithology	Water-bearing properties
Schist	Wissahickon Formation, albite facies	was	Banded quartz-muscovite schist and phyllite with various mineralogic constituents. Relatively soft and easy to drill. Contains quartz layers up to 3 feet thick in places.	Domestic supplies available in most areas. Large supplies available only in a few places. Yields of wells are lowest on ridges, highest in valleys.
	Wissahickon Formation, oligoclase facies	wos		
Gneissic and Granitic rocks (including pegmatites)	Baltimore Gneiss	bgn	Gneissic rocks are banded or foliated, highly crystalline and contain much biotite. Granitic rocks are massive, highly siliceous, and gneissic. Drill-properties variable; siliceous zones drill hard.	Domestic well supplies available almost everywhere.
	Gunpowder Granite	ggr		
	Port Deposit Gneiss	pgn		
	Woodstock Granodiorite	wdgr		
	Hartley Augen Gneiss	hag		
	Relay Quartz Diorite of Knopf and Jonas (1929)	rgd		
Gabbro	Gabbro	gb	Gabbroic rocks are dark, massive and hard. Unweathered gabbro difficult to drill. Greenish, soft and in places highly fractured.	Domestic supplies available almost everywhere. Weathered zone thin and clayey. Well yields may decline in summer.
Serpentine	Serpentine	sp		
Marble	Cockeysville Marble	cv	Coarsely crystalline white marble and limestone; dolomitic in places. Weathers to more than 50 feet locally. Relatively soft and easy to drill.	Probably the best crystalline rock aquifer. Moderately large supplies available in some areas.
Quartzite	Peters Creek Quartzite	pc	Coarse-grained quartzite with associated mica schist and gneiss. Siliceous zones hard to drill.	Domestic supplies available almost everywhere. Larger supplies available in some areas.
	Setters Formation	st		

[1] Adapted from p. 8–9, Dingman and Ferguson, 1956.
[2] Not in order of superposition.

Table 2. Sedimentary rocks in Baltimore County and their water-bearing properties[1]

System	Series	Group	Geologic unit	Map symbol	Physical character	Water-bearing properties
Quaternary	Recent and Pleistocene		Lowland deposits	Q	Gray clay, sand and gravel.	May yield large quantities to wells where recharge can be induced from nearby streams.
			Upland deposits		Clay, sand and gravel.	Not an important aquifer because of limited areal extent.
Cretaceous	Upper Cretaceous	Potomac	Patapsco Formation		Lenticular beds of sand, variegated clay and gravel.	Yields large supplies of water to drilled wells in industrial area.
			Arundel Clay	K	Gray to red clay with some indurated layers of ironstone.	Not an important water-bearing formation.
	Lower Cretaceous		Patuxent Formation		Lenticular beds of sand, silt and clay.	Largest producer of water in Baltimore County. Wells yield up to 1,000 gpm in industrial area.

[1] Adapted from p. 7, Dingman and Ferguson, 1956.

Abbreviations Used in Tables 3 and 4

Pumping equipment

A = Airlift
B = Bucket
C = Cylinder
J = Jet
NI = (Not installed)
Sb = Submersible
Sc = Suction
T = Turbine

Use of water

C = Commercial (stores, gas stations, restaurants, etc.)
D = Domestic (homes)
Ind = Industrial (manufacturing, etc.)
Ins = Institutional (schools, churches, convents, etc.)
Irr = Irrigation
M = Military
N = None
PS = Public supply
S = Stock

Type of power

E = Electricity
G = Gasoline
H = Hand

Example: Sb,E (submersible, electric)

Water level or depth

^{m} = Measured (depth, altitude, water level)

Example: 32.65^{m}

Note: Altitudes of the wells were estimated from U.S. Geological Survey 7½-minute topographic quadrangles, except where a higher degree of accuracy is indicated.

Use of Maps with Tables

Well-location maps follow the well and spring tables and are arranged by 5-minute quadrangles in alphabetical order; the development maps follow quadrangles in which they are located.

Table 3. Records of Wells in Baltimore County—Continued

Well number Bal-	State permit number	Owner or name	Driller	Date completed	Altitude (feet)	Type of well	Depth of well (feet)	Diameter of well (inches)	Length of casing (feet)
Ef 1 SW	-	Baltimore Brick Co.	——	1900	90	Drilled	87	6	-
Ef 2 SW	-	do.	——	-	90	do.	90	6	
Ef 3 SW	-	do.	——	-	90	do.	-	-	-
Ef 4 SW	-	—— Kruse	G. E. Harr Sons	1944	125	do.	123	6	123
Ef 5 SW	-	Joseph Foreacre	do.	1944	125	do.	138	6	138
Ef 6 SW	-	do.	——	-	130	Dug	12	-	-
Ef 7 SW	-	Louis Madl	——	-	105	do.	91.4[m]	48	-
Ef 8 SW	-	——	G. E. Harr Sons	1944	105	Drilled	115	6	115
Ef 9 NE	-	——	W. H. Eiler	1943	120	do.	134	2	-
Ef 10 SE	-	——	do.	1943	60	do.	135	2	90
Ef 11 SE	-	H. T. Campbell & Sons	G. E. Harr Sons	1944	70	do.	199	6	112
Ef 12 SW	-	Joseph J. Hofmeister	do.	1944	140	do.	128	6	128
Ef 13 SE	-	H. T. Campbell & Sons	——	1942	20	do.	385	6	-
Ef 14 SW	-	John H. Kopleman	—— Hoshall	1921	40	do.	227	6	-
Ef 15 SW	-	——	——	1904	80	do.	52	6	-
Ef 16 SW	-	——	——	-	100	Dug	7.5[m]	36	-
Ef 17 SW	-	——	——	-	100	do.	36.5[m]	36	-
Ef 18 SW	-	John R. Dodson	——	-	120	Dug & Drilled	92	-	92
Ef 19 SE	-	United Clay Mines Corp.	——	1933	100	Drilled	66	6	-
Ef 20 SE	-	H. T. Campbell & Sons	G. E. Harr Sons	1944	80	do.	492	6	139.5
Ef 21 SE	-	do.	——	-	80	do.	400(?)	-	-
Ef 22 SE	-	—— Shiebeck	W. H. Eiler	1943	60	do.	105	3	-
Ef 23 SE	21	C. H. Scheeler	do.	1945	85	do.	59	2	-
Ef 24 NE	7681	Herbert LaBudd	G. E. Harr Sons	1951	180	do.	210	6	-
Ef 25 NW	5136	H. V. Scheide	Maryland Drilling Co.	1949	240	do.	155	6	67
Ef 26 NE	10999	A. Reichert	Werneke Bros.	1952	250	do.	62	6	50
Ef 27 NE	-	do.	——	1927	250	do.	40	36	-
Ef 28 NW	1837	Nicholas Regert	Maryland Drilling Co.	1947	280	do.	83	6	38
Ef 29 NE	4678	F. M. Gambrill	G. E. Harr Sons	1949	240	do.	75	6	23
Ef 30 NE	8177	William E. Bauscher	Werneke Bros.	1951	100	do.	160	6	100
Ef 31 NW	7266	William Gross	G. E. Harr Sons	1951	160	do.	255	6	152
Ef 32 NW	7049	Baltimore Gas & Electric Co.	——	1950	320	do.	196	6	-
Ef 33 NW	10266	Harry Bickford	Howard Dillon	1952	300	do.	76	6	45
Ef 34 NE	3582	Little Chef Restaurant	Maryland Drilling Co.	1948	20	do.	122	6	76
Ef 35 NE	3660	Thomas Digregorio	do.	1949	150	do.	53	6	46
Ef 36 NW	1904	—— Woods	do.	1947	240	do.	80	6	57
Ef 37 NW	-	Herbert Kline	——	-	290	Dug	10	48	-

Water-bearing formation or unit	Water level (feet below land surface) Static	Pumping	Date	Pumping equipment	Yield (gpm)	Date	Length of test (hours)	Specific capacity (gpm/ft)	Use of water	Remarks	Well number Bal-
Kpx	-	-	-	C,E	50	1944	-	-	Ind		Ef 1 SW
do.	31.30[m]	-	4/25/44	N	-	4/25/44	-	-	N		Ef 2 SW
-	-	-	-	N	-	-	-	-	N		Ef 3 SW
Kpx	-	-	-	-,E	10	8/-/44	-	-	D		Ef 4 SW
do.	106	-	8/-/44	-,H	15	8/-/44	-	-	D		Ef 5 SW
Kpm	-	-	-	-,H	-	-	-	-	D	Dry in 1943-44.	Ef 6 SW
pKx	90.8[m]	-	8/23/44	C,E	-	-	-	-	D		Ef 7 SW
do.	80	-	8/31/44	-,H	-	-	-	-	D		Ef 8 SW
do.	-	-	-	-,H	-	-	-	-	N		Ef 9 NE
Kpx(?)	30	-	1943	C,H	-	-	-	-	D		Ef 10 SE
gb	-	-	-	NI	1.5	9/-/44	-	-	D		Ef 11 SE
Kpx	99.5	-	9/-/44	-,H	-	-	-	-	D		Ef 12 SW
gb	-	-	-	C,E	-	-	-	-	Ind		Ef 13 SE
Kpx	-	-	-	-	15	1921	-	-	-		Ef 14 SW
-	52	-	1904	C,E	-	-	-	-	D		Ef 15 SW
Kpx	7.13[m]	-	11/18/44	N	-	-	-	-	N	Observation well.	Ef 16 SW
do.	36.46[m]	-	11/18/44	N	-	-	-	-	N		Ef 17 SW
do.	81	-	11/18/44	-	-	-	-	-	D		Ef 18 SW
do.	60.05[m]	-	11/18/44	N	-	-	-	-	N	Observation well.	Ef 19 SE
gb	37.18[m]	-	11/1/44	-	24	10/25/44	-	-	D,F		Ef 20 SE
do.	-	-	-	-	4	1944	-	-	D		Ef 21 SE
Kpm	-	-	-	-	-	-	-	-	D		Ef 22 SE
do.	-	-	-	-	-	-	-	-	D		Ef 23 SE
gb	60	-	4/20/51	C,E	.5	4/20/51	-	-	D		Ef 24 NE
do.	50	-	12/-/49	C,E	2.5	12/-/49	-	-	D		Ef 25 NW
do.	30	50	9/18/52	J,E	1	9/18/52	1	0.05	D		Ef 26 NE
do.	27.34[m]	-	2/25/53	C,E	-	-	-	-	S	Reported contaminated.	Ef 27 NE
do.	35	-	4/12/47	C,E	-	-	-	-	D		Ef 28 NW
do.	37	60	11/1/49	C,E	.5	11/1/49	2	.02	D		Ef 29 NE
do.	60	130	7/7/51	C,E	1	7/7/51	2	.01	D		Ef 30 NE
do.	50	200	2/3/51	C,E	.5	2/3/51	3	.00	D		Ef 31 NW
pgn	3	120	11/25/50	J,E	4	11/25/50	12	.03	C		Ef 32 NW
Kpx	5	-	5/15/52	J,E	-	-	-	-	D		Ef 33 NW
gb	8	-	2/-/48	J,E	4	2/-/48	-	-	C		Ef 34 NE
do.	36	-	4/-/49	J,E	-	-	-	-	D		Ef 35 NE
pgn	14	-	9/30/47	J,E	-	-	-	-	D	9004 Hines Road.	Ef 36 NW
Kpx	-	-	-	Sc,E	-	-	-	-	D		Ef 37 NW

V = wells in survey area

Table 3. Records of Wells in Baltimore County—Continued

Well number Bal-	State permit number	Owner or name	Driller	Date completed	Altitude (feet)	Type of well	Depth of well (feet)	Diameter of well (inches)	Length of casing (feet)	Water-bearing formation or unit	Water level (feet below land surface) Static	Pumping	Date	Pumping equipment	Yield (gpm)	Date	Length of test (hours)	Specific capacity (gpm/ft)	Use of water	Remarks	Well number Bal-
Ff 1 NW	-	City of Baltimore Sewage Disposal Plant	—— Hoshall	1909	20	Drilled	156	6	-	Kpx	43.44	-	3/1/45	-	14	-	-	-	N		Ff 1 NW
Ff 2 SW	-	Richard Scott	——	-	20	Dug	14	48	-	Qt	10	-	1943	-	-	-	-	-	D		Ff 2 SW
Ff 3 SW	-	—— Diehl	——	1900	25	Drilled	65	8	-	Kpx	24	-	-	-	-	-	-	-	D		Ff 3 SW
Ff 4 SW	-	do.	——	1875	25	Dug	25	-	-	Qt	20	-	-	H	-	-	-	-	D		Ff 4 SW
Ff 5 SW	-	George G. Stratman	—— Hoshall	1932	25	Drilled	28	-	-	Kps	-	-	-	-	-	-	-	-	N		Ff 5 SW
Ff 6 SW	-	do.	——	-	25	do.	180	6	-	do.	20	-	-	H	-	-	-	-	-		Ff 6 SW
Ff 7 NE	-	——	—— Eiler	1943	10	do.	76	2	-	do.	12	-	-	H	-	-	-	-	D		Ff 7 NE
Ff 8 SE	-	——	do.	1943	20	do.	57	2	-	do.	11	-	-	H	-	-	-	-	D		Ff 8 SE
Ff 9 SE	-	—— Thomas	do.	1943	10	do.	90	2	-	do.	12	-	-	H	-	-	-	-	D		Ff 9 SE
Ff 10 SW	-	Joe Mariettes Farm	do.	1943	20	do.	51	2	-	do.	-	-	-	H	-	-	-	-	D		Ff 10 SW
Ff 11 NE	-	——	do.	1943	20	do.	68	2	-	do.	-	-	-	H	-	-	-	-	D		Ff 11 NE
Ff 12 SW	-	H. B. Stengel	——	-	20	do.	100	-	-	do.	-	-	-	H	-	-	-	-	D		Ff 12 SW
Ff 13 NW	-	Hollywood Park Inn	—— Newkirk	1911	6	do.	133	-	-	do.	-	-	-	H	-	-	-	-	D		Ff 13 NW
Ff 14 NW	-	——	——	-	85	Dug	10	36	-	Kpx	10	-	-	N	-	-	-	-	D		Ff 14 NW
Ff 15 SE	-	—— Thomas	G. E. Harr	1944	8	Drilled	216	6	216	Kps	4	-	11/18/44	-	60	-	-	-	D		Ff 15 SE
Ff 16 NE	-	Mrs. Patterson	—— Eiler	1944	10	do.	140	-	-	Kpx	22.43[m]	-	11/15/44	-	-	-	-	-	D		Ff 16 NE
Ff 17 NE	-	R. Niller	do.	1944	10	do.	200	-	-	-	-	-	-	-	10-	-	-	-	D		Ff 17 NE
Ff 18 NE	-	Dr. Helldorfer	do.	1943	10	do.	176	2	-	-	-	-	-	-	15	-	-	-	D		Ff 18 NE
Ff 19 SE	-	Evergreen Park	do.	1944	10	do.	40	-	-	Kpx	-	-	-	-	-	-	-	-	D		Ff 19 SE
Ff 20 NE	-	Mrs. Meyers	do.	1944	10	do.	224	-	-	do.	-	-	-	-	-	-	-	-	D		Ff 20 NE
Ff 21 SE	-	Mr. Yeatmen	do.	1944	10	do.	90	-	-	Kps	-	-	-	-	-	-	-	-	D		Ff 21 SE
Ff 22 SW	-	Roy Zang	do.	1944	10	do.	67	-	-	Kpx	-	-	-	-	-	-	-	-	D		Ff 22 SW
Ff 23 SW	-	Mr. Smith	do.	1944	10	do.	73	-	-	Qt	-	-	-	-	-	-	-	-	D		Ff 23 SW
Ff 24 SW	-	Battle Park	do.	1944	10-20	do.	232	6	-	Kps	-	-	-	-	-	-	-	-	D		Ff 24 SW
Ff 25 NE	-	——	Shannahan Artesian Well Co.	1924	10	do.	102	2	-	do.	-	-	-	-	-	-	-	-	D		Ff 25 NE
Ff 26 SW	-	Baltimore Holding Co.	—— Eiler	1943	15	do.	215	6	-	Kpx	-	-	-	-	90	-	-	-	N		Ff 26 SW
Ff 27 SW	-	do.	—— Dietz	1926	15	do.	215	6	-	Kps	18	-	1943	-	-	-	-	-	D		Ff 27 SW
Ff 28 SW	-	I. J. Bolton Co.	do.	1927	10	do.	215	6	-	Kpx	60	-	1945	-	-	-	-	-	PS		Ff 28 SW
Ff 29 SW	-	do.	——	1939	10	do.	91	6	-	do.	-	57.5	4/23/45	-	60	1927	-	-	PS	Screened from 205 feet to 215 feet.	Ff 29 SW
Ff 30 NW	-	Essex School	——	1937	10	do.	90	6	-	Kps	3.87	-	5/2/45	-	8	1945	-	-	N	do.	Ff 30 NW
Ff 31 NW	-	do.	——	1916	15	do.	-	-	-	do.	-	-	-	-	50	-	-	-	N	Screened from 80 feet to 90 feet.	Ff 31 NW
Ff 32 NW	-	do.	——	1922	15	do.	135	-	-	do.	-	-	-	-	50	-	-	-	N	do.	Ff 32 NW
Ff 33 NE	-	W. H. Eiler	——	-	15	do.	-	-	-	do.	-	-	-	-	-	-	-	-	N		Ff 33 NE
Ff 34 SE	-	Board of Education	—— Eiler	1943	18	do.	100	-	-	do.	-	-	-	-	-	-	-	-	N		Ff 34 SE
Ff 35 NW	-	Carl Csplan	——	1943	30	do.	341	8-6	-	do.	42.26[m]	-	1/25/46	-	-	-	-	-	PS		Ff 35 NW
Ff 36 NE	12928	John Polek	Ralph Ault	1953	20	do.	64	6	49	Kpx	35.26[m]	-	1/25/46	-	-	-	-	-	PS		Ff 36 NE
Ff 37 NW	4440	William Diesel	H. H. Burker	1953	3	do.	60	4	55	Qt	29	43	1953	-	25	-	-	-	-	Screened from 331 feet to 341 feet.	Ff 37 NW
Ff 38 NW	4990	Carlo Perseghin	Maryland Drilling Co.	1949	20	do.	64	6	59	Kps	1	8	7/-/53	-	50	-	10	3.57	C	do. 50 feet to 60 feet.	Ff 38 NW
Ff 39 NE	3940	Emil Horn	do.	-	30	do.	144	6	137	do.	29	42	6/-/49	-	60	-	1	8.56	-	do. 55 feet to 60 feet.	Ff 39 NE
			do.	1949	10	do.	88	6	80	do.	32	-	11/-/49	J,E	5	6/-/49	1	.38	-	do. 60 feet to 64 feet.	
										do.	3	-	5/-/49	J,E	15	11/-/49	-	-	D	do. 137 feet to 141 feet.	
															15	-	-	-	D	do. 84 feet to 88 feet.	

CHEMICAL DATA

Department of Natural Resources
MARYLAND GEOLOGICAL SURVEY
Kenneth N. Weaver, Director

WATER RESOURCES
BASIC-DATA REPORT NO. 10

MARYLAND GROUND-WATER INFORMATION:

CHEMICAL QUALITY DATA

compiled by
RICHARD S. WOLL

Prepared in cooperation with the
UNITED STATES GEOLOGICAL SURVEY
Department of the Interior

1978

Table 1.—Geologic unit codes used in this report.

Geologic Age	Code		Geologic Unit
Quaternary	110	QRNR	Quaternary System
	110	ALVM	Alluvium
Pleistocene	112	PLSC	Pleistocene Series
	112	SLBR	Salisbury aquifer
	112	TLBT	Talbot Formation
	112	UPLD	Upland Deposits
Miocene	122	CLVR	Calvert Formation
	122	CPNK	Choptank Formation
	122	MNKN	Manokin aquifer
	122	MOCN	Micene Series
	122	PCMK	Pocomoke aquifer
	122	YRKN	Yorktown Formation
Eocene	124	EOCN	Eocene Series
	124	NNJM	Nanjemoy Formation
	124	PNPN	Piney Point Formation
Paleocene	125	AQUI	Aquia Formation
	125	PLCN	Paleocene Series
Cretaceous	210	CRCS	Cretaceous System
Upper Cretaceous	211	CRCSU	Upper Cretaceous Series
	211	MGTY	Magothy Formation
	211	MLRL	Mount Laurel Sand
	211	MNMT	Monmouth Formation
	211	MTWN	Matawan Formation
	211	RRTN	Raritan Formation
Lower Cretaceous	217	CRCSL	Lower Cretaceous
	217	NNMR	Nonmarine Cretaceous Series
	217	PPSC	Patapsco Formation
	217	PTMC	Potomac Group
	217	PTXN	Patuxent Formation
Upper Triassic	231	DIBS	Diabase dikes and sills
	231	GBRG	Gettysburg Shale
	231	NOXF	New Oxford Formation
	231	NOXFB	New Oxford Formation basal conglomerate
Paleozoic	300	BLDR	Boulder Gneiss
	300	BLMR	Baltimore Gabbro Complex
	300	CCKV	Cockeysville Marble
	300	ELCC	Ellicott City Granodiorite
	300	GPDR	Gunpowder Granite
	300	IJVM	Ijamsville Formation—Marburg Schist
	300	LBRN	Libertytown Metarhyolite
	300	LPLC	Lower pelitic schist
	300	MBAB	Metagabbro and amphibolite
	300	MCGM	Metaconglomerate
	300	MGCK	Metagraywacke
	300	MQMG	Muscovite quartz monzonite gneiss
	300	MRBG	Marburg Schist
	300	PGMT	Pegmatite dikes
	300	PLZC	Paleozoic Erathem
	300	PRDP	Port Deposit Gneiss

Table 1.—Geologic unit codes used in this report (continued).

Geologic Age	Code		Geologic Unit
	300	PZPC	Early Paleozoic-Late Precambrian Erathem
	300	SMCK	Sams Creek Metabasalt
	300	STRS	Setters Formation
	300	UFGB	Ultramafic and gabbroic rocks
	300	UMFC	Ultramafic rocks
	300	UPPC	Upper pelitic schist
	300	URBN	Urbana Formation
	300	WKFD	Wakefield Marble
	300	WSCK	Wissahickon Formation
Upper Pennsylvania	321	CNMG	Conemaugh Formation
Middle Pennsylvania	324	PVAG	Pottsville-Allegheny Formations
Upper Mississippian	331	GRBR	Greenbrier Formation
Lower Mississippian	337	POCN	Pocono Group
Upper Devonian	341	DVNNU	Upper Devonian Series
	341	HMPR	Hampshire Formation
Middle Devonian	344	DVNNM	Middle Devonian Series
Lower Devonian	347	ORSK	Oriskany Group
Upper Silurian	351	WLCK	Wills Creek Shale
	351	TNLY	Tonoloway Limestone
Middle Silurian	354	RSHL	Rose Hill Formation
Ordovician	360	PCBM	Peach Bottom Slate
Upper Ordovician	361	MRBG	Martinsburg Shale
Middle Ordovician	364	STPL	St. Paul Group
Lower Ordovician	367	GROV	Grove Limestone
	367	RCKR	Rockdale Run Formation
	367	SNNG	Stonehenge Limestone
Upper Cambrian	371	CCCG	Conococheague Limestone
	371	CMBRU	Upper Cambrian Series
	371	ELBK	Elbrook Formation
Lower Cambrian	377	ANTM	Antietam Formation
	377	FDCK	Frederick Limestone
	377	HRPR	Harpers Formation
	377	LUDN	Loudoun Formation
	377	TMSN	Tomstown Dolomite
	377	WSBR	Waynesboro Formation
	377	WVRN	Weverton Formation
Precambrian	400	CTCN	Catoctin Metabasalt
	400	GBGG	Granodiorite and biotite granite gneiss
	400	JMSR	James Run Gneiss
	400	MTRL	Metarhyolite and associated pyroclastic sediments
	400	PCMP	Precambrian Erathem

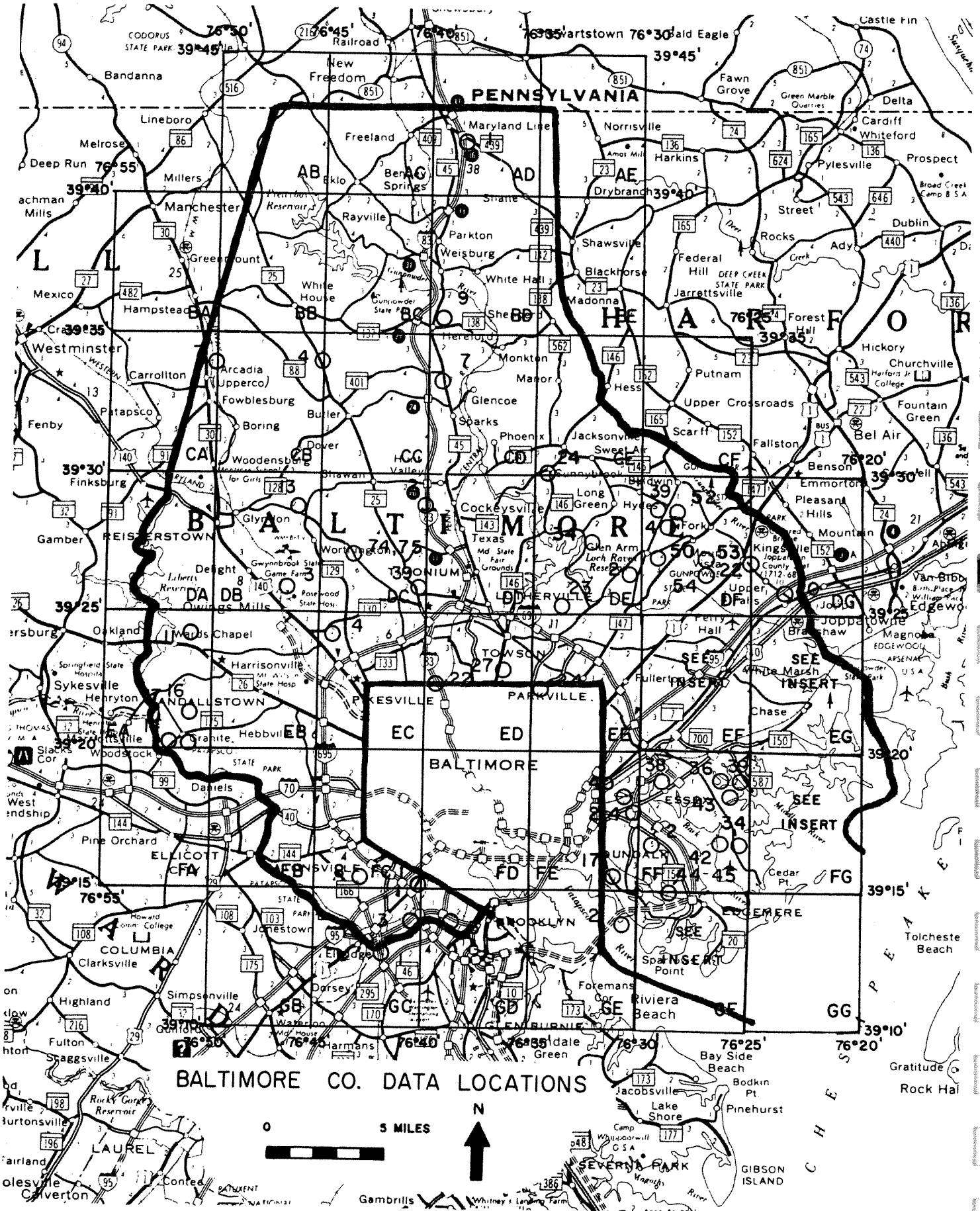
UNITS OF MEASUREMENTS APPEARING IN TABLES

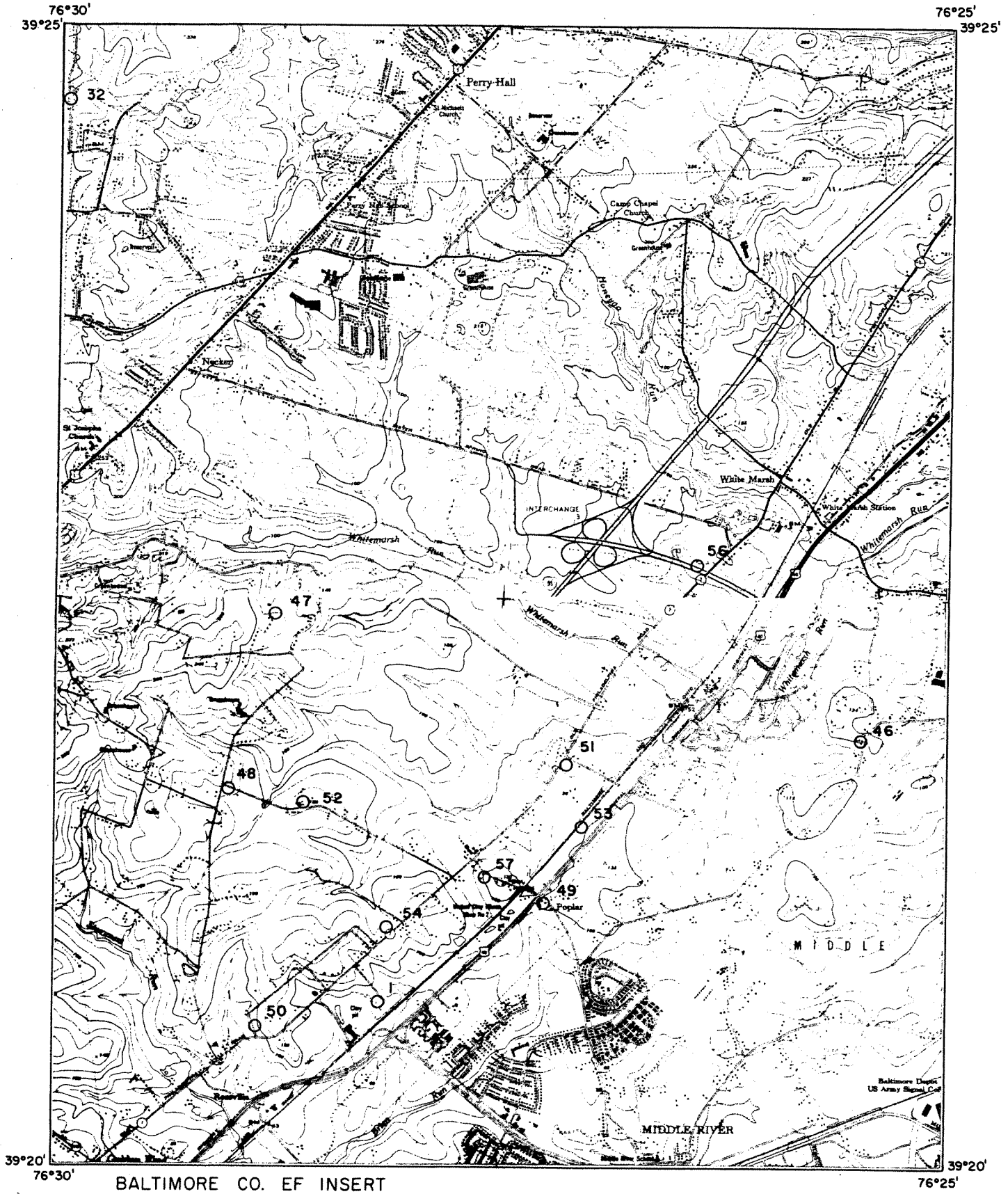
Milligrams per liter (MG/L) and micrograms per liter (UG/L) are units for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the weight (milligrams) of solute per unit volume (liter) of water. Micrograms per liter represent the weight (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter. Milligrams or micrograms per liter may be converted to milliequivalents (one thousandth of a gram—equivalent weight of a constitutent) per liter by multiplying by the factors in table 2.

Table 2 — Factors for converting milligrams per liter to milliequivalents per liter.

Ion	Multiply by
Aluminum (Al^{+3})*	0.11119
Ammonia as NH^{+1}	.05544
Bicarbonate (HCO_3^{-1})	.01639
Calcium (Ca^{+2})	.04990
Carbonate (CO_3^{-2})	.03333
Chloride (Cl^{-1})	.02821
Chromium (Cr^{+6})*	.11539
Cobalt (Co^{+2})*	.03394
Copper (Cu^{+2})*	.03148
Cyanide (CN^{-1})	.03844
Fluoride (F^{-1})	.05264
Hydrogen (H^{+1})	.99209
Iron (Fe^{+3})*	.05372
Lead (Pb^{+2})*	.00965
Magnesium (Mg^{+2})	.08226
Manganese (Mn^{+2})*	.03640
Nickel (Ni^{+2})*	.03406
Nitrate (NO_3^{-1})	.01613
Nitrite (NO_2^{-1})	.02174
Phosphate (PO_4^{-3})	.03159
Potassium (K^{+1})	.02557
Sodium (Na^{+1})	.04350
Sulfate (SO_4^{-2})	.02082
Zinc (Zn^{+2})*	.03060

*Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000 to obtain milliequivalents per liter.


BALTIMORE CO. DATA LOCATIONS
0
5 MILES
N
PENNSYLVANIA
BALTIMORE
BALTIMORE
PARKVILLE
TOWSON
REISTERSTOWN
RANDALLSTOWN
ELLICOTT
COLUMBIA
LAUREL
BROOKLYN
EDGEMERE
SEVERNA PARK
GIBSON ISLAND
Bay Side Beach
Riviera Beach
Lake Shore
Pinehurst
Jacobsville
Gambrills
Catonsville
Arbutus
Halethorpe
Baltimore-Washington Int'l Airport
Glen Burnie
Linthicum
Hanover
Elkridge
Dorsey
Jessup
Maryland Line
Freeland
Parkton
Shawsville
Blackhorse
Jarrettsville
Monkton
Manor
Hess
Putnam
Upper Crossroads
Fallston
Bel Air
Forest Hall
Hickory
Churchville
Benson
Emmorton
Pleasant Hills
Kingsville
Joppatowne
Edgewood
Magnolia
Chase
Cedar Pt.
Tolchester Beach
Gratitude
Rock Hall
Fawn Grove
Delta
Cardiff
Whiteford
Pylesville
Prospect
Dublin
Rocks
Ady
Street
Harkins
Norrisville
Drybranch
Federal Hill
Deep Creek State Park
Madonna
White Hall
Sheldon
Hereford
Glencoe
Sparks
Phoenix
Jacksonville
Sweet Air
Long Green
Hydes
Cockeysville
Texas
Glen Arm
Loch Raven Reservoir
Prettyboy Reservoir
Rayville
Weigsburg
Millers
Manchester
Deep Run
Melrose
Lineboro
New Freedom
Railroad
Bandanna
Codorus State Park
Hampstead
Mexico
Westminster
Carrollton
Arcadia (Upperco)
Fowblesburg
Boring
Patapsco
Fenby
Finksburg
Gamber
Oakland
Mills
Wards Chapel
Harrisonville
Sykesville
Henryton
Hebbville
Granite
Woodstock
Daniels
Pine Orchard
Clarksville
Highland
Simpsonville
Fulton
Guilford
Waterloo
Harmans
Dorsey
Jessup
Elkridge
Meadow
Green
Fairland
Burtonsville
Calverton
Cantee
Rocky Gorge Reservoir
Patuxent
Whitney's Landing Farm
Camp Whippoorwill
Waugh
Fokemans Cor
Spa Point
Edgemere
Tolchester Beach
Gratitude
Rock Hall
Bodkin Pt
Jacobsville
Lake Shore
Pinehurst
Bay Side Beach
Riviera Beach



BALTIMORE CO. EF INSERT

1 1/2 0 1 Mile

1000 0 1000 2000 3000 4000 5000 6000 7000 Feet

1 5 0 1 Kilometer

TABLE 7 BALTIMORE CO. GROUND WATER QUALITY

DATA SITE		GEO-LOGIC UNIT	DATE OF SAMPLE	ELEV. OF LAND SURFACE DATUM (FT. ABOVE MSL)	DEPTH TO BOT-TOM OF SAMPLE INTER-VAL (FT)	DIS-SOLVED SILICA (SIO2) (MG/L)	TOTAL ALUM-INUM (AL) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
AD	1	300WSCK	51-03-09	790	125	7.2	600	30	30	2.8	1.1	1.7	.4	14	.2
BD	9	300WSCK	53-05-06	610	308	9.2	<50	70	20	2.8	1.1	3.1	1.4	22	1.9
CA	7	300WSCK	54-05-12	810	223	14	<50	160	20	3.1	1.2	3.3	.8	21	1.2
CB	4	300WSCK	53-05-04	660	90	14	400	120	20	5.4	1.3	3.4	.8	27	1.6
CD	7	300STRS	54-05-12	680	90	25	<50	<5	<5	4.6	3.5	6.9	2.8	35	1.4
CE	24	300PLTCL	60-05-12	564	350	19	--	--	--	6.5	4.3	--	--	26	16
DB	3	300PLTCL	53-05-04	570	180	15	100	2100	10	5.2	1.9	2.5	1.1	24	2.0
DB	13	300CCKV	54-05-11	420	--	9.4	<50	40	20	31	6.9	1.9	1.0	125	2.6
DC	39	300PLTCL	53-05-08	430	148	12	200	70	<5	3.5	.1	2.7	.8	15	2.2
DC	74	300PLTCL	60-07-10	667	400	31	--	--	--	8.5	2.6	--	--	45	9.6
DC	75	300PLTCL	60-07-05	664	350	28	--	--	--	4.5	2.2	--	--	28	4.0
DE	2	300CCKV	53-05-05	260	95	17	300	160	10	64	9.4	3.4	2.0	223	19
DE	23	300PLTCL	53-05-05	460	103	17	100	1000	200	11	5.8	2.3	1.9	48	20
DE	34	300CCKV	55-06-17	270	144	--	--	20	--	--	--	--	--	257	6.2
DF	4	300PLTCL	55-06-17	330	--	--	--	50	--	--	--	--	--	11	1.7
DF	22	300BLMR	54-03-17	400	99	14	500	90	40	4.9	3.0	1.6	.3	32	2.6
DF	39	300CCKV	54-02-24	335	127	11	<50	90	<5	29	14	1.8	.5	127	8.2
DF	50	300CCKV	55-06-17	320	53	--	--	160	--	--	--	--	--	80	8.2
DF	52	300PLTCL	55-06-17	410	133	--	--	100	--	--	--	--	--	30	.1
DF	53	300PLTCL	55-06-17	380	--	--	--	20	--	--	--	--	--	12	2.8
DF	54	300BLMR	60-05-03	240	199	8.8	--	--	--	8.0	4.5	--	--	26	<.0
DG	10	300PRDP	53-03-25	180	167	31	200	2700	220	28	1.9	6.8	4.2	121	1.4
EA	11	300UMFC	54-05-13	520	76	33	100	90	<5	11	53	4.0	.2	183	57
EA	14	400BLMR	54-03-17	400	248	24	--	40	20	22	8.2	7.5	3.5	81	33
EA	16	300WDCK	60-10-12	509	150	30	50	90	20	5.5	1.3	--	--	31	.2
EA	17	300WDCK	60-10-12	488	250	28	<50	390	10	12	3.9	--	--	50	7.8
EC	4	300CCKV	53-01-16	410	--	11	<50	140	<5	29	5.0	2.0	1.5	113	2.2
ED	22	300UMFC	54-03-19	350	140	31	200	60	<5	9.5	51	4.0	2.2	276	2.6
ED	27	400BLMR	55-07-18	470	160	--	--	<5	--	--	--	--	--	60	37
EE	24	300GPDR	55-07-08	320	133	--	--	--	--	--	--	--	--	86	3.8
EF	1	217PTXN	44-04-25	90	87	--	--	170	--	--	--	--	--	7	1.0
EF	32	300PRDP	53-01-15	320	196	16	2700	1600	20	2.7	.4	3.8	1.1	33	11
EF	46	217PTXN	54-05-13	95	160	--	--	830	--	--	--	--	--	40	--
EF	47	300BLMR	54-05-14	185	200	--	--	760	--	--	--	--	--	150	--
EF	48	300BLMR	54-05-13	130	115	--	--	280	--	--	--	--	--	42	--
EF	49	217PTXN	54-05-13	100	126	--	--	1400	--	--	--	--	--	10	--
EF	50	217PTXN	54-05-14	80	116	--	--	3300	--	--	--	--	--	26	--
EF	51	217PTXN	54-05-13	85	88	--	--	640	--	--	--	--	--	9	--
EF	52	217PTXN	54-05-14	150	105	--	--	3700	--	--	--	--	--	9	--
EF	53	217PTXN	54-05-14	95	114	--	--	2900	--	--	--	--	--	14	--
EF	54	217PTXN	54-05-14	135	124	--	--	3500	--	--	--	--	--	13	--
EF	56	300BLMR	54-05-14	70	200	--	--	350	--	--	--	--	--	116	--
EF	57	217PTXN	54-05-07	100	97	--	--	650	--	--	--	--	--	2	--
✓EG	15	217PTXN	54-03-19	10	320	6.4	800	940	100	1.2	1.4	1.6	.3	13	1.4
EG	17	110QRNR	54-09-24	20	22	--	--	870	--	--	--	--	--	104	--
EG	18	217PPSC	54-08-03	5.0	75	--	--	20000	--	--	--	--	--	11	--
EG	21	217PPSC	54-09-23	15	93	--	--	19000	--	--	--	--	--	42	--
EG	22	110QRNR	54-08-03	20	22	--	--	110	--	--	--	--	--	38	--
EG	24	217PPSC	54-09-23	10	103	--	--	15000	--	--	--	--	--	17	--
EG	26	217PPSC	54-09-23	10	94	--	--	9300	--	--	--	--	--	18	--
✓EG	29	217PPSC	54-09-24	20	142	--	--	9200	--	--	--	--	--	2	--
EG	30	110QRNR	55-06-17	140	16	--	--	80	--	--	--	--	--	25	.1
FC	1	217PTXN	43-10-19	150	250	--	--	--	--	--	--	--	--	4	1.0
FC	8	300BLMR	54-03-18	260	157	42	--	350	20	36	15	12	3.9	182	12
FE	2	217PTXN	43-05-03	40	175	--	--	--	--	--	--	--	--	11	6.0
FE	3	217PTXN	45-06-05	40	--	8.5	--	530	--	1.4	.9	4.5	.8	8	5.0
FE	4	217PTXN	43-05-03	40	--	--	--	--	--	--	--	--	--	6	6.0
FE	17	217PTXN	43-05-04	50	374	--	--	--	--	--	--	--	--	5	3.0
FE	40	110QRNR	54-08-06	10	70	--	--	20000	--	--	--	--	--	34	--
FF	2	110QRNR	43-09-08	20	14	--	--	--	--	--	--	--	--	7	95
FF	34	217PTXN	46-01-25	30	341	7.1	--	2300	--	1.5	1.0	5.3	1.0	6	6.5
✓FF	36	217PPSC	54-05-07	3.0	60	--	--	250	--	--	--	--	--	22	--
FF	38	217PPSC	54-05-07	30	144	--	--	19000	--	--	--	--	--	11	--
✓FF	39	217PPSC	54-05-07	10	88	--	--	450	--	--	--	--	--	54	--
FF	42	110QRNR	54-05-11	10	212	--	--	270	--	--	--	--	--	75	--

✓ = wells in survey area

TABLE 7 BALTIMORE CO. GROUND WATER QUALITY

DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TOTAL COPPER (CU) (UG/L)	TOTAL LITHIUM (LI) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DATA SITE
3.1	.1	4.5	30	28	12	0	38	7.0	--	2	--	--	--	AD 1
3.2	.1	9.5	56	43	12	0	72	6.6	12.0	4	30	--	8300	BD 9
2.4	.0	.40	37	37	13	0	41	6.3	--	4	<5	100	180	CA 7
4.9	.1	.20	51	45	19	0	71	6.6	--	3	10	100	2200	CB 4
11	<.0	1.2	76	74	26	0	95	7.0	--	7	20	300	1400	CD 7
2.5	.2	2.5	70	--	34	13	96	7.0	--	0	--	--	--	CE 24
3.2	<.0	2.5	48	45	21	1	59	6.2	--	4	10	200	<5	DB 3
2.1	<.0	2.3	128	119	110	3	217	7.7	--	3	10	100	<5	DB 13
1.8	<.0	.90	35	31	9	0	33	6.2	9.5	3	10	200	<5	DC 39
4.5	.3	<.05	90	--	32	0	108	7.4	--	0	--	--	--	DC 74
4.5	.2	3.8	70	--	20	0	72	7.0	--	0	--	--	--	DC 75
5.6	.1	.60	242	231	200	16	394	7.6	--	3	50	300	40	DE 2
.1	<.0	.20	88	82	51	12	118	7.1	--	8	20	100	<5	DE 23
2.0	--	.60	--	--	214	3	385	7.6	--	10	--	--	--	DE 34
3.6	--	8.0	--	--	17	8	59	6.0	--	8	--	--	--	DF 4
2.5	.1	1.4	44	46	25	0	57	6.6	--	8	<5	<50	1800	DF 22
5.8	<.0	18	139	151	130	26	246	7.9	13.0	5	20	200	<5	DF 39
6.0	--	7.0	--	--	76	10	176	7.4	--	8	--	--	--	DF 50
1.2	--	8.0	--	--	25	0	69	6.5	--	8	--	--	--	DF 52
9.5	--	.60	--	--	25	15	87	6.0	--	9	--	--	--	DF 53
12	.1	15	75	--	39	17	114	6.8	19.0	0	--	--	--	DF 54
1.0	.1	.20	146	134	78	0	192	6.9	--	18	10	400	<5	DG 10
13	<.0	36	305	297	250	96	459	7.9	13.0	7	20	100	200	EA 11
7.0	.1	.10	142	145	89	22	215	7.0	13.5	5	--	500	--	EA 14
8.0	.1	3.0	79	--	19	0	86	6.5	--	3	410	--	200	EA 16
4.5	.1	8.8	103	--	46	5	135	6.8	--	3	50	--	900	EA 17
2.5	.1	1.9	111	111	93	0	188	7.6	12.0	2	<5	200	50	EC 4
12	<.0	6.8	240	255	230	7	427	8.3	13.5	7	<5	300	50	ED 22
14	--	48	--	--	88	39	320	6.6	--	2	--	--	--	ED 27
3.0	--	.30	--	--	50	0	146	6.7	--	5	--	--	--	EE 24
6.0	--	10	--	--	18	12	59	7.1	13.5	--	--	--	--	EF 1
2.7	<.0	1.3	56	55	8	0	69	7.1	--	3	<5	<50	8800	EF 32
--	--	.20	--	--	6	0	83	6.4	--	--	--	--	--	EF 46
--	--	.10	--	--	92	0	227	7.9	--	--	--	--	--	EF 47
--	--	38	--	--	38	4	129	6.8	--	--	--	--	--	EF 48
--	--	29	--	--	14	6	57	5.9	--	--	--	--	--	EF 49
--	--	.30	--	--	10	0	48	6.5	--	--	--	--	--	EF 50
--	--	3.0	--	--	6	0	30	6.0	--	--	--	--	--	EF 51
--	--	25	--	--	15	8	71	5.8	--	--	--	--	--	EF 52
--	--	35	--	--	9	0	43	6.1	--	--	--	--	--	EF 53
--	--	25	--	--	16	5	71	6.2	--	--	--	--	--	EF 54
--	--	.20	--	--	50	0	243	7.5	--	--	--	--	--	EF 56
--	--	76	--	--	59	57	257	4.8	--	--	--	--	--	EF 57
3.5	.1	.10	28	22	9	0	39	6.2	13.0	20	--	100	--	EG 15
--	--	--	--	--	136	51	437	7.1	--	--	--	--	--	EG 17
--	--	--	--	--	5	0	34	5.8	--	--	--	--	--	EG 18
--	--	--	--	--	12	0	138	6.1	--	--	--	--	--	EG 21
--	--	--	--	--	60	29	205	7.2	--	--	--	--	--	EG 22
--	--	--	--	--	8	0	35	6.8	--	--	--	--	--	EG 24
--	--	--	--	--	4	0	37	6.4	--	--	--	--	--	EG 26
--	--	--	--	--	4	2	25	6.3	--	--	--	--	--	EG 29
.8	--	5.5	--	--	23	2	63	6.1	--	13	--	--	--	EG 30
12	--	25	--	--	30	27	108	5.2	--	--	--	--	--	FC 1
17	.2	.20	219	228	150	2	341	7.5	13.5	7	--	600	--	FC 8
6.5	<.0	1.8	--	--	16	7	51	5.4	13.5	--	--	--	--	FE 2
4.5	<.0	1.1	30	31	7	1	45	5.3	--	--	--	--	--	FE 3
3.0	<.0	.10	--	--	9	4	29	5.5	--	--	--	--	--	FE 4
3.0	<.0	.20	--	--	15	11	27	5.4	--	--	--	--	--	FE 17
--	--	--	--	--	54	26	199	6.7	--	--	--	--	--	FE 40
82	.1	25	--	--	92	86	553	5.4	--	--	--	--	--	FF 2
7.2	<.0	.90	33	33	8	3	49	5.3	--	--	--	--	--	FF 34
--	--	25	--	--	14	0	76	6.4	--	--	--	--	--	FF 36
--	--	.60	--	--	11	2	41	5.9	--	--	--	--	--	FF 38
--	--	.10	--	--	4	0	151	6.8	--	--	--	--	--	FF 39
--	--	.20	--	--	9	0	153	6.9	--	--	--	--	--	FF 42

TABLE 7 BALTIMORE CO. GROUND WATER QUALITY CONTINUED

DATA SITE		GEO-LOGIC UNIT	DATE OF SAMPLE	ELEV. OF LAND SURFACE DATUM (FT. ABOVE MSL)	DEPTH TO BOT-TOM OF SAMPLE INTER-VAL (FT)	DIS-SOLVED SILICA (SIO2) (MG/L)	TOTAL ALUM-INUM (AL) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
FF	43	217PPSC	54-05-11	5.0	103	--	--	4200	--	--	--	--	--	10	--
FF	44	217PPSC	55-07-07	10	200	--	--	50	--	--	--	--	--	10	3.8
FF	45	217PPSC	55-07-07	10	229	--	--	620	--	--	--	--	--	10	2.6
FG	17	217PTMC	54-05-13	10	223	--	--	11000	--	--	--	--	--	13	--
FG	20	217PTMC	54-05-11	20	379	--	--	16000	--	--	--	--	--	18	--
FG	21	217PTMC	54-05-11	10	211	--	--	40	--	--	--	--	--	230	--
FG	22	217PTMC	54-05-11	8.0	316	--	--	3300	--	--	--	--	--	9	--
FG	23	217PTMC	54-09-24	10	88	--	--	14000	--	--	--	--	--	35	--
FG	24	217PTMC	54-09-24	10	96	--	--	18000	--	--	--	--	--	21	--
FG	25	217PTMC	54-09-24	15	208	--	--	3100	--	--	--	--	--	10	--
FG	26	110QRNR	54-09-24	5.0	12	--	--	720	--	--	--	--	--	28	--
GC	1	110QRNR	43-10-06	10	33	--	--	7600	--	--	--	--	--	56	10
GC	3	217PTXN	44-08-10	100	59	--	--	3300	--	--	--	--	--	7	27
GD	3	217PTXN	54-05-11	85	142	--	--	280	--	--	--	--	--	42	--
GE	2	217PTXN	43-06-30	10	600	--	--	E13000	--	--	--	--	--	12	7.0
GF	8	217PTXN	43-04-09	10	618	9.6	--	--	--	4.4	2.7	7.8	2.2	17	9.3
		217PTXN	54-03-19	10	618	--	--	19000	--	--	--	--	--	18	10
GF	9	217PTXN	43-04-09	10	454	--	--	7400	--	--	--	--	--	10	10
		217PTXN	54-03-19	10	454	--	--	19000	--	--	--	--	--	11	9.8
GF	12	217PTXN	43-05-14	12	677	--	--	E7700	--	--	--	--	--	23	10
GF	14	217PTMC	43-05-14	10	323	--	--	95000	--	--	--	--	--	--	24
GF	16	217PTXN	43-05-14	10	659	--	--	E8600	--	--	--	--	--	22	10
GF	18	217PPSC	43-05-14	10	320	--	--	101000	--	--	--	--	--	--	24
GF	28	217PPSC	44-02-03	10	172	12	--	56000	--	33	18	113	--	--	14
GF	32	217PTXN	43-07-16	10	668	--	--	E10000	--	--	--	--	--	18	10
		217PTXN	44-01-24	10	668	9.4	--	10000	--	5.2	3.3	--	--	20	11
GF	35	217PTXN	43-07-16	10	675	--	--	E8600	--	--	--	--	--	18	8.0
GF	93	217PTXN	44-03-11	10	513	8.0	--	9200	--	5.4	5.0	27	--	8	20
GF	137	217PPSC	44-01-24	10	281	7.7	--	27000	--	15	25	--	--	8	50
GF	139	217PTXN	44-01-24	10	615	9.7	--	9600	--	4.4	2.6	--	--	19	9.8
GF	175	217PPSC	44-01-24	10	300	8.5	--	21000	--	5.2	4.9	--	--	15	13
		217PPSC	54-03-18	10	300	--	--	37000	--	--	--	--	--	16	13
GF	176	217PPSC	44-03-03	10	332	8.0	--	15000	--	5.4	4.1	14	--	--	15
		217PPSC	54-03-18	10	332	--	--	50000	--	--	--	--	--	6	21
GF	179	217PPSC	43-06-03	10	400	--	--	E23000	--	--	--	--	--	18	1.0
		217PPSC	45-10-22	10	400	7.7	--	11000	--	2.6	2.0	1.9	1.5	8	11
		217PPSC	55-06-30	10	400	7.5	--	6500	--	1.7	2.0	--	--	8	11
GF	180	217PPSC	43-06-03	12	399	--	--	E14000	--	--	--	--	--	11	10
GF	192	217PPSC	44-03-07	10	280	6.2	--	53000	--	18	16	158	--	--	46
GF	200	217PTMC	55-07-07	12	187	--	--	--	--	--	--	--	--	--	4.2

TABLE 7 BALTIMORE CO. GROUND WATER QUALITY CONTINUED

DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TOTAL COPPER (CU) (UG/L)	TOTAL LITHIUM (LI) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DATA SITE
--	--	.10	--	--	6	0	24	5.9	--	--	--	--	--	FF 43
23	--	.40	--	--	14	6	102	5.8	--	5	--	--	--	FF 44
4.0	--	.50	--	--	8	0	35	5.8	--	2	--	--	--	FF 45
--	--	.60	--	--	8	0	29	6.1	--	--	--	--	--	FG 17
--	--	.60	--	--	8	0	48	6.2	--	--	--	--	--	FG 20
--	--	.10	--	--	1	0	381	7.6	--	--	--	--	--	FG 21
--	--	.10	--	--	10	3	29	6.1	--	--	--	--	--	FG 22
--	--	--	--	--	6	0	95	6.7	--	--	--	--	--	FG 23
--	--	--	--	--	12	0	69	5.5	--	--	--	--	--	FG 24
--	--	--	--	--	1	0	22	5.7	--	--	--	--	--	FG 25
--	--	--	--	--	116	93	958	6.2	--	--	--	--	--	FG 26
10	--	1.0	--	--	45	0	151	6.6	18.0	--	--	--	--	GC 1
10	--	11	--	--	51	45	139	7.3	15.0	--	--	--	--	GC 3
--	--	20	--	--	16	0	104	6.6	--	--	--	--	--	GD 3
18	--	<.05	--	--	18	8	98	5.9	--	--	--	--	--	GE 2
13	<.0	<.05	55	64	22	8	93	5.9	--	--	--	--	--	GF 8
10	--	<.05	--	--	18	3	84	6.2	17.0	--	--	--	--	
8.0	<.5	<.05	--	--	24	16	65	5.8	--	--	--	--	--	GF 9
7.0	--	.20	--	--	14	5	65	6.0	16.5	--	--	--	--	
9.0	.1	<.05	--	--	30	11	83	7.8	17.0	--	--	--	--	GF 12
240	<.0	--	--	--	84	--	1270	2.8	15.5	--	--	--	--	GF 14
9.0	<.0	<.05	--	--	30	12	84	6.8	17.0	--	--	--	--	GF 16
245	<.0	--	--	--	84	--	1080	2.9	15.0	--	--	--	--	GF 18
320	--	<.05	507	--	156	--	1450	2.9	--	--	--	--	--	GF 28
14	--	<.05	--	--	32	17	103	5.9	--	--	--	--	--	GF 32
8.6	--	<.05	50	--	26	10	96	5.9	--	--	--	--	--	
13	--	<.05	--	--	26	11	98	7.6	--	--	--	--	--	GF 35
47	--	<.05	122	116	34	27	225	6.0	--	--	--	--	--	GF 93
398	--	.50	728	--	140	130	1430	3.8	--	--	--	--	--	GF 137
5.5	--	<.05	45	--	22	6	81	6.0	--	--	--	--	--	GF 139
70	--	<.05	127	--	33	21	350	3.5	--	--	--	--	--	GF 175
107	--	.10	--	--	72	59	434	6.0	--	--	--	--	--	
57	--	.40	118	--	30	--	353	4.3	--	--	--	--	--	GF 176
170	--	.10	--	--	94	89	658	5.5	--	--	--	--	--	
4.0	.5	<.05	--	--	16	1	68	6.8	15.5	--	--	--	--	GF 179
1.6	.2	.10	33	33	15	8	46	5.9	--	--	--	--	--	
1.6	.6	.20	36	--	12	6	45	6.2	--	1	--	--	--	
2.0	.1	<.05	--	--	18	9	46	6.7	16.0	--	--	--	--	
355	--	1.0	623	--	111	--	1660	3.7	--	--	--	--	--	GF 180
245	--	5.5	--	--	175	--	901	3.6	--	200	--	--	--	GF 192
														GF 200