



Accomack Vineyards

Painter, Virginia 23420 • James D. Keyes, General Manager

26 April 1988

Bureau of Alcohol, Tobacco and Firearms
Wine and Beer Branch
P.O. Box 385
Washington, DC 20044

Dear BATF:

This is a request to establish the Eastern Shore of Virginia as a viticultural area. There is at present but one winery here, operating under the Virginia Farm Winery Act, and three growers of wine grapes. We believe, however, that this narrow peninsula between the Chesapeake Bay and the Atlantic Ocean has the potential of becoming the premier wine grape area of the East Coast.

That may seem a bit presumptuous considering that small wineries are proliferating in Virginia and elsewhere but there has been only limited activity here. It would appear that the reasons for ignoring the Eastern Shore are partly lack of knowledge of the differences between Virginia's portion of the Eastern Shore and the rest of the East Coast, and partly psychological. That is, in looking at a map of Virginia, the two counties making up Virginia's portion look like an island in the Atlantic. It looks so remote. Consequently, only three growers have investigated the meteorological data and soil conditions and decided that this is the place.

The future is bright because, in contrast to wine grape production elsewhere on the East Coast, there are three factors which do not exist together any place else. First and foremost, there is a marine climate not unlike that of Long Island, in which V. Vinifera grapes can be grown without winter damage. Second, land prices for good agricultural land are reasonable, that is, less than \$1,000 an acre. Third, agricultural labor is available at reasonable costs. In addition to these, Virginia's Eastern Shore is not an island, but the southernmost part of the Delmarva Peninsula, a large area stretching from Wilmington, DE to a few miles from Norfolk, VA, including those parts of the states of Delaware, Maryland and Virginia lying east of the Chesapeake Bay. This area is optionally called "Delmarva" or "the Eastern Shore".

WHY VIRGINIA'S EASTERN SHORE IS DIFFERENT

The U.S. Department of Agriculture published a "Soil Survey of Accomack and Northampton Counties, Virginia" in 1920. Following is an excerpt from that publication describing the area.

"Description of the Area"

"The Eastern Shore area, comprising Accomac¹ and Northampton Counties, is situated in the extreme eastern part of Virginia, and forms the southern extension of the Maryland-Delaware-Virginia peninsula. The area borders the Atlantic seaboard on the east, and is geographically

¹ The correct spelling of the northernmost county is "Accomack", with a "k", having been changed by the General Assembly from "Accomac" on 15 January 1940.

separated from the remainder of Virginia by Chesapeake Bay on the west. It is bounded on the north by Worcester County, MD, and on the northwest for a short distance by Somerset County, MD, from which it is separated by the Pocomoke River. The southern extremity terminates at Cape Charles, the upper of the so-called "Virginia capes," which guard the entrance to Chesapeake Bay. Norfolk, the nearest large city, is 36 miles by boat southwest of the village of Cape Charles, in lower Northampton County, while the cities of Baltimore, Philadelphia, and New York, some 250, 210 and 300 miles distant by rail, respectively, may be reached in less than a half day's journey northward from Cape Charles.²

"The area, which has a northeast-southwest trend, is about 75 miles in length. It is relatively narrow, however. The mean width of the mainland in Accomac, the upper of the two counties, is only about 8 miles, while in Northampton County the gradually tapering peninsula has an average width of scarcely 6 miles. Including the coastal islands on the Atlantic side, the broad marshes and shallow bays lying between these and the mainland, and the outlying bodies of salt marsh adjacent to Chesapeake Bay, a mean width of about 15 miles is attained. The two counties have a land area of 682 square miles, or 436,480 acres, of which Accomac County contains 470 square miles, or 300,800 acres, and Northampton 212 square miles, or 135,680 acres.

"The Eastern Shore area embraces three main physiographic divisions: 1, the mainland; 2, the coastal islands; 3, the marshes.

"The mainland constitutes that division with which this report primarily has to deal, for though the coastal islands and the marshes add greatly to the area of the two counties, their agricultural importance is but slight. The mainland contains practically all of the cultivable, productive soils of the region, and there are many other conditions essential to successful farming.

"The coastal islands, low and sandy, occur as a chain along the Atlantic Ocean, roughly paralleling the area throughout its length, and varying from 1 1/2 miles to 8 miles in distance from the mainland. These islands, bars which vary in width from a few hundred feet to about one-half mile, form an almost continuous line, broken only by narrow inlets leading to the bays, channels, and marshes lying between them and the mainland.

² Today, in 1988, the Eastern Shore is connected to the Norfolk area by a 21-mile bridge-tunnel, and to the western shore by a bridge at Annapolis, MD.

"The salt marshes, embodying the third prominent physiographic feature, are present in extensive tracts on both sides of the peninsula. These are most widely developed along the eastern or Atlantic side, where they occupy a considerable portion of the intervening territory between the beaches and the mainland. Large areas also are found along the western or Chesapeake Bay, side in the northern two-thirds of Accomac County.

"The topography of the Accomac and Northampton mainland is prevailingly level. The surface features vary from the flat foreland country bordering Chesapeake Bay and its estuaries to the level to undulating upland plain occupying the central and most of the eastern parts of the peninsula. The foreland country is also developed on the Atlantic side of the area, although as a rule it is difficult to trace and is rather different in character from that which lies along Chesapeake Bay. Along the west side of Great Machipongo River, opposite Bradford and Bell Necks, is a strip of territory about 1 mile in width and 10 miles long, which is similar to the Chesapeake forelands.

"The lower division constitutes the youngest formation of the area except the coastal islands and marshes, which are yet undergoing changes, due to the influences of waves, tides, and winds. In Accomac County the forelands rise gradually from Chesapeake Bay and the bordering marshes, which merge into the mainland, with a gradient in many places of only a few feet to the mile. This is also true of Northampton County, only in this county the marshes are entirely absent. Here the bay shore is marked by bluffs, from 5 to 30 feet in height, which are capped in many places by Coastal beach material reworked into sand dunes, often rising 30 or more feet above the original level of the bluffs themselves. These sand dunes are most prominent west of Cheapside and in Savage Neck (Northampton County). The forelands, though flat and well defined, are higher in elevation than in Accomac County. The waves are cutting back the Chesapeake shore line in Northampton County, and the presence of bluffs, as well as the absence of marshes, is due to this agency.

"The forelands are much less extensively developed on the east side of the peninsula. From its lower end northward to a point east of Machipongo their mean width is but a few hundred yards. There they broaden out and occur in a modified form, chiefly as necks of well-drained land, partly or wholly surrounded by Tidal marsh. Above Wachapreague, in Accomac County, the forelands are poorly defined, rising from 3 to 10 feet or more in a rather abrupt escarpment along the borders of the marshes and bays, and the slope from the interior is somewhat more rapid than that toward Chesapeake Bay. North of Pastoria relatively high elevations prevail on the sea side.

"As a rule there is a rather abrupt topographic break between the lower terraces and the upland plain. Low escarpments are found throughout Northampton County on both sides of the peninsula. The escarpment toward Chesapeake Bay is continuous and easily traceable from Exmore to Cheapside, in most places closely paralleling the Bay Side Road. Similarly, in Accomac County a pronounced scarp is found just west of the Bay Side Road between Savageville and Craddockville. The seaward terrace bluff is not continuous, but is well defined in lower Northampton County, and also from Machipongo northward to Keller. Smaller remnants of escarpments occur in several places elsewhere in the area...

"Probably there is no point in Accomac or Northampton Counties with an elevation exceeding 50 feet above sea level, unless perhaps a few sand dunes along Chesapeake Bay in the lower county may attain this height. As a rule, the foreland division lies below the 25 foot elevation line, while the upland plain lies between 25 and 45 feet above sea level. The elevation of the drainage divide, or "backbone" of the area, is remarkably even, the variation throughout the two counties being, in all probability, less than 10 feet. Elevations of several points, taken from Bulletin 274 and the maps of the United States Geological Survey, are as follows: Wagram Mill Pond, 8 feet; Franklin City, 4 feet; cross-roads 2 1/2 miles west of Greenbackville, 25 feet; Hallwood, 16 feet; Bloxom, 22 feet; Parksley, 43 feet; Keller, 42 feet; Exmore, 37 feet; and Eastville, 37 feet. The drainage divide lies slightly to the eastern side of the median line of the peninsula; consequently the longer and more gradual slope is toward Chesapeake Bay.

"The primary drainage of the Eastern Shore area consists of tidal estuaries, locally called creeks, which penetrating from each side of the peninsula, suddenly narrow to small branches on reaching the head of tidewater, comparatively short distances into the uplands. Most of these are tributary to Chesapeake Bay. The Pocomoke River, Onancock, Pungoteague, Nandua, and Occohannock Creeks are navigable to large boats, while small sailing craft and motor boats find access to numerous landings on all other important estuaries on either side of the peninsula. On the whole, the secondary drainage of the area is fairly good. The branches and streamlets are frequent, especially on the Atlantic side, and a majority of the farms are connected with some branch, though ditching has been found necessary in many instances. The main drainage divide of the peninsula is generally nearly flat and the surface drainage over a large part of it inadequate. This territory would be still more poorly drained than it is, but for the excellent underdrainage afforded through the porous material which underlies all the soils of the area.

"The Chesapeake forelands in Accomac County contain the poorest drained lands of the area. Particulary above Onancock, a very few drainage ways reach up into the interior of the lower terraces, thus leaving these naturally flat lands without sufficient outlets for good surface drainage. Opposite Bloxom, Hallwood, and Makemie Park, a large part of the forelands is semiswampy.

"In Northampton County the foreland plain is fully as well drained as the uplands. Here, the relatively high elevation, combined with the deep penetration of the estuaries and their many ramifications, has provided excellent surface drainage nearly everywhere. The seaward side of the area is excellently drained, with the exception of a narrow belt of land between Birdsnest and Wachapreague.

"The channels of main upland streams increase gradually from mere shallow drainage ways near their sources to quite pronounced depressions near the margin of the upland plain. Valleys, however, are inconsequential. The junctions of the streams with confluent estuaries mark the points where base level has been reached, and cutting has ceased. Most of the streams of the area are moderately swift flowing, but comparatively few of them carry a sufficient volume of water for the development of power. In former years a number of small waterpower flour mills were scattered through the uplands, but most of these have been abandoned, and now few are in operation, all in Accomac County. The largest of these are at Drummond Ponds and at Wattsville.

"The water supply for farm use is everywhere adequate. Along several estuaries on the Chesapeake side of the peninsula are located a number of small artesian wells.

"Accomac County was organized under the provincial Government in the early part of the seventeenth century, and included the present domain of both counties of the area. In 1642 the name of the county was changed to Northampton, and about 1662 the territory was divided, forming the present counties of Accomac and Northampton.

The first permanent settler on the Eastern Shore was Thomas Savage, one of the colonists who accompanied Capt. John Smith to Virginia in 1607. In 1619 he settled in what is now known as Savage Neck in Northampton County. The court records at Eastville, the present county seat of Northampton County, date from 1632 without a break, and are said to be the oldest continuous set of court records in the United States.

"Climate"³

"Accomac and Northampton Counties have a very favorable climate. The only available data covering weather conditions within the area are contained in a four-year record at Wachapreague, Accomac County, and a six-year record at Eastville, both covering a rather short period for the establishing of dependable means. For this reason records of weather observations at Norfolk, VA, and Pocomoke City, MD, as well as those at Wachapreague and Eastville, are given, and these should enable one to form an excellent idea of climatic conditions throughout the two counties. The Norfolk records approximate conditions in lower Northampton County, while those gathered in Pocomoke city are applicable to upper Accomac County.

"Attention is called to the marked variation in climate between Norfolk and Pocomoke City.

"The mean annual rainfall at Norfolk is 49.54 inches; at Pocomoke City, 39.59 inches; at Eastville, 39.20 inches, and at Wachapreague, 37.89 inches. The rainfall is well distributed throughout the year, the heaviest rainfall, as a rule, occurring during the growing season. Severe droughts are uncommon.

"At Norfolk the mean annual temperature is 59.1 degrees F.; at Eastville, 59.7 degrees F.; at Wachapreague, 56.5 degrees F.; and at Pocomoke City, 57.4 degrees F. The summers are long and warm, but the temperatures are moderated by the cooling sea breezes which characterize the climate of the Eastern Shore of Virginia. The winters, though marked by brief spells of severe weather, are generally mild. The proximity of salt water has a moderating influence on temperature at all seasons. The zero mark is seldom reached in winter. The maximum range of temperature at Pocomoke City is 105 degrees F.; at Wachapreague, 95 degrees F.; and at Norfolk, 100 degrees F.

"At Norfolk the average date of the last killing frost in spring is March 24; of the first in the fall, November 13. The latest frost in the spring recorded at Norfolk was on April 26, while the earliest in the fall occurred on October 15. At Eastville the latest killing frost in the spring occurred on April 11 and the first in the fall on

³ An agricultural research station was established on the Eastern Shore in July of 1922, and weather records have been kept continuously since then. The description of "Climate" in this monograph is essentially correct in spite of the paucity of data.

November 3, the average dates being April 1 and November 8, respectively. At Wachapreague the average last killing frost in spring falls on April 2 and the first in the fall on November 8. The latest killing frost in the spring was recorded on April 10 and the earliest in fall on October 28. The average date of the last killing frost in spring at Pocomoke City is April 19, and of the first in fall October 22. The earliest recorded killing frost in the fall was on September 23 and the latest in spring was on May 25.

"The data indicate a normal growing season at Norfolk of 233 days, or over 7 months; at Eastville, 220 days; at Wachapreague, 219 days (probably too high); and at Pocomoke City, 185 days. Thus the normal growing season on the Eastern Shore varies from about 6 months in northern Accomac County to approximately 7 months in lower Northampton County.

"The records show conclusively that there is considerable difference in climate between the southern and northern extremities of the area, more than would be expected within a range in latitude of about 70 miles. There are several causes of this difference. In the first place, the moderating effect of the Gulf Stream is more marked near the lower extremity of the peninsula than in the upper part of the area. Further, the narrowing of the peninsula in Northampton County intensifies the tempering influence of surrounding bodies of water, and also gives more "sweep" to the winds, resulting in freer air circulation. It is noticeable that farms located on the sea side of the peninsula, as well as those near Chesapeake Bay, are less susceptible to frosts than inland farms. The peninsula is so narrow near its lower extremity that the modifying influence of the waters extends to all parts in the interior.

"The inherent climatic features of the area bear an important part in the rapid and successful development of the present type of farming--the growing of truck crops for early markets. Furthermore, the marked local climatic differences within the area itself have led to the adoption of different systems of producing certain crops, which have borne excellent results. These systems of cropping and their relation to the climate of the two counties will be discussed in the chapter on agriculture."

Although that "Soil Survey" description was written almost 70 years ago, it remains the best description available of the agricultural environment of Virginia's

Eastern Shore. What follows are data based on current information from government agricultural offices.

SOILS⁴

"The coastal plains soils of the Eastern Shore are generally very level soils that are considered to be prime farmland by the USDA and very suitable to the production of vegetables, small grains and soybeans. The dominant agricultural soils are high in sand content which results in a highly leached condition, an acid pH and a low natural fertility. The poorly drained soils are very productive when adequate artificial drainage is provided.

"The two main soil associations are distinguished primarily by the topography of the land which affects the groundwater. The Bojac-Munden-Molena association is nearly level with minor areas of steep slope and moderately well drained to somewhat excessively drained. These loamy and sandy soils are primarily found on broad flats and occasionally on ridges. The second association is the Nimmo-Munden-Drageston association which is nearly level and primarily poorly drained except the Munden soil that is moderately well drained. These loamy soils are found on broad flats and in depressions. The groundwater during the winter months rises to within 0 to 1 feet from the surface; however, during the growing season it drops.

"Bojac loamy sand is a gently sloping very deep and well drained soil that is located on side slopes and rims of Carolina Bays. This soil is mainly used for cultivated crops. The main limitations are droughtiness, slope and erodibility.

"Bojac sandy loam is a nearly level, deep and well drained soil that is located on broad flats. These soils are prime farmland and used mostly for cultivated crops.

"Munden sandy loam is nearly level very deep and moderately well drained soil that is found on broad flats and in depressions. This soil is prime farmland and used mainly for cultivated crops and some areas are in woodland.

"Molena loamy sand is moderately sloping to very steep soil that is very deep and somewhat excessively drained.

⁴ A report of the USDA Soil Conservation Service, Accomac, VA, 1987.

This soil is used mainly for woodland and wildlife. Cultivated crops are unsuited to this soil due to severe erosion hazard and low available water.

"Nimmo sandy loam is a nearly level very deep and poorly drained soil that is located on flats and in depressions of Carolina bays. Undrained sections of this soil are poorly suited to cultivated crops. Drained sections are well suited to crops. The main use of this soil is cropland and woodland.

"Dragston fine sandy loam is a nearly level very deep and somewhat poorly drained soil that is located on flats and in depressions. When adequately drained this is prime farmland and is primarily used for cultivated crops and woodlands."

CLIMATE

As noted in the excerpt from the 1920 Soil Survey, the climate of Virginia's Eastern Shore is moderated by the proximity of the Chesapeake Bay and the Atlantic Ocean. The U.S. Department of Agriculture puts this narrow peninsula in Plant Hardiness Zone 8 which, by definition, has average annual minimum temperatures of 10 - 20 degrees F. When the temperature does go below 10 degrees, it will be only for a few hours at a time, if that long. The boundary between Zones 8 and 7 are right at the state boundary of Maryland where the peninsula gets wider and the Bay gets smaller. The average annual minimum temperatures for Zone 7 are from 0 - 10 degrees F.

On the other hand, summer maximums will average in the mid-80's while the high maximums will occasionally go above 95 degrees. Summer night temperatures are invariably brought down to the high 60's or low 70's making for a differential from night-low to day-high of 15 - 30 degrees (the hotter the day the greater the differential). In

short, the waters surrounding the peninsula act as a huge heat sink, moderating summer highs and warming winter lows.

The temperature differentials that exist between the land and the water also are the cause of the air movement which will vary from less than 10 knots to more than 20 knots much of the time. During the grape growing season this is significant because the Eastern Shore, like most of the area east of the Mississippi River, is humid. These breezes provide the air circulation desirable to minimize fungus problems with the fruit. These air currents are strongest in the early summer when there is a greater differential between water and air temperatures. By late summer, when the Bay water has warmed significantly, the air circulation decreases and by October, there are many calm days. The harvest has been completed by then, however, and the humidity is less, so that the absence of air circulation is not a factor to be concerned about.

RAINFALL

Rainfall records kept at the Eastern Shore Agricultural Experiment Station at Painter, show for the 48-year period 1940-1987 only a pattern of diversity. (see table) The average annual rainfall for the period is 42.37 inches but varies from a high of 61.23 inches in 1945 to a low of 26.23 inches in 1941. Monthly averages for the period vary from 3.08 inches in April to 4.08 inches in March. July and August are months of heavy rainfall, averaging for the period 4.22 inches and 4.06 inches. The average of all

EASTERN SHORE AGRICULTURAL EXPERIMENT STATION, PAINDER VA

RAINFALL RECORD

YEAR*	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	AVG.
1940	2.50	4.88	3.72	6.86	3.80	1.77	3.42	5.47	1.74	2.58	5.83	1.84	44.41	3.70
1941	4.00	2.91	3.41	4.47	1.06	.91	6.80	.09	.88	.01	.87	.82	26.23	2.18
1942	3.85	1.54	7.65	.75	1.11	1.88	4.10	9.33	4.05	5.62	1.13	2.68	43.69	3.64
1943	3.20	4.01	5.14	2.75	4.34	1.73	1.50	.87	4.30	7.12	1.95	1.32	38.23	3.19
1944	4.60	5.01	5.78	3.38	.67	2.55	2.28	3.35	3.93	2.74	3.96	1.91	40.16	3.35
1945	3.29	4.17	1.17	3.74	3.14	7.70	13.79	2.81	4.85	4.48	5.24	6.85	61.23	5.10
1946	3.57	2.85	3.50	3.66	12.22	5.17	3.56	4.49	4.30	3.46	4.16	1.82	52.79	4.40
1947	8.37	2.63	3.78	2.64	.90	1.87	5.10	4.17	5.39	2.85	5.50	2.60	45.80	3.82
1948	3.79	2.98	3.78	4.73	4.09	3.89	3.22	7.92	4.25	3.19	7.20	4.53	53.57	4.46
1949	2.33	4.21	1.79	1.97	3.52	2.93	2.98	2.77	2.08	4.09	3.83	1.19	33.69	2.81
1950	2.13	1.99	4.18	1.81	3.48	1.23	6.74	3.71	3.59	.71	2.24	1.57	33.38	2.78
1951	1.55	1.84	3.08	2.67	2.36	7.64	5.03	2.68	1.10	3.48	4.57	3.17	39.17	3.26
1952	4.04	3.31	5.20	3.81	3.09	1.49	.59	3.30	3.43	3.58	4.65	2.92	39.41	3.28
1953	2.72	3.87	4.04	3.34	3.70	6.48	1.80	15.01	3.01	.66	3.54	2.39	50.56	4.21
1954	3.84	1.64	3.32	2.48	4.03	.27	3.63	1.44	3.09	2.35	2.02	2.71	30.82	2.57
1955	1.65	3.01	2.65	1.49	2.00	6.18	4.44	7.88	7.54	3.33	3.04	1.32	44.53	3.71
1956	1.85	4.10	3.09	3.44	2.22	3.32	6.08	2.01	3.38	7.84	2.01	3.13	42.47	3.54
1957	3.34	4.00	6.09	2.05	1.47	4.30	.83	8.26	4.25	7.49	5.59	6.06	53.73	4.48
1958	3.91	4.49	6.48	5.30	5.04	4.81	2.99	12.90	.72	4.91	1.41	2.88	55.84	4.65
1959	1.91	1.90	4.10	5.35	2.07	1.90	5.08	1.64	3.59	5.70	2.56	2.46	38.26	3.19
1960	2.05	3.43	2.15	3.28	4.61	3.35	6.05	4.24	5.63	5.55	.65	1.95	42.94	3.58
1961	4.02	6.03	3.69	3.02	6.40	3.90	4.07	1.72	1.01	5.25	1.46	5.40	45.97	3.83
1962	3.43	3.22	4.29	4.53	4.89	5.27	2.74	3.19	4.27	1.91	6.47	3.59	47.80	3.98
1963	3.04	3.08	5.45	.90	4.17	6.03	.57	4.76	5.39	.19	5.87	2.76	42.21	3.52
1964	4.42	5.12	3.23	2.66	1.99	4.82	2.83	3.37	4.23	5.08	1.77	3.62	43.14	3.59
1965	2.29	1.94	3.85	2.66	.41	4.36	16.22	1.00	2.39	1.31	.34	.69	37.46	3.12
1966	3.83	4.44	1.53	1.23	5.15	2.81	1.87	1.28	5.47	1.61	.51	3.52	33.25	2.77
1967	2.80	3.65	2.72	1.10	3.41	3.67	4.98	6.44	2.13	.98	1.99	7.59	41.46	3.46
1968	3.10	1.07	4.84	1.85	2.06	3.49	3.97	2.43	2.28	2.75	3.31	2.82	33.97	2.83
1969	3.07	3.43	4.94	3.62	1.85	1.71	5.45	7.25	2.77	1.94	2.09	6.43	44.55	3.71
1970	2.32	3.43	4.93	3.17	2.23	4.72	5.65	1.38	2.35	.91	2.50	2.66	36.25	3.02
1971	2.78	3.05	3.14	2.41	6.24	1.26	2.02	5.15	1.61	8.16	2.78	1.52	40.12	3.34
1972	3.28	5.09	3.57	3.36	7.19	6.01	1.68	3.95	3.88	3.99	5.60	3.02	50.62	4.22
1973	2.58	4.73	5.04	4.59	3.08	3.76	1.91	2.82	2.14	2.31	1.67	4.42	39.05	3.25
1974	4.39	2.84	4.26	2.39	3.28	3.02	2.93	2.85	2.82	.88	1.12	3.92	34.70	2.89
1975	6.28	4.25	8.32	3.12	2.19	1.67	6.03	2.86	7.84	6.85	2.17	2.57	54.15	4.51
1976	4.04	1.81	2.36	1.49	1.95	1.36	2.00	3.75	4.45	4.12	1.54	3.21	32.08	2.67
1977	3.60	3.02	2.43	1.47	1.81	3.08	2.81	5.39	1.84	4.42	3.70	7.12	40.69	3.39
1978	5.95	.82	5.52	4.42	6.80	2.12	5.73	1.77	1.40	1.61	5.51	3.58	45.23	3.77
1979	6.33	4.65	4.73	2.97	5.97	4.64	9.99	3.29	6.71	2.35	5.77	1.49	58.89	4.91
1980	3.44	2.68	4.38	2.95	2.35	1.01	2.94	2.87	1.70	5.91	2.91	1.64	34.78	2.90
1981	.97	2.95	1.89	4.05	3.46	3.11	4.05	4.11	4.33	3.00	1.33	5.53	38.78	3.23
1982	4.83	4.15	5.13	3.07	1.31	3.63	8.86	5.64	2.05	3.52	4.40	3.99	50.58	4.22
1983	2.38	4.44	8.29	6.50	3.14	4.56	.21	1.39	2.74	4.14	4.40	5.41	47.60	3.97
1984	4.05	4.29	7.02	5.43	4.72	2.32	4.00	.70	2.08	1.43	2.14	2.21	40.39	3.37
1985	4.05	2.64	3.26	.45	3.21	3.94	3.10	1.92	6.04	5.28	5.30	1.56	40.75	3.40
1986	3.54	2.36	.55	1.30	.28	1.89	4.97	8.47	.69	.75	2.61	5.04	32.45	2.70
1987	8.79	2.87	2.47	2.90	1.44	4.22	1.17	.93	1.95	2.56	3.06	3.65	36.01	3.00
48-YR AVG	3.59	3.35	4.08	3.08	3.33	3.41	4.22	4.06	3.37	3.44	3.21	3.23	42.37	3.53

months for the 48-year period is 3.53 inches.

There is no such thing as a "wet" season, or a "dry" season, but there are differences between summer rain and winter rain. Summers, from the middle of June to the middle of September, can be droughty with the rain coming in heavy bursts from tropical low pressure areas. Ten to fifteen inches can fall in a few days time. These lows come during the peak of hurricane season and can be as late as October. From May to October there are apt to be more months with less than 1 inch and also more months with more than 7 inches. From December to April the extremes are less frequent but March can be a month of heavy rains.

VIRGINIA'S EASTERN SHORE AS A VITICULTURAL AREA

There is no real history of wine grape culture on the Eastern Shore until Dr. and Mrs. Geoffrey Gubb planted the first vinifera vines at Onley, Virginia in 1978. Their vineyard now is about 25 acres. A year later James D. and Geraldine R. Keyes planted a test vineyard of 48 vines. They had been told that "it's too hot, too flat and too humid" for vinifera vines so they started cautiously. In 1983, by which time they had satisfied themselves that Virginia's Eastern Shore was indeed a good place for vinifera vines, they planted 1800 vines, mostly Merlot, on two acres. Subsequently, in 1985, Mr. and Mrs. John W. Wescoat planted about three acres each of Cabernet Sauvignon and Chardonnay. Accomack Vineyards, the Shore's first winery, was opened in 1987 by Mr. and Mrs. Keyes.

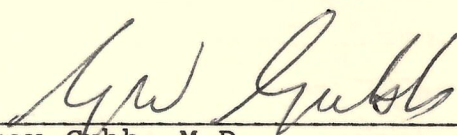
These are small amounts by any viticultural scale but the conditions exist which could attract additional plantings. Winkler, et al, in General Viticulture, quotes Prescott as to mean temperature, the principal limiting factor with regard to areas suitable for grape culture. "The mean temperature of the warmest monthly period must be in excess of 66 degrees F and that of the coldest monthly period must be in excess of 30 degrees F." For the twelve years 1974 - 1985, the mean temperature of the warmest monthly period as measured at the Virginia Agricultural Experiment Station at Painter, was 77.5 degrees. The mean temperature for the coldest monthly period, which is much more critical on the East Coast, was 34.3 degrees. The conclusion is that even though the acreage is small, the growers are few and the winery, solitary, the meteorological and geologic data suggest that viticulture could have a bright future here.

A VITICULTURAL AREA: "VIRGINIA'S EASTERN SHORE"

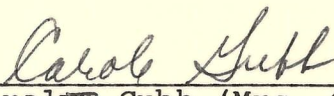
"The Eastern Shore" is a generic description identical to "the Delmarva Peninsula." Physically, the parts of the Eastern Shore are very similar but the length of the peninsula, north to south, creates considerable differences in climate. Those parts belonging to Maryland and Delaware are much wider than the Virginia portion, losing the moderating effect of the water except for the shore areas. It thus is a happy circumstance that the boundary between Plant Hardiness Zones 7 and 8 falls right at the border

between Maryland and Virginia. For this reason, the undersigned request that a viticultural area be established to be limited to Virginia's Eastern Shore, and to be so called.

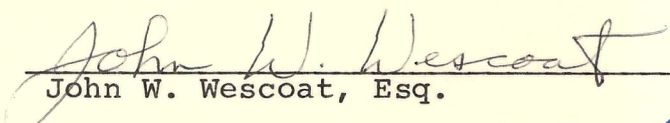
Attachment: Plant Hardiness Zone Map, Miscellaneous Publication No. 814.



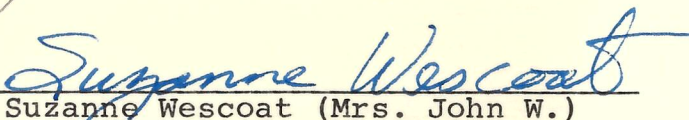
Geoffrey Gubb, M.D.



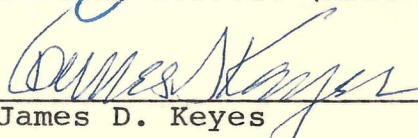
Carol~~yn~~^e Gubb (Mrs. Geoffrey)




John W. Wescoat, Esq.



Suzanne Wescoat (Mrs. John W.)



James D. Keyes



Geraldine R. Keyes, Esq.

Cape Charles Resort Eyed By Texas Firm

From news services

CAPE CHARLES, Va. — A Texas company has announced plans to build a 2,000-acre retirement resort at this Eastern Shore town on a site once earmarked for the manufacture of oil-drilling platforms.

The planned community envisioned by Brown & Root Inc., a Houston oil services and construction company, would virtually encircle Cape Charles with 2,000 houses and condominiums, two golf courses and a marina.

Figures were not available for how much the development was estimated to cost or how many jobs it would create during construction and at completion.

Brown & Root officials outlined the plan last week before an overflow crowd at a joint meeting of the Northampton County Board of Supervisors and the Cape Charles Town Council.

"I think for the most part the council was impressed with the presentation and I feel that the county was, too," Mayor Alex Parry said.

The resort would take 15 to 20 years to build, Parry said.

The project could be a boon for the Eastern Shore, one of the more economically depressed areas of Virginia. Northampton County has the lowest median family income in Virginia.

Brown & Root bought the property on the Chesapeake Bay in 1974 with the intention of building offshore oil platforms, but the plan never bore fruit because East Coast test wells were unproductive.

County and town officials had expressed concern over the years that a large industrial development on the land would destroy the rural character of the area.

But Brown & Root "wants very much to retain the character of the town of Cape Charles and the quality of life on the Eastern Shore," company attorney R.J. Nutter said.

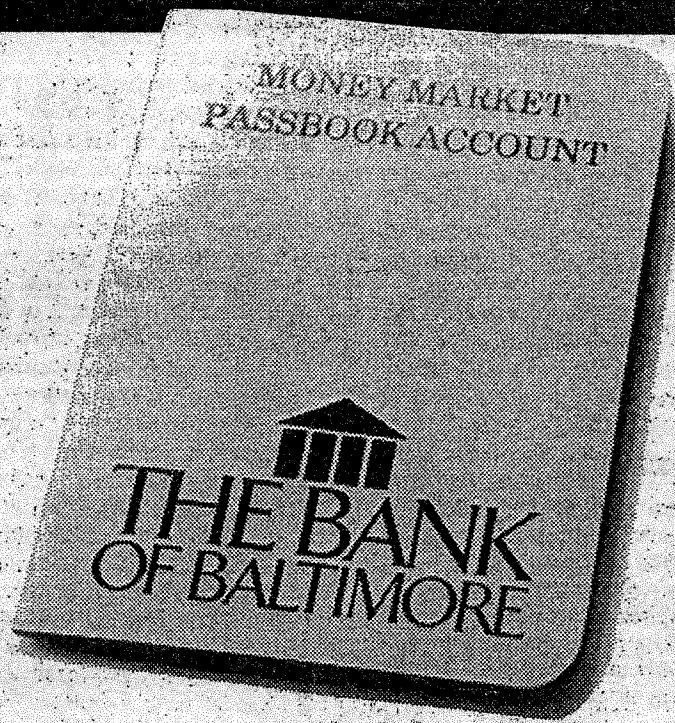
Ralph Patton, a land planning consultant hired by the company, said the waterfront property would be divided into larger home sites, with condominiums built around the golf courses and marina.

The site is divided into a 250-acre tract on the north end of the town and about 1,700 acres in Northampton to the south of Cape Charles, Britton said. It is bounded on three sides by the water of King's Creek, the bay, Cape Charles Harbor and Old Plantation Creek.

Company officials declined to say publicly how many housing units are planned, but Ken Clifton of Brown & Root said after the meeting that rumors of a 2,000-unit development "are in the ballpark."

Clifton said environmental impact studies will take at least eight months, after which the company will seek various permits from state and federal agencies.

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