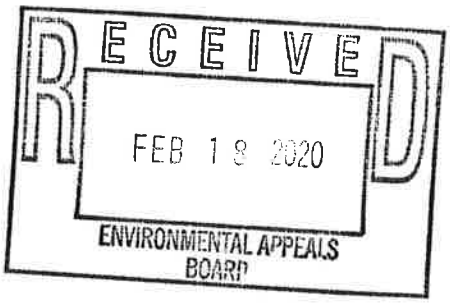
ABBOTT LAW FIRM LLC

RICHARD L. ABBOTT, ESQ.
302.489.ALAW
RICH@RICHABBOTTLAWFIRM.COM



February 17, 2020

VIA FEDERAL EXPRESS

Delaware Environmental Appeals Board
ATTN: Administrative Assistant to the
Environmental Appeals Board
89 Kings Highway
Dover DE 19901

Re: Appeal: Denial Of Correction To Wetlands Map
Shore Subdivision Lots 22-25, 32 & 2 Acre Undesignated Parcel
Town of Bowers

Ladies & Gentlemen:

Please accept this letter as the appeal to the Environmental Appeals Board ("Board") of my client, Delmarsh, LLC ("Delmarsh"), regarding the decision of the Delaware Department of Natural Resources And Environmental Control ("DNREC") dated January 30, 2020 ("Decision"). *See* Exhibit A attached. This appeal is being taken pursuant to 7 *Del. C.* §§ 6008 and 6610 and the Environmental Appeals Board Regulations, 7 Del. Admin. Code 105.

First, Delmarsh is "substantially affected by [an] action of the Secretary," providing it with Standing to take and prosecute this appeal to the Board. The Decision purports to have been made pursuant to the provisions of 7 *Del. C.* § 6607(e):

> If an on-site evaluation by the Department establishes that an error exists in a wetlands map that has been adopted by the Department, the wetlands map containing the error may be corrected by the Department after the Department documents, in writing, the results of the on-site evaluation, and the Department gives the public notice of any proposed correction.

Based upon 7 *Del. C.* § 6008(a), Delmarsh is authorized to appeal to the Board since it is aggrieved by a Decision rendered pursuant to the provisions of 7 *Del. C.* Ch. 66. Delmarsh established that its Lots 22-25, 32, and an undesignated lot (the "6 Lots") did not meet the definition of "Wetlands" in 7 *Del C.* § 6603(h) based upon: 1) the 6 Lots not being "subject to tidal action"; 2) the lack of any connection to tidal waters now or at any time "this century"; and 3) the elevation/topography of portions of the 6 Lots. In addition, State

Wetlands Map panel 183, which includes the 6 Lots, is believed to not have been properly adopted.

Second, the interest of Delmarsh that has been substantially affected by the Decision is Delmarsh's ability to proceed to sell and/or develop the 6 Lots with residential homes. The erroneous designation of the 6 Lots as State Wetlands renders them worthless and unusable. The 6 Lots were established by the Shore Subdivision Plan dated and recorded in 1950 (the "Plan"). The Plan, attached as Exhibit B, establishes the subdivision of the 6 Lots, 4 fronting on North Flack Avenue and 2 fronting on Bayshore Drive. The Deed for the 6 Lots and the Kent County tax parcel pages for the 6 Lots are attached hereto as Exhibits C and D.

Third, the Decision appealed from is improper on the grounds that, *inter alia*: 1) the 6 Lots are not currently "subject to tidal action"; 2) at no time in "this century" were they "connected to tidal waters"; and 3) the elevation of the land on portions of the 6 Lots does not satisfy the legal standard. The definition of the term "Wetlands" is contained in 7 *Del. C.* § 6603(h).[1] In addition, Lots 20 and 21 were previously removed from the Wetlands Map and 302 Flack Avenue, which abuts Lot 26 and a ditch that was connected to the St. Jones River in the 20th Century, was never designated as State Wetlands. Lastly, multiple lots on Bayshore Drive and Flack Avenue south of the 6 Lots and Lots 20 and 21 were previously removed from the State Wetlands Map.

The expert report prepared by environmental consultant James C. McCulley, IV, PWS, is attached as Exhibit E. It establishes that there is no tidal connection or action regarding the 6 Lots. The 6 Lots have had no connection to the Ted Harvey marsh, the St. Jones River, or the adjacent Delaware Bay. Portions of Lot No. 32 and the Undesignated Lot are situated on the river and bay side of a dune, which may be subject to some tidal influence since it constitutes a beach. But the areas of Lot 32 and the Undesignated Lot from the vicinity of the dune landward have no tidal contact.

Fourth, the Decision is also improper since it does not contain any rationale explaining its conclusory assertion that no error exists in the State Wetlands Map regarding the designation of the 6 Lots. Such an unsupported Decision lacks any evidence to justify its conclusion. It is factually and legally erroneous and arbitrary and capricious. Indeed,

---

[1] The term "this century" is not defined in the Wetlands Act, 7 *Del. C.* Ch. 66. Arguably, the term "this century" refers to the 21st Century rather than the 20th Century. Since the General Assembly did not define the term "this century," there is an ambiguity. Delmarsh enjoys the common law right to the free use of land, which provides that ambiguity in a law restricting use of the land shall be resolved by applying the meaning most favorable to the landowner (Delmarsh).

no documentation, aerial photographs, or other explanation is provided in the Decision – *i.e.* it is totally unfounded.

Fifth, the estimated number of witnesses and time involved in presenting the appeal at a public hearing are as follows: 1) 2 witnesses: Mr. McCulley and the principal of Delmarsh, Jeffrey Liberto; and 2) hearing time would be 2-3 hours, assuming that DNREC intends to present at least 1 witness. Delmarsh reserves the right to call additional witnesses at the appeal hearing, including, but not limited to, Tyler Brown and George Gaetz of the DNREC Wetlands And Subaqueous Lands Section. In addition, the time of the hearing may be extended if any additional data, information, or other evidence beyond the four corners of the Decision is sought to be admitted and is allowed to be introduced at the hearing.

Enclosed please my firm check in the amount of $50 made payable to the Board for the deposit for costs required by the Regulations.

Please advise at your convenience of the scheduling of the public hearing regarding this appeal. Thank you.

Respectfully submitted,

Richard L. Abbott

RLA:cth
Enclosures
File No.: 604.01

cc: Mr. Jeffrey Liberto (w/enclosures) – Via Email Only
Mr. James C. McCulley, IV (w/enclosures) – Via Email Only

EXHIBIT A

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
DIVISION OF WATER
RICHARDSON & ROBBINS BUILDING
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS LANDS

PHONE
(302) 739-9943

January 30, 2020

Delmarsh, LLC
c/o: Jeffrey Liberto
74 Caddie Court
Magnolia, DE 19962

Wetlands Map Change ID: MC-267/19
RE: State Regulated Wetlands Map Change DNR-183 near the northern terminus of N. Flack Avenue and N. Bayshore Drive, Bowers Beach, Kent County, DE
Tax Parcel #s: 8-01-11513-01-0300-00001 & 8-01-11513-01-0200-00001

Dear Mr. Liberto,

This letter is in response to a request for a mapping change to the State of Delaware Wetland Map DNR-183. The request was submitted to the Wetlands and Subaqueous Lands Section ("WSLS") of the Delaware Natural Resources and Environmental Control ("Department") by Richard L. Abbott, Esquire on July 1, 2019 with subsequent information received on August 12, 2019. The proposed map change is located near the mouth of the Delaware Bay and the Saint Jones River near the terminus of N. Flack Avenue and N. Bayshore Drive, Bowers, Kent County, Delaware. The applicant requested that the property associated with the above referenced tax parcels ("Property") be removed from the wetlands map designation.

State Wetland Regulatory Authority

State wetlands are regulated in accordance with The Wetlands Act, (7 *Del. C.*, ch. 66) and the Department's Wetlands Regulations (7 *Del. Admin. C* § 7502). Pertinent portions of these documents are as follows:

State regulated wetlands are defined in the Act (§6603(h)) and Regulations (§5.0) as:

> [T]hose lands above the mean low water elevation including any bank, marsh, swamp, meadow, flat or other low land subject to tidal action in the State along the Delaware Bay and Delaware River, Indian River Bay, Rehoboth Bay, Little and Big Assawoman Bays, the coastal inland waterways, or along any inlet, estuary or tributary waterway or any portion thereof, including those areas which are now or in this century have been connected to tidal waters, whose surface is at or below an elevation of 2 feet above local mean high water, and upon which may grow or is capable of growing any but not necessarily all of the following plants.

In accordance with State law, the State regulated wetlands have been identified, inventoried, and demarcated on the Delaware Wetlands maps. The Property was designated as wetlands and included on the Delaware Wetlands maps in 1988.

Section 6607(e) of the State Wetlands Act and § 17.1 of the Wetlands Regulations address errors in the adopted State of Delaware Wetlands maps:

> If an on-site evaluation by the Department establishes that an error exists in a wetlands map that has been adopted by the Department, in accordance with 7 Del.C. §§6607(b) and (c) the wetlands map containing the error may be corrected by the Department after the Department documents, in writing, the results of the on-site evaluation, and the Department gives public notice of any proposed correction.

This procedure is the only mechanism for removing a wetlands designation.

Conclusion

The WSLS evaluated the proposed map change in accordance with the Wetlands Act and the Wetlands Regulations. The WSLS evaluated the site and reviewed the supporting documentation submitted with the map change request.

Upon reviewing the supporting documentation and conducting an on-site evaluation of the properties located at tax parcels 8-01-11513-01-0300-00001 & 8-01-11513-01-0200-00001 it has been determined that no error exists in the State of Delaware Wetland Map DNR-183. This property has been found to meet the definition of a "Wetlands" as defined in 7 *Del. C.* § 6603(h) and the Wetlands Regulations. Therefore, the area will remain as State-regulated wetlands.

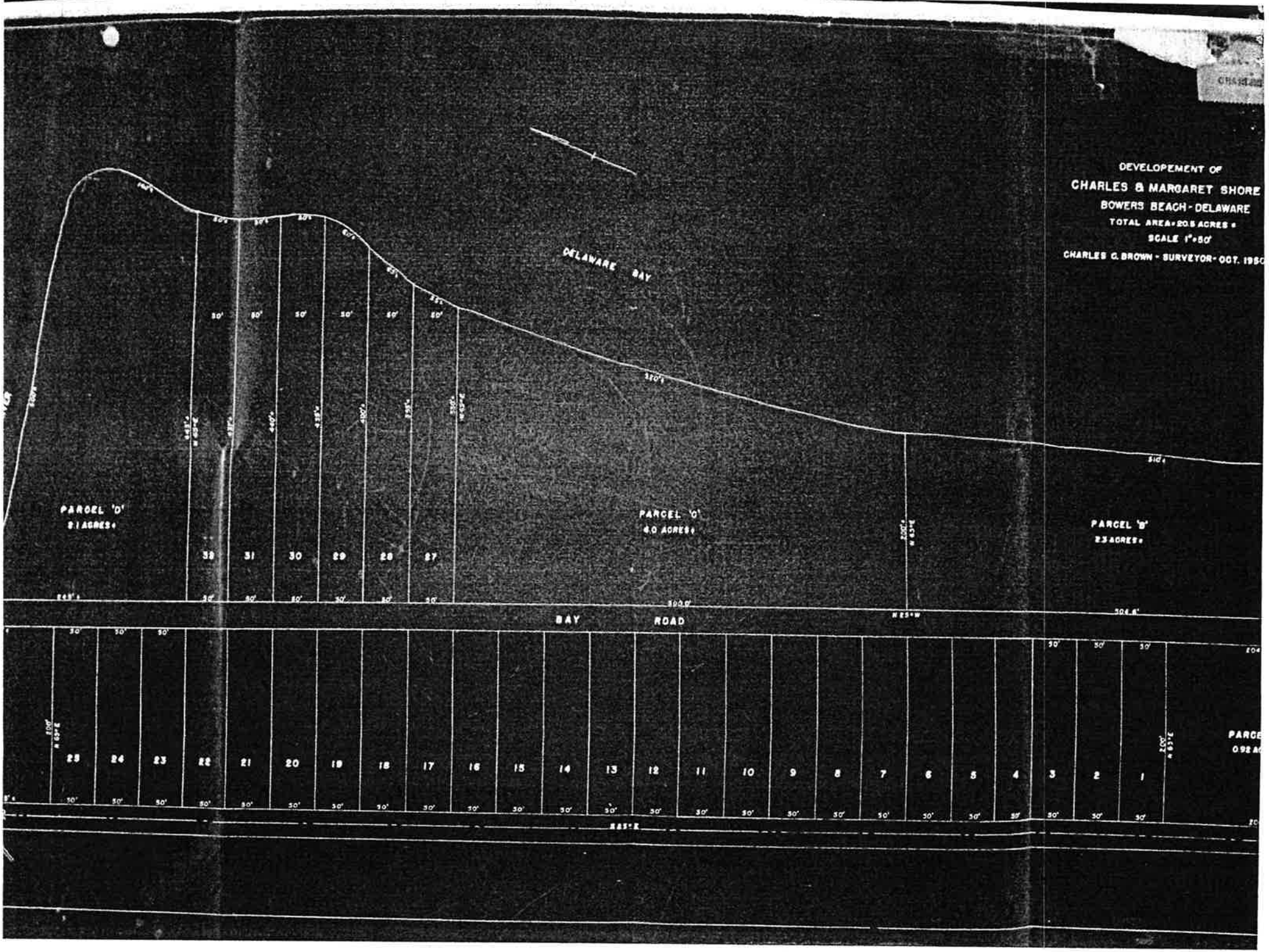
Pursuant to 7 *Del. C.* § 6610, "Any person whose interest is substantially affected by any action of the Secretary may appeal to the Environmental Appeals Board within 20 days after the Secretary has announced the decision."

Sincerely,

Tyler Brown
Section Manager
DNREC Wetlands and Subaqueous Lands Section

CC: George Geatz, Environmental Scientist, DNREC Wetlands and Subaqueous Lands Section
Richard L Abbott, Esquire

EXHIBIT B


DEVELOPEMENT OF
CHARLES & MARGARET SHORE
BOWERS BEACH - DELAWARE
TOTAL AREA = 20.5 ACRES ±
SCALE 1" = 50'
CHARLES G. BROWN - SURVEYOR - OCT. 1950
DELAWARE BAY
PARCEL 'D'
2.1 ACRES ±
PARCEL 'C'
4.0 ACRES ±
PARCEL 'B'
2.3 ACRES ±
BAY ROAD
38
31
30
29
28
27
25
24
23
22
21
20
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1

EXHIBIT C

Accepted for Filing in:
Kent County
Doc# 272672
On: Apr 07,2015 at 10:29A

TAX PARCEL #:
SM-01-115.13-01-03.00-000
PREPARED BY & RETURN TO:
Young Malmberg, P.A.
30 The Green
Dover, DE 19901

NO NEW TITLE SEARCH OR SURVEY REQUESTED OR PERFORMED.

THIS DEED, made this 2nd day of April, 2015,

- BETWEEN -

DEL-HOMES, INC., a Delaware corporation, Grantor

- AND -

DELMARSH, LLC, a Delaware limited liability company, Grantee.

WITNESSETH: That the said Grantor, for and in consideration of the sum of ONE DOLLAR (**$1.00**), lawful money of the United States of America, the receipt whereof is hereby acknowledged, Grantor hereby grant and convey unto the Grantee, and their heirs and assigns, in fee simple, the following described lands, situate, lying and being in Kent County, State of Delaware:

See Attached Exhibit A

BEING the same lands and premises which were conveyed unto Del-Homes, Inc., a Delaware corporation, by deed of Donald Bruce Noble and Rosemarie E. Noble dated May 8, 1989, and recorded in the Office of the Recorder of Deeds in and for Kent County, DELAWARE, in Deed Book P, Volume 46, Page 164.

TOGETHER with all the rights, title and interest of the Grantor in and all street roads and public places, opened or proposed, adjoining the said Land, and all easements and rights of way, public or private, now or hereafter used in connection with said Land.

SUBJECT to any and all restrictions, reservations, conditions, easements and agreements of record in the Office of the Recorder of Deeds in and for Kent County, Delaware.

IN WITNESS WHEREOF, Grantor hereunto set their hands and seals the day and year first above written.

Signed, Sealed and Delivered
in the presence of:

DEL-HOMES, INC.

Sarah A. Shaner

John T. Beiser (SEAL)
John T. Beiser, President

STATE OF DELAWARE, COUNTY OF KENT: to-wit

BE IT REMEMBERED, that on April 2nd, 2015, personally came before me, the subscriber, John T. Beiser, Grantor to this Indenture, known to me personally to be such, and acknowledged this Indenture to be their act and deed.

GIVEN under my Hand and Seal of Office the day and year aforesaid.

SARAH A. SHANER
COM. EXP
NOTARY
PUBLIC
07-11-15
STATE OF DELAWARE

Sarah A. Shaner

Constantine F. Malamberg, III
Attorney at Law
Member of the Delaware State Bar

PARCEL NO. 1: ALL those certain lots, pieces and parcels of land situate, lying and being in the Town of Bowers, Kent County, and State of Delaware, lying on the north side of Main Street, but not adjacent thereto, being Lots Nos. 20, 21, 22, 23, 24 and 25, lying on the west side of Bay Road leading from Main Street to St. Jones River, each of said Lots having a frontage on Bay Road of 50 feet and extending back therefrom between parallel lines a distance of 200 feet, and Parcel D containing 2.1 acres lying on the east side of Bay Road leading from Main Street to St. Jones River, being bounded on the West by said Bay Road, on the North by St. Jones River, on the East by the Delaware Bay, and on the South by Lot No. 32, as laid out on a plot of lots in a development of Charles and Margaret Shore, Bowers Beach, Delaware, in accordance with survey made by Charles C. Brown, Surveyor, October, 1950, said plot being of record in the Office of the Recorder of Deeds, in and for Kent County, Delaware, in Plot Book 2, Page 26.

70 2015 00272672

Kent County
Betty Lou McKenna
Recorder of Deeds
Dover, DE 19901

Instrument Number: 2015-272672

Recorded On: April 07, 2015 **As-Deed**

Parties: DEL-HOMES INC

To DELMARSH LLC **# of Pages: 4**

Comment:

DO NOT REMOVE-THIS PAGE IS PART OF THE RECORDED DOCUMENT

Deed		66.00
# of Pages	3	
# of Parcel IDs	1	
Total:		**66.00**

Realty Tax Information

Affidavit Attached-No

BOWERS

	Value	7,700.00
State of Delaware		115.50
		115.50

I hereby certify that the within and foregoing was recorded in the Recorder's Office in Kent County,

DO NOT REMOVE-THIS PAGE IS PART OF THE RECORDED DOCUMENT

File Information:

Document Number: 2015-272672
Receipt Number: 343216
Recorded Date/Time: April 07, 2015 10:29:53A
Book-Vol/Pg: BK-RE VL-7579 PG-106
User / Station: C Yerkes - Cashier 4

Record and Return To:

YOUNG MALMBERG
30 THE GREEN
DOVER DE 19901

Betty Lou McKenna

TAX PARCEL #:
SM-01-115.13-01-02.00-000
PREPARED BY & RETURN TO:
The Malmberg Firm, LLC
One Clubhouse Drive
Wyoming, DE 19934
File No. 17RE8215/CFM

THIS DEED, made this 23rd day of October, 2017,

- BETWEEN -

DEL-HOMES, INC., a Delaware corporation, of P.O. Box 8, Magnolia, DE 19962, Grantor

- AND -

DELMARSH, LLC, a Delaware limited liability company, of 74 Caddie Court, Magnolia, DE 19962, Grantee.

WITNESSETH: That the said Grantor, for and in consideration of the sum of ONE DOLLAR **($1.00)**, lawful money of the United States of America, and other good and valuable consideration, the receipt whereof is hereby acknowledged, Grantor hereby grants and conveys unto the Grantee, and its heirs and assigns, in fee simple, the following described lands, situate, lying and being in Kent County, State of Delaware:

See Attached Exhibit A

BEING the same lands and premises which were conveyed unto Del-Homes, Inc., a Delaware corporation, by deed of Donald Bruce Noble and Rosemarie E. Noble, his wife, dated May 8, 1989 and recorded in the Office of the Recorder of Deeds in and for Kent County, Delaware, on May 12, 1989 in Deed Book P46, Page 164.

TOGETHER with all the rights, title and interest of the Grantor in and all street roads and public places, opened or proposed, adjoining the said Property, and all easements and rights of way, public or private, now or hereafter used in connection with said Property.

SUBJECT to any and all restrictions, reservations, conditions, easements and agreements of record in the Office of the Recorder of Deeds in and for Frederica, Kent County, Delaware.

IN WITNESS WHEREOF, the said Del-Homes, Inc. has caused its name to be hereunto set, and its common and corporate seal to be hereunto affixed, duly attested, the day and year first above written.

DEL-HOMES, INC.

_____
Witness

By: John T. Beiser (SEAL)
John T. Beiser, Owner

STATE OF DELAWARE, COUNTY OF KENT: to-wit

BE IT REMEMBERED, that on this 23rd day of October, A.D. 2017, personally appeared before me, the Subscriber, a Notary Public in and for the State and County aforesaid, John T. Beiser, Owner of Del-Homes, Inc., party to this Indenture, known to me personally to be such, and acknowledged this Indenture to be his act and deed and the act and deed of said corporation; that the signature of the Owner is in his own proper handwriting and the seal affixed is the common and corporate seal of said corporation; and that his act of signing, sealing, acknowledging and delivering said Indenture was first duly authorized by a resolution of the Board of Directors of said corporation.

GIVEN under my Hand and Seal of Office the day and year aforesaid.

Sarah A. Shaner
Notary Public
My Commission Expires: 6/12/19

SARAH A. SHANER NOTARY PUBLIC STATE OF DELAWARE MY COMMISSION EXPIRES 06/12/2019

ALL that certain lot, piece and parcel of land situate, lying and being in the Town of Bowers, Kent County, State of Delaware, lying on the north side of Main Street, but not adjacent thereto, being Lot No. 32 lying on the east side of Bay Road leading from Main Street to St. Jones River, said lot having a frontage on said Bay Road of 50 feet, the southerly line thereof measuring approximately 437 feet, and the northerly line thereof measuring approximately 445 feet, as the same is more particularly laid out on a plot of lots in a development of Charles and Margaret Shore, Bowers Beach, Delaware, in accordance with a survey made by Charles C. Brown, Surveyor, October, 1950, said plot being of record in the Office of the Recorder of Deeds, in and for Kent County, Delaware, in Plot Book 2, Page 26.

70 2017 00328810

Kent County
Betty Lou McKenna
Recorder of Deeds
Dover, DE 19901

Instrument Number: 2017-328810

Recorded On: October 24, 2017 As-Deed

Parties: DEL-HOMES INC

To DELMARSH LLC

# of Pages: 4

Comment:

DO NOT REMOVE-THIS PAGE IS PART OF THE RECORDED DOCUMENT

Deed		71.00
# of Pages	3	
# of Parcel IDs	1	
Total:		71.00

Realty Tax Information

Affidavit Attached-No

BOWERS - NEW RATE 2017

	Value	4,100.00
State of Delaware		102.50
		102.50

I hereby certify that the within and foregoing was recorded in the Recorder's Office in Kent County,

DO NOT REMOVE-THIS PAGE IS PART OF THE RECORDED DOCUMENT

File Information:

Document Number: 2017-328810
Receipt Number: 382095
Recorded Date/Time: October 24, 2017 01:44:16P
Book-Vol/Pg: BK-RE VL-8850 PG-210
User / Station: C Yerkes - Cashier 4

Record and Return To:

MALMBERG FIRM LLC
1 CLUBHOUSE DRIVE
WYOMING DE 19934

Betty Lou McKenna

EXHIBIT D

KENT COUNTY, DELAWARE

555 Bay Road, Dover, Delaware 19901-3615
(302) 744-2300 – FAX (302) 736-2279

"Serving Kent County With Pride"

PROPERTY INFORMATION

Planning and Building Permits Information

Reference # SM SOUTH MURDERKILL HUNDRED **Card # 1 of 1**

Location ID	41853	**Map Number**	8-01-11513-01-0300-00001
Tax ID	41853	**Deed BVP**	D 7579 0106 P 0046 0164
Parcel ID	13636	**Deed BVP2**	
Property Code	P - PROPERTY		

Current Owner
DELMARSH, LLC,
74 CADDIE CT
MAGNOLIA, DE 19962

Property Location
N FLACK AVE
FREDERICA , DE 19946

Zoning NA **Acres** 3.00

Additional Owner

Sub-Division SHORE SUBDIVISION

Sales History				Liv.Sq.Ft	.0000
Date	**Price**	**Assessment**		**Total Rooms**	
4/07/15	7,700	**Land**	7,700	**Bedrooms**	
0/00/00	0	**Buildings**		**Full Bath**	
		Total	7,700	**Half Bath**	

Base Tax Due	158.15	Last Billing Detail	History	Farm Info
Tax Penalty	13.67			
Total Tax Bal.	171.82			
Sewer Balance	37.74	**Sewer Account #**	3921	
Neighborhood #	00800	**Coordinates**		0504430 E 0387664 N
Land Use		**Lot Dimensions**		0000002.83
Living Units		**School District**	22	LAKE FOREST
Class	Residen	**Fire District**	40	NORTH BOWERS
Plat Book Pg	002 00026	**Sewer District**	10	BOWERS
Topography	Level	**Ambulance District**	40	NORTH BOWERS
Street or Road	Paved	**Trash District**		
Fronting	Residen	**Light District**		
Improvement	VACANT	**Commissioner Dist**	00	
		Tax Ditches	NONE	

IMPROVEMENT KEY	
MANUF HM	Manufactured Home
MANUFCC	Manufactured Home Class C Assessment
MNFHMRT	Manufactured Home Retired Title

Property Description
#1-N. SD. MAIN ST.,
BOWERS, LOTS #
22-23-24-25

Year Built **Type** NO DATA **Energy Adj.**
Style **Fire Places** **Design**

	Type	Percentage	Type	Percentage
Ext. Walls		0		0
Roof Cover		0		0
Floor Cover		0		0
Heat/Cool		0		0
Plaster Int.		0		
Foundation				
Sub-floor				

	Y/N	Unfinished	Basement Living Area	Rec Room
Basement		0	0	0

	Type	Sq.Feet	Wall	Floor
Garage 1		0		
Garage 2		0		
Bas Gar		NO DATA	NO DATA	NO DATA
Porch 1	NO DATA	0		
Porch 2	NO DATA	0		

History

Dimensions 0 X 0
Skirting Type
Skirting Lin Ft 0
Tip Out Sq Ft 0
Serial Number
Manufacturer
Model
Color

OUTBUILDINGS			
Type/Dimn	Description	Type/Dimn	Description

KENT COUNTY, DELAWARE

555 Bay Road, Dover, Delaware 19901-3615
(302) 744-2300 -- FAX (302) 736-2279

"Serving Kent County With Pride"

PROPERTY INFORMATION

Planning and Building Permits Information

Reference #	SM SOUTH MURDERKILL HUNDRED	**Card # 1 of 1**	
Location ID	41854	**Map Number**	8-01-11513-01-0200-00001
Tax ID	41854	**Deed BVP**	D 8850 0210 P 0046 0164
Parcel ID	2044	**Deed BVP2**	
Property Code	P - PROPERTY		

Current Owner
DELMARSH, LLC,
74 CADDIE CT
MAGNOLIA, DE 19962
Additional Owner

Property Location
N BAYSHORE DR
FREDERICA , DE 19946
Zoning NA

Acres .47

Sub-Division SHORE SUBDIVISION

Sales History				Liv.Sq.Ft	.0000
Date	**Price**	**Assessment**		**Total Rooms**	
10/24/17	4,100	**Land**	7,600	**Bedrooms**	
0/00/00	0	**Buildings**		**Full Bath**	
		Total	7,600	**Half Bath**	

Base Tax Due	156.09	Last Billing Detail		History	Farm Info
Tax Penalty	13.51				
Total Tax Bal.	169.60				
Sewer Balance	.00	**Sewer Account #**			
Neighborhood #	00800	**Coordinates**		0504730 E 0387820 N	
Land Use		**Lot Dimensions**		0000050.00 0000420.00	
Living Units		**School District**	22	LAKE FOREST	
Class	Residen	**Fire District**	40	NORTH BOWERS	
Plat Book Pg	002 00037	**Sewer District**	10	BOWERS	
Topography	Level	**Ambulance District**	40	NORTH BOWERS	
Street or Road	Paved	**Trash District**			
Fronting	Residen	**Light District**			
Improvement	VACANT	**Commissioner Dist**	4TH		
		Tax Ditches	NONE		

IMPROVEMENT KEY	
MANUF HM	Manufactured Home
MANUFCC	Manufactured Home Class C Assessment
MNFHMRT	Manufactured Home Retired Title

Property Description
N SD MAIN ST BUT NOT ADJ
BOWERS, LOT 32
N BAYSHORE DRIVE

Year Built **Type** NO DATA **Energy Adj.**
Style **Fire Places** **Design**

	Type	Percentage	Type	Percentage
Ext. Walls		0		0
Roof Cover		0		0
Floor Cover		0		0
Heat/Cool		0		0
Plaster Int.		0		
Foundation				
Sub-floor				

	Y/N	Unfinished	Basement Living Area	Rec Room
Basement		0	0	0

	Type	Sq.Feet	Wall	Floor
Garage 1		0		
Garage 2		0		
Bas Gar		NO DATA	NO DATA	NO DATA
Porch 1	NO DATA	0		
Porch 2	NO DATA	0		

History

Dimensions 0 X 0
Skirting Type
Skirting Lin Ft 0
Tip Out Sq Ft 0
Serial Number
Manufacturer
Model
Color

OUTBUILDINGS			
Type/Dimn	Description	Type/Dimn	Description

EXHIBIT E

Wetlands/Waters Delineation for:

Lewis Shore Subdivision, Lots 22-25,32 and Undesignated Lot

Bowers Beach, Delaware

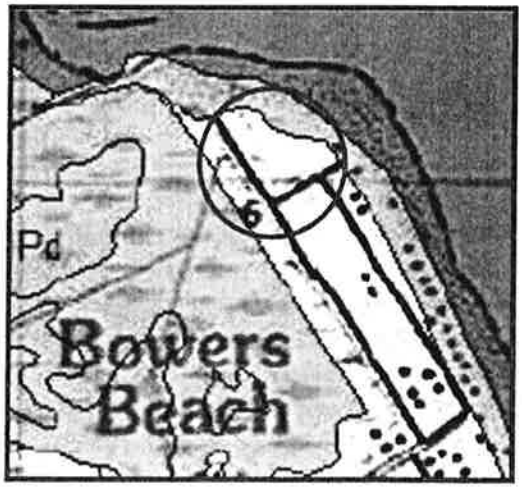
Completed: June 28, 2019

Prepared by:
Watershed Eco LLC
James C. McCulley IV, PWS
#000471

114 Merrimac Avenue
Middletown, Delaware
19709
www.WatershedEco.com

A. Site Description, Landscape Setting

This site lies east of Flack Avenue and south of the confluence of the Saint Jones River and the Delaware Bay at approximate Latitude and Longitude: 39-03-52.36, -75-24-02.49.



The site is a part of the Lewis Shore Subdivision (Lots 22-25,32 and Undesignated Lot) for which previous jurisdictional determinations have been issued. The site consists of a beach, dirt road and disturbed areas previously dominated by Phragmites (periodically mowed). There are roadside swales adjacent to Flack Avenue and Bayshore Road, both of which have adjacent spoils piles that were previously determined to be non-wetlands.

Figure 1: USGS with NWI

B. Site Alterations, Current and Past Land Use

Aerial photographs are available back to 1961 and provide a good history of the site and the surrounding area.

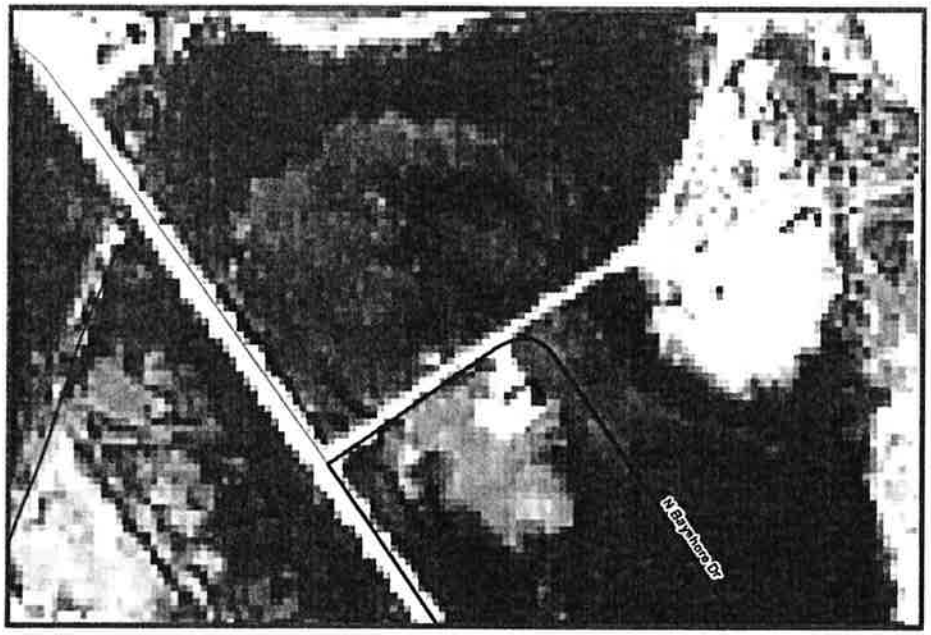


Figure 2: 1961 Aerial

In 1961, a dirt road goes all the way to the beach area to the east and there was some fill visible south of the dirt road.

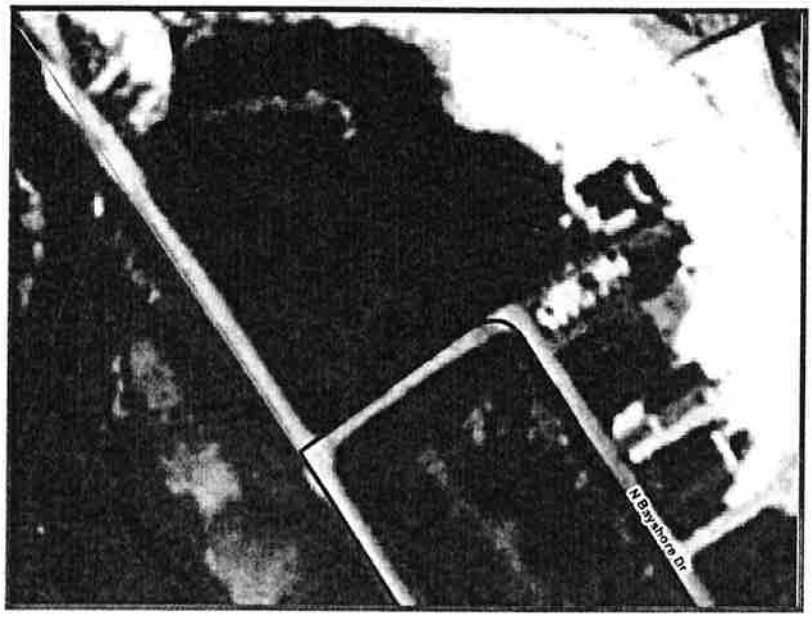


Figure 3: 1992 Aerial

By 1992, Bayshore Road has been constructed and it appears that that there are sidecast materials along the southwest side of Bayshore Avenue. The dirt road portion between Bayshore and the beach appears to have been converted to a driveway and several homes have been constructed on the eastern side of Bayshore Avenue.

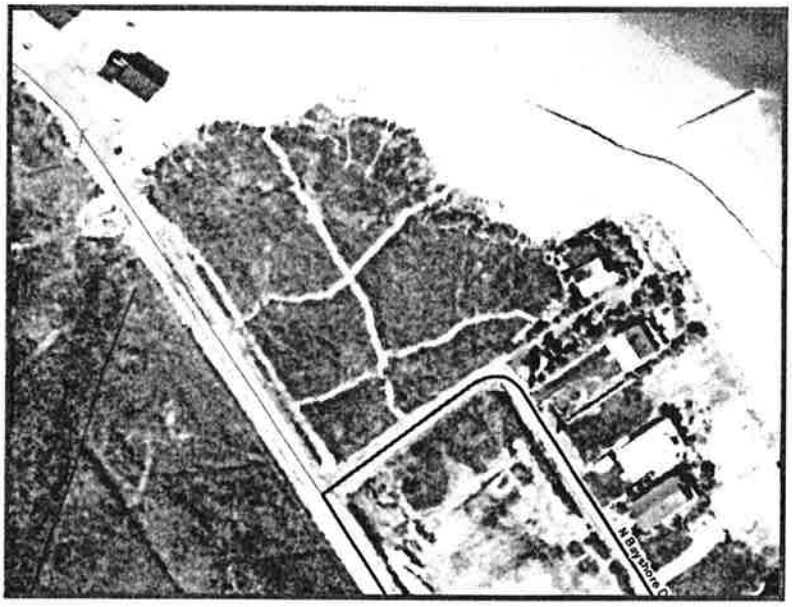


Figure 4: 2002 Aerial

By 2002, a series of dirt roads are visible on the subject property. Two new homes are constructed north of the subject property and a few additional homes have been constructed east of Bayshore Avenue. New fill is visible interior to Flack and Bayshore south of the subject property.

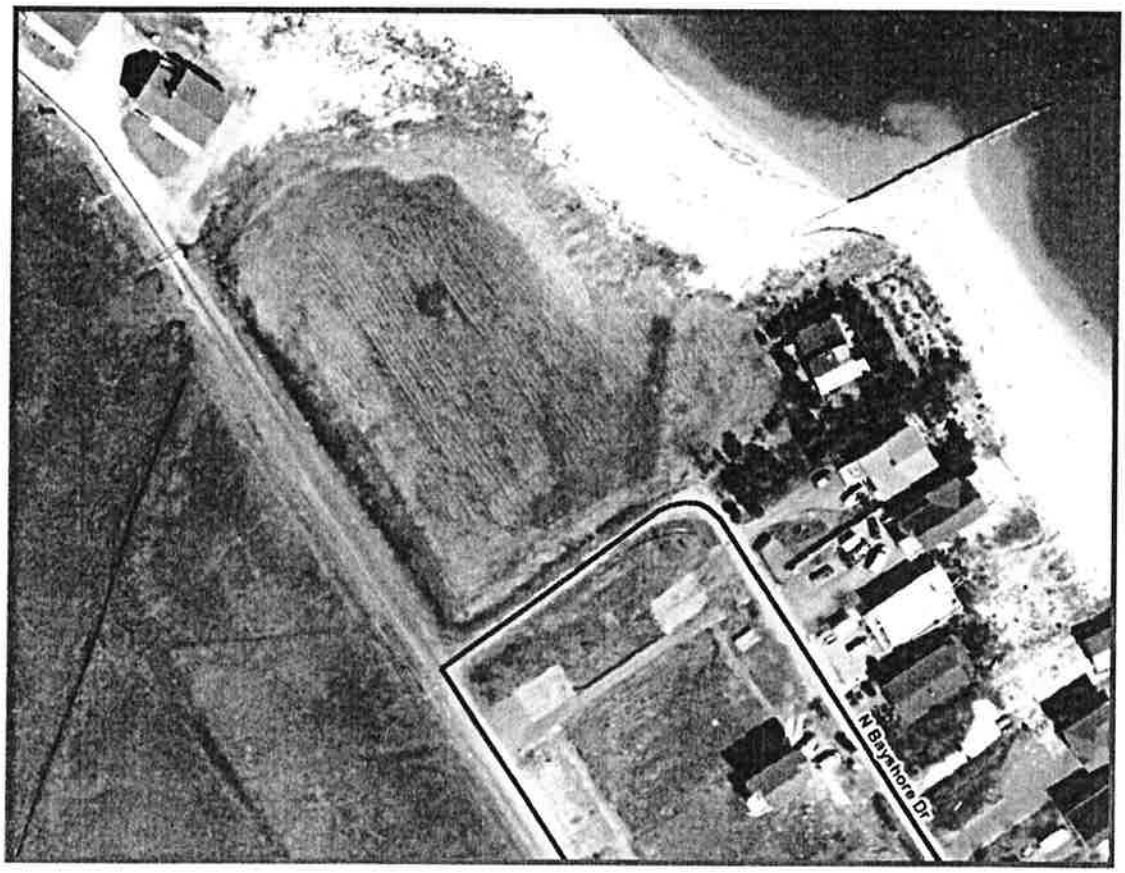


Figure 5: 2007 Aerial

By 2007, additional homes have been constructed or are under construction south and southeast of the site, including the parcel directly south of the subject property. The subject property has mowing lines visible and appears to have new sand deposited on the back side of the beach.

Site visits in 2009, 2010, 2011 and 2012 have revealed that several new homes have been constructed or are under construction south of the subject property. Additionally, several storms have washed additional sand over the beach and into the Phragmites area west of the existing beach (see photos below).

Tidal studies, topography, State Tidal Wetland Map changes and additional wetland flagging has been conducted on the site and is described in this report.

B.1 Mapped Soils and Wetlands -

The mapped soils are shown below (see details in attached soil report).

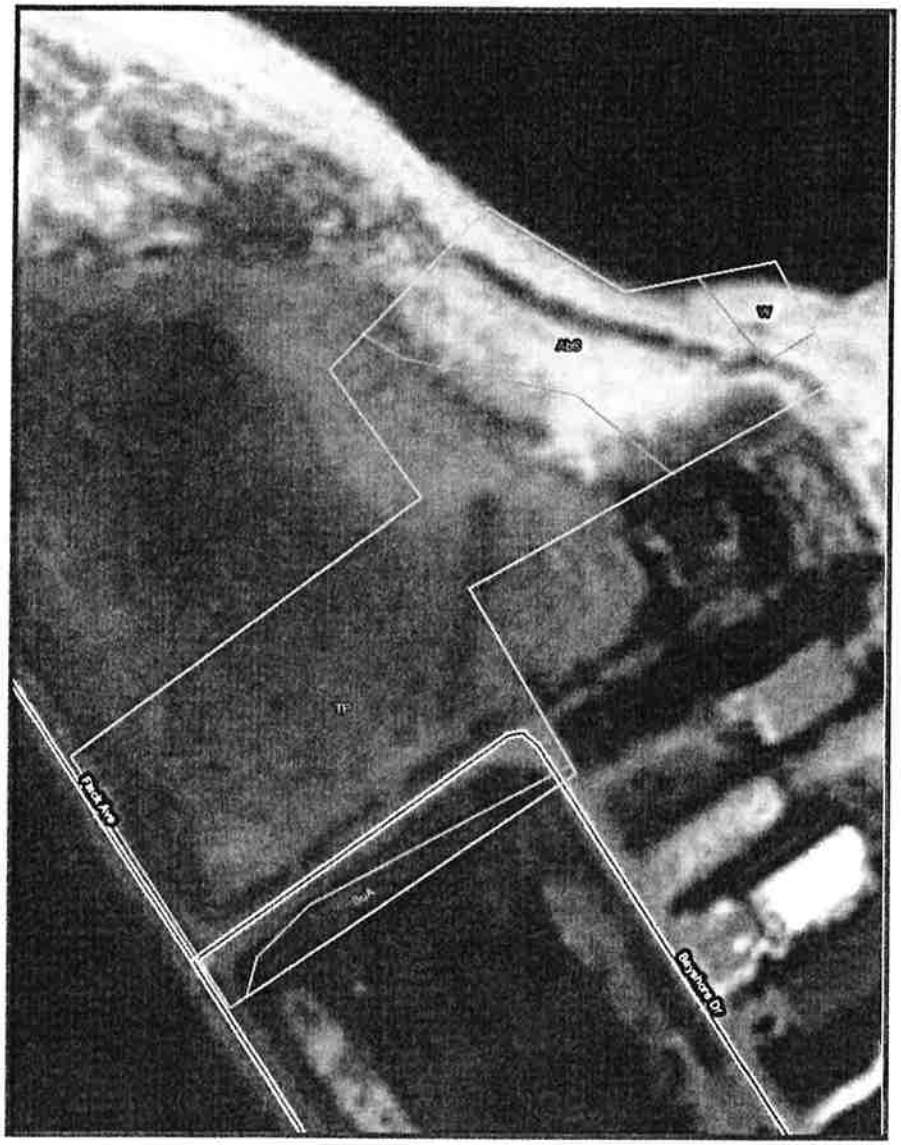


Figure 6: Soils Map

Kent County, Delaware (DE001)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
AbC	Acquango-Beaches complex, 0 to 10 percent slopes	0.4	24.1%
SuA	Sunken mucky silt loam, 0 to 2 percent slopes, occasionally flooded, tidal	0.1	4.5%
TP	Transquaking and Mispillion soils, very frequently flooded, tidal	1.2	68.9%
W	Water	0.0	2.6%
Totals for Area of Interest		**1.8**	**100.0%**

The majority of the site is underlain by poorly drained soils. Soils found on the site are a variety of disturbed and filled native soils, overlain with sand that has washed in from the adjacent dunes.

The National Wetland Inventory (NWI) Map shows the beach area as an Estuarine Unvegetated Wetland Area and the area west of Flack Avenue (offsite) as an Estaurine Emergent Wetland area. The remainder of the subject site is depicted as non-wetland along with the remainder of the building lots to the south.

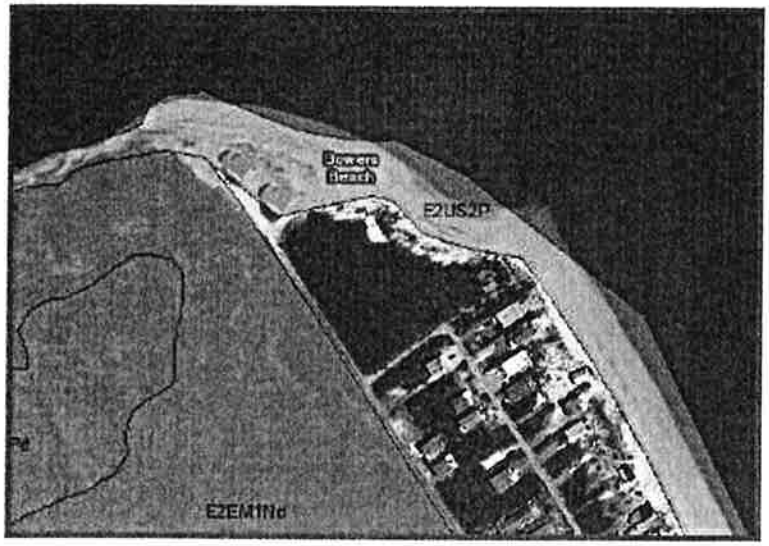


Figure 7: National Wetland Inventory Map

The 1992 State of Delaware Wetland Mapping Project (SWWMP) Maps depict wetlands in a similar configuration to the NWI Map, with the majority of the site being mapped as non-wetlands.

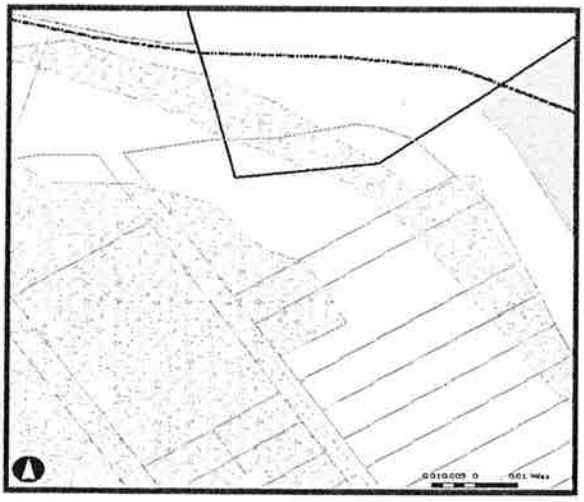


Figure 8: SWMP Map

The State Tidal Wetlands Map (Panel DNR183) depicts Marsh on the site, with the dirt road and the upper beach area excluded. The map also denotes that there has been a map change. Review of correspondence indicates that the map was adjusted several times, once to exclude the area interior to Flack, Bayshore and the dirt road and to exclude a portion of the upper beach as additional sand washed in. Since these map changes, additional sand has washed in and is depicted in the attached survey and photographs.

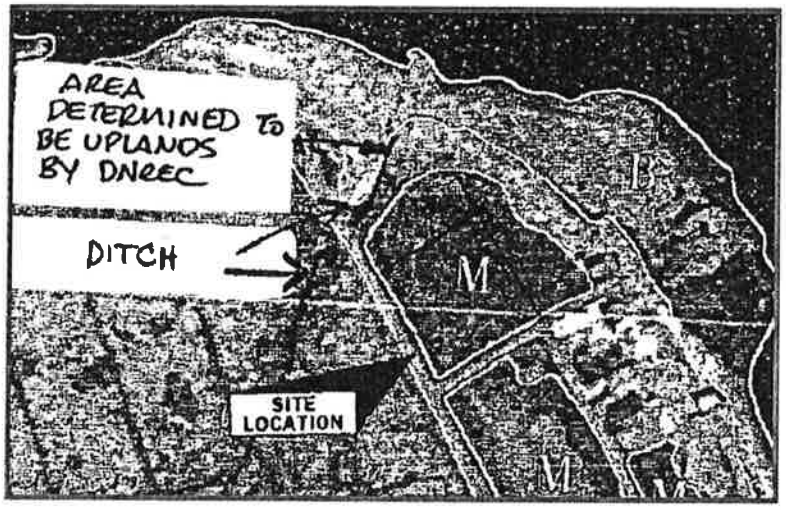


Figure 9: DNR 183

B.2 Hydrology, No Tidal Connection and No MHT Elevation –

The site hydrology as well as the hydrology in the entire area has been significantly modified by the activities of man. The construction of Flack Avenue, Bayshore Road, the dirt road, various filling activities and the placement of beach sand which has washed up onto the old marsh several times, have all modified the hydrology of the subject property and surrounding area.

A drainage study recently conducted by KCI Technologies has identified numerous drainage problems in the area, including: buried pipes, crushed pipes, flat ditches, inadequate storage and lack of outfall to tidal waters in the general area.

Ditches are present on the subject property along the dirt road as well as Flack and Bayshore and side-cast material exists adjacent to these ditches.

Although portions of the area are mapped as tidal wetlands by the State of Delaware, there is no area on the site with a connection to tidal waters and the general elevation of the site is above the mean high tide elevation as detailed in a study by JCM Environmental and recent topographic surveys.

The State of Delaware (2017) has determined that Mean High Tide (MHT) is at elevation 2.3 feet and that the average site elevation is around 3.5 feet (see attached).

Miller and Lewis performed a topographic survey in 2019 and determined the MHT at 2.5 feet and Mean Low Water (MLW) at 0 feet. Numerous spot elevations throughout the site depict that none of the site behind the dunes is below the MHT elevation.

There is no connection of the area behind the dunes to any tidal waters.Vegetation -

The site consisted of the following vegetation communities:

Beach – This area occupies the area between the Delaware Bay and the vegetated herbaceous area of the site. This area extends from the low tide elevation along the bay and the Phragmites dominated area. The portion of the beach that would be regulated as Waters of the U.S. occupies the area to the mean high tide line and this area is mostly devoid of vegetation. Above the high tide line, the beach is dominated by Yucca, Prickly Pear Cactus, Xanthium and Sand Bur.

Herbaceous – The remainder of the site was previously dominated by Phragmites, with the exception of the old filled areas and the spoils piles.

Figure 10: Beach Area in Tidal Zone

Figure 11: New Sand that has Washed In

Figure 12: New Sand that has Washed In

Figure 13: Sand Washed In

Figure 14: Erosion After Storm

Figure 15: Phragmites

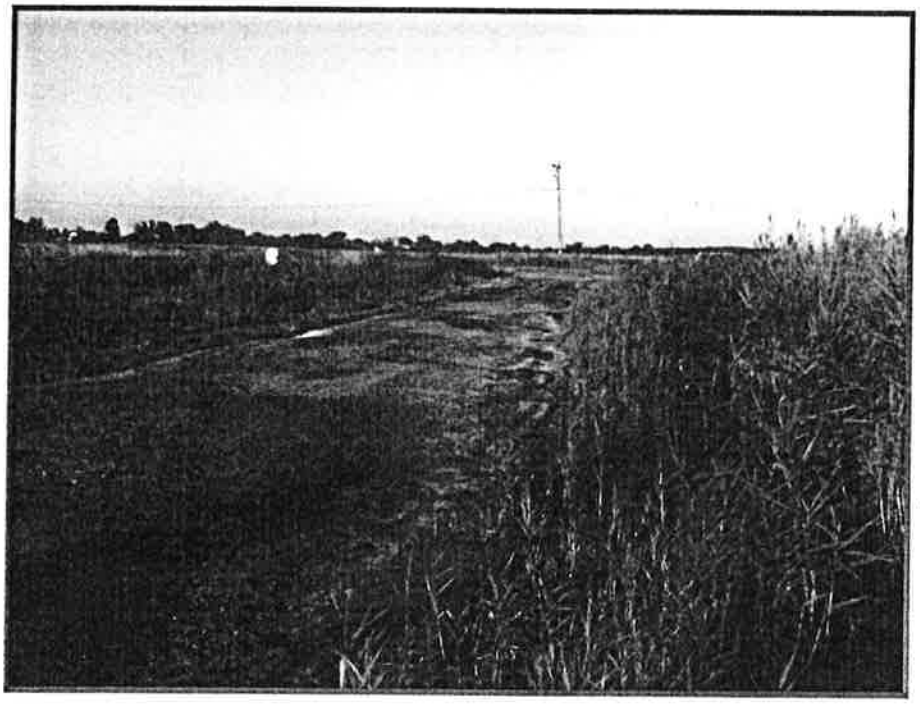


Figure 16: Dirt Road

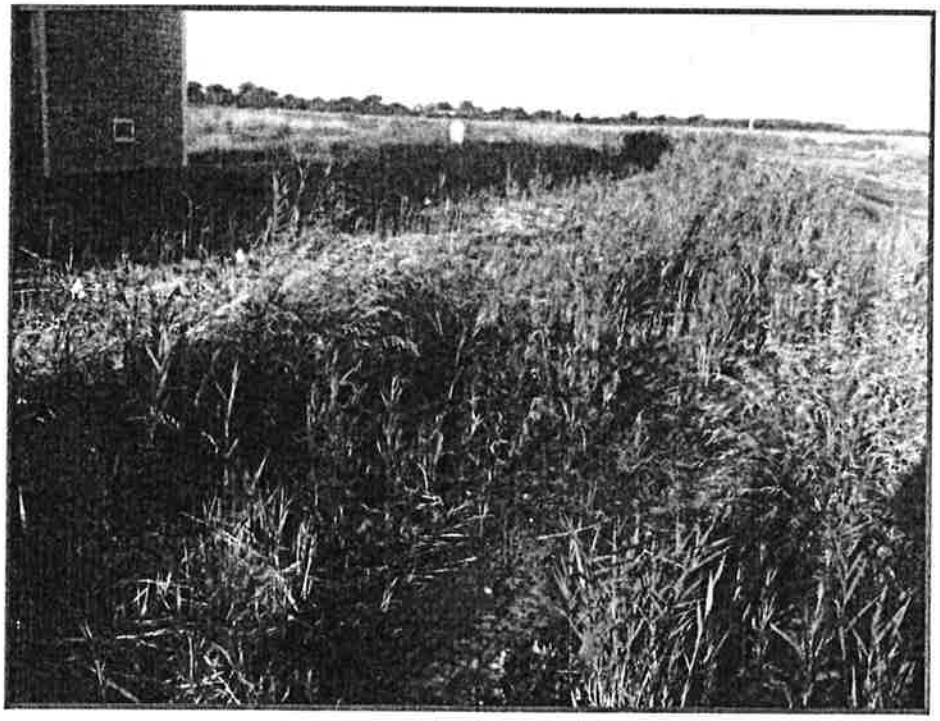


Figure 17: Spoils Adjacent to Roadside Ditch

C. Results and Conclusions

The upper beach area, dirt road and sidecast and old filled areas were delineated as upland areas and the remaining portion of the site was mapped as non-tidal wetlands per this study.

Although mapped as tidal wetlands, the majority of the wetlands on the site are above the high tide elevation and isolated from a direct connection to tidal waters. There is no connection to tidal waters as evidenced by numerous site visits by Watershed Eco as well as drainage studies completed by McCrone Engineering and recent topographic surveys.

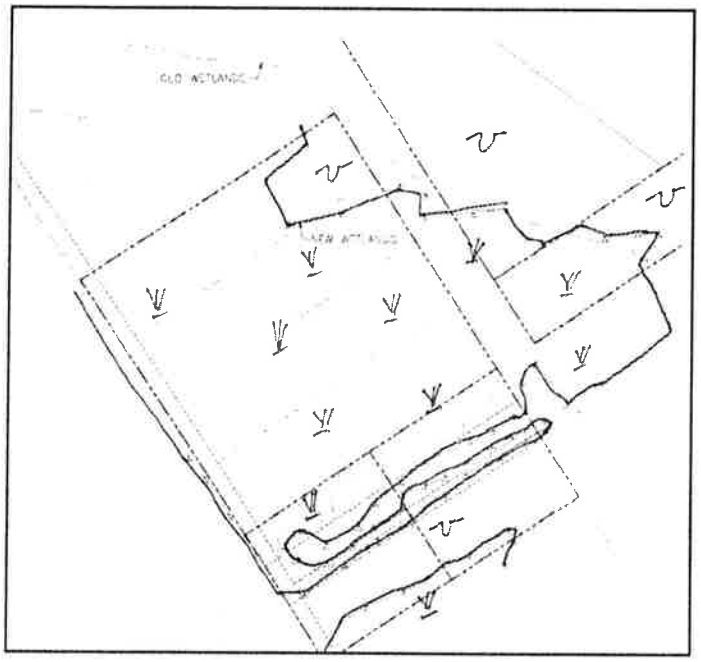


Figure 18: 2012 Wetlands Survey by PELSA

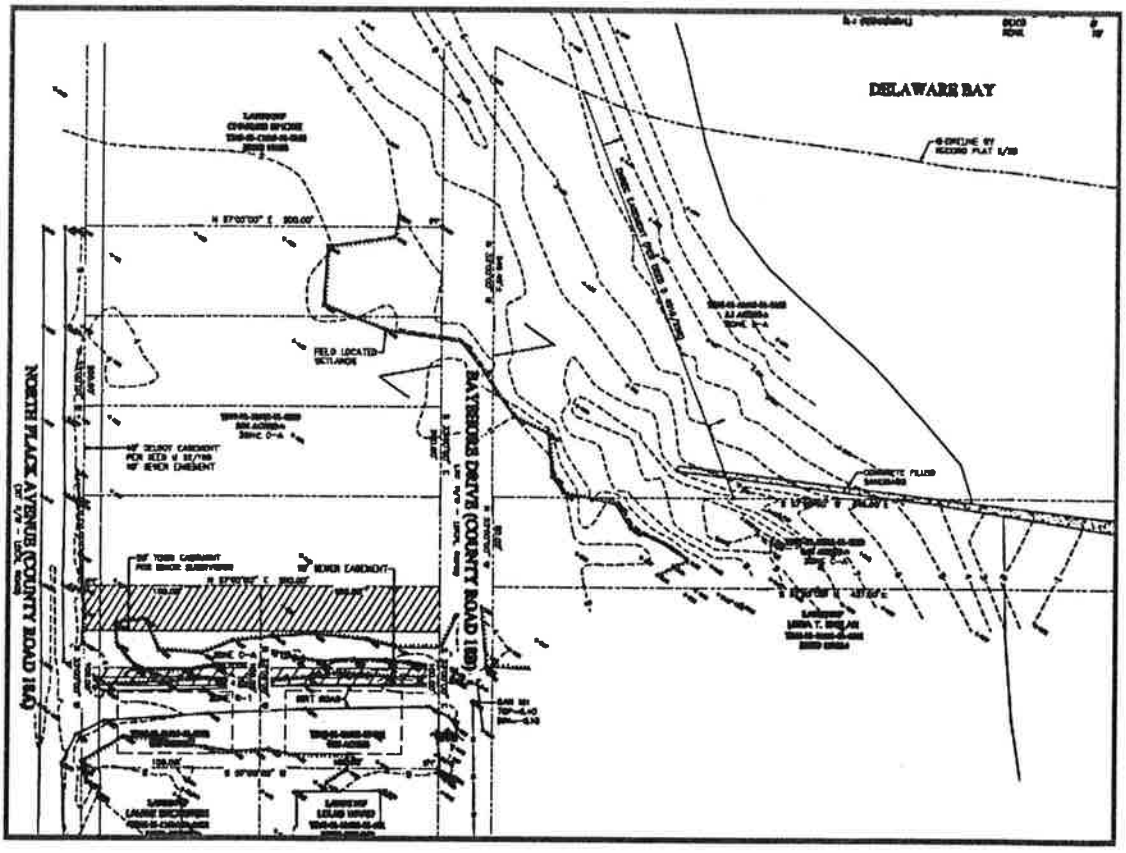


Figure 19: Previous Topographic Survey

Based on the above, it is the opinion of Watershed Eco, LLC and James C. McCulley IV, PWS #000471 that the attached plans accurately depict the wetlands or other Waters of the United States exist on the site. With the exception of the area in front of the dunes, there are no tidal wetlands on the site and all of the wetlands mapped are non-tidal.

This report was prepared to provide background information necessary to secure a Jurisdictional Determination from the U.S. Army Corps of Engineers and/or the State of Delaware.

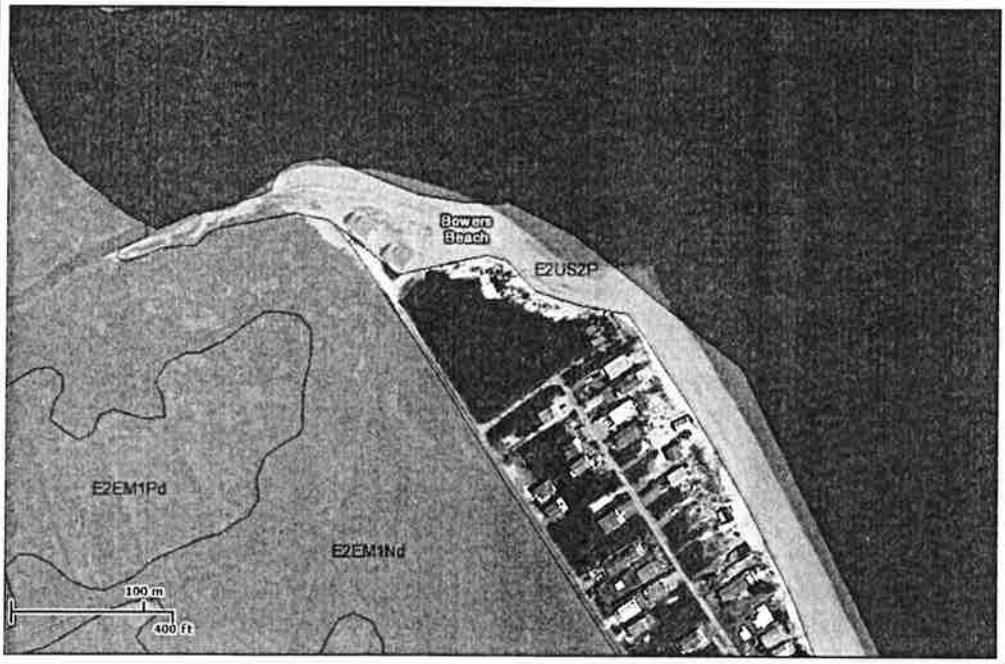
D. Disclaimer Statement

This report documents the investigation, best professional judgment, and conclusions of the investigators. It should be used at your own risk until it has been approved in writing by the U.S. Army Corps of Engineers and the State of Delaware.

U.S. Fish and Wildlife Service
National Wetlands Inventory

Bowers 20-25

Aug 6, 2012



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

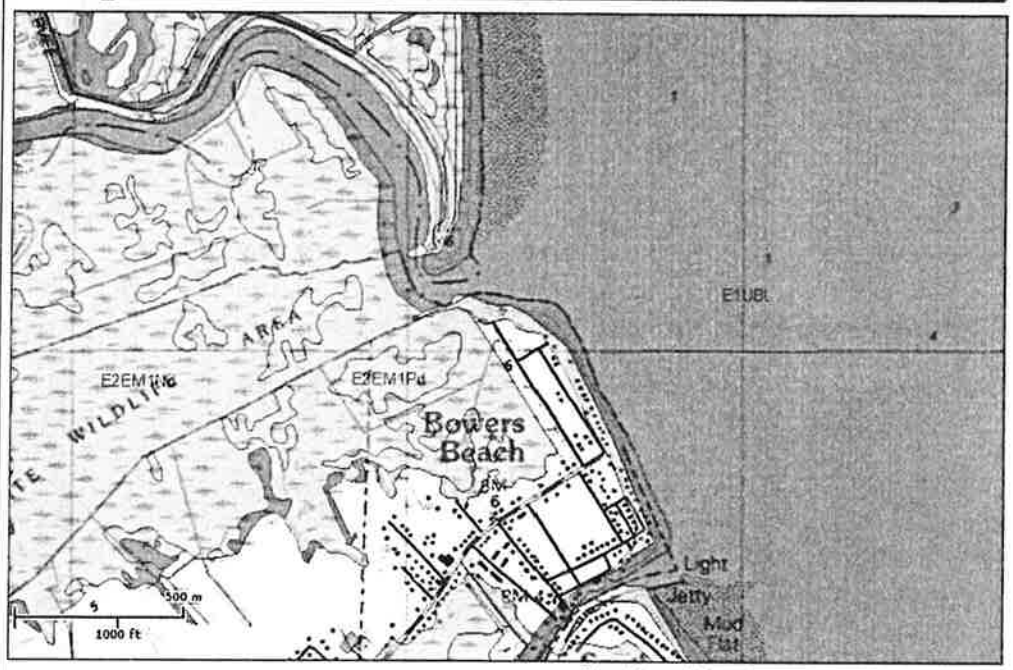
User Remarks:

U.S. Fish and Wildlife Service

National Wetlands Inventory

Bowers Beach
20-25

Aug 6, 2012



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

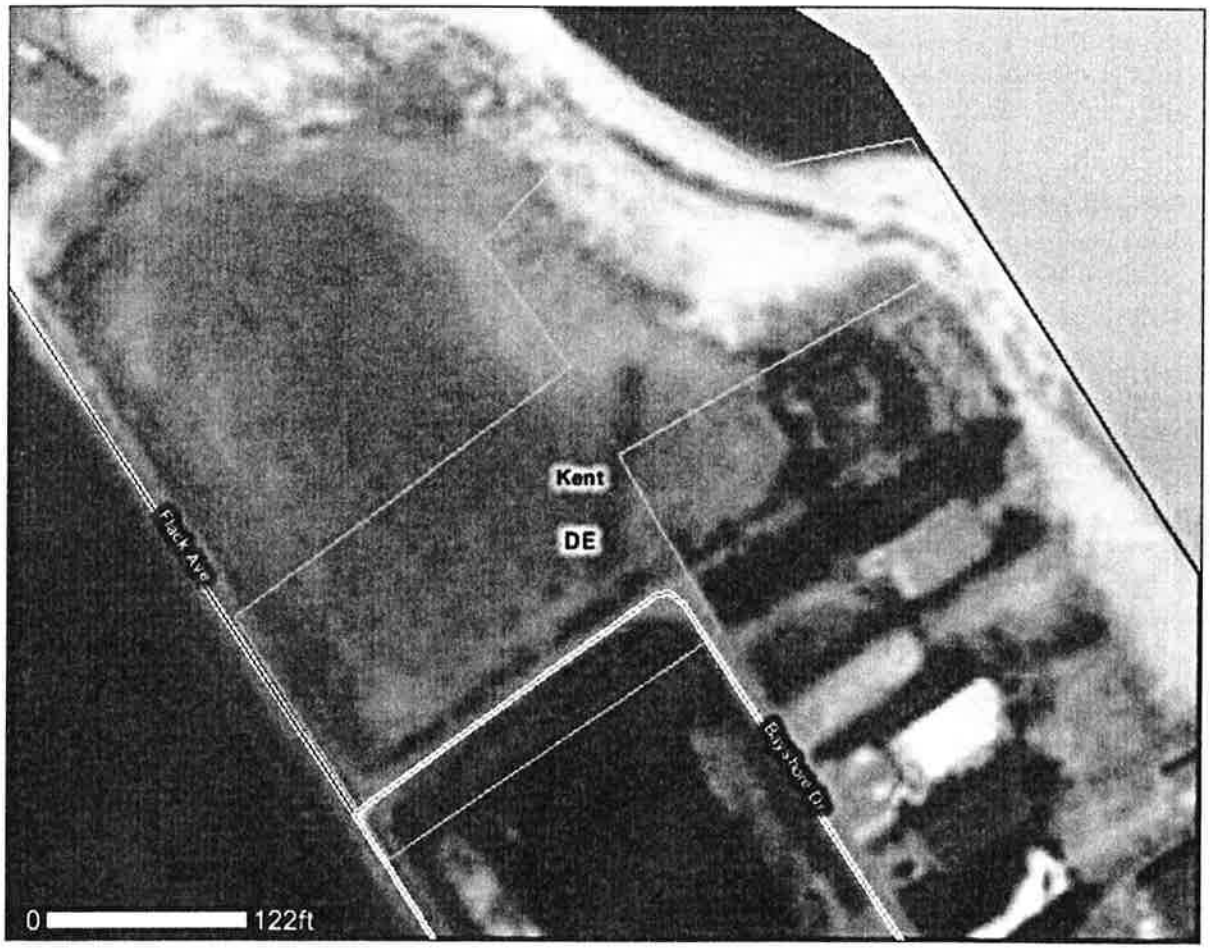
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Kent County, Delaware



August 6, 2012

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:1,040 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 18N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kent County, Delaware
Survey Area Data: Version 6, Oct 17, 2006

Date(s) aerial images were photographed: 7/17/2006

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Kent County, Delaware (DE001)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AbC	Acquango-Beaches complex, 0 to 10 percent slopes	0.4	24.1%
SuA	Sunken mucky silt loam, 0 to 2 percent slopes, occasionally flooded, tidal	0.1	4.5%
TP	Transquaking and Mispillion soils, very frequently flooded, tidal	1.2	68.9%
W	Water	0.0	2.6%
Totals for Area of Interest		**1.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that

have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Kent County, Delaware

AbC—Acquango-Beaches complex, 0 to 10 percent slopes

Map Unit Setting

Elevation: 0 to 80 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days

Map Unit Composition

Acquango and similar soils: 50 percent
Beaches: 45 percent
Minor components: 5 percent

Description of Acquango

Setting

Landform: Backshores, dunes
Landform position (three-dimensional): Talf, rise
Down-slope shape: Concave, convex
Across-slope shape: Linear
Parent material: Sandy eolian deposits and/or sandy marine deposits

Properties and qualities

Slope: 0 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline to slightly saline (0.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water capacity: Very low (about 3.0 inches)

Interpretive groups

Land capability (nonirrigated): 7s

Typical profile

0 to 3 inches: Sand
3 to 20 inches: Sand
20 to 26 inches: Fine sand
26 to 72 inches: Sand

Description of Beaches

Setting

Landform: Beaches
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Beach sand

Properties and qualities

Slope: 0 to 5 percent
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 99.90 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: Very frequent
Maximum salinity: Very slightly saline to strongly saline (4.0 to 22.0 mmhos/cm)
Available water capacity: Very low (about 3.0 inches)

Interpretive groups

Land capability (nonirrigated): 8

Typical profile

0 to 80 inches: Sand

Minor Components

Brockatonorton

Percent of map unit: 3 percent
Landform: Back-barrier beaches

Transquaking

Percent of map unit: 2 percent
Landform: Tidal marshes

SuA—Sunken mucky silt loam, 0 to 2 percent slopes, occasionally flooded, tidal

Map Unit Setting

Elevation: 0 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days

Map Unit Composition

Sunken and similar soils: 80 percent
Minor components: 20 percent

Description of Sunken

Setting

Landform: Flats, submerged upland tidal marshes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty eolian deposits over fluviomarine sediments

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: Occasional
Frequency of ponding: Occasional
Maximum salinity: Very slightly saline to moderately saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 25.0
Available water capacity: High (about 11.8 inches)

Interpretive groups

Land capability (nonirrigated): 5w

Typical profile

0 to 4 inches: Slightly decomposed plant material
4 to 6 inches: Silt loam
6 to 18 inches: Silt loam
18 to 38 inches: Silty clay loam
38 to 65 inches: Very fine sandy loam
65 to 80 inches: Fine sand

Minor Components

Othello

Percent of map unit: 10 percent
Landform: Flats

Honga

Percent of map unit: 5 percent
Landform: Submerged upland tidal marshes

Crosiadore

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Rise

TP—Transquaking and Mispillion soils, very frequently flooded, tidal

Map Unit Setting

Elevation: 0 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days

Map Unit Composition

Mispillion and similar soils: 40 percent
Transquaking and similar soils: 40 percent
Minor components: 20 percent

Description of Transquaking

Setting

Landform: Tidal marshes
Down-slope shape: Linear
Across-slope shape: Linear

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: About 0 to 5 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Maximum salinity: Strongly saline (25.0 to 40.0 mmhos/cm)
Sodium adsorption ratio, maximum: 32.0
Available water capacity: Very high (about 26.2 inches)

Interpretive groups

Land capability (nonirrigated): 8

Typical profile

0 to 46 inches: Mucky peat
46 to 65 inches: Muck
65 to 80 inches: Silty clay loam

Description of Mispillion

Setting

Landform: Tidal marshes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Herbaceous organic material over silty estuarine sediments

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 1.98 in/hr)
Depth to water table: About 0 to 5 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Maximum salinity: Moderately saline to strongly saline (15.0 to 50.0 mmhos/cm)
Sodium adsorption ratio, maximum: 35.0
Available water capacity: Very high (about 21.6 inches)

Interpretive groups

Land capability (nonirrigated): 8

Typical profile

0 to 24 inches: Mucky peat
24 to 40 inches: Muck
40 to 54 inches: Mucky silt loam
54 to 80 inches: Silt loam

Minor Components

Sunken
Percent of map unit: 10 percent
Landform: Flats, submerged upland tidal marshes

Othello
Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Rise

Honga
Percent of map unit: 5 percent
Landform: Submerged upland tidal marshes

W—Water

Map Unit Setting
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days

Map Unit Composition
Water: 100 percent

Description of Water

Interpretive groups
Land capability (nonirrigated): 8

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://soils.usda.gov/

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://soils.usda.gov/

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://soils.usda.gov/

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://soils.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.glti.nrcs.usda.gov/

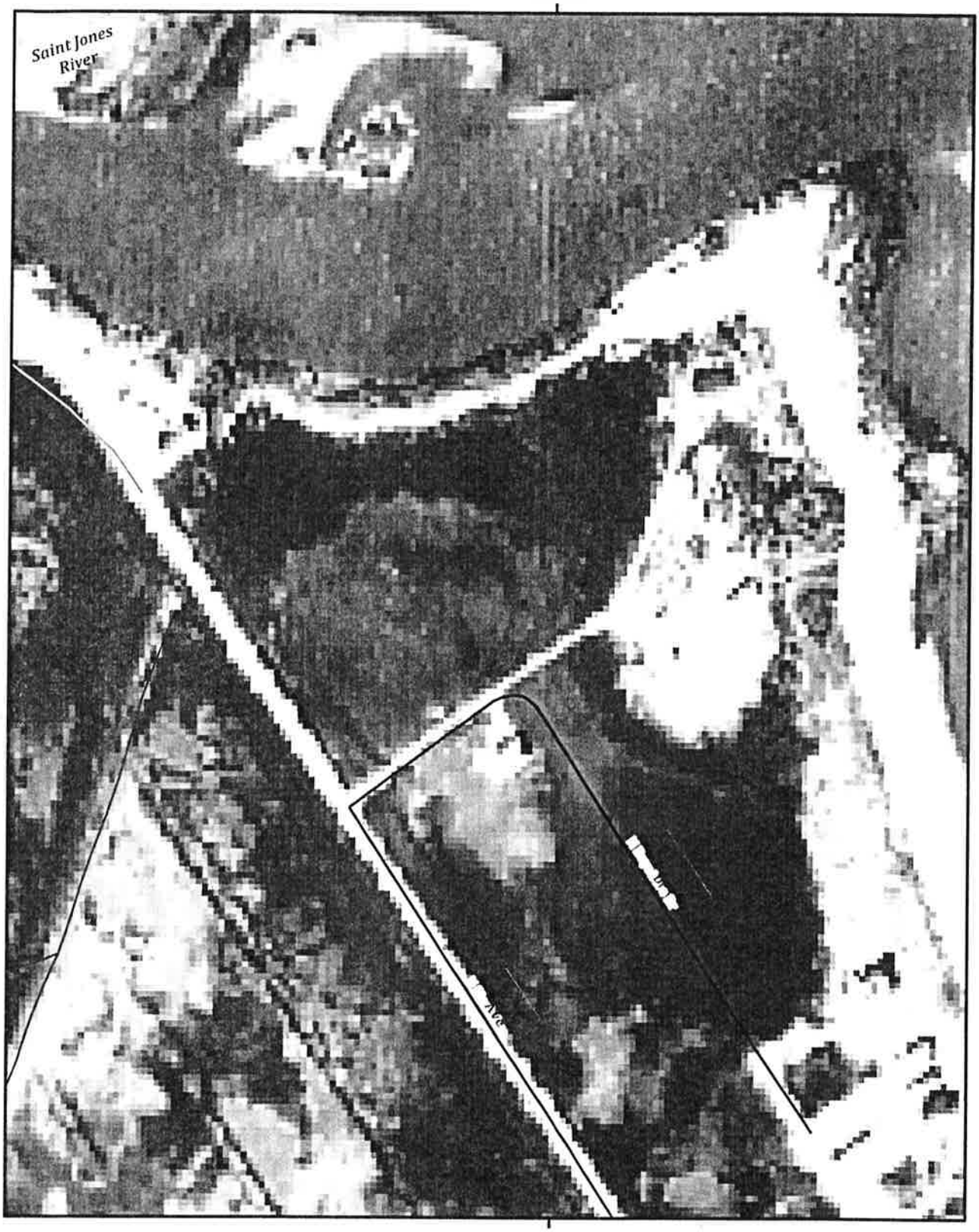
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://soils.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://soils.usda.gov/

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.

State of Delaware

75°24'0"W



Scale 1:1,870

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Feet

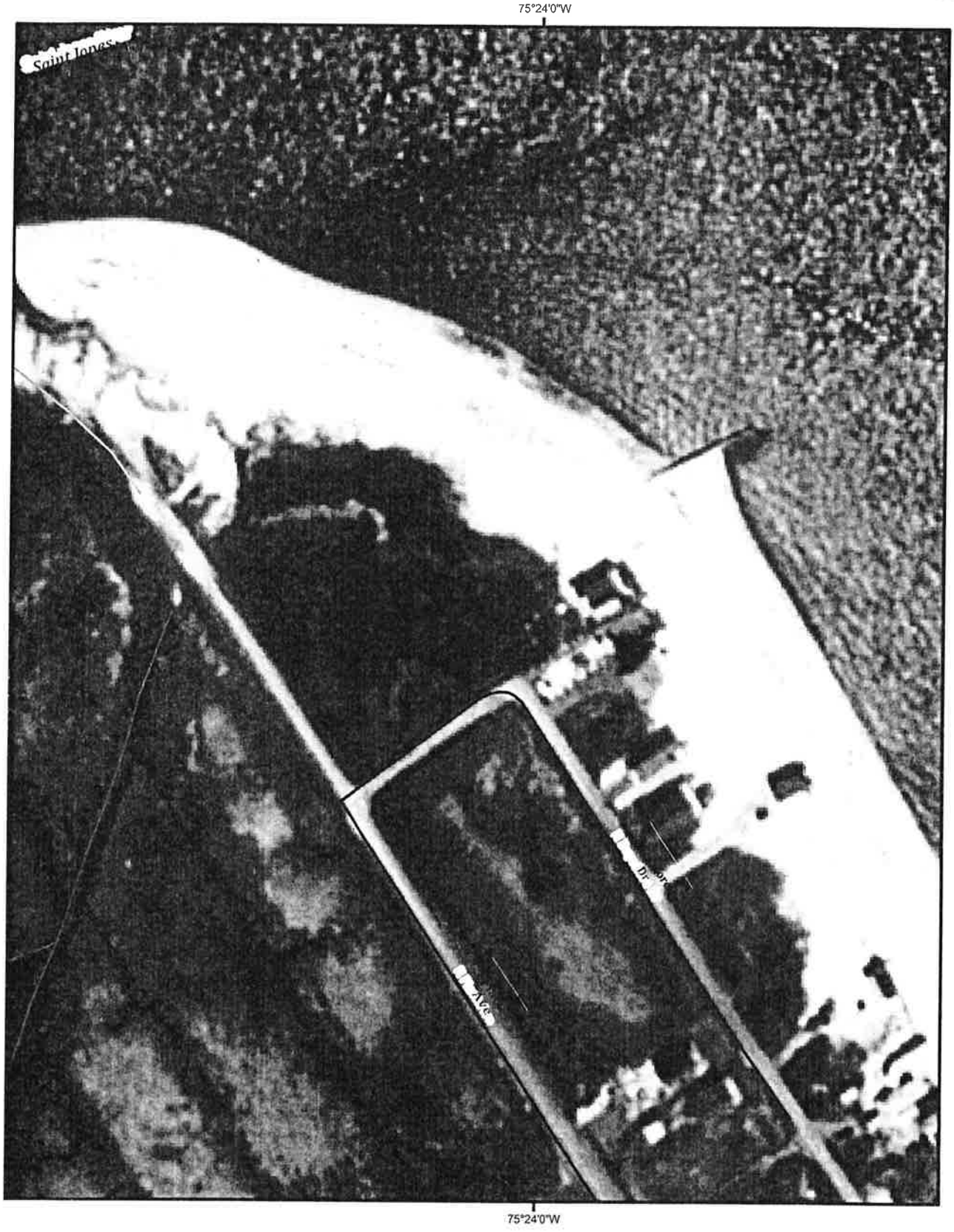
Data on map are based on Delaware framework

the Delaware Geological Survey (DGS) and served via the Delaware Department of Technology and Information (DTI) internet.

Magnetic Declination
Approx. 11 mils

DataMIL Mini Map

State of Delaware



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Kilometers

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Feet

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Magnetic Declination
Approx. 11 mils

DataMIL Mini Map

State of Delaware

75°24'0"W

75°24'0"W

Scale 1:1,870

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Kilometers

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Feet

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Magnetic Declination
Approx. 11 mils

DataMIL Mini Map

State of Delaware

75°24'0"W

Scale 1:1,870

0 50 100 200
Feet

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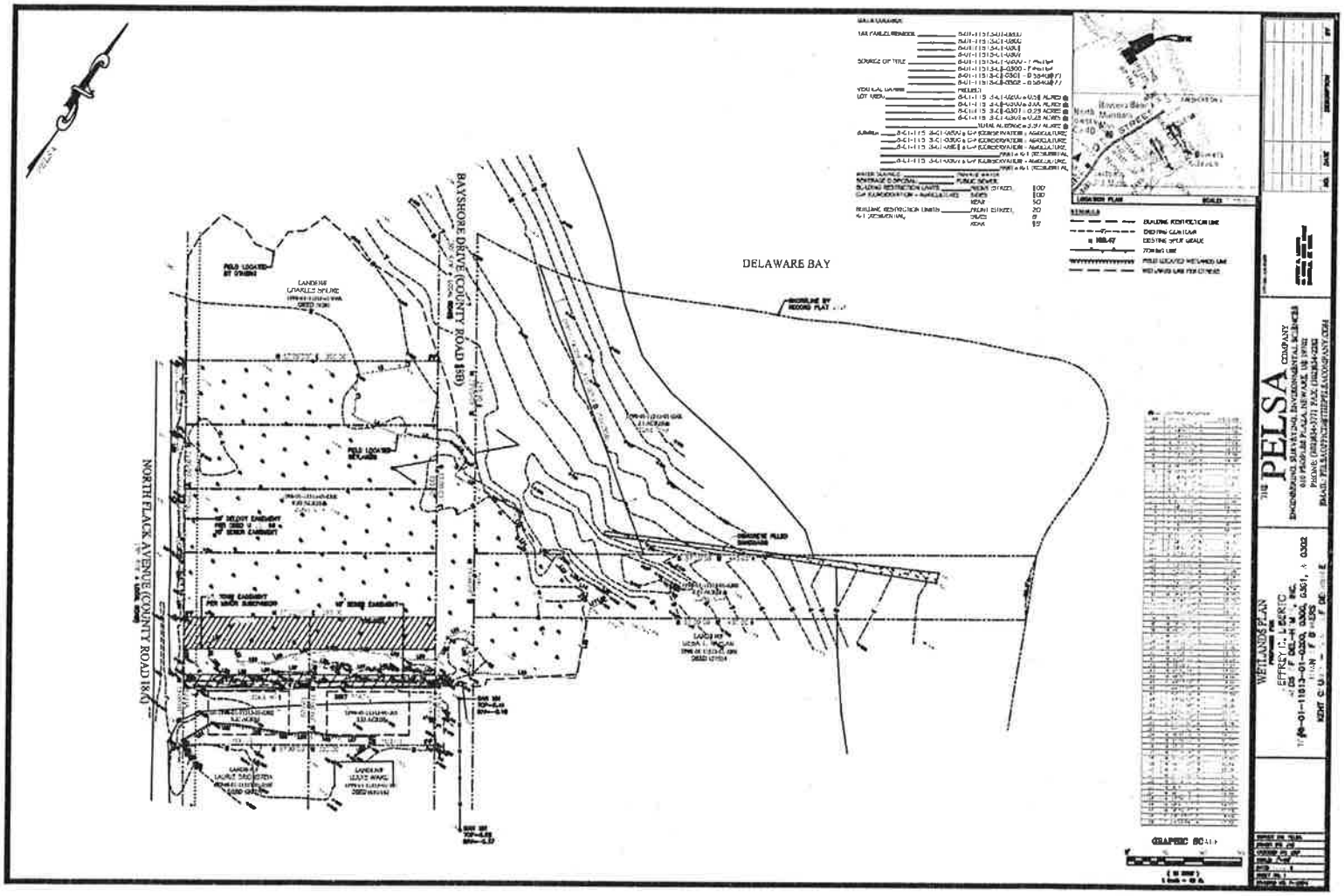
Magnetic Declination
Approx. 11 mils

DataMIL Mini Map


DELAWARE BAY
BAYSHORE DRIVE (COUNTY ROAD 15B)
NORTH FLACK AVENUE (COUNTY ROAD 15A)
PELSA COMPANY
WETLANDS PLAN
GRAPHIC SCALE