



North Branch, Rancocas Creek  
Burlington County  
NJ



**“When the Flood Tide is Done”**

**Timbuctoo, Westampton Township**

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N Branch Flood Control Weir

N Branch Rancocas Creek, Mt. Holly, NJ

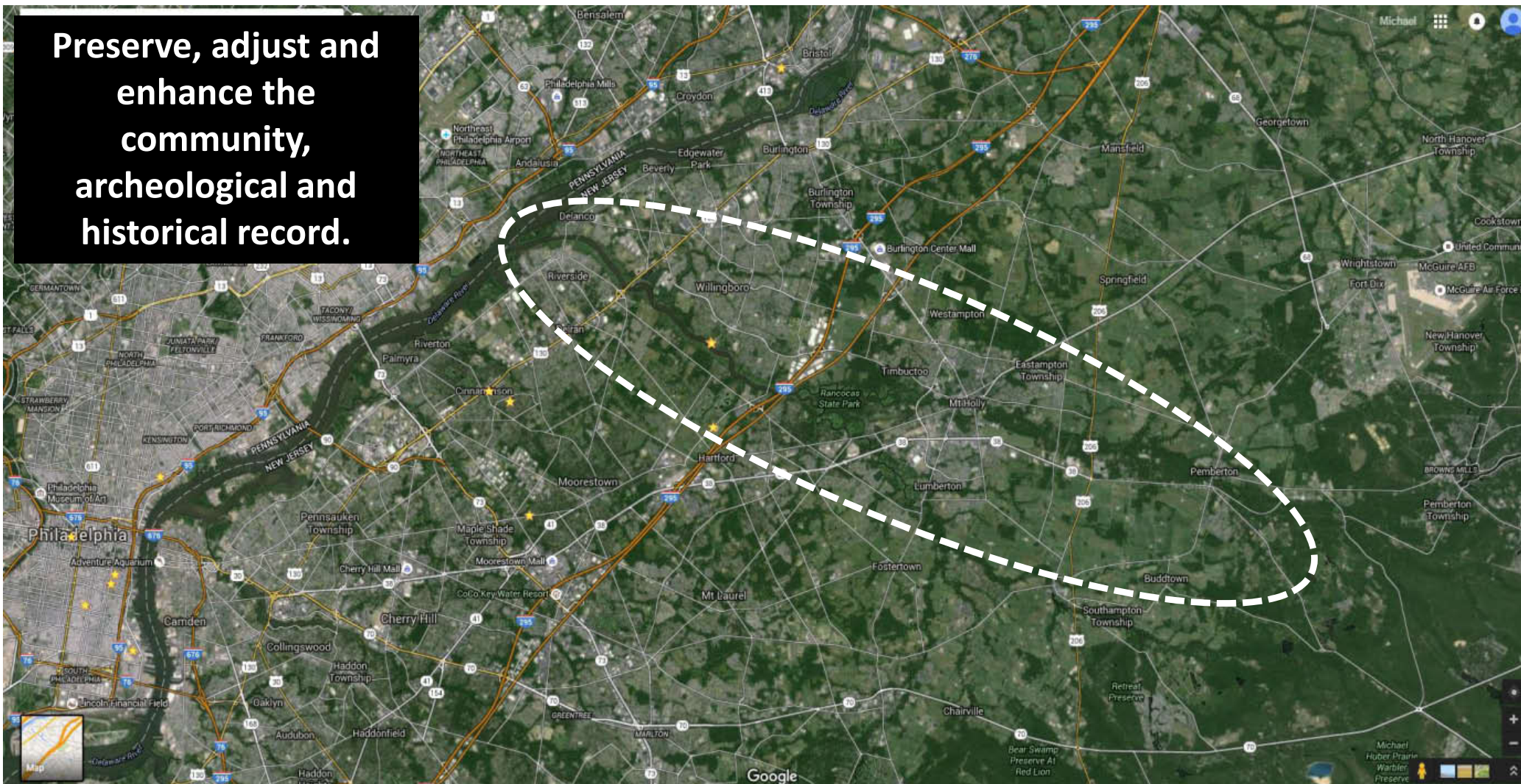


# Site Environment

The precise location of tide mills deserves study.

Minchinton

**Preserve, adjust and  
enhance the  
community,  
archeological and  
historical record.**

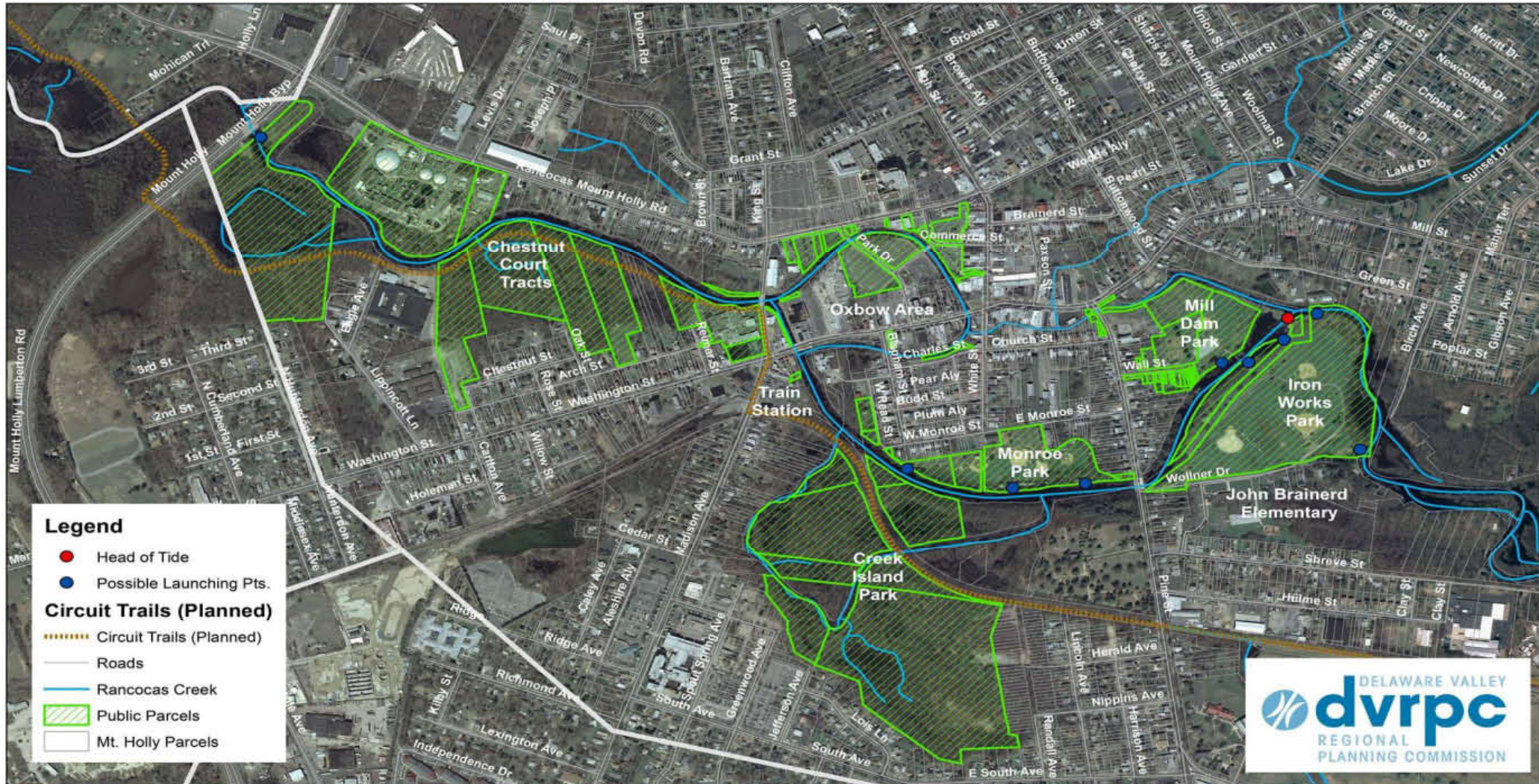


**Rancocas Creek about 25 miles from Philadelphia.**

# Tidal Extent



# Mount Holly Township - Municipal Public Access Plan

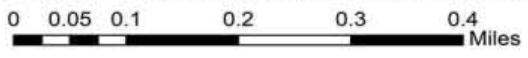


**Legend**

- Head of Tide
- Possible Launching Pts.

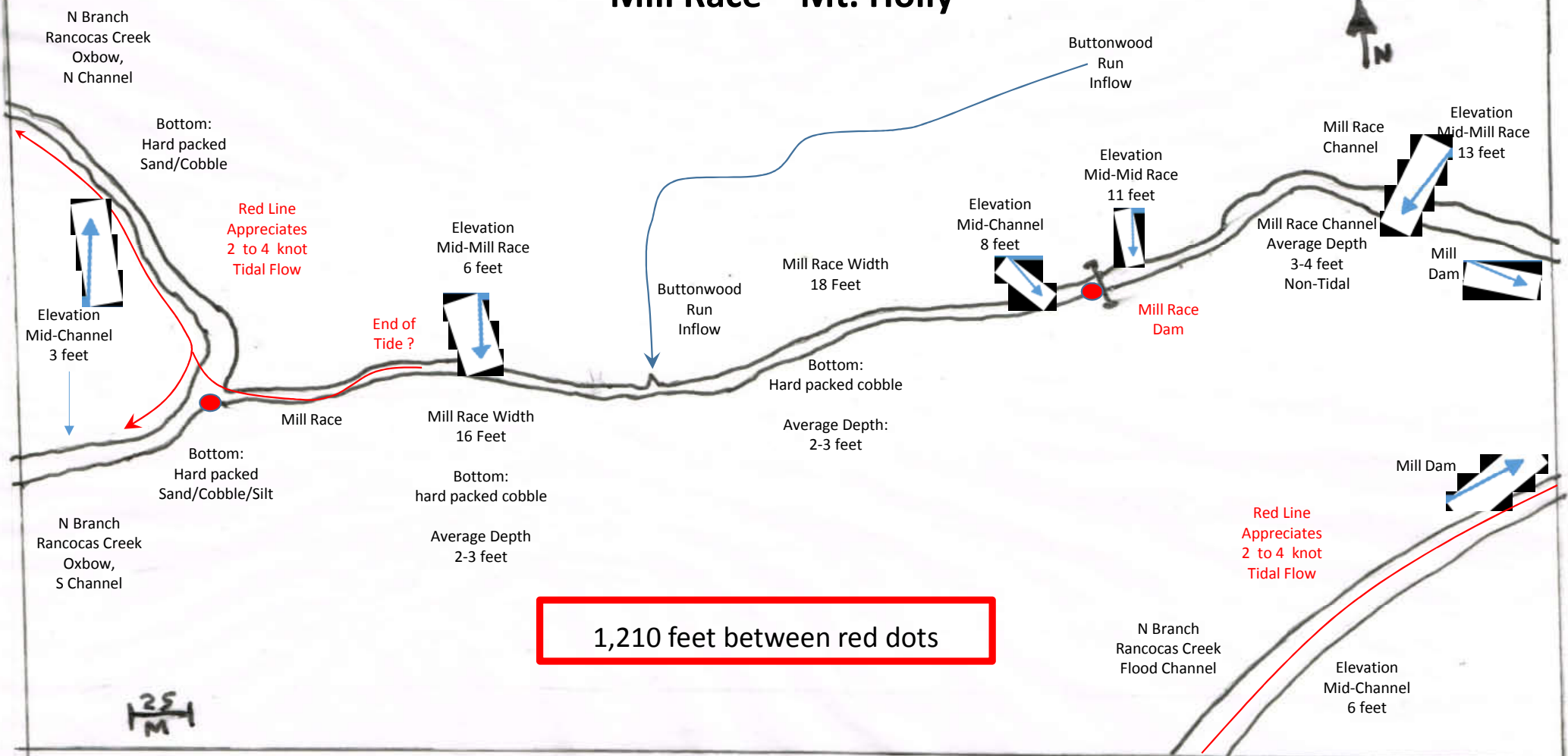
**Circuit Trails (Planned)**

- Circuit Trails (Planned)
- Roads
- Rancocas Creek
- Public Parcels
- Mt. Holly Parcels



# Rancocas Valley Mill Economies

## Mill Race – Mt. Holly



1,210 feet between red dots

## Notice

IS hereby given, that application will be made to the Legislature of New-Jersey, on the third Thursday of their next session, for leave to present a Bill to incorporate a Company to improve the Navigation of the North Main Branch of Rancocas Creek, between Mount Holly and the Forks of the said creek, by locks or otherwise, of which all persons concerned are requested to take notice accordingly. Dated 4th October, 1824.

## Market Access



THE OLD MILL - 1798 - MILL STREET, MT. HOLLY, N. J.  
COPYRIGHT 1904  
BY G. H. KEES  
L. S. BOYCE, STATIONER  
MT. HOLLY, N. J.



## North Branch Rancocas Creek



1878 Jersey Shore Tidewater Vessels  
Ref: Harper's Weekly

## Mt. Holly - Head of Navigation

1683 - 1908

## N Branch Tidal Characteristics



For Scale Only



TORREY MILL  
DEER ISLE MAINE

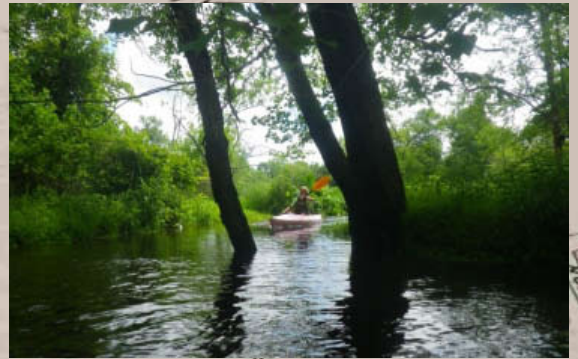
## Site Overview



**1932**



**2015**



Burlington Co. • Westampton Township

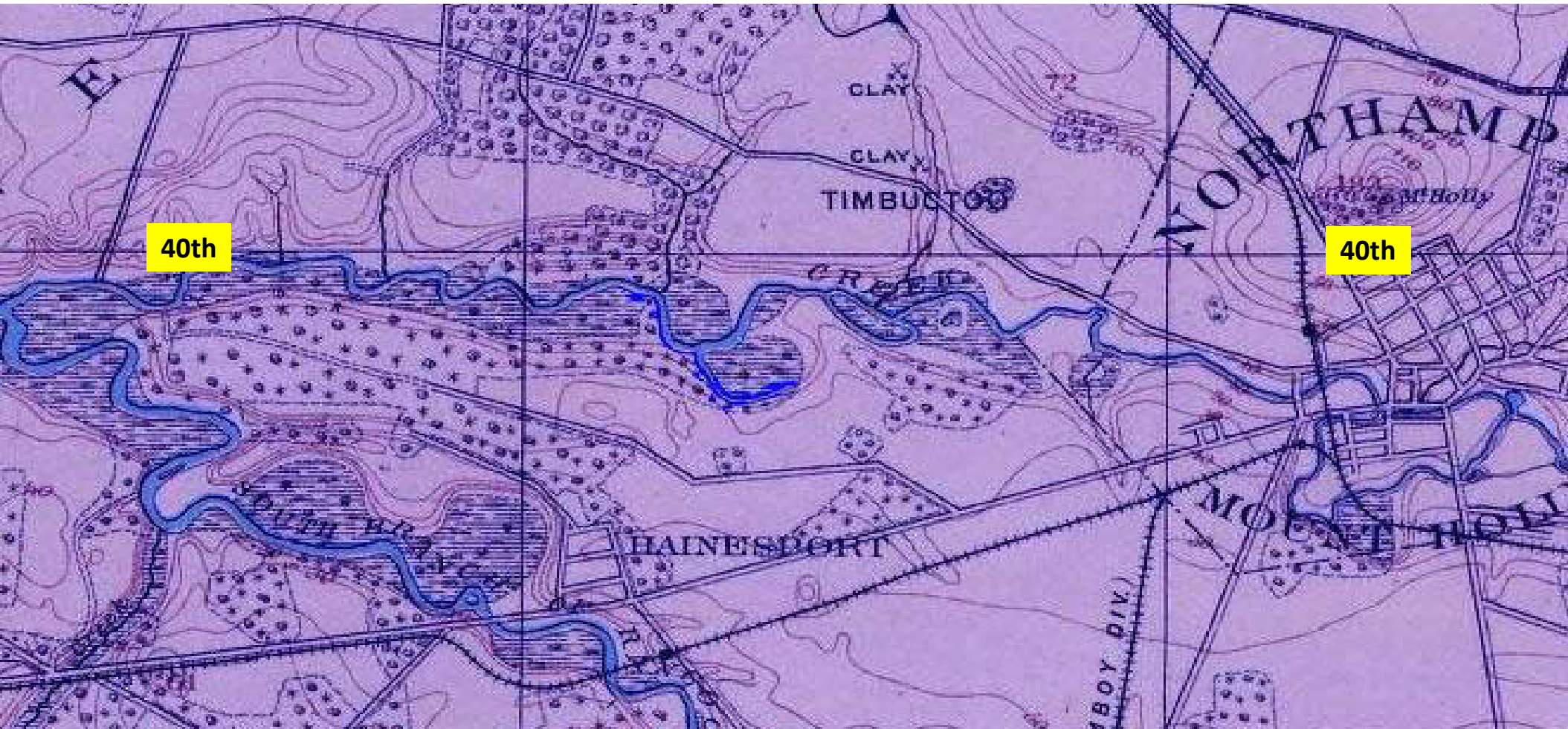


Rancocas Creek North Branch

**Tidal Marsh Companies**

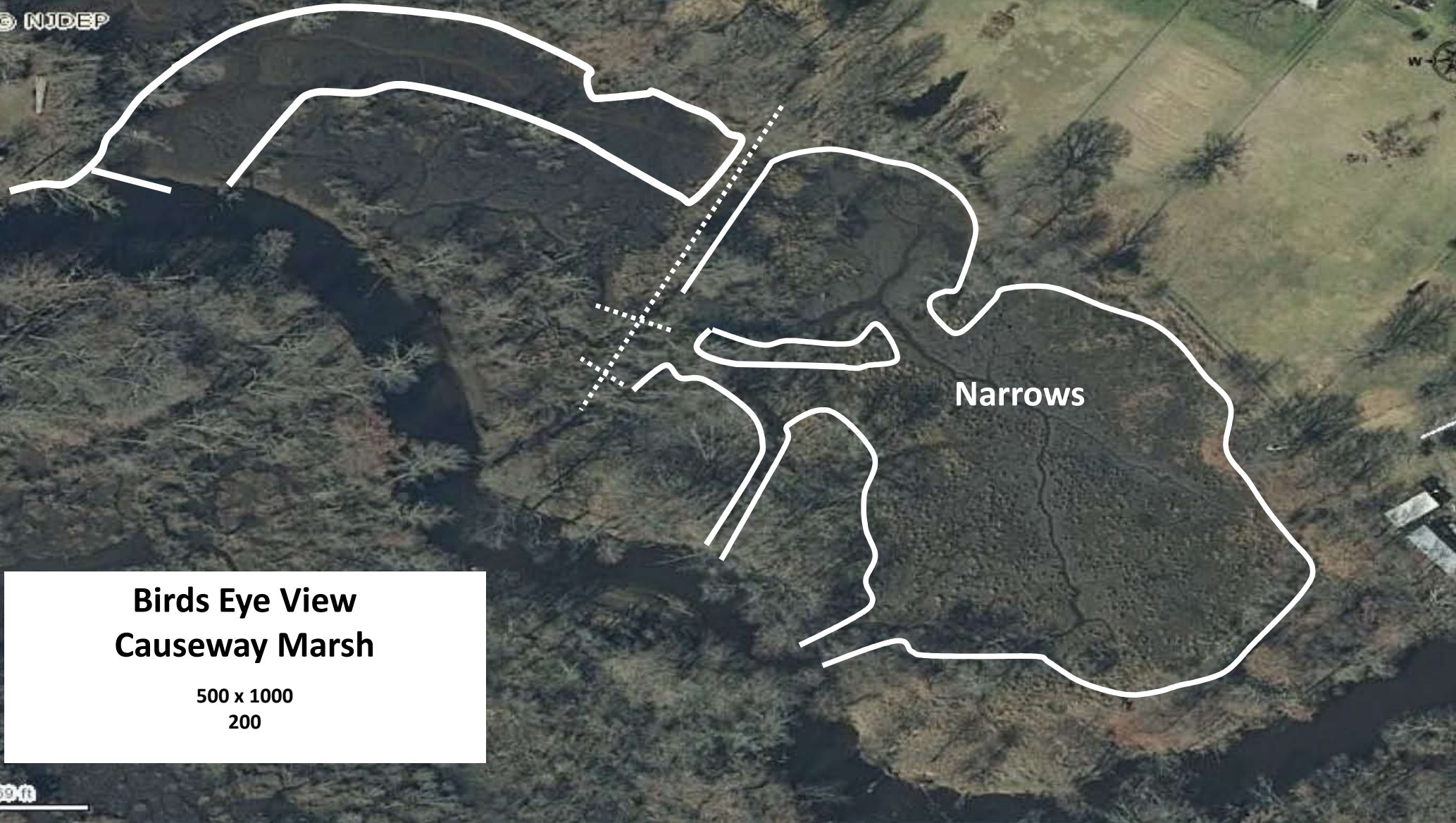
Photometry Corporation Photometry Bird's Eye © 2012

## Site Synopsis: Present Conditions



**“The Intermittent Nature of Tide Mills Can Not be Done Away With”**

Thomas Edison, 1897



**Birds Eye View  
Causeway Marsh**

500 x 1000  
200

60 ft



**Access**



High Tide Inflows  
N Branch Rancocas Creek

Excavated  
Post 1938

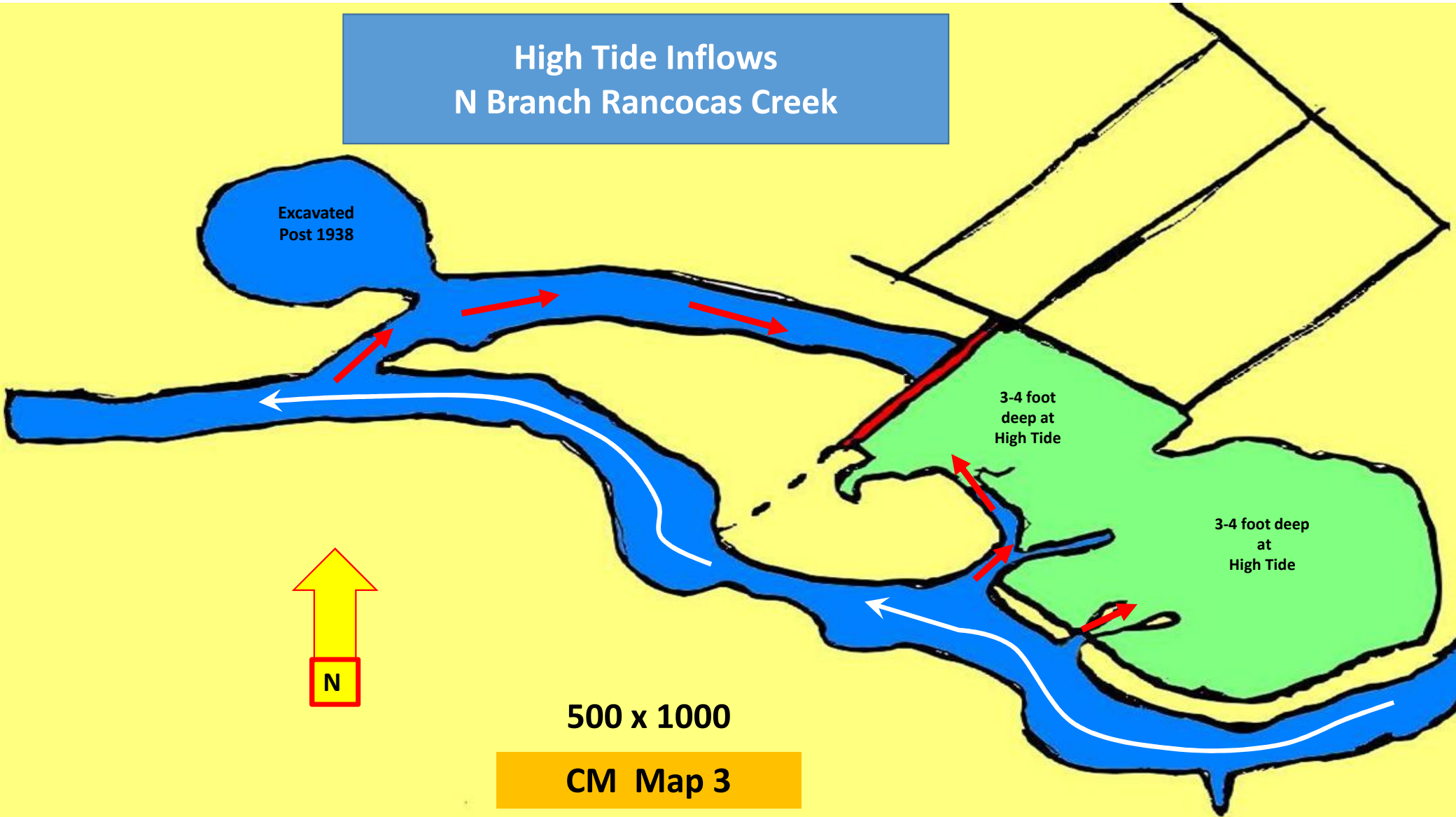
3-4 foot  
deep at  
High Tide

3-4 foot deep  
at  
High Tide

N

500 x 1000

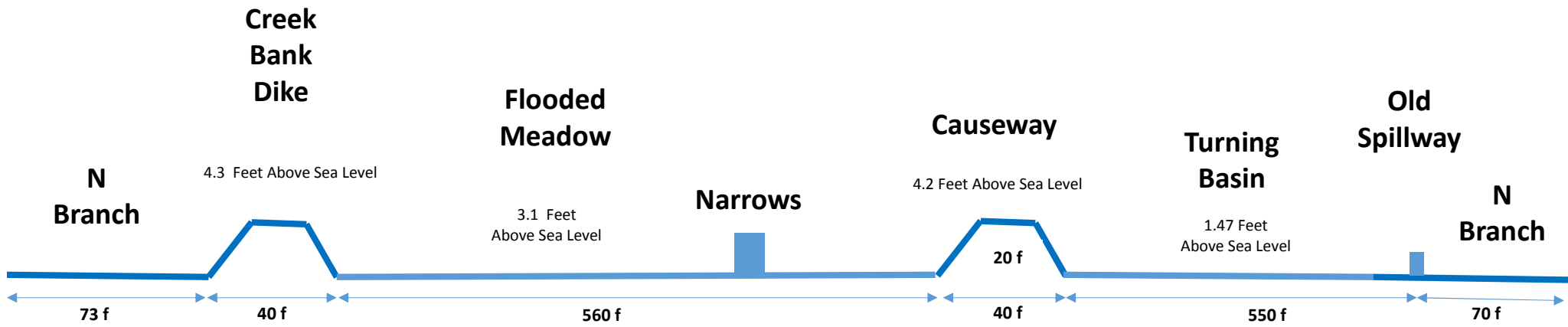
CM Map 3



## Findings: Causeway Marsh



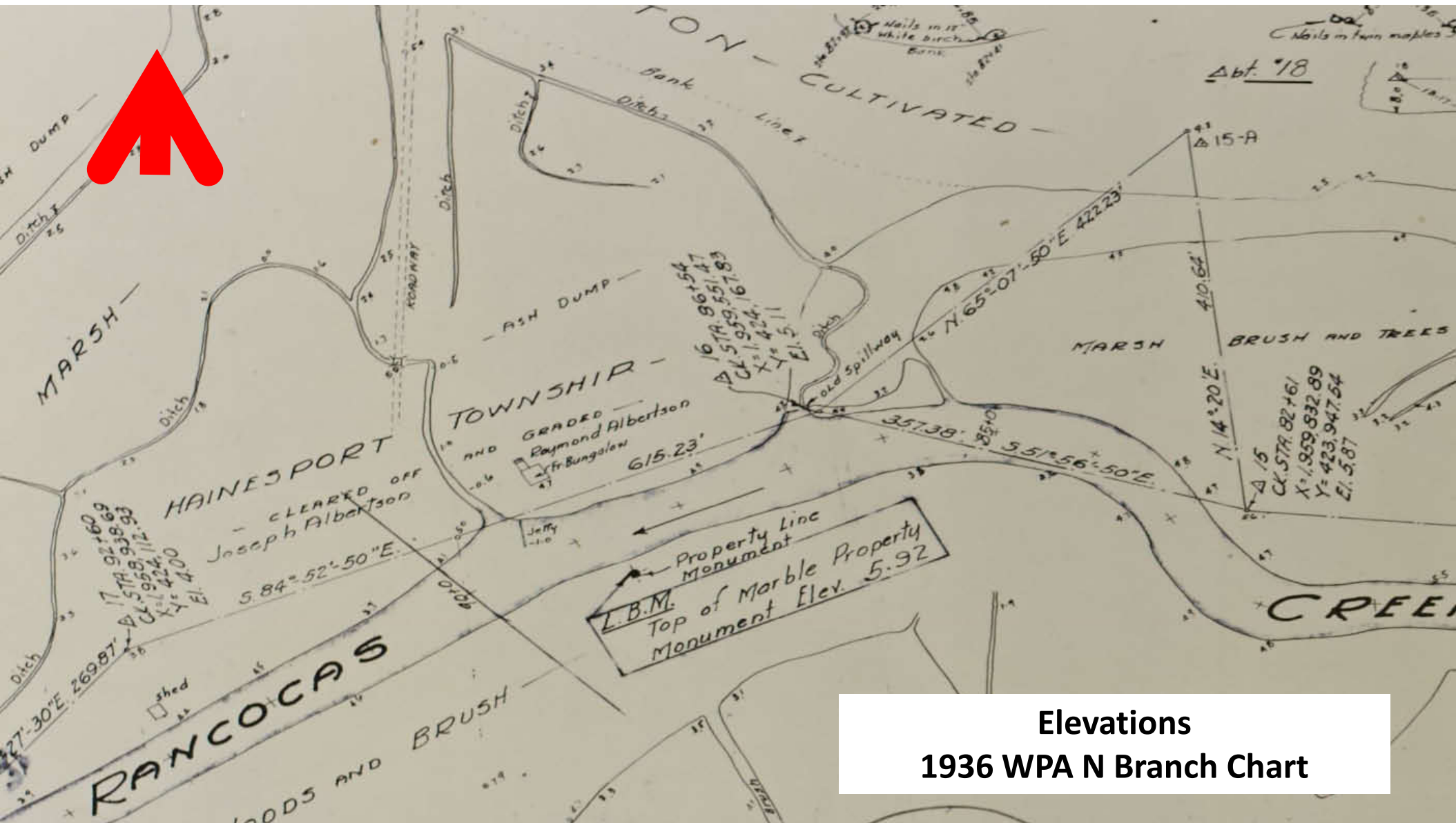
# N Branch Elevation Profile Marsh and Turning Basin 74-48 W / 39-59 N



Elevation of  
Creek is  
> 2.27 feet  
Above Sea  
Level

Elevation of  
Creek is  
< 1 foot  
Above Sea  
Level

Cross Reference  
Tidal Marsh Companies "From Marsh to Farms"  
Distance via ARC View GIS



**Elevations**  
**1936 WPA N Branch Chart**

The undershot,	{	16 feet head,* 0 fall, 128 cubochs power.
The half breast,	{	12 feet head, 4 feet fall, 160 cubochs of power.
The high breast,	{	6 feet head, 10 feet fall, 208 cubochs of power.
The overshot,	{	4 feet head. 12 feet fall, 224 cubochs of power.
Ditto,	{	2,5 feet head, 13,5 feet fall, 236 cubochs of power.

Art. 61.

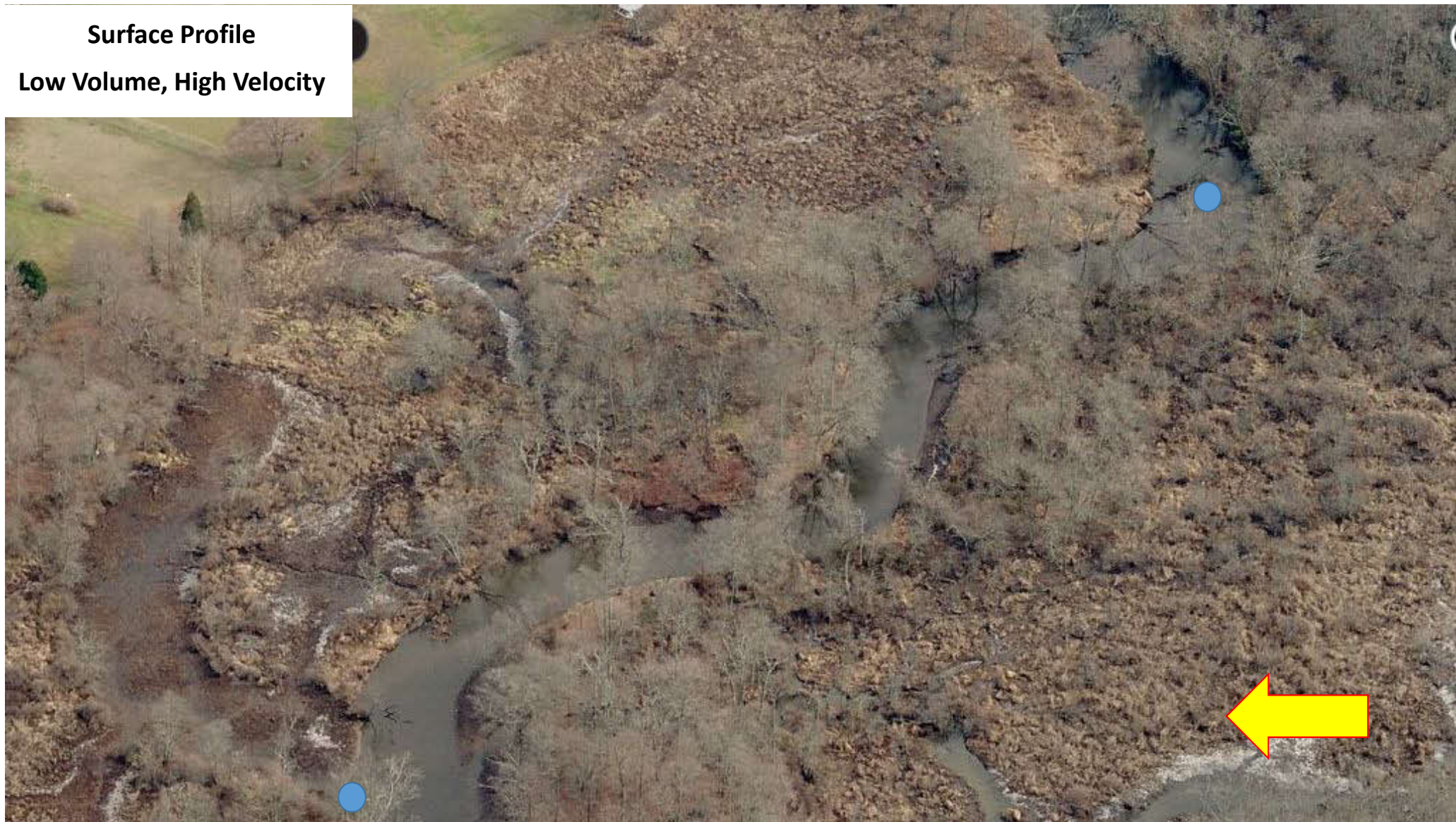
Power of 16 cubic feet of water per second, calculated on five different applications.

**Tub Mills**

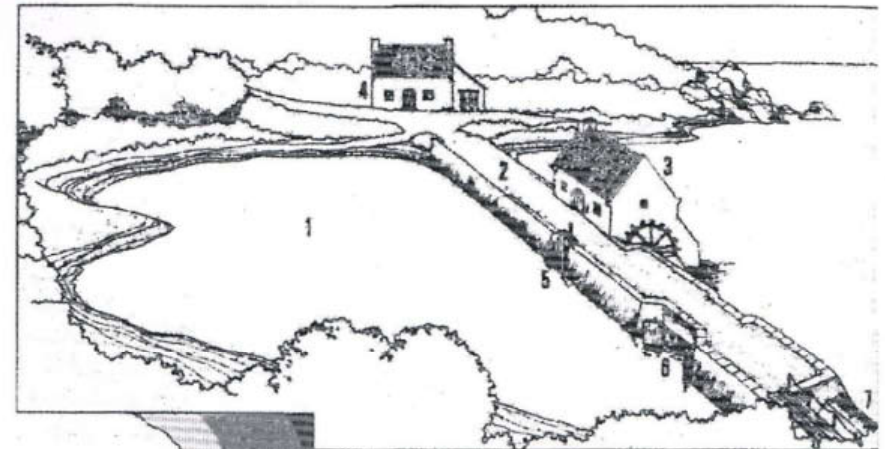
Capture energy from relatively low volume, high velocity streams and creeks.

**Surface Profile**

**Low Volume, High Velocity**



## Tide Ponds n Mill Arrangements

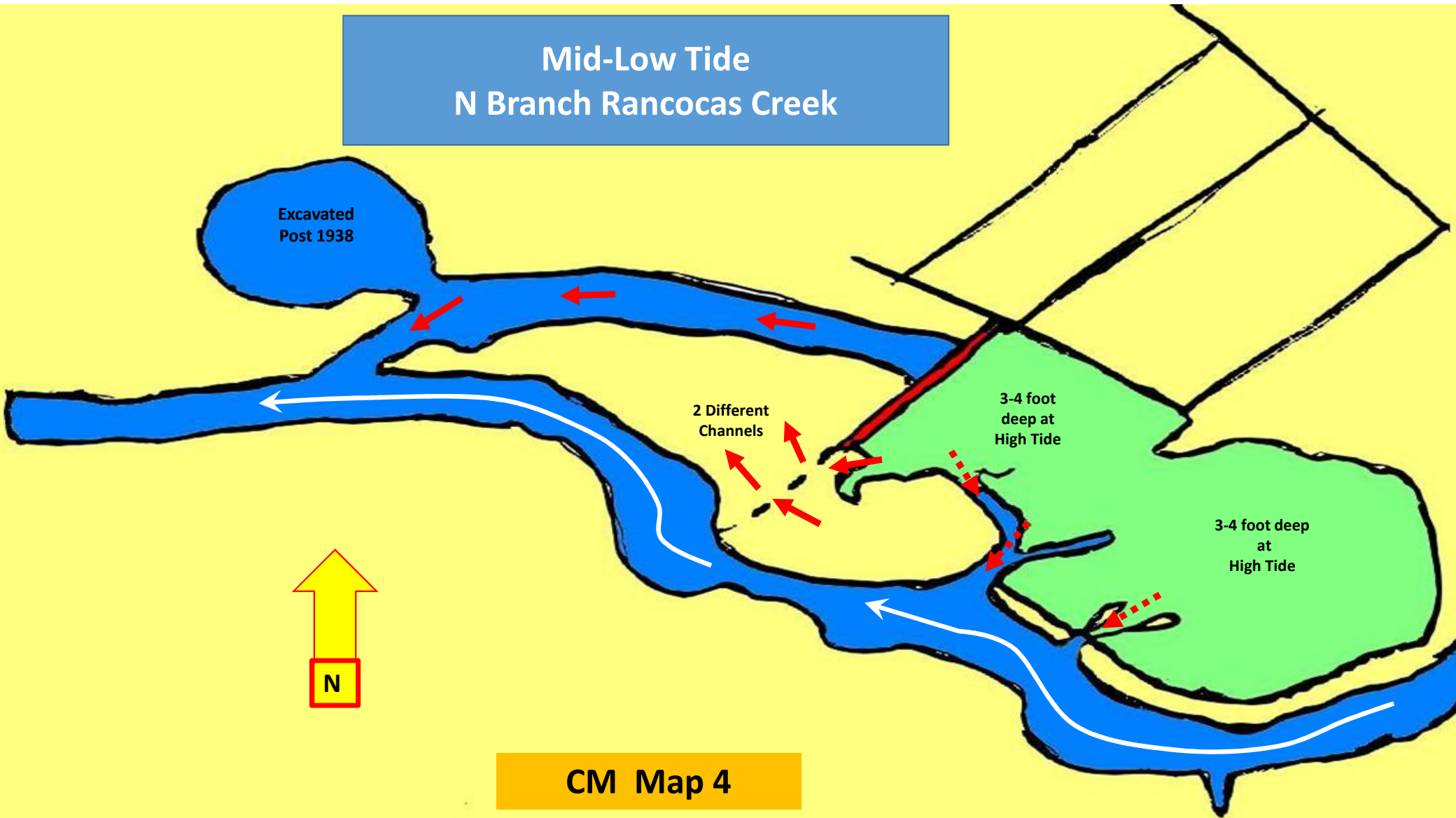


**Fig. 3a. (top)** Drawing of a traditional tide mill and its surroundings. *Legend:* 1. pond; 2. causeway; 3. mill; 4. miller's dwelling; 5. exit sluice and hydraulic wheel; 6. entrance sluice gate; 7. bridge. (Drawing by A. de La Verne. In *Boithuis and de La Verne, 1988*)

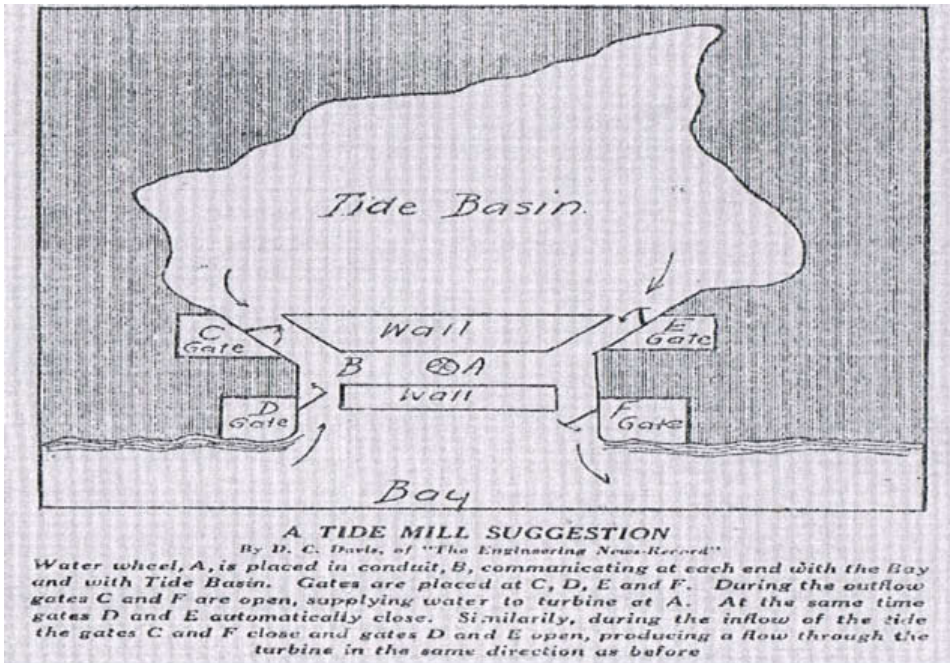


**Fig. 3b. (left)** Simplified schematic presentation of a traditional tide mill. Roue = wheel; vannes = sluice gates. (Source: EDF, France).

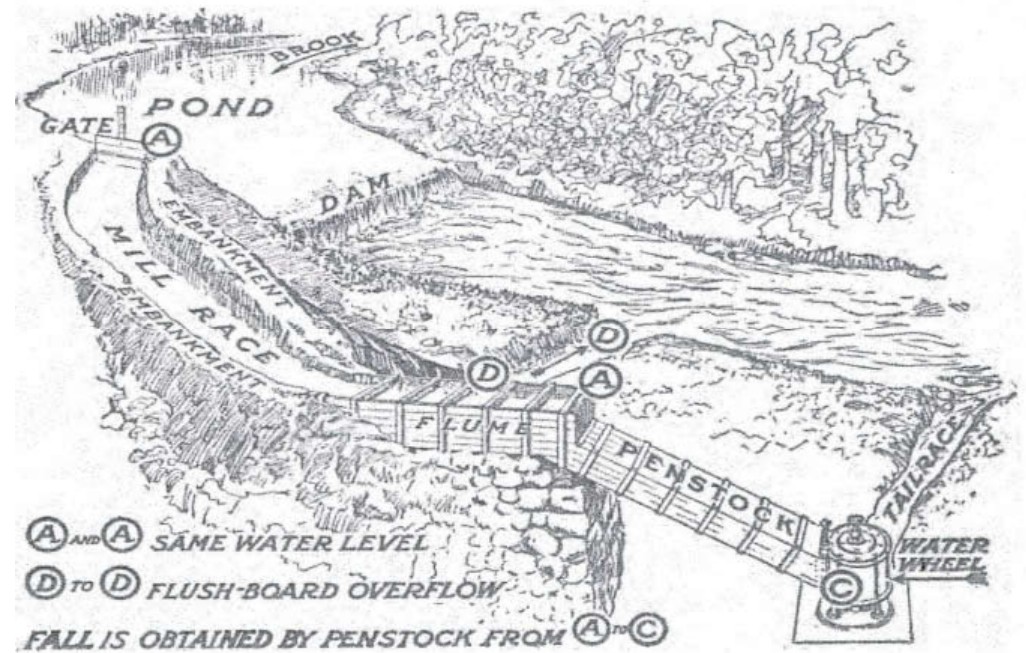
Mid-Low Tide  
N Branch Rancocas Creek



## Mill Features: General



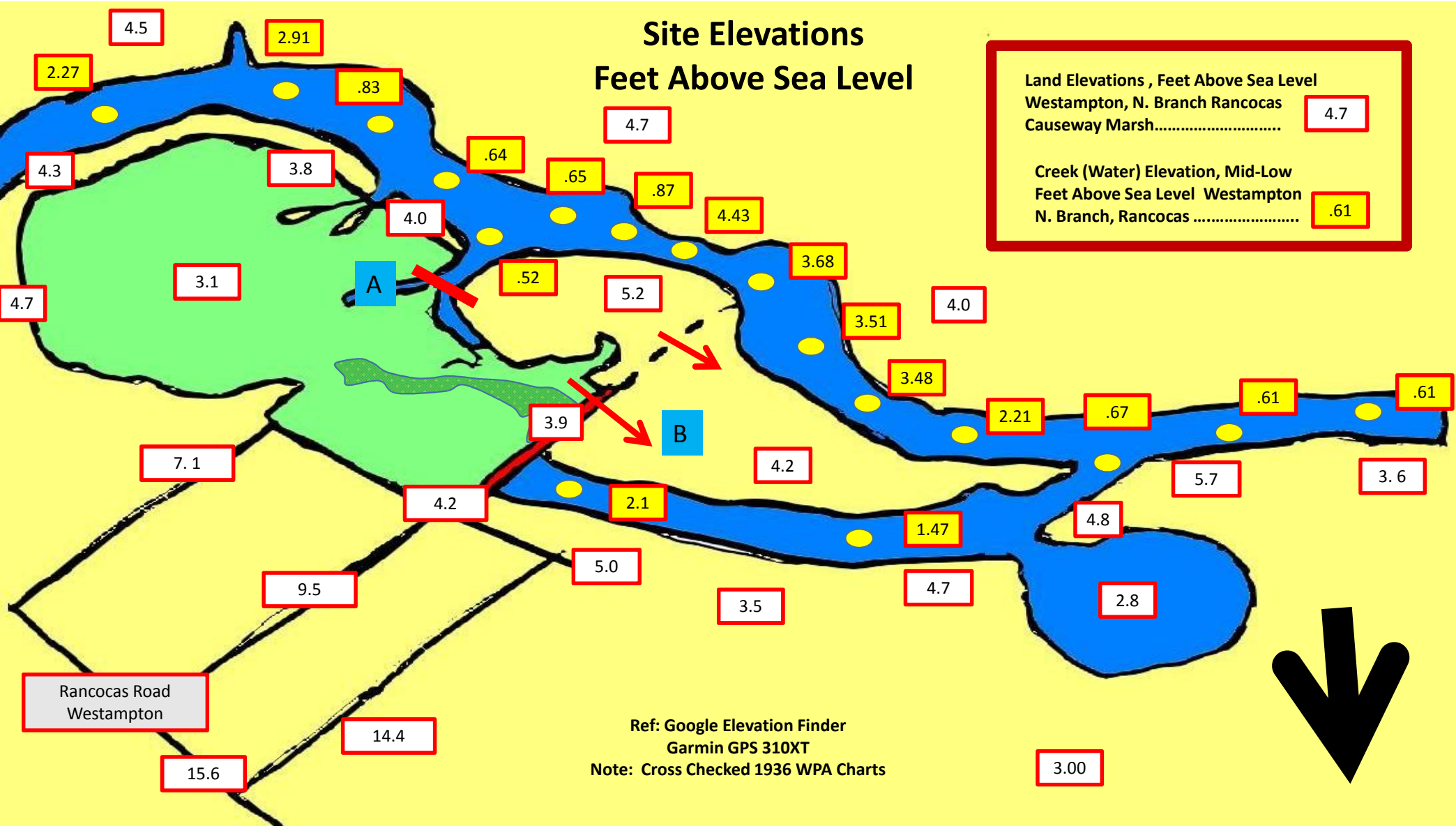
Ref: 24 Sept, 1922, NY Tribune



Ref: 1901, Energy for Farming

# Site Elevations Feet Above Sea Level

Land Elevations , Feet Above Sea Level	
Westampton, N. Branch Rancocas Causeway Marsh.....	4.7
Creek (Water) Elevation, Mid-Low Feet Above Sea Level	
Westampton N. Branch, Rancocas .....	.61



Rancocas Road  
Westampton

Ref: Google Elevation Finder  
Garmin GPS 310XT  
Note: Cross Checked 1936 WPA Charts



# GPS Survey

9/8/2015 11:12:06 am

10:53 am

Turning Basin

Center-Line of Causeway

Defined Edge

Defined Edge

Start Start

Defined Edge

Defined Edge

Defined Edge

B

D

A

End End

Google earth

Imagery Date: 9/6/2013 39°59'50.29" N 74°48'31.77" W elev 5 ft eye alt 581 ft



# Causeway Marsh, South

Fairly uniform elevation  
difference along pond shore.  
Edge is 18-24 inch in height

Hard pack ground  
cover

Note:  
A and B channel debris:  
stones, bricks, mortar and  
timbers present

Causeway  
stones/bricks/  
mortar

marsh

marsh

25 feet 10 m

# Site Analysis

“From the wadding of guns fired at wild pigeons” Rawson

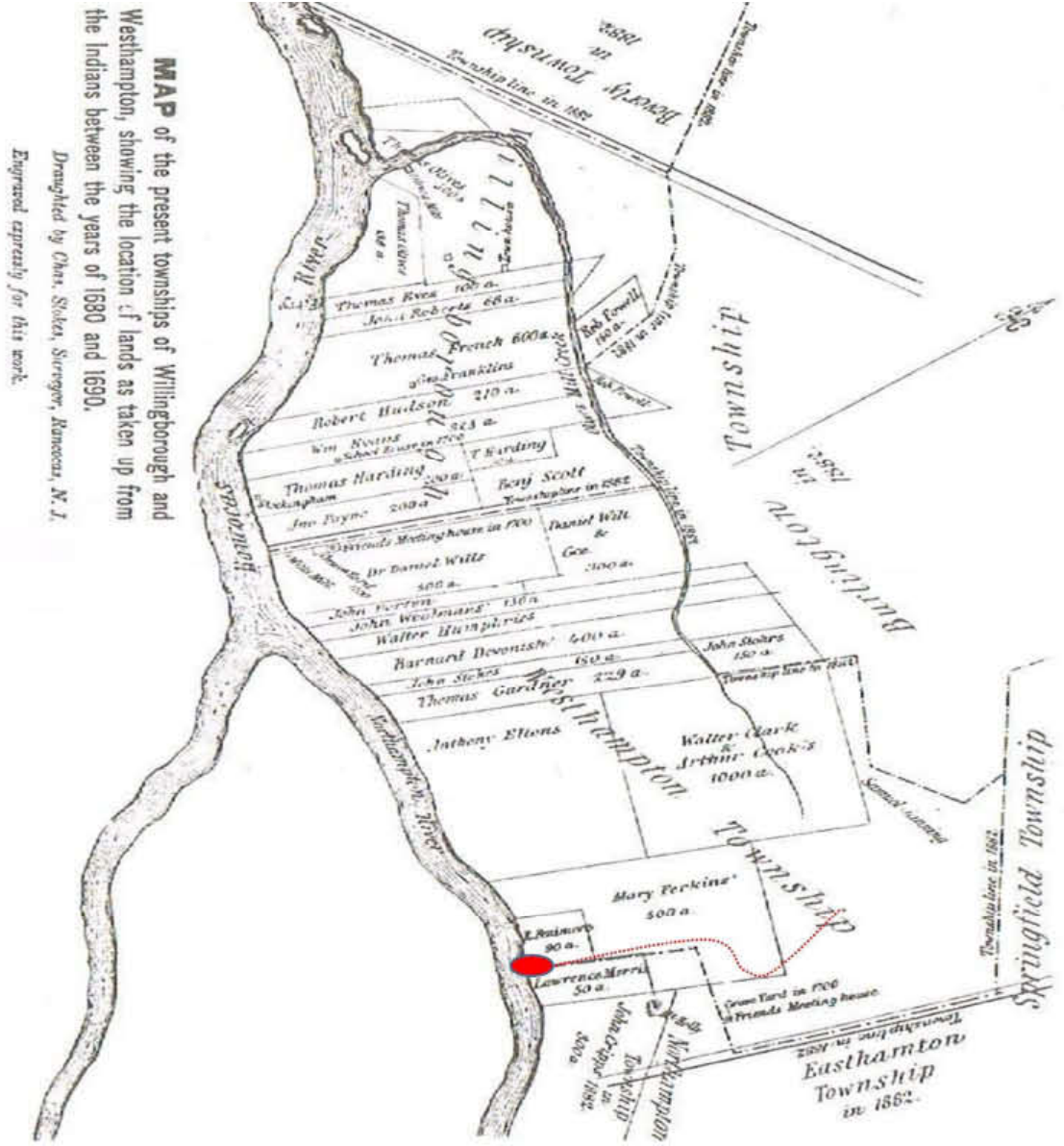


# Historic Land-Owners

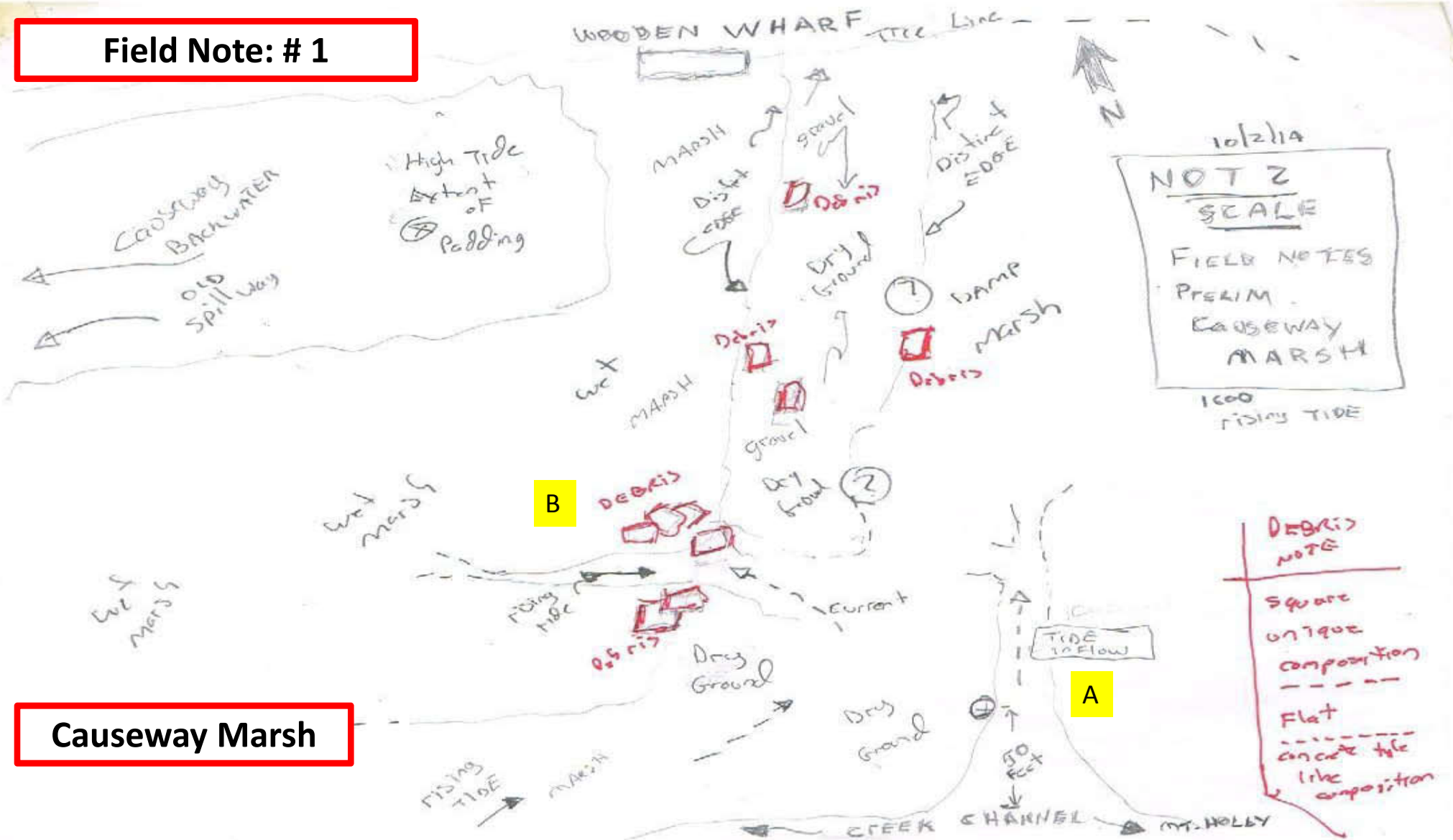
Property-Owner                      Notes:

1. Mary Perkins..... Trust deed. Widow.
2. Anthony Elton..... Land owner. Present day Rancocas State Park.
3. R. Fenimore..... Road from Creek to Great Meadow. Connection to to B. Devonish. Brick-Layer, Distiller (possible location of N. Branch distillery ? May 17, 1783).
4. Lawrence Morris..... Sawyer, on Town-line at Grubb's Meadow (p. 471).
5. John Cripps..... Mt. Holly Connection/Wool comber. Land abuts Morris.
6. Thomas Gardiner..... Surveyor .
7. Grubb's Run ..... Henry Grubb: Innkeeper/Butcher, Family Well Known Quaker Abolitionists. Local inn-keeper. Is Grubb's Run named for Grubb ? See connection to Burlington City. (P. 483 --- Perkins Land Deal)
8. Buctoe Residents..... Freedmen/Escaped Slaves, See "Davis Site" references.
9. Interview..... w/ Local, long-time residents.

Ref: Nelson, William/Personal Interviews



**Field Note: # 1**



**Causeway Marsh**



**Findings Site A.:  
Possible Inflow Gate**



**Contributory to Site  
Water Control ?**



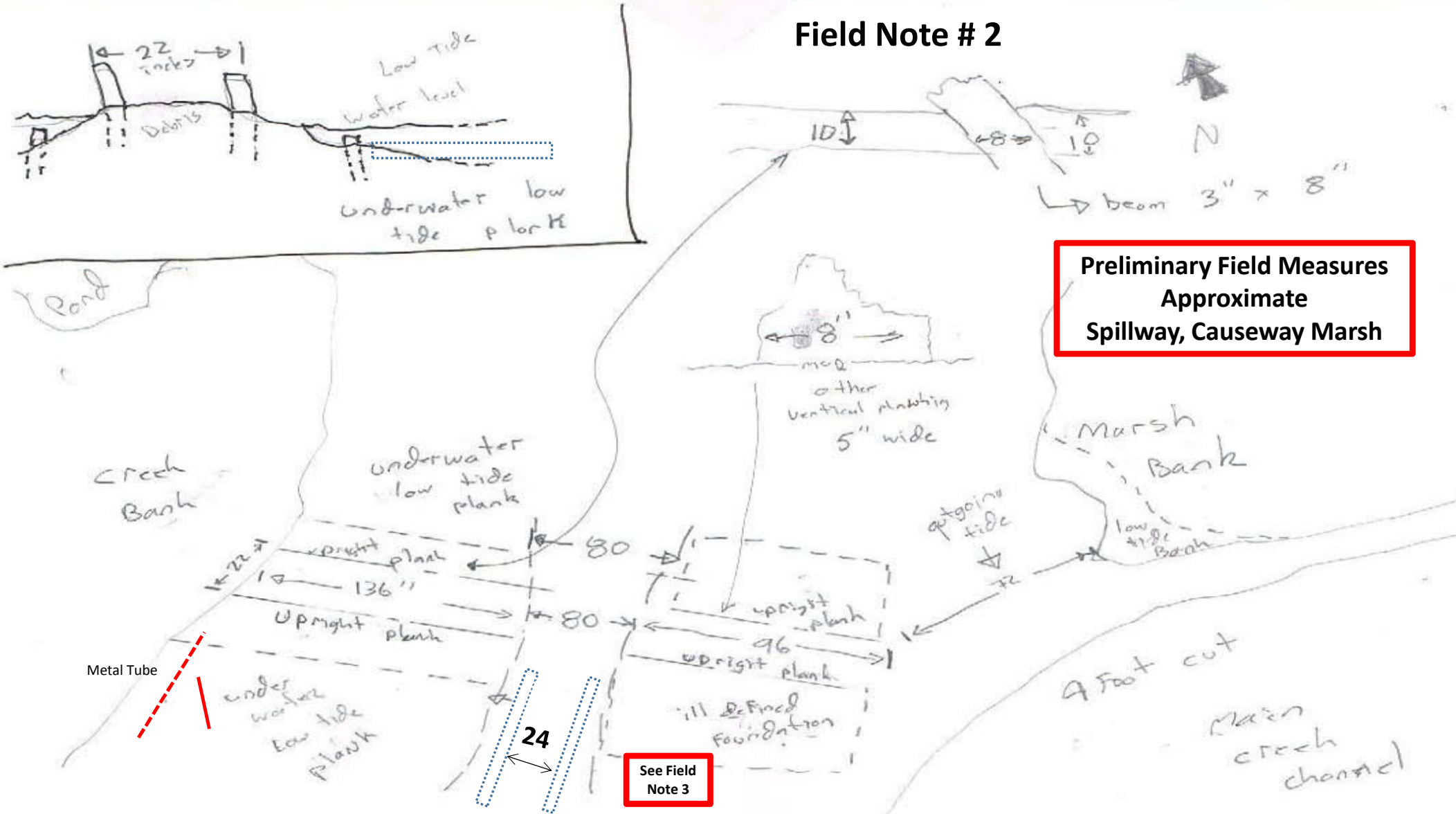
**Feature Site B.**  
**Causeway Drainage**



## Site Characteristics C.: Spillway



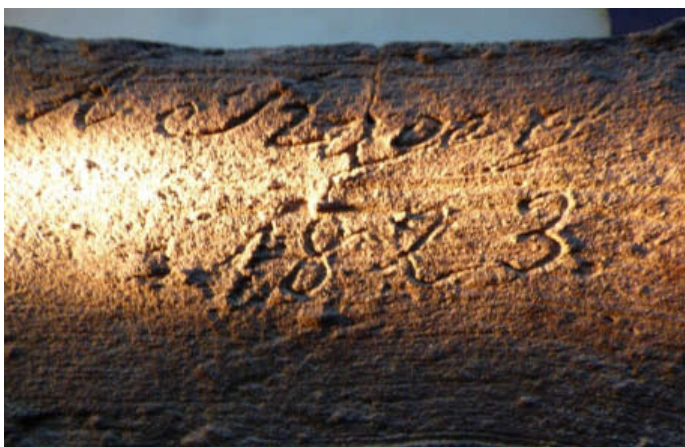
# Field Note # 2



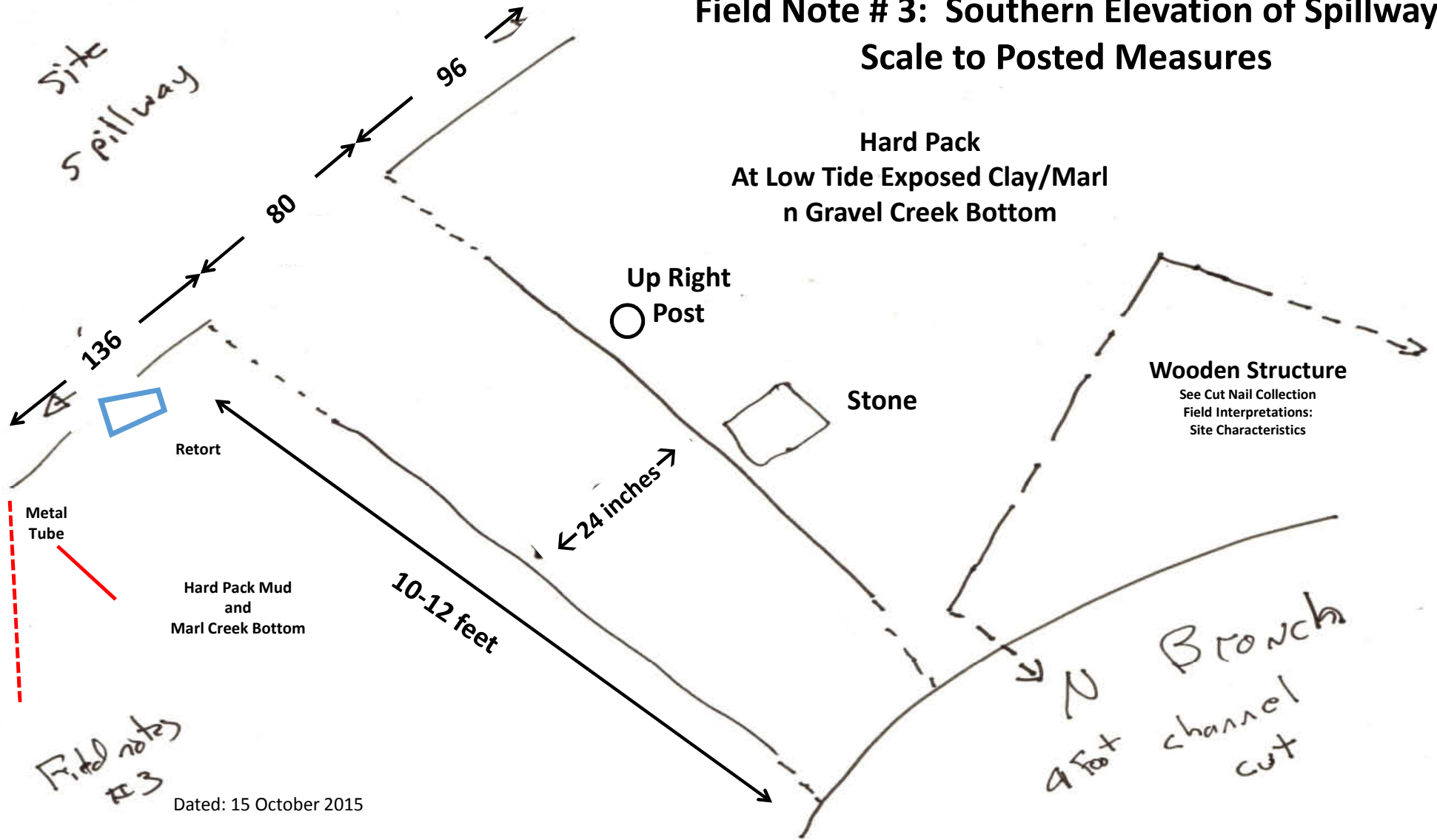
Preliminary Field Measures  
Approximate  
Spillway, Causeway Marsh

See Field  
Note 3

## Field Interpretations: Site Features



# Field Note # 3: Southern Elevation of Spillway Scale to Posted Measures



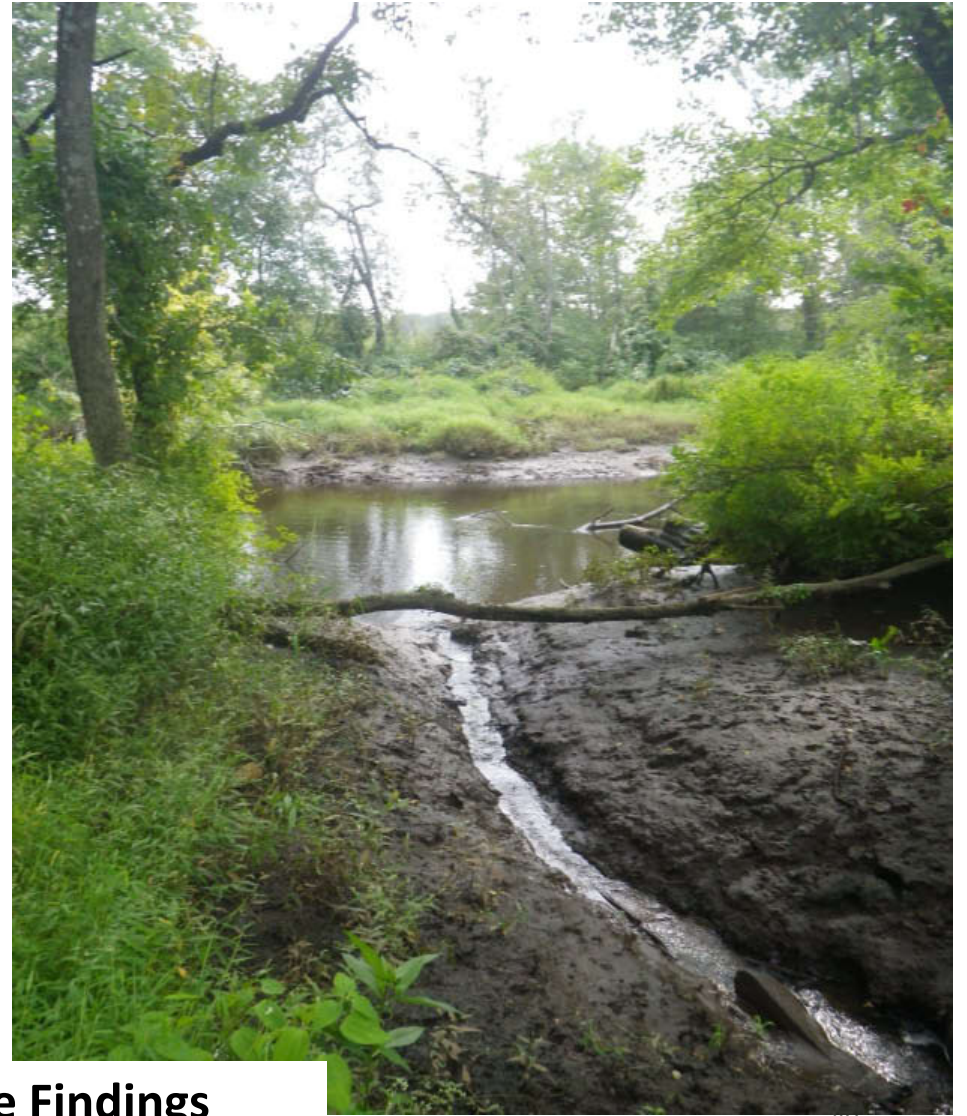
Field notes #3

Dated: 15 October 2015

## Site Characteristics: Southern Elevation of Spillway

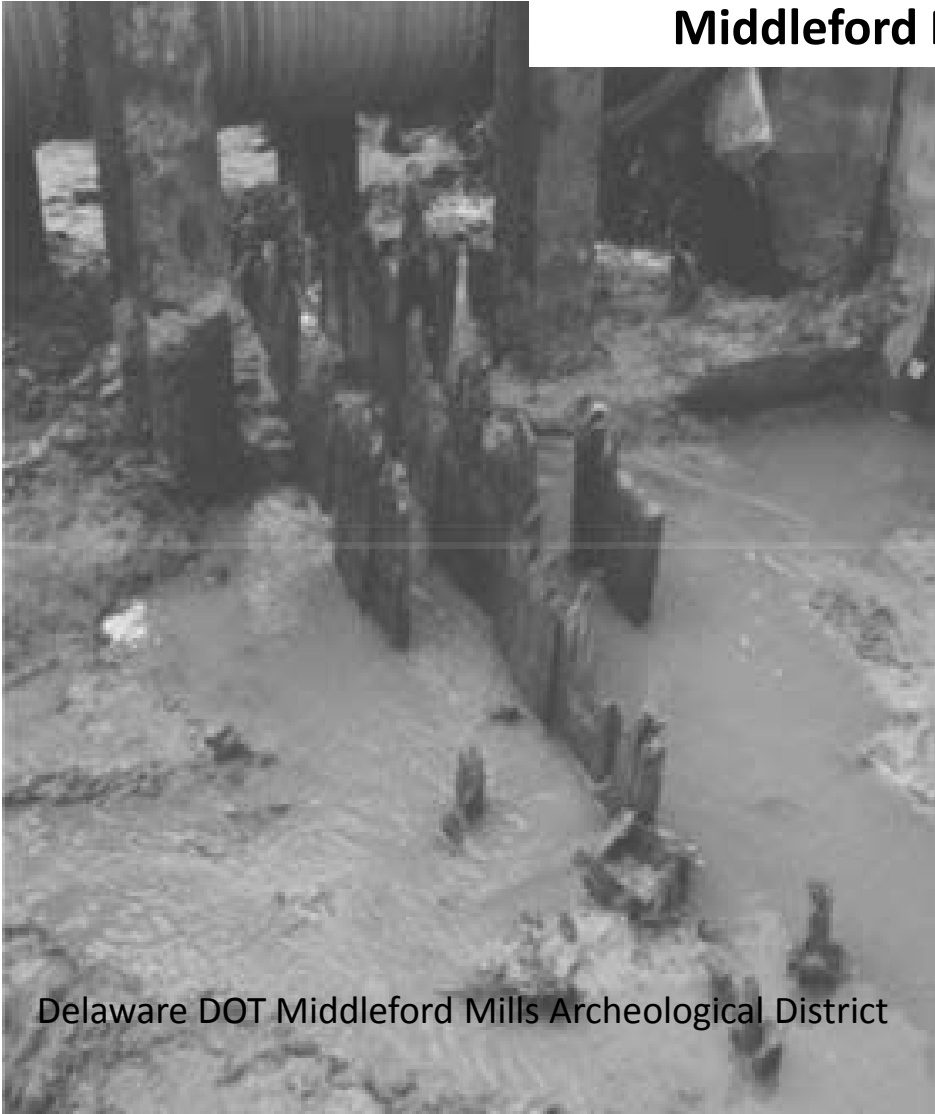


Field Note # 3

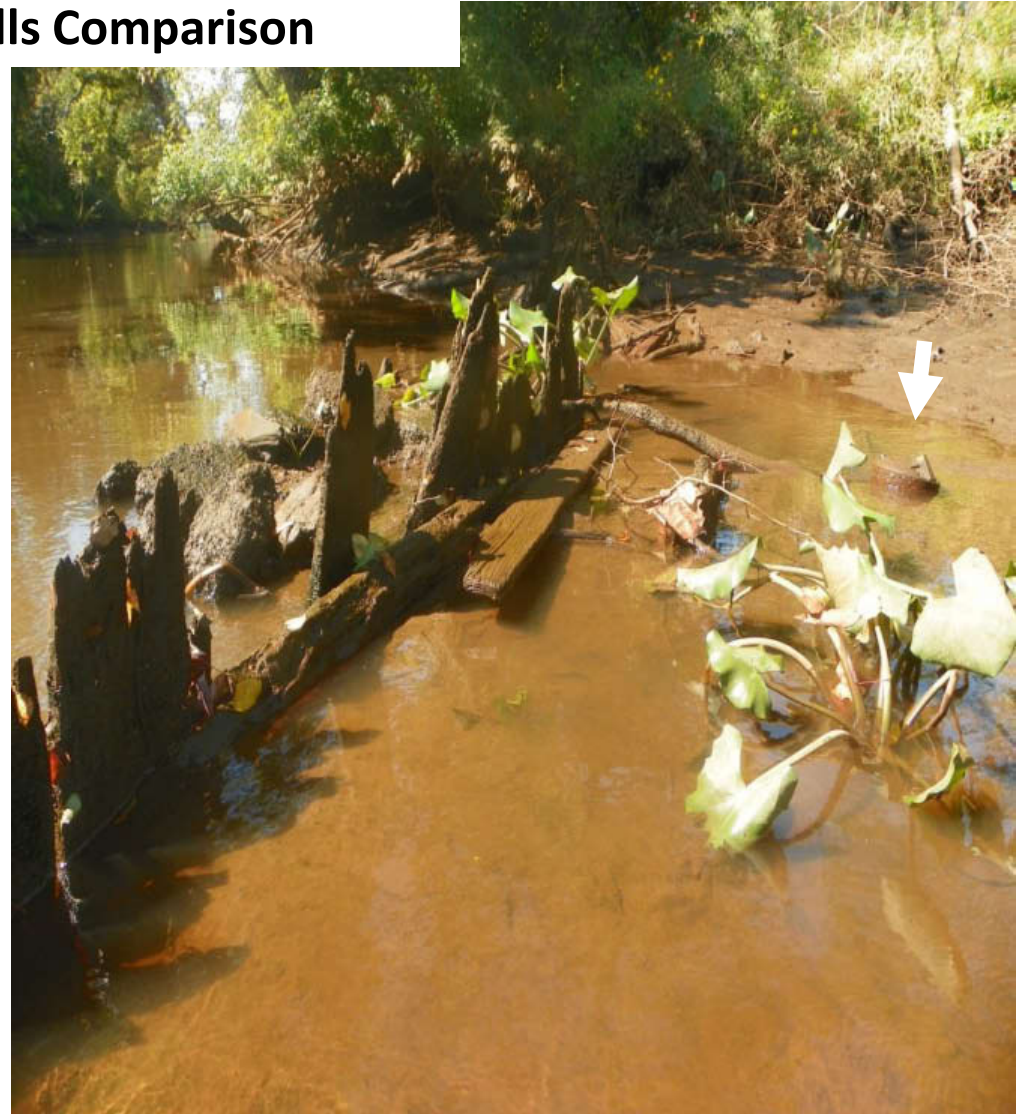


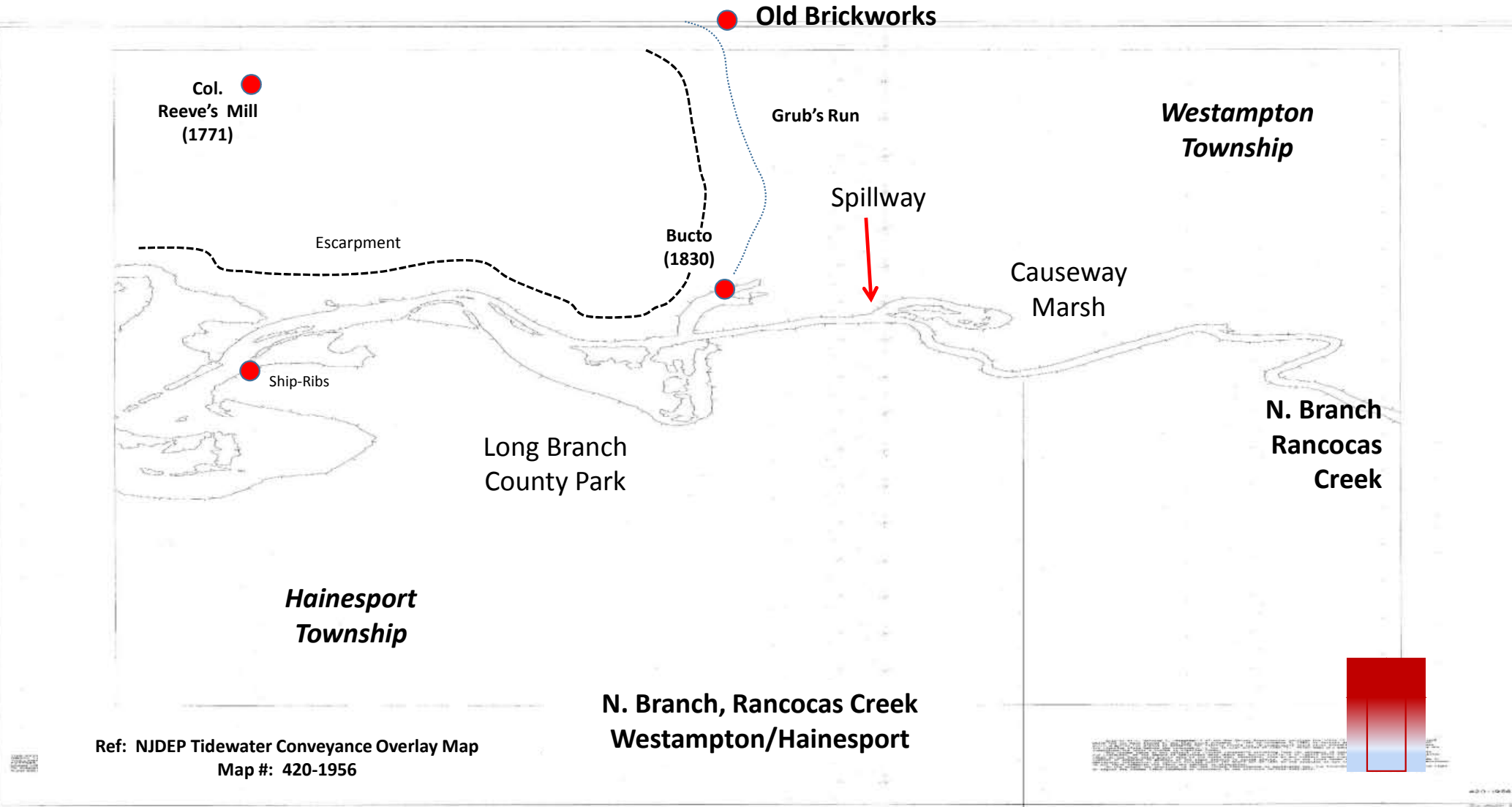
**Low Tide Findings**

## Middleford Mills Comparison



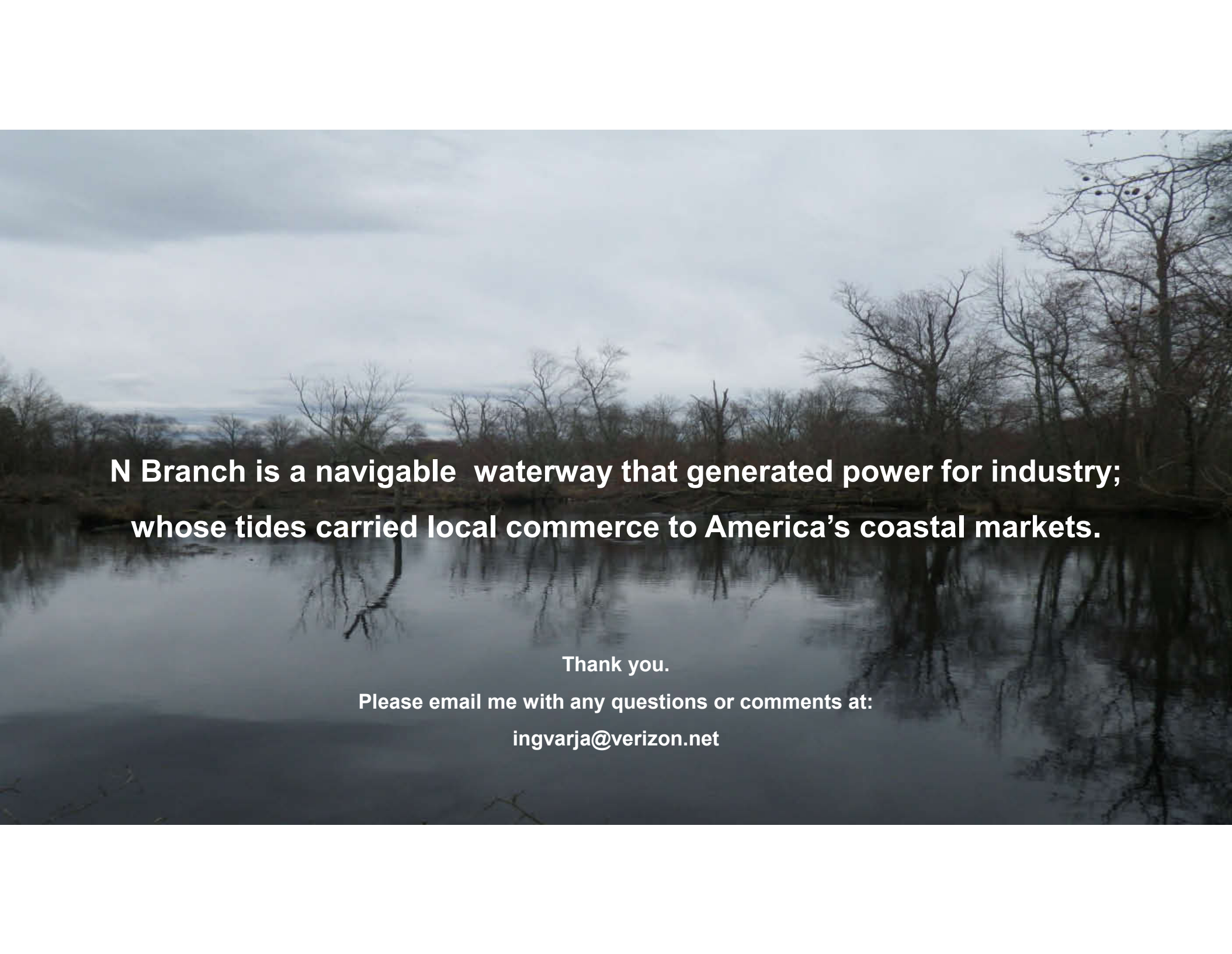
Delaware DOT Middleford Mills Archeological District





Ref: NJDEP Tidewater Conveyance Overlay Map  
Map #: 420-1956

**N. Branch, Rancocas Creek  
Westampton/Hainesport**

A dark, overcast landscape with a body of water reflecting the sky and bare trees. The scene is somber and atmospheric, with a grey, cloudy sky and silhouetted trees along the water's edge. The water is calm, creating clear reflections of the trees and sky.

**N Branch is a navigable waterway that generated power for industry;  
whose tides carried local commerce to America's coastal markets.**

**Thank you.**

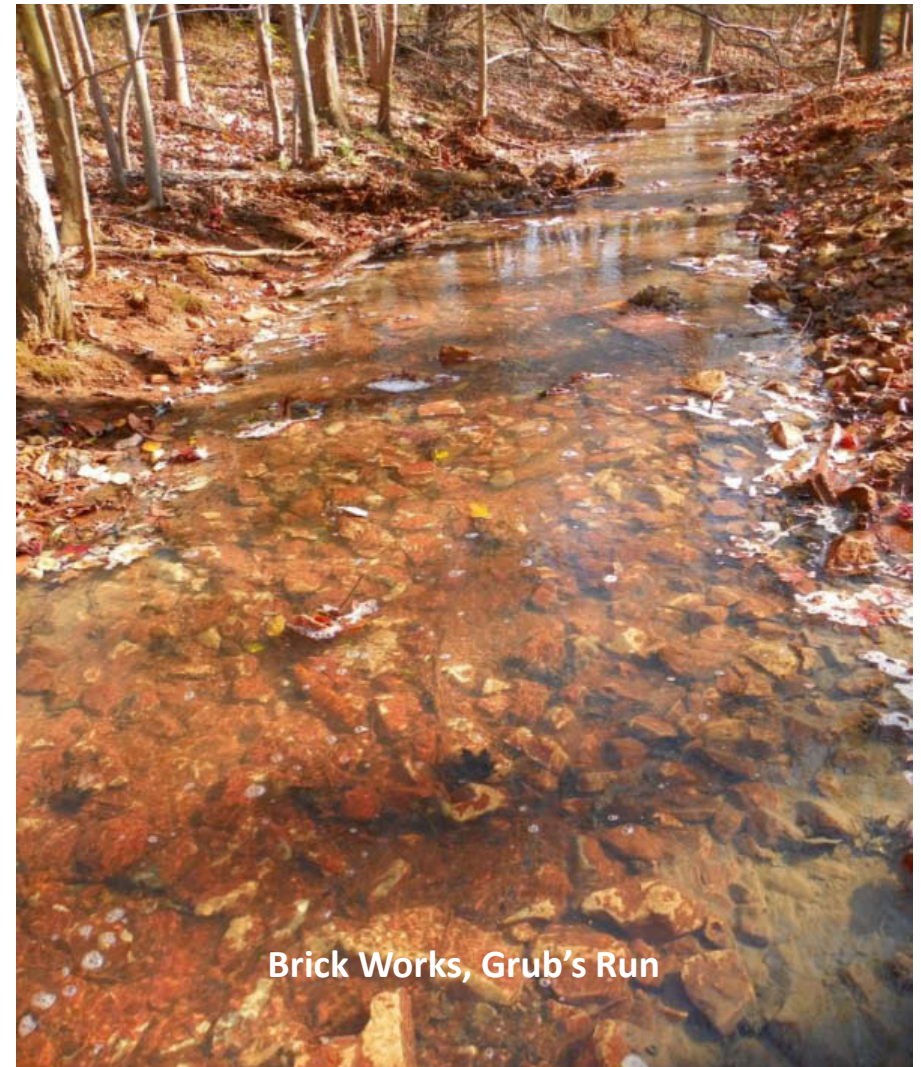
**Please email me with any questions or comments at:**

**[ingvarja@verizon.net](mailto:ingvarja@verizon.net)**

## Select References and Thanks 2

1. Report to Congress, US Army Engineers 1888-1915.  
Navigation Channel and Works  
Marl Mining of the Rancocas  
Geology of NJ
1. NJDEP Rancocas Creek Watershed Study.
2. Schopp, Paul; Demby, Sophia; and other references r/t Timbuctoo.
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Maps  
Field Notes
8. Personal Interviews. (For inclusive listing conduct J. Anderson)
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10. Personal Communication: Jack Cresson, Archaeologist, Moorestown, NJ
11. Tidewater Mills (Newsletter Tide-Water Mill Association, Maine).
12. Barton, Christopher, "Davis Site, Timbuctoo.
13. N.Branch Navigation Acts (1700-1900).
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16. Journal of American Medical Association (other). 1845 to date (literature review)
17. Nicholson, William.; Practical and Theoretical Chemistry, 1808 (Retorts)
18. Dawidowsky, Ferdinand.; The Clay Worker, Phosphorous and Retorts 1905.
19. Nelson, William.; Patents, Deed and other Early Records of NJ 1664-1703, Clearfield, 1982.
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21. Middleford Archeological Site, Middleford, Delaware, Del DOT
22. Others not listed

29-Apr-16



**Brick Works, Grub's Run**

Buctoe Survey

44