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Maine Department of Marine Resources

REVISED APPLICATION

8-29-16

C: APPLICATION COVER SHEET FOR AN EXPERIMENTAL LEASE

Name: KEITH BUTTERFIELD

Address: 17 HASKELL AVE

City: RAYMOND

County: CUMBERLAND

State, zip MAINE 04071

Telephone: business home cell 857.753.1302

Email address: KEITHPHILIPBUTTERFIELD@GMAIL.COM

DEEMED COMPLETE 8/29/16

Location of lease site: town county waterbody YARMOUTH CUMBERLAND CASCO BAY

Additional description Southeast coastline of Little Moshier Island (Tract 1) Southeast of Moshier Island (Tract 2)

Total acreage requested (4-acre maximum): 3.27 acres

Growing Area # 14 Water Quality Classification OPEN with no restriction

Type of culture (circle): Bottom (no gear) Suspended (gear in the water and/or on the bottom) Net Pen (finfish)

Name of species to be cultivated, common and scientific names:

Eastern Oyster (Crassostrea virginica) Sea Scallop (Placopecten magellanicus)

Name and address of the source of seed stock, juveniles, smolts, etc., to be cultivated:

Mook Sea Farm, 321 Maine 129, Walpole, Maine Pine Point Oysters, Cape Elizabeth, Maine

Amount of application fee enclosed: \$100 (\$100 payable to: Treasurer, State of Maine)

I hereby state that the information included in this application is true and correct and that I have read and understand the requirements of the Department's rules governing aquaculture.

Signature: [Signature] Date: 1/21/2016

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

EXPERIMENTAL LEASE APPLICATION

Keith Butterfield

17 Haskell Ave

Raymond, ME 04071

Cell: 857.753.1302

Email: keithphilipbutterfield@gmail.com

1. LOCATION OF PROPOSED LEASE

A. The proposed lease site includes two separate tracts. Tract one is located southeast of Little Moshier Island and measures 1,000'x100' (2.295 acres). Tract two is located southeast of Moshier Island and measures 400'x100' (0.918 acres). (FOR VICINITY MAP SEE PAGE 7.)

B. BOUNDARY DESCRIPTION: The four corners of the two tracts of the proposed Lease Site were plotted using Google Earth World Geodetic System of 1984 (WGS84) datum. The distance between corner coordinates was calculated using a Google calculator application based on the Haversine Formula. The proposed site includes two non-contiguous tracts. Tract one is approximately 1,000' x 100', and tract two is approximately 400'x100'.

Tract ONE as seen on PAGE 5 - NOAA Chart 13290

NW Corner of the proposed lease site 43°46'57.36"N, 70° 6'23.52"W

NE Corner of the proposed lease site 43°46'55.55"N, 70° 6'22.61"W

SW Corner of the proposed lease site 43°46'52.03"N, 70° 6'35.58"W

SE Corner of the proposed lease site 43°46'51.19"N, 70° 6'34.72"W

Tract TWO as seen on PAGE 6 – NOAA Chart 13290

NW Corner of the proposed lease site 43°46'41.91"N, 70° 6'1.67"W

NE Corner of the proposed lease site 43°46'41.20"N, 70° 6'0.83"W

SW Corner of the proposed lease site 43°46'38.70"N, 70° 6'4.71"W

SE Corner of the proposed lease site 43°46'38.02"N, 70° 6'3.81"W

2. LAND OWNERS

The land owners within 1,000' of this proposed lease site have vacation homes on Little Moshier Island and Moshier Island. Currently, I have four LPA sites within the same area as this proposed Experimental Lease. The LPA sites that I currently utilize will not be renewed as long as this Experimental Lease is approved. Specifically, the LPA sites BUTT-1-14 and BUTT-2-14 have been in operation for two years and have shown this location to be a good choice for an Experimental Lease. Furthermore, I have proven to all of the area riparian owners that I can operate a safe and clean growing site as a good business neighbor. The site has unfettered access via the water. There are no additional land owners other than those listed on the attached certification. (FOR CERTIFIED TAX MAP AND LIST OF RIPARIAN LANDOWNERS, SEE PAGES 12 AND 13.)

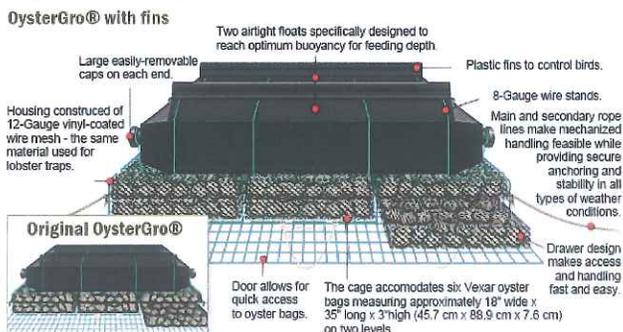
3. RESEARCH PROGRAM AND OPERATION

A. Purpose and length of the study: This is a three year study for the purpose of identifying animal growth and health of the eastern oyster and the sea scallop. The objective is to maximize the number of oysters that live to reach the commercial market and to minimize the amount of time required to establish market size. The final product is expected to sell commercially.

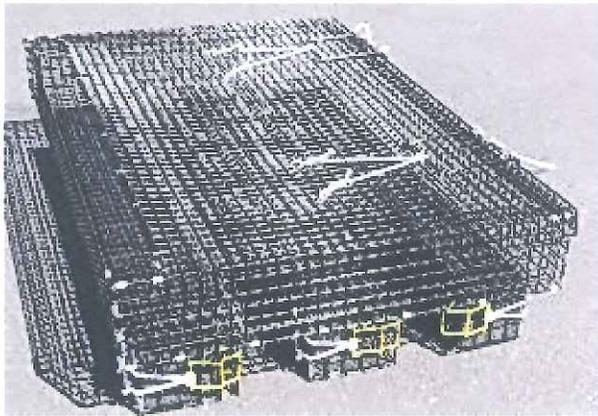
B. Species: 200,000 to Eastern Oyster (*Crassostrea Virginica*) 2mm seed will be purchased from Mook Sea Farms located at 321 State Route 129, Walpole Maine, and added each year to the growing program. Industry norms suggest that approximately half of the oysters will die before reaching the commercial market. The oysters' growth rates will be observed and growing practices will be honed in order to maximize yield and size. The oysters will be harvested after they reach their market size. The harvesting will coincide with the batch size requirements from the sales agreements that may be set with the distributor buyer. Some Sea Scallops (*Placopecten magellanicus*) may also be purchased from Nate Perry at Pine Point Oyster Company in Scarborough, Maine and grown on the site in small quantities of less than 50,000. The scallop seed is approximately 12mm. Some scallops growing on the current LPA are already 3.5" in size and they will be placed at this proposed Experimental Lease Site in order to continue their growth. The scallops will be grown in sinking cages (36"x45"x32") with twelve bays for plastic mesh bags. Some ear hanging experimentation may also occur, as some collaboration with Dana Morse from the Darling Marine Center is being explored.

C. Gear: Floating OysterGro™ floating cages (36"x40"x24") with six bays for plastic mesh bags will be used on the Lease site as well as LowPro Bagless floating Cages (24"x36"). These floating cages may also be sunken to the seafloor for over-wintering. Floating screen boxes (36"x48"x4") that will primarily hold the younger oysters will also be used at the site. Some sinking cages (36"x45"x32") with twelve bays for plastic mesh bags may also be used at this lease site for the growing season or overwintering if needed. Cages will be attached to the string lines via stainless steel snaps. The lines will be layout out with 5/8" poly sinking main line that is anchored with two helix anchors every 100'. Up to 50 lines of 3/8" poly sinking string lines will be attached to the main line every 20', and up to 25 cages will be attached to each string line for a total of 1,250 cages at tract one. At tract two, up to 20 lines of 3/8" poly sinking string lines will be attached to the main line every 20', and up to 25 cages will be attached to each string line for a total of 500 cages. See the attached gear view sketches for more detail on gear layout.

OysterGro Cages



LowPro Bagless Cage 24"x36"



Screened Box 40"x36"



D. The study will last for three years, which is the term of this Experimental Lease. My objectives in growing oysters and scallops are to observe their growth rate at my site, determine if this is a commercially viable aquaculture species, and generally to learn how to keep them alive and healthy. The current challenge facing scallop aquaculture in Maine is to find a scalable model. The sinking cages may be too costly and labor intensive, and this will be observed during this Experimental Lease. The ear hanging method as well as other methods may be explored. Different types of gear may be explored in the future, and at that time the appropriate process will be followed in order to gain permission to try the new gear. The scallops will be harvested only after they reach the legally required size. It is possible that the whole scallop may be the end product, and if so, then I will obtain a Memorandum of Understanding with DMR's Bureau of Public Health, or any other process that is required in order to gain permission.

Sorting of all product will be done by hand at the site. If mechanical sorting is eventually needed for size sorting and cleaning, then I will arrange to borrow another Maine oyster lease holder's sorter, and I will inform the DMR prior to sorting. No gear or shellfish will be cleaned at the site. Any cleaning of gear that may be necessary will take place at my residence in Raymond, Maine with proper drainage and town approval. No shellfish cleaning will be conducted off site at all.

All oysters and scallops will be overwintered in sinking cages. The majority of overwintering will be done at the deeper water tract two, which is southeast of Moshier Island. The corners of the lease site will have large 10" buoys and markings that identify the site as an "Aquaculture Farm with UNDER WATER GEAR – BEWARE". The total number of cages will not exceed the limited space within the proposed lease site. The floating gear will return in the spring when the weather permits between March and May. The floating gear will again be removed in the winter as weather permits between October and December. The site will be access via a 24' Carolina Skiff with an outboard 90hp Honda.

E. This is a Commercial Research and Development Lease.

4. Existing Uses: Currently the owner of Little Moshier Island uses a lot of the area around the island for recreational boating and kayaking. The riparian owner also has a dock on the other side (shoreline side) of the island, and that dock is within 1,000 feet as the crow flies over land to Tract 1. The riparian owner does not use the entire southeastern shoreline for access to the property, where my proposed lease is situated. He uses the other side of the island where he placed his dock. There is also a dock on Moshier Island within 1,000' of Tract 2, however it is on the west side of the island and the proposed site for Tract 2 is on the east side. There are no other manmade structures of interest. There eastern shoreline of Moshier Island where Tract 2 is proposed, is not used as access to the island by any riparian owner.

Some fishermen use the area for recreational fishing for Striper Bass and other recreational fish. No lobster traps and no commercial fishing of any kind are conducted near this proposed lease site. The area within this proposed lease site is only 100 feet wide which allows for all boating to continue in the area between the two islands (Little Moshier Island and Moshier Island). This proposed lease is not anywhere near the channel and will not block any craft from moving through the area.

5. Exclusive Use: Boats with propellers will not be permitted to drive within the four corners of the lease site, and the site will be marked accordingly. The concern is that a propeller could easily break a line and result in losing the gear and animals that are tethered to the line. Fisherman and recreational paddle boarders, kayakers, etc., are welcome and they will not be excluded from boating and fishing at or around the lease site.

6. **DESCRIPTION OF THE PROPOSED LEASE SITE**

A. ENVIRONMENTAL CHARACTERIZATION

1. The bottom is comprised primarily of mud.
2. Depth on Tract 1 at mean low water (MLW) is approximately 6 feet and at mean high water (MHW) is approximately 12 feet. Depths on Tract 2 are approximately 21 feet at MLW and 29 feet at MHW.
3. Topography is flat
4. There is no flora or fauna to report. This is largely a dead mud flat.
5. Current speed and direction SE 1-3 knots
6. Shoreline is rocky with some sand and Little Moshier Island is a small hill.
7. There is no submerged aquatic vegetation and there is no eel grass in the area at all.

B. ENVIRONMENTAL IMPACT

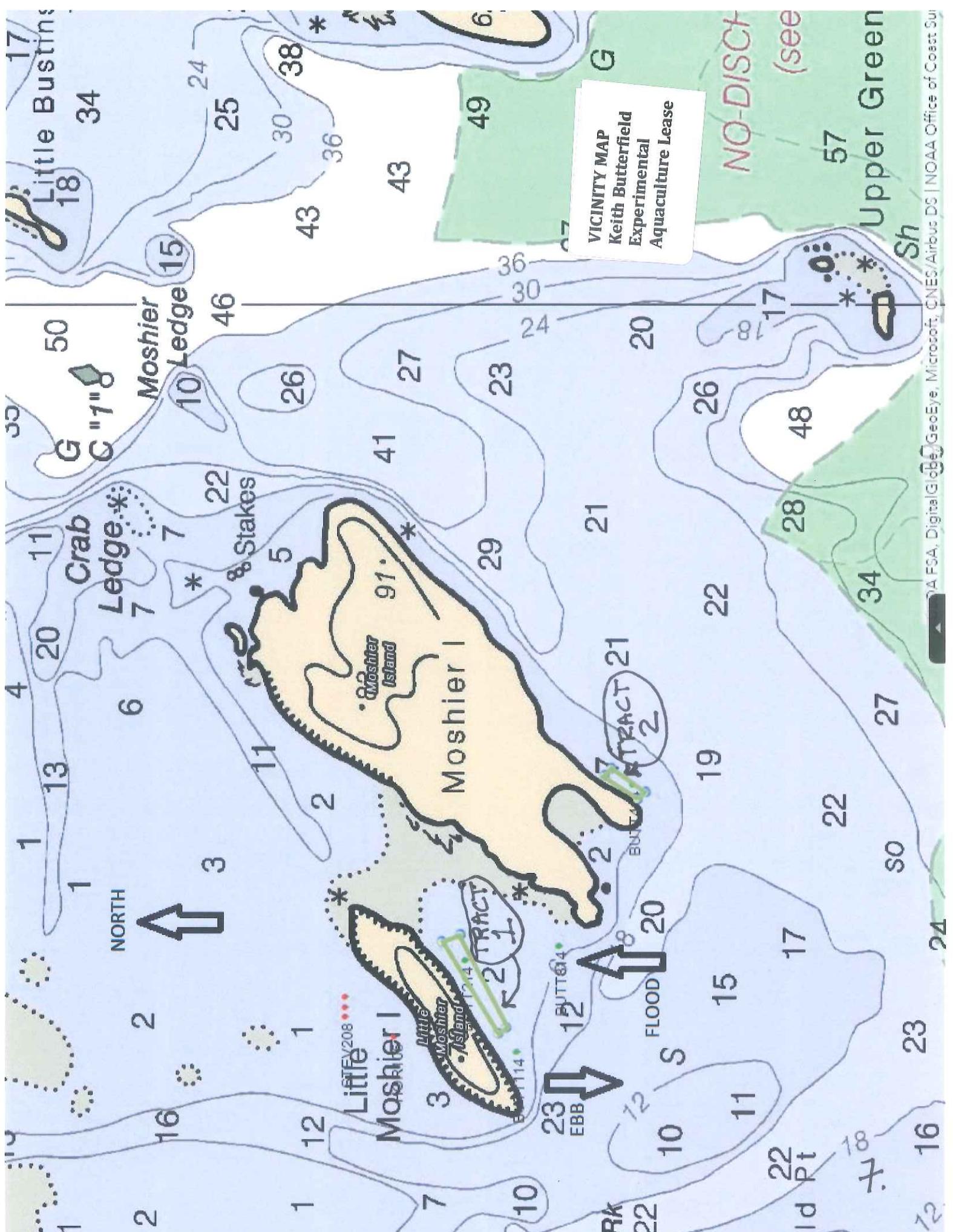
1. The gear and growing methods proposed for this lease site are expected to have no negative environmental impact. In fact, much of the literature on the subject shows clearly that oysters filter particles out of the water and allow for more sunlight to reach deeper, which leads to more aquatic growth and production of oxygen. Additionally, oysters filter out phosphorous and nitrogen that have a positive overall impact on the water quality.

7 STRUCTURES (SEE 8-11 FOR PLAN VIEWS AND CROSS SECTION VIEWS)

8 Discharge: There will be no discharge of any kind at this proposed lease site.

9 STANDARD MARKINGS WILL BE USED ON ALL FOUR CORNER BOUYS THAT MARK THE LEASE SITE.

10 I have read DMR Rule 2.40 and will set up an escrow account in the amount of \$5,000.

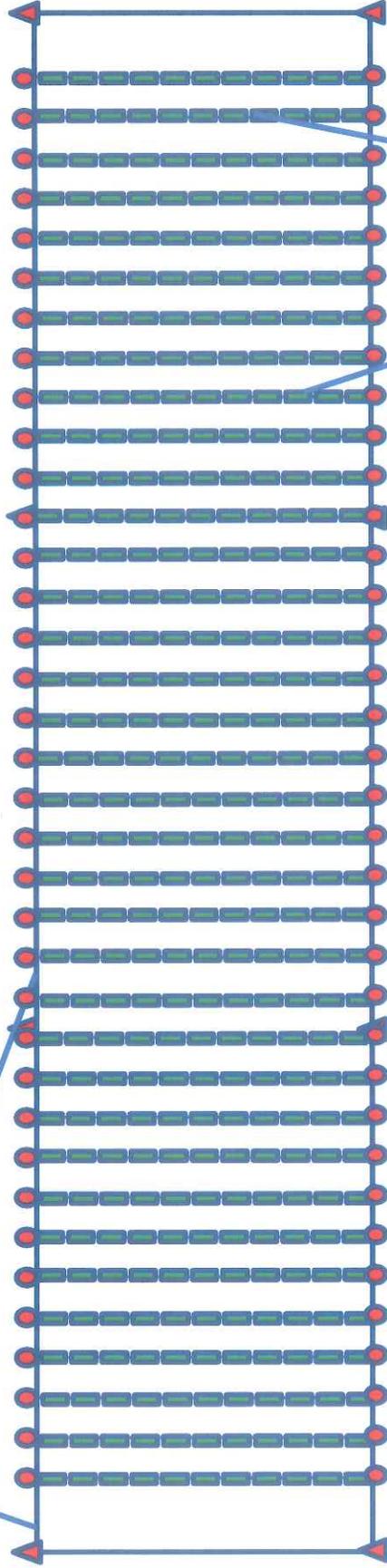


Top Plan View of Proposed Experimental Lease Tract 1

1000' X 100'

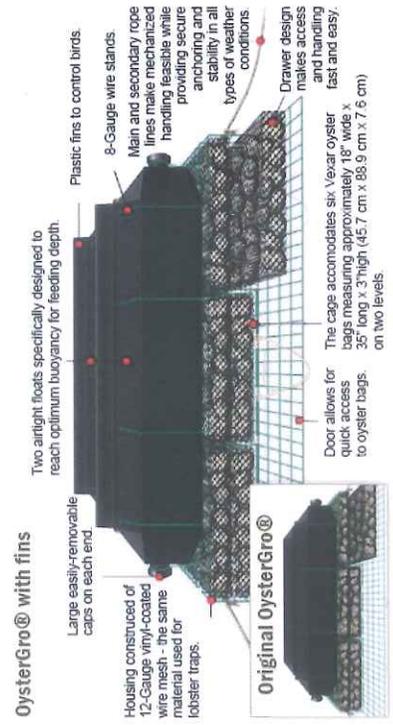
Main Line secured by anchors and with String Lines attached

This sign at each corner:
"Aquaculture Seafarm
UNDERWATER LINES"



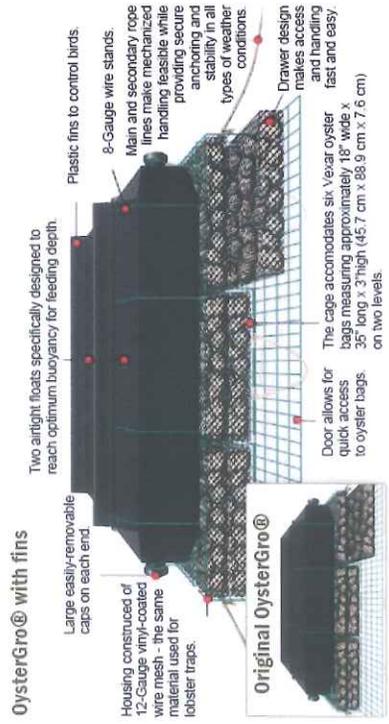
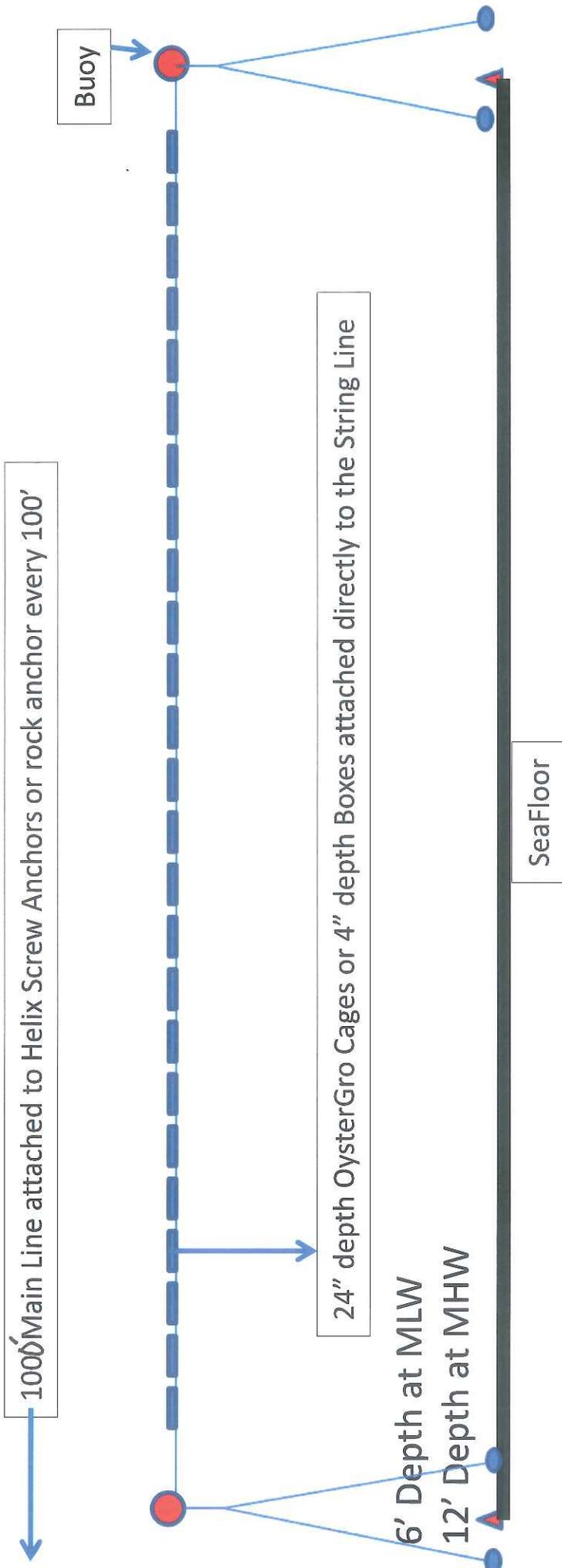
100' String Lines attached to the Main Line.
Cages are attached to String Lines.

- Buoys at each end of every String Line
- ▲ Helix Anchor Screws for Main Line
- 1000' Main Line anchored every 100' String Lines with 20' spacing
- As many as 25 OysterGro Cages (36"x40"x24") or LowPro Cages (24"x36"x12) or Boxes (36"x48"x4") per String – See OysterGro Cage illustration. Some Sinking Cages (36"x45"x32") may be utilized at this lease site.



Cross Section View of Proposed Experimental Lease Tract 1

1000' X 100'



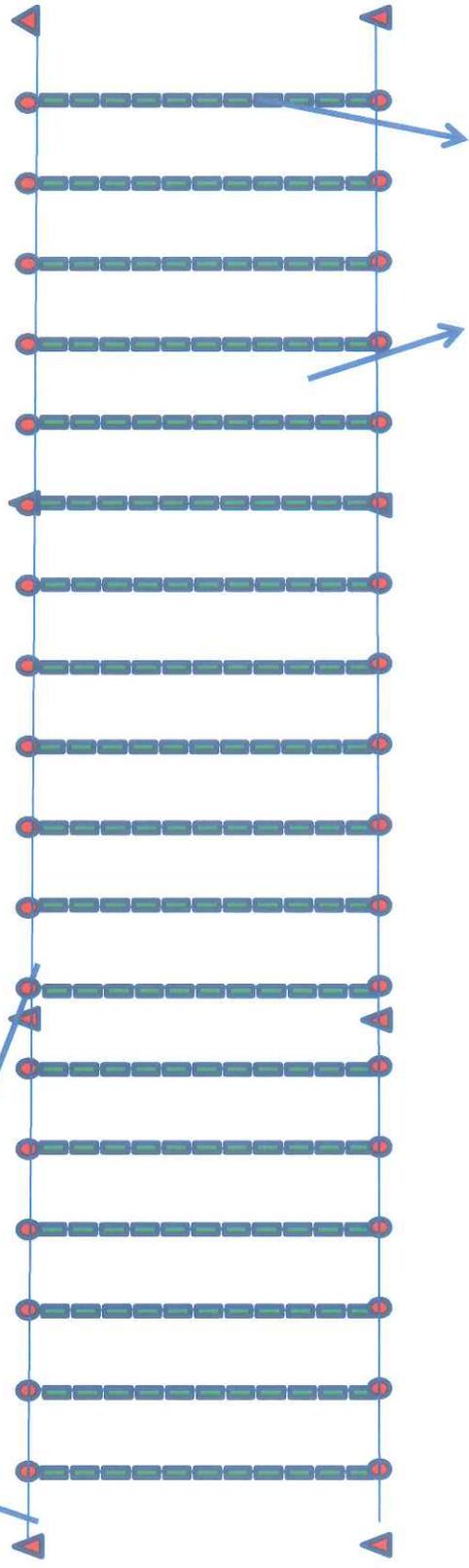
- ▲ Helix Anchor Screw for Main Line
- 1000' Main Line anchored every 100' String Lines spaced 20'
- As many as 25 OysterGro Cages (36"x40"x24") or LowPro Cages (24"x36"x12), or Boxes (36"x48"x4") per String – See OysterGro Cage illustration. Sinking Cages (36"x45"x32") will be used interchangeably with the OysterGro Cages.

Top Plan View of Proposed Experimental Lease Tract 2

400' X 100'

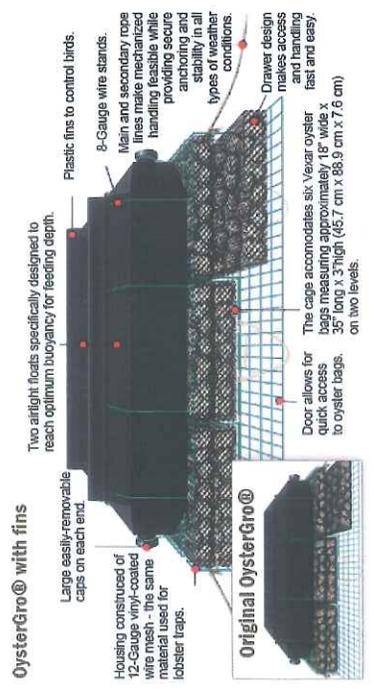
Main Line secured by anchors and with String Lines attached

This sign at each corner: "Aquaculture Seafarm UNDERWATER LINES"



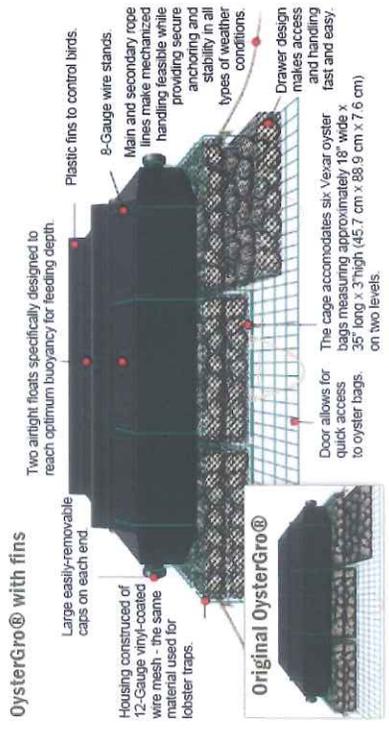
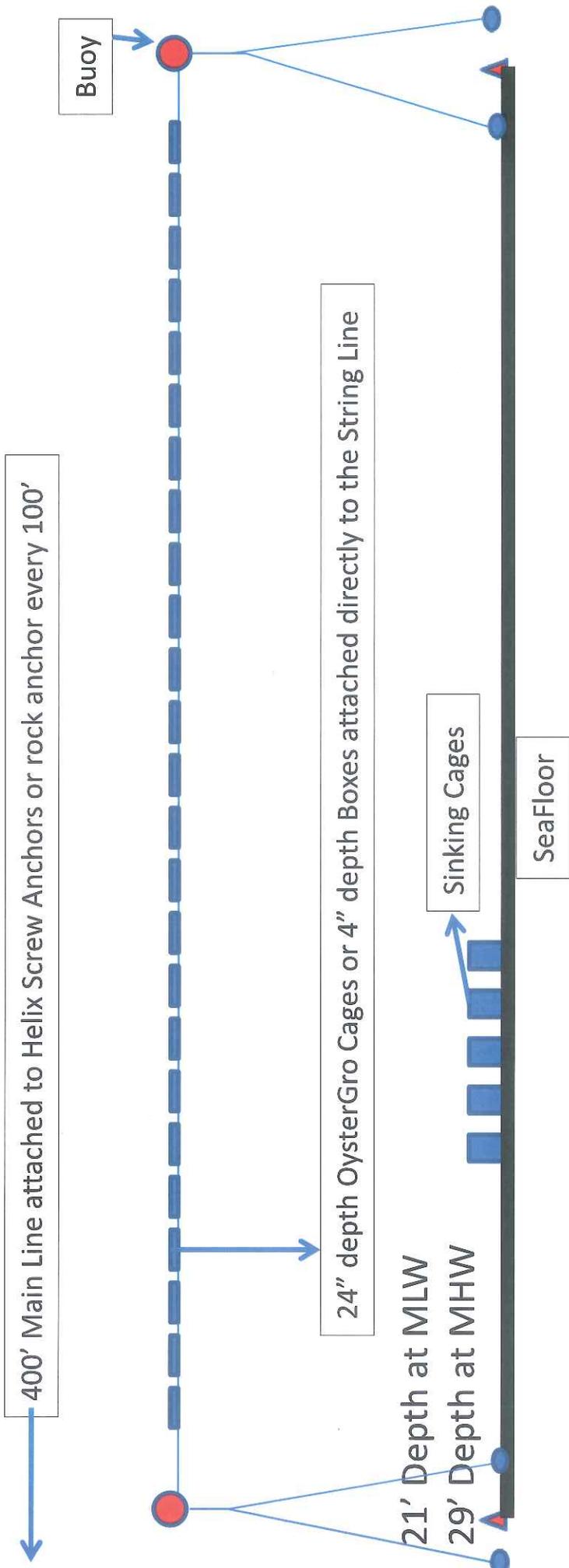
100' String Lines attached to the Main Line. Cages are attached to String Lines.

- Buoys at each end of every String Line
- ▲ Helix Anchor Screws or rock type anchors for Main Line
- 1000' Main Line anchored every 100' String Lines with 20' spacing
- As many as 25 OysterGro Cages (36"x40"x24") or LowPro Cages (24"x36"x12) or Boxes (36"x48"x4") per String – See OysterGro Cage illustration. Sinking Cages (36"x45"x32") and Ear Hanging from 18" buoys will be used interchangeably with the OysterGro Cages.



Cross Section View of Proposed Experimental Lease Tract 2

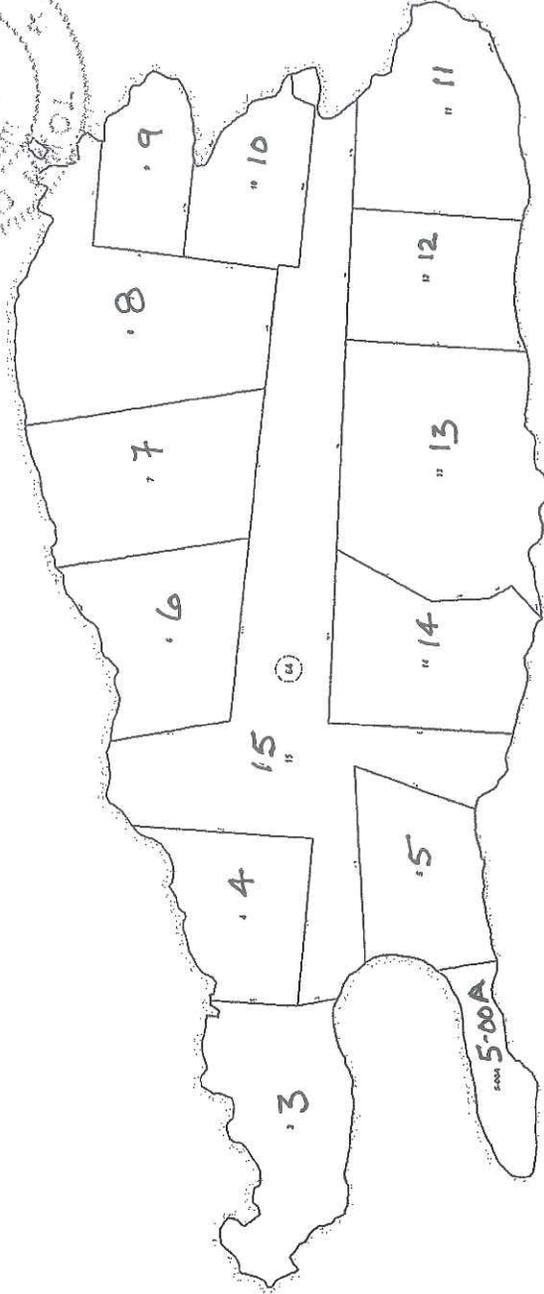
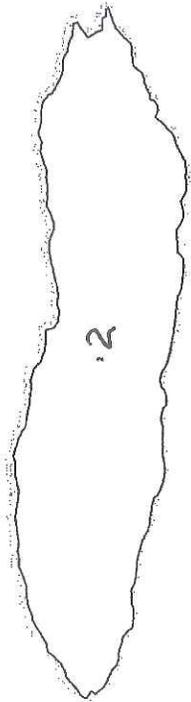
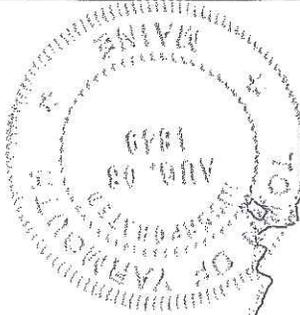
400' X 100'



- ▲ Helix Anchor Screw or granite type anchor for Main Line
- 400' Main Line anchored every 100' String Lines spaced 20'
- As many as 25 OysterGro Cages (36"x40"x24") or LowPro Cages (24"x36"x12), or Boxes (36"x48"x4") per String – See OysterGro Cage illustration. Sinking Cages (36"x45"x32") and Ear Hanging from 18" buoys will be used interchangeably with the

ATTEST
TRUE COPY

Joseph D. O'Keefe
8/20/16



Assessors Maps

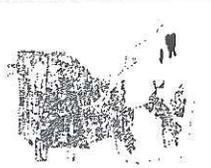


- Property Boundary
- Paper Streets
- Water Body
- Map Number

Sample Property Label



Lot 3
Unit 31
1.2 Acres



0 200 400
1 inch = 200 feet

The Assessor is not responsible for the accuracy of the information shown on this map. The Assessor is not responsible for any errors or omissions. The Assessor is not responsible for any damages or losses resulting from the use of this map.

MAP 64(A)



MAINE DEPARTMENT OF MARINE RESOURCES

Aquaculture Division, 21 State House Station, Augusta, ME 04333-0021 (207) 624-6567, 624-6577

- RIPARIAN OWNERS LIST -
For aquaculture lease applications

THIS LIST MUST BE
CERTIFIED

On this list, please show the current owners' names and mailing addresses for all shorefront parcels within 1,000 ft. of the proposed license site. Ask the Town Clerk to complete the certification form below. If the parcels are within more than one municipality, provide a separate, certified, riparian list for each municipality.

TOWN OF:

Table with 4 columns: MAP #, LOT #, Landowner name, Address. Rows include Scott & Clare Labrecque, John & Jennifer Nolan, Philip & Josephine Ahrens, Charles Harriman, Juan Conde, and Robert P. Hazzard III.

CERTIFICATION

I, Jennifer S. Doten, Town Clerk of Yarmouth, ME, certify that the names and addresses of the property owners listed above are those listed by this municipality and are current as of this date.

SIGNED: Jennifer S. Doten DATE: 6/13/16 SEAL: