

# THE CITY OF TIPTONVILLE, TENNESSEE

130 S. COURT STREET  
TIPTONVILLE, TENNESSEE 38079

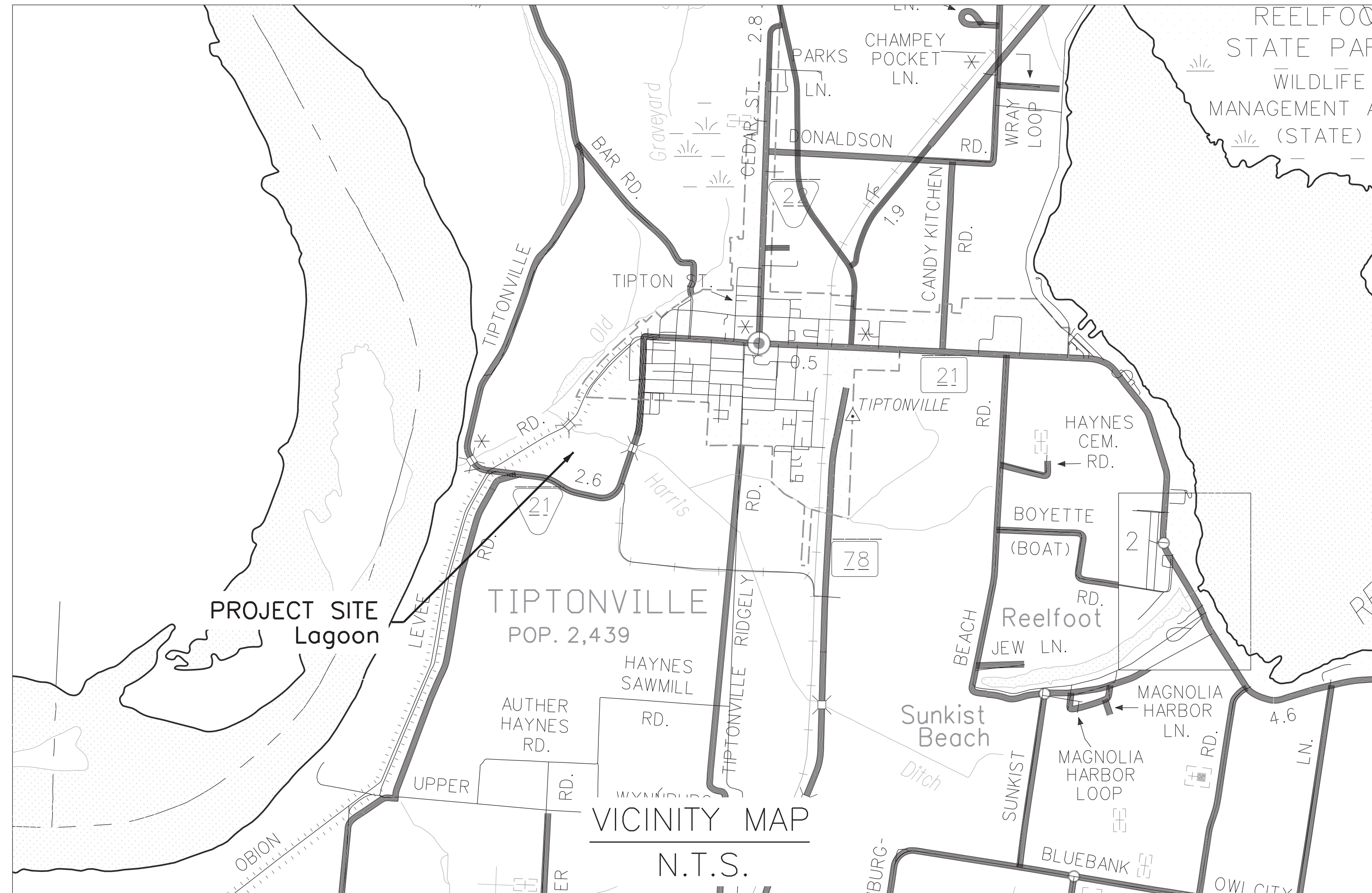
CLIFF BERRY, MAYOR | FRAN HEARN, CITY RECORDER | KENT ROBERSON, SUPT. OF UTILITIES

### SHEET INDEX

- 1 Cover Sheet and Vicinity Map
- WW-PDC-1 Proposed Activities and Exist. Sludge Depth
- WW-PDC-2 Aerator and Cable Layout (Exist. and Prop.)
- 4 Aerator and Mooring Details
- 5 E-1 Electrical Layout
- 6 Anchor Posts, Winch, Cable Floats, and Curtain Details
- WW-PDC-3 N/A

### GENERAL NOTES

1. TOPOGRAPHIC FEATURES WERE PROVIDED BY THE STATE OF TENNESSEE.
2. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION OF EXISTING UTILITIES BY DIGGING TEST PITS AT ALL UTILITY CROSSINGS WELL IN ADVANCE OF TRENCHING.
3. SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THIS OFFICE IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THEN THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
4. SLOPE SMOOTHLY BETWEEN INDICATED ELEVATIONS TO PROVIDE POSITIVE DRAINAGE OF ALL AREAS GRADED OR DISTURBED BY THIS CONSTRUCTION. ALL FINISHED GRADING, SEEDING, SODDING, OR PAVING SHALL BE DONE IN SUCH A MANNER TO PREVENT THE PONDING OF WATER. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS. MAXIMUM SLOPE ON EARTH BANKS WITHOUT SPECIAL TREATMENT IS 3:1.
5. IF ANY STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
6. THE CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ENSURE A SMOOTH FIT AND CONTINUOUS GRADE.



Treasury American Rescue Plan financial assistance will be used to fund all or a portion of this contract under ARP Grant 2022-8383 Project IDs WW-PDC-01, WW-PDC-02, AND WW-PDC-03. The Contractor must comply with all applicable Federal law, regulations, executive orders, Treasury policies, procedures, and directives.

### APPROVAL

The City approves the design of this project and agrees to own, operate, and maintain this project once in operation. There will be no negative effects to customers or the system.  
City of Tiptonville Utilities

*Kent Roberson* 3/25/24  
Kent Roberson, Superintendent of Utilities Date

### Prepared By:

Joel B. Spaulding & Company, Inc. - Consulting Engineers  
3322 West End Avenue, Suite 106  
Nashville, Tennessee 37203  
(615) 255-7766 | info@joelbspaulding.com  
www.joelbspaulding.com

## CONTRACT 224 ARP LAGOON REHABILITATION

WPN24.0215

**APPROVED FOR CONSTRUCTION**

THE DOCUMENT BEARING THIS STAMP HAS BEEN RECEIVED AND REVIEWED BY THE

TENNESSEE DEPT. OF ENVIRONMENT & CONSERVATION  
DIVISION OF WATER RESOURCES

AND IS HEREBY APPROVED FOR CONSTRUCTION BY THE COMMISSIONER

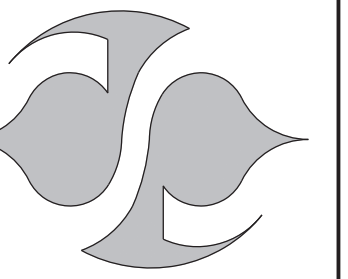
*Tracy Hill*

04/16/2024

THIS APPROVAL SHALL NOT BE CONSTRUED AS CREATING A PRESUMPTION OF CORRECT OPERATION OR AS WARRANTING BY THE COMMISSIONER THAT THE APPROVED FACILITIES WILL REACH THE DESIGNED GOALS.

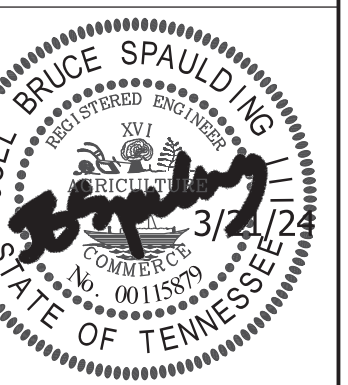
APPROVAL EXPIRES ONE YEAR FROM ABOVE DATE

Joel B. Spaulding & Company, Inc.  
Consulting Engineers  
Bruce Spaulding, PE | J.B. Spaulding, PE, LEED AP



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The City of Tiptonville  
Lake County, TN  
ARP Lagoon Rehabilitation  
Cover Sheet



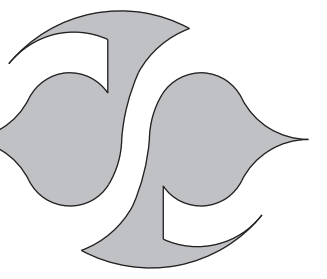
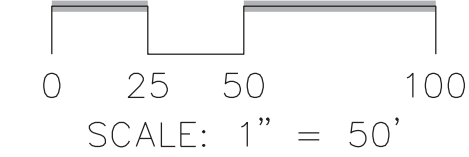
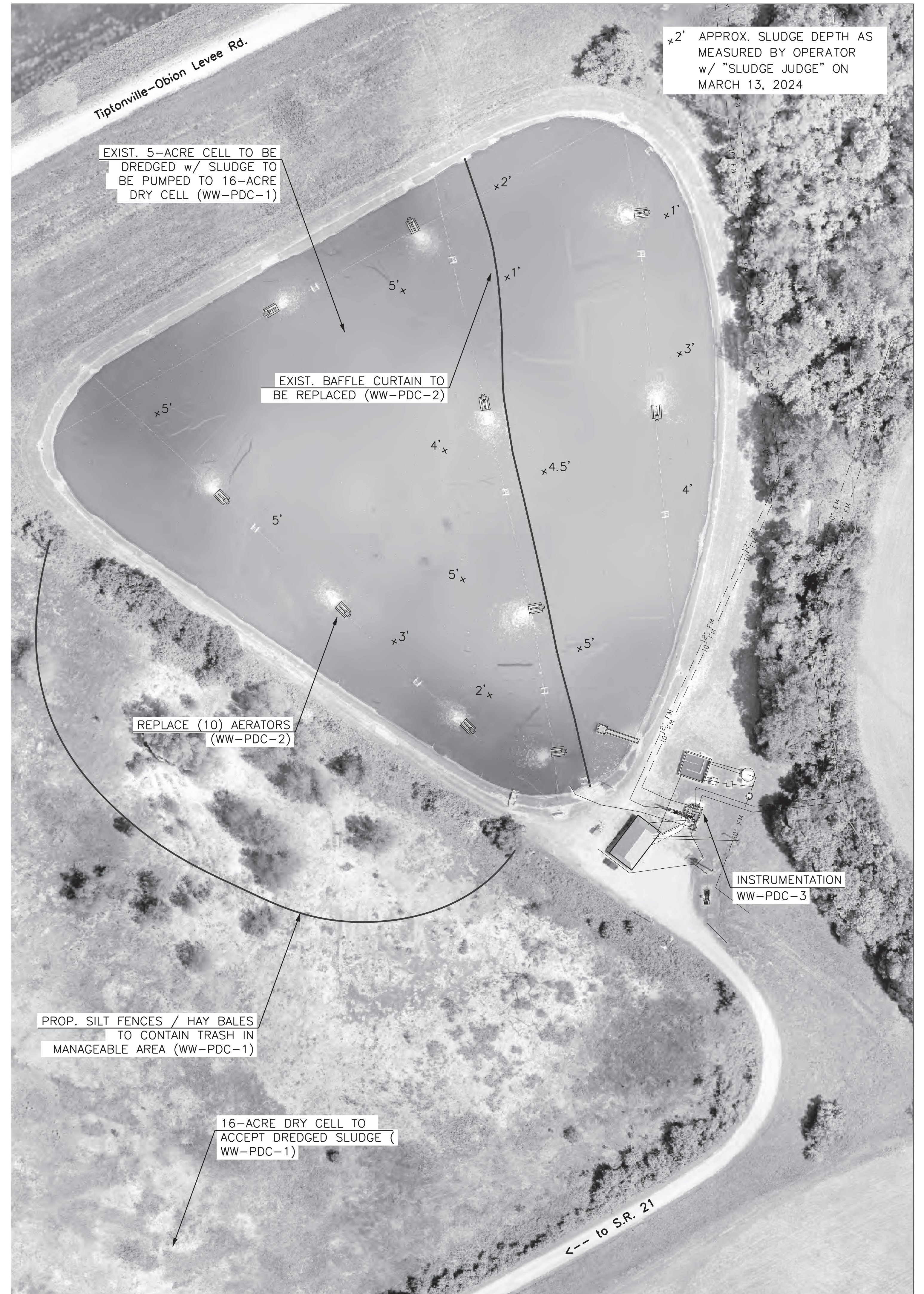
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DATE	DESCRIPTION	
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DESIGN	DRAWN	CHECKED
SCALE (H): None		
SCALE (V): None		
JOB No.: Contract 224		
DATE:	March 2024	
SHEET	1	OF 6



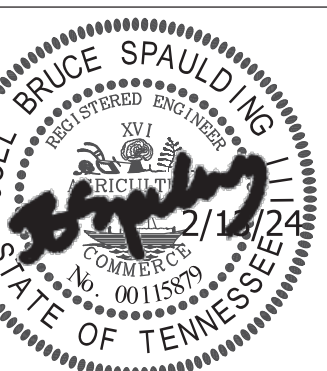
Know what's below.  
Call before you dig.



NORTH



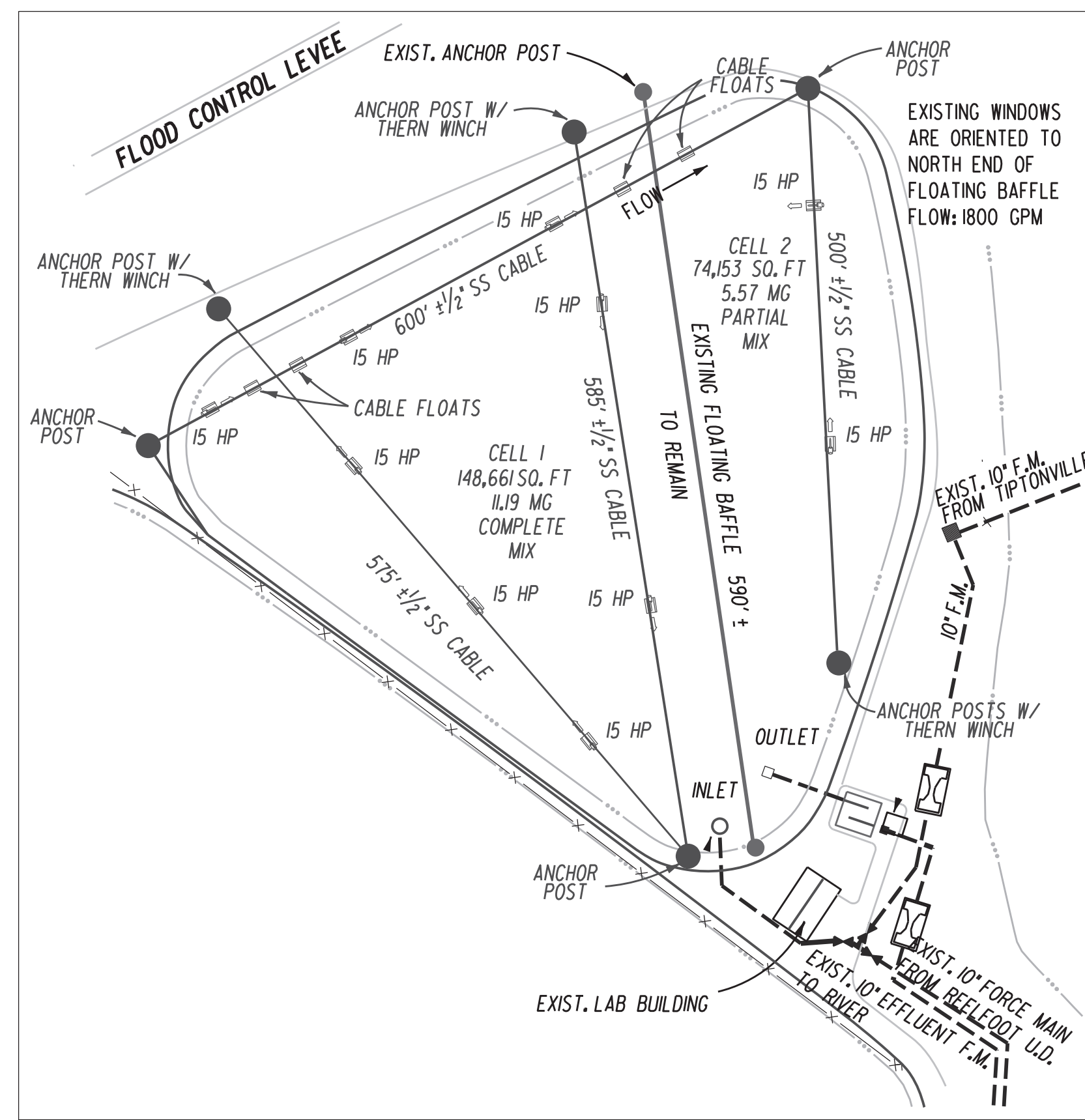
**The City of Tiptonville  
Lake County, TN  
ARP Lagoon Rehabilitation  
Proposed Activities and Exist. Sludge Depth**



PLAN STATUS		
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SCALE (V):		
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DATE: March 2024		

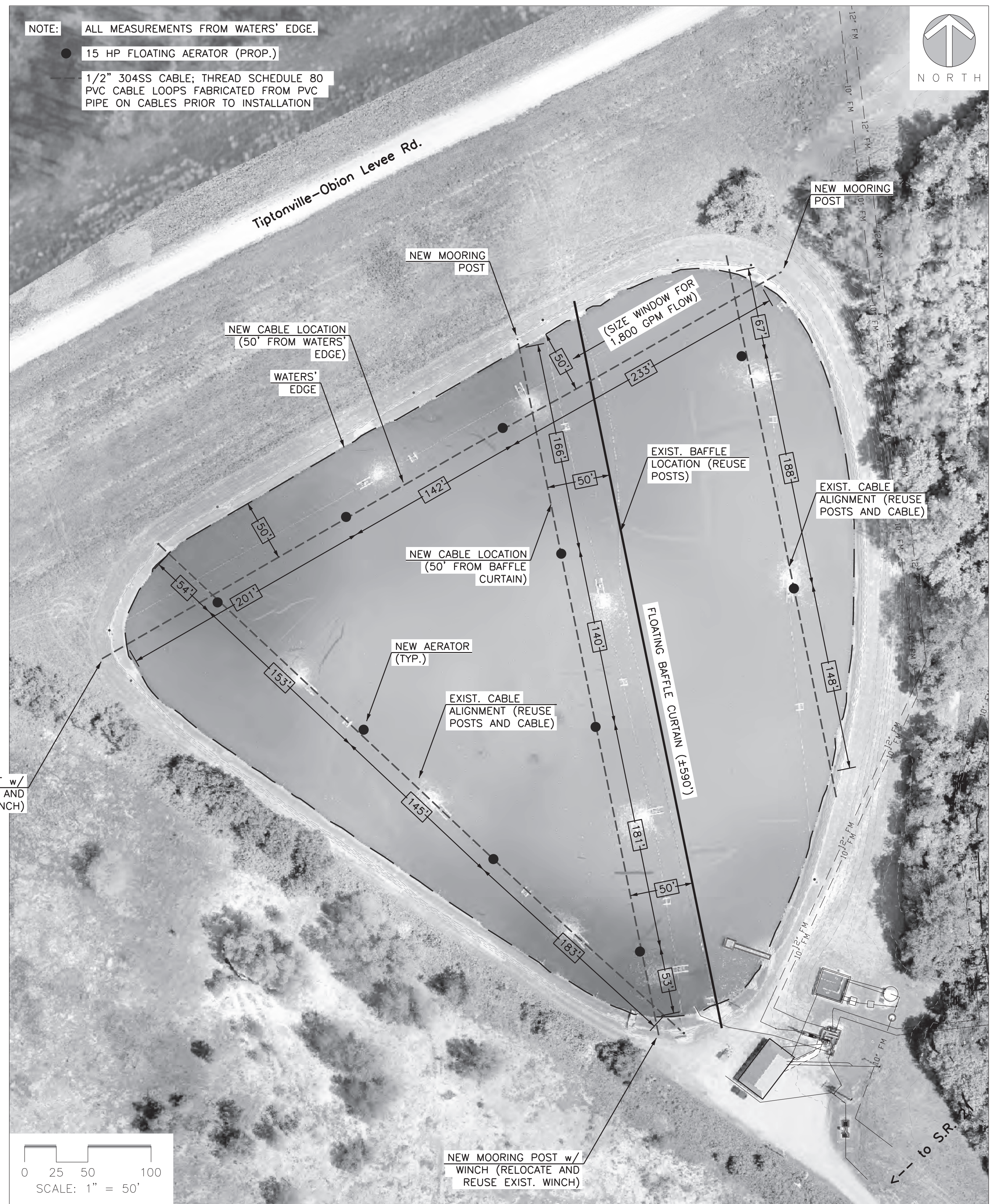


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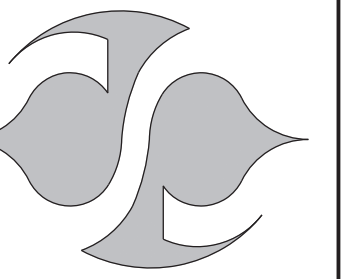
EXIST. AERATOR AND MOORING CABLE LAYOUT  
N.T.S.

NEW MOORING POST w/  
WINCH (RELOCATE AND  
REUSE EXIST. WINCH)

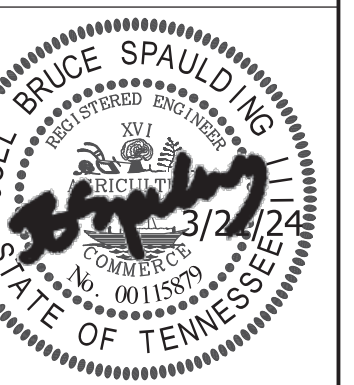


PROP. AERATOR AND MOORING CABLE LAYOUT  
1" = 50'

- NOTE: ALL MEASUREMENTS FROM WATERS' EDGE.
- 15 HP FLOATING AERATOR (PROP.)
  - 1 1/2" 304SS CABLE; THREAD SCHEDULE 80 PVC CABLE LOOPS FABRICATED FROM PVC PIPE ON CABLES PRIOR TO INSTALLATION



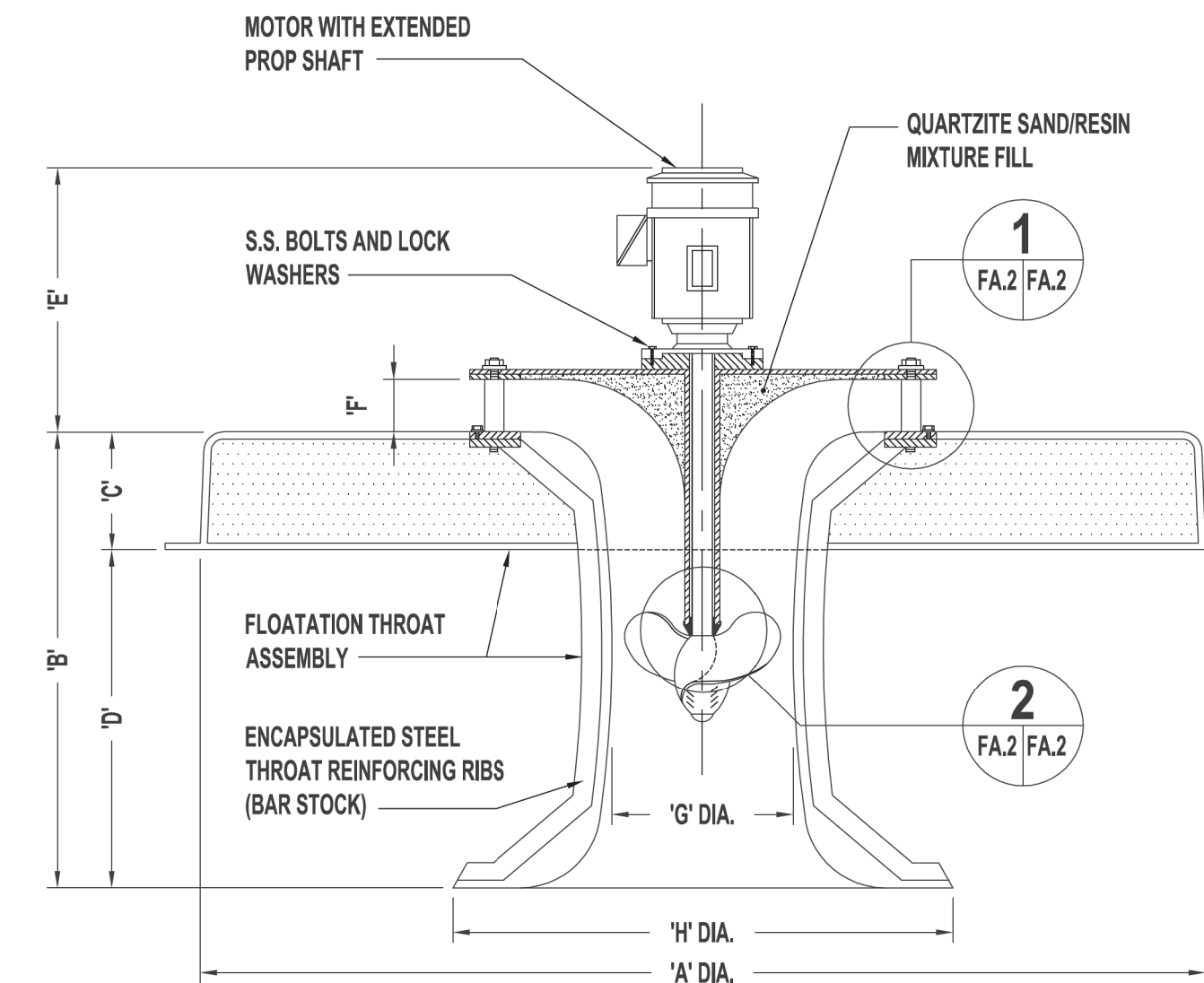
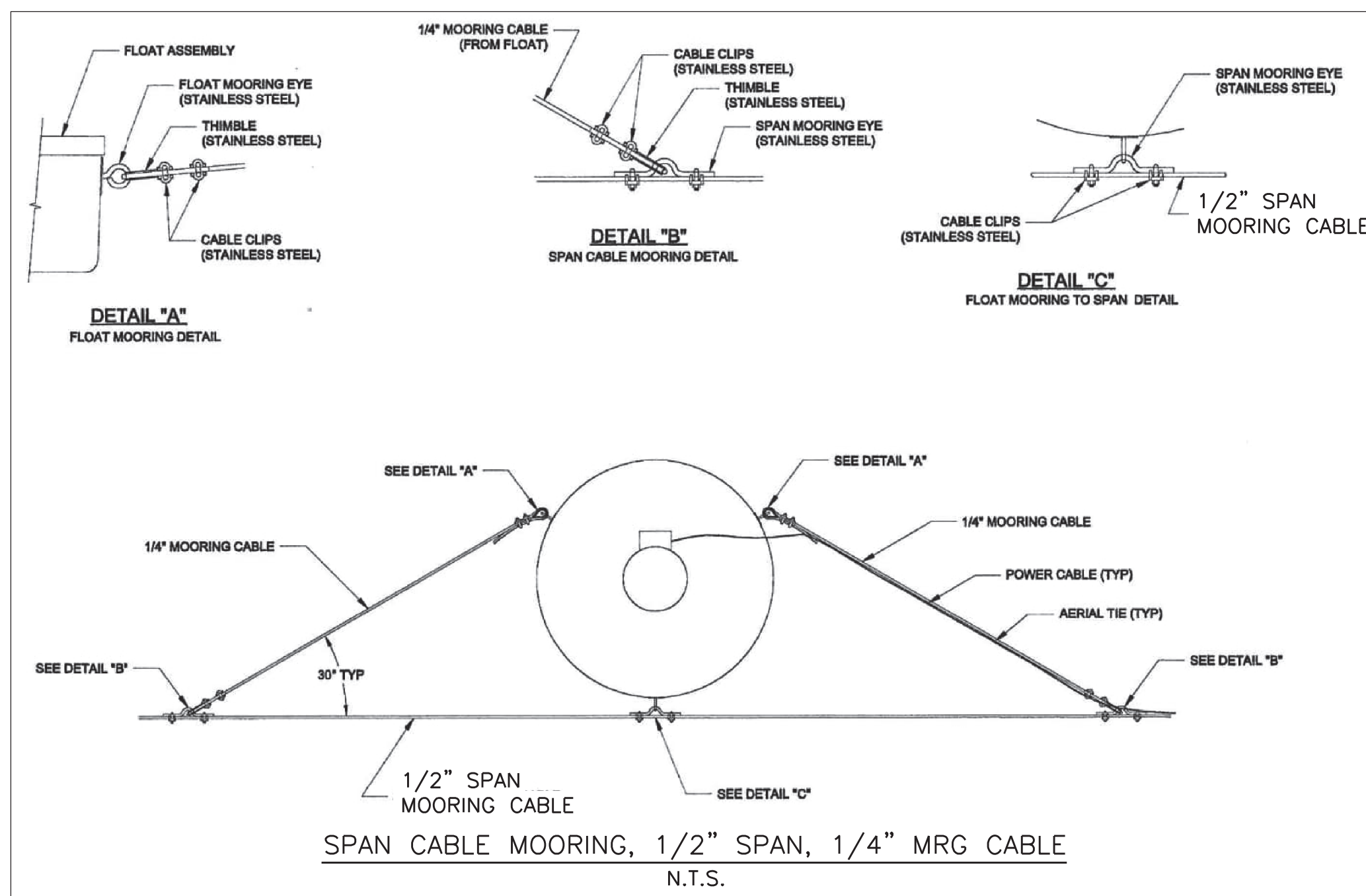
The City of Tiptonville  
Lake County, TN  
ARP Lagoon Rehabilitation  
Aerator and Cable Layout (Exist. and Prop.)



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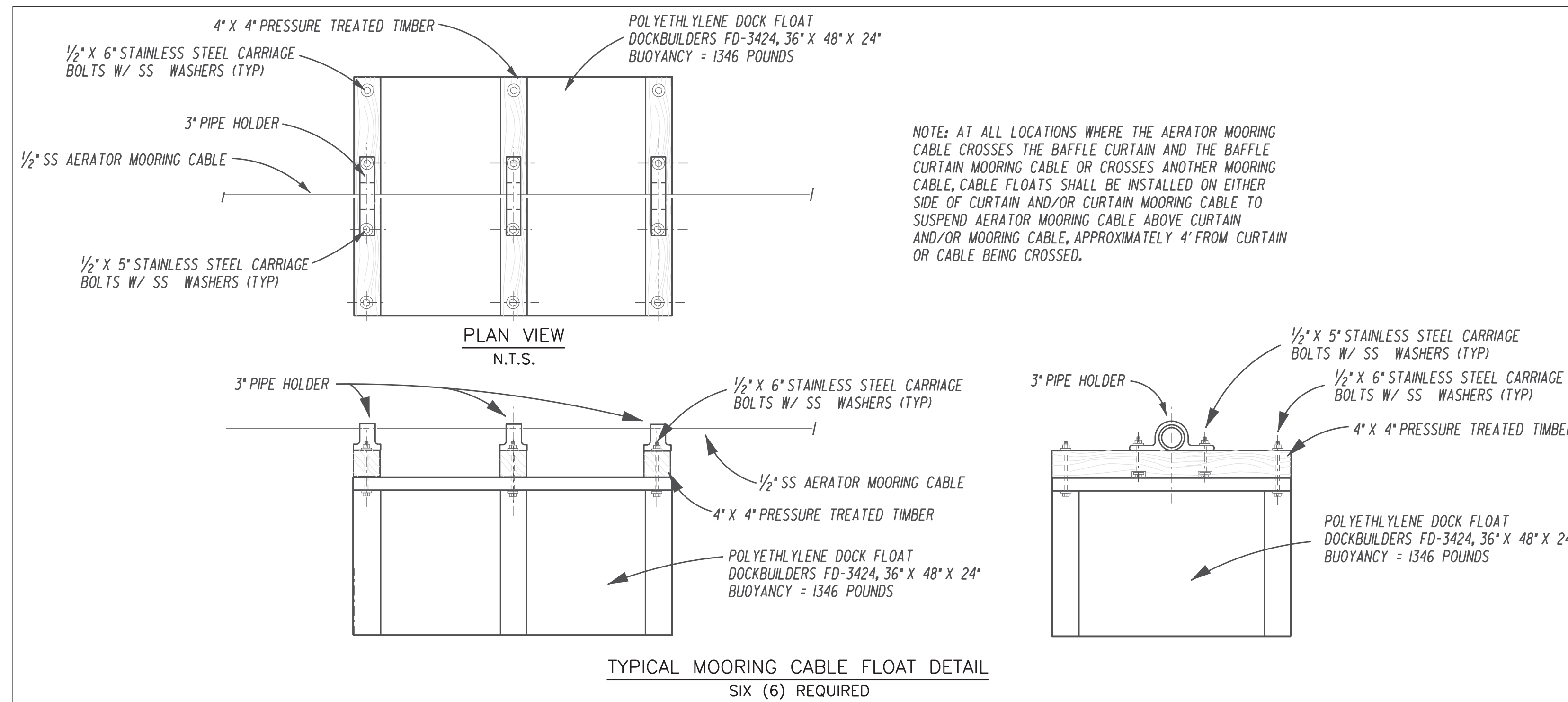
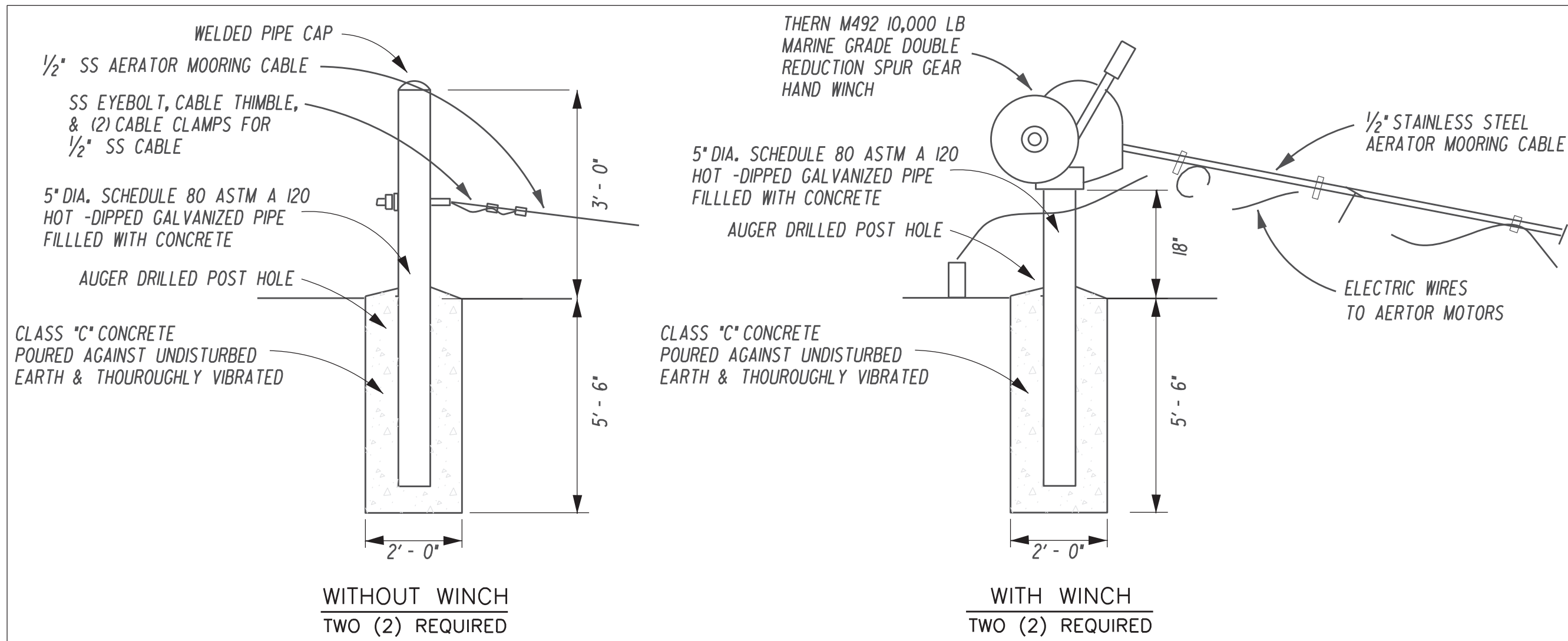


Know what's below.  
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**AERATOR DIMENSIONS**

AERATOR MODEL	HP	A	B	C	D	E	F	G	H
FA1215	15	88	49	14	35	31	6	19	42



**1 DETAIL** (FA.2 FA.2)  
**2 DETAIL** (FA.2 FA.2)  
**3 DETAIL** (FA.2 FA.3)

S.S. NUT AND LOCK WASHER  
SHOULDER STUD-DEFLECTOR ASSEMBLY  
S.S. NUT AND LOCK WASHER

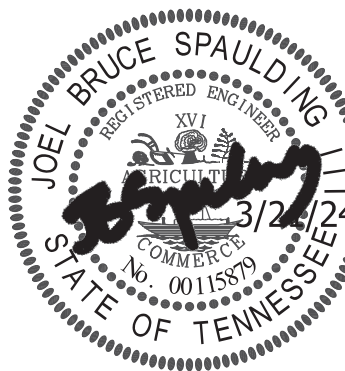
**ENVIRONMENTAL EQUIPMENT ENGINEERING, INC.**  
8417 ERLE ROAD  
MECHANICSVILLE, VA  
(804) 730-1280

**TITLE**  
FLOATING AERATOR  
CUT AWAY DRAWING

**SHEET NUMBER**  
FA.2

DATE: 11-30-15 | DWN: L. CLARK | APP: T. MENTZ | REV: | SHEET 2 of 2

The City of Tiptonville  
Lake County, TN  
ARP Lagoon Rehabilitation  
Aerator and Mooring Details



PLAN STATUS

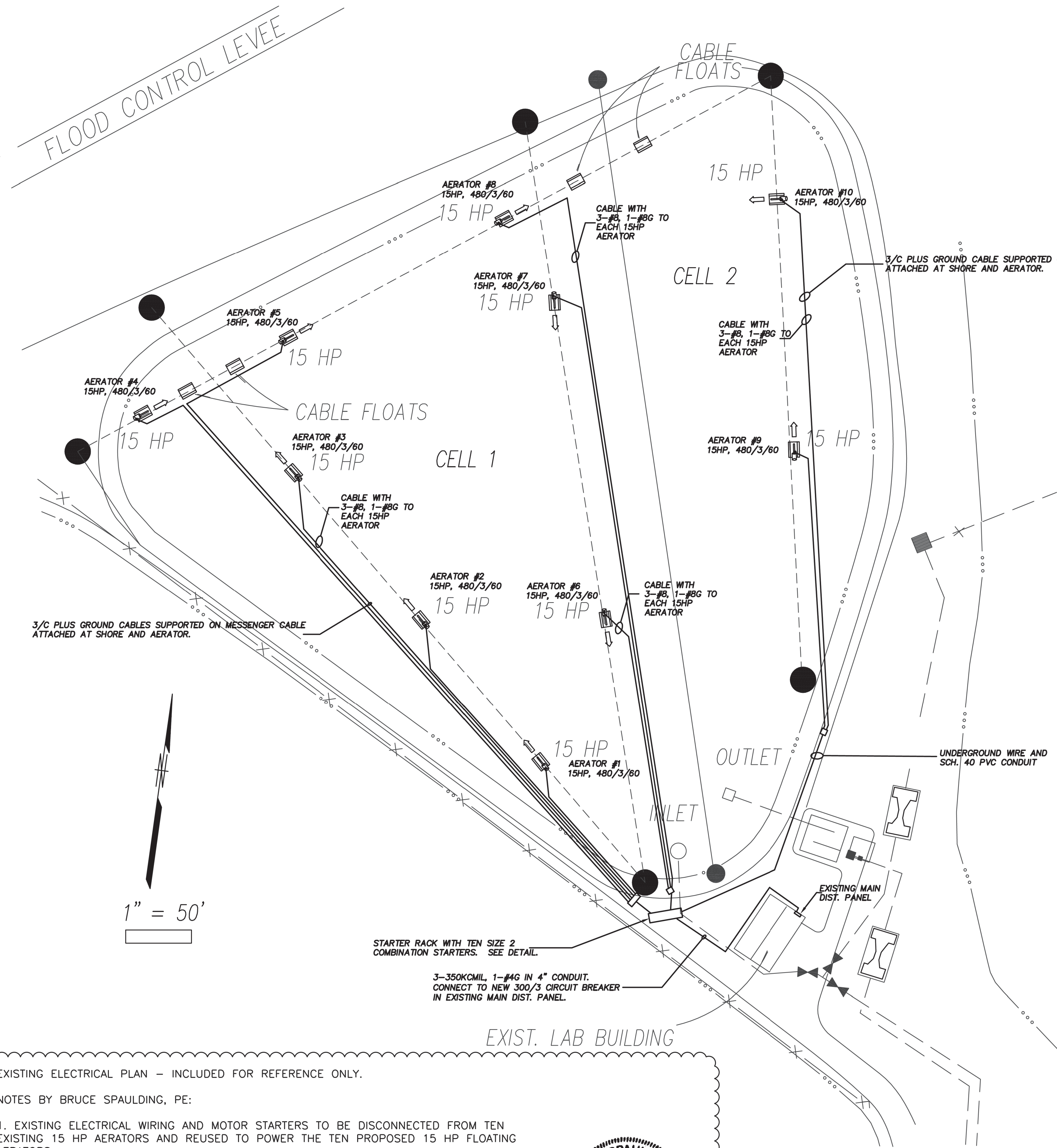
DATE	DESCRIPTION

DATE: March 2024  
JOB No.: Contract 224  
SHEET 4 OF 6



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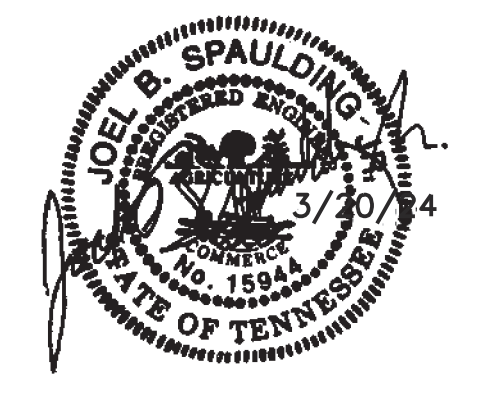


1" = 50'

EXISTING ELECTRICAL PLAN - INCLUDED FOR REFERENCE ONLY.

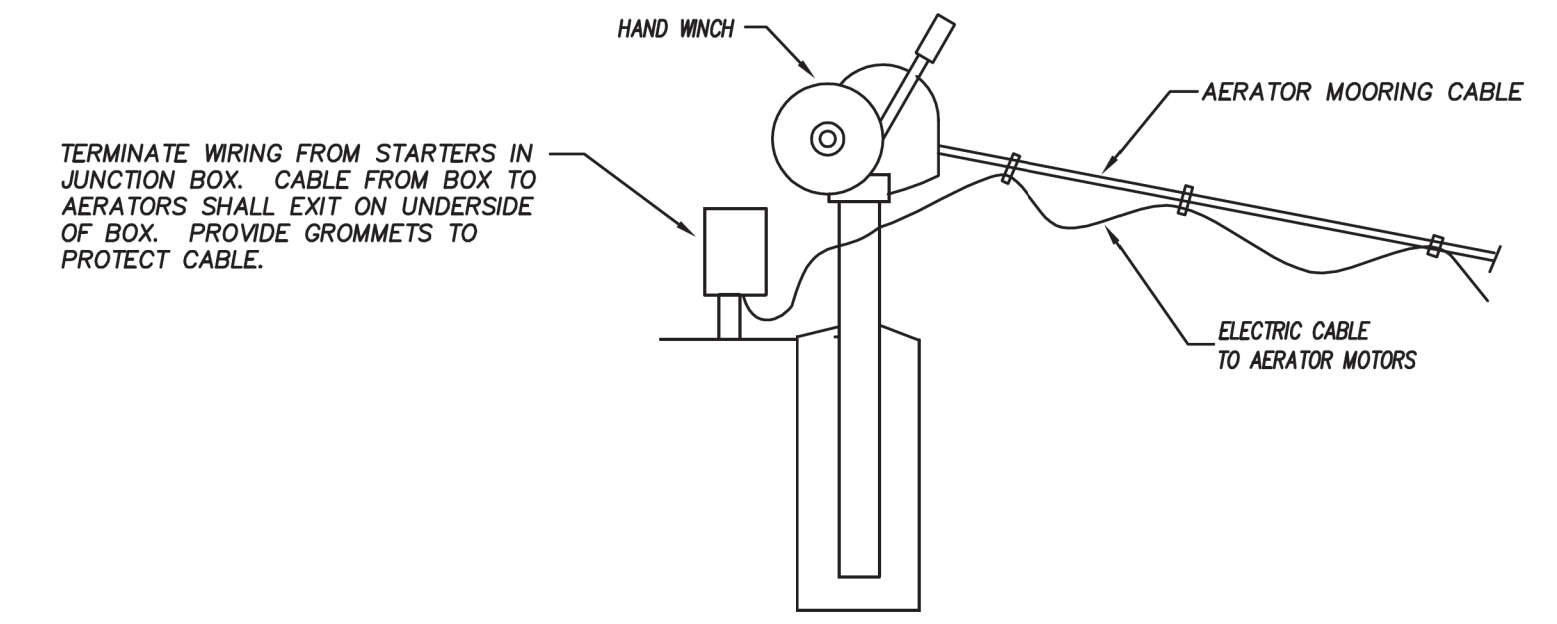
NOTES BY BRUCE SPAULDING, PE:

1. EXISTING ELECTRICAL WIRING AND MOTOR STARTERS TO BE DISCONNECTED FROM TEN EXISTING 15 HP AERATORS AND REUSED TO POWER THE TEN PROPOSED 15 HP FLOATING AERATORS.
2. EXTEND OR SHORTEN POWER CABLES AS NECESSARY TO ACCOMMODATE DIFFERENCES IN THE LOCATIONS OF THE PROPOSED AERATORS.
3. USE 3M "SCOTCHCAST INLINE RESIN POWER CABLE SPLICE KIT" FOR ALL WIRE SPLICES.
4. SPLICE CABLES ON OR AS CLOSE TO THE LAAGOON BANK AS POSSIBLE AT THE STARTER BANK END.
5. COORDINATE w/ GENERAL CONTRACTOR TO ENSURE THAT ADEQUATE SIZED CABLE LOOPS FABRICATED FROM SCHEDULE 80 PVC CONDUIT IS THREADED ON THE MOORING CABLES IN ADEQUATE NUMBERS PRIOR TO REINSTALLATION OF THE MOORING CABLES TO THE MOORING POSTS AND WINCHES.

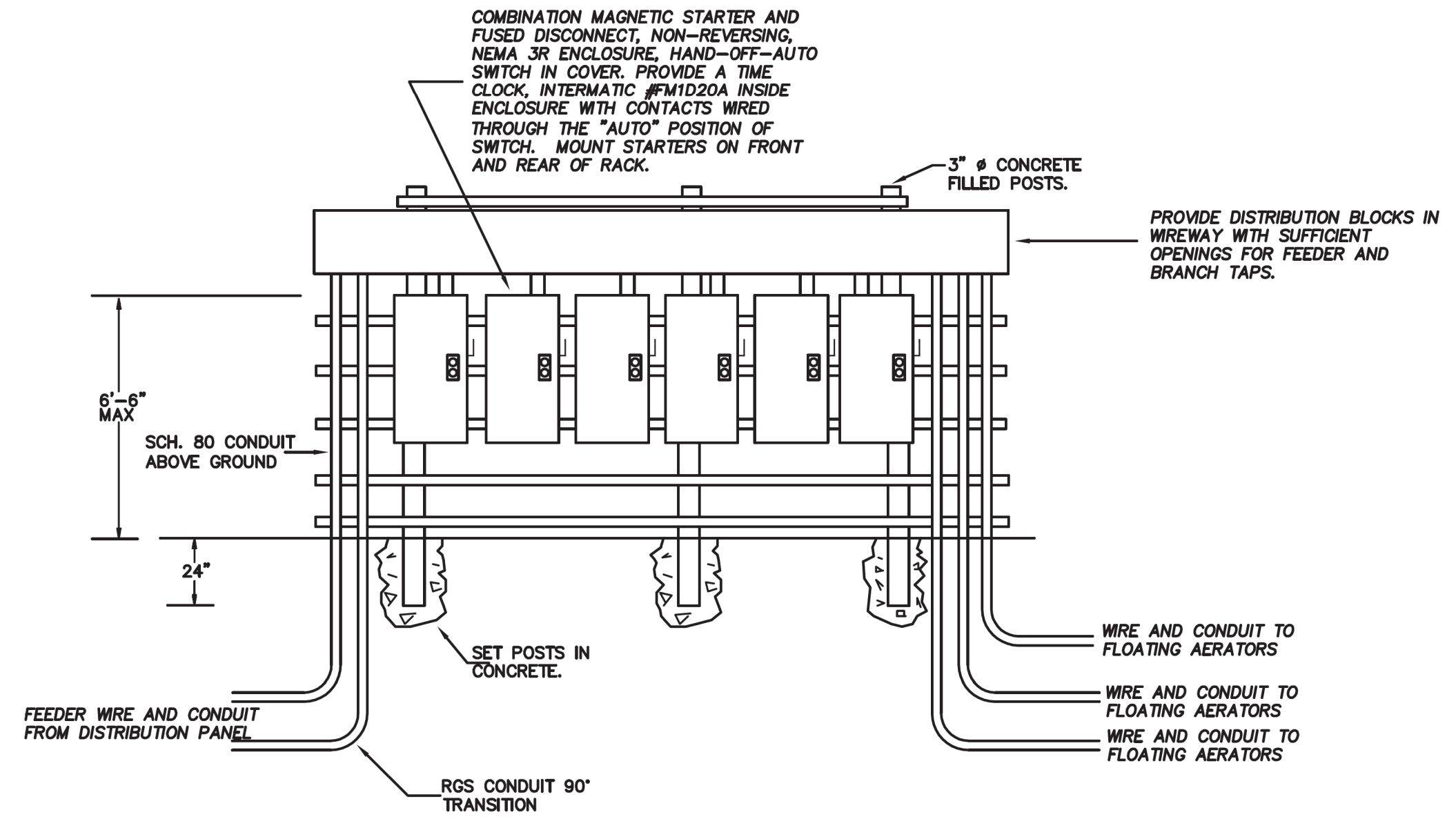


ELEC. CABLE SUSPENDED FROM ANCHOR CABLE  
 CABLE LOOPS FABRICATED FROM SCHED 80 PVC CONDUIT

TYPICAL DETAIL OF WIRING ON MESSENGER CABLE



TYPICAL DETAIL AT WINCH



TYPICAL STARTER MOUNTING DETAIL



**BURNS ENGINEERING**  
*Electrical Engineers*  
 7975 STAGE HILLS BLVD., SUITE 2  
 BARTLETT, TENNESSEE 38133  
 (901)373-8462



Know what's below.  
 Call before you dig.

**The City of Tiptonville  
 Lake County, TN  
 ARP Lagoon Rehabilitation  
 E-1 Electrical Layout**

PLAN STATUS		
DATE	DESCRIPTION	
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DESIGN	DRAWN	CHECKED
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SHEET	<b>5</b>	OF <b>6</b>

Detailed Specification  
Floating Baffle Replacement

1.1 GENERAL

A. The following specifications out line the general construction details and features required for the baffle wall. These specifications do not cover each item of construction totally, nor are they complete in every respect. In general, the contractor shall furnish and install a complete and serviceable baffle wall that will meet these specifications and which is fit for the duty intended.

B. Existing floating baffle was installed in 2017. Lagoon has been in service approximately 40 years so sludge accumulation may be irregular along bottom surface. Normal water level in the lagoon is 10 feet. Length of existing floating baffle is approximately 590 feet more or less. Sidewall slopes of lagoon cell are approximately 3:1, however the baffle intersects the slopes at different angles at either end. Contractor will be responsible for determining actual required slope of end sections, the actual required length of floating baffle, and the suitability of the existing end anchors for reuse with the new baffle by direct field measurement and/or observation.

C. Existing slopes are lined with a HDPE liner for 15 feet slope length; balance of slope and lagoon bottom is sealed with a compacted bentonite liner. The existing curtain must be removed in a manner to prevent damage to these liners and the new curtain must be installed in a manner to prevent damage to these liners. Liner damage caused by either the existing baffle removal or new baffle installation activities will be remedied by the Contractor to the satisfaction of the Engineer.

1.2 SUBMITTALS

A. The manufacturer shall submit with his bid a certificate stating the physical properties of the baffle to be used along with the various test methods used to determine such properties. No materials shall be approved that fail a cold crack test of 40-degrees F.

B. Upon request the manufacture shall provide samples of the skit material which have been exposed to actual field conditions for a minimum of 10-years. Laboratory acceleration tests will not be accepted.

C. The manufacturer shall certify and so demonstrate his/hers ability to install curtains in near proximity to floating aerators. The minimum distance acceptable shall be 1-foot per aerator horsepower. Manufacturers who cannot demonstrate this ability through actual installations, in place for a minimum of 3-years without movement in upper or lower baffle skirts, shall not be approved.

d. 50-foot sections will be the maximum length accepted to expedite future upgrading or relocation.

1.3 MATERIALS

A. All materials used in the construction of the baffle shall be certified to withstand chlorine, ultraviolet radiation, extreme temperatures, rips, abrasions, hydraulic shock, and severe winds.

B. All materials used in baffle wall construction, which are subject to stress from flow or wind, must have the same rate of linear expansion to prevent unequal movement of tension members and base material.

C. All seams or splices shall be sewn to physically bond the base material scrim. Sewing shall also be used to bond the tension members with base material scrim. Any seams using only heat seal to bond the surface of the material will not be accepted.

D. All hardware used for construction shall be of a good grade of stainless steel. This shall include, but not limited to, all nuts, bolts, washers, connectors, and end fasteners.

1.4 BAFLE WALL CONSTRUCTION

A) The baffle wall shall be made of 28-oz. nylon reinforced XR-5. The nylon reinforcing shall be in both directions and every 4th stitch shall be rip-stop to prevent the continuation of any accidental tear. All flow windows shall be reinforced with 3-inch nylon web and double stitched. All seams, joints, and tension members shall be double lock-stitched with a nylon thread (346 min. gauge) to physically bond all material together. The baffle shall conform to the lagoon side slopes and bottom.

B. The wall shall be fabricated in 50-foot sections. Each 50-foot section shall have its entire perimeter, top, bottom, and ends reinforced with a nylon webbed strap having tensile strength of at least 12,000-lb.

C. The 50-foot sections shall be joined together via type 304 stainless steel bolts that are bolted through type 304 stainless steel grommets, pressed into the nylon webbing, and located 12-inches on center in the vertical direction along each end.

D. Molded polypropylene floats, 6-inches in diameter by 26-inches long, shall be affixed to the curtain, on either side, every 3-feet. These floats shall be attached to the wall by means of 18-8 stainless steel bolts, washers, and lock nuts. The floats shall be located such that approximately 6 inches of the curtain is above the water level at all times.

E. Along the bottom surface of the lagoon a 5/8-inch or larger hot dipped galvanized chain shall be sewn into the bottom of the baffle to provide a positive seal on irregular pond bottoms and side slopes. The 5/8-inch chain is used in conjunction with the main concrete ballast. This chain is for bottom seal only and shall not be considered any type of tension member, nor used as such.

F. Along the rubber lined side slope of the lagoon, concrete ballast cannot be used because it causes chaffing to the lagoon liner. A 5/8-inch chain will provide the positive bottom seal on side slopes.

1.5 MOORING, ANCHORING, AND BALLAST

A. The manufacturer shall provide auxiliary ballast is necessary the manufacturer shall provide the weight to prevent any movement of the baffle wall from flow, wind, or aeration. Said ballast shall consist of concrete anchors enclosed in PVC bags to protect the bottom lagoon liner. These weights shall have a stainless steel eye embedded in such a manner as to prevent turning or accidental unfastening. To this eye the curtain will be attached using a minimum of 3/8-inch nylon rope to facilitate shock absorption. Specifically, curtains utilizing chain pressed on or attached to the wall bottom mooring will not be acceptable. No metal fasteners or weights shall be left exposed in any manner that would damage any synthetic pond liner.

B. The baffle shall terminate at the bank side with a fabricated stainless steel flange, which is bolted to the baffle and is an integral part of the bank mooring post. Cables and chains as sole securing members will not be acceptable.

1.6 EXPERIENCE

A. The manufacturer of the curtain shall be experienced in the construction and installation of baffle walls. The manufacturer shall have at least 10 years experience with a curtain of his/her current design, and shall have at least 5 similar installations that have been providing satisfactory service for no less than 5-years.

B. The baffle curtain manufacturer must provide a complete, turnkey installation including, but not limited to the curtain (fabricated in strict accordance with the specifications herein), accessories, hardware and installation.

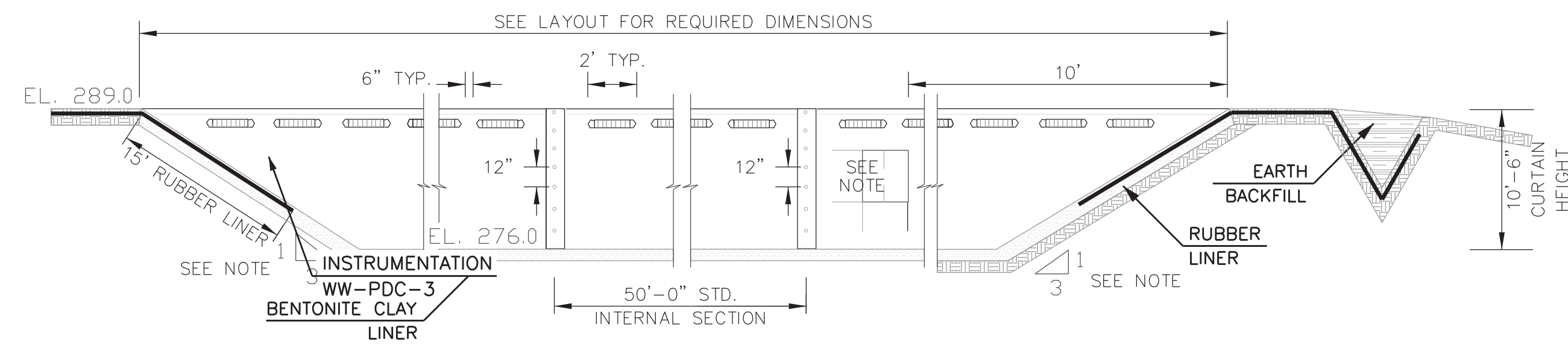
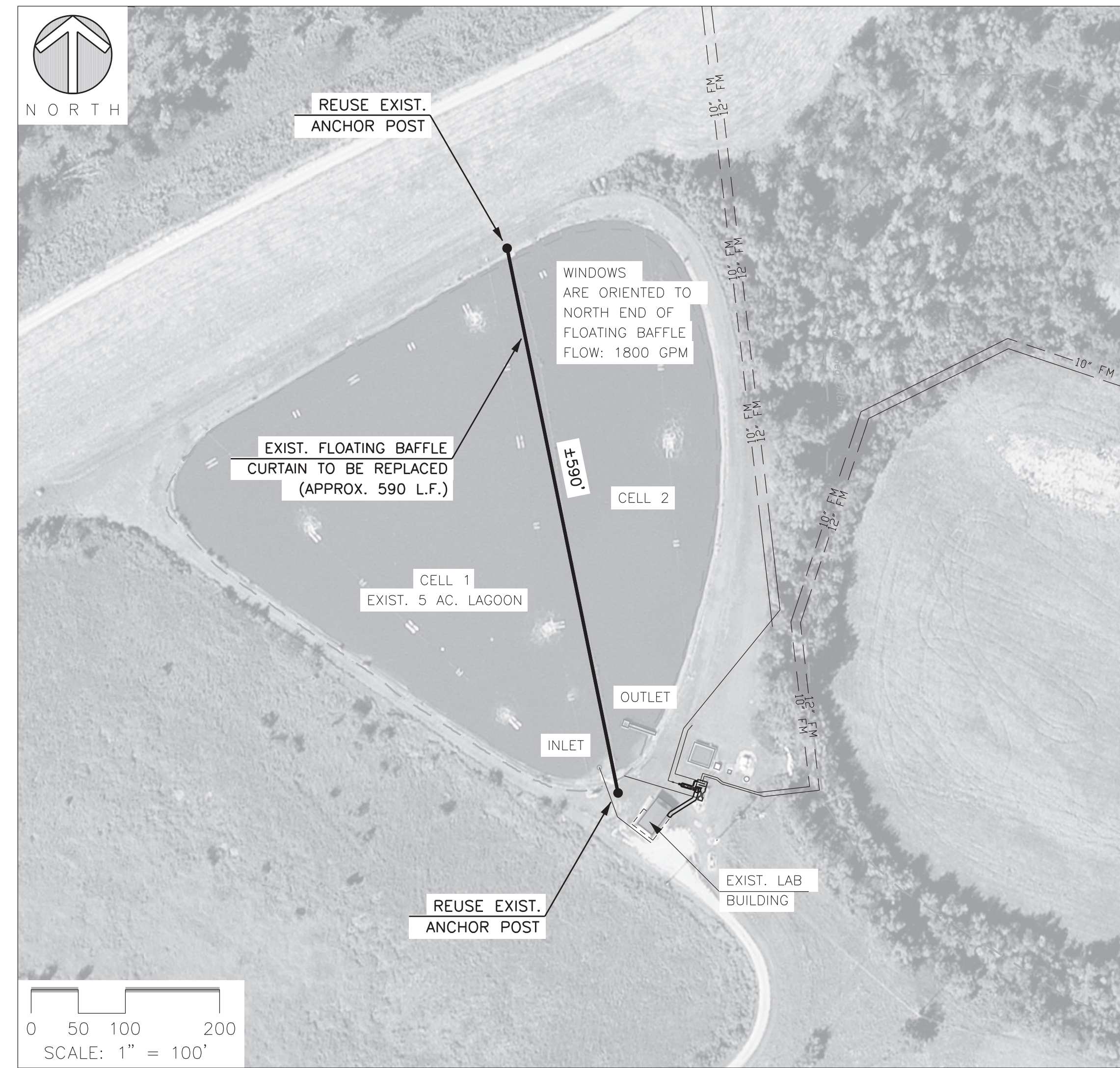
1.7 MANUFACTURER

A. The baffle wall shall be JPS Diversion Curtains as manufactured by JPS Industries, Inc. at PO Box 500, Bristol, NH 03222 or equal.

1.8 INSTALLATIONS AND WARRANTY

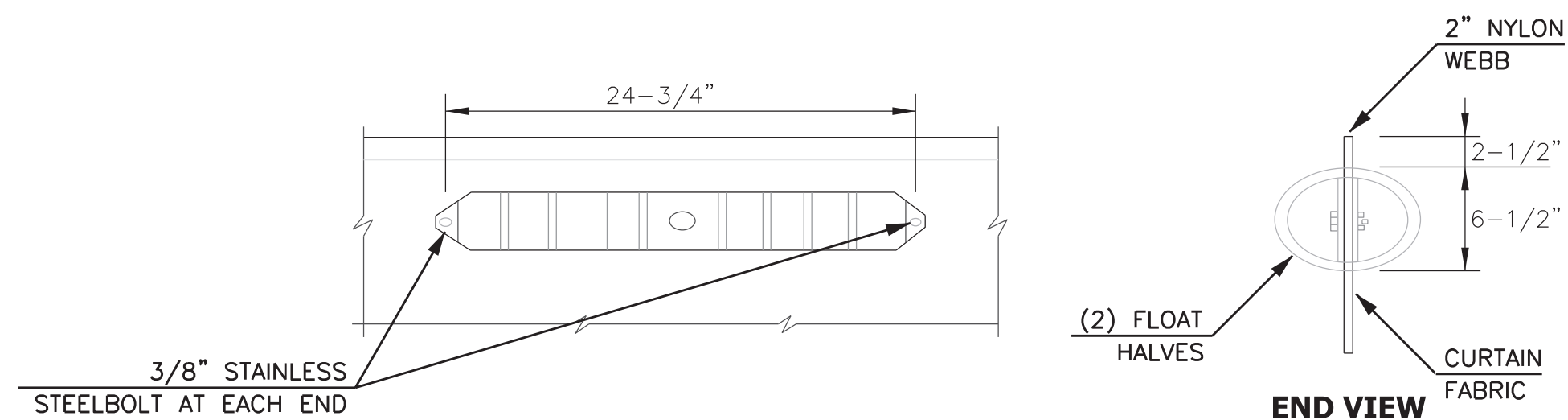
A. The floating baffle shall be installed as shown on drawings by the manufacturer in writing. In the event that the contractor cannot be certified, the manufacturer will provide the contractor with an experienced representative to over see the installation. Installation will take place after the pond is filled or put temporarily in place with the pond empty and adjusted to final position when the pond is filled. The manufacturer shall guarantee the curtain, both materials and installation labor, for 24-months from date of completion of installation. Failures resulting from defects in material, workmanship or installation will be corrected by the manufacturer, at his/her own expense, within 30-days after receipt of written report of failure.

B. The manufacturer shall provide a written warranty with all terms and conditions if requested.



- NOTES:
1. EXIST. CURTAIN TO BE REMOVED AND REPLACED.
  2. CURTAIN INTERSECTS 3:1 SLOPES AT AN ANGLE.
  3. NORMAL WATER LEVEL: 10' (CURTAIN TO EXTEND 6" ABOVE WATER LEVEL).
  4. BALLAST TO BE VIA 5/8" CHAIN ALONG BOTTOM SEAM.
  5. WINDOW(S) SHALL BE ORIENTED AS SHOWN ON LAYOUT DRAWING AND SIZED TO PASS 1800 GPM THROUGH EACH CURTAIN.

**BAFFLE CURTAIN**  
N.T.S.

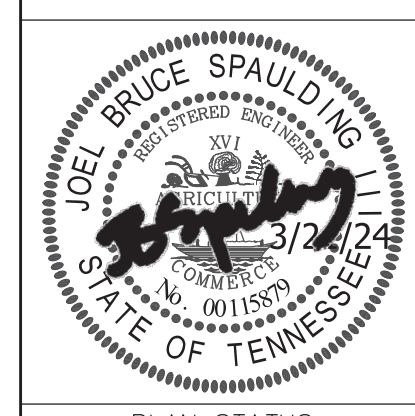


**FLOATATION**  
N.T.S.

**Joel B. Spaulding & Company, Inc.**  
Consulting Engineers  
Bruce Spaulding, PE | J.B. Spaulding, PE, LEED AP

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**The City of Tiptonville  
Lake County, TN  
ARP Lagoon Rehabilitation  
Baffle Curtain Replacement**



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