



Vernal Pool Migration Study Protocol

for

250 Turnpike Road
(Map: 27, Lot: 2A)
Southborough, MA 01772

DATE:
March 6, 2025

ADDRESSED TO:
Southborough Zoning Board of Appeals
9 Cordaville Road
Southborough, MA 01772

PREPARED BY:
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1.0 INTRODUCTION

Goddard Consulting, LLC has prepared the following protocol to conduct a drift fence survey for vernal pool breeding amphibians in a potential vernal pool located at 250 Turnpike Road in Southborough, Massachusetts. The purpose of the study is to investigate the following:

- 1) Evaluate the capacity of the wetland to support vernal pool habitat by capturing migrating amphibians in pitfall traps;
- 2) Identify which obligate and/or facultative vernal pool amphibians are present or absent in the potential vernal pool;
- 3) Measure the relative densities of vernal pool breeding amphibians migrating from each direction;
- 4) Inspect and document the number and species of egg masses within the PVP.

2.0 STUDY AREA

The locus site is bordered by Turnpike Road to the north, and Parkerville Road to the east. The surrounding landscape consists of both commercial and residential developments. Currently, the locus site consists of primarily deciduous-dominant upland forests and forested wetlands. The site is developed adjacent to Turnpike Road with a self-storage facility and associated parking lot. Two detention basins are located within the forested area south of the existing development. The western detention basin was identified as potential vernal pool following the observation of obligate amphibian egg masses in May of 2022 (Reference Figure 1).

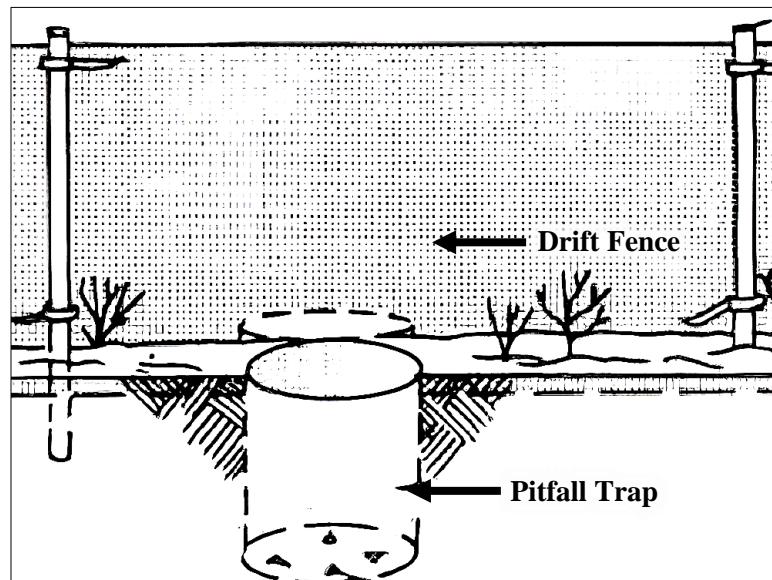
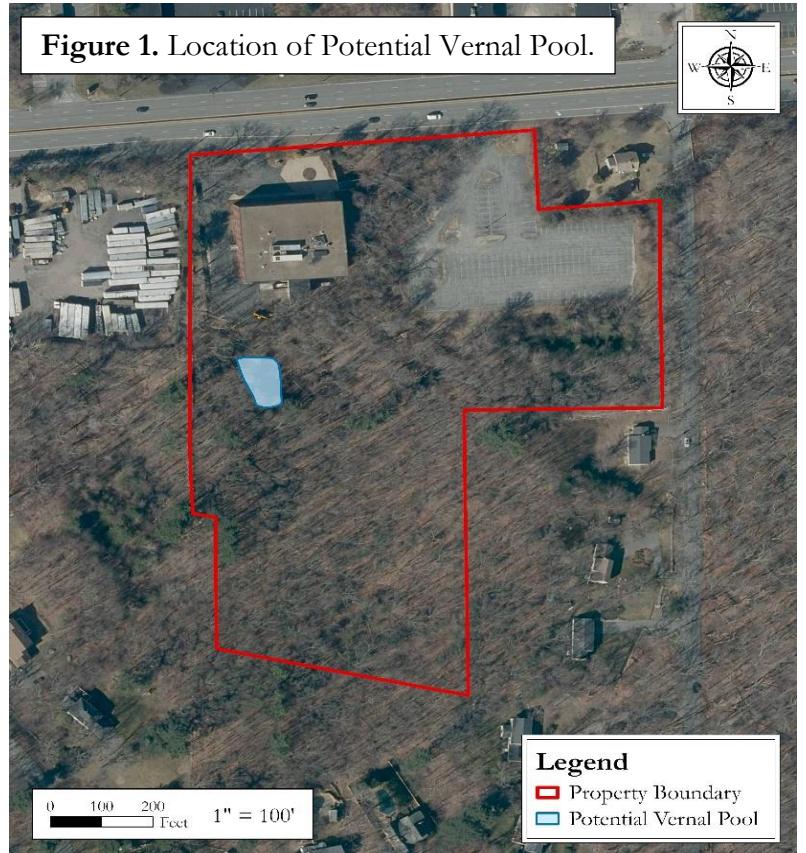


Figure 2. Pitfall Trap and Drift Fence Arrangement.

3.0 INSTALLATION OF DRIFT FENCE AND PITFALL TRAPS

The trap array will consist of a combination of drift fence and pitfall traps (Reference Figure 2). The drift fence will include a standard silt fence buried at least six inches underground with backfill to the ground surface (Reference Figure 3). The silt fence will be installed by a machine (ditch witch) under the supervision of a qualified wildlife biologist. The supervisor will confirm that the surrounding wetlands remain undisturbed during access to the vernal pool and the installation of the silt fence. No tree clearing is proposed, and the supervisor will verify there is no disturbance to woody debris within the potential vernal pool habitat.

Pitfall traps will be installed on the exterior and interior side of the drift fence. The pitfall traps will

consist of 5-gallon buckets buried into the ground. Five-gallon buckets are being used due to the potential presence of frogs that may be able to jump out of smaller traps. Each bucket will be approximately 14.25" in height and 10.25" in diameter. Excavated material from the holes will be placed on the upgradient side of the fence in small piles as to not interfere with amphibian movement and for easy refilling of holes post study. Small drainage holes at the bottom of the bucket will allow for drainage of water following rain events. The lid will be level with the natural grade of the substrate. Each pitfall trap around Wetland A will be labeled from T1 to T14 for exterior traps and T15 to T28 for interior traps. Traps adjacent to Wetland B will be labeled T29 to T40. Small sticks will be placed in each pitfall trap to allow small mammals to escape but not all the way to the top to prevent amphibians from escaping. Additionally, a damp sponge will be placed in the trap to provide moisture to prevent desiccation of any amphibians captured in the trap. Sponges placed in the pitfall traps will not be treated with any type of chemical or detergent compound to ensure sponges do not cause any mortality to amphibians. Lucas Environmental will be notified when installation is complete in order to conduct an inspection of the fencing and traps prior to the start of the study.



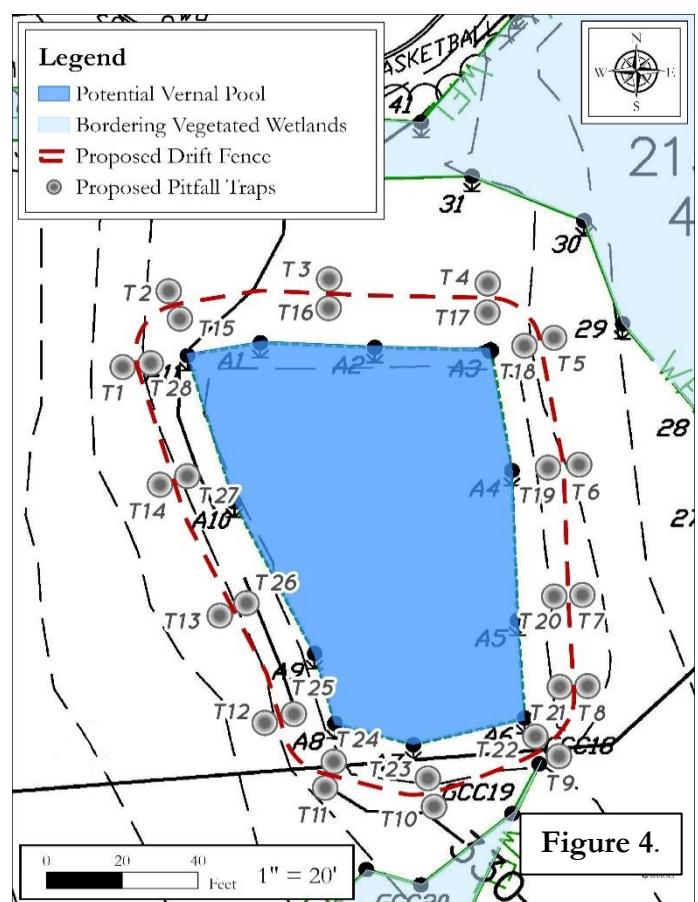
Figure 3. Example Silt Fence Installation.

4.0 DESCRIPTION OF STUDY SITE TRAP ARRAYS

The drift fencing will encircle the entire perimeter of the potential vernal pool. In order to avoid disturbance to the vernal pool edge, the fence will be installed approximately 10 feet from the flagged wetland boundary. There will be fourteen pitfall traps installed on each side of the drift fence for a total of 28 traps around Wetland A, the potential vernal pool. A second drift fence will be installed just west of Wetland B running north/south from the chain link fence north of flag B22 to the point perpendicular with flag B15R. There will be 12 traps along the silt fence adjacent to Wetland B. Each trap will be approximately 20 feet apart with pairs of buckets located at each corner of the drift fence (Reference Figure 4 and Figure 5). The traps along the fence adjacent to Wetland B will be approximately 30 feet apart.

5.0 TRAPPING SCHEDULE

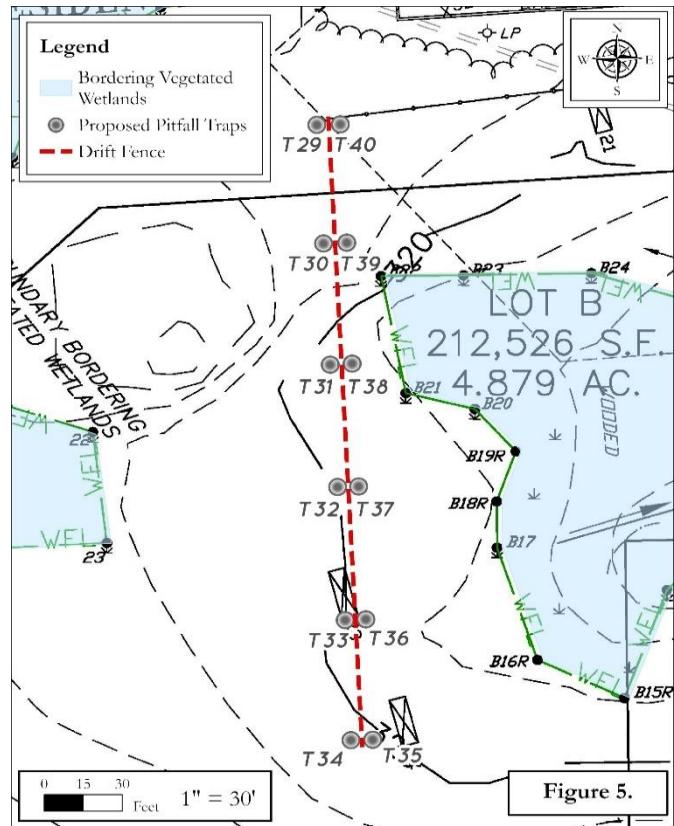
The study will be conducted over an estimated duration of 21 days corresponding with the peak breeding season. The study will begin around mid to late March and will conclude in early to mid-April. Exact start and end dates are dependent on weather conditions and could begin



earlier and end later depending on how long the migration season lasts. A qualified wildlife biologist will conduct inspections of the pitfall traps each morning, including the weekends.

6.0 DATA COLLECTION PROCEDURE

During each inspection, the wildlife biologist will note the date, time, and general weather conditions at the time of the site visit. The inspector will walk the perimeter of the silt fence to report and repair any damage to the study area. All amphibians actively traveling along the perimeter of the fence will be noted by the wildlife biologist. Each pitfall trap will be inspected for the presence of amphibians or other small mammals. Prior to handling the captured individuals, the inspector will photograph each pitfall trap with the corresponding label clearly visible. Each captured amphibian will be identified to the species level. The sex of the amphibian will be determined prior to the release of the individual on the vernal pool side of the fence. All other captured animals will simply be released from the bucket. Each sponge in the pitfall traps will be re-hydrated prior to departure.



7.0 REMOVAL OF DRIFT FENCE AND PITFALL TRAPS

Upon conclusion of the study, all pitfall traps will be removed, and holes backfilled to their natural grade. All drift fences will be pulled out of the ground on the day of the conclusion of the study. All materials will be removed from the site within one week following the conclusion of the study.

8.0 CONCLUSION

At the conclusion of the study, a detailed report will be prepared and submitted to the Southborough Zoning Board of Appeals and the Southborough Conservation Commission. If a rare species is observed during the study, a rare animal observation form will be submitted to the Natural Heritage & Endangered Species Program. The final report will include a comprehensive summary to address the following findings:

- 1) The capacity of the wetland to support vernal pool habitat;
- 2) Quantities of obligate and/or facultative vernal pool amphibians in the potential vernal pool;
- 3) Quantities of egg masses from obligate and/or facultative vernal pool amphibians;
- 4) Review of the relative densities of vernal pool breeding amphibians migrating from each direction.

Based on the study results, Goddard Consulting will re-evaluate any potential barriers to the migratory movement of vernal pool species due to the proposed project. If few obligate and/or facultative vernal pool breeding amphibians are captured during the study, the potential vernal pool may not have the characteristics to be considered valuable vernal pool habitat. If a significant number of vernal pool breeding amphibians are captured on the northern and western boundaries of the potential vernal pool, the proposed development will likely have no impact on migration corridors. If a significant number of vernal pool breeding amphibians are captured on the southern and eastern boundaries of the study area, the proposed development may need to be modified to support amphibian migration to the potential vernal pool.

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