February 19, 2020

CIVIL DESIGN
Consultants, Inc.
Survey - Design - Permitting - Construction Administration
30 River Street
Methuen, MA 01844-3032
Tel: (978) 416-0920
Fax: (978) 416-7865

Mr. Michael Flynn
Chair
Conservation Commission
16 Lowell Street
Reading, MA 01867

CDCI File #: 18-10120
Notice of Intent (DEP File#: 270-0714)
135, 139 & 149R Howard Street
Reading, MA 01867

Dear Mr. Flynn and through you to all Commissioners,

On behalf of the Applicant, Infrastructure Holdings, LLC, this letter is prepared by **Civil Design Consultants, Inc. (CDCI)** in response to the letter prepared by Abutters to the Proposed Development dated January 6, 2020 and sent to Conservation Administrator Charles Tirone. The structure of this letter is intended to correspond with that of the abutter's letter.

Community Development and Planning Commission (CPDC)

1. Limited Traffic Study: The proposed six (6) lot subdivision will create four (4) more houses than the two (2) that exist on the property today. Minimal increased traffic will result from the additional dwellings and the increase does not warrant a full traffic study. Both the CPDC and Town Engineer agreed with the request to waive a full traffic study.
2. Roadway Width: A 24-ft wide road, as is proposed for this project, will adequately serve the proposed development. Both the CPDC and Town Administration agree that a 24-ft width is sufficient. The 24-ft width also results in less impermeable surface or road salt.
3. Proposed Sewer Pipe: The proposed sewer pipe exiting the development is 8-inches in diameter as required in the Town's Subdivision Regulations.
4. Waiver on Pipe Cover: Proposed drainage pipes will have a minimum of 1.9-ft of cover. The proposed depth meets manufacturer specifications. Allowing a reduced depth significantly reduces the amount of imported fill material necessary to construct the proposed development.
5. Fire Department Access to Lot 4: Per the Fire Department's request, the driveway to Lot 4 will be constructed to support a fire truck.
6. Drainage to Howard Street: Modifications to the proposed drainage system include removing drainage facilities from the right-of-way along Howard Street which connected to the Town's system. The current system has been reviewed and approved by the Town Engineer.

Lots 3 and 4

Lot 3 and Lot 4 are designed in accordance with local and State regulations. The Massachusetts Department of Environmental Protection (DEP) allows new dwellings at any location within a 100-ft buffer zone to bordering vegetated wetlands, however, the Town's Wetlands Protection Regulations prohibit new foundations within 35-ft of such resource areas. The proposed dwelling on Lot 3 and on Lot 4 meets Town standards. Drainage calculations prepared for the project demonstrate that the development will not result in new offsite flooding.

Infiltration Basin #2 and Drainage Calculations

Infiltration Basin #2 is designed to meet local and State regulations. A mounding analysis prepared for the basin shows that infiltrated stormwater will not affect abutting properties.

Drainage calculations analyzing the watersheds associated with the various components of the proposed development depict the amount of surface water reaching specific design points. Design points are selected based on surface flow paths found in the existing condition. The same design points are then analyzed to determine the impacts of the development on peak flows and volumes at these locations. Factors such as infiltration and other devices designed to control stormwater flows are included in the drainage model. During the 100-year storm event, which is the largest event analyzed, 0.4-CFS exits Infiltration Basin #2 through the outlet structure and flows to the bordering vegetated wetland. This represents 36% of the total flow reaching the wetland during this storm event. During the same storm event, 0.1-CFS enters the ground through infiltration and 0.6-CFS flows to the wetland from other portions of the site. In the proposed condition, 1.1-CFS flows to the wetland in total during the 100-year storm. Under existing conditions, 1.2-CFS reaches the wetland for the same storm event. The emergency overflow is not engaged during any storm event.

The isolated wetland is contained entirely on the property and is not analyzed as a design point. It also does not represent an onsite low point. This wetland will receive surface flows from the area between the house and driveway for Lot 4 and Infiltration Basin #2.

Onsite Soils

Soils characteristics and estimated seasonal high groundwater elevations were determined through onsite soil testing and available record information. Soil testing was performed through excavating and analyzing deep hole test pits in accordance with State regulations. Soils data from these sources was used throughout the drainage design process. Values were reviewed and coordinated with the Town's peer review engineer Horsley Witten. A groundwater model and simulation is not required and will not be provided. Given the relatively low onsite flows, such an analysis is also not warranted.

Maintenance

The intention of the roadway design is to earn acceptance from the Town as a public way once complete. Snow and ice on the proposed roadway will be managed and treated in accordance with Town standards and applicable regulations. Salt, if used for ice management, that remains in the roadway will be captured in the closed drainage system and piped into the infiltration basin where stormwater is filtered prior to discharge. Proposed catch basins are equipped with sumps and hoods designed to minimize the transport of sand and other deleterious materials to the resource areas.

Regarding overall maintenance of the roadway and associated stormwater infrastructure, the Town's Department of Public Works has reviewed the proposed Operations and Maintenance Plan and has not expressed any concerns about cost or labor.

We appreciate your consideration. If you have any questions or comments, or require additional information, please do not hesitate to contact this office.

Very Truly Yours,

**CIVIL DESIGN CONSULTANTS, INC.**

Andrew B. Street, P.E.
Civil Engineering Manager

Copy to: Infrastructure Holdings LLC
CDCI File#: 18-10120
MADEP NERO