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March 29, 2023

Leicester Planning Board
Town of Leicester
3 Washburn Square
Leicester, Massachusetts 01524

RECEIVED

APR 03 2023

Town of Leicester
Development & Inspectional Services

Re: Definitive Subdivision Plan
1355 Main Street
Second Submission

To the Board:

We are in receipt of the following information in association with the above referenced project:

- Plans entitled "Definitive Subdivision Plan, 1355 Main Street in Leicester, Massachusetts, November 30, 2022", sheets 1 through 6, dated Nov 30, 2022, as revised 1/23/23, by Hannigan Engineering, Inc.
- Letter addressed to Alaa M. Abusalah, Town Planner, dated November 30, 2022, providing a project narrative, requests for waivers, Definitive Subdivision Plan Application and Emergency Vehicle Turning Maneuver.
- Letter to Jason Grimshaw, Chair, Leicester Planning Board, dated January 23, 2023, from Hannigan Engineering, Inc. addressing responses to the review letter from this office dated December 28, 2022.
- A bound package entitled Drainage Analysis for Definitive Subdivision, ZP Batter Devco, LLC", dated November 30, 2022, revised through January 23, 2023, prepared by Hannigan Engineering, Inc. of Leominster

We have reviewed this submittal for responses to comments of this office provided in a letter to Leicester Planning Board dated December 28, 2022 only. Any changes made not in response to our comments must be identified by the applicant.

In the comments, items identified as "**Resolved**" have received sufficient response.

"**Comment Stands**" refers to an issue not satisfactorily resolved. "**Further Comment**"

refers to an issue raised in relation to the response. “**No Further Comment**” refers to an issue requiring the attention of the Planning Board.

The Engineer has requested waivers of the following subdivision requirements. Our comments follow, *in italics*:

1. §V.A.4, b, Dead End Streets. Waiver requested to permit a T-turnaround in lieu of the required cul-de-sac.

No Further Comment. *A cul-de-sac allows emergency apparatus to reverse direction without need of backing. The T-turnaround requires a three-point turn to reverse direction, but requires much less impervious asphalt area. This office has no objection to the use of a T-turnaround on this small project, however it is recommended that Leicester Planning Board seek input from Leicester Police, Fire and Highway Departments.*

2. §VI.B.1, Storm Drainage System. Waiver requested to permit HDPE drainage lines in lieu of reinforced concrete pipe.

No Further Comment. *The use of HDPE pipe as drainage culvert has been permitted and even requested by Leicester Highway Department in the past. This product is long-lived and performs well, if correctly designed and installed. We do not object to this requested waiver.*

A waiver should specify double wall HDPE pipe, with smooth interior.

3. §VI.G, Sidewalks. Waiver requested from requirement for sidewalks.

No Further Comment. *We defer to Leicester Planning Board on this non engineering-related waiver request.*

4. §VI.J, Curbing. Waiver requested from requirement for granite gutter inlets at catch basins.

No Further Comment. *The Board may wish to seek input from Leicester Highway Department on this requested waiver; in the past LHD has requested that granite gutter inlets not be installed, due to problems with snow plowing operations. We do not object to this requested waiver.*

5. §VI.R.3, Pavement Width, Industrial Subdivisions. Waiver requested to permit reduction of pavement width to 20 feet, from required width of 36 feet.

No Further Comment. *§VI.R.3 and §VI.R.4 pertain to road geometry required to accommodate vehicles using the roadway, and entering and departing the*

subdivision. If Leicester Planning Board wishes to consider this waiver, the subdivision plans have been revised to increase the roadway width to 26 feet and enlarge the opening to Main Street to 50 feet radii to ensure that the road is accessible to large vehicles including fire apparatus and tractor-trailers.

6. §VI.R.4, Berm Radii, Industrial Subdivisions.

This waiver is no longer required; the plans have been revised to comply with the required radii of 50 feet.

7. §VI.K. Grading of Slopes. Waiver requested to permit embankment sideslopes of 1.5:1 in lieu of required 3:1 sideslopes.

No Further Comment. The original waiver request has been withdrawn, as plans now call out an extensive retaining wall with sideslopes which comply with §VI.K. We do not object to the use of a retaining wall, however, the proposed retaining wall is located partially within Town right-of-way and partially out of right-of-way. In the past Leicester Planning Board has considered retaining walls if installed outside of Town right-of-way.

The underground stormwater recharge gallery is located immediately behind the retaining wall. As a result, the structural design of the retaining wall must account for soil saturation caused by the stormwater gallery.

This retaining wall will be subject to Massachusetts State Building Code, and must be designed by a Massachusetts Registered Professional Engineer, who must also monitor construction.

Given the exceptional height (38 feet), and unusual loading conditions of the proposed retaining wall, Leicester Planning Board may wish to condition an approval on having the retaining wall design reviewed by a third party, when it is designed.. This office does not provide structural design services, but can recommend offices capable of such review.

Plans now include a separate earthen embankment on the east side of Robert's Way, which slopes at 2:1. In this area, the slope is stabilized with rock armor, to improve stability. This office does not object to the revised embankment slope, but a waiver from §VI.K to permit the proposed slope of 2:1 must be granted.

8. §VI.R.7, Pavement Markings. Waiver requested of requirements for pavement markings.

***No Further Comment.** We do not object to waiving pavement markings on this short section of roadway.*

Our comments follow:

1. Regarding plan contents:
 - a.) **Resolved.** Subdivision street name “Robert’s Way” is proposed. (REF: §IV, 2, d)
 - b.) **Resolved.** Granite bounds are now shown on plan. (REF: §VI, H, “Monuments”)
 - c.) **Resolved.** Signature blocks are now included on all sheets, for signing by Planning Board members. (REF: §IV, 2, i)
2. **Resolved.** Plans now call for an 8” diameter water main with a fire hydrant. Leicester Planning Board may wish to seek input from Leicester Fire Department as to the hydrant location.
3. **Resolved.** Guardrail is now specified in appropriate locations.
4. **Resolved.** Emergency Vehicle Turning Maneuver diagrams document that apparatus can enter, turn around, and depart the subdivision road.
5. **No Further Comment.** Plans call for timber guardrail, an attractive product but which has a shorter life than conventional steel guardrail. Leicester Planning Board may wish to require steel guardrail, which will likely provide many more years of service than timber.

Drainage and Hydrology

6. **Resolved.** Plans now require a concrete manway to the cleanout opening in the stormwater chamber gallery, to permit inspection and maintenance activities.
7. **Resolved.** Rainfall figures applied in the Hydrology analysis have been revised to current NOAA rainfall statistics.
8. **Resolved.** Plans now specify that the stormwater chambers must be constructed so as to sustain HS-20 wheel loads.
9. **Resolved.** Engineer has documented that the 4 inch diameter underdrain called out beneath the base of the chamber gallery is appropriate.

10. **Resolved.** Documentation has been supplied to show that the proposed Hydroworks stormwater treatment unit meets Massachusetts Stormwater Management Policy requirements, as certified by the manufacturer.
11. **Resolved.** Plans now include a detail for the straw wattle/silt fence erosion controls.

Please feel free to call, should members have questions.

Sincerely,
QUINN ENGINEERING, INC.

A handwritten signature in black ink, appearing to read "Kevin J. Quinn". The signature is written in a cursive, flowing style.

Kevin J. Quinn, P.E.
President