

January 26, 2021

Town of Lynnfield Planning Board  
c/o Ms. Emilie Cademartori, Director of Planning and Conservation  
Town Hall, 55 Summer Street  
Lynnfield, MA 01940

Re: Review of Definitive Subdivision Filing  
271 Main Street, Lynnfield, MA

Dear Planning Board Members:

This correspondence is submitted to you in accordance with our proposal dated November 2, 2020. Authorization to proceed with the work outlined in our proposal was received by our firm via email on Monday, January 11, 2021. Hard copy of all the materials necessary for our review was received by our firm from the Planning Board in December 2020. Electronic files for our review were received on Monday, January 11, 2021 from the Applicant's Engineer.

Our review of the Definitive Subdivision filing is being conducted to assure compliance of the project, plans, and submitted data with the requirements of the Town of Lynnfield, MA Rules and Regulations Chapter 375, Subdivision Regulations, Chapter 213, Storm Water Management (to the extent applicable) and by reference the Massachusetts Department of Environmental Protection (DEP) 2008 Stormwater Regulations and Handbook (to the extent applicable).

The following are our comments and observations on the plans and filing with respect to the requirements of the regulations and standard engineering practice. The numbered comments listed below are comments that require a response from the Applicant and/or his Engineer.

**GENERAL ISSUES:**

1. We note that the garage on the abutting land of Howard to the southwest of the new roadway appears to be less than the required setback from the new roadway. We recommend that an opinion be obtained from the Building Inspector as to whether the approval of the new roadway in this location will create any future issues for the abutter if they wish to make any changes to this garage?
2. Has the Planning Board received letters from the Board of Health, the Wiring Inspector (may not be necessary if the Street Lighting Waiver is granted), the Gas Utility, Other Public Utilities (such as telephone and cable TV), and the Division of Zoning Enforcement and Inspection? as the Planning Board received an "Opinion of Board of Health as to Suitability of the Land" as required?

3. The proposed roadway is simply listed as "Road A" with no proposed road name. Since the road is being used as frontage the roadway should have a name and that the name should be included in the subdivision name as required or there should be agreement with the DPW and the Planning Board that the road will remain unnamed. If the road is to remain unnamed the Applicant should present evidence from the U.S. Postal Service as to what addresses they will assign to Lot 2. Then the Board could consider a waiver of the road name requirement (if this waiver is requested).
4. The required street sign (375-6.11) is not shown (and no detail is provided) and no waiver has been requested.
5. All sheets of the plan need to be signed and stamped by the Massachusetts professional land surveyor and professional engineer who is responsible for designing the subdivision as required by 375-6.3.A.5 of the Subdivision Regulations.
6. The Regulations (375-6.C.2.k) require that the wetland boundary shown on the plans be a current, approved and a nonappealed wetlands boundary. To our knowledge the wetland delineation has not been submitted to the Lynnfield Conservation as part of a Notice of Intent, a Request for Determination of Applicability or an Abbreviated Notice of Resource Area Delineation and therefore has not been "approved". Our proposal did not include a field verification of the location of wetland boundaries on and adjacent to the property as the proposed subdivision work is located away from the wetlands shown on the plan. We did review the locations of the wetland boundary shown on the plans using the topographic survey included with the subdivision plans, aerial photographs of the site and MassGIS data. Using this information, it is our conclusion that the wetland boundary depicted on the subdivision plans appears reasonable, however, the criteria in the Regulations has not been met.
7. The Regulations s (375-6.C.2.k) also require that the 25 foot buffer zone be shown on the plans.
8. The filing of a Request for Determination of Applicability or a Notice of Intent with the Town of Lynnfield Conservation Commission will be required for any work proposed within 100 feet of the wetland boundary.
9. The Lynnfield DPW will need to determine if the easements for the bioretention area and the roadway infiltration system need to be extended (either by plan or wording in the document that creates the easement) to provide for the overflow from these structures to the wetland.
10. A DRAFT of the proposed Homeowners Agreement needs to be provided for review and approval by Town Counsel and DPW.

11. Since the proposed roadway has been designed to be and remain a private way, we recommend that a note be placed on all the plans and a statement be made in the Homeowners Agreement stating that Town Acceptance of the Roadway will not be requested at any time and that the roadway is to remain a private way with the homeowners responsible for all maintenance of the roadway, drainage, and utility systems.

***PLAN REVIEW:***

Our firm has conducted a review of the definitive plans for the subdivision by Hayes Engineering, Inc., Wakefield, MA dated August 13, 2020 (sheets 1 to 6) to assess compliance of the plans with from the requirements of the Town of Lynnfield, MA Rules and Regulations Chapter 375, Subdivision Regulations. The following are our comments and observations on the plans with respect to the requirements of the regulations and standard engineering practice:

**SHEET 1 of 6 – LOTTING PLAN:**

Waiver Requests:

The following are the waiver requests listed on sheet 1 of the plans and our opinion regarding the waivers:

PLAN WAIVERS:

SECTION 375-6.4.A(6) TO NOT SHOW TWO BENCHMARKS ON THIS SHEET – We see no reason for this waiver and do not recommend the waiver be granted. The plan contains a list of three benchmarks. These should be shown on the plan and a waiver regarding the character/type of the benchmarks should be added to the plans.

SECTION 375-6.4.A(9) TO NOT SHOW BUILDING SETBACKS ON THIS SHEET – We see no reason why this requirement cannot be complied with and we do not recommend the waiver be granted.

SECTION 375-6.4.A(13) TO HAVE A LOCUS AT A SCALE OF 1"=40' – We believe that this requirement is a typographical error in the regulations (it should be 1"=400'). The plans do have a locus at a scale of 1"=300' which we believe is adequate for the purpose. Therefore, we see no issues in granting this waiver.

SHEET WAIVERS:

375-6.4.E TO NOT HAVE A STREET LIGHTING PLAN – Assuming that the Planning Board grants the waiver regarding the requirement for street lighting we see no need for a street lighting plan.

375-6.4.F TO NOT HAVE AN EROSION CONTROL PLAN (SHOWN ON TOPOGRAPHIC PLAN – We see no need for a separate erosion control plan provided all the requirements for the erosion control plan are met by the Topographic Plan.

DESIGN WAIVERS:

375-7.1.A(10) TO HAVE AN ENTRANCE ROUNDING LESS THAN 25 FEET – Given that this is more of a driveway than a roadway we see no issues with waiving the 20 foot requirement. We do, however, believe that the 8 foot curb radius shown is too small. The Applicant's Engineer should provide a SWEPT Path Analysis for an SU30 vehicle (box type truck like an appliance delivery truck) entering the driveway to show that the proposed configuration is adequate. If not, then the curb radius should be increased to accommodate the SU30 vehicle.

375-8.2.B.(1) TO REDUCE PAVEMENT WIDTH TO 20 FEET AND TO ALLOW THE PAVEMENT CENTERLINE TO NOT COINCIDE WITH THE CENTERLINE OF THE ROADWAY - Given that this is more of a driveway than a roadway we see no issues with waiving the pavement width and alignment criteria.

375-8.2.B.(6) TO NOT HAVE CURBING BEYOND THE CATCH BASINS SINCE THE DRAINAGE IS TO FLOW OFF OF THE PAVEMENT INTO A GRASS SWALE – We do not recommend that this waiver be granted. See other comments regarding the drainage in the cul-de-sac area.

375-8.2.B.(11) REQUEST NO SIDEWALKS - Given that this is more of a driveway than a roadway we see no issues with waiving the requirement for sidewalks.

375-8.3.B(1) TO ALLOW HDPE DRAIN PIPES IN PLACE OF RCP – We defer to the Town of Lynnfield Department of Public Works on this waiver. All the subdivisions we are familiar with have used Reinforced Concrete Drain Pipe within roadway areas.

375-8.3.B(2) TO ALLOW A DIFFERENT CASTING. LEBARON WHICH IS REQUIRED IS NO LONGER IN BUSINESS – This waiver should be reworded to allow the use of the East Jordan Iron Works Model #0MS552000024..

12. The plans do not contain a waiver request from the requirements of 375-8.2.B(2) regarding the configuration of the pavement in the cul-de-sac area.
13. The Lotting plan should show the existing structures on the property with a notation as to whether they are to remain and for those to remain (that are within 60 feet of the new roadway) an offset distance to the new roadway should be shown.
14. The locations of the benchmarks listed on the plan should be shown on the plan view. In addition, we recommend that benchmarks be established on the stone bound at the front of the site and the stone bound located 86 feet south of the site.
15. We suggest that one or two of the stone bounds with drill holes to be set along the new roadway be labeled on the plan view with the designation "Typical".

16. The Plan should show the Groundwater Protection Zone boundary.

17. In our opinion Massachusetts State Coordinates should be shown on at least two of the property or lot corners on the plan.

**SHEET 2 of 6 – EXISTING CONDITIONS & DEMOLITION PLAN:**

Waiver Requests:

The following are the waiver requests listed on sheet 2 of the plans and our opinion regarding the waivers:

PLAN WAIVERS:

375-6.4.B(8) TO NOT SHOW REGULATED RESOURCES WITHIN 150' FROM THE SUBDIVISION. RESOURCES ARE SHOWN ON THE SUBDIVISION PROPERTY – Given the locations of the wetland resource areas on the site (which are shown on the plans) we see no issues with the granting of this request.

18. The Plan should show the Groundwater Protection Zone boundary.

19. The Plan needs to show grades in Main Street (at least to the centerline) along with existing overhead wires and utilities in Main Street (especially to the point where connections are to be made).

20. The plan does not indicate the items to be demolished as part of the project as required by 375-6.4.B(2).

21. It does not appear that all the trees to be removed for the construction of the project are so indicated on the plans. The Applicant's Engineer should carefully review the existing trees and all the proposed construction and all the trees to be removed should be indicated on the plans.

22. Existing contours are not shown for the entire property. There are no contours in the wetland area and in the wooded area along the southwestern property line. The contours in the wetland areas can be added from the Town of Lynnfield GIS (with an appropriate note) to give a sense of the topography. Other areas should have the topography filled in by survey methods.

**SHEET 3 of 6 – PLAN AND PROFILE:**

Waiver Requests:

The following are the waiver requests listed on sheet 3 of the plans and our opinion regarding the waivers:

PLAN WAIVERS:

- 375-6.4.C(1)(d) SCALE OF THE PLAN IS 1"=20' HORIZONTAL AND 1"=2' VERTICAL – We see no issues with this waiver request as the larger scale shows more detail.
- 375-6.4.C(2)(d) TO NOT SHOW ABUTTING HOUSES – We do not recommend that this waiver be granted for the reason of the proximity of the abutting houses (and garage) to the proposed roadway.
23. The Plan should show the Groundwater Protection Zone boundary if it appears in the plan view window.
24. The proposed pavement centerline is not located in the center of the right of way. The proposed roadway pavement centerline along with the centerline geometry needs to be shown on the plans (bearings, distances, radius, lengths, and angles) with ties to the sideline so that the centerline can be laid out in the field. The radius of all rounding curves and any curves not concentric with the roadway centerline also need to be shown.
25. The configuration of the pavement in the roadway cul-de-sac is different from the subdivision standard of a paved circle. The Lynnfield Fire Department review letter has indicated that the modified "T" configuration proposed is not acceptable to them. The Applicant's Engineer needs to provide a SWEPT Path Analysis for the Town of Lynnfield Fire Truck maneuvering into and out of the turnaround to show that the proposed configuration works and present this analysis to the Town of Lynnfield Fire Department to gain their approval. This issue needs to be resolved to the satisfaction of the Lynnfield Fire Department before the plan can be finalized approved.
26. Catch basin curb inlets and transition curbs should be shown on the plan view.
27. A waiver needs to be added to request a reduction in cover for drain pipes from 3 feet (375-8.3.B.1). If the waiver for the use of HDPE drain pipe is not approved, then we recommend that these drain pipes be changed to ductile iron pipe.
28. The proposed utility lines need to use a linotype with a symbol and have more labels to improve the readability of the plan.
29. There is no "street" water line and hydrant shown. The water line shown is a 2" line. The letter from the water company indicates that they do not do 2" taps but only 1" taps. How will this water line be connected to the water main in Main Street and have any pressure drop calculations been done to indicate that with a water connection of this length there will be sufficient flow and pressure in the proposed house?
30. The issue of fire protection for the proposed house needs to be addressed. Based on our observations there is an existing hydrant on the northeastern side of Partridge Lane (about 335

feet from the proposed roadway centerline) and a hydrant to the northeast of Village Row (about 445 feet from the proposed roadway centerline). The proposed dwelling is set back another 385± feet from Main Street. The review letter from the Lynnfield Fire Department requests a hydrant either at Main Street where the proposed roadway is located or on the proposed roadway. I understand that there has been some discussion of providing sprinklers in the dwelling as an alternative to adding a hydrant. Has this issue been resolved? If the home is to be sprinklered what size will the water line be to provide sufficient pressure and flow for the sprinkler system. This issue needs to be resolved to the satisfaction of the Lynnfield Fire Department before the plan can be finalized approved.

31. Based on the letter from the Reading Municipal Light Company it appears that there are issues with the relocation of the existing pole as shown on the plan and the conduits connecting to the pole. These issues need to be resolved and the electrical design finalized before the plan can be finalized approved.

**SHEET 4 of 6 – TOPOGRAPHIC PLAN AND EROSION CONTROL PLAN:**

Waiver Requests:

The following are the waiver requests listed on sheet 4 of the plans and our opinion regarding the waivers:

PLAN WAIVERS:

375-6.4.D(2) TO SHOW TWO FOOT CONTOURS IN PLACE OF ONE FOOT CONTOURS – We do not recommend that this waiver be granted as the additional detail provided by one foot contours is necessary.

375-6.4.D(8) TO NOT SHOW TOP AND BOTTOM OF CURB ELEVATIONS – We see no issues with this waiver being granted except that top and bottom of curb grades need to be shown on the entrance roundings at Main Street and at the turnaround area in the cul-de-sac.

375-6.4.D(11) TO NOT SHOW STORMWATER DETAIL ON THIS SHEET – We see no issue with granting this waiver as this information is shown on other sheets in the plan set (see separate comments on these details). It would be helpful if a note were added to this sheet referring to the sheets where the stormwater detail can be found.

375-6.4.D(12) TO NOT SHOW SIGHT DISTANCES - Given that this is more of a driveway for 1 or 2 homes we see no issue with the granting of this waiver.

32. The Plan should show the Groundwater Protection Zone boundary.

33. The proposed roadway needs detailed grading (spot grades and contours) in the cul-de-sac turnout area and adjacent to the southwestern edge of the roadway.

34. The erosion control line should be labeled as a limit of work line and a limit of work line should be added in all locations where there are no erosion controls.
35. The erosion controls at the northeastern property line should be run up about 30 feet parallel with the property line and the 4 ft. post and wire fence toward the 42" deciduous tree. The erosion controls should also be extended northwesterly along the southern property line to Main Street to prevent any soil and sediment migration onto the abutting property.
36. The vehicle and equipment service and storage areas (375-6.F.7) need to be shown on the plan.
37. The plans need to provide for the installation of silt sacks in the new catch basins upon installation and a detail of the silt sacks needs to be provided.
38. Sheet 4 of the plans is lacking any of the typical erosion control plan notes regarding duration of disturbed ground without temporary seeding or stabilization, street sweeping, erosion control maintenance, etc. These need to be added to the plan.
39. The size and species of the proposed street trees is not shown on the plan. Either the size and species need to be shown on the plan (after approval by the Tree Warden) or a note should be added to the plan (and to the detail on sheet 5) indicating that the tree size and species shall be approved by the Tree Warden prior to the trees being purchased and installed.

**SHEET 5 and 6 of 6 – DETAIL SHEETS:**

Waiver Requests:

The following are the waiver requests listed on sheet 3 of the plans and our opinion regarding the waivers:

PLAN WAIVERS:

375-6.4.G.(1) TO NOT SHOW DETAILS NOT APPLICABLE TO THE SUBDIVISION – While we have no issue with granting a waiver that states that the plans do not need to show details that are not relevant to the proposed subdivision, the Engineer should provide a list to the Town Engineer and our firm of the details that he is not including so that we can concur that they are not relevant.

40. The curb inlets and transition curbs should be added to the catch basin detail.
41. The catch basin grate should be labeled as EJIW Model #oMA552000025.
42. The detail for the siltation barrier shown is for a 12" straw wattle staked at 10 foot intervals. The Lynnfield Conservation Commission typically does not approve straw wattles as the sole erosion control barrier near a wetland. Typically, they require a siltation control fence dug



into the ground and staked with a straw wattle staked at 4 to 6 foot intervals placed in front of the silt fence. The detail shown should be revised.

**STORMWATER DESIGN:**

The following are our firm's comments on the stormwater design and calculations for the proposed subdivision:

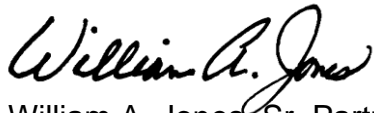
43. The configuration of the watershed boundary between EX-1 and EX-2 does not seem to follow the path the runoff will take to get to the discharge point. The Engineer needs to re-evaluate this and revise or explain his reasoning as to why this boundary is configured this way. It would also be preferred if the watersheds considered water flow from the abutting property to two common points in the wetland and intermittent stream on the edge of the site.
44. There are no test pits by a Massachusetts Licensed Soil Evaluator at the locations of the proposed underground roadway drainage infiltration structure, the bioretention area or the roof drainage infiltration systems. These test pits are necessary to confirm the soil type at the receiving elevation (sand vs loamy sand) and thereby the exfiltration rate used in the calculations (8.27 vs 2.41) as well as the elevation of the Estimated Seasonal High Ground Water Table to confirm the required separation between these systems and the ESHGWT. The test pit locations and data need to be added to the stormwater details on sheet 6.
45. The proposed roof drainage piping around the house and the division between which portion of the home drains to each system need to be shown on the plans.
46. A detail of the underground roadway drainage infiltration system needs to be provided. The overflow outlet pipe should be relocated so that any overflow water can only flow on the subdivision property prior to entering the wetlands.
47. How is the grading along the northeastern edge of the roadway configured to channel the water from past the catch basins to the filter strip? Shouldn't the curbing be continued to the beginning of the filter strip? The pre-treatment strip for the bioretention area seems to be sloping at a 2,5:1± slope. It is our understanding that these filter strips should be sloped at <2% not as steep as this. The filter strip needs to be redesigned.
48. A cross section detail of the spillway from the bioretention area needs to be provided. The plans say that it will be riprap. How will the riprap be placed to prevent flow through the stone prior to elevation 87.50 and be level for 30 feet at elevation 87.50?
49. Monitoring wells are required at each of the underground structures per the MADEP Stormwater Handbook. The location and construction detail for these wells need to be shown on the plans.
50. The Engineer needs to explain why the design is not based on a more conventional system of locating catch basins at the end of the cul-de-sac, piping the runoff through a treatment system and depositing the runoff in an underground infiltration system.

Town of Lynnfield Planning Board, c/o Ms. Emilie Cademartori, Dir. of Planning and Conservation  
Re: Review of Definitive Subdivision Filing, 271 Main Street, Lynnfield, MA  
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We look forward to discussing the project, this report, and any questions that the Planning Board may have at the continued public hearing. We are available to discuss the project with the Applicant, the Town Engineer, the Applicant's Engineer and/or the Applicant's representatives, as necessary. If you have any questions regarding this matter, or should you require any additional information, please do not hesitate to contact our firm.

Very truly yours,

**LINDEN ENGINEERING PARTNERS, LLC**



William A. Jones, Sr. Partner



Richard G. Cutts, P.E., President

Cc: Mr. Charles L. Richter, P.E., Lynnfield Town Engineer

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