

133 Keyes Road  
Concord, MA 01742



**DATE: 5/4/2022**

**MEMORANDUM**

**TO:** Elizabeth Hughes, Town Planner  
**COPY:** Alan Cathcart, Director of Public Works  
**VIA:** Steve Dookran, P.E., Town Engineer  
**FROM:** Justin Richardson, P.E., Assistant Town Engineer  
**SUBJECT:** Definitive Subdivisions Plan Application filed by AWMW, LLC at Sunnyside Lane

Engineering Division Comments:

The Engineering Division has reviewed the Definitive Subdivision Application, Plans, Calculations and Reports for Sunnyside Lane prepared by Stamski and McNary, Inc., dated 1/10/2022 and 1/5/2022 respectively, from the applicant, AWMW, LLC. The Engineering Division provided a comment letter dated 2/28/2022, comments seen below in bold and dated. Stamski and McNary, Inc. provided responses to Engineering's comments, dated 4/14/2022, and revised plans and calculations, dated 4/12/2022, and the responses to the comments can be seen below in italics and dated. Engineering offers the following additional responses/comments in bold and dated:

1. **Sunnyside Lane is a private way that is listed in the "Snow and Ice Removal from Private Ways" policy that was approved by the Town of Concord Select Board in 1964 based on criteria for private roadways set by the Public Works Commission. The proposed roadway improvements that include extending, slightly realigning, paving and regrading of Sunnyside Lane may be considered a significant alteration to the "pre-1955 layout" criteria. As such, the applicant should be directed to the Public Works Commission for a determination as to how this change would impact its eligibility for continued services as detailed within the "Snow and Ice Removal from Private Ways" policy. (2/28/2022)**
  - *At the Public Works Commission public meeting held on April 13, 2022, the Commission voted to continue to maintain Sunnyside Lane under the "Snow and Ice Removal from Private Ways" policy, after the extending, realigning, and paving of Sunnyside Lane have been implemented. (4/14/2022)*
    - **Please provide explanation of how the two conditions of PWC approval are being addressed. (5/4/2022)**
  
2. **In the Application under item #4 "Traffic and Town Services", how were New Traffic Numbers generated? Please provide counting data, or provide information on how the traffic numbers were generated. Why are the existing dwellings not included when they would attribute to traffic flow within the subdivision? (2/28/2022)**
  - *The traffic numbers were generated using the Trip Generation Manual, 9th Edition, code 210, land use: Single-Family Detached Housing. Weekday, A.M. Peak Hour average rate is 0.77 trips per Dwelling Unit; Weekday, P.M. Peak Hour average rate is 1.02 trips per Dwelling Unit. The existing dwellings were not included to emphasize what the increase would be as a result of the proposed development. See the table below for the current and projected approximate number of motor vehicle trips to enter and depart from the site. (4/14/2022)*

Existing and Proposed Trip Generation		
	Weekday A.M. Peak	Weekday P.M. Peak
Existing	5.39	7.14
Proposed	3.08	4.08

<i>Total</i>	<b>8.47</b>	<b>11.22</b>
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- In addition to what is provided, please add the times for peak hour and the total daily trips. (5/4/2022)

3. **Please show existing and proposed intersection sight distance at Laws Brook Road and Sunnyside Lane. (2/28/2022)**
  - *Intersection sight distance (ISD) was measured in the field and is depicted on sheet 5of7 of the plan set. There is sufficient ISD heading east bound on Laws Brook Road, but since ISD is measured 14 ' feet back from the intersection and due to the 28" mature Oak tree at the corner of the property located at 138 Laws Brook Road and another mature tree directly adjacent to and east of the 28" Oak, ISD heading west bound on Laws Brook Road is less than recommended, however, there is ample room for the car leaving Sunnyside Lane to pull up closer to the intersection allowing the driver and oncoming car to see beyond the 28" Oak and adjacent tree without encroaching on Laws Brook Road and into the oncoming lane on Laws Brook Road which increases sight distance significantly to greater than 400'. (4/14/2022)*
    - **The increased traffic at this intersection will result in an increase in turning movements at this existing intersection with a deficient sight distance, resulting in a more hazardous condition. The applicant shall propose potential fixes/improvement to the intersection that will improve sight distance and/or create a safer situation at the intersection. (5/4/2022)**
  
4. **In the Application under item #5 "Site Characteristics and Drainage", the Cut/Fill Report appears to show cut and fill factors of one (1). Typically when material is to be reused on site there will be a swell and shrinkage factor applied to the volumes. Please verify that these factors were applied when determining the amount of material, and if a shrinkage and swell factors was not applied. (2/28/2022)**
  - *The Cut/Fill report has been updated and corrected. Additionally, a swell factor has been applied to the amount of earth removal leaving the site - this number can be used to help determine the number of trucks needed. (4/14/2022)*
    - **The net result of material that will be imported onsite is 1,858 Cubic Yards. This may require a ZBA special permit. (5/4/2022)**
  
5. **The pavement width is called for 18' with 2 foot shoulders that are unpaved. It would be preferable to have 22' pavement and no shoulder to allow for multimodal use of the roadway. To achieve this, it would be acceptable to Engineering if the pavement centerline was offset from the roadway layout centerline. (2/28/2022)**
  - *After discussion with the Planning Board and abutters, it was agreed that an 18' pavement width is preferred and will be utilized for the roadway improvement. The Fire Department had no issue with the 18' pavement width. (4/14/2022)*
    - **Engineering's comment was related to there being no sidewalk provided and the need for multimodal use of the roadway due to the lack of sidewalks. It appears that the westerly shoulder was expanded from 2-feet to 5-feet, but this area will not be maintained during snow and ice removal operations. The cross-section shows the shoulders being loam and seed going right up against the edge of pavement, but this is typically very difficult to keep grass growing due to roadway temperatures and vehicles pulling up on them. Gravel shoulders are more typical for these shoulder areas. If gravel shoulders are required than subcatchment P-2 area of gravel would need to be recalculated.**

**Sunnyside Lane is a Private Right of Way and therefore is not required to comply with CPW Design and Construction Standards, and the width of the paved portion of roadway is therefore decided by the Planning Board under the Definitive Subdivision Application.**

If approved, a condition related to the roadway permanently remaining private, and all maintenance of the roadway, except for snow and ice removal, is the responsibility of the residents of the roadway. (5/4/2022)

6. **Provide ADA compliant concrete ramps with tactile warning panels at the intersection of Laws Brook Road and Sunnyside Lane as required when roads are reconstructed or rehabilitated. (2/28/2022)**
  - *ADA compliant concrete ramps and detectable warning panels have been added at the intersection of Sunnyside Lane and Laws Brook Road and are shown on the plan. A detail has also been added to the detail sheet. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**
7. **Please state the roadway speed that is intended for this Subdivision Roadway. (2/28/2022)**
  - *The proposed speed limit will be that of a Local Street at 25 MPH. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**
8. **Please provide Benchmarks on the plans. (2/28/2022)**
  - *Benchmarks are now shown on the plan. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**
9. **It is not apparent if Street Lighting will be provided for this subdivision. If lighting is proposed, please show street lighting and lamination plan for the roadway. (2/28/2022)**
  - *There is not currently any street lighting nor is any proposed. (4/14/2022)*
    - **Sunnyside Lane is a Private Right of Way and therefore is not required to comply with all roadway standards. If the Planning Board determines that lighting is not required for this project then the comment is addressed. (5/4/2022)**
10. **Were all soil tests observed by a Town Representative? (2/28/2022)**
  - *All soil testing shown on the plan was witnessed by either Stan Sosnicki with the Concord Health Department or Justin Richardson with Concord's Engineering Division. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**
11. **No foundation drains are shown on the proposed plans. Will there be foundation drains? Is so please show discharge locations for each proposed dwelling. (2/28/2022)**
  - *No foundation drains are proposed. Sump pump basins will be provided in the basements of lots 5A-1, 5A-2, 5A-3, and 5B for sump pumps as a precaution, but are not expected to be needed. (4/14/2022)*
    - **The discharge location of the sump pumps should be shown on the plans and located as far from Resource Areas as reasonable possible. (5/4/2022)**
12. **In the "Area Drain Detail" on sheet 6, the elevation of the inlet appears to be set at the bottom elevation of the swale. Why wasn't the inlet raised to promote infiltration during small storm events? These swales along the roadway could be utilized for treatment and infiltration in small storm events. (2/28/2022)**
  - *The swale was not utilized for infiltration due to its proximity to the soil absorption systems and not being able to obtain the required setback distance of 50 feet from infiltration structures to leaching fields. With that said, the area drain inlets have been raised a couple inches to promote treatment and infiltration in small storm events. Credit is not taken for said infiltration and is additional to all other stormwater calculations for the site. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**



- 13. In the "Roadway Swale Detail" why wasn't amended soil used to promote infiltration? (2/28/2022)**

  - *The swale detail has been modified to reflect the use of amended soil. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**
- 14. A sediment forebay detail was not provided. Please provide a detail that shows the materials being utilized in the forebay with appropriate depths. (2/28/2022)**

  - *The sediment forebay detail is embedded within the Infiltration Basin detail. However, a separate detail for the sediment forebay has also been provided. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**
- 15. It is typical to have a low permeability soil placed in the center of the infiltration basin berm to prevent stored stormwater from passing through the berm. Concord Public Works Design & Construction Standards & Details, Section 2.2.4 can be used as a reference. (2/28/2022)**

  - *The Infiltration Basin Detail indicates compact till within the berm to prevent stored stormwater from passing through the basin's berm. Additionally, a note for "low-flow-through" soil has been added. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**
- 16. Please add the proposed drain lines to the profile on sheet 5 of the plans. (2/28/2022)**

  - *The drain lines and area drains have been added to the profile view on sheet 5 of the plans. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**
- 17. Because drywells are necessary to meet the stormwater requirements for this development, roof drainage plans for each lot that include all pipe inverts, length, slope, and material, will be required as a condition of approval. (2/28/2022)**

  - *Pipe material, length, slope and inverts for each individual drywell have been added to the plans. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**
- 18. A Stormwater Operation and Maintenance plan was prepared for this development, but who will be responsible for funding and performing the maintenance? This development is on a private road and maintenance is not under the responsibility of the Town. (2/28/2022)**

  - *There will be a Homeowners association for the new and existing lots. The agreement will specify that the new lot owners will be responsible for the maintenance of the stormwater system. (4/14/2022)*
    - **Comment has been addressed, and this should be a condition of approval. The Engineering Division should review the HOA documents to ensure that these conditions are implemented. (5/4/2022)**
- 19. Hydrographs for the Infiltration Basin for P-2 in the 25 and 100 year storm need larger time span (pages 68, 70 and 71) so that the hydrograph is completed and goes back to 0. Please use a 24 hour time span. This happens again on the drywell hydrographs. (2/28/2022)**

  - *This question was brought up to a Hydrology Studios consultant and their response is as follows "The hydrograph scale along the X-axis plots until the outflow is less than 0.01 cfs. Once the Q is less than 0.01 cfs, it stops plotting." Tabulated sheets have been provided in addition to the graphic models for those hydrographs that do not plot the full 24-hours. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**
- 20. The drawdown time graphs shown for the infiltration basins and drywells do not span a long enough time period for the basins to drain. (2/28/2022)**



- *Calculations for total drawdown time for each infiltration system have been provided in the Recharge Volume Calculation worksheets, a time graph is not required. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**
- 21. Bottom of chamber systems close to 2 feet from seasonal high ground water. Ground Water Mounding Analysis is provided, but it is unclear if the calculation was performed if the basin was full or with the flow from what storm event. Please provide additional information stating if the calculation was performed with the basin full or what storm was modeled. (2/28/2022)**
- *The groundwater mounding analysis demonstrates that the required recharge volume of the respective recharge system is fully dewatered within 72-hours so the next storm can be stored for exfiltration. The analysis assumes unconfined groundwater flow, and that a linear relation exists between the water table elevation and water table decline rate showing that the groundwater mound that forms under the recharge system will not reach the bottom of the infiltration BMP. All mounding analyses are performed on the assumption that the recharge systems are full. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**
- 22. A Right of Way (ROW) and/or Driveway permit is required for the work being performed inside the Laws Brook Road ROW and work inside the right of way shall comply with CONCORD PUBLIC WORKS DESIGN & CONSTRUCTION STANDARDS & DETAILS. (2/28/2022)**
- *A Right of Way (ROW) and/or Driveway permit shall be obtained before performing any work within the Laws Brook Road ROW. (4/14/2022)*
    - **Comment has been addressed. (5/4/2022)**
- 23. Stormwater Pollution Prevention Plans should be developed for this project and if appropriate, filed with the NPDES. (2/28/2022)**
- *A SWPPP shall be filed with NPDES for the proposed work. (4/14/2022)*
    - **Comment has been addressed and should be made a condition of approval. (5/4/2022)**
- 24. The Engineering Divisions reserves the right to comment on future submittals related to any new or previously submitted information provided to the Town for review including the Definitive Subdivision Plan and supporting documentation. (2/28/2022)**
- *No response needed. (4/14/2022)*
    - **Comment still applies. (5/4/2022)**

**Additional Engineering Division Comments (5/4/2022):**

- 25. Because of the swale drainage system and only the paved roadway will be plowed, icing could become an issue at the low point of the roadway at Station 2+44.82 if large snow banks prevent runoff and snow melt from entering the swale. A catch basin is needed on the westerly edge of pavement at the low point to allow stormwater runoff to enter the drainage system during winter conditions.**