

**133 Keyes Road
Concord, MA 01742**



DATE: March 4, 2021

MEMORANDUM

TO: Elizabeth Hughes, Town Planner
COPY: Alan Cathcart, Acting Director of Public Works
VIA: Steve Dookran PE, Town Engineer
FROM: Justin Richardson PE, Assistant Town Engineer
SUBJECT: 246 Old Road to Nine Acre Corner: Concord Country Club Earth Removal Special Permit

Concord Public Works has reviewed the application submitted for a Special Permit dated September 1, 2020, prepared by Stamski and McNary, Inc., for the construction of an irrigation pond. The Engineering Division provided comments dated September 29, 2020 and these comments can be seen below in bold. The applicant has provided responses to Engineering’s comments dated November 17, 2020 and can be seen below in italics. The responses were submitted with the revised plans and calculations dated November 16, 2020 and November 17, 2020 prepared by Stamski and McNary, Inc. A meeting between CPW and the Applicant was held on December 9, 2020 and as a result of the meeting the Applicant’s representative, Stamski and McNary, Inc., has submitted a response letter and plans dated December 15, 2020 (in italics). The applicant went before the Concord Public Works Commission and Engineering provided additional comments on the design dated December 31, 2020 (in bold). The Applicant’s representative, Stamski and McNary, Inc., has submitted a response letter, plans, and calculations dated March 1, 2021 and February 26, 2021 respectively (in italics). Engineering Division offers the following additional comments (in bold dated 3/4/2021):

Engineering Division Comments September 29, 2020:

- 1. TP 6-1 is not located in the correct location. The correct location shown below, is located immediately adjacent to the earth pile that is shown on the existing topographic plan below.**



Further confirmation of the hole locations are from pictures from the June 2, 2020 site visit and A level run that was performed by Onyx Corporation prior to the hole being dug which



MEMORANDUM

specified an elevation of 155.10'. This has considerable effects to the design setting the seasonal high ground water elevation at 139.10'. Pursuant to Zoning Bylaw Section 7.6.6.11, removal of soil, loam, sand, gravel, or any other mineral substance within four feet of the historical high groundwater table elevation is prohibited within the Groundwater Conservancy District. (9/29/2020)

- *The location of TP 6-1 and its elevation have been corrected. The pond bottom has been revised to hold a minimum of 4' to the estimated seasonal high groundwater table.*(11/17/2020)
 - **The location of TP 6-1 needs to be moved in the east to be immediately adjacent to the pile located on the existing conditions plan and above the 155.00' contour. Please revise to the plans to show the test hole in the appropriate location. Engineering concurs that the bottom of the basin in this area is more than 4' above seasonal high groundwater. (discussed in the 12/9/2020 meeting)**
 - *The location of TP 6-1 has been corrected.*(12/15/2020)
 - **Comment has been addressed (12/31/2020)**

- 2. TP 7-2 according to the point description and existing conditions survey is at elevation 154.435'. The soil log is consistent with Engineering's notes from the site visit on July 2, 2020 that season high ground water is located 86-inches measured from the ground surface as the hole location (154.435'). This means that the seasonal high ground water elevation in that area is 147.27', which means that the bottom of the basin is within the four foot to seasonal high groundwater. Pursuant to Zoning Bylaw Section 7.6.6.11, removal of soil, loam, sand, gravel, or any other mineral substance within four feet of the historical high groundwater table elevation is prohibited within the Groundwater Conservancy District. (9/29/2020)
 - *The pond design has been revised to hold a minimum of 4' to the estimated seasonal high groundwater table. The high groundwater elevation has interpolated between TP 6-1 and TP 7-2 to determine the high groundwater elevation between these points.*(11/17/2020)
 - **To be 4 feet above seasonal high ground water in this location the proposed grade would need to be 151.27'. Currently the plans show an elevation of 151.05±. This would mean that the bottom of the basin is still within 4 feet of the seasonal high ground water elevation. The plans need to be revised to show grading for the 151.27' bottom elevation in this area. (discussed in the 12/9/2020 meeting)**
 - *The pond grading has been revised slightly to provide a minimum 4' offset to seasonal high groundwater; the previous iteration of the plan had the pond bottom approximately 3" too close to the seasonal high groundwater elevation within the vicinity of TP 7-2.*(12/15/2020)
 - **Comment has been addressed. (12/31/2020)**

133 Keyes Road
Concord, MA 01742



DATE: March 4, 2021

MEMORANDUM

3. **Because the bottom of the irrigation pond is within four feet of the historical high groundwater table elevation the proposed development is prohibited. The Engineering division will not review the submittal until a plan that is not prohibited is provided. The Engineering Divisions reserves the right to comment on future submittals related to any new or previously submitted information provided to the Town. (9/29/2020)**
 - *The Irrigation Pond Plan has been revised to hold a minimum of 4' to the estimated seasonal high groundwater table. (11/17/2020)*
 - **Comment is still not addressed. (discussed in the 12/9/2020 meeting)**
 - *The pond grading has been revised slightly to provide a minimum 4' offset to seasonal high groundwater; the previous iteration of the plan had the pond bottom approximately 3" too close to the seasonal high groundwater elevation within the vicinity of TP 7-2.(12/15/2020)*
 - **Comment has been addressed. (12/31/2020)**

Engineering Division Comments December 31, 2020:

1. **The stormwater report includes the previous soil logs performed in March 2020 that were not observed by Town representatives and conflict with the soil logs performed in June and July that were observed by Town representatives. Why is the March 2020 soil logs included in the report if the information conflicts with newer/Town observed testing? (12/31/2021)**
 - *These soil logs have been removed from the Stormwater Management Report and the Irrigation Pond Plan. Please note that only the test pits witnessed by Town representatives were used in the design of the irrigation pond bottom to meet the required 4' separation to seasonal high groundwater. (3/1/2021)*
 - **Comment has been addressed. (3/4/2021)**
2. **The Stormwater Management portion of the Stormwater report states "Stormwater calculations show a 0.46 cfs increase to the peak flow leaving the project site for the 100-year design storm when compared to pre-development conditions. This represents a conservative peak flow increase of 0.29% on the 2014 FEMA survey; this de minimis increase will not result in an increase to offsite flooding." This statement is incorrect - 0.46 cfs is not a 0.29% increase to an existing 1.809 cfs pre-development flow, it is actually a 25.3% increase. This is not a minor change in the 100-year design storm. Furthermore, it is Engineering's recommendation that there be no increase in flow or volume in the 100-year design storm and that infiltration be maximized from the irrigation pond overflow because of the sites location in the Groundwater Conservancy District. (12/31/2021)**
 - *The 0.29% increase previously noted in the Stormwater Management Report narrative was calculated using the 160 cfs value provided in the FEMA for the 100-year design storm at the nearest downstream culvert. This 160 cfs value was mistakenly omitted from the previous iteration of the narrative. The proposed Irrigation Pond Plan has been revised so that the proposed irrigation pond volume*

133 Keyes Road
Concord, MA 01742



DATE: March 4, 2021

MEMORANDUM

has been slightly decreased to allow for the expansion of the proposed infiltration basin. The proposed design now results in a decrease in peak flow leaving the project site for the 100-year design storm. (3/1/2021)

- **Comment has been addressed. (3/4/2021)**
3. **A shutoff valve shall be incorporated into the design from the irrigation pond to the infiltration basin should be incorporated into the design in the event that any contamination of the irrigation pond occurs. This will provide further protection in the Groundwater Conservancy District. (12/31/2021)**
 - *A slide gate is now proposed along the irrigation pond outlet pipe. A detail of the proposed slide gate is also provided. (3/1/2021)*
 - **Comment has been addressed, but gate operation should be described in the Operation and Maintenance plans for the Pond and the Emergency Operations Plan. (3/4/2021)**
 4. **The pipe going from the irrigation pond to the infiltration basin is at a 11.5% slope and there appears to be minimal splash protection at the end of the pipe to prevent against scouring. Provide rational method calculation that includes pipe velocity and the proper mitigation for that velocity at the discharge inside the infiltration basin.**
 - *The irrigation pond outlet to the proposed infiltration basin has been revised to decrease the pipe slope so that the maximum discharge velocity is limited to a maximum of 10 fps, as shown in the Pond Report. Additionally, a pipe outlet detail is now provided. (3/1/2021)*
 - **Comment has been addressed. (3/4/2021)**
 5. **According to the Stormwater Calculations the basin is full at water elevation 156.00. The plans do not show any float valve or any mechanism that would stop the pumping into the irrigation pond. How is the maximum water elevation of 156.00 maintained? (12/31/2021)**
 - *The proposed wet well located within the pump house will be outfitted with floats to control intake into the irrigation pond. The pump house plans have been provided under separate cover. (3/1/2021)*
 - **Comment has been addressed (3/4/2021)**
 6. **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. (12/31/2021)**
 - *No response needed. (3/1/2021)*
 - **Noted. (3/4/2021)**