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Sustainable Environmental Solutions

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March 10, 2023

Mr. Chuck Tirone, Conservation Administrator
Town of Reading
16 Lowell Street
Reading, MA 01867-2683

Re: 3rd Stormwater Peer Review
Small Lane Roadway Extension
Reading, Massachusetts

Dear Mr. Tirone:

The Horsley Witten Group, Inc. (HW) is pleased to provide the Reading Conservation Commission with this letter report summarizing our third peer review of the stormwater management for the proposed 350-foot roadway extension project located at Small Lane, Reading, Massachusetts. Del Rey Realty Trust (Applicant) has submitted a Notice of Intent to construct a 350-foot roadway extension to access two residential lots. A portion of the development will permanently impact a Bordering Vegetated Wetland (BVW) surrounding the two parcels and the Applicant proposes wetland mitigation.

Using Adobe Acrobat Pro, HW measured the area of the proposed development of the two house lots and the roadway extension. The total area of disturbance is greater than 1 acre therefore subject to the requirements of Section 7.9 of the Town of Reading General Bylaws.

HW conducted a site visit on August 23, 2022 to confirm the existing site conditions. The following documents and plans were received by HW in response to our December 22, 2022 second peer review:

- Letter to Reading Conservation Commission, in response to LEC's 3rd peer review of Small Lane Roadway Extension and Drainage, Reading, MA, prepared by Norse Environmental Services, Inc., dated February 27, 2023 (3 pages);
- Letter to Reading Conservation Commission, in response to HW's 2nd peer review of Small Lane Roadway Extension and Drainage, Reading, MA, prepared by Sullivan Engineering Group, LLC, dated February 23, 2023 (3 pages);
- Wetland Replication/Restoration & Bank Restoration Report, Small Lane Roadway Extension, Reading, MA, prepared by Norse Environmental Services, Inc., dated June 2021, revised through February 27, 2023 (9 pages);
- WPA Form 3 – Notice of Intent, revised February 27, 2023 (1 page);
- Letter to Town of Reading Conservation Commission, regarding Small Lane Extension, Reading, Drainage Design, prepared by Sullivan Engineering Group, LLC, dated February 23, 2023 (140 pages);
- PreDevelopment Drainage Plan, Small Lane Extension, prepared by Sullivan Engineering Group, LLC, dated February 22, 2023 (1 sheet);

- PostDevelopment Drainage Plan, Small Lane Extension, prepared by Sullivan Engineering Group, LLC, dated February 22, 2023 (1 sheet);
- Definitive Subdivision Plan, Small Lane Extension, Reading, Massachusetts, prepared by Sullivan Engineering Group, LLC, prepared for Del Rey Realty Trust, revised February 22, 2023, which includes:
 - Cover Sheet 1 of 8
 - Lot Plan of Land 2 of 8
 - Existing Conditions Plan 3 of 8
 - Site, Grading, & Utility Plan 4 of 8
 - Roadway Plan & Profile 5 of 8
 - Construction Details 6 of 8
 - Construction Details 7 of 8
 - Wetland Replication & Crossing Plan 8 of 8

Stormwater Review

In accordance with Section 7.9.3.3 of the Town of Reading General Bylaw, the Conservation Commission shall serve as the permitting authority for the stormwater permit required by Section 7.9.4.1. In accordance with 7.9.4.1, *any activity that results in disturbance of one (1) or more acres of land and any land-disturbing activity that is part of a Common Plan of Development or Sale that will ultimately result in the disturbance of one (1) or more acres of land, shall be subject to the requirements of Section 7.9. No person shall undertake any such activity unless it is authorized by a stormwater permit issued by the CPDC, or exempt pursuant to Section 7.9.4.2.*

In accordance with 7.9.5.1, a stormwater permit application shall be filed which includes a Stormwater Management Plan satisfying the requirements of Section 7.9.7. In accordance with 7.9.7.1, *The stormwater management measures set forth in the Stormwater Management Plan shall be designed to meet Standards 1-6 (for New Development) or Standard 7 (for Redevelopment) of the Massachusetts Stormwater Management Standards, as well as any post-construction design requirements adopted under Section 7.9.3.1. In addition, LID site planning and design strategies shall be incorporated unless infeasible in order to reduce the discharge of stormwater.*

HW has reviewed the documents listed above and has the following comments concerning the stormwater management design in accordance with the Massachusetts Stormwater Handbook (MSH) dated February 2008, the Town of Reading General Bylaw dated April 20, 2021 (Bylaw), and the Town of Reading Stormwater Management and Erosion Control Regulations dated December 6, 2021 (Stormwater Regulations). HW initially reviewed this project in August 2022. The design has changed substantially therefore the following comments are not associated with our August review letter. Our previous comments have been eliminated to avoid confusion. Comments below correlate with our second peer review dated December 22, 2022; follow up comments are provided in **bold font**.

1. *Standard 1 states that no new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*
 - a. The Applicant has divided the existing site into two design points.

- 1) Design Point 1 is located at the northwest edge of the BVW downgradient of the existing clay culvert that is currently silted up.
- 2) Design Point 2 is located at a low point within the BVW on the southeast edge of the project area.

HW (03/10/2023): No further action required.

- b. The Applicant has divided the proposed site into three design points.
 - 1) Design Point 1 is at the same location as existing conditions.
 - 2) Design Point 2 is at the same location as existing conditions.
 - 3) Design Point 3 is the existing catch basins within Small Lane that a small portion of the proposed roadway extension will drain back to. The Applicant intends to raise the existing grade at the existing end of Small Lane by approximately 3 feet to capture this runoff in the existing catch basins.

HW (03/10/2023): No further action required.

- c. The Applicant is proposing to manage stormwater by installing deep sump catch basins, a deep sump outlet control structure, a sediment forebay, and an infiltration basin. Therefore, is providing treatment prior to discharge. It does not appear that the Applicant is discharging untreated stormwater that may cause erosion in the waters of the Commonwealth.

HW (03/10/2023): No further action required.

- d. The Applicant is proposing a box culvert at approximately Station 4+45 to replace the 12-inch clay pipe that currently connects the wetlands on either side of the roadway extension. The box culvert is not associated with stormwater management. However, the installation of the culvert should be conducted in a manner to avoid erosion in the wetlands.



Photo taken August 23, 2022: View of clay pipe connecting wetlands.

HW (03/10/2023): No further action required.

Applicant complies with Standard 1. However, HW emphasizes that the proposed culvert should be installed in a manner that avoids erosion in the wetlands.

2. *Standard 2 requires that post-development runoff does not exceed pre-development runoff off-site.*

- a. The Applicant has modeled the existing subcatchment areas 1S and 2S using a surface condition of "Fair" for the existing woods. HW has visited the site and believes that the woods should be classified as "good". HW recommends that the Applicant revisit the HydroCAD model and adjust the surface conditions of the woods to "good" or justify the use of "fair".

HW (03/10/2023): The Applicant has adjusted the surface conditions of the woods to "good" in the predevelopment and postdevelopment HydroCAD models. HW has no further comment.

- b. HW recommends that the Applicant consider using a minimum time of concentration (Tc) value of 6 minutes for proposed subcatchments 2S and 3S.

HW (03/10/2023): The Applicant has adjusted the Tc value to 6 minutes for proposed subcatchments 2S and 3S. HW has no further comment.

- c. The Applicant has noted that the proposed houses have not been included in the HydroCAD model but that the stormwater basin is over sized to manage the additional flow from the roof runoff. HW recommends that the Applicant illustrate a conceptual impervious area to represent each house and adjust the subcatchment areas 5S and 6S as applicable.

HW (03/10/2023): The Applicant has included two house footprints, each having 1,152 sf of impervious area. The Conservation Commission may choose to include in its findings that the proposed houses will each have a maximum footprint of 1,152 sf.

- d. The Applicant has modeled Design Point 3 under proposed conditions as a separate analysis point and has noted that this area is very small and may be considered "de minimis". HW agrees that proposed subcatchment area 1S is small at 2,120 sf, has less than 1 cfs discharge, and may be considered redevelopment. HW recommends that the Applicant document in accordance with the MSH Volume 3, Chapter 1, page 35 the remaining criteria to confirm that the area can be considered "de minimis".

HW (03/10/2023): The Applicant has included in its response letter dated February 23, 2023 the criteria outlined in the MSH that qualifies the subcatchment to Design Point 3 as de minimis. HW agrees that the area does qualify, and we have no further comment.

- e. The Applicant has indicated on the Roadway Plan & Profile that the inverts of catch basin (CB)-1 and CB-2 are exactly 2 feet below the rims of these structures. The proposed drainage pipes are labeled as ductile iron cement lined (DICL). HW agrees that a ductile iron pipe can withstand less cover than other pipe materials. No further action required.

HW (03/10/2023): No further action required.

- f. The primary invert for the outlet control structure is listed in HydroCAD at elevation 82.75. The elevation is not clearly listed on the plan set. However, it is shown on the detail. HW recommends that the Applicant confirm the elevation is clearly listed on the Roadway Plan & Profile.

HW (03/10/2023): The Applicant has added the primary invert elevation for the outlet control structure to the Site, Grading, and Utility Plan on sheet 4 and the roadway profile on sheet 5. HW has no further comment.

- g. Per Section 7.9.5.1 of the Bylaw, HW recommends that the Applicant provide a narrative describing the incorporation of LID strategies.

HW (03/10/2023): The Applicant noted that country drainage with infiltration swales was considered but eliminated in the design process. HW understands that porous pavement was also considered at an early stage and eliminated. The Applicant has designed a stormwater basin that will result in infiltrating the stormwater runoff and located the basin in a natural depression. HW defers acceptance of compliance with Section 7.9.5.1 of the Bylaw to the Conservation Commission.

- h. Per Section 7.9.7.2 of the Bylaw, the Applicant has provided updated drainage area maps showing pre- and post-construction watershed boundaries, drainage area and stormwater flow paths. No further action required.

HW (03/10/2023): No further action required.

- i. It appears that the existing 12-inch vitrified clay (V.C.) Drain will be replaced by the proposed concrete 4 foot high by 18 feet wide by 41 feet long Open Bottom Box Culvert. HW recommends that the Applicant confirm that the V.C. Drain will be removed and label this on the plans.

HW (03/10/2023): The Applicant has confirmed that the V.C. Drain will be removed and added a note to sheet 4 of the plan set. HW has no further comment.

3. *Standard 3 requires that the annual recharge from post-development shall approximate annual recharge from pre-development conditions.*

- a. The Applicant has provided the required recharge volume calculations that demonstrate that the site stormwater management system will provide recharge. The Applicant has confirmed the infiltration rate and that the separation to groundwater is 2 feet. HW recommends that the Applicant provide a mounding analysis in compliance with the Volume 3, Chapter 1, page 28 of the MSH.

HW (03/10/2023): The Applicant has provided the requested mounding analysis which indicates that the groundwater will not mound up into the basin taking up storage volume. HW has no further comment.

4. *Standard 4 requires that the stormwater system be designed to remove 80% Total Suspended Solids (TSS) and to treat 1.0-inch of volume from the impervious area for water quality.*

- a. In accordance with Section 4.1.3.4 of the Stormwater Regulations, stormwater management systems on new development sites shall be designed to meet an average annual pollutant removal equivalent to 90% of the average annual load of Total Suspended Solids (TSS) related to the total post-construction impervious area on the site AND 60% of the average annual load of Total Phosphorus (TP) related to the total postconstruction impervious surface area on the site. The Applicant has documented that the Applicant will meet the 90% TSS removal. The Applicant has included deep sump catch basins, a deep sump outlet control structure, a sediment forebay, and an infiltration basin to meet the TSS removal and water quality requirement.

HW (03/10/2023): No further action required.

- b. HW recommends that the Applicant provide calculations that demonstrate that the site stormwater management systems are designed to provide the required TP removal.

HW (03/10/2023): The Applicant has provided TP removal calculations that show that the stormwater basin provides 82.6% TP removal. HW has no further comment.

- c. HW recommends that the Applicant document how it is meeting the water quality requirements for proposed subcatchment area 1S that is being directed towards the existing catch basins or as noted above document how proposed subcatchment 1S meets the criteria listed in Volume 3, Chapter 1, page 35 of the MSH to be considered de minimis.

HW (03/10/2023): The Applicant has included in its response letter dated February 23, 2023 the criteria outlined in the MSH that qualifies the subcatchment to Design Point 3 as de minimis. HW agrees that the area does qualify, and we have no further comment.

5. *Standard 5 is related to projects with a Land Use of Higher Potential Pollutant Loads (LUHPPL).*

- a. The site is not considered a LUHPPL, therefore Standard 5 is not applicable.

HW (03/10/2023): No further action required.

6. *Standard 6 is related to projects with stormwater discharging into a critical area, a Zone II or an Interim Wellhead Protection Area of a public water supply.*

- a. The site is not within a critical area, therefore Standard 6 is not applicable.

HW (03/10/2023): No further action required.

7. *Standard 7 is related to projects considered Redevelopment.*

- a. This project proposes to increase impervious area to the site by constructing a new roadway and is not considered a redevelopment. The work proposed on the existing paved portion of Small Lane may be considered redevelopment. HW recommends that the Applicant document how it is improving existing conditions for the redevelopment portion of the site delineated as proposed subcatchment 1S.

HW (03/10/2023): The Applicant has documented that the area of the existing paved area contributing to the existing catch basin may be considered de

minimis. HW recommends that the Applicant be required to clean the two existing catch basins as well as the existing 15-inch RCP that discharges into the resource area as part of the construction process. The existing catch basins and pipe are part of the municipal drainage system and coordination with the Reading Department of Public Works will be necessary.

8. *Standard 8 requires a plan to control construction related impacts including erosion, sedimentation or other pollutant sources.*
- a. Per Section 7.9.5.1 of the Bylaw, HW recommends that the Applicant provide an Erosion and Sediment Control Plan satisfying the requirements of Section 7.9.6 of the Bylaw. In accordance with Section 7.9.6.1 of the Bylaw, the erosion and sediment control and pollution prevention measures set forth in the Erosion and Sediment Control Plan shall be designed to meet Standard 8 of the Massachusetts Stormwater Management Standards, minimize the total area of disturbance, and properly manage construction and waste materials.

HW (03/10/2023): The Applicant proposes to provide an Erosion and Sediment Control Plan to the Commission prior to construction. HW recommends that the Conservation Commission require receipt of an Erosion and Sediment Control Plan prior to construction as a Special Condition. The Erosion and Sediment Control Plan shall incorporate HW's comments and satisfy the requirements of Section 7.9.6 of the Bylaw, Standard 8 of the MSH, and the EPA's NPDES Construction General Permit, Stormwater Pollution Prevention Plan (SWPPP) requirements.

- b. The Applicant has stated in its November 29, 2022 Drainage Design letter that a Construction Period Pollution Prevention/Erosion & Sedimentation Control Plan will be provided prior to construction. HW recommends that the Conservation Commission require receipt of the Construction Period Pollution Prevention/Erosion & Sedimentation Control Plan a minimum of 14 days prior to land disturbance as a Special Condition.

HW (03/10/2023): HW's recommendation to the Conservation Commission stands.

- c. The Applicant has illustrated a Proposed Erosion Control Barrier (PECB) at approximately the 25-foot buffer zone line of the adjacent BVW within the 2 house lots. The PECB line continues along the limit of work and to the edge of the proposed wetland mitigation area. The Applicant has labeled the PECB as 12" stacked mulch Soxx with silt fence. HW has the following recommendations to be incorporated into the Construction Period Pollution Prevention/Erosion & Sedimentation Control Plan.
- i. HW recommends that the Applicant install an erosion control barrier upgradient of the wetland replication area once it is completed to protect it from other construction activities.
 - ii. HW recommends that the Applicant include the location of the 50-foot crushed stone stabilized construction entrance on the erosion control plan.
 - iii. Projects that disturb one acre of land or more are required to obtain coverage under the NPDES Construction General Permit (CGP) issued by EPA and prepare a Stormwater Pollution Prevention Plan (SWPPP). HW recommends that a copy of the CGP be provided to the Town prior to land disturbance.

- iv. HW recommends that the Applicant include temporary inlet protection for the existing catch basins on Small Lane.
- v. HW recommends that the Applicant include proposed stockpile locations with appropriate erosion controls on the site plan.

HW (03/10/2023): The Applicant proposes to provide an Erosion and Sediment Control Plan to the Commission prior to construction. See comment 8.a above.

9. *Standard 9 requires a Long-Term Operation and Maintenance (O & M) Plan be provided.*

- a. Per Section 7.9.5.1 of the Bylaw, HW recommends that the Applicant provide an Operation and Maintenance Plan satisfying the requirements of Section 7.9.8 of the Bylaw.

HW (03/10/2023): The O&M Plan provided does not appear to comply with the requirements outlined in Section 7.9.8 of the Reading General Bylaw. The Conservation Commission may choose to include receipt of an O&M Plan signed by each property owner which more clearly conforms to the criteria listed in Section 7.9.8. The criteria includes but is not limited to including the names of owners, a schedule of the maintenance specifications, and a mechanism to ensure that the BMPs serving more than one parcel are properly operated and maintained. The signed O&M Plan will need to be recorded with the Registry of Deeds.

HW further recommends that the catch basins and outlet control structure are inspected four times a year and are cleaned at least once a year in accordance with Volume 2, Chapter 2, page 3 of the MSH.

- b. The Applicant has included a Stormwater Maintenance Plan in its November 29, 2022 Drainage Design letter. HW recommends that this plan become a standalone document and that the responsible parties are clearly noted.

HW (03/10/2023): HW's previous recommendation stands. The O&M Plan will need to be a standalone document signed by each property owner.

- c. If the roadway will be maintained by the Town, HW recommends that the Department of Public Works (DPW) confirm it has reviewed and understands its responsibilities to maintain the drainage basin and will provide annual reports to the Engineering Department.

HW (03/10/2023): According to the Applicant, the roadway will remain private, and DPW will not be involved in the maintenance of the drainage system or roadway.

- d. HW recommends that the Applicant clearly illustrate how the stormwater basin will be accessed for long-term maintenance.

HW (03/10/2023): The Applicant has included a 20-foot-wide easement between Lot 1 and Lot 2 to provide access to the stormwater basin. HW has no further comment.

- e. If the responsible party is a future homeowner, the Conservation Commission may choose to require receipt of the signed Stormwater Maintenance Plan prior to issuing the certificate of compliance.

HW (03/10/2023): HW's previous recommendation to the Conservation Commission stands.

- f. HW recommends that a simple sketch and simple maintenance log be included with the Stormwater Maintenance Plan. The intention is to make the inspection and maintenance process as simple as possible for the homeowner or the DPW. The simple sketch should clearly identify the following items:
- i. Catch Basins
 - ii. Drain Manhole
 - iii. Outlet Control Structure
 - iv. Stormwater Basin – note that the Applicant refers to this basin as a detention basin. It is an infiltration basin that will provide water quality and recharge. The basin should be dry within 72 hours of a rain event.
 - v. Sediment Forebay
 - vi. Emergency Spillway
 - vii. Box Culvert
 - viii. Snow Storage
 - ix. Sewer Manhole
 - x. Wetland and wetland mitigation

HW (03/10/2023): The Applicant has provided a simple maintenance log and an O&M sketch plan. HW recommends that the Applicant identify to the Conservation Commission where snow will be stockpiled.

- g. The Stormwater Maintenance Plan references snow stockpiles. HW was not able to locate these on the plans provided.

HW (03/10/2023): The Applicant has removed references to snow stockpiles from the Stormwater Maintenance Plan. HW recommends that the Applicant identify to the Conservation Commission where snow will be stockpiled.

- h. The Stormwater Maintenance Plan references a parking lot. HW was not able to identify this parking lot on the design plans and recommends that the Applicant revisit the narrative.

HW (03/10/2023): The Applicant has removed the references to a parking lot in the Stormwater Maintenance Plan. HW has no further comment.

10. Standard 10 requires an Illicit Discharge Compliance Statement to be provided.

- a. The Applicant has stated in its November 29, 2022 Drainage Design letter that an Illicit Discharge Compliance Statement will be provided prior to construction. HW recommends that the Conservation Commission require receipt of the signed Illicit Discharge Compliance Statement prior to the discharge of any stormwater to post-construction best management practices (BMPs) as a Special Condition.

HW (03/10/2023): The Applicant is amenable to including submission of a signed Illicit Discharge Compliance Statement to the Conservation Commission as a Special Condition.

Conclusions

HW recommends that the Conservation Commission consider our recommendations for Special Conditions as part of the permitting process. The Applicant is advised that provision of these comments does not relieve him/her of the responsibility to comply with all Town of Reading Codes and By-Laws, Commonwealth of Massachusetts laws, and federal regulations as applicable to this project. Please contact Janet Bernardo at 857-263-8193 or at jbernardo@horsleywitten.com if you have any questions regarding these comments.

Sincerely,

HORSLEY WITTEN GROUP, INC.



Janet Carter Bernardo, P.E.
Associate Principal