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March 12, 2024

Mr. Nick Lee, Chairman
Inland Wetlands Commission
238 Danbury Road
Wilton, Connecticut 06897

RE: Old Driftway, LLC
0 Mountain Road
Wilton, Connecticut

Dear Mr. Lee and Members of the Inland Wetlands Commission,

At the request of James Lucas of 2 Indian Hill Road, I have reviewed plans and documents submitted by the applicant after February 5, 202
4 for this project and have the following comments on this information.

The responses and minor changes made by the applicant do not reduce the adverse environmental impact which will occur to wetland systems along the old driftway or on the lot itself as enumerated below.

Permeable Pavement:

1. According to the CT DEP 2004 Storm Water Quality Manual, permeable pavements should only be placed over Class A or Class B, which will generally have the minimum required infiltrative capacity to allow a permeable pavement to function properly.
2. In this case, the permeable pavement is located over Class C and Class D which do not have the minimum required infiltrative capacity to allow a permeable pavement system to function properly.
3. The detail for the permeable pavement will not provide any water quality treatment of the runoff from the driveway resulting in the discharge of pollutants to the adjacent wetland area.
4. Permeable pavement is an infiltrative practice, no deep test holes or infiltration tests have been done in the two areas where permeable pavement is proposed by the applicant so these systems will simply fill up with runoff will weaken the structural integrity of the gravel layers and causing failure of the system.
5. Permeable pavement does not have the structural integrity to support the movement of heavy vehicles, such as oil delivery trucks, pool water trucks, garbage trucks, and dump trucks carrying 10 cubic yards or more of soil and/or rocks. The movement of these vehicles over the permeable pavement will break up the surface and cause failure of the system.

6. Most of the southern section of permeable pavement is located over the delineated inland wetland which is a vernal pool and will simply not function.
7. The use of permeable pavement as proposed by the applicant for this site is a clear example of "green washing" which is defined as making a project look green when it is not.

Underground Gallery Systems:

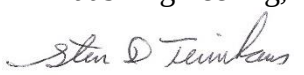
8. It is claimed by the applicant that runoff which enters any of the underground gallery systems will reduce non-point source pollutant loads from the driveway by infiltration. This statement is un-supported by any field infiltration testing or pollutant loading analysis.
9. The result of not performing infiltration testing and preparing a pollutant loading analysis will simply result in the discharge of non-point source pollutants to the wetlands, including the vernal pool, adjacent properties, and lastly the Town of Wilton drainage system on Mountain Road.
10. Catch basins with a 48" deep sump and hooded outlet will only remove 9% of total suspended solids (TSS) which is significantly less than the CT DEP goal of 80% reduction of TSS. No TSS removal rate can be taken for the gallery systems as it has not been demonstrated that these systems will infiltrate runoff.
11. The deep test holes performed by the applicant within the footprints of many of the gallery system were excavated at the lower existing contour elevation at the location of a proposed gallery systems and not at the high end of the gallery system which is the most restrictive location. Without test holes being done at the highest point of a given gallery system, it cannot be confirmed that the soils are adequate and a minimum vertical separation of 24" to the bottom of the gallery system will be provided. The following data provides the elevation of the test pit in a gallery and the highest elevation for that gallery system.
    a. System at 1+25, elevation of test = 578.0', high elevation at system = 581.0'
    b. System at 1+50, elevation of test = 579.5', high elevation at system = 583.0'
    c. System at 2+00, elevation of test = 584.0', high elevation at system = 585.0'
    d. System at 2+25, elevation of test = 584.0', high elevation at system = 585.5'
    e. System at 8+00, elevation of test = 574.5', high elevation at system = 576.0'
    f. System at 8+50, elevation of test = 572.7', high elevation at system = 577.0'
    g. System at 11+25, elevation of test = 578.5', high elevation at system = 579.0'
    h. System at 12+90, elevation of test = 562.5', high elevation at system = 564.0'

Engineering Opinions:

12. The board has heard from three engineers, the applicant's engineer, the town engineer, and my office. My office agrees with many of the town engineer's concerns regarding this application, which disagrees with the applicant's engineer. On the issue of using permeable pavement and addressing water quality issues of post-development runoff, only my office has documented expertise on these topics. A list of projects which I incorporated LID on, LID Manuals which I written as well as workshops on LID is provided in Appendix "A" of this letter.

Please contact my office if you have any questions concerning this information.

Respectfully submitted,
Trinkaus Engineering, LLC



Steven D. Trinkaus, PE

APPENDIX "A"
STEVEN TRINKAUS – LID EXPERTISE

LID and LISD Regulations and Design Manuals

- **Town of Tolland. CT – This was the first LID Municipal Manual written in the State of Connecticut -** Prepared amendments to Town of Tolland Zoning, Subdivision, Inland Wetland regulations and Road Design Manual to incorporate Low Impact Development standards. Wrote "Design Manual – Low Impact Development – Storm Water Treatment Systems – Performance Requirements – Road Design & Storm Water Management" prepared for the Town of Tolland; October 2007. The Town of Tolland was awarded the Implementation Award by the CT-APA for the LID regulations and design manual in December 2008.

- **Town of Plainville, CT –** Planimetrics was the lead consultant on this project. This office performed the technical regulatory audit to identify barriers to the implementation of LID. These barriers were removed from the regulations to provide for the implementation of LID. A LID design manual was written by Steve Trinkaus to address specific development/stormwater issues for the Town of Plainville. The regulatory changes and LID manual were adopted by the Planning and Zoning Commission in September 2010. This work was funded by the Farmington River Enhancement Grants from CT DEP.

- **Town of Harwinton, CT –** In conjunction with Planimetrics of Avon, CT, the existing land use regulations were evaluated for barriers to the implementation of Low Impact Development (LID). The project team suggested changes to the land use regulations to encourage the application of LID in the community. Steve Trinkaus defined design processes and strategies to encourage the implementation of LID in the town. This work was funded by the Farmington River Enhancement Grants from CT DEP.

- **Town of East Granby, CT –** Planimetrics was the lead consultant on this project. This office performed the technical regulatory audit to identify barriers to the implementation of LID. These barriers were removed from the regulations to provide for the implementation of LID. Steve Trinkaus prepared a LID Design Manual and LID Educational document for the town working with Gary Haynes, the town planner. This work was funded by the Farmington River Enhancement Grants from CT DEP.

- **Town of Morris, CT** - This office performed the technical regulatory audit to identify barriers to the implementation of LISD. These barriers were removed from the regulations to provide for the implementation of LISD. A LISD design manual was written by Steve Trinkaus to address specific development/stormwater issues for the Town of Morris. The regulatory changes and LISD manual were adopted by the Planning and Zoning Commission in January 2020.

LID Projects

- **Town of Stonington** – Stonington, Connecticut – Perform site investigation consisting of deep test holes and then double ring infiltration tests to determine feasibility of LISD stormwater retrofits to reduce directly connected impervious cover under Town MS4 permit. Design LISD retrofits consisting of Bioretention systems at four locations. Retrofits will result in the disconnection of approximately five acres of impervious area.

- **Housatonic Valley Association** – Design stormwater retrofits for the Town of Bethel, CT DPW Facility, the Town of Brookfield, CT DPW Facility and the Prince of Peace Church in Brookfield, CT to improve the water quality of the runoff which discharges to the Still River. Bioretention and Bioswales were used along with ADS Water Quality Units, and modifications to existing hydrodynamic separators to improve the pollutant removals.

- **Victorian Heron, LLC –** Bethel, Connecticut (Affordable Housing) – An existing Victorian house with 6 apartments will be expanded by the addition of a new building containing five more apartment developed under 8-30g. Access and parking areas improved for fire access to site. Stormwater will be handled by the creation of a Bioretention system to address water quality, groundwater recharge volume and peak rate attenuation.

- **Garden Homes Management –** Westport, Connecticut (Affordable Housing) – 19-unit residential apartment building being developed under 8-30g (affordable housing) on 1 acre site directly tributary to West Branch of the Saugatuck River. All construction activities are located outside regulatory setbacks to tidal wetland and 100-year flood boundary. Stormwater management system was designed to fully infiltrate the runoff for all storm events up to and including the 100-year event and reduce pollutant loads to existing levels as wooded parcel.

- **Jelliff Mill, LLC** – New Canaan, Connecticut: Redesigned the site layout to create ten single family residential units on a site overlooking the restored historic Jelliff Mill dam on the Noroton River. The site design uses two sections of permeable pavement and a Bioretention system to infiltrate the runoff from the proposed impervious areas on the site. Due to the presence of sand and gravel soils, all runoff from the impervious areas will be infiltrated up to and including the 25-yr storm event (5.7" of rain/24 hrs). Fully constructed and occupied.

- **SRG Family, LLC** – Southbury, Connecticut: Design final site grading for 38,000+ sq.ft. Medical services building and approximately 225 parking spaces in order to maintain overland flow patterns. Designed multiple LID treatment systems consisting of bioswales with weirs, Bioretention systems and Permeable Pavement (asphalt) to handle runoff from all impervious area on the project site. The LID treatment systems are capable of fully infiltrating the runoff from a 50-yr storm event will virtually eliminating the discharge of any pollutants to the adjacent wetland area. Currently pending before Inland Wetlands Commission for modification of original approval.

- **Farmington River Watershed Association** – Winchester, Connecticut: Designed stormwater retrofit for existing 1-acre paved parking area at the science building of the Northwest Community College to treat runoff prior to discharge into the Still River. Retrofit consists of forebay and Bioswale to treat runoff from parking area and building roof. Currently at Bid stage.

- **Garden Homes Management –** Southport, Connecticut (Affordable Housing) - Designed site to support 96-unit apartment building and 115 parking spaces. Site contains both freshwater and tidal wetlands. Stormwater management design required to provide Groundwater Recharge Volume & Water Quality Volume in addition to reducing the post-development peak rate of runoff from the 10-yr rainfall event to the pre-development peak rate of runoff from the 2-yr rainfall event. The stormwater management design includes grassed swales, Bioretention systems and underground concrete galleries to meet all of these stormwater requirements. Due to favorable soils on the site, the site will likely be a zero discharge site. Court Approved.

- **Garden Homes Management** – Milford, Connecticut (Affordable Housing) - Designed site to support 257-unit apartment building with 295 parking spaces. Stormwater management design

required to provide Groundwater Recharge Volume & Water Quality Volume in addition to reducing the post-development peak rate of runoff from the 25-yr rainfall event to the pre-development peak rate of runoff from the 25-yr rainfall event. The design utilizes a Bioretention system, two underground galleries systems as well as a small detention basin to meet all of the stormwater requirements. Court Approved.

- **Garden Homes Management** – Milford, Connecticut (Affordable Housing) - Designed site to support 21,888 sq.ft. building (three stories) containing 36 studio apartments and 45 parking spaces. Permeable pavement and Bioretention will be used on the site to treat runoff for water quality improvements along with reducing runoff volume from the 1-yr to 100-yr storm event. Construction complete and project occupied.

- **Quickcomm, Inc. –** Newtown, CT**:** Design a parking facility for approximately 140 vehicles to serve an existing corporate use. Runoff from the entire parking facility will be directed to one of seven Bioretention systems. Water quality of the runoff will be improved by the filtration through a specialized soil media and will then infiltrate into the underlying soils. Due the presence of sand and gravel soils, the Bioretention systems will fully infiltrate all runoff up to and including a fifty-year design storm (6.5" of rain/24 hours). Land use approvals obtained in the fall of 2012 and work completed in the fall of 2013.

- **Garden Homes Management** – Fairfield, Connecticut (Affordable Housing) - Designed site to support 32,592 sq.ft. building (three stories) containing 54 studio apartments and 68 parking spaces. Permeable pavement will be used for majority of parking facility. Roof drains will also be directed to permeable pavement system for water quality improvement. Reservoir layer was sized to fully contain 1.7" of runoff from contributing impervious area. By using a raised underdrain an anaerobic condition will be maintained in the bottom of the reservoir, thus providing denitrification of Total Nitrogen prior to discharge to tidal section of Rooster River. Construction complete and occupied.

- **Garden Homes Management** – Oxford, Connecticut (Affordable Housing) - Design site plan for 126 units of manufactured housing on 41+ acres. Stormwater management is achieved by the use of linear Bioretention systems (Bioswales) along both sides of all interior roads. After treatment in Bioswales, all runoff is directed to standard detention basins to provide peak rate attenuation from the 2-year to 100-year rainfall event. Approved by Inland Wetlands Agency, Denied by Planning and Zoning Commission. Court Approved and under construction.

- **Compton Family Trust** – New Hartford, Connecticut: Design two wet swales systems to convey and filter runoff from road which is currently discharged into West Hill Lake via a paved swale. West Hill Lake has very good water quality and the owner desires this work on this property to become a template for other homeowners on West Hill Lake to prevent adverse impacts of stormwater on the water quality of the lake. Received all necessary land use approvals. Construction to commence in the summer of 2012.

- **Highwood Estates** – Thomaston, Connecticut: Design retrofits for two existing failing detention basins serving existing 50 lot residential subdivision. Retrofits were designed using LID techniques to improve water quality reaching Northfield Brook, an impaired waterway. The larger basin was converted to an Extended Detention Shallow Wetlands to significantly reduce pollutant loads. Due to a limited area, only a forebay and deep pool could be designed for the smaller basin, thus providing measurable improvements in water quality.

- **Farmington River Watershed Association** – Winchester, Connecticut: Design stormwater retrofits consisting of a Bioretention system at the Town of Winchester Wastewater Treatment Plant and a Bioswale at the Town of Winchester Public Drinking Supply facility. These projects are being funded as LID demonstration projects to increase public awareness of LID. The systems were installed in June 2012 and were featured in articles in the Republican American and Register Citizen newspapers.

- **Harwinton Sports Complex** – Harwinton, Connecticut: Redesign stormwater management system for indoor sports facility to use vegetated swales and Bioretention systems. Redesign site grading to eliminate all structural drainage in parking facility. Client saved over $ 40,000 on infrastructure costs by the use of LID treatment systems.

- **Holland Joint Venture, LLC –** Bridgewater, Connecticut: Prepared site plan for 28,000 sq.ft. industrial/light assembly use and 140 parking spaces on 10.94 acres. Utilize Environmental Site Design strategies to preserve large portions of site in natural condition, minimize impacts due to site disturbance, and minimize impacts to wetland/watercourse system by access driveway. Designed five Bioretention systems for storm water management and pollutant removal from all impervious areas.

- **Goodhouse Flooring, LLC** – Newtown, Connecticut: Design site to accommodate 8,800 commercial building and associated driveway and parking areas on 1-acre site. Designed eight Bioretention systems to handle runoff from all impervious surfaces. Analyze and demonstrate that State of Connecticut water quality goals will be achieved for the site design.

- **Trade Winds Farm** – Winchester, Connecticut: 24 lot Open space subdivision on 104+ acres of land. Performed all civil engineering design work for project. Notable feature of project is the preservation of 64+ acres of the site as dedicated Open Space. Many LID strategies such as Environmental Site Design, site fingerprinting, volumetric reduction and water quality improvements were incorporated into site design. Storm water treatment systems utilized vegetated basins, vegetated swales with gravel filter berms, emergent marsh, Bioretention systems, linear vegetated level spreader, and meadow filter strips.

- **Northern View Estates** – Sherman, Connecticut: Five lot subdivision with private road. Design has no direct wetland impacts and only minor intrusions into defined 100' upland review area. Low Impact Development systems, such as vegetated swales and Bioretention were used to treat post-development runoff while maintaining existing drainage patterns to the maximum extent possible.

- **Mill River** – New Milford, Connecticut: Designed 14 lot open space subdivision on 68-acre site. Performed all civil engineering services for project. .LID treatment systems such as a permanent pond/emergent marsh system, linear biofiltration swale, and rain gardens were designed for the site.

- **Byron Avenue Cluster Development** – Ridgefield, Connecticut: Seven lot cluster subdivision on 4 acres. The Stormwater management system consisted of a road with no curbs, grassed swales, and constructed wetland with detention to reduce pollutant loads and increases in the peak rate of runoff.

- **The Estates on the Ridge** – Ridgefield, Connecticut: 32 lot open space subdivision on 152+ acres. Over 80 acres of the site will be preserved as Open Space as part of this project. Stormwater will be treated by the use of rain gardens for roof drains, infiltration trenches for footing drains, emergent marsh systems and vegetated swales for conveyance and treatment of road runoff. Designed over 1

mile of proposed road for project. Designed bottomless culverts over several wetlands crossing to minimize direct impact on wetland areas.

- **G & F Rentals, LLC** – Oxford, Connecticut: By utilizing LID stormwater concepts such as grass filter strips, Bioretention in parking islands, Bioretention for roof drains, and infiltration trenches, a total of 54,000 sq.ft. of commercial office space along with 140+ parking spaces was placed on 10-acre site. The project also restored previously degraded inland wetlands on the site.

- **Dauti Construction – Edona Commons** – Newtown, Connecticut: Designed 23-unit affordable housing plan to minimize impacts on delineated wetland areas. Designed three construction wetland systems for the treatment of storm water runoff for water quality renovation.

- **American Dimensions, LLC** – New Milford, Connecticut: Redesigned the storm water treatment systems for a 7-lot residential subdivision. Rain gardens were designed to handle the runoff from all roof areas and proposed driveways. Each rain garden provided the required Water Quality Volume and Groundwater Recharge Volume as specified in the 2004 Storm Water Quality Manual. A Subsurface Gravel Wetland was designed to treat the full Water Quality Volume for runoff from adjacent roads network which drained through the subject property.

- **Molitero Residence** – New Fairfield, CT: Designed five Bioretention systems to mitigate both volumetric increases of runoff and address water quality issues for large building addition to single family residence on Candlewood Lake. Also designed landscape filter strip above lake edge to filter runoff from up gradient lawn area. Bioretention systems fully infiltrated 5" of rain in 24 hours from Hurricane Irene in August of 2011. Project was featured in newsletter of Candlewood Lake Authority to demonstrate the effectiveness of LID treatment systems in a lake environment.

- **Multiple single-family residences** – Design Bioretention systems to mitigate volumetric increases of runoff due to increases of impervious cover on the lot for large building additions and new construction including the reduction of volumetric increases up to the 25-yr event (5.7" of rain in 24 hours).

- **Brookfield DPW Garage/Bethel DPW Garage and Prince of Peace Church (Brookfield)** – Working through a grant obtained by the Housatonic Valley Association design stormwater retrofits using both LID and Conventional approaches to reduced non-point source pollutant loads from each site. Brookfield DPW used Bioretention for roof drains, converted online hydrodynamic separators to off-line configuration, off-line ADS water quality unit and vegetated filter strip. Bethel DPW used Bioretention, Bioswale and two off-line ADS water quality units. Prince of Peace Church used four Bioretention system to treat runoff.

I have presented more than twenty all-day workshops on Low Impact Development for Halfmoon Seminars for continuing education for design professionals since 2010 as well as other workshops on Bioretention and Swale systems. I have presented at many other conferences by ASCE and IECA on LID and similar topics since 2008.