IWWC 1-12-21
Brooklyn Inland Wetlands Commission
P.O. Box 356
Brooklyn, Connecticut 06234

Town of Brooklyn
Inland Wetlands and Watercourses Commission
Regular Meeting Minutes
Virtual Web Ex
January 12, 2021

Call to Order: The meeting was called to order at 6:06 p.m.

Members Present: Jeffrey Arends, Richard Oliverson, James Paquin, Adam Brindamour.

Members Absent: None.

Staff Present: Margaret Washburn, Wetlands Agent, Rick Ives, First Selectman, Audrey Cross-Lussier, Recording Secretary.

Also Present: Norm Thibeault, Killingly Engineering. Bruce Woodis, KWP Associates, Janet Blanchette, J & D Civil Engineers, Joe Szarkowicz, Bill Purcell.

Roll Call: All members stated their name for the record.

Seating of Alternates: None.

Election of Officers:

Chairman: A motion was made by Richard Oliverson to nominate Jeff Arends as Chairman. Jim Paquin seconds this motion. No discussion held. All in favor. The motion passes unanimously.

Vice Chairman: A motion was made by Jeff Arends to nominate Richard Oliverson as Vice Chairman. Jim Paquin seconds this motion. No discussion held. All in favor. The motion passes unanimously.

Public Commentary: None.

Additions to Agenda: None.

Approval of Minutes: Special Meeting Minutes of December 1, 2020. The minutes were approved as written with no changes.

Public Hearings:

1. 081120A Shane Pollock-Applicant/BLB, LLC-Owner, Louise Berry Drive, Map 33, Lot 19, R30 Zone; Construction of 51 Single Family Condominium Units with activity in upland review area.

Norm Thibeault, Killingly Engineering represents the applicant. Mr. Thibeault stated the test pits were excavated. The location and the test pit results were added to the plans. The drainage computations were modified accordingly based on test pits conducted in the area of the percolation of the stormwater basin.

Joe Theroux, Soil Scientist is unable to connect to join the meeting.

Mr. Thibeault has a copy of Mr. Theroux's reports (see attached).

Syl Pauley, PE, NECCOG, questioned if Mr. Theroux was qualified to provide the wetlands impact report and make the statements he made with regards to the wetlands. Mr. Thibeault stated that Mr. Theroux is a licensed soil scientist, certified wetlands enforcement agent in three different towns, he is a certified forester practitioner. Mr. Thibeault has worked with him for about 12 years. His qualifications have never been questioned before. Mr. Thibeault feels Mr. Theroux is well qualified and does quality work.

Mr. Thibeault discussed Syl Pauley, PE, NECCOG revised report dated January 4, 2021 (see attached).

Mr. Thibeault reviewed his responses to Syl Pauley, PE, NECCOG review dated January 4, 2021 (see attached).

Mr. Thibeault reviewed an e-mail received from Alan Carpenter PE on behalf of the Brooklyn Water Pollution Control Authority (see attached).

Mr. Thibeault reviewed the following with Commission Members and discussion ensued:

- Wetlands delineation.
- Test pits and drainage computations.
- Flow of the wetland system, drainage, and wetland impacts.
- Erosion and sedimentation control measures.
- Stormwater basin design and function.
- Maintenance and ownership of stormwater basin.
- Homeowner's Association.
- Discussion of review plan with Connecticut Water.
- Stone swale flag 19 to 33 into stormwater basin.
- Turf reinforcement biodegradable mats.
- Taking off detail on sheet 7 and keeping on sheet 8
- Catch basin hood detail, device keeping floatables out of discharge point. Commission members unanimously agree to have hood on final basin at end.

- Stormwater basin operation and maintenance plan-provided on next set of plans. Commission members unanimously agree to this.
- Mr. Thibeault demonstrated a stormwater basin plan on the screen for members to review. Ms. Washburn requests the following be placed on the plans: lateral cross section on of both temporary and permanent stormwater basins, the shape and size of the outlet and how the temporary and permanent basins will be stabilized. Commission members unanimously agree.

Public Commentary:

William Purcell abutting landowner asks Mr. Thibeault how is the grass going to live in the basin if seasonally wet? Mr. Thibeault commented they will use New England wetland mix, which is a mixture of seed that can tolerate having wet roots and feet, it can tolerate being inundated as well.

Mr. Purcell asked if it is specified what kind of materials are being used in the berm. Mr. Thibeault commented the exterior berm is topsoil but will use silky material in any down gradient portion of the berm that is built up to alleviate the potential to wash/seep through it.

Mr. Purcell asked if this was specified on design plan as he did not see it. Mr. Thibeault will do this on the new plans with the cross section of the basin.

Mr. Purcell asked if he is worried about the piping going thru berm. Mr. Thibeault commented not if it is constructed correctly.

Mr. Purcell asked when did the test pits get dug? Mr. Thibeault stated November 27th. Mr. Purcell saw equipment there on the 25th. Mr. Thibeault checked his personal calendar and stated it was the 27th. Mr. Purcell commented that it was JA Contractors from Woodstock, CT. Mr. Thibeault agreed.

Mr. Oliverson asked if the wetlands enforcement officer witnessed the test pits being done. Mr. Thibeault stated she did not. Mr. Thibeault reviews the plan where the test pits are located. Discussion held.

Chairman Arends opens the floor to the public for any further questions. There were no more questions.

Ms. Washburn asked that the following be placed on the revised plans - The size and shape of the temporary basin; the outlet structure for the same; describe how the temporary basin is going to be temporarily stabilized; cross section of both temporary and permanent basin. Commission members are all in agreement.

Ms. Washburn reviews notes #9 from December 12, 2020 report by Syl Pauley, PE, NECCOG Engineer regarding the temporary basin. Mr. Thibeault discusses this with Ms. Washburn and Commission Members. Discussion held.

Mr. Thibeault asks the Commission if they are going to consider approving the application with conditions. If the Commission is not comfortable approving at this time he will withdraw and resubmit with revised plans.

Commission Members discussed the timeline of the application.

Mr. Thibeault stated he will draft an e mail and send to Ms. Washburn withdrawing the application at this time.

Mr. Thibeault had to leave the meeting due a personal issue.

Adam Brindamour stated he reviewed the WebEx recordings and meeting materials.

A motion was made by Jim Paquin to close the public hearing. Rich Oliverson seconds the motion. No discussion. All in favor. The motion passes unanimously.

Old Business:

1. 081120A Shane Pollock-Applicant/BLB, LLC-Owner, Louise Berry Drive, Map 33, Lot 18, R30 Zone; Construction of 51 Single Family Condominium Units with activity in upland review area.

Chairman Arends stated that per Norm Thibeault's above statement, the application has been withdrawn.

2. Edward L Branciforte: Violation of Inland Wetlands Regulations for 36 Paradise Drive.

Ms. Washburn stated Mr. Branciforte is not in attendance tonight. Ms. Washburn did an inspection on January 5, 2021. She measured the filling of the wetlands with two State Police Officers. There is 25-feet of fill in the wetlands from the approved flags. A citation hearing has been scheduled on January 28, 2021. The DEEP recommended that no matter what happens, the issuance of an enforcement order should be done.

3. 121107A Terence M. Veazie: 117 Tatnic Road (Permit Transferred from George Forson approved November 21, 2017).

Bruce Woodis, KWP Associates represents Mr. Veazie. Mr. Woodis commented that Mr. Veazie contacted him for help with the project. Mr. Woodis stated instead of building the check dam, Mr. Veazie built a small stone wall and supplemented with hay bales and silt fence which were not adequate with the heavy rainstorms. Mr. Woodis told Mr. Veazie that he has to build the dam in accordance with the plans to properly protect the downstream side. Mr. Woodis will stake it out, so Mr. Veazie knows exactly where it needs to be built.

Chairman Arends has visited the site and feels that Mr. Szarkowicz has reason to complain. Chairman Arends feels that Mr. Veazie needs a professional out there to help him build the dam.

Mr. Paquin has visited the site and agrees. Ms. Washburn reviews her concerns. Discussion ensued.

Mr. Szarkowicz voiced his concerns with regards to final grade being fixed as soon as possible.

Chairman Arends is against with lifting the cease-and-desist order. Discussion ensued.

Mr. Woodis commented that Mr. Veazie has understood that he is not going to get anywhere until he complies with the way the plan is designed. Mr. Woodis will guide Mr. Veazie along with this process.

Mr. Paquin asked if Mr. Woodis can recommend a path going forward. Mr. Woodis commented that until this is rectified that the cease and desist not be lifted. Mr. Woodis can recommend to Mr. Veazie that he should get excavating help.

Mr. Brindamour asked Mr. Woodis what his past relationship has been with Mr. Veazie? Mr. Woodis commented that he was once hired in the past to devise a plan and has been rehired again by Mr. Veazie to help him complete the job right with design supervision to meet the IWWC approval. Mr. Brindamour asked how long to get this done? Mr. Woodis assumes that if he wishes to get power to the house it will happen quickly.

Ms. Washburn asked if Mr. Woodis could make recommendations to clean up the driveway. Mr. Woodis can, but he would like to have the KWP engineer look at this and make the recommendations. The engineer will review this week and report to Ms. Washburn. Discussion ensued.

Chairman Arends recommends that the cease-and-desist order remain in place until next month's meeting.

New Business:

1. 011221A Gary McMahon, Woodward Road, Map 10, Lot 25-5, RA Zone; Proposed residential home with driveway, well and septic system.

Bruce Woodis, KWP Associates, represents the applicant. This is an existing parcel of land 3.78 acres with a pond. There is also a brook that runs adjacent to the property. There is a small buildable area on the property, soils are gravelly. Soil testing with NDDH showed no mottling. They are proposing a small house and garage on the lot. The entirety of construction is within the regulated area but is tight to wetlands and watercourse. Department of Health approval has been granted for the plan.

Chairman Arends asked if this application has already been received. Ms. Washburn stated it was received December 23, 2020.

Chairman Arends asked if there will be a full basement? Mr. Woodis stated yes. Chairman Arends asked being so close to the pond, is water a concern in basement?

Mr. Woodis stated there is a lack of high groundwater, there are no mottles, no restrictive layer within the septic system area indicating the ground water table is below test pits. They are proposing to have footing drains around the bottom of the foundation to keep ground water from coming up and away out of the basement. Chairman Arends asked if they will drain to the brook? Mr. Woodis says that is correct, it drops more steeply there then the pond direction.

Chairman Arends is concerned with the tightness of the lot, asks if it is flat? Mr. Woodis stated it is not flat, there is a moderate slope, not steep. There were no further questions from Commission Members.

A motion was made by Jim Paquin to approve application 011221A Gary McMahon, Woodward Road, Map 10, Lot 25-5, RA Zone; Proposed residential home with driveway, well and septic system with standard IWWC conditions. Richard Oliverson seconds the motion. No discussion held. All in favor. The motion passes unanimously.

2. 011221B Pierce Baptist Home, Inc., 44 Canterbury Road, Map 24, Lot 148, VCD Zone; Extend sanitary sewer pipe to existing manhole. No work in wetlands or watercourses. Construction in brook buffer will be complete in one day. Temporary disturbance: no grade changes proposed.

Janet Blanchette from J and D Civil Engineers represents the applicant. Pierce Baptist is in the process of code updates and renovations. The sewage pumping station needs updating. They have the opportunity of constructing a 6-inch PVC gravity sewer line into existing manhole on their own property. The manhole is about 40-feet from Creamery Brook. The pipe is 4-feet deep running across their back lawn from the building and will tie into an existing sanitary manhole.

Chairman Arends asked if this will be a one-day project? Ms. Blanchette stated yes it should be. Chairman Arends asked when will they be doing the project? Ms. Blanchette stated they are hoping to send the project out to bid in the next month or two, assuming it is a summer project.

Ms. Washburn has not reviewed the plan. She has personally worked for J and D Civil Engineers for several years. She asked Town Counsel to weigh in on this. Town Counsel stated to her to let the Commission know and it will be up to the Commission to decide who reviews the project.

Mr. Paquin does not feel there is a concern or conflict. Chairman Arends, Richard Oliverson and Adam Brindamour agree.

Ms. Washburn asked if the project needs to go to Syl Pauley, PE, NECCOG, for review. Commission members stated no.

Richard Oliverson asked to move to duly authorized. Discussion held.

Ms. Washburn will schedule a site walk. Mr. Oliverson will accompany Ms. Washburn. Mr. Oliverson will meet Ms. Washburn on Thursday 1/14/21 at 1:00 p.m. at the back corner south east of the parking lot. Ms. Blanchette will let the facility staff know.

A motion was made by Richard Oliverson for application 011221B Pierce Baptist Home, Inc., 44 Canterbury Road, Map 24, Lot 148, VCD Zone; Extend sanitary sewer pipe to existing manhole. No work in wetlands or watercourses. Construction in brook buffer will be complete in one day. Temporary disturbance: no grade changes proposed to be duly authorized. Jim Paquin seconds this motion. No discussion held. All in favor. The motion passes unanimously.

Communications:

1. Review of Bylaws.

Chairman Arends would like to table the Review of Bylaws to a post COVID meeting.

A motion was made by Jim Paquin to table the Review of Bylaws to a post COVID meeting. Richard Oliverson seconds this motion. No discussion held. All in favor. The motion passes unanimously.

2. Wetlands Agent Monthly Report:

Ms. Washburn reviewed report with Commission Members.

3. Budget Update:

Commission Members reviewed the budget.

Public Commentary: None.

Adjourn: A motion was made by Jim Paquin to adjourn the meeting at 7:52 p.m. Richard Oliverson seconds this motion. No discussion held. All in favor. The motion passes unanimously.

Audrey Cross-Lussier, Recording Secretary

MONITORING

JOSEPH R. THEROUX
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FORESTRY SERVICES ~ ENVIRONMENTAL IMPACT ASSESSMENTS
WETLAND DELINEATIONS AND PERMITTING ~ E&S/SITE
WETLAND FUNCTION/VALUE ASSESSMENTS

5/12/20

KILLINGLY ENGINEERING ASSOCIATES
P.O. BOX 421
DAYVILLE, CT. 06241

RE: WETLAND DELINEATION, BLB LLC. PROPERTY, SCHOOL ST., BROOKLYN, CT.

DEAR MR. GLAUDE,

AT YOUR REQUEST I HAVE DELINEATED THE INLAND WETLANDS AND WATERCOURSE ON THE SUBJECT PROPERTY.

THESE WETLANDS HAVE BEEN DELINEATED IN ACCORDANCE WITH THE STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY AND THE DEFINITIONS OF WETLANDS AND WATERCOURSES AS FOUND IN THE CONNECTICUT STATUTES, CHAPTER 440, SECTION 22A-38.

FLUORESCENT PINK FLAGS WITH A CORRESPONDING LOCATION NUMBER DELINEATE THE BOUNDARY BETWEEN THE WETLAND AND UPLAND SOILS.

FLAG SERIES WF- 1 THROUGH WF- 53 DELINEATE A PALUSTRINE FORESTED WETLAND ON THE SOUTHERN PORTION OF THE PROPERTY. AN INTERMITTENT WATERCOURSE FLOWS THROUGH THIS WETLAND AND FLOWS WERE NOTED AT THE DATE OF THE DELINEATION, (12/28/15 AND 5/4/20). HYDROLOGY INPUTS INTO THE WATERCOURSE INCLUDE AN INTERMITTENT WATERCOURSE THAT HAS FORMED FROM STORM WATER FLOWS FROM SCHOOL STREET, (WETLAND FLAGS WF-1-1 THROUGH WF-10-1), AS WELL AS GROUND WATER BREAKOUT, AND RUNOFF FROM ADJACENT TOPOGRAPHY. THIS WATERCOURSE WAS NOT FLOWING ON THE DATES OF THE DELINEATIONS, (12/28/15 AND 5/4/20).

FLAG SERIES WF-1A THROUGH WF-51A DELINEATE THE SOUTHERN BOUNDARY OF THE SAME FORESTED WETLAND AND INTERMITTENT WATERCOURSE. AN INTERMITTENT WATERCOURSE ALSO FLOWS INTO THIS WETLAND FROM THE STORM WATER DRAINAGE SYSTEM ASSOCIATED WITH FRANKLIN DRIVE, A PORTION OF WHICH IS DELINEATED BY WETLAND FLAGS WF-15A THROUGH WF-20A. THIS WATERCOURSE WAS NOT FLOWING ON THE DATES OF THE DELINEATIONS, (12/28/15 AND 5/4/20).

THESE WETLAND SOILS THAT HAVE FORMED AS A RESULT OF SHALLOW WATER TABLES CREATED FROM GROUNDWATER HYDROLOGY FROM THE ADJACENT HILLSIDES. GROUNDWATER BREAKOUT WAS NOTED AT THE TOE OF SLOPE ON THE ADJACENT HILLSIDES.

THESE WETLAND SOILS ARE CHARACTERIZED BY SHALLOW REDOXIMORPHIC FEATURES AND LOW CHROMA COLORS WITHIN 20 INCHES OF THE SOIL SURFACE.

IT SHOULD ALSO BE NOTED THAT FLOODPLAIN SOILS WERE FOUND ADJACENT TO THE LARGER WATERCOURSE FLOWING THROUGH THE WETLAND.

IN CONCLUSION, IF YOU HAVE ANY QUESTIONS CONCERNING THE DELINEATION OR THIS REPORT, PLEASE FEEL FREE TO CONTACT ME.

THANK YOU,

Joseph R. Theroux

JOSEPH R. THEROUX
CERTIFIED SOIL SCIENTIST
MEMBER SSSSNE, NSCSS, SSSA.

MONITORING

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WETLAND FUNCTION & VALUE ASSESSMENTS

9/23/20

Killingly Engineering Associates
P.O. Box 421
Dayville, CT. 06241

Re: Wetland function/value and impact assessment report for the proposed site development for Shane Pollock, Louise Berry Drive, Brooklyn, Connecticut.

Dear Mr. Thibeault,

At your request, I have reviewed the site plans entitled: "PROPOSED MULTI- FAMILY DEVELOPMENT, LOUISE BERRY DRIVE BROOKLYN, CONNECTICUT. PREPARED FOR SHANE POLLOCK, dated April 23, 2020, revised to August 24, 2020 and the above referenced property for the purposes of assessing the wetland functions and values and potential impacts to the inland wetlands and watercourses in proximity to the proposed housing development.

The wetland function and value assessment was conducted on 9/22/2020.

Existing Conditions

The property is 13.497 acres in size and is located on the south side of Louise Berry Drive, in Brooklyn, CT.

The majority of the parcel is comprised of uplands, with gentle to moderate slopes and gravelly, well drained soils. The southern portion of the property is occupied by a large palustrine forested/scrub-shrub wetland & watercourse complex and adjacent forested uplands along the southern property line.

Upland Review Areas

The 125 foot upland review area around the delineated forested/scrub-shrub wetland/watercourse is vegetated in the overstory with a mix of white pine and mixed hardwoods in the sawtimber and polewood size classes. The mixed hardwoods include white, black and scarlet oaks, hickory, black birch and red maple.

The site was heavily logged several years ago resulting in the removal of the majority of the overstory. This increase in light has released the understory saplings, shrub and herbaceous species resulting in a very dense understory, especially in and adjacent to the wetlands.

This densely vegetated understory is comprised of polewood and saplings in these species as well as shrub species such as, spicebush, winterberry, Japanese barberry, multiflora rose and highbush blueberry. Herbaceous vegetation includes numerous fern species, goldenrod, black raspberry and miscellaneous grasses.

Wetlands

A palustrine forested/scrub-shrub wetland with 2 watercourses were delineated in the southern and eastern portions of the property. (See wetland delineation report).

One intermittent watercourse flows to the south along the eastern property boundary. The only source of hydrology for the watercourse is from storm water discharges from the impervious surfaces associated with the school, and from Louise Berry Drive.

The other watercourse, (Anderson Brook), flows onto the property in the southeast property corner, and joins with the eastern watercourse. It then flows to the west off the parcel along the western property line. Storm water discharges from Franklin Drive enter the wetlands and watercourse on the southern property line.

The wetlands and watercourses were inundated on the date of the delineation, (12/28/15 and 5/4/20). On the date of the assessment, (9/22/2020), the wetlands were not inundated nor were the watercourses flowing, however a few small pockets were inundated within the watercourse, due to perched water trapped in depressions.

It should also be noted that floodplain soils were found adjacent to Anderson Brook which flows to the west off the parcel.

The majority of this wetland/watercourse is densely vegetated with red maple, white oak, white ash and elm in the overstory, and in the understory saplings and typical wetland shrub species such as highbush blueberry, speckled alder, arrowwood, sweet pepperbush, winterberry and spicebush. Other species included Japanese barberry, multiflora rose, grapevines and bittersweet.

Herbaceous vegetation included sphagnum moss, sensitive, Christmas, interrupted, hay scented, lady & cinnamon ferns, black raspberry, sedges, rushes, skunk cabbage, goldenrod, jewelweed and misc. grasses.

Wildlife tracks/sign found and directly observed in and adjacent to the wetland/watercourse included mammals and bird species such as: white tailed deer, eastern coyote, red fox, raccoon gray & red squirrels, red tailed hawk, American crow, red wing blackbird, and numerous songbird species.

Amphibians found included green and pickerel frogs. Undoubtedly, this wetland complex serves as habitat to numerous reptile and amphibian species.

I am uncertain if a fish population exists within Anderson Brook, due to its shallow average depths and status as intermittent. I do not believe it is possible for fish to inhabit the eastern intermittent watercourse due to its steep, rocky slope, intermittent nature and poor water quality due to the untreated, non-attenuated storm water discharges that severely erode the stream channel during significant storm events.

Wetland Functions and Values

The forested/scrub-shrub wetland and watercourse(s), were inspected to determine wetland functions and values utilizing the Army Corps. Of Engineers methodology as outlined in "The Highway Methodology Workbook Supplement".

This methodology recognizes 8 separate wetland functions: groundwater recharge/discharge, floodflow alteration/storage, fish/shellfish habitat, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation, production export, sediment/shoreline stabilization and wildlife habitat. The 4 wetland values include: recreational value, educational/scientific value, uniqueness/heritage value and threatened/endangered species habitat.

For each wetland function or value to be determined, 2 to 31 different considerations/or qualifiers are considered as rationale to apply or eliminate that specific function or value.

Palustrine forested/scrub-shrub wetland & Anderson Brook functions:

The following is a list of the wetland functions exhibited by this wetland/watercourse and their descriptions:

Ground water recharge: Ground water recharge function is possible due to the perched water table being trapped in small inundated pockets within the wetlands and slowly infiltrating during dry season. Anderson Brook stream flows off the property diminishes this function.

Sediment/toxicant retention: Dense herbaceous vegetation, shrubs and flat topography in the wetlands can effectively trap sediments/toxicants from surface flows from the adjacent topography. Although with no current sources of sediments or toxicants present, this wetland has little opportunity to provide this function.

Nutrient removal/retention: Herbaceous and shrub vegetation in the wetlands can effectively trap and utilize potential nutrients before reaching watercourses. Nitrogen fixing bacteria in wetland soils also trap nitrogen. Although with no current sources of nutrients present, this wetland has little opportunity to provide this function.

Production export: numerous tree, shrub and herbaceous plant species in the wetlands provide food, berries and seeds for wildlife. Invertebrates and amphibians provide food for birds and mammals.

Sediment and shoreline stabilization: Roots from herbaceous grasses and plants, shrub species and trees found in wetlands adjacent to the watercourses help bind and stabilize soils which helps prevent erosion along steeper edges of wetlands and streambanks.

Wildlife habitat: Numerous amphibians, reptile, mammal, and bird species inhabit this wetland and watercourse complex. The wetland and upland riparian zones adjacent to the wetland serve as wildlife habitat. Wildlife habitat is the primary function of this wetland.

This wetland did not exhibit the wetland functions of fish habitat nor floodflow alteration due to the lack of significant deep-water habitat areas capable of sustaining fish or storing flood waters.

Palustrine forested scrub-shrub wetland & Anderson Brook values

The following wetland values were exhibited by this wetland/watercourse:

Recreation: This wetland/watercourse complex holds the potential for active or passive recreational opportunities such as hiking, hunting or viewing of wildlife, although with no public access on this property, this wetland has little opportunity to provide this value.

Educational/scientific value: this wetland/watercourse is relatively undisturbed, contains multiple wetland classes, and is considered as valuable wildlife habitat, although with no public access on this property, this wetland has little opportunity to provide this value.

Uniqueness/heritage value: this wetland/watercourse serves an important role in the ecological system of the area, it is a typical wetland class for the area, and serves as valuable wildlife habitat.

Visual/aesthetic value: the wetland/watercourse is visible from multiple viewing locations due to its position in the landscape, it contains a diversity of vegetation that turns vibrant colors during different seasons, it is considered valuable wildlife habitat, and is not significantly disturbed.

This wetland/watercourse did not exhibit the value of threatened/endangered species habitat as the site was not shown within the shaded areas on the current natural diversity database maps.

Potential wetland impacts

The project plans and site were reviewed to assess the potential impacts to the wetlands from the proposed parking area expansion.

On this parcel, a 51-unit development is proposed with an access road/cul de sac, utilities, water, sanitary sewer & storm water discharge/treatment systems.

Along the southern limits of the development, a 3:1 slope or less is proposed as shown on the site plan.

The clearing limits and E&S measures shown on the plans vary from approx. 120 feet in width to immediately adjacent to the wetlands.

The topsoil stockpile is shown a considerable distance from the wetlands and silt fencing is shown along its downslope perimeter.

A two-bay grassed storm water basin is proposed to remove sediments and attenuate storm water flows before discharge.

E&S Measures:

The submitted project plans show the proposed E&S measures around the perimeter of the clearing limits adjacent to the wetlands as silt fencing.

It should be noted that the proposed storm water treatment basin and swale are proposed to be utilized as a temporary sediment basin during construction to prevent potential sediment discharges from reaching the wetlands.

Jute netting is proposed to help hold and establish vegetation on steeper slopes.

It would be my recommendation that the E&S measures be installed as soon as possible after the initial timber cutting/land clearing and before the stumping and topsoil removal operation. It is during this phase where the most likely opportunity will occur for erosion and sedimentation. In the northeast area the existing slopes adjacent to the wetlands/watercourse are moderate, and the excavation, filling and grading are proposed directly adjacent to the wetlands.

Along the portions of the clearing limits within 75 feet of the wetlands, I would recommend either super silt fencing or silt fencing backed by staked hay bales should be proposed and implemented. The silt fencing will also prevent reptiles and amphibians from entering the development areas.

Silt fencing should be shown along wetland flags WF-37 to WF-39 for the excavation/installation of the rip rap level spreader and pipe.

I would also recommend that E&S inspections be conducted on a frequent basis during the land clearing/stumping/topsoil stripping phases, and prior to significant storm events.

Direct wetland impacts:

No direct wetland or watercourse disturbance is proposed.

Potential short-term impacts:

The potential short-term impacts associated with the land clearing, stumping, top soil stripping and construction would be limited to potential sediment discharges during significant storm events.

Provided that the proposed/recommended E&S measures/inspections are correctly implemented and maintained throughout the project timeframe, the disturbance directly adjacent to the wetlands will not significantly impact the wetlands or their existing functions due to erosion and sedimentation. Once the top soils are removed, the well-drained, sandy/gravelly soils will allow for good infiltration of storm water runoff both pre and post construction.

The quick and permanent establishment of vegetation in the disturbed areas is crucial to the prevention of erosion. To minimize the potential for these impacts, E&S control measures have been incorporated into the project plans on sheet 7 of 9.

Potential long-term impacts:

Wetland hydrology

I see no direct or long-term impacts to the wetland/watercourse hydrology as a result of the proposed development, or storm water treatment basin. The storm water associated with the access drives, parking areas and the impervious surfaces, (roof areas), will be a significant input to the existing hydrology, through some minor overland flow, but mostly through the storm water basin, impervious grass & rip rap swale, as ground water recharge or as direct discharge during significant storm events after treatment. It is my opinion that these inputs from the impervious surfaces will augment the existing hydrology.

Currently, the storm water associated with the school storm water system, Louise Berry Drive and Franklin Drive and ground water discharge are all inputs into the hydrology of Anderson Brook and the wetlands. These inputs will not change as a result of the construction of the development.

It should be noted that currently the sources of hydrology for the wetlands/watercourses are ground water, off site stream and storm water flows, minor overland storm water & precipitation flows and a small measure of direct infiltration through the well-drained gravelly soils within the upland areas adjacent to the wetlands.

Water quality:

Due to the incorporation of the paved parking surfaces, rip rap and grass lined water swales, the 2-bay grassed storm water treatment basin, rain garden, and some direct infiltration of storm water in the well-drained, sandy, gravelly soils, I see no significant or adverse impacts to the existing water quality of the wetlands or Anderson Brook from storm water discharges.

Adjacent upland wildlife habitat

Potential long-term impacts to the upland habitat from the project would include the loss of a significant portion of the URA serving as riparian zones and upland wildlife habitat adjacent to the wetlands and brook corridor. This intrusion will force wildlife into the vegetated corridor in and around the wetlands and brook, during and after the construction timeframe, and into other areas where the uplands are not disturbed.

The remaining non-developed southern portion of the property below the development varies in width from 100 feet to 270 feet in width, within this area, the wetlands and adjacent upland riparian zones will still provide for all of the wetland functions/values and significant wildlife habitat.

In summary, the design of the project implements features intended to minimize or eliminate potential impacts to the wetlands such as storm water runoff, significant loss of wetland and watercourse habitats, and erosion and sedimentation associated with construction activities.

I feel these proposed measures are adequate to protect the wetlands provided that the recommended erosion and sedimentation control features are implemented and maintained throughout the development timeframe.

The existing wetlands and watercourses will still have the ability to provide the same wetland functions and values they currently provide.

If you have any questions concerning the site assessment or this report, please feel free to contact me.

Sincerely,

Joseph R. Theroux

Joseph R. Theroux
Certified Forester and Soil Scientist
Member SSSSNE, SSSA

MONITORING

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WETLAND FUNCTION & VALUE ASSESSMENTS

9/23/20

Killingly Engineering Associates
P.O. Box 421
Dayville, CT. 06241

Re: Wetland function/value and impact assessment report for the proposed site development for Shane Pollock, Louise Berry Drive, Brooklyn, Connecticut.

Dear Mr. Thibeault,

At your request, I have reviewed the site plans entitled: "PROPOSED MULTI- FAMILY DEVELOPMENT, LOUISE BERRY DRIVE BROOKLYN, CONNECTICUT. PREPARED FOR SHANE POLLOCK, dated April 23, 2020 and the above referenced property for the purposes of assessing the wetland functions and values and potential impacts to the inland wetlands and watercourses in proximity to the proposed housing development.

The wetland function and value assessment was conducted on 9/22/2020.

Existing Conditions

The property is 13.497 acres in size and is located on the south side of Louise Berry Drive, in Brooklyn, CT.

The majority of the parcel is comprised of uplands, with gentle to moderate slopes and gravelly, well drained soils. The southern portion of the property is occupied by a large palustrine forested/scrub-shrub wetland & watercourse complex and adjacent forested uplands along the southern property line.

Upland Review Areas

The 125 foot upland review area around the delineated forested/scrub-shrub wetland/watercourse is vegetated in the overstory with a mix of white pine and mixed hardwoods in the sawtimber and polewood size classes. The mixed hardwoods include white, black and scarlet oaks, hickory, black birch and red maple.

The site was heavily logged several years ago resulting in the removal of the majority of the overstory. This increase in light has released the understory saplings, shrub and herbaceous species resulting in a very dense understory, especially in and adjacent to the wetlands.

This densely vegetated understory is comprised of polewood and saplings in these species as well as shrub species such as, spicebush, winterberry, Japanese barberry, multiflora rose and highbush blueberry. Herbaceous vegetation includes numerous fern species, goldenrod, black raspberry and miscellaneous grasses.

Wetlands

A palustrine forested/scrub-shrub wetland with 2 watercourses were delineated in the southern and eastern portions of the property. (See wetland delineation report).

One intermittent watercourse flows to the south along the eastern property boundary. The only source of hydrology for the watercourse is from storm water discharges from the impervious surfaces associated with the school, and from Louise Berry Drive.

The other watercourse, (Anderson Brook), flows onto the property in the southeast property corner, and joins with the eastern watercourse. It then flows to the west off the parcel along the western property line. Storm water discharges from Franklin Drive enter the wetlands and watercourse on the southern property line.

The wetlands and watercourses were inundated on the date of the delineation, (12/28/15 and 5/4/20). On the date of the assessment, (9/22/2020), the wetlands were not inundated nor were the watercourses flowing, however a few small pockets were inundated within the watercourse, due to perched water trapped in depressions.

It should also be noted that floodplain soils were found adjacent to Anderson Brook which flows to the west off the parcel.

The majority of this wetland/watercourse is densely vegetated with red maple, white oak, white ash and elm in the overstory, and in the understory saplings and typical wetland shrub species such as highbush blueberry, speckled alder, arrowwood, sweet pepperbush, winterberry and spicebush. Other species included Japanese barberry, multiflora rose, grapevines and bittersweet.

Herbaceous vegetation included sphagnum moss, sensitive, Christmas, interrupted, hay scented, lady & cinnamon ferns, black raspberry, sedges, rushes, skunk cabbage, goldenrod, jewelweed and misc. grasses.

Wildlife tracks/sign found and directly observed in and adjacent to the wetland/watercourse included mammals and bird species such as: white tailed deer, eastern coyote, red fox, raccoon gray & red squirrels, red tailed hawk, American crow, red wing blackbird, and numerous songbird species.

Amphibians found included green and pickerel frogs. Undoubtedly, this wetland complex serves as habitat to numerous reptile and amphibian species.

I am uncertain if a fish population exists within Anderson Brook, due to its shallow average depths and status as intermittent. I do not believe it is possible for fish to inhabit the eastern intermittent watercourse due to its steep, rocky slope, intermittent nature and poor water quality due to the untreated, non-attenuated storm water discharges that severely erode the stream channel during significant storm events.

Wetland Functions and Values

The forested/scrub-shrub wetland and watercourse(s), were inspected to determine wetland functions and values utilizing the Army Corps. Of Engineers methodology as outlined in "The Highway Methodology Workbook Supplement".

This methodology recognizes 8 separate wetland functions: groundwater recharge/discharge, floodflow alteration/storage, fish/shellfish habitat, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation, production export, sediment/shoreline stabilization and wildlife habitat. The 4 wetland values include: recreational value, educational/scientific value, uniqueness/heritage value and threatened/endangered species habitat.

For each wetland function or value to be determined, 2 to 31 different considerations/or qualifiers are considered as rationale to apply or eliminate that specific function or value.

Palustrine forested/scrub-shrub wetland & Anderson Brook functions:

The following is a list of the wetland functions exhibited by this wetland/watercourse and their descriptions:

Ground water recharge: Ground water recharge function is possible due to the perched water table being trapped in small inundated pockets within the wetlands and slowly infiltrating during dry season. Anderson Brook stream flows off the property diminishes this function.

Sediment/toxicant retention: Dense herbaceous vegetation, shrubs and flat topography in the wetlands can effectively trap sediments/toxicants from surface flows from the adjacent topography. Although with no current sources of sediments or toxicants present, this wetland has little opportunity to provide this function.

Nutrient removal/retention: Herbaceous and shrub vegetation in the wetlands can effectively trap and utilize potential nutrients before reaching watercourses. Nitrogen fixing bacteria in wetland soils also trap nitrogen. Although with no current sources of nutrients present, this wetland has little opportunity to provide this function.

Production export: numerous tree, shrub and herbaceous plant species in the wetlands provide food, berries and seeds for wildlife. Invertebrates and amphibians provide food for birds and mammals.

Sediment and shoreline stabilization: Roots from herbaceous grasses and plants, shrub species and trees found in wetlands adjacent to the watercourses help bind and stabilize soils which helps prevent erosion along steeper edges of wetlands and streambanks.

Wildlife habitat: Numerous amphibians, reptile, mammal, and bird species inhabit this wetland and watercourse complex. The wetland and upland riparian zones adjacent to the wetland serve as wildlife habitat. Wildlife habitat is the primary function of this wetland.

This wetland did not exhibit the wetland functions of fish habitat nor floodflow alteration due to the lack of significant deep-water habitat areas capable of sustaining fish or storing flood waters.

Palustrine forested scrub-shrub wetland & Anderson Brook values

The following wetland values were exhibited by this wetland/watercourse:

Recreation: This wetland/watercourse complex holds the potential for active or passive recreational opportunities such as hiking, hunting or viewing of wildlife, although with no public access on this property, this wetland has little opportunity to provide this value.

Educational/scientific value: this wetland/watercourse is relatively undisturbed, contains multiple wetland classes, and is considered as valuable wildlife habitat, although with no public access on this property, this wetland has little opportunity to provide this value.

Uniqueness/heritage value: this wetland/watercourse serves an important role in the ecological system of the area, it is a typical wetland class for the area, and serves as valuable wildlife habitat.

Visual/aesthetic value: the wetland/watercourse is visible from multiple viewing locations due to its position in the landscape, it contains a diversity of vegetation that turns vibrant colors during different seasons, it is considered valuable wildlife habitat, and is not significantly disturbed.

This wetland/watercourse did not exhibit the value of threatened/endangered species habitat as the site was not shown within the shaded areas on the current natural diversity database maps.

Potential wetland impacts

The project plans and site were reviewed to assess the potential impacts to the wetlands from the proposed parking area expansion.

On this parcel, a 51-unit development is proposed with an access road/cul de sac, utilities, water, sanitary sewer & storm water discharge/treatment systems.

Along the southern limits of the development, a 3:1 slope or less is proposed as shown on the site plan.

The clearing limits and E&S measures shown on the plans vary from approx. 120 feet in width to immediately adjacent to the wetlands.

The topsoil stockpile is shown a considerable distance from the wetlands and silt fencing is shown along its downslope perimeter.

A two-bay grassed storm water basin is proposed to remove sediments and attenuate storm water flows before discharge.

E&S Measures:

The submitted project plans show the proposed E&S measures around the perimeter of the clearing limits adjacent to the wetlands as silt fencing.

It should be noted that the proposed storm water treatment basin and swale are proposed to be utilized as a temporary sediment basin during construction to prevent potential sediment discharges from reaching the wetlands.

Jute netting is proposed to help hold and establish vegetation on steeper slopes.

It would be my recommendation that the E&S measures be installed as soon as possible after the initial timber cutting/land clearing and before the stumping and topsoil removal operation. It is during this phase where the most likely opportunity will occur for erosion and sedimentation. In the northeast area the existing slopes adjacent to the wetlands/watercourse are moderate, and the excavation, filling and grading are proposed directly adjacent to the wetlands.

Along the portions of the clearing limits within 75 feet of the wetlands, I would recommend either super silt fencing or silt fencing backed by staked hay bales should be proposed and implemented. The silt fencing will also prevent reptiles and amphibians from entering the development areas.

Silt fencing should be shown along wetland flags WF-37 to WF-39 for the excavation/installation of the rip rap level spreader and pipe.

I would also recommend that E&S inspections be conducted on a frequent basis during the land clearing/stumping/topsoil stripping phases, and prior to significant storm events.

Direct wetland impacts:

No direct wetland or watercourse disturbance is proposed.

Potential short-term impacts:

The potential short-term impacts associated with the land clearing, stumping, top soil stripping and construction would be limited to potential sediment discharges during significant storm events.

Provided that the proposed/recommended E&S measures/inspections are correctly implemented and maintained throughout the project timeframe, the disturbance directly adjacent to the wetlands will not significantly impact the wetlands or their existing functions due to erosion and sedimentation. Once the top soils are removed, the well-drained, sandy/gravelly soils will allow for good infiltration of storm water runoff both pre and post construction.

The quick and permanent establishment of vegetation in the disturbed areas is crucial to the prevention of erosion. To minimize the potential for these impacts, E&S control measures have been incorporated into the project plans on sheet 7 of 9.

Potential long-term impacts:

Wetland hydrology

I see no direct or long-term impacts to the wetland/watercourse hydrology as a result of the proposed development, or storm water treatment basin. The storm water associated with the access drives, parking areas and the impervious surfaces, (roof areas), will be a significant input to the existing hydrology, through some minor overland flow, but mostly through the storm water basin, impervious grass & rip rap swale, as ground water recharge or as direct discharge during significant storm events after treatment. It is my opinion that these inputs from the impervious surfaces will augment the existing hydrology.

Currently, the storm water associated with the school storm water system, Louise Berry Drive and Franklin Drive and ground water discharge are all inputs into the hydrology of Anderson Brook and the wetlands. These inputs will not change as a result of the construction of the development.

It should be noted that currently the sources of hydrology for the wetlands/watercourses are ground water, off site stream and storm water flows, minor overland storm water & precipitation flows and a small measure of direct infiltration through the well-drained gravelly soils within the upland areas adjacent to the wetlands.

Water quality:

Due to the incorporation of the paved parking surfaces, rip rap and grass lined water swales, the 2-bay grassed storm water treatment basin, rain garden, and some direct infiltration of storm water in the well-drained, sandy, gravelly soils, I see no significant or adverse impacts to the existing water quality of the wetlands or Anderson Brook from storm water discharges.

Adjacent upland wildlife habitat

Potential long-term impacts to the upland habitat from the project would include the loss of a significant portion of the URA serving as riparian zones and upland wildlife habitat adjacent to the wetlands and brook corridor. This intrusion will force wildlife into the vegetated corridor in and around the wetlands and brook, during and after the construction timeframe, and into other areas where the uplands are not disturbed.

The remaining non-developed southern portion of the property below the development varies in width from 100 feet to 270 feet in width, within this area, the wetlands and adjacent upland riparian zones will still provide for all of the wetland functions/values and significant wildlife habitat.

In summary, the design of the project implements features intended to minimize or eliminate potential impacts to the wetlands such as storm water runoff, significant loss of wetland and watercourse habitats, and erosion and sedimentation associated with construction activities.

I feel these proposed measures are adequate to protect the wetlands provided that the recommended erosion and sedimentation control features are implemented and maintained throughout the development timeframe.

The existing wetlands and watercourses will still have the ability to provide the same wetland functions and values they currently provide.

If you have any questions concerning the site assessment or this report, please feel free to contact me.

Sincerely,

Joseph R. Theroux

Joseph R. Theroux
Certified Forester and Soil Scientist
Member SSSSNE, SSSA

NORTHEASTERN CONNECTICUT COUNCIL OF GOVERNMENTS

ENGINEERING PLAN REVIEW
PERTAINING TO
PROPOSED MULTI-FAMILY DEVELOPMENT
(ASSESSOR'S MAP 38, LOT 22)
LOUISE BERRY DRIVE
BROOKLYN, CT

(July 22, 2020)

(Comments in black are the Regional Engineer's original July 22, 2020 review comments.)
(Comments regarding Killingly Engineering Associates' [KEA] response to Regional Engineer's July 22, 2020 comments and pertaining to their revised plans are in red)
(Comments in green are Regional Engineer's December 12, 2020 review of KEA's revised plans with revision date of December 7, 2020)
(Comments in blue are Regional Engineer's January 6, 2021 review comments of KEA's revised plans with revision date of January 4, 2021)

My comments are meant to serve both the Inland Wetlands and Watercourses Commission and the Planning and Zoning Commission, as they apply to each commission. Most recent Town of Brooklyn Zoning, Subdivision and Wetlands Regulations, and Public Improvement Specifications were researched for this review as well as the incorporation of sound engineering principles and judgment, which may not be specifically elaborated on in said regulations, into the overall design of the project.

Sheet 2 of 8 – Property Survey (revised plan, Sheet 2 of 9)

1. The soil scientist's signature block is missing.

   The signature block for the soil scientist has been added to the plan.

   No further comment is necessary.

Sheet 3 of 8 – Site Plan (revised plan, Sheet 3 of 9)

1. Type of curbing and their radii around the islands in front of the dwelling units is not noted.

   The revised plans now show the type of curbing and radii.

   No further comment is necessary.

2. Recommend sidewalk sidewalks be 5' wide with a 2' wide grass snow shelf between the curb and edge of sidewalk. The proposed sidewalk design will have them more impacted during winter snow removal operations. There is sufficient space to push the walks back and make them wider.

   The revised plans now call for a 5' wide sidewalk with 2' snow shelf.

No further comment is necessary.

3. If school age children will be living here, it is recommended that sidewalks be installed along Louise Berry Drive opposite the school grounds.

   KEA states that no sidewalks are proposed for Louise Berry Drive. I still believe sidewalks should be constructed due to increased traffic on this road and the possibility of school age children living in the proposed condominium development.

   No further comment is necessary. **However, a decision on the practical need for this is up to the Commission.**

   The "green" comment still applies.

4. There is no indication on the plans of the number of bedrooms in each dwelling unit. The number of bedrooms can be used to calculate sewage flow.

   KEA states that each unit will have 2 bedrooms.

   No further comment is necessary.

5. There appears to be one (1) exterior parking space for each dwelling unit. Is there to be a parking garage in each unit to provide at least one (1) additional space?

   KEA states that each unit will have a garage for one (1) parking space.

   No further comment is necessary.

6. In front of Units 1-3, the plan shows that a "block retaining wall" is to be constructed opposite the units. Is this to be the Versa-Lok unreinforced retaining wall depicted on Sheet 8 of 8? If so, it should be labeled as such. Also, how are vehicles going to be prevented from driving over the top of the wall because there is no railing or fence shown to be installed to prevent this?

   The revised plans now indicate that the wall will be a Versa-Lok product and a guide rail has been added to the top of the wall.

   No further comment is necessary.

7. All units except Units 1-3 show curbing around a parking area perimeter and a lawn space adjacent to the unit driveways. Why has this exception been made?

   The revised plans now indicate a curbing around lawn spaces for Units 1-3.

   No further comment is necessary.

8. The guide rail symbol opposite the end of Unit 3 should be labeled.

   The revised plans now include the label.

   No further comment is necessary.

9. A 28,000 s.f. "recreation area" is to be located to the west of Units 47-51. What constitutes a "recreation area?" Furthermore, a significant portion of it (about 50%) is impacted by a proposed temporary sedimentation basin (see Sheet 5 of 8) and an access right-of-way in favor of the Town of Brooklyn. Will the "recreation area" be impacted by the right-of-way because the right-of-way cannot be encumbered in any way? This area, too, will be partially denuded of native vegetation due to construction of the temporary sedimentation basin and subsequent restoration of the land where it was located.

   KEA states that the recreation area is for passive recreation and that the temporary sedimentation basin after having served its purpose during construction will be removed and that area restored at the completion of the project. It is also stated that the access easement will not be impacted. However, the revised plans show a temporary soil stockpile where the previous plans showed the temporary sedimentation basin and due to the proposed grading it is hard to imagine that the access easement will not be impacted in some way, especially with the movement of heavy construction equipment. Additionally, the silt fence should be moved further away from the perimeter of the stockpile to allow for more efficient movement of heavy equipment, however, I believe this will require fencing installed across the easement causing some kind of impact. Has the Town of Brooklyn been notified of this and will that be allowed on a temporary basis?

   The "red" comment regarding the silt fence location around the stockpile has not been addressed on the plan.

   The "green" comment has been addressed, no further comment is necessary.

10. The steepest created slopes throughout the project should be clearly identified as 3H:1V (max.) so there is no question on how they should be graded.

    KEA states that slopes have been labeled in some areas. However, I recommend that every location where there is to be proposed reshaping of the land be labeled with a slope designation (H:V) so that the site contractor will have no question as to how to shape the slopes the way the designer intended them to be. Also, the revised plans include a note stating "*provide jute netting or turf reinforcement mat*," but only in one location. This note should be placed at every location where newly constructed slopes will be steeper than 3H:1V.

    The original comment has been addressed and no further comment is necessary.

Sheet 4 of 8 – Layout and Landscaping Plan (revised plan, Sheet 4 of 9)

11. There is a "Light Pole Detail" on this plan, however, there is no indication where the light poles are to be located within the project area or the routing of the electrical system needed to power them.

    Streetlight poles have been added to the revised plan. However, it still remains a question as to how the underground electrical service will be installed and where its originating source is located. Additionally, if there are to be ground mounted power transformers and telephone and CATV junction boxes/pedestals, they should be shown on the plan, too.

    The "red" comment has been addressed and no further comment is necessary.

12. A portion of the area west of Units 47-51 will be disturbed from the construction of a temporary sedimentation basin. A landscaping plan is needed for restoration of this area, too, but nothing has been shown on the plan.

Revised plan Sheet 5 of 9 indicates that there will be a temporary stockpile, not a temporary sedimentation basin, and on Sheet 4 of 9 there is a note stating *"provide New England erosion control restoration mix in this area where temporary sedimentation basin will be utilized during construction."* However, this note should be revised to read "temporary stockpile."

The "red" comment has not been addressed.

The "green" comment has been addressed, no further comment is necessary.

13. It would seem appropriate to soften the view of the gravel maintenance access driveway, which is located adjacent to the stormwater basin, from the housing units with landscaping consisting of trees and shrubs.

On revised plan Sheet 5 of 9, landscaping consisting of eight (8) Leatherleaf Viburnum has been added to provide a visual buffer to the stormwater basin for several of the closet dwelling units.

No further comment is necessary.

Sheet 5 of 8 – Drainage and Utilities Plan (revised plan, Sheet 5 of 9)

1. Catch basin information is missing, i.e. type of catch basin, top of frame elevation, pipe invert elevations (in – out), roadway centerline stationing position and offset (RT or LT) from the centerline station.

The requested catch basin data is now included in the plans and located on the new Road Profile plan, Sheet 6 of 9. Incidentally, the title of this sheet should be changed to "Road Profile," as it is not a "Drainage and Utilities Plan." Also, the profile for STA 8+50 thru 10+00 should be moved to the left and joined to the profile for STAs 4+50 – 8+00 at the appropriate elevation line.

The "red" comment has not been addressed. Also, the catch basins are drawn incorrectly with 2' deep sumps and must be revised to indicate 4' deep sumps, and Note 3 under "Drainage Notes" needs to be corrected to state that all catch basin sumps shall be 4' deep.

The profile for STA 8+50 thru 10+00 has not been joined to STA 4+50 thru 8+00 as requested. The "green" comment has been addressed.

2. Drainage system pipe information is missing, i.e. type of pipe material, diameter, length, and slope.

The requested drainage pipe data is now included in the plans and located on the new Road Profile plan, Sheet 6 of 9.

No further comment is necessary.

3. The type of pipe to be used for the 8" roof leaders has not been specified nor the minimum slope to the connection at a catch basin. Detectable warning tape should be used over the pipe if it is not made from a ferrous material.

On Sheet 5 of 9 a note has been included stating the roof leader size and pipe material. A minimum slope has not been noted and no construction detail has been included in the plan set showing trench width, pipe, minimum depth of bury, bedding material, detectable warning tape, etc. A detail should be included in the plan set describing this information.

The "red" comment has not been addressed.

The "red" comment has been addressed, **however, the "Roof Leader Pipe in Trench Detail" on Sheet 7 of 9 needs to be revised to show the correct size of the pipe, which is 8" NOT 6".**

4. Sanitary sewer manhole information is missing, i.e. top of frame elevation and pipe invert elevations, roadway centerline stationing position and offset (RT or LT) from the centerline station.

   The requested sanitary sewer system data is now included in the plans and located on the new Road Profile plan, Sheet 6 of 9.

   No further comment is necessary.

5. Sanitary sewer system pipe information is missing, i.e. type of pipe material, diameter, length, and slope.

   The requested sanitary sewer system pipe data is now included in the plans and located on the new Road Profile plan, Sheet 6 of 9.

   No further comment is necessary.

6. Building sewer connections should have cleanouts shown exterior of the building footprint.

   KEA states that building sewer cleanouts will be provided, however, they are not shown on any plan exterior of the building units. Furthermore, the way building sewer connections (individual units) are to be connected to a sewer line manifold or trunk line need to be shown on plan Sheet 5 of 9.

   The "red" comment has not been addressed.

   The "red" comment has not been addressed.

7. How are Units 1, 2 & 3 connected to the sanitary sewer system? The nearest sanitary manhole (S1) is shown to be approximately 150' away. "Spaghetti" connections to this manhole should not be allowed and will require extending the sewer main to approximately STA 9+50.

   On plan Sheet 5 of 9, KEA has added an additional sanitary sewer manhole (S1) at STA 8+22.87 (8.12' LT). However, if the connection of each housing unit (Nos. 1 – 3) to the sewer main is to be as depicted in the "Sewer Connection Detail" shown on Detail Sheet 3 (Sheet 9 of 9), then the sewer main needs to be extended further up the road and an additional sewer manhole constructed at STA 9+35, more or less.

   The "red" comment has been addressed.

8. The proposed sanitary sewer collection system is shown to be connected to the existing sanitary sewer line in an easement located on town property. What is the purpose of having this easement? What does the sewer and water line serve? Are the lines mains or building services? Who will make the connections? Who will be responsible for maintaining the sewer and water lines after they are installed?

   It was understood that this is an existing easement. KEA did not answer 1) what is the purpose of the easement, 2) what does the sewer and water lines serve, 3) are the lines dedicated services or mains that anyone could connect to, 3) who will make the connections, and 4) who will be responsible for maintaining the lines to the condo development. One other important point is did anyone have to pay

for the extension of the sewer and water lines from Vina Lane? If so, should that party receive some compensation for the condo tie-ins?

The "red" comment has not been addressed.

The "red" comment has not been addressed.

9. No information has been provided such as the elevations of the invert of the connections at the existing sanitary sewer manhole (what is the manhole made of—brick, cement block, precast concrete or ?), top of frame elevation, the size of the existing inflow and outflow lines, pipe material, slope, and direction of flow. Due to lack of information it is unclear if this is a sewer main or a service connection and whether or not the calculated sewage flow from the 51 dwelling units (number of bedrooms unknown) can be accommodated by the existing sewer line, whose flow and capacity should be evaluated back to its connection to a main trunk line and the analysis presented in a report. Have test holes been dug to find out whether or not there will be a conflict between the new sewer line (new) and the existing water line that is shown to be in the same easement?

   If the sanitary sewer manhole in the easement is not accessible, how did KEA know where to locate it on their plan? KEA needs to ask the Brooklyn WPCA for permission to excavate around the existing manhole to provide the particulars of this manhole, i.e. top of frame elevation, type of manhole (precast, brick or block), pipe inverts in/out, diameter and type of pipe, etc. and place this information on the plan. Additionally, the consultant needs to ask Connecticut Water for permission to locate the water line (vertically and horizontally), especially the 90° bend where the proposed sewer connection crosses it. This is important due to the fact that there should be a thrust block that should not be disturbed at this location. If the sewer line crosses this critical point then the water line must be exposed for at least two joints on either side of the bend and either friction clamps or other mechanical joint restraint devices be installed to prevent a blowout of the line. KEA needs to address this and just not leave it to Connecticut Water to do that. Information gleaned from test pits and examination of the infrastructure is to be noted on the site plan and profile plan.

   The "red" comment has not been addressed.

   The "red" comment has not been addressed regarding the existing sanitary sewer line and manhole.

10. The existing water line in the sewer easement needs to be identified by pipe material, size, static pressure, calculated from static pressure taken at the closest fire hydrant on Vina Lane or Route 205, at the proposed connection and valve/fittings/thrust block configuration to make the connection. Is this considered a water main or a service?

    This information is critical to this development and should have been obtained prior to plan submission. When was Connecticut Water contacted to provide this information? The information is needed in order to complete the engineering review of this development.

    The "red" comment has not been addressed.

    The original comment regarding static water pressure has not been addressed.

11. The "sewer easement in favor of the Town of Brooklyn" also contains a water line. Does the recorded sewer easement state that a water line is also included in said easement? If not, will there be an easement for the water line?

KEA did not provide an answer to this request. This information is needed in order to complete the engineering review of this development.

The "red" comment has not been addressed.

The original comment has not been addressed.

12. The water system needs additional information, i.e. type of pipe (material and joint type—for example, bituminous coated Class 52, cement mortar lined, mechanical joint), RSV gate valves (open right or left?), tapping sleeve and valve, gate valve boxes (sliding type), corporations, curbstops, blowoff assembly, fire hydrants, thrust blocks (with dimensions for 150 psi thrust), description of fittings and whether mechanical joint or push-on, water services to buildings, megalugs, friction clamps, etc. How is the connection to the existing water line to be made and is the existing water line capable of serving it present use and the addition of the 51 single-family residential condominium units? How this was determined should be documented in writing.

    KEA stated that when they receive this kind of information from Connecticut Water they will update their plans with it. When was this information requested and when will it be received? This information is needed in order to complete the engineering review of this development.

    The original comment has been addressed.

13. Due to the type of building structures and their close proximity to one another, has the Fire Marshal been contacted in writing to determine whether or not a separate fire service will be required for each multi-housing building or if private fire hydrants will be required? Has a hydrant fire flow test been conducted for evaluation by the Fire Marshal?

    KEA states that fire hydrants will be installed required by code. What code? They also state that they will determine whether the units will have a built in fire suppression system (sprinklers) or firewall separation. I thought the Brooklyn Fire Marshal was the expert who makes this kind of decision. The Fire Marshal should submit a written review of the plans with recommendations for the file.

    The original comment has not been addressed.

    The original comment has not been addressed.

14. I calculate, by physics, that the static pressure drop of the water service from the connection in the easement on Town of Brooklyn property (elev. = 238) to the top end of the system (elev. = 312) to be 32 pounds per square inch (there is a 1 psi loss for every 2.31 feet of elevation change). If it is found that the static pressure at the connection is less than adequate, a pump station would become necessary for the domestic supply and the fire supply to overcome the deficiency in water pressure—this should be found out now rather than later. Also, the engineer must take into account additional pressure friction losses due to reduced pressure zone backflow preventers, which is typically a 12 pound per square inch loss, thus making the potential pressure loss close to 45 pounds per square inch. Water meters, service piping, bends and isolation valves also introduce their own friction losses, depending on state of flow. As can be seen from this, a thorough analysis of the water system is necessary to determine if there will be safe and adequate water delivery at acceptable operating pressure to all housing units, all the way up to the intersection of Louise Berry Drive. This is especially important for firefighting where hydrants may be expected to flow at approximately 1,000-1,500 gallons per minute under residual pressure or meeting this rate via assistance with a pumper truck, if the supply main has the delivery capacity for that. The

complete analysis of the water system should be presented for review in report form as soon as possible to see if it will be adequate.

KEA did not answer this question. The line may be looped, as they stated, however, this is a dead-end line that functions according to the laws of physics. The requested information is needed to complete the engineering review for this development.

The original comment has not been addressed.

The original comment has not been addressed.

15. How is water consumption metering to be accomplished along with backflow prevention? Will there be a "Hotbox" or similar all-weather environmentally controlled enclosure (needs electricity) protecting a master meter and backflow device or will units be individually metered with their own backflow preventers? If fire hydrants are installed in the development, how will Connecticut Water handle billing that if a master meter at the connection to the existing main is not installed?

KEA is correct, this is not a wetlands issue – it is an engineering issue that needs to be addressed to provide adequate and safe water supply to this development. Additionally, future condo association members do not need any surprises on the cost of maintenance and how they will be billed for water consumption. KEA needs to provide the requested information.

The original comment has not been addressed.

The original comment has not been addressed.

16. The water system needed for a development of this scope needs to be designed by a professional engineer. It is not as simple as connecting a single house to a water main. The system design should be accompanied by numerous construction details in the plan set in order for a contractor and construction inspector is sure the system is being installed properly.

KEA stated that when they receive this kind of information from Connecticut Water they didn't say they will update their plans with it. When was this information requested and when will it be received? This information is needed on the plans in order to complete the engineering review of this development.

The original comment has not been addressed.

Connecticut Water has supplied additional design information. However, the plans do not reflect all of the changes made by the water company. This needs correcting.

17. The water main installation is shown following a curved course in some places. Upon closer examination, it may be found that the radius of the curve is greater than the maximum pipe deflection (by size) recommended by American Water Works Association (AWWA) standards and, in fact, bends (fittings with thrust blocks) may have to be utilized in the design to route it around the curve.

The revised plans now show bends in the proposed water line. However, no details have been included in the plans for construction of thrust blocks for various types of water main fittings (tees, wyes, bends, end caps, etc.) for, say, 150 psi line pressure.

The "red" comment has not been addressed.

Connecticut Water has addressed this in their comments. No further comment is necessary.

18. For improved quality of water for Units 1, 2 & 3, the proposed water main should be extended to approximately STA 9+50 and a blowoff assembly, friction clamp and thrust block installed there.

KEA's revised plan now shows the full extent of the existing water main in Louise Berry Drive and the condominium development is now connected to it. Also, see Comment No. 14 above.

The water main has been extended, however, Comment 14 has not been addressed.

Connecticut Water has revised the path of the water main, however, the plan does not reflect this. Comment 14 has not been addressed.

19. The drainage outlet from the stormwater basin will direct water onto the Baker property. Will this require a drainage easement on the Baker property in favor of the condominium association to allow this flow? It is unknown as to what volume of water will discharge in more or less a point source to the receiving wetlands.

KEA states that the post-development drainage pattern to the wetlands is unchanged. This is not true since the pre-development (existing) drainage pattern is that of sheet flow from the entire property from Louise Berry Drive, ultimately flowing into the wetland across the perimeter of the wetland located on the subject property. In post-development, the runoff from the pre-development area will be collected in an engineered drainage system and a swale, all of which will empty into a stormwater retention basin that will point discharge into a discreet location in the wetland practically on the adjacent Baker property. I recommend that the configuration of the proposed drainage design be revisited to determine whether an alternate drainage system discharging stormwater runoff to the wetland at several points on the subject property, rather than one, will provide a greater benefit in maintaining the health of that portion of the wetland system.

The original comment has not been addressed.

The original comment has not been addressed.

20. It is recommended that the riprap outfall at the terminus of the stormwater basin outlet pipe be constructed as a plunge pool. This will further reduce discharge velocity and provide additional sediment transport reduction.

KEA's drainage report, which was not available initially, indicates the discharge from the basin for the 100-year design storm will have a low velocity at less than 3 fps. Accordingly, a plunge pool is unnecessary.

The original comment has been addressed.

21. The level spreader at the terminus of the stormwater basin discharge pipe is not labeled as such and its minimum length should be shown. Also, there needs to be an erosion and sediment control system installed below the disturbance caused by constructing the discharge pipeline and the level spreader.

The level spreader has been dimensioned on the plan and additional erosion and sediment control system has been shown downstream of the level spreader.

The original comment has been addressed.

22. It is recommended that an additional erosion and sediment control system be installed along the north side of the main road from the cul-de-sac turnaround continuously, save for driveway openings, to opposite centerline STA 8+00.

Additional erosion and sediment control (E&S) has been added to the plan. However, the E&S to the west of the stockpile shown on Sheet 5 of 9 should be moved to a line that is 20' from the west boundary of the stockpile to allow for movement of heavy equipment. As shown, the E&S line is too restrictive for that kind of maneuvering.

The "red" comment regarding the stockpile has not been addressed.

The requested E&S control system has not been added along the north side of the main road from the cul-de-sac turnaround to opposite centerline STA 8+00. This is to lessen sediment loading in catch basins in the road down gradient from the regrading activity during construction.

23. As shown on the plan, the temporary sedimentation basin will be constructed in an area where there is a six (6) foot difference in elevation across its width (west to east). According to the "Temporary Sediment Trap Embankment Cross Section" located on Sheet 7 of 8, a 3' (max.) deep level bottom excavation, starting on the west side of the basin will require about an 8' deep excavation on the east side of the basin. If this is not the way the basin is to be constructed and instead will be a combination of berm construction on the low (west side) and 3' deep excavation on the east side, that should be shown in the detail on Sheet 7 of 8. In any case, no deep test holes have been dug here to show where groundwater may lie or where an average seasonal high water table may exist, which would be evidenced by soil mottles, to see if there would be an impact on the basin. Constructing the basin with a earthen berm should be shown on the plans because of the large area of tree removal that will occur. How would accumulated water be managed for this basin? What would be the likelihood of an embankment failure if not built with an emergency spillway protected with at least riprap armoring? Furthermore, there is no sediment control system (silt fence or hay bales) surrounding the proposed temporary sedimentation basin, because any sediment laden water that rises to the point where it would flow through the stone dike, the dike will not necessarily trap fine particles of sediment with much efficiency. Also, the aforementioned sediment trap detail incorporates a weir of unknown length at the crest of the stone dike. An explanation of how the weir will function, knowing the pervious stone dike will allow the passage of water, is needed. Drainage calculations are also needed.

This comment is moot because this temporary sedimentation basin was eliminated on the revised plan and a stockpile location is now in its place.

The original comment has been deemed moot with the removal of the proposed temporary sedimentation basin.

24. The "rain garden" south of Unit 7 is a nice feature, especially for a single-family home site, however, for this project, why aren't more rain gardens proposed? What is to be planted in the rain garden? If this is the only one to be constructed and because of its location behind a building it will be hidden from most people's view and possibly not taken care of for very long – keep in mind, it is on "common land."

The rain garden has been eliminated in the revised plans. However, the consultant has to remove the note that reads "provide rain garden for roof drainage."

The "red" comment has been addressed.

Sheet 6 of 8 – Detail Sheet (revised plan, Sheet 7 of 9)

1. Note 9 under "Construction Notes/General Provisions" should be more specific and state that the materials shall be disposed of off the development site.

   KEA stated in its response that the note was modified to state what materials shall be removed from the site. It is true that they did modify the note in the revised plan to state the type of materials that should be removed. However, they did not state that the materials should be removed to an approved offsite disposal area. Offsite disposal language needs to be included in the note.

   The "red" comment has not been addressed.

   This comment has been addressed.

2. In Note 7 under "Development Schedule/Sequence of Operations" it is stated that topsoil stripped from driveway locations will be stockpiled in locations shown on the plans. However, none of the plans show any stockpile locations. Stockpile locations should be shown on the plans.

   The revised plan now shows a stockpile area to the west of Unit Nos. 47 – 51. Also, there is only one (1) stockpile location shown on the plan so the word "locations" in Note 7 should be changed to "the location."

   The "red" comment has been addressed.

3. In Note 8 under "Development Schedule/Sequence of Operations" it is stated that utility companies are to be contacted to coordinate connections to the water and sewer mains. If it is determined that the existing water and sewer mains are privately owned, the utility companies may not be the entity to contact for the proposed connections. An explanation of who will make the connections needs to be clarified.

   KEA states that Connecticut Water will be the owner of the new water main serving the development. If this is the case, since the development's road will be privately owned and maintained by a condominium association or similar entity, it is likely an easement in favor of Connecticut Water will be required in order to maintain/repair/improve the utilities water infrastructure. It is incumbent upon the Applicant's consultant to present proof in the form of a written memorandum of understanding that Connecticut Water is willing to do this. The memorandum should also address particulars concerning the water services (domestic and fire), meters, meter pits and fire hydrants.

   KEA also stated in their response that the sanitary sewer main will be owned and maintained by the Condominium Association. Therefore, an easement is not necessary for them to do work on what they will own.

   KEA did not explain who will make connections to the existing water and sewer lines.

   The "red" comments have not been addressed.

   In the "red" comment the question of requiring a utility easement over the access road, driveways and other portions of "common space" has not been addressed.

4. In Note 9 under "Development Schedule/Sequence of Operations," it is stated that the stormwater basin will be used as a temporary sedimentation basin and that drainage structures and pipe are to be installed with inlet protection to catch basins. In light of this, an explanation is needed on how sediment laden

water will be prevented from discharging through the stormwater basin outlet structure and into the wetlands.

KEA states that the stormwater retention basin forebay will also serve as a temporary sediment trap during construction with the utilization of a crushed stone berm with a low-level outlet encased in crushed stone and filter fabric to discharge accumulated water into the wetland, to be used during site construction. A detail of the low-level outlet as described by KEA must be shown as a construction detail in order to be sure it is constructed as described, because I am not sure how this would be configured without such a detail. Additionally, there is no sediment transport preventative for runoff from the swale flowing into the stormwater retention basin area during construction. This must be addressed, too, as it does not flow into the basin's forebay. A complete lateral cross-section of the entire retention basin when used as a temporary sediment trap and then used as a retention basin must be detailed on the plan to provide more understanding of its construction and inspection after it is constructed. The partial cross-section depicted on the plan is unsatisfactory and I believe it was only pertinent to the temporary sediment trap that was eliminated and converted to a stockpile area to the west of Unit Nos 47 – 51.

Recommend installing a silt sock arrangement rather than a crushed stone berm when the stormwater retention basin is first used as a temporary sedimentation basin. The crushed stone berm with filter fabric is difficult to construct and will not prevent sediment transport as desired. The silt sock is much more effective in preventing silt transport.

The "red" comments have not been addressed.

The "red" comment has not been addressed.

5. In Note 15 "Development Schedule/Sequence of Operations" it is stated that utilities will be installed to the edge of the right-of-way. This note should be deleted as there is no right-of-way.

   KEA stated in their response to my previous comments that they modified this note, but that is not true. The note is still present and must be eliminated because there is no defined road right-of-way.

   The original comment has been addressed.

6. In the "Development Schedule/Sequence of Operations" there is no mention of constructing a temporary sedimentation basin that is shown on Sheet 5 of 8 to the west of Units 47-51.

   KEA does not need a note for this as there is no longer a need for a temporary sedimentation basin at this location.

   The original comment has been deemed moot with the removal of the proposed temporary sedimentation basin.

Sheet 7 of 8 – Detail Sheet 2 (revised plan, Sheet 8 of 9)

1. A riprap "Plunge Pool" detail should be added to this sheet for the stormwater basin outlet discharging to the level spreader. The detail should be designed in accordance with the CT DOT drainage design specs handbook.

   KEA's drainage calculations received after the initial plan review indicates a 100-year design storm flow having low velocity from the retention basin outlet piper. Therefore, a plunge pool is not deemed necessary.

The original comment has been addressed.

2. A grass swale and riprap swale detail should be added to this sheet.

   KEA has added the requested swale detail to the revised plan.
   The original comment has been addressed.

3. A cross section of the stormwater basin through the stormwater basin outlet structure should be provided to show the different elevations of stored water for the various design storms, 5- thru 100-year frequency. The "Stormwater Basin Outlet Structure Detail" and basin itself may have to be modified for this range of design storms.

   KEA has not added the full stormwater retention basin cross-section as requested. A full cross-section is required with all basin associated construction details and elevations for each design storm water level, including the emergency spillway, outlet structure and basin freeboard above the spillway elevation.

   The original comment has not been addressed.

   The "red" and original comments have not been addressed.

4. There are no deep test pits in the area of the proposed stormwater basin to determine the level of the average high water level (soil mottles), if there is any groundwater present at shallow (<5') depths and the percolation rate of the soil.

   KEA states in their response that deep test pits will be performed prior to plan submission to the Brooklyn Planning and Zoning Commission. This path is fraught with danger because any major changes to the design of the basin caused by information gleaned from test pit data will cause the need for another review by the Brooklyn Inland Wetlands and Watercourses Commission. Again, this is a basic task that should have been undertaken prior to the design and determination of the location of the retention basin.

   The original comment has been addressed. Three (3) test pits have been dug in the area of the proposed stormwater detention basin showing no visible groundwater within 41" (mottles at this depth) below the existing ground surface.

5. The "Flared End Section" detail and table is for a precast concrete end section. The material and size of drainage pipe is not labeled anywhere on the plans. However, if the pipe used in the engineered drainage system is not Class III precast concrete pipe, and, for example, will be high density polyethylene (HDPE) pipe, it is highly unusual not to use a flared end section manufactured with the same material as the pipe. This needs to be explained or corrected.

   KEA states in their response that they corrected the flared end detail for HDPE pipe. This is not true. The entire detail they continue to show is not for HDPE pipe but, rather, for reinforced concrete pipe. The detail still needs to be corrected.

   The "red" comment has not been addressed.

   The "red" comment has not been addressed.

6. In the "Type 'C' Catch Basin Detail" the sump below the lowest pipe invert is called out as 2'-0" min. It is recommended that the sump be specified as 4'-0".

As stated by KEA, the catch basin detail on this plan has been modified to show a 4'-0" sump. However, the elevations of the catch basin on the new Road Profile plan (Sheet 6 of 9) reflect elevations of catch basins with 2'-0" sumps. This needs to be corrected.

The "red" comment has not been addressed (see Comment 1 for Sheet 5 of 8).
This comment has been addressed.

7. In Note 2 under "Notes" in the "Turf Reinforcement Mat Installation" detail, it states that the turf reinforcement mat shall be North American Green P-300 or approved equivalent. This particular mat is not biodegradable. A biodegradable mat would be a more preferable choice.

   KEA states that the turf reinforcement mat selection has been modified to a biodegradable product. The revised plan still indicates the use of North American Green P-300. This must be changed to a biodegradable product, many of which North American Green manufactures. See Note 2 under "Notes" above the "Turf Reinforcement Mat Installation" detail title.

   The "red" comment has not been addressed.

   The "red" comment has not been addressed in the "Turf Reinforcement Mat Installation" detail on Sheet 7 of 9. This detail should be removed in its entirety because there is another "Turf Reinforcement Mat Installation" detail on Sheet 8 of 9 that specifies a biodegradable product, North American Green SC-150BN.

8. The Neenah R-3705 (product ID is incomplete and must be further specified by pipe outlet size) in the "Hooded Catch Basin Detail" appears to be a high maintenance item, according to what appears in the manufacturer's catalog cut. Furthermore, this product is manufactured using cast iron, which is very heavy. If it is installed without any support within the catch basin, special care must be exercised when anchoring this item in a cored precast concrete wall, if it is not cast in place at the precaster's facility, to prevent displacement (drooping) over time. Also, the sump is shown as 2'-0" min. and it is recommended that the sump be no less than 4'-0" deep.

   KEA states the hood has been more clearly specified. That is all well and good, however, for an 18" pipe, the hood shown on the detail is not anywhere representative of what a Neenah R-3701-18 Catch Basin Trap looks like and how it is attached to a catch basin. The detail must be corrected to show the proper mounting of the Neenah product, if it is used. I believe it will be highly problematic installing this device correctly which may lead to earlier than expected maintenance problems, which could lead to unwanted substances being discharged into the wetland. Another type of device with a much less complicated mounting should be used. The catch basin sump dimension was changed to 4'-0" on the revised plan.

   The "red" comment has not been addressed for the Catch Basin Trap.

   The Neenah R-3701-18 designation has been removed from the detail and no other product identification number has been specified. A check of the Neenah castings catalog does not show any 18" diameter hood with the profile depicted. It is unclear what this hood will consist of or how it should be installed since there isn't any detail or other information describing this item on the plan. A specification and detail for this is required in order to evaluate its effectiveness.

9. It is unclear where the "Hooded Catch Basin Detail" is to be applied. Is this to be used on every catch basin?

This has been clarified by KEA as only being used on the catch basin preceding discharge into the stormwater retention basin.

The "red" comment has been addressed. **However, it would be most beneficial that every catch basin in the proposed development utilize this environmental safeguard.**

The "green" comment still applies.

Sheet 8 of 8 – Detail Sheet 3 (revised plan, Sheet 9 of 9)

1. In the "Slip Form Concrete Curbing" detail the curbing should be identified as "Bituminous Concrete Curbing" and it would be preferable to have the curbing placed on the binder course for improved resistance to displacement. Placing it on the wearing course makes it more vulnerable to severe damage by a snow plow. In my opinion an even better treatment with respect to snow plows and ease of construction would be to utilize a 12" wide Cape Cod Berm because, experience proves when a snow plow impacts it the plow blade will tend to ride up and over the berm, thus causing less damage and displacement.

   In the revised plan KEA has eliminated the "Slip Form Concrete Curbing" detail and replaced it with a "Cape Cod Curbing" detail, which is satisfactory.

   The "red" comment has been addressed.

2. The type of brick forming the channel and the table is not specified in the "Typical Sanitary Manhole Cross Section" detail. Additionally, the type of frame and cover is not specified (size, weight, vent hole, no vent holes, locking, etc.)

   KEA has now specified an acceptable type of brick in the manhole detail. However, information on the frame and cover has not been specified as requested. The frame and cover should be that which is acceptable to the Town of Killingly WPCA and should at least be noted as such in the detail. Incidentally, it is not known whether or not the overall manhole design or other sewer details is acceptable to the WPCA. Has that approval been given in writing by the WPCA?

   The "red" comment has not been addressed.

   The original comment regarding the specific manhole frame and cover has not been addressed.

3. The sanitary "Sanitary Sewer Pipe in Trench Detail" is missing a dimension for the depth of sand to be placed in a level plane above the crown of the pipe, the width of the trench, and detectable warning tape placed over non-ferrous pipe.

   The detail has been modified to show the additional information that was requested.

   The "red" comment has been addressed.

4. In the "Sewer Connection at Manhole" there is no information on how the penetration of existing manhole wall is to be properly sealed around the "residential sewer lateral" to prevent exfiltration/infiltration, i.e. Core 'N Seal, Link Seal, cement mortar, etc. Additionally, the size of the proposed sewer connection and type of pipe has not been specified in the detail.

The detail has been modified to indicate the type of seal where the pipe will penetrate the manhole and the pipe type/size has been added to the detail.
The "red" comment has been addressed.

5. In the "Wood Guide Rail" detail, the lag bolts should be countersunk to minimize a snag point to pedestrian traffic. Also, for best longevity of the guide rail, the number of pounds per square foot of preservative retention and species of wood (Southern Yellow Pine?) should be specified.

   The detail has been modified with the additional information that was requested except for the species of wood. The APWA Category UC4C is satisfactory. However, species of wood and type of wood preservative compound must be specified in the detail.

   The "red" comment has not been addressed.

   The "red" comment has been addressed.

6. There is no indication on the plans where a wood guide rail is to be installed.

   This has been clarified on the revised plans.

   The original comment has been addressed.

7. For the "Speed Limit Sign Detail," due to the numerous parking spaces proposed along the main access drive, it seems more reasonable that the speed limit be posted at no more than 15 miles per hour.

   The detail has been modified on the plan to reflect a 15 mph speed limit.

   The original comment has been addressed.

8. The "Sign Detail" for "No Outlet" should have the CT DOT "W14-2 (41-4605)" designation and spell out the manufacturer's product number, "Seton #44851," if that is the desired product to be installed.

   The detail has been modified on the plan to reflect a 15 mph speed limit.

   The original comment has been addressed.

9. The "Stop Sign" detail should be called out by the CT DOT designation "R1-1 (31-0552)" and measure 30" x 30".
   The detail has been modified on the plan to reflect a 15 mph speed limit.

   The original comment has been addressed.

10. The "Typical Section – Unreinforced Retaining Wall" detail should include the additional information:

    - The batter of the wall or the step back of each ascending row of blocks. Also, in the drawing it is unclear if there is to be deformed rebar included with each course.
    - The type of the 4" diameter drain pipe behind the wall is not specified, i.e. Schedule 40, SDR 35, etc., and if it is to be perforated (holes up or down?). Should it be wrapped with filter cloth?
    - The composition of the "drainage aggregate" should be stated by "percent passing" or with a CT DOT material specification.

- The minimum depth of the "drainage aggregate" above the pipe.
- The depth below finish grade of the top of the "granular leveling pad" and its composition (structural fill).

Is it necessary to utilize a filter fabric at the rear of the Versa-Lok wall to minimize migration of fine aggregate through the dry joints in the wall?

The detail has been modified on the plan to incorporate additional information requested in the bulleted comments. KEA stated that the detail is what is recommended by Versa-Lok for an unreinforced wall and no filter fabric is needed along the rear of the segmented wall units.

The original comment has been addressed.

11. In the "Roadway Cross Section" it is noted that a 50' wide right-of-way is in this project. Since there is no right-of-way lines associated with the road in this project, that designation should be removed. Additionally, it is believed that the sidewalk should be 5' wide with a 2' wide grassed snow shelf, not 4' wide snug to the curb as shown and specified as Portland cement concrete not just concrete. Another concern is that the grade of bituminous concrete to be used in the roadway base course and surface course is not specified. Also, the inclusion of a 6" curb — a 12" wide Cape Cod Berm would be more maintenance friendly and have a more pleasing aesthetic appearance after several snowplow impacts.

The cross-section detail has been modified to show it without a right-of-way.

The original comment has been addressed.

12. In the "Concrete Sidewalk Detail" the width of the sidewalk is shown to be 4'-0" wide and 4" thick. It is recommended that these dimensions be changed to 5'-0" and 5", respectively, in accordance with the Brooklyn Public Improvement Specifications. It is also recommended that the sidewalk material be called out as "Portland cement concrete" with a 2'-0" (min.) snow shelf depicted at the edge of pavement.

The sidewalk detail has been modified to show it 5'-0" wide with a 2'-0" snow shelf. The thickness was not increased to 5".

The sidewalk thickness needs to be 5" in accordance with the requirements of the Brooklyn Public Improvement Specifications.

The "green" comment has not been addressed and the concrete thickness needs to be corrected.

General Comments

1. The scale of the plans at 1"= 40' appears to be inadequate in order to include numerous notes without cluttering the drawing. A better scale would be 1" = 20' for viewing the information and avoiding a lot of clutter.

The 40-scale plans are acceptable by town regulation. However, 20-scale would provide a less crowded view of the plans and less likely for the observer to overlook a detail.

The original comment has been addressed, **however, a 20-scale plan would be less crowded and, therefore, it would be less likely miss seeing some important information presented therein.**

The "green" comment remains.

2. Detailed drainage calculations for the 5- thru 100-year design storms have not been submitted for review with the plans. The calculations are necessary to evaluate the engineered drainage system and any impact to the receiving wetlands. A gutter analysis should be included in the report evaluating the effectiveness of the catch basin grates in catching and treating gutter flow for spread and grate blowby.

   Drainage calculations have since been submitted for review. However, they have not been fully reviewed at this time.

   Drainage calculations with revisions thereto have since been reviewed and found to be satisfactory.

3. Due to its steep slope (10%±), length, width and critical role in providing access to the residential units, a separate plan and profile of the main access road will be required (scale: Horiz. 1" = 20' and Vert. 1"= 5') for evaluation and demonstrate its relationship to connected parking lots and elevations of adjacent residential units with stepped construction, and to see how well their parking spaces integrate with the design. Underground utilities (drainage, sewer, water, and gas) with appropriate inverts and frame elevations, and vertical geometry (PVC, PVT, PVI, Tangents, slopes, side parking intersections by station, etc.), should be included in the profile. This important information was not included in the plan set under review. This needs to be treated like a road project in order to be constructed properly.

   As requested, KEA has added a detailed Road Profile plan (Sheet 6 of 9) to the plan set. This plan depicts roadway slope; vertical curves; existing and proposed elevations; drainage, water and sanitary sewer lines; at a scale of Horiz: 1" = 40', Vert: 1" = 4', which is a standard 10:1 vertical exaggeration. The title block of this plan is incorrect and needs correcting.

   The "red" comment has not been addressed with respect to the title of the plan.

   The title has not been corrected to show the intersection of the centerlines of the condominium unit's access lanes to the parking areas. The intersections need to be shown on the Profile Plan to verify the grading shown on the Site Plan.

4. The proposed site design is very tight. Parking may become an issue for owners who have guests and no place to park them except along edges of some "off-street" (the main road is referred to for clarity as a "street") parking lots or along the "street." This has the potential of introducing a safety hazard, especially for any responding emergency service vehicles, and certainly an inconvenience for some residents—this is especially true for residents of Units 40-44 and 47-51.

   KEA is willing to discuss additional parking with town staff. I still feel that because the site design is so compact. The way housing units are situated along most of the length of one side of the the main roadway would force overflow parking to park on the opposite side of the road. This has a great potential for creating an undesirable and unsafe condition by causing traffic congestion and sight distance obstruction for vehicles exiting the off-street parking areas. For these reasons additional parking is warranted for the safety and convenience of all the residents, visitors and operation of large commercial vehicles.

   The "red" comment has not been addressed. The revised plans do not show any additional overflow parking.

The "green" comment has not been addressed. The plans do not show any delineation of additional parking and, if on the main access roadway, parking there must demonstrate sufficient clearances for safe two-way vehicle passage.

5. It should be noted that a large area of wetlands runs across the length of the southern portion of the property to be developed. Presently, the existing topography shows that this wetland receives water from a good portion of the land (acreage) along a portion of land at the northern boundary of the property and possibly beyond, from the school property. The proposed site development with its buildings and street will block a good portion of this flow from the wetlands-at-large and collect it in a drainage system that will only feed the wetlands at the sole discharge of the stormwater basin outlet. I am not sure if this impact has been studied by a wetlands biologist—not a soil scientist—to see if this is something to be concerned about and how it may affect the ecology of the area. However, runoff starvation of the wetland may be reduced if the drainage system were redesigned and broken up into segments with collected runoff discharged from various locations along the road, toward the wetland across "common land." This may also reduce the amount of pipe shown in the current design and reduce the size of the stormwater retention basin.

   I have reviewed the soil scientist's wetlands report. I am concerned that the report makes statements and conclusions by the soil scientist about impacts to hydrology and water quality, unless the he has the credentials to do this, of which I am not aware of. I believe a certified hydrologist should be doing this. Furthermore, the report states that the "*potential long-term impacts to the upland habitat from the project would include the loss of a significant portion of upland review area serving as riparian zones and upland wildlife habitat adjacent to the wetlands and brook corridor. This intrusion will force wildlife into the vegetated corridor in and around the wetlands and brook, during and after the construction timeframe, and into other areas where the uplands are not disturbed.*" Then, after making these statements a conclusion is reached stating "*the existing wetlands and watercourses will still have the ability to provide the same wetland functions and values they currently provide.*" How can this be? Is it wise to eliminate upland review area to cause such a significant loss of area to the detriment of the riparian zone and wildlife habitat?

   Also, the wetlands report states that two watercourses were located on the property. However, the watercourses are not shown on the plans and they require a 175' regulated wetland area, which is not shown.

   The plans now show the 125' and 175' upland review areas (UVA). This delineation was not shown on the previous plan submission. The added delineation brings home the impact on the wetlands due to the enormous area of disturbance within the UVA. It is stated in the soil scientist's wetlands report that "this is a significant loss." Being so, it is my opinion that a biologist needs to be consulted to further evaluate the wisdom of modifying such a significant portion of the UVA as depicted on the plan, especially considering it being more than just a case of land disturbance (loss of native growth and slope modification), but also by introducing human habitation (noise, light, temperature change, etc.) much closer to the actual wetlands. This proposed impact needs further study and evaluation.

   My "green" comment opinion still holds true and needs to be addressed. The elimination of such a large area of uplands area to the wetland is something I am really concerned about that could be to the detriment of the wetlands (wildlife habitat, flora supporting wildlife, surface water recharge for the wetland, impact of temperature change, etc.) .

6. It is unclear whether or not the Applicant's engineer has calculated the amount of sewage that may be produced by 51 units (number of bedrooms unknown at this time) and if the Brooklyn Water Pollution Control Authority has been contacted about this and approved a connection.

According to KEA, they have not formally discussed sewage disposal with the Town of Killingly WPCA. This should be done before filing an application and plan submission with a commission to try and avoid changes to the scope of the project after the submission is made.
The "red" comment has not been addressed.

The "red" comment has not been addressed.

7. After all is said and done, the drainage system, sanitary sewer system, water system and access roads cannot be constructed, without a lot of guess work, using these plans. The lack of information relegates them to "schematic plan" status.

   Much of the missing water, sanitary sewer and drainage system is now included in the revised plans. What is left to include in a subsequent plan revision is information that KEA expects to receive from Connecticut Water, Town of Killingly WPCA and the Brooklyn Fire Marshal. Without this additional information, the plans are considered incomplete. Additionally, the soil scientist's wetland report contains conclusions that may only be made by an engineer or hydrogeologist. If this is found to be true, then the plans are incomplete until opinions on water quality are received from one of these professionals.

   The "red" comment remains unaddressed.

   The "red" comment has not been addressed satisfactorily.

8. If this is to be a condominium as stated in the Applicant's application, when will the paperwork on the bylaws of the condominium association be drafted and finalized? How will this be coordinated with any approval this project may receive from the Planning and Zoning Commission?

   KEA provided an acceptable response to these questions.

   The "red" comment has been addressed.

9. Who will track the surveying of the interior of each condominium unit to ensure that they are filed with the appropriate office (Town Clerk Land Evidence Records and Building Official)? How may this affect issuing a Certificate of Occupancy for any individual unit?

   KEA has addressed the first question but not the one pertaining to the Certificate of Occupancy (unit by unit?).

   The "red" comment pertaining to the Certificate of Occupancy has not been addressed.

   The "red" comment has not been addressed.

10. In a condominium development there is common space that is governed by the Condominium Association, with each owner having a vote in decision making. Should the land around the buildings be labeled on the plans as "common space?" Any common space within the buildings would be surveyed and noted as such in land evidence records. However, this may be unlikely according to the building footprints shown on the plans.

KEA provided a response to this question. However, there is nothing in the plans that says this is a condominium project. If this is a condominium project, then a reference to "condominiums" should be clearly stated in the plans.

The "red" comment has not been addressed.

The "red" comment has been addressed. The Title Sheet plan now includes the word "condominium."

11. A typical floor plan and building rendering would be helpful in visualizing the Applicant's project.

A typical floor plan should be included in the plan set being reviewed. This should be included in the next plan review.

The "red" comment has not been addressed.

The "red" comment has not been addressed. It needs to be shown whether or not there is a full-basement under each unit and a typical profile drawing showing the elevations of water and sewer connections entering/exiting each unit and the elevations of foundation drains.

12. Who will be the responsible party for maintenance and repair of the water main and sewer main and any extensions or modifications to the same?

KEA has stated that Connecticut Water will assume ownership of the water main and be responsible for its maintenance. However, the Condominium Association will be responsible for ownership and maintenance of the sanitary sewer line.

The "red" comment has not been addressed with respect to the sanitary sewer line.

The "red" comment has not been addressed with respect to the sanitary sewer system.

13. All references in the plan set to State of Connecticut Department of Transportation Form 817 or any other previous Form should be updated to read the current Form 818.

The revised plans continue to refer to Form 817. This should be changed to Form 818.

The "red" comment has not been addressed.

The "red" comment appears to have been addressed.

THE FOLLOWING ARE THE REGIONAL ENGINEER'S COMMENTS DATED OCTOBER 5, 2020, PERTAINING TO KEA'S REVISED PLANS OF AUGUST 24, 2020 WITH ADDITIONAL COMMENTS OF JANUARY 6, 2021

1. A note should added to "Construction Notes/General Provisions" that states upon completion of construction, accumulated sediment and other deleterious material shall be thoroughly removed from all catch basins, manholes, pipes and swales and disposed of off-site. Additionally, the stormwater retention basin bottom and appurtenant structures shall be cleaned and restored to "like new" condition.

This comment has been addressed.

2. Plan sets submitted to Inland Wetlands and Watercourses Commission and Planning and Zoning Commission shall be identical in content.

   This must be verified by town staff.

3. Plans shall be considered incomplete until all staff comments are addressed.

   This comment remains in force.

   This comment remains in force.

4. A minimum of three (3) deep test pits are to be dug in the area of the proposed stormwater detention basin and shall be witnessed by Brooklyn Wetlands Enforcement Officer during the time they are dug. This comment has been addressed **but it is unknown if the Brooklyn WEO witnessed the test pits when they were dug.**

   This comment remains in force.

5. There should be a note on the plans that the Condominium Association shall be responsible for maintenance of the entire drainage system, including the Stormwater Detention Basin.

   This comment has not been addressed.

   A note on the Site Development Plan, which will be recorded in the Land Evidence Office, needs to indicate that the drainage system, including the Stormwater Detention Basin, is to be owned, maintained and repaired by the Condominium Association at this location. In addition to this, the same applies to the sanitary sewer collection system unless it will be owned, maintained and repaired by the Brooklyn WPCA.

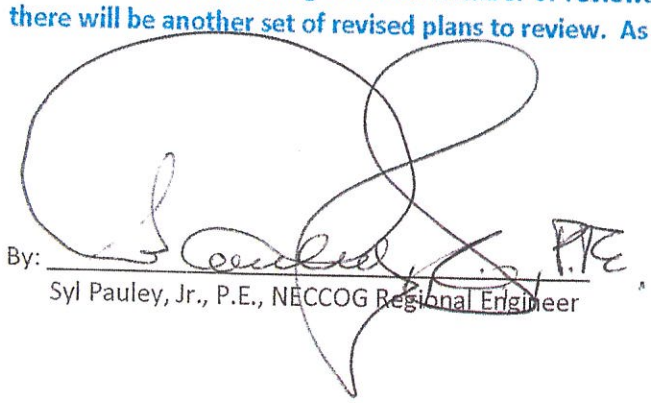
6. **Construction drawings, including cross sections with elevations, and operational details (written narrative) of the proposed site construction sedimentation basin are missing from the plans.**

7. **A note stating that sedimentation basins require a Connecticut Department of Energy and Environmental Protection (DEEP) "General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities" needs to be included in notes on Sheet 7 of 9 under "REFERENCE IS MADE TO:", under the heading "EROSION AND SEDIMENTATION CONTROL PLAN." The note shall read "3. Prior to commencement of any site construction, the Developer/Owner of this project shall inform the Land Use Department of the Town of Brooklyn that an application for a Connecticut Department of Energy and Environmental Protection 'General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities' has been applied for and, upon DEEP approval of said permit, shall deliver a copy of the approved permit to the Land Office Department of the Town of Brooklyn."**

8. **As-built plans are required for all aboveground and underground utilities, i.e. drainage pipes/structures, sanitary sewer pipes/structures, electric transformers/conduits, telephone pedestals/conduits, cable television/internet structures/conduits, etc.**

9. **Any handicap parking space shall meet ADA standards, especially that grading shall not exceed 1:50 slope (2%) and ramps be installed where curbing is installed.**

As a general comment, much of the information for the design of this project has been coming in piecemeal over the last several months and should have been researched by the consultant prior to any submission of plans to the Commission. This has resulted in consuming too much valuable staff time, especially in these COVID-19 times, because every time a revised submission is made all plans have to be reviewed all over again to verify the changes made per the staff review comments and to make sure there were no changes made which were not requested. As of now, the plans have been revised four times, over too many months, making the total number of reviews to date five (5). With the comments in this report there will be another set of revised plans to review. As of now the plans remain incomplete.



By: _____

Syl Pauley, Jr., P.E., NECCOG Regional Engineer

Killingly Engineering Associates
Civil Engineering & Surveying
P.O. Box 421 Killingly, CT 06241
Phone: 860-779-7299
www.killinglyengineering.com

January 4, 2021

Ms. Margaret Washburn, ZEO, WEO
Town of Brooklyn
Clifford B. Green Memorial Center
69 South Main Street
Brooklyn, CT 06234

RE: Proposed Multi-Family Development
Louise Berry Drive

Dear Ms. Washburn:

In response to review NECCOG comments on the referenced project dated October 5, 2020 we offer the following; please note that previous items addressed are shown in red, new responses are provided in ***bold italic***.

Revised Sheet 2 of 9

1. The soil Scientists signature block has been added to the plan

Revised Sheet 3 of 9

1. All curbing will be bituminous concrete and radii 5' unless otherwise noted. This notation has been added to the plans.
2. Sidewalks are shown 5' wide with a 2' snow shelf as requested.
3. The project does not propose public improvements along Louise Berry Drive, specifically sidewalks.
   It is our opinion and that of our client's legal counsel that the Town of Brooklyn cannot require the applicant to provide off site public improvements. We believe that this has been verified with previous projects.
4. Dwellings are proposed to be 2-bedrooms.
5. Each dwelling unit will have a garage for one interior parking space.
   Per discussion with our client, each dwelling will have a garage for 2 interior parking spaces and a 3rd vehicle space in the driveway. This exceeds the parking requirements as specified in the zoning regulations.
6. Block retaining wall has been labeled as "Versa-Lok or equal". A guide rail has been added at the top of the wall.
7. Curbing has been shown around the landscaped islands for units 1-3.
8. Guide rail adjacent to unit 3 has been labeled accordingly.
9. Recreation area is for passive recreation such as picnicking, ball playing, frisbee etc. The temporary sedimentation basin is "temporary" and will be eliminated at the end of construction and the areas restored. The use of the access easement will not be impacted by either the temporary basin or passive recreation.
   The configuration of the stockpile and erosion controls have been adjusted to allow for a 10' wide access around the perimeter of the stockpile. We would anticipate that the pile would be primarily accessed from the south but the 10' perimeter would allow for stockpile and erosion control maintenance.
10. Slopes have been labeled 3H:1V and 2H:1V in some areas. These steeper slopes are proposed to reduce the grading footprint and will be treated with turf reinforcement matting.
    All areas where turf reinforcement is proposed have been labeled accordingly.

Sheet 4 of 9

11. Light poles have been added to the plans.
    Locations of underground utilities have been shown on sheets 5& 6 the plans. It should be noted that ultimately, Eversource will determine the final locations and configuration of buried utilities.
12. Restoration of the area where the temporary sedimentation basin has been noted on the plans.
    Plan notes that the area of the temporary stockpile will be restored with New England Erosion Control Mix.
13. Additional landscaping to screen the basin maintenance access has been shown.

Sheets 5 & 6 of 9

Please note that a road profile sheet has been added to the plans which provides most of the information requested in the review.

1. Catch basin information has been added to the roadway profile.
   The title of sheet 6 ahs been modified to "Road Profile". Because of the limited sheet height, it is not possible to match the profile for STA 8+50 to be aligned with the previous profile section.
2. Drainage pipe information is shown on the profile and in table form.
3. Roof leaders will be HDPE pipe.
   A detail for the roof leader pipe trench has been added to sheet
4. Sanitary sewer information is shown on the profile and in table form.
5. Sanitary sewer pipe information is shown on the profile and in table form.
6. Cleanouts for sanitary sewer connections will be provided.
   Each unit will have an individual services and exterior cleanouts are not required.
7. Additional sanitary sewer manholes have been added to the plans and each unit will be individually routed to the sanitary sewer system.
   Per request of the Brooklyn WPCA, a termination manhole for the sanitary sewer will be installed in Louise Berry Drive to provide a potential connection point for any future sanitary sewer esxtension(s).
8. The existing sanitary sewer system is within an existing easement; the project is not proposing this easement. Connection to this sanitary sewer and to the existing waterline will be under the jurisdiction of the sewer authority and CT Water.
   The purpose of the easement is for the Town of Brooklyn to access and improve the laneway leading to "other land". A copy of the warranty deed is attached herein.
9. The existing sanitary manhole is not accessible but we do not anticipate conflicts with the proposed and existing waterline with the sanitary sewer connection as there is 15'-18' of elevation change from the final proposed manhole in the cul-de-sac. The plans have been forwarded to CT water for review and the connection will be reviewed with the Killingly WPCA prior to P&Z submission. We have not excavated test holes and would not do so without permission from CT Water.
   The plans note that test pits to expose the water line and sanitary sewer invert shall be required under the jurisdiction of the Brooklyn WPCA and CT Water.
10. Information regarding the existing waterline within the easement has been requested from CT Water.
    Per CT Water, we are not proposing to connect to this line. We have enclosed correspondence from CT Water verifying that their hydraulic model demonstrates that there is sufficient water for fire flow requirements from the line in Louisa Viens Drive.
11. As with the previous responses, we will call out the required connections, fittings, clamps when we receive the redlined plans from CT Water as we have done on numerous projects.
    Per the attached email correspondence with CT Water, we are awaiting their final review of the plans and we well update them accordingly per their requirements. This has always been the procedure with CT Water for any projects we have done with them.
12. Waiting for redlines from CT Water.
    Per the previous response and email correspondence, the plans will be updated accordingly pending CT Water review and redlines.
13. Hydrants will be installed in locations required by code. We will determine whether buildings will be required to have sprinklers or firewall separation.
    Typically, the fire Marshal requires hydrants at no greater than 750' spacing.

14. The waterline will be looped from the service in the easement to an existing line in Louise Berry Drive in order to maintain water quality, pressure and volume requirements.
    See CT Water email regarding hydraulic modeling.
15. Distribution and water bill handling will be determined by the developer and CT Water. We don't believe this is a Wetlands or P&Z issue.
    CT Water will require individual metering for each unit. Hydrants and water mains are billed to the Association on a monthly rate of $8 cents per linear foot of water main and $20.50 per hydrant.
16. Final design of the water system will be per CT Water which we have done in previous projects. It is currently being reviewed.
    Killingly Engineering discussed timing of the final plan review by CT Water today (January 4th) and they anticipate having it completed this week. We will forward any comments they have and address them accordingly on our plans.
17. The water main will be designed and installed with the required bends, fittings and thrust blocks.
18. The water main will be looped to a water main in Louise Berry Drive thereby alleviating the concern of water quality & pressure.
19. The drainage outlet from the detention basin will discharge to the existing wetlands where drainage from the property currently flows; the drainage pattern is not altered.
20. The riprap outlet is designed as a level spreader. Velocities from the discharge pipe are minimal.
21. Level spreader has been labeled and dimensioned.
22. Additional E&S has been shown as recommended.
23. The temporary sedimentation basin has been removed from the location previously show on the plan because the drainage area to that point is minimal. The area will be utilized for soil stockpiling.
24. The rain garden was for roof drainage for the building it was adjacent to. That feature has been eliminated and roof drainage will be directed to the stormwater collection system.
    The note regarding the rain garden has been removed from the plan.

Sheet 7 of 9

1. Construction notes/General Provisions, note 9 has been modified to state what materials shall be removed from the site.
   Note 9 has been amended to indicate that any removal of materials from the site shall be disposed of at an approved oof-site disposal area.
2. A topsoil stockpile location has been added to the plans.
   Note has been revised to "stockpile" in lieu of "stockpiles".
3. CT Water is the entity with jurisdiction over the water line and ultimately, the sanitary sewer discharge will be conveyed to the Town of Killingly WPCA. We will work with the Town and water company as we have in past projects to coordinate connections. Even with private developments, CT will own and maintain the water line.
   Connections to water and sewer will be conducted by contractors licensed to do so and under the observance of the utility companies or their representative after receipt of the required permits. This is the procedure that has been implemented in the past for connections to public utilities.
4. In order to be utilized for a temporary sediment trap during construction, the stormwater basin will be constructed with the sediment forebay as shown with a crushed stone filter. Catch basins will be installed with E&S controls as well. To keep sediment from being transported to the wetlands, the stormwater basin outlet structure will not be installed until the roadway has been stabilized and a low-level outlet encased in crushed stone and filter fabric will be installed for use during construction.
   A silt sock installation within the stormwater basin has been specified on the plans as requested for use as a temporary sediment trap.
5. The "Utilities to edge of right of way" note has been modified accordingly.
   Note has been modified to read "Install utilities in locations shown on the plans"
6. The temporary sedimentation basin has been removed from the plans and the need to add it to the sequence of construction is not necessary.

Sheet 8 of 9

1. We have not designed with a plunge pool and therefore a detail for it is not shown.

2. Grass & riprap swale details have been added to the plans.
3. A cross section of the outlet structure is shown on the detail sheet and a summary of water elevations for design storms is provided in the drainage report.
4. We will excavate test pits in the area of the proposed stormwater basin prior to submission to Planning & Zoning.
   Test pit and percolation test information has been added to the plans.
5. The flared end section detail has been replaced with one for HDPE pipe.
   The last length of pipe to the stormwater basin and from the basin will be concrete and the flared end detail is appropriate.
6. The catch basin detail has been modified to show a 4' sump as requested.
   Basins have been modified accordingly on the road profile.
7. The turf reinforcement mat selection has been modified to a degradable product.
8. The call out for the hood has been more clearly specified.
   In lieu of a hood, a 90 degree bend or tee connection will be utilized
9. The hood will be utilized at the last catch basin prior to discharge to the stormwater basin.

Sheet 9 of 9

1. Curbing has been modified to a Cape Cod style curb.
2. The type of brick for the sanitary manhole has been specified on the plan.
   The WPCA is currently reviewing the plan. However, the detail we have shown on the plans is one we have utilized for projects in Killingly in the past.
3. The sanitary sewer pipe in trench detail has been modified accordingly.
4. Kor-N-Seal connections have been specified for the sanitary sewer connections.
5. Specification for the preservative retention and AWPA classification of the guide rail has been added to the detail.
   Specification for wood has been modified accordingly
6. Guide rail is shown adjacent to the accessible units at the site entrance.
7. Speed limit sign has been modified accordingly.
8. The "No Outlet" sign detail has been modified accordingly.
9. The stop sign detail has been modified accordingly.
10. The retaining wall section has been modified accordingly. It should be noted that the detail was taken from the Versa-Lok website.
11. Roadway detail has been modified accordingly.
12. The sidewalk detail has been modified accordingly.

General Comments

1. The 40-scale plans are in accordance with the town's regulations and are standard for a project of this type.
2. Detailed drainage calculations have been completed and will be forwarded for review.
   Revised calculations and report are enclosed herein
3. A profile of the roadway has been added to the plans.
   Title block of this plan has been revised accordingly
4. We have provided 2 parking spaces per unit and a 24' wide roadway. We can discuss the need/requirement for additional parking with Town staff.
   Parking has been revised to 3 spaces per unit
5. The soil scientist is preparing an impact report that we will forward upon completion.
   We feel that the soil scientist is qualified to make the statements he has made in his impact report. He is a registered soil scientist, wetlands scientist and certified forester with over 30 years of experience and also is the acting wetlands agent in the Towns of Chaplin and Sterling.
6. We have not formally discussed sanitary sewer flow with the WPCA but at 150 GPD per bedroom we would anticipate 15,300 GPD and 42.5 GPM peak with a peaking factor of 4. From previous work we have done for discharges to the Killingly WPCA, we know that they are currently running well below plant capacity. Per a telephone conversation with a representative from Suez (Killingly WPCA), they feel that Brooklyn is also currently operating well below their allowable capacity.

Since the previous submission, we have attended a Zoom meeting on October 28 with the Brooklyn WPCA who assured us that there is more than sufficient capacity in the Brooklyn system to handle flows from this development.

7. We trust that the plans as submitted are not "schematic" in nature. We understand that there is work to be completed with the water distribution system design but we are waiting for response from CT Water before making these adjustments to the plans.
   We concur that the project cannot be constructed until the final water design is completed and hope to have the information this week.
8. The paperwork on the condominium documents will be provided in a draft format for the P&Z submission. Typically, these documents are not completed until all approvals have been obtained from local and state agencies and any special requirements can be incorporated into the documents upon approvals.
9. Killingly Engineering will be conducting all survey stakeout and as-builts including the interior layouts for condominiums declarations. We are currently doing this type of work for 2 similar developments, one in Killingly and one in Plainfield.
   Certificates of Occupancy are not issued until the unit has been "declared" by the developer. This requires and update to the Condominium documents and filing on the land records prior to closing.
10. The "common space" will be defined in the condominium documents as required.
    The title sheet has been modified to state "Multi-Family Condominium Development"
11. A typical floor plan and elevation of a building will be provided for the P&Z submission as required.
    Plans for the units are currently being developed but are not yet completed.
12. CT Water will assume ownership and maintenance of the water main and the Association will assume ownership and maintenance of the sanitary sewer system.
13. *References on the plans have been changed to Form 818.*

New Comments

1. The requested not regarding final cleaning has been added as note #10 to the Construction Notes/General Provisions".
2. We concur that the plans submitted to the Wetlands Commission & Planning and Zoning Commission shall be identical in content. However, as currently submitted, we are still awaiting final review from CT Water and if the Wetlands Commission requires any conditions to approve the plans then they will be modified accordingly.
3. The Town of Brooklyn Wetlands and Zoning Regulations do not consider plans "incomplete" until all review items have been addressed; we do not concur with the statement that plans are incomplete until all review items have been addressed. Every application to any Town Commission requires review and comment throughout the permitting and may approve or deny plans based upon the information provided that is applicable to their jurisdiction.
4. Test pits have been excavated and the results added to the plans.
5. A note regarding ownership and maintenance of the stormwater system and basin is shown on the cover sheet of the plans.

Please feel free to call if there are any questions or clarifications required.

Sincerely:

Normand Thibeault, Jr., P.E.

130

VOL. 31

School

WARRANTY DEED

TO ALL PEOPLE TO WHOM THESE PRESENTS SHALL COME, GREETING:

KNOW YE, That I, Amasa D. Pierce, of the Town of Brooklyn, County of Windham and State of Connecticut, for the consideration of One Dollar and other good, valuable and sufficient considerations, received to my full satisfaction of the Town of Brooklyn, a body politic and corporate, duly created and existing under the laws of the State of Connecticut, and located in the County of Windham, do give, grant, bargain, sell and confirm unto the said Town of Brooklyn, its successors and assigns, a certain tract of land situated on the westerly side of Gorman Road, so-called, in the Town of Brooklyn, County of Windham and State of Connecticut, bounded and described as follows:

Beginning at an iron bound set at a corner of wall on the westerly side of said Gorman Road about eight-tenths of a mile southerly from the intersection of said Gorman Road with Prince Hill Road, so-called; thence N. 59° 47' W. 1000 feet, partly along a wall adjoining other land of said Amasa D. Pierce, to an iron bound; thence N. 25° 13' E. 475 feet, adjoining other land of said Amasa D. Pierce, to an iron bound; thence N. 63° 45' E. 737 feet, adjoining other land of said Amasa D. Pierce, to an iron bound; thence S. 51° 48' E. 775 feet, adjoining other land of said Amasa D. Pierce, to an iron bound set in an angle in the wall on the westerly side of said Gorman Road; thence in a southerly direction 980 feet, more or less, along the wall on the westerly side of said Gorman Road, to the place of beginning.

Containing 23 1/4 acres of land more or less.

For further reference see a certain plan entitled "Plan of Site for a New School in the Town of Brooklyn, Conn., Scale 1" - 100', June 9, 1952, William W. Pike, Surveyor" recorded in the Office of the Town Clerk for said Town of Brooklyn.

Together with the right to use and to improve the laneway leading across other land of said Amasa D. Pierce as a means of access to the within conveyed tract of land directly from the Wauregan Road, so-called, said laneway passing on the northerly side of the grain storehouse of said Amasa D. Pierce.

This conveyance is made subject to two conditions hereinafter set forth for the breach or nonfulfillment of either title is to revert to and become vested in the grantor herein, Amasa D. Pierce, his heirs, executors, administrators or assigns:

1. That the parcel be used for the site of a new consolidated elementary school.

2. That construction work on the new consolidated elementary school shall be commenced within a period of two years from the date of transfer of title.

Being a portion of the Fourth Tract described in a certain Warranty Deed from Nelson N. VanBrunt to Amasa D. Pierce, dated May 6, 1939, and recorded in Brooklyn Land Records, Volume 26 Page 101.

TO HAVE AND TO HOLD the above granted and bargained premises, with the appurtenances thereof, unto it, the said grantee, its successors and assigns forever, to its and their own proper use and behoof. AND ALSO, I, the said grantor, do for myself, my heirs, executors, administrators, and assigns, covenant with the said grantee, its successors and assigns, that at and until the ensealing of these presents, I am well seized of the premises, as a good indefeasible estate in FEE SIMPLE; and have good right to bargain and sell the same in manner and form as is above written; and that the same is free from all incumbrances whatsoever, except as above excepted.

AND FURTHERMORE, I, the said grantor, do by these presents bind myself and my heirs and assigns forever to WARRANT AND DEFEND the above granted and bargained premises to it, the said grantee, its successors and assigns, against all claims and demands whatsoever, except as above excepted.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 10th day of June, in the year of our Lord nineteen hundred and fifty-two.

Signed, sealed and delivered
in presence of

Mary E. Dolloff — Amasa D. Pierce (L.S.)

Harry E. Back, Jr.

STATE OF CONNECTICUT)
) ss. Killingly, June 10th, A.D. 1952.
COUNTY OF WINDHAM)

Personally appeared Amasa D. Pierce, signer and sealer of the foregoing instrument, and acknowledged the same to be his free act and deed before me.

CONSIDERATION IS SUCH THAT NO REVENUE STAMPS ARE REQUIRED.

Mary E. Dolloff
Notary Public

Received for record this 16th day of June, A.D. 1952 at 9:30 A.M.

Raymond H. Boyce
Town Clerk

nthibeault@killinglyea.com

To: Kevin Schwabe
Subject: RE: WM Mark out - School St, Brooklyn

Thanks, Kevin

From: Kevin Schwabe <Kevin.Schwabe@ctwater.com>
Sent: Monday, December 28, 2020 4:22 PM
To: 'nthibeault@killinglyea.com' <nthibeault@killinglyea.com>
Subject: RE: WM Mark out - School St, Brooklyn

Norm

I started marking this up and reached out to our engineering department to hydraulically model the flows here. Just got the flows last week. We should be OK with fire flows.

Kevin Schwabe
Developer Services Coordinator
Connecticut Water Company
93 West Main Street
Clinton, CT 06413
860-664-6137

From: nthibeault@killinglyea.com <nthibeault@killinglyea.com>
Sent: Monday, December 28, 2020 10:11 AM
To: Kevin Schwabe <Kevin.Schwabe@ctwater.com>
Subject: RE: WM Mark out - School St, Brooklyn

Hi Kevin – Just following up on this. I sent you the revised layout on 11/23 for your mark up. Have you had an opportunity to look at that for us?

Thanks _ Norm

From: Kevin Schwabe <Kevin.Schwabe@ctwater.com>
Sent: Thursday, November 5, 2020 9:27 AM
To: 'nthibeault@killinglyea.com' <nthibeault@killinglyea.com>
Subject: RE: WM Mark out - School St, Brooklyn

Norm

I was under the impression that you were working on the plan to capture my comments provided in an October 6th email. See below:

Email from KEA received after 1/4/2021 deadline as per IWWC Policy Statement. Received 1/7/2021.

Please find comments from Alan Carpenter, Engineering consultant for the Brooklyn WPCA. We will add these notes to the cover sheet of the plans

From: Carpenter, Alan (P.E.) <acarpenter@cphcorp.com>
Sent: Thursday, January 7, 2021 9:51 AM
To: Bob Kiley <bobk4723@icloud.com>; Norm Thibeault <nthibeault@killinglyea.com>
Cc: Joseph Couture <joseph.couture@suez-na.com>; Craig Dunlop <cedunlop@email.com>; Derek Lindia <lindias777@gmail.com>; Robert Kelleher <bobcar64@charter.net>; Robert Ross <robross634@gmail.com>; Carpenter, Alan (P.E.) <acarpenter@cphcorp.com>; Sherri A Soucy <brooklynwpca019@gmail.com>
Subject: RE: Pollock / Louise Berry Drive 51-Unit Condominium Project - Brooklyn Water Pollution Control Authority (BWPCA) -Commitment to Serve - Sanitary Sewer.

Mr. Thibeault,

On Behalf of the Brooklyn Water Pollution Control Authority and with authorization of the BWPCA Chairman Mr. Bob Kiley, please let this email represent our 'Commitment to Serve' the proposed 51-Unit Condominium Development on Louise Berry Drive. (See attached preliminary plan, your plan)

Currently, our system has available capacity to serve the project. We will want the full Authority to render their approval of the plans, specifications and construction measures and have the following requests for you and the Developer to meet our needs.

1. We will require that the main trunk line through the site be dedicated to the Town of Brooklyn Water Pollution Control Authority under a 30-foot wide easement (15-feet each side of the line) for ownership, control, and maintenance responsibility. The permanent easement over the main trunk line will need to be created, approved by BWPCA and recorded in the Town of Brooklyn land records prior to any connections to the system.
2. The eastern terminus manhole in Louise Berry Drive be a minimum of 8-feet deep from top of frame to invert and an 8-inch SDR 35 stub be installed a minimum of 1 pipe length (20-feet) at 0.4 ft/ft slope and capped in the east facing invert.
3. We require that the entire system be constructed/installed in accordance with the Town of Brooklyn WPCA construction standards by the Developer. We will require the system be inspected by our representatives during construction, tested by the Developer and certified by his engineer and 'cleared for use' by our representatives before the system can be used.
4. Unless you provide us with documented proof of anticipated usage, we are calculating your anticipated usage at 22,950 Gallons per day. (51 units X 450 GPD/per unit).
5. Prior to the commencement of construction of the sewer system, we require a pre-construction meeting be scheduled by the Developer, to include at a minimum, an invite to the BWPCA 72-hours minimum in advance of the meeting and attendance by The Developer, his engineer, the general contractor and utility contractor (if different entities).
6. It is understood that ALL costs relating to the creation of this utility extension, and the legal control and documentation of it shall be borne entirely by the developer.

7. It is expected that connection fees per unit, be paid prior to the issuance of a building permit and **the only guarantee of system capacity availability is receipt of the connection fees by the BWPCA.**

We will provide a mark-up of the drawings you provided to us on 1-4-21 in the near future containing our expectations and once the plans are complete, and approved by the BWPCA, they will become an exhibit to our permit approval.

We are not currently aware of any other development proposed along this section of the BWPCA system but if anything new comes to our attention that might affect the system capacity to the potential detriment of your client we will let you know.

Sherri Soucy will be responsible for establishing the connection fees for the proposed connections to the system and invoicing for them.

Thank you and we look forward to working with you and Mr. Pollock (or his assigns) on this project. Please let us know if you have any questions or if you need any additional information.

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