

C. SURFACE WATER RESOURCES

Comment C-1

How will the storm water basins be permitted to prevent mosquito-breeding areas from forming?

(Memorandum from Mr. Victor Vitek, to the Town of East Fishkill Planning Board, dated March 22, 2005)

Response C-1

The stormwater basins are not designed to be detention basins, but are infiltration basins designed to enhance water quality. The basins will be constructed in sandy soils that are very well drained. Water will infiltrate into the ground within these basins, and not pond for any significant length of time.

The infiltration basin proposed in the DEIS to be situated adjacent to the entry Road A and near the Didato home has been eliminated. Drainage from this proposed roadway will instead be conveyed eastward into the Lake Walton Park property via roadway drain inlets and underground piping (Figure II.C-1).

Comment C-2

Dam Conditions: The DEIS states that the dam and spillway are in good condition with no blockages. Under daily conditions it appears to be operating properly. This is not the case however during heavy rainfall and spring thaw. As you can see by the attached photos, the water level rises significantly during these times. On a few occasions the water has risen to within an inch or two of the existing road. It should be noted that the existing road is in the same location as proposed "Road C".

(Letter from Ms. Kim DiGiacomo to the Town of East Fishkill Planning Board, dated April 1, 2005)

Response C-2

Modification of the existing Lake Walton Dam outlet control structures to attenuate the increase in runoff from the proposed development and augmentation of the existing dam to accommodate the reconstruction of the existing dirt roadway that passes over the dam are proposed.

The existing dam and spillway will be redesigned according to "Guidelines for Design of Dams" "Existing Dams" Section 5.3 by the New York State Department of Environmental Conservation (NYSDEC).

As indicated in the DEIS (Appendix E), a geotechnical evaluation of the existing dam was conducted and indicated that although the dam had apparently not been maintained for many years, resulting in a significant amount of vegetation accumulating on the downstream embankments, the outlet structures were functioning and did not appear to be in disrepair, and currently the dam was functioning adequately. The scrub vegetation and small trees on the existing dam was subsequently removed in accordance with NYSDEC protocols.

The NYSDEC specifies criteria under which dams are classified. The Lake Walton dam is classified under these criteria as a Small Class "B". Class "B" is defined by the NYSDEC as a dam whereby a potential "dam failure can damage homes, main highways, minor railroads, or interrupt use or service of relatively important public utilities."

As depicted on Figures II.C-2A and II.C-2B, a potential Lake Walton dam failure is anticipated to be mitigated by relatively large areas of downstream wetlands. Lake Walton Road to the west and Cashman Drive immediately to the south of the site are not anticipated to be impacted. Elizabeth Drive and Tina Lane, further south, possibly might be impacted, although the likelihood of a dam failure of the augmented dam is considered very unlikely in the opinion of the applicant.

For instance, for the augmented Lake Walton earthen dam height of +10 feet, the NYSDEC requires a minimum allowable top width of +9 feet ($W=0.2H + 7$, where H is the height of the embankment, in feet). The augmented dam is proposed with a width of +39 feet, or about 4 times the minimum allowable width. This width accommodates the reconstructed roadway, shoulder,

and a 4 foot sidewalk, and is thus essentially constructed 4 times in excess of the NYSDEC minimum dam width standards.

Other safety measures proposed for the dam management program include:

- *Seepage control;*
- *Carefully placed stone rip-rap on the upstream and downstream dam slopes to help maintain stability.*

With regard to dam slopes as discussed in Appendix E, the slope of the upstream side of the dam can be one vertical on 2 horizontal (1V:2H). The NYSDEC Guidelines for Design of Dams states that the upstream slope of earth dams should be no steeper than 1V:3H. However, in a meeting with the NYSDEC Dam Safety Section that the applicant had in July of 2005, the NYSDEC Dam official stated that the upstream slope can be 1V:2H if faced with rip-rap which affords slope and erosion protection. In September of 2005, the NYSDEC Dam Safety Section reviewed the preliminary Dam Improvement Plan which depicted the proposed upstream 1V:2H. Also, the proposed 1V:2H slope will have less of an impact on the lake / wetlands than a 1V:3H slope. The downstream side of the dam can be 1V:2H, as the slope will be faced with stone rip-rap. The NYSDEC Dam Guidelines state: "The downstream slope of earth dams without seepage control measures should be no steeper than 1V:3H. If seepage control measures are provided, the downstream slope should be no steeper than 1V:2H." Thus the proposed downstream slope is acceptable.

Constructability and/or construction phasing along with anti-turbidity measures, and benching details will be addressed and provided to the Town for review concurrently with re-submission to the NYSDEC. Cofferdams will not be required because the lake will be drawn down in order to rehabilitate the dam. The minimum length of the apron and the riprap size of the energy dissipater at the end of the spillway culvert are indicated on the attached Outlet Protection Design graph.

Seepage control measures can be incorporated with the outlet control structure and new lake

drain pipe. Details of the seepage control system have been added to the Dam Improvement Plan which will be submitted for simultaneous review by the NYSDEC and the Town of East Fishkill.

Professional opinions regarding the effectiveness of seepage collars is quite diverse. The main problem with seepage collars is that it is difficult to adequately compact the backfill soil around these structures. The collar interferes with compaction parallel to the conduit. Unless careful hand tamping is done in the collar conduit corners, the seepage collars only enlarge the poorly compacted zone and increase the opportunity for erosion.

Common measures employed by the US Army Corps of Engineers to prevent seepage erosion along conduits are as follows:

- 1. Rigid foundation*
- 2. Concrete cradle beneath lower half of circular pipe or formed conduit*
- 3. Hydraulically and structurally sound conduit and connection*
- 4. Uniform, balanced soil compaction*
- 5. Poured seepage collar, lower half, close compaction upper half*
- 6. Trench into rigid foundation, concrete backfill*

If seepage collars are to be used, it is recommended that three be provided through the middle of the dam embankment. Compaction is critical around the seepage collars and the conduit pipe structure, and Carlin-Simpson & Associates will be retained to provide inspection services for the reconstruction of the new dam as described in their Geotechnical Engineering Report dated 7 July 2005, contained within Appendix E. Carlin-Simpson will submit their intended inspection record-keeping for review and approval by the Town of East Fishkill before dam construction begins. All construction inspection documents will be copied and submitted to the Town as the project progresses, along with copies of all construction related documents (e.g. plans, specifications, shop drawings, material test results) at the completion of the project. The minimum length of the apron and the riprap size of the energy dissipater at the end of the lake drain pipe will be indicated on an Outlet Protection Design graph that will be specified on a plan detail on the plans that will be submitted to the NYSDEC, with a copy provided to the Town of East Fishkill.

It is proposed to draw down the lake in order to reconstruct the dam.

The proposed pavement Sections A-A and B-B have been revised to a single detail on drawing DD-1 "Dam Improvement Plan" to identify the materials to be used and the thickness of each course in accordance with the Town Highway Standard.

The applicant will confer with the building inspector regarding the requirements for the single sidewalk with vehicular guide rail near the shoulder breaks of dam. The guide rail is placed adjacent to the sidewalk next to the lake to help prevent pedestrians from falling into the lake. It is the applicant's opinion that no guide rail is necessary between the sidewalk and the roadway because a grass separator strip is to be provided.

The revised cross-sections show that the roadway will sit upon compacted fill which will sit upon the clayey silty sand fill. Finger drains have been added to the four drain inlets, which are at the low points in the roadway, to collect any water from the bottom of the gravel subbase and drain it to the lake.

Maintenance is a key element in the longevity of both dams and roadways. An inspection and maintenance program is to be developed for use by the HOA as part of the construction permit. The HOA will maintain a file of copies of the inspections and maintenance reports for work performed by the HOA with the Town and possibly the Highway Department since a road, now private, is involved.

The existing and augmented dam is classified as "Small" according to the following NYSDEC criteria:

Small

Height of dam less than 40 feet. Storage at normal water surface less than 1000 acre feet. [The Lake Walton dam is approximately 10 feet in height, and stores approximately 175 acre feet.]

Large

Height of dam equal to or greater than 40 feet. Storage at normal water surface equal to or greater than 1000 acre feet.

Note:

Size classification is to be determined by either storage or height, whichever gives the larger size category.

The spillway redesign and dam augmentation will be such that the roadway will be elevated a minimum of ± 1.9 feet above the 100 year flood water elevation and a minimum of ± 1.2 feet above 150% of the 100 year flood.

Comment C-3

- a. There are two issues that should be better addressed and resolved. One is the internal road access if the dam fails, and the second is off-site in the event of a dam failure. The alternate emergency routes need to be identified for the residents in the proposed development, and other travelers on Lake Walton Road and other streets that may be affected by a dam failure.

(Letter from Morris Associates, P.S., L.L.C. to Ms. Norma Drummond, Town of East Fishkill Planning Board, dated March 17, 2005)

Response C-3

See Response C-2. The existing dam is functioning adequately, and the augmented dam will continue to meet or exceed NYSDEC design and safety requirements.

- ***As discussed in Response C-2, the augmented dam will have over four times the minimum dam width required for this type of dam by the NYSDEC;***
- ***Seepage control;***
- ***Carefully placed stone rip-rap on the upstream and downstream dam slopes to help maintain stability.***

In the extremely unlikely event the dam should fail, residents would take the emergency access road at the end of Road C to the Dutchess County Trailway and travel north to the emergency access road at the intersection of Road C and Road F.

Analysis of downstream topography (Figures II.C-2A and II.C-2B) indicates that the downstream area is relatively flat, and characterized by relatively large areas of wetlands. The wetlands would tend to absorb and reduce the flow velocity of the drained Lake Walton. Lake Walton Road is at a generally higher elevation and is not likely to be impacted. Should Elizabeth Drive and/or Tina Lane be affected, residents could proceed to Vicki Lane to the east, proceed in a southerly direction to access the internal Hopewell Glen public roadway system, and hence to NY Route 376 and Fishkill Road.

Comment C-4

- b. The proposal to raise the lake level by two feet introduces a whole range of concerns that were not considered during scoping, and that are not addressed in the DEIS. There are matters concerning the dam that should be resolved by the FEIS, after the applicant gets more information about the dam, and gets some feedback from the DEC about the proposal. Issues to be addressed in the FEIS include, for example,
 - i. Can the dam safely hold back the additional height of water?

(Letter from Morris Associates, P.S., L.L.C. to Ms. Norma Drummond, Town of East Fishkill Planning Board, dated March 17, 2005)

Response C-4

The lake level is no longer proposed to be raised following discussions of the initial Lake Management Plan with the NYSDEC. The lake will be utilized for stormwater detention, but the difference in lake surface elevation between the existing condition 100-year storm (defined as the amount of rainfall, during a 24-hour period, that has a one percent chance in any given year of being equaled or exceeded) and the proposed condition 100-year storm is ± 0.42 feet. In any event, the augmented dam will meet or exceed all NYSDEC dam design and safety requirements, including:

- *As discussed in Response C-2, the augmented dam will have over four times the minimum dam width required for this type of dam by the NYSDEC;*
- *Seepage control;*
- *Carefully placed stone rip-rap on the upstream and downstream dam slopes to help maintain stability.*

Appendix E contains the Drawing "Proposed Dam Improvement Plan" that is being submitted to the NYSDEC with the application package for an Article 15 Dam Permit.

Comment C-5

- ii. What is the current dam classification, and will the increased impoundment height and volume change the classification?

(Letter from Morris Associates, P.S., L.L.C. to Ms. Norma Drummond, Town of East Fishkill Planning Board, dated March 17, 2005)

Response C-5

See Response C-2. The existing dam is classified "small Class B", and the augmented dam will have the same classification. The lake level is no longer proposed to be raised following discussions of the initial Lake Management Plan with the NYSDEC, and the increased 100-year storm elevation post-development will only temporarily increase the lake level by ± 0.42 feet. This will not change the dam classification.

Comment C-6

- iii. The new control structure should comply fully with the NYSDEC dam safety and permit requirements. A full engineer's report should be presented, to fully comply with the dam permit requirements. The dam report must consider both parts of the dam/impoundment, separated by the peninsula that contains proposed Road "D".

(Letter from Morris Associates, P.S., L.L.C. to Ms. Norma Drummond, Town of East Fishkill Planning Board, dated March 17, 2005)

Response C-6

Agreed. A copy of the full engineer's report that is to be submitted to the NYSDEC for an Article 15 Dam Permit has been provided to the Town at the time the application package was submitted to the NYSDEC on 08/08/2005.

As depicted in Appendix E "Dam Improvement Plan", both parts of the dam/impoundment are to be modified and augmented to meet or exceed NYSDEC design and safety requirements, as discussed in Response C-2.

Comment C-7

- iv. The offsite impacts of the higher water level shall be fully explored and documented. The drainage from the Dogwood Knolls development, the outlet from the Kohlmaier pond, the drainage crossings under the trailway, the trailway embankment stability, all drainage from the west, and any offsite flooding shall all be included in the FEIS drainage analysis. The effect on the outlet from PDA-1e should be analyzed.

(Letter from Morris Associates, P.S., L.L.C. to Ms. Norma Drummond, Town of East Fishkill Planning Board, dated March 17, 2005)

Response C-7

See Response C-2.

The lake level is no longer proposed to be raised by two feet following discussions of the initial Lake Management Plan with the New York State Department of Environmental Conservation (NYSDEC), and no permanent raising of the lake level is contemplated. A temporary increase of ± 0.7 feet resulting from the post-development 100-year storm is not anticipated to impact upstream properties, and is by definition a rare and transient event.

The outlet spillway structure is designed to evacuate 75% of the storage between the maximum flood design high water elevation and the spillway crest within 48 hours, in accordance with NYSDEC requirements. In addition, the spillway will have adequate capacity to pass 150% of the 100 year design flood.

Comment C-8

- v. The DEIS included a discussion on the lake level drawdown. It appears a revised construction for the dam/impoundment would be required. This topic should also be included in the design report for the dam modifications.

(Letter from Morris Associates, P.S., L.L.C. to Ms. Norma Drummond, Town of East Fishkill Planning Board, dated March 17, 2005)

Response C-8

See Response C-2. The applicant proposes modification of the existing outlet control structures to attenuate the increase in runoff from the proposed development, and augmentation of the existing dam to accommodate the reconstruction of the existing dirt roadway that passes over the dam. The existing outlet conduit for emptying or lowering the water, as required by the NYSDEC, will be repaired/reconstructed. See Appendix E, "Dam Improvement Plan."

A copy of the engineer's report that has been submitted to the NYSDEC for an Article 15 Dam Permit was provided to the Town at the time the application package was submitted to the NYSDEC on 08/08/2005.

Comment C-9

The drainage analysis should be modified.

- a. To reflect any changes resulting from the proposal to raise the lake level.
- b. To include an analysis of the weir control function for drainage control/mitigation.

- c. This office did not fully review the drainage report, pending changes made with the FEIS. The drainage report will be reviewed concurrently with the subdivision plan, and the final drainage report will be required for final subdivision plan approval, not necessarily with the FEIS.

(Letter from Morris Associates, P.S., L.L.C. to Ms. Norma Drummond, Town of East Fishkill Planning Board, dated March 17, 2005)

Response C-9

The drainage report was provided to the Town at the time the Article 15 Dam Permit was submitted to the NYSDEC on 08/08/2005. The lake level is no longer proposed to be raised following discussions of the initial Lake Management Plan with the NYSDEC, and no permanent raising of the lake level is contemplated. Therefore the drainage report is no longer needed to account for a higher lake elevation.

The weir control function was analyzed in the drainage report.

The applicant will provide a drainage report for review concurrent with the subdivision plan, and the final drainage report for final subdivision plan approval.

Comment C-10

I think from Peter's comment, it is our concern that obviously if we are raising the lake water two feet, we will have dam and cellar structural issues with that. I think we want to see an analysis of how much bigger the lake will get. If you raise the water up two feet, it's got to get bigger somehow; right?

(Statement at Public Hearing, Mr. Staudohar, dated February 22, 2005)

Response C-10

The lake level is no longer proposed to be raised following discussions of the initial Lake Management Plan with the NYSDEC, and therefore there will be no change to the existing size of the lake.

Comment C-11

You don't think it [the raised lake level] will extend into the Dutchess County rail trail property though? I can't tell on this scale.

I think we are all concerned about the dam, raising water, the dredging, the plant life or whatever.

(Statement at Public Hearing, Mr. Staudohar, dated February 22, 2005)

The board had talked briefly about raising the lake depth by two feet. Are there any scientific studies that show that that would work? In addition if you're raising the lake two feet, ultimately the DEIS says that it will be creating shallow water about eighteen inches deep, so wouldn't that just bring back the same situation that we have today; a shallow water area that could provide a place for aquatic vegetation to grow in an overrun area.

(Statement at Public Hearing, Mr. Vitek, dated February 22, 2005)

What is the evidence available to support the hypothesis that an additional two feet of clear water will prevent plant buildup in the lake? Also, since there will be created a new area with an approximate 18" depth, what will prevent growth in that area?

(Memorandum from Mr. and Mrs. Vitek, to the Town of East Fishkill Planning Board, dated March 22, 2005)

Response C-11

The lake level is no longer proposed to be raised following discussions of the initial Lake Management Plan with the NYSDEC, and therefore there will be no change to the existing size of the lake. The dam will be augmented according to NYSDEC requirements, and an Article 15 Dam Permit will be obtained. See Response C-2.

The "Lake Restoration and Long-Term Management Proposal" (Lake Management Plan) is contained in Appendix B of this FEIS and describes in detail the proposed management of the lake. This proposal is being submitted to the NYSDEC for review, approval, and permits. Ongoing lake management by the future Lake Walton Park Homeowners Association is also described within the Lake Management Plan. Preliminary discussions with the NYSDEC indicate a general agreement with the plan's content and management philosophy.

Briefly, the Lake Management Plan describes the testing of lake water quality and sediment depth, sediment composition, and the survey of existing aquatic vegetation and fish and turtle species. The plan describes the proposed in-lake restoration techniques, including:

- *Dredging*
- *Hydroraking and Harvesting of Aquatic Vegetation*
- *Sediment Covers*
- *Drawdown*
- *Biomanipulation and Stocking*

Long-term watershed management practices are also described, including:

- *Removal of Existing Septic Areas*
- *Preservation of Vegetative Buffers*
- *Restrictions on Use of Fertilizers and Pesticides*
- *Stormwater Management Practices*
- *Monitoring of Water Quality*

A copy of the Revised Lake Management Plan will be submitted to the NYSDEC for their review and is included as Appendix B of this FEIS for simultaneous review by the Town of East Fishkill.

During the summer of 2003, four sediment samples were taken from the lake and mixed together for chemical analysis. The analysis was done in accordance with NYSDEC protocols. The result of the analysis showed that the sediment was clean. There were no contamination levels above acceptable levels for re-use onsite as defined by the NYSDEC. Additional sediment testing as required by the NYSDEC for the Lake Restoration permit will be conducted and those results will be shared with the Town of East Fishkill.

The nature of the sediment is a fine grain material and decomposed vegetative bio-mass.

Approximately 96,000 cubic yards of sediment will be removed from the lake as part of the restoration plan. The sediment that will be removed from the lake will be encapsulated on-site. Please see Figure II.C-3 for the anticipated locations of the dewatering basins. All materials removed from Lake Walton will be re-used on-site, therefore no additional trucking/traffic impacts are anticipated.

Approximately 20 acres of the lake will undergo vegetation (biomass) removal. The biomass that will be removed from the lake will be encapsulated on-site. Please see Figure II.C-3 for the locations of the dewatering basins. An application for a special permit shall be submitted in writing to the Town of East Fishkill Zoning Board of Appeals per section 194.75 of the Town Code. Details of the proposed dewatering areas and material handling will be provided to the NYSDEC and USACOE, as well as to the Town of East Fishkill as part of the permit application. All materials removed from Lake Walton will be re-used on-site, therefore no additional trucking/traffic impacts are anticipated.

Gravel derived from this material will be utilized on-site for roadway bed construction, and the biomass and finer soils will be utilized on-site for landscaping beds.

The gravel that will be removed from the lake will be bank run and will be well graded and clean. Screening of the gravel is not anticipated. Should screening be required, a variance would be obtained from the Town of East Fishkill Zoning Board of Appeals.

Monitoring of the water quality in the lake will initially be the responsibility of the applicant and eventually the Homeowners Association, or any other entity designated by the permitting agencies as the responsible party. The applicant commits to carrying out the recommendations for water quality monitoring as provided in Section 4.5 of the Lake Management Plan in Appendix B of this FEIS. The applicant will be responsible for restoring the water quality in the event that it becomes degraded.

Comment C-12

I am concerned not only of the location of my house in relation to the construction, but also the quality of my water. The intended drainage system (Stormwater Management) will be located right next to my home. Currently, I have a point that is thirty feet deep which supplies the water in my home and I am afraid that the interference might contaminate my water. I consulted with Steven Griffen, owner of Griffen Pump Service, Inc., who explained the proposed water retention system near my property could in fact contaminate my water. He also expressed an alternative would be to drill a deeper well, but this procedure could cost up to eight thousand dollars. Another alternative is accepted by the developing company, PRM Realtor (sic) Group, would be to tie me into their water system.

(Letter from Mr. Edvige DiDato, to the Town of East Fishkill Planning Board, dated March 21, 2005)

Another of her concerns is the location of the stormwater drain near her house and said she has a point well that is 30 FT deep.

(Statement at Public Hearing, Ms. Edvige DiDato dated 03/22/2005)

He said she does have a point well, and there is the water quality basin within 20 FT of her property.

(Statement at Public Hearing, Mr. Staudohar dated 03/22/2005)

Response C-12

This proposed water quality infiltration area has been eliminated. Drainage from the proposed roadway will instead be channeled eastward into Lake Walton Park, away from the DiDato home and into the Lake Walton Park property, via roadway drain inlets and underground piping (Figure II.C-2). Therefore, no impacts to the neighboring point wells are anticipated.

Comment C-13

Something was just said in case you raise up the lake two feet, you would have to improve the dam. In other words, you're saying – I want to clarify this – are you going to improve the dam even if the lake is not going to be raised up to two feet?

(Statement at Public Hearing, Mr. Koch, dated February 22, 2005)

Response C-13

See Response C-2.

The applicant will augment the dam with no proposed raising of the lake level, in order to accommodate the redesign of the existing roadway, and the outlet is being modified to attenuate the increase in runoff from the proposed development. The applicant applied to the NYSDEC for an Article 15 Dam Permit on 08/08/2005. A copy of the application package was provided to the Town at the time the application package was submitted to the NYSDEC.