

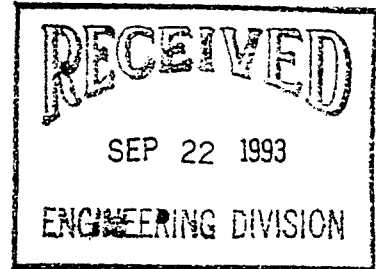


Department of Health and Environment

Robert C. Harder, Secretary

September 21, 1993

Michael W. Berry, P.E.  
Manager  
Land Development Division  
Professional Engineering Consultants  
303 S. Topeka  
Wichita, KS 67202



Re: Stormwater Pollution Prevention Plan  
Forest Lakes Development

Dear Mr. Berry:

KDHE has completed review of your June 18, 1993 memo and the June 22, 1993 revisions to the stormwater pollution prevention plan (SWPPP) for the Forest Lakes Development. In our June 11, 1993 letter, KDHE approved the Forest Lake's SWPPP subject to certain listed conditions. This letter is a response to your memo and revised SWPPP.

June 18, 1993 Memo

With regard to the June 18 memo, KDHE emphasizes the best way to protect the groundwater is to not excavate into the groundwater table. The actions described in the memo in lettered paragraphs A through C, intended to prevent the discharge of construction-related pollutants to the groundwater-recharge ponds, only address the initial construction activities related to excavation of the pond(s) and grading around the ponds. The diversion and stabilization/sedimentation practices only reduce pollutant delivery from direct runoff to the pond during the initial construction phase. If any contaminants are washed in with the sediment, these controls will not be successful.

If the runoff diversion is removed (as proposed in paragraph C) upon completion of the excavation and establishment of vegetation around the pond, construction runoff from all further phases; including streets, sewers, and homes, will be allowed to flow to the pond. Even if the surface runoff diversion is left in place, construction stormwater would still discharge directly to the ponds from the underground storm sewer system. In short, the measures proposed will not protect the ponds from discharge of construction site runoff. The ponds will continue to function as stormwater pollution control basins and will directly expose the groundwater recharge ponds during the construction phase. Upstream erosion control devices will help reduce the sediment loading to the pond, but will not prevent soluble contaminants from entering

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it. Based on the results of this system, KDHE may add other requirements to prevent groundwater degradation.

The provisions identified in paragraphs D through H are all good stormwater pollution prevention practices which will become part of the Forest Lake's SWPPP and be implemented. But again, they will not prevent pollution of the groundwater recharge ponds during the construction phase if contaminants are washed in with the sediment or if soluble contaminants are released at the construction site.

In the memo, PEC listed numbered comments in response to Marian Massoth's June 11, 1993 letter, KDHE still has the following concerns on Items #2, #3 and #5.

#2. KDHE was informed PEC will confirm any DWR permit requirements. In particular, KDHE is interested in the following: (1) a construction permit to modify the stream channel and (2) a water right to construct ponds which will function as open, discharging water wells. PEC indicates that of the 1,100-plus acre natural drainage, through the creek on the site, all but about 200 acres has been diverted out of the creek by man-made structures such as roads and the railroad. PEC states the runoff is carried by man-made ditches, but no other hydraulic analysis or justification is provided. Also, PEC states the man-made ditches and culverts are small and inadequate. KDHE requests the stormwater drainage through the creek during major storm events be determined in a more definitive manner.

PEC provided a water balance on the ponds indicating they would result in a net groundwater recharge. The calculations indicate all runoff to the ponds will recharge groundwater, with no outflow. However, the controlled outlet in pond 3 (the lowest pond) is below the measured groundwater elevation and will thus result in continuous groundwater drainage. This discharge was not included in the water balance. Due to the modification of the SWPPP to divert stormwater around the pond, there will not be as much water entering the pond and recharging groundwater as earlier proposed. Please re-evaluate the water balance based on this information.

#3. The developer/contractors are not relieved of responsibility to prevent degradation to waters of the state. Periodic sampling of the ponds will be performed to insure compliance with Kansas water quality standards.

#5. KDHE does not request temporary stabilization of disturbed acres within 14 days. The federal permit requires stabilization and so does KDHE.

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Stormwater Pollution Prevention Plan

**Item 1. Sediment Control Devices for Drainage Areas 4, 10, and 11**

The revised SWPPP on page 3 provides that storm sewers which discharge directly to the 29th Street road ditch from drainage areas 4, 10, and 11 will be protected during construction with silt fence and with rock riprap for velocity dissipation. We require that inlet protection be installed immediately for these storm sewers in accordance with detail sheets entitled "Erosion Control Details - Inlet Protection" as provided on page 3 of the SWPPP for inlets that discharge to the ponds. Drainage courses such as ditches or swales from basins 4, 10, and 11 which discharge to the 29th Street road ditch, if any, may require greater protection than silt fences. Based on our field observations, silt fences are not suitable controls for concentrated flows. The EPA Guidance indicates that silt fences are only appropriate for small drainage areas with overland flow. They require frequent inspection to ensure the fences have not been undermined or washed out entirely. Check dams, a settling basin or similar structures should be utilized in any drainage ditch or swale.

**Item 2. Temporary Soil Stabilization in accordance with EPA Guidance**

The revised SWPPP on page 3 allows 30 days for seeding, mulching, or otherwise stabilized, "weather permitting." KDHE understands that the time periods when seeding would be effective in the Wichita area are limited. However, temporary stabilization of undisturbed ground within 14 days after excavation by an appropriate ground cover is a critical requirement for erosion and sediment control. As stated in our comment #5 on your memo, the federal stormwater permit requires this practice and so does KDHE. A mulch or synthetic ground cover should be utilized. If seeding would be ineffective, the seeding can be done at a later date.

**Item 3. BMPs for Individual Builders**

The revised SWPPP provides for builders' requirements which address NPDES permit responsibility on the part of individual home builders. These requirements should help prevent pollution if implemented by the builders. We recommend a temporary berm around petroleum products or other soluble chemicals stored at the construction site.

**Item 4. Construction of Sediment Control Ponds into Groundwater**

Pursuant to our discussions on June 17, 1993, because of KDHE's concern over potential groundwater contamination, it was agreed that ponds would not function as pollution control structures during the construction phases of the development. According to PEC, this is to be accomplished during phase 1 by the construction of a temporary diversion

trench around the northerly and easterly sides of pond 1 to divert stormwater from upgradient areas. Further, the revised SWPPP provides for stabilization of disturbed areas contingent to the pond, the placement of hay bales, riprap, and inlet protection devices on all inlets discharging to the pond. Though no detailed specifications for the temporary diversion trench were provided in the SWPPP the trench should be designed to carry a 25-year, 24-hr. inch storm event (6.1 inches). As indicated in our comments to Item 1 above, silt fences will not be adequate to remove sediments from probable concentrated stormwater flows within the diversion channel, itself. Check dams will be of little use in the diversion ditch. Settling basins would be the only effective control. It is also critical that effective inlet protection devices be installed and maintained on all inlets discharging to the pond. The sediment and erosion control standard details for inlet protection sheet submitted earlier by PEC provided various inlet protection methods.

During construction phases I and II, sediment loading from upgradient areas result from runoff on agricultural land. After removal of the trench, filter fences or check dams will not be adequate to remove sediment loading to pond 1 from upgradient areas. Therefore, the diversion should not be removed until all construction phases upgradient are completed. The drainage should not go into pond until all construction is done.

**Item 5.**

The Wichita Addendum No. 3, Item 5 a. (1) states "All disturbed areas greater than five acres in size will be seeded and mulched within fourteen (14) days...". KDHE requires all disturbed areas be reseeded within 14 days.

**Item 6.**

The Wichita Addendum No. 3, Item 5 a. (2) states "Construct temporary erosion control intercept ditch around the entire pond parameters". Figure B does not show where this ditch or where the stormwater is diverted away from this perimeter intercept ditch. This should be included in Figure B.

**Item 7.**

The SWPPP contained certifications to be signed by the contractor for the city and by builders/subcontractors for the developer. A SWPPP certification should also be included for signature by the developer and the City of Wichita - Addendum No. 3 should contain a certification for the signature by the city.

There are other potential issues for later phases of the development. Since the development project is proceeding in annual phases moving in an upstream direction with regard to the drainage basin stormwater flow, adequate erosion and control measures must be established to

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prevent sediment and other pollutants from construction phases III and IV entering pond 1. Further, another temporary diversion ditch will need to be constructed upstream of ponds 2 and 3 during construction phases III and IV.

We do not believe at this time that we must resolve all potential issues for each phase of this development. With the experience gained from implementing the revised SWPPP for phase I, the SWPPP should be reexamined and revised as necessary for additional phases, specifically addressing the issue of protection of the ponds. KDHE staff will also have an opportunity to visit the construction site during phase I and assess the effectiveness of the existing controls. Requirements for revision of the SWPPP for multi-phase developments will be addressed in the stormwater permit which will be issued for this development before the start of phase II construction.

In summary, KDHE's concerns are as follows:

- a) Federal regulations and KDHE require that where it is impractical to seed within 14 days, temporary mulching or other ground cover shall be installed to minimize the erosive impact of rainfall on the soil.
- b) The placement of silt fences in drainage ditches and swales is not effective. Sediment traps or sedimentation basins are needed for concentrated flows.
- c) Removal of the temporary diversion trench above pond 1, should not be done until construction is completed.
- d) KDHE requests a more definitive determination of the stormwater drainage through the creek. A hydraulic balance on the ponds is needed with consideration of the stormwater diversion away from them and the fact the controlled outlet is below the groundwater table.
- e) During this construction project, the developer/contractor is not relieved of the responsibility for any discharge into waters of the state. Discharges of stormwater to the groundwater recharge ponds must not result in degradation of groundwater quality. The Kansas Department of Health and Environment retains the option of enforcement action any time an inappropriate discharge may occur. As provided for in K.S.A. 65-171(f), failure to comply may subject the responsible party to fines up to \$10,000 per violation with each day the violation occurs constituting a separation violation.
- f) The Wichita Addendum No. 3 Item 5 a. (1) should be corrected to state "All disturbed areas will be reseeded and mulched within fourteen (14) days....".

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- g) Show the temporary erosion control intercept ditch around the entire pond perimeter on Figure B plus stormwater drainage from this interceptor ditch.
- h) Include SWPPP certifications for the developer and the city.

Further, it is KDHE's understanding that there are two additional construction phases to the Reflection Ridge Development. On July 15, 1993, Mr. Marvin Shellenberg informed Mr. Kelly Finn of KDHE that a SWPPP for the remaining two phases of the Reflection Ridge Development would be submitted to KDHE in approximately 30 days. Please submit a SWPPP for the remaining two phases of the Reflection Ridge Development by November 30, 1993.

If you have any questions, please call me at (913)296-5556. Thank you for your continuing cooperation in this matter.

Sincerely,



Marian Massoth, P.E.  
Chief, Industrial Unit  
Industrial Program Section  
Bureau of Water

dg

c - South Central District  
Guy Ellis, DWR  
George Austin, DWR  
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Mike Lindebak, City of Wichita ✓