The Oaks Board Meeting Minutes
Monday, January 15, 2024 at 6:00 pm
340 Oak Lane, Palmyra, PA 17078

The President opened the meeting at 6:06 pm. She announced that we had a meeting quorum and welcomed the Board Members.

The Board Members in attendance were:

- President, Betsy Jamison, president@palmyraoaks.com
- Vice President, Kay Black, vp@palmyraoaks.com
- Treasurer, Bill Campoll, treasurer@palmyraoaks.com
- Secretary, Lauren McCullough secretary@palmyraoaks.com
- Architectural Control Committee Chairman (Interim), Michael Wheeler, acc@palmyraoaks.com

The President invited the Vice President to begin the meeting.

Vice President report:

The Deer stand has been removed by K&K Landscaping at no additional cost to the HOA. Downed tree limbs on Lot 50 will be removed by K&K in the spring when the mowing season begins.

On 12/11/23 a sinkhole was observed on Lot 50. The Board emailed all residents informing them of this, and to reiterate the rules to not access the area for recreational use. The HOA contacted 5 vendors for quotes to repair the sinkhole, but due to the holidays the response time was slower than desired. The final quote was received this morning (1/15/24).

Long's, Ebersole, Starner, Shuey and Custer all did a site inspection and submitted a quote. Several vendors returned for a second visit with additional staff for more detailed observations and discussions. Four of the five vendors agree that the existing pipe is **severely compromised** and will require total replacement. Once all vendors had the opportunity to inspect the sinkhole we contracted with Eye of the Beholder to install snow fencing and posts around the hole.

Up until recently, documentation regarding the area where the sinkhole has opened was all but nonexistent in any of the Board members binders that contain historical data of the HOA.

An Oaks resident reached out to the Board sharing pictures taken previously when work was performed on this particular culvert. He did share his belief that the former

vendor completing the work had not done a sufficient job. He proved to offer valuable information that was previously unknown to the current Board.

In addition, it has come to light that a former Board member had withheld pertinent information and did not pass along documents when they resigned. Those documents are now in the possession of the Board. The newly acquired information showed that the area has been worked on in 2013, 2018, 2020, and 2021. Financial records show that the four previous times this area was worked on it was performed by one vendor and various homeowners, totalling $33,300 in expenditures. This was alarming information and has led the Board to engage with a Geotechnical consultant. The report is detailed and corroborates with the four vendors who advocate for a full replacement of the piping. A copy of the geologist's report is included at the end of these minutes.

Based on the report from the Geologist, the Board feels very strongly that we should contract ALW Group to consult on the restoration project and provide recommendations on the repairs. Scott Summers from ALW was able to provide an expected cost range for field oversight and project consultation of $6,000-$10,000 based on similar project experience. A typical project of this nature without much in the way of complication and exploration would likely result in about $6,000 in service fees. Depending on the severity of what we were to find and how long the exploratory piece takes, it could end up closer to $10,000.

Michael Wheeler made a motion to approve ALW Group to oversee the restoration project, and Betsy Jamison 2nd the motion. 5 Yays were recorded and the motion passed unanimously.

The Board will be sending the geologist report to vendors still being considered and requesting updated quotes taking into account this new data. Once the Board receives those we will be consulting with the geologist on the efficacy of the recommended repairs and making a decision based on that feedback and the new updated quotes.

It is important to note that all quotes are only estimates due to the unknown nature of working on a sinkhole. The cost could go up based on what is found during the repair.

Treasurer report:
Annual Assessments have started to be returned by homeowners, including multiple online payments. The online payment option will end 1/31/2024. There have been no budget changes since our last meeting.

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ACC Report:
All recent requests have been addressed and updated in the spreadsheet.

President report:
Resale certificates have been updated in the spreadsheet and binder.

Secretary report:
Our master contact list has been updated with new resident information, including changes submitted with assessments.

The meeting was adjourned at 8:40pm.

Submitted by
Lauren McCullough, Secretary

January 11, 2024

Oaks HOA
Palmyra, Pennsylvania
info@palmyraoaks.com

Re: Site Visit/Observations – The Oaks Residential Development
Palmyra, Lebanon County, Pennsylvania
ALW Project No. 2024-09

Dear Oaks HOA Board,

As authorized by The Oaks HOA (Client), the ALW Group, LLC (ALW) visited the above residential development located in Palmyra, PA on January 5, 2024. The ALW representative joined 3 members of the Oaks HOA. The purpose of the meeting was to observe conditions associated with the storm water management basin behind the Hickory Street portion of the development and discuss the history of surface depressions/sinkholes that had occurred within the basin.

This document has been prepared to briefly outline some of the significant findings, observations, and background associated with sinkholes at the basin location.

Project Location/Description

The Oaks residential development is situated in the Palmyra area of Lebanon County, Pennsylvania. There are approximately 150+ residential dwellings comprising The Oaks. Specifically, the development is situated in North Londonderry Township, along the southern side of Route 422.

The current area of concern (AOC) is associated with a storm water management basin situated behind Hickory Street. It appears that the basin was designed as detention. The basin collects storm water from numerous individual properties via rooftops and surface runoff, as well as from at least one inlet situated within the roadway.

Storm water conveyed to this basin is eventually carried and discharged to a nearby wooded area of lower elevation. The basin includes a release structure (15-inch opening) and a 24-inch PVC outlet pipe which carries storm water out of the basin. The historic AOC encompasses the outlet structure and underground piping, where numerous sinkholes and/or settlement features have occurred.

Site Geology

ALW has reviewed the Pennsylvania Department of Conservation and Natural Resources (PA DCNR) mapping website referred to as PaGEODE. Review of PaGEODE indicates that the project site and the AOC are underlain by the Epler Formation (Ordovician Age). The Epler Formation consists of very finely crystalline, medium-gray limestone interbedded with gray dolomite. It also contains coarsely crystalline lenses. Beds are thin to flaggy and moderately well bedded to well bedded. The unit is approximately 1,000 feet thick.

In addition to PaGEODE, ALW also reviewed mapping entitled *Sinkholes and Karst-Related Features of Lebanon and Dauphin Counties, Palmyra 7.5-Minute Series Quadrangle*, prepared by WE Kochanov and the USGS, dated 1988 and 1989 (Open File Report 8802). Based on our review of this mapping, numerous historic sinkholes and karst-related features have been mapped/documented throughout the area occupied by The Oaks development.

Site Visit/Observations

ALW Licensed Professional Geologist, Scott Summers visited the site and the AOC on January 5, 2024. It should be noted that no drawings or plans were available to review relative to the as-built condition of the basin and structures. We were provided with two hand-drawn sketches associated with past repairs in the AOC. In summary, our site visit revealed the following key observations and findings:

- A soil collapse or closed depression had formed immediately behind the outlet structure located on the downgradient side of the basin. The area of the depression measured roughly 10 feet by four feet and was situated above the outlet pipe or adjacent to it.

- Observation of the inside of the below-grade outlet/discharge pipe from the basin to outflow head wall revealed a significantly irregular pipe shape. The PVC piping appeared to have been “egg-shaped” with multiple “high” and “low” spots throughout the run of pipe. Of particular concern, we observed numerous areas of separation at joints in the piping and cracking in the pipe (many of the cracks appeared to penetrate completely through the pipe). In its current condition, water flowing through the pipe is escaping via cracks/openings resulting in excessive water concentration into the surrounding subgrade.

- A rock outcrop is present along a slope just northeast of the headwall on the downgradient side of the embankment. Closer examination of the rock outcrop revealed limestone rock that was highly weathered, thinly bedded and containing a considerable amount of fractures. The rock is consistent with the mapped geology and is highly problematic in this geographic setting.

- Through our discussions with the HOA, we understand that there is a history of sinkhole

development throughout The Oaks footprint and in the Hickory Street basin itself. The Oaks HOA provided several hand-made notes and sketches which indicate that there have been at least 4 past occurrences of soil collapse/sinkhole type features in the general AOC. A contractor(s) was engaged in the past to perform a variety of restoration activities. It appears that some of those activities included replacing some portions of the existing buried storm water outflow piping and outlet structure. In addition, concrete collars and/or cradle type pads/mats may have also been constructed beneath sections of the pipe alignment and/or structure. Details relative to the actual restoration of the sinkhole openings are not available.

Findings/Considerations

The project site is located in an area underlain by highly sensitive carbonate geologic conditions that are considered susceptible to sinkhole development. Any disturbance of the natural conditions tends to increase the potential for sinkhole development. The AOC consists of a storm water detention basin. The introduction of storm water into a concentrated area in an area underlain by carbonate rock provides additional potential for karst features to develop. The origin for sinkhole development in the AOC is unknown and has not been documented; however, the existing pipe alignment in its current disrepair is now exacerbating the underlying problematic subsurface conditions by concentrating storm water into an unintended area. Higher volumes of water are exiting the pipe irregularly through cracks and openings, in turn creating erosion of soils above a rock surface (i.e. washing soils into openings in the rock surface).

There is a lack of documentation and detail pertaining to past activities associated with failures and subsequent repairs in the AOC. As a result, it is unclear whether any portion of the restoration/remedial action was beneficial or can be utilized in any manner moving forward.

It is our professional opinion that thorough investigation of the cause(s) for the underlying collapses/ failures/openings has not been adequately performed to date. Repair and restoration efforts appear to have been focused on addressing the pipe and structure only and not the underlying conditions. While likely more economical, this type of approach often will result in required on-going maintenance and restorative needs. Continued soil collapse and openings or depressions at the ground surface, even in common areas, can create concerns relative to human safety and may even become a liability. If not properly addressed, the AOC could most certainly become larger (increased financial loss) and at a minimum, be expected to require some degree of continued maintenance effort over time. Further, failure and disrepair of the storm water management system (as designed) could also lead to regulatory action. Although the HOA has a financial obligation to maintain these systems, the local municipality has the authority to ensure that storm water management systems are properly functioning per applicable storm water regulation under the Commonwealth of Pennsylvania.

Based on our review of the site setting and local geologic conditions, the provided HOA background information, and our site observations, we recommend the following for your consideration:

(1) It appears that approximately 60 linear feet of storm water pipe is in disrepair and/or not properly sealed at joints, etc. We recommend that the pipe alignment be unearthed, removed and replaced in a manner that allows the outflow to properly function.

(2) Once the section of the pipe is removed, the underlying conditions should be observed by a qualified professional engineer or geologist to determine the nature of the underlying conditions and to provide further direction on the investigation the AOC. An attempt should be made to determine whether there is any obvious underlying karst condition or feature (such as fractured bedrock, opening or bedrock throat, very soft/unstable zone of soil above the rock, etc.) present that must also be addressed as part of the repair of the storm water outlet piping alignment. In the event that karst features are identified, the qualified professional should provide recommendations for mitigation efforts against future sinkhole development in the AOC. Examples of mitigation efforts may include (but not necessarily limited to): use of flowable fill or concrete plugs, rock filters, bentonite-clay caps. The extent of mitigation efforts must be determined in the field by the qualified professional. In the event that karst type conditions are not observed or can not be uncovered (beyond limits of exploration), the qualified professional should document such conditions and inform the owner of the likely risks of terminating the investigation.

(3) The excavation of the storm water alignment should be performed in a manner as to minimize large areas of disturbance at one time, meaning that the work effort should proceed in a manner that allows for completion and stabilization of the area as quickly as is feasible.

(4) Pipe joint connections and connections to structures should be gasketed, grouted, sealed or similar, providing for watertight conditions along the entire pipe alignment.

(5) Because the AOC encompasses the basin outflow, alternate drainage should be provided during the excavation activities and positive drainage should be maintained away from open excavations.

(6) Upon completion, the HOA or their designated representative, should consider implementation of periodic monitoring of the AOC. Structures as well as the overall condition and function of the basin should be reviewed on at least an annual basis in an effort to detect any anomalies. Monitoring programs can be very useful in developing mitigation plans and activities ahead of catastrophic failures.

Closing

The information contained herein has been provided for the exclusive use of The Oaks HOA, their assigns, and attorneys. Use of this information by a third-party or other entity beyond those parties listed is strictly prohibited without the prior consent of ALW. Use of this information by unauthorized parties is done so, at their own risk and ALW can not be held responsible for such use.

Sinkhole development and the mitigation/remedial efforts associated with their restoration is extremely complicated. Further, there is no guarantee or warranty against sinkhole development, even after remedial efforts/activities. The opinions and recommendation presented herein have been provided according to accepted industry standards/practices within this geologic setting.

We appreciate the opportunity to be of assistance to you on this project. Should you have any questions, please do not hesitate to contact the undersigned.

Respectfully submitted,

Scott A. Summers, PG
Commonwealth of Pennsylvania
Licensed Professional Geologist