Dear Editors and Reviewers:

Thank you for your comments concerning our manuscript entitled “Temporary confined water responsible for triggering the landslide of a piedmont gentle slope in Ningzhen Area, China”. Those comments are very helpful for revising and improving our paper. Based on the comments we received, careful modifications have been made to the manuscript. All changes were marked in red text. We hope the new manuscript will meet your magazine’s standard. Below you will find our point-by-point responses to the comments/ questions:

Responds to the reviewer’s comments:

Reviewer #1:

1. The quality of technical English writing is too low to be published. Strong recommendation of getting a language editing service

Response: Before submitting the manuscript, we have found a native English speaker to edit the manuscript. The editing certification will be attached for your reference. We also have a native English speaker double-checked the English for the revised R1 version.

2. [Line 55-58] Is “impermeable aquifers” a correct expression? Aquifer is defined as an underground layer of water-bearing “permeable” rock, rock fractures or unconsolidated materials. Moreover, if the surface layer is impermeable, how can rainfall infiltrate into the middle layer by crossing the surface layer?

Response: We are sorry for our misexpression in line 55-58, and we have modified the sentence. Additionally, we showed that the upper part of the slope is usually rock with weathered fissures, which is convenient for rainfall infiltration.

3. [Line 58 and Fig. 1] Is the Ningzhen area a broader territory including Zhenjiang city in which the Paomashan Mountain is located? Moreover, how is the mountain shown in Fig.1 related to your study area, the P0 landslide? If they are different places, there seems no significant meaning in Fig. 1. It is difficult to understand the areal relations between the place names that are mentioned in your manuscript. Detailed explanation on your study area with a regional-scale map that clarifies the aforementioned questions is needed.

Response: In line 58 and Fig. 1, we are very sorry for our incorrect writing, and we have modified the sentence and the Fig. 1.

4. If the formation of the three layers is like Fig. 4 and the middle layer has a significantly higher permeability than the upper and lower layers, isn’t is more reasonable to speculate that the groundwater, which is temporarily formed in the middle(“gravel”) layer, will be drained out along the bottom of the middle layer that is connected to the lower end of slope and a flat area (see Fig. 4) ? Please justify how the

water is confined and thereby pore-water pressure can be increased in the gravel layer of such a stratum structure.

Response: We are very sorry of our mistakes in expression which let you misunderstand. We have revised this figure. The thickness of the middle layer changes greatly, especially at the edge of the slope, the middle layer will gradually disappear. In addition, affected by the foundation engineering around the hillside, it is more difficult for water seepage.

5. [Line 73-74] Detailed information and descriptions on the monitoring system should be needed; what specific devices (or sensors) were used to monitor the displacement and water level at which specific depths (please indicate and mark at the specific depths of sensoring in each of the two monitoring well in Fig. 4)? It is difficult to understand section 2.1 without the aforementioned information. For example, the monitoring system began to receive displacement data at what specific depths of which layer (Line 102-103)? The change of water pressure at what specific depths of which layer (Line 104)? The maximum displacements of No.2 and No.1 at what specific depths of which layer (Line 108-109)?

Response: We agree with you very much and we have revised the sentence in line 74-75 、line 103-105 and Fig. 4. The fixed inclinometer is used for monitoring, which mainly monitors the displacement at the fixed depth showed in Fig. 4.

6. [Line 105-108] difficult to understand the paragraph. “Slide body”, “slope body”, and “sliding surface (in Fig. 4)”……What does specifically each of the three terminologies indicate? What’s the differences? Is the “subsequent and wider cracks” different from the sliding surface in Fig. 4? If so, why they are not depicted in Fig. 4?

Response: We are sorry to puzzled you and we have revised the misexpression in line 105-108 and Fig. 4. The “slide body” should be “slip body” meaning the part of rock and soil that has moved. The “slope body” should be “slope”. subsequent and wider cracks

7. [Line 111] The landslide conforms to the characteristics of “typical intermittent creeping landslides”……in what aspect? Is it typical for the type of creeping landslides to have such three distinct stages? Is the expression “intermittent” correct in the case of this landslide event? Most typical creeping landslides exhibit multiple reactivations in a long-term period. Please justify your expression with referencing to literatures.

Response: Firstly, the landslide conforms to the characteristics of three distinct stages. Secondly, as mentioned above, there was a slide in 2015, but they believed that it is relatively gentle and no subsequent sliding would occur.

8. [Table 1] Permeability coefficient ……Unit?

Response: We have added it in the table 1.

9. [Fig. 5] Please reconsider the period of Initial Deformation. It is mentioned that the initial deformation occurred at 16:00 on the 25th and was 11 mm. Therefore, the period

should be from the starting time of the deformation to the time when the deformation first reached 11 mm. The boundary of Initial Deformation that is drawn seems improper.
Response: Thank you for your suggestion and we have revised the boundary of Initial Deformation.

10. [Line 131-134] It is written as if such phenomena as “increasing number of subsequent cracks” and “extending length and gradual penetration” were “visually observed” during the period of Isokinetic deformation. Clear evidences must be accompanied when the author insists that such phenomena took place during Isokinetic deformation.
Response: We have revised the sentences in line 131-133.

11. [Line 133-134] shear dislocation zones, seepage points.....what’s their relation with the Isokinetic deformation behavior? Evidences of these phenomena happening during the Isokinetic deformation?
Response: We have revised the sentences in line 131-133. And this is only to describe some phenomena of slope in the stage of Isokinetic deformation, not the evidences of these phenomena happening during the Isokinetic deformation.

12. [line 136-137] 88.8 mm.....Is it correct amount? Seeing Fig. 5, rainfall seems to have accumulated as much as ~130 mm on the 1st July.
Response: We are very sorry of our mistakes in expression which let you misunderstand and we have revised the sentence in line 135-136.

13. [Line 138-139] How come the deformation increased to 11.3 mm/h? The unit!
Response: We are very sorry of our mistakes in expression and we have revised the sentence in line 137.

14. [Line 146-147 and Fig. 6] Why was the confined water not formed at the monitoring point 2 in the grave layer?
Response: The monitoring point 2 also forms confined water, but its water head is not as high as that of hole 1 because the buried depth of monitoring hole 2 is shallow.

15. [Line 147] a maximum water pressure of 26.3 m ?? Unit!
Response: We are very sorry of our mistakes in expression and we have revised the sentence in line 146-147 and Fig. 6.

16. [Line 150-151] Please theoretically justify landslide occurred bedding on the interface between the surface layer and the middle layer. If it was because of the increase in the pore-water pressure caused by confined water, isn’t is more reasonable to see the sliding surface on the interface between the middle layer and the lowest layer?
Response: In line 150-159, We have explained that : on the one hand, due to the pressure of the confined aquifer, at the roof of the temporary confined water (the bottom of the silty clay layer), the "uplift pressure" perpendicular to the contact surface is generated,

the force between the upper and the middle soil layers is weakened, the sliding power is increased, and the antisliding power is reduced so that the stability of the slope is reduced; on the other hand, the silty clay with gravel layer is enriched when the confined water is collected, the weight of the slope increases greatly, and the sliding power generated in the lower part of the slope also increases greatly. At the same time, under the combined action of the "uplift pressure" of the confined water and the seepage force of the middle layer, the shear failure to the initial crack point of the landslide will occur at the slope toe. This accelerates the sliding of the slope, and the uplift pressure of the temporary confined water on the soil layer interface weakens the interaction between the soil layers, thus making the slope slide along the layer.

17. [Line 155-156] “the silty clay ~ the weight of the slope increases greatly”.....Again, if the authors want to insist that these unique phenomena happened, clear evidences or reasonable theoretical deduction must be suggested in advance.
Response: In line 155-156, this is a theoretical interpretation of it landslide occurred bedding on the interface between the surface layer and the middle layer.

18. [Line 157] the lower part of the slope.....confusing and unclear expression. Where does it specifically indicate?
Response: As we mentioned above in line 59-61, mountains are divided into upper and lower parts.

19. [Line 168-171] Where is the exposed part of the middle layer in Fig. 4 and Fig. 7? Why no indications in those figures? Moreover, rainfall infiltration boundary is supposed to be depicted as a series of arrows. Why no such indications in those figures? Such unkind descriptions exist a lot in this manuscript.
Response: Sorry to let you misunderstand. We have revised the Fig. 1, and we showed that the upper part of the slope is usually rock with weathered fissures, which is convenient for rainfall infiltration. In addition, the exposed part of the middle layer in Fig. 4 and Fig. 7 refers to the leftmost part of the middle layer where is the inlet of rainwater infiltration.

20. [Section 3.1] There is no explanation on how the initial condition (moisture or pore-water pressure state profiles) of the slope was set using what kind of analysis, what reference field data, or what kind of different boundary conditions....
Response: The water level is shown in Fig. 7, and we added the table 2 to let you know better.

21. [Line 179 and Fig. 8] 1) “the bottom of the confining bed”.....Please clarify where this expression indicate by marking the nodes in Fig. 7 where the pore-water pressure data was picked up to plot Fig. 8. 2) Why do the plots in Fig. 8 exhibit sharp conversions of the gradient from positive to negative at some distances around 30 m?
Response: We are very sorry of our mistakes in expression and we have revised the sentence in line 182.

22. [Line 186-187] ".....can be divided into unconfined areas and confined areas." .....Where do the authors mean by unconfined part and unconfined part? Another unkind description....
Response: As shown in line 170-171, when the pressure head is greater than 0 m, confined water is formed. And we can see from the Fig. 8 and Fig. 9, you can distinguish unconfined areas and confined areas with 0 as the boundary.

23. [Line 190-191] What is the reason of 150 mm/d reaching the highest water level instead of 175 mm/d? Furthermore, are these results of numerical study meaningful from the perspective of the applications in practice? In what aspect? Please persuade it.
Response: The reason of 150 mm/d reaching the highest water level instead of 175 mm/d is when the rainfall reaches a certain amount, it is difficult for the rainwater to infiltrate because it's saturated.

24. [Line 198-210] It is very difficult to completely understand and match the descriptions in this paragraph with Fig. 9.
Response: We are very sorry to puzzled you and we have revised the sentence in line 200-212.

25. [Line 209] What does "lifting speed" mean?
Response: We are very sorry to puzzled you and we have revised the sentence in line 200-212.

26. [Line 218-209] the most optimal permeability 0.0001-0.0003.....It is only a result deduced from a single specific event condition. What aspect does this study have valuable meaning for a general application?
Response: As described above, we use the Seep/W modular of Geo-studio software to verify the analysis that temporary confined water is the main factor triggering the landslide.

27. [Line 224] What kind of limit equilibrium theory and what equation? At which depth was the sliding surface set in the stability analysis? How did you apply the pore-water pressure term that changes over time into the limit equilibrium equation? Detailed descriptions on your assumptions and settings in the stability analysis is entirely omitted.....
Response: We are very sorry to puzzled you and we have revised the sentence in line 225-226.

28. [Line 227] Normally, we use "factor of safety" rather than "stability coefficient"....In addition, the stability coefficient is positively(?) related to the water pressure level? Not negatively?
Response: We are very sorry of our mistakes in expression and we have revised the sentence in line 229 and Fig. 11.

We tried our best to improve the manuscript and made some changes in the manuscript. These changes will not influence the content and framework of the paper. And here we did not list the changes but marked in red in revised paper.

Moreover, after we made the above modifications according to the comments of the reviewers, we found that the title of the paper can modified to " Temporary confined water responsible for triggering the landslide of a piedmont gentle slope in Zhenjing city, Jiangsu Province, China: a case study" to reflect directly the main purpose and highlight the key points of the paper.

We appreciate for Editors/Reviewers' warm work earnestly, and hope that the correction will meet with approval.

Once again, thank you very much for your comments and suggestions.

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