Review Form 3

Journal Name:	**Journal of Engineering Research and Reports**
Manuscript Number:	**Ms_JERR_127641**
Title of the Manuscript:	**Analytic Determination of the Roller Length of a Hydraulic Jump in an Open Channel Flow using a Bouncing Ball**
Type of the Article	

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
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PART 1: Review Comments

Compulsory REVISION comments	,	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	**This is an essential and valuable topic, offering significant insights for designing stilling basins by accurately determining the roller length of a hydraulic jump.**	
Is the title of the article suitable? (If not please suggest an alternative title)	**The title of the paper appears to be well-chosen and appropriate.**	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	**Good a abstract**	
Are subsections and structure of the manuscript appropriate?	**Yes**	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	**Overall, the manuscript is scientifically robust, with sound techniques and valid interpretations of the findings**	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. -	**Yes**	
Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	Yes sutible	
Optional/General comments	**Reviewer's comment** **Page 2:** The classification of the hydraulic jump should be more concise and presented in short, specific sentences. **Page 2:** Ensure all equations are numbered for clarity and reference. **Page 3:** Avoid redefining variables such as d, v, etc. Remove the first two lines to eliminate redundancy. **Page 3:** The sentence, "Hence, this work aims to develop a numerical model of hydraulic jump for a wide range of flow with Froude numbers between 2.00 and 16.00," should be revised to indicate an	

	analytical model instead of a numerical model. **Uses of Hydraulic Jump Section**: This section is unnecessary as it covers basic hydraulic principles. It is recommended to remove it. **Effect of Hydraulic Jump Section**: This section needs to be revised to include concise and specific sentences. Ensure all essential details are clearly presented. **Experimental Configuration Section**: Provide the full dimensions of the open channel and include a detailed sketch to enhance clarity. **Page 6 Notation Issue**: The statement mentions "The sequent flow depth, h2, was measured using a point gauge (±0.1 mm) and wells connected to pressure taps." Clarify the difference between h2 and d2 , as the notations should consistently represent the same physical quantity throughout the manuscript. **Page 6 "**The distance Axj between the cover end and the average position of the jump toe was observed, and the jump inflow depth hx was computed by accounting for wall friction". Axj, hx clarify them on figure. Page 7 "experiments were performed with Fr_1 = 5.1 for 0.012 m < d_1 < 0.047 m corresponding to 2 × 10 4 < Re < 1.6 ×)" correct value of Reynolds number. Page 7 , Fig. 1 and 2, use the same notation for both figures. In Fig. 1, How is the depth d2 determined, especially in areas where turbulence is observed on the water surface?. Page 7 "depth d_1 the sequent depth d_2, or some combination such as {h_2 — h_1).)" why d and h are used? Table 1, Rajaratnam (1965) what is in last column? Is it λ_r ? The question in Table 1, is all of these characteristics for classical hydraulic jump conditions? Get paragraph to explain this table. **On Page 9, under the "Formulation of the Model" section:** • **Do you consider the rebound velocity to be valid within the turbulent zone between sections 1 and 2?** • **At section 1, where the flow is supercritical with high velocity, is it realistic to expect a rebound for a ball in this region?** • **It would be helpful to include additional sketches and provide more detailed explanations to clarify this concept further.** **In Equation 7, where t2 represents the time taken by the ball to travel from Section 1 to Section 2, do you believe the ball's movement follows a linear pattern within this zone? If not, how does this assumption affect the applicability of the equation?** What is the difference in derivation between Eqns 14 and 15?	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

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