

## Response to Reviewers' Comments

On manuscript Number: **NHESS-2024-176**

Title: Severe beach erosion induced by shoreline deformation after a large-scale reclamation project for Samcheok LNG terminal in Korea

**Note:** Words/phrases/sentences that represent the response to the Editor and Reviewers' comments are highlighted in BLUE/RED color in the revised manuscript, while those from our own revision are also typed in BLUE/RED.

A **Clean** copy is also produced, upon deleting the parts struck out and retaining only those newly added in BLUE/RED.

First of all, the authors sincerely thanks the editor and both reviewers for their valuable time and insightful comments, which have greatly contributed to improving the manuscript. All comments have been addressed in detail in the responses below.

### Editor:

**Comment:** Considering the answers of the reviewers, which are both positive on the publication of this manuscript, it could be accepted after the residual specific change recommended by Reviewer#1.

Further, I suggest that in the final sentence (line 444-445) "would not have occurred" is replaced with "could have been avoided", as the implementation of the mitigation actions should not be given for granted in spite of the evidence suggested by this study.

**Response:** Thank you very much for your thoughtful suggestion. As advised, we have revised the sentence by replacing "*would not have occurred*" with "*could have been avoided*" to better reflect the conditional nature of implementing mitigation actions, as appropriately highlighted in your comment.

Additionally, we have addressed the minor revision requested by Reviewer #1, as detailed below.

### Reviewer #1:

**Comment:** Please clarify the extend of water depth at the outer breakwater for the LNG terminal (10 or 15 or 20 m?) and the design wave conditions for the breakwater (wave height and period); instead of vaguely stating (Line 133) that "The coastal waters near the Samcheok LNG terminal, where Wolcheon Beach is located are deep and subjected to high wave energy".

**Response:** Thank you for your helpful comment. We have revised the text to clarify the water depth and wave conditions near the Samcheok LNG terminal as follows:

- The coastal waters near the Samcheok LNG terminal, where Wolcheon Beach is located, have depths ranging from approximately 20 to 30 m. These waters are exposed to moderate to high wave energy conditions, with a mean annual significant wave height between approximately 1.04 and 1.24 m.

### Reviewer #2:

**Comment:** The authors have responded satisfactorily to the first report. As far as I am concerned, the manuscript can be accepted for publication.

**Response:** The authors would like to express sincere appreciation to Reviewer #2 for the positive feedback and recommendation for publication.