


A Schematic Design of Storm Surge Barrier with Navigable Gates along the Coastal Area of Brgy. Wawa 1, 2 and 3 Rosario, Cavite

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ABSTRACT

Every year an average of 26 storms occur and hit the Philippines. Hundreds of people get affected by these typhoon occurrences. Recently, typhoon Yolanda struck the Philippines. This typhoon was considered as one of the strongest tropical cyclones to make landfall in recorded history for it affected millions of families and thousands of casualties by the storms surge that it caused.

This led the researchers to conduct a study with a purpose to design a storm surge barrier that can withstand the force and height of the storm surge that typhoon Yolanda generated. This study also aims to prepare the Philippines, specifically Brgy. Wawa I, II and III Rosario Cavite, for such kind of calamity and to give an idea on the new structures necessary to be designed and constructed in the said country. In addition to this, the researchers aims to contribute to the idea of designing an effective barrier because at present there is still no standard procedure in designing a storm surge barrier.

This study consists of three main jobs; first was the data collection from NAMRIA, PAGASA and DOST. Second was designing of navigable storm surge barrier using STAAD and SketchUp. And lastly, simulation of the designed storm surge barrier using Depiction.

The designed Navigable Storm Surge Barriers in Brgy. Wawa I, II and III Rosario Cavite were computed against overturning, uplift and sliding using the principle of a dam. Based from the strength test using STAAD and flood inundation using Depiction software it was concluded that a 20-meter flap gate must have at least 10 cm thickness to resist the forces from typhoon and must have cylindrical supports of 10 cm in diameter. The designed four barriers were spaced at 20 meters to avoid closing the whole area. This was to allow the normal flow of water. Also, the barriers were placed 150 m away from the shoreline. This design generated a distance of 177.87 m flood distance from the shore.

TABLE OF CONTENTS

TITLE PAGE	i
ACKNOWLEDGEMENT	iii
ABSTRACT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	x
LIST OF FIGURES	xii

CHAPTER 1 : THE PROBLEM AND ITS BACKGROUND

1.1 Introduction	1
1.2 Statement of the Problem	3
1.3 Objectives of the Study.....	3
1.4 Significance of the Study.....	4
1.5 Scope and Limitation of the Study.....	4
1.6 Conceptual Framework	5
1.7 Definition of Terms.....	7

CHAPTER 2 : REVIEW OF RELATED LITERATURE

2.1 Storm Surge	8
2.1.1 Storm Surge generated from Typhoon Yolanda	8
2.1.2 Storm Surge and Typhoon Occurrence at Brgy Wawa 1,2 and 3 Rosario Cavite.....	9
2.1.3 DOST – Project NOAH	11
2.1.4 Storm Surge Height.....	12
2.2 Storm Surge Barrier.....	12
2.2.1 Types of Navigable Surge Barrier.....	14
2.2.1.1 Vertical Lifting Gate	14
2.2.1.2 Flap Gate.....	15
2.2.1.3 Horizontally Moving or Rotating Gate.....	18

2.2.1.4 Vertically Rotating Gate.....	19
2.2.1.5 Rubber Dams.....	20
2.3 Stability of the Structure	22
2.3.1 Factor of Safety against Overturning.....	22
2.3.2 Factor of Safety against Sliding	22
2.3.3 Location of Ry as measured from th Toe	22
2.3.4 Foundation Pressure	22
2.4 Dynamic Loads	23
2.4.1 Wave Pressure	23
2.4.2 Wind Load.....	24
2.5 Key Factors Influencing the Slope and Stability of Structure.....	24
2.5.1 Sedimentation	24
2.5.1.1 Sedimentation Problems.....	25
2.5.2 Erosion	25
2.5.2.1 Water Erosion	25
2.5.2.1.1 Rainfall and Runoff.....	25
2.5.2.2 Forms of water Erosion	26
2.5.2.2.1 Sheet Erosion	26
2.5.2.2.2 Rill Erosion	26
2.5.2.2.3 Gully Erosion	26
2.5.2.2.4 Bank Erosion	27
2.5.2.3 Effects of Water Erosion.....	27
2.5.2.3.1 On-site.....	27
2.5.2.3.2 Off-site	28
2.5.3 Scouring	28
2.5.3.1 Types of Scour	28
2.5.3.2 Effects of scour on offshore wind turbines	29
2.6 Project Simulation and Softwares.....	30
2.6.1 Depiction Software.....	31
2.6.2 STAAD.Pro - Bentley	31
2.6.3 Sketchup	31
2.6.4 AutoCAD.....	31

CHAPTER 3 : METHODOLOGY

3.1 Methodological Framework.....	32
3.2 Data Gathering	33
3.2.1 Evaluation of the Location	33
3.2.2 Parameters for the Design of Surge Barrier	34
3.3 Materials for Construction of Storm Surge Barrier	34
3.4 The Softwares for Design and Simulation of Storm Surge Barrier	35
3.5 Designing of Surge Barrier	35
3.5.1 Physical Design.....	36
3.6 Process of Computation	36
3.6.1 Stability Condition for an Upright Section.....	36
3.7 Testing the Barrier	38
3.8 Effectivity of the Surge Barrier.....	38

CHAPTER 4 : RESULTS AND DISCUSSION

4.1 Simulation Process	39
4.1.1 Elevation data	39
4.1.2 Slope of the sea bed	40
4.1.3 Location and Elevation of the Barrier	42
4.2 Discharge Flow for the Flap Gates.....	47
4.3 Analysis of Simulation Results.....	48
4.4 Strength of the Barrier.....	50
4.4.1 Testing using STAAD.....	50
4.5 Stability of the barrier.....	57
4.5.1 Factor of safety against Overturning under hydrodynamic pressure....	58
4.5.2 Factor of safety against Sliding under hydrodynamic pressure	60
4.6 Piles Foundation.....	61
4.7 Final Design of the barrier.....	63

CHAPTER 5 : CONCLUSION AND RECOMMENDATION

5.1 Summary of Findings.....67

5.2 Conclusion.....70

5.3 Recommendation71

BIBLIOGRAPHY72

APPENDICES74



LIST OF TABLES

Table 2.1 : Vertical Lifting Gate.....	15
Table 2.2 : Flap Gate	17
Table 2.3 : Horizontally Moving Gates.....	18
Table 2.4 : Vertically Rotating Gate	19
Table 2.5 : Rubber Dams	21
Table 4.1.1 : Slope of the seabed	41
Table 4.4.1: Summary of Loads	51
Table 4.4.1 : Maximum Deflections	52
Table 4.4.2 : Maximum and Minimum Deflection of Trial 2.....	53
Table 4.4.3 : Deflection Values for Trial 3 using 0.2m thickness	54
Table 4.4.4 : Deflections on Trial 4 using 0.05m diameter of cylindrical steel support	54
Table 4.4.5 : Deflections in trial 5 when the spacing was changed into 1 meter	55
Table 4.4.6 : Trial 6; Deflection when adjacent supports were added	56
Table 4.4.7 : Deflection of trial 8 upon modification of the support.....	57
Table 5.1.1: Causes of Storm Surge	67
Table 5.1.2: Top ten strongest typhoon and its effects.....	68
Table A.1.1: Trial 1: $L=150\text{m}$, $d=100\text{m}$, $s=20$, $\theta=20$	74
Table A.1.2: Trial 2: $L=150\text{m}$, $d=150\text{m}$, $s=20$, $\theta=20$	75
Table A.1.3: Trial 3: $L=150\text{m}$, $d=200\text{m}$, $s=20$, $\theta=20$	76
Table A.1.4: Trial 4: $L=175\text{m}$, $d=100\text{m}$, $s=20$, $\theta=20$	77
Table A.1.5: Trial 5: $L=175\text{m}$, $d=150\text{m}$, $s=20$, $\theta=20$	78
Table A.1.6: Trial 6: $L=175\text{m}$, $d=200\text{m}$, $s=20$, $\theta=20$	79
Table A.1.7: Trial 7: $L=200\text{m}$, $d=100\text{m}$, $s=20$, $\theta=20$	80
Table A.1.8: Trial 8: $L=200\text{m}$, $d=150\text{m}$, $s=20$, $\theta=20$	81
Table A.1.9: Trial 9: $L=200\text{m}$, $d=200\text{m}$, $s=20$, $\theta=20$	82
Table A.1.10: Trial 10: $L=150\text{m}$, $d=100\text{m}$, $s=30$, $\theta=20$	83
Table A.1.11: Trial 11: $L=150\text{m}$, $d=150\text{m}$, $s=30$, $\theta=20$	84
Table A.1.12: Trial 12: $L=150\text{m}$, $d=200\text{m}$, $s=30$, $\theta=20$	85
Table A.1.13: Trial 13: $L=175\text{m}$, $d=100\text{m}$, $s=30$, $\theta=20$	86

Table A.1.14: Trial 14: $L=175\text{m}$, $d=150\text{m}$, $s=30$, $\theta=20$	87
Table A.1.15: Trial 15: $L=175\text{m}$, $d=200\text{m}$, $s=30$, $\theta=20$	88
Table A.1.16: Trial 16: $L=200\text{m}$, $d=100\text{m}$, $s=30$, $\theta=20$	89
Table A.1.17: Trial 17: $L=200\text{m}$, $d=150\text{m}$, $s=30$, $\theta=20$	90
Table A.1.18: Trial 18: $L=200\text{m}$, $d=200\text{m}$, $s=30$, $\theta=20$	91
Table A.1.19: Trial 19: $L=150\text{m}$, $d=100\text{m}$, $s=40$, $\theta=20$	92
Table A.1.20: Trial 20: $L=150\text{m}$, $d=150\text{m}$, $s=40$, $\theta=20$	93
Table A.1.21: Trial 21: $L=150\text{m}$, $d=200\text{m}$, $s=40$, $\theta=20$	94
Table A.1.22: Trial 22: $L=175\text{m}$, $d=100\text{m}$, $s=40$, $\theta=20$	95
Table A.1.23: Trial 23: $L=175\text{m}$, $d=150\text{m}$, $s=40$, $\theta=20$	96
Table A.1.24: Trial 24: $L=175\text{m}$, $d=200\text{m}$, $s=40$, $\theta=20$	97
Table A.1.25: Trial 25: $L=200\text{m}$, $d=100\text{m}$, $s=40$, $\theta=20$	98
Table A.1.26: Trial 26: $L=200\text{m}$, $d=150\text{m}$, $s=40$, $\theta=20$	99
Table A.1.27: Trial 27: $L=200\text{m}$, $d=200\text{m}$, $s=40$, $\theta=20$	100
Table A.1.28: Trial 28: $L=150\text{m}$, $d=100\text{m}$, $s=50$, $\theta=20$	101
Table A.1.29: Trial 29: $L=150\text{m}$, $d=150\text{m}$, $s=50$, $\theta=20$	102
Table A.1.30: Trial 30: $L=150\text{m}$, $d=200\text{m}$, $s=50$, $\theta=20$	103
Table A.1.31: Trial 31: $L=175\text{m}$, $d=100\text{m}$, $s=50$, $\theta=20$	104
Table A.1.32: Trial 32: $L=175\text{m}$, $d=150\text{m}$, $s=50$, $\theta=20$	105
Table A.1.33: Trial 33: $L=175\text{m}$, $d=200\text{m}$, $s=50$, $\theta=20$	106
Table A.1.34: Trial 34: $L=200\text{m}$, $d=100\text{m}$, $s=50$, $\theta=20$	107
Table A.1.35: Trial 35: $L=200\text{m}$, $d=150\text{m}$, $s=50$, $\theta=20$	108
Table A.1.36: Trial 36: $L=200\text{m}$, $d=200\text{m}$, $s=50$, $\theta=20$	109
Table A.1.37: Trial 37: $L=200\text{m}$, $d=150\text{m}$, $s=20$, $\theta=25$	110
Table A.1.38: Trial 38: $L=200\text{m}$, $d=150\text{m}$, $s=20$, $\theta=30$	111

LIST OF FIGURES

Figure 1.1: Conceptual Framework	6
Figure 2.1: Lifting gates: Hartelkanaal Storm Surge Barrier.....	14
Figure 2.2: Flapgates: Venice Storm Surge Barrier.....	16
Figure 2.3: Horizontally moving: Maeslant Storm Surge Barrier, Netherlands	18
Figure 2.4: Vertically rotating: Thames Storm Surge Barrier.....	19
Figure 2.5: Rubber dams: Ramspol barrier, Netherlands.....	20
Figure 3.1: Wave Pressure	24
Figure 4.1.1: Bathymetric Map.....	41
Figure 4.1.2: Elevation and Location.....	42
Figure 4.1.3: Satellite image from Wikimapia.org.....	43
Figure 4.1.4: Distance of the shoreline	43
Figure 4.1.5: Parameters.....	44
Figure 4.1.6: Variables in computation of the Latitude and Longitude	45
Figure 4.1.7: Simulation in Depiction Software	46
Figure 4.3.1: Five meter storm surge without a barrier.....	49
Figure 4.3.2: Five meter storm surge with barrier	49
Figure 4.4.1: Deflection Diagram of Trial 1.....	52
Figure 4.4.2: Deflection diagram of Trial 2	53
Figure 4.4.3: Trial 6; Addition of support adjacent to the initial supports.....	55
Figure 4.4.4: Addition of hollow part on the support for its mechanism.....	56
Figure 4.5: Wave pressure and equivalent wave height.....	58
Figure 4.6.1: Top view of the foundation	62
Figure 4.6.2: Depth of the piles	63
Figure 4.7.1: Right side view of the designed storm surge barrier	64
Figure 4.7.2: Front view of the designed storm surge barrier	64
Figure 4.7.3: Isometric view of the designed storm surge barrier	64
Figure 4.7.4: Cross Section Plan when gates are open	65
Figure 4.7.5: Cross Section Plan when gates are closed.....	66
Figure 5.1.1: Schematic design of the storm surge barrier	69

Figure 5.1.2: Left side view of the storm surge barrier	69
Figure 5.1.3: Left side view of the storm surge barrier with gate dimensions	70
Figure A.1.1 Trial 1: Inundation Map	74
Figure A.1.2 Trial 2: Inundation Map	75
Figure A.1.3 Trial 3: Inundation Map	76
Figure A.1.4 Trial 4: Inundation Map	77
Figure A.1.5 Trial 5: Inundation Map	78
Figure A.1.6 Trial 6: Inundation Map	79
Figure A.1.7 Trial 7: Inundation Map	80
Figure A.1.8 Trial 8: Inundation Map	81
Figure A.1.9 Trial 9: Inundation Map	82
Figure A.1.10 Trial 10: Inundation Map.....	83
Figure A.1.11 Trial 11: Inundation Map.....	84
Figure A.1.12 Trial 12: Inundation Map.....	85
Figure A.1.13 Trial 13: Inundation Map.....	86
Figure A.1.14 Trial 14: Inundation Map.....	87
Figure A.1.15 Trial 15: Inundation Map.....	88
Figure A.1.16 Trial 16: Inundation Map.....	89
Figure A.1.17 Trial 17: Inundation Map.....	90
Figure A.1.18 Trial 18: Inundation Map.....	91
Figure A.1.19 Trial 19: Inundation Map.....	92
Figure A.1.20 Trial 20: Inundation Map.....	93
Figure A.1.21 Trial 21: Inundation Map.....	94
Figure A.1.22 Trial 22: Inundation Map.....	95
Figure A.1.23 Trial 23: Inundation Map.....	96
Figure A.1.24 Trial 24: Inundation Map.....	97
Figure A.1.25 Trial 25: Inundation Map.....	98
Figure A.1.26 Trial 26: Inundation Map.....	99
Figure A.1.27 Trial 27: Inundation Map.....	100
Figure A.1.28 Trial 28: Inundation Map.....	101
Figure A.1.29 Trial 29: Inundation Map.....	102
Figure A.1.30 Trial 30: Inundation Map.....	103

Figure A.1.31 Trial 31: Inundation Map.....	104
Figure A.1.32 Trial 32: Inundation Map.....	105
Figure A.1.33 Trial 33: Inundation Map.....	106
Figure A.1.34 Trial 34: Inundation Map.....	107
Figure A.1.35 Trial 35: Inundation Map.....	108
Figure A.1.36 Trial 36: Inundation Map.....	109
Figure A.1.37 Trial 37: Inundation Map.....	110
Figure A.1.38 Trial 38: Inundation Map.....	111
Figure A.2.1: Left Side View of the Barrier	112
Figure A.2.2: Front View of the Barrier w/ 1 gate only.....	112
Figure A.2.3: Top View of the Barrier w/ 1 gate only.....	113
Figure A.2.4: Front View of the 200-meter barrier	113
Figure A.2.5: Top view of foundation.....	114
Figure A.2.6: Depth of piles.....	114

