POST-DISASTER INVESTIGATION OF STRUCTURES IN THE PHILIPPINES (LEYTE AND EAST SAMAR) AFTER SUPER TYPHOON HAIYAN

by

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ABSTRACT

JOSEPH RAYMOND CALVO. Post-disaster investigation of structures in the Philippines (Leyte and East Samar) after Super *Typhoon Haiyan.* (Under the direction of DR. SHEN-EN CHEN)

This thesis reports the procedures, logistics and findings of an assessment of damaged structures following Super Typhoon Haiyan (also known as Hurricane Yolanda) in the Philippines. The investigation project entailed the coordination of the logistics for field investigation and the post-investigation data analysis. Specifically, this thesis reports the development of a basic condition rating method, a structure localization method via geo-tagged pictures, and the development of an open forum project website for remote analysis.

To enable remote access of interested studies, a data sharing website (the Philippines Hurricane Yolanda Structural Analysis (PHYSA) Project Site) was developed by the Mosaic IT group at the University of North Carolina at Charlotte (UNCC). The site is housed on a server running a Linux OS, with Apache, MySQL and PHP (LAMP). The rating technique ranked damaged conditions based on a 0 to 3 score. 148 structures were analyzed using the rating technique. Unlike previously published condition ratings, the technique does not include functional assessments such as mechanical and electrical systems and does not directly consider habitant safety. Thousands of pictures were taken with GPS cameras to facilitate a macro analysis of the damage modes. To perform an accurate analysis, steps were taken to locate each structure of interest (SOI) via centroid calculations to reduce the margin of error intrinsic to GPS. These images were made available on the project website.

The outcomes indicate that wind damages dominated as the major cause of failures (53%) and that roof damage is the most significant of the damage modes (24%). The rating gives a first order assessment of the damaged conditions of the structures pertaining to loading effects (wind, water or combined) from Super Typhoon Haiyan. As Haiyan has the highest wind speed on record and may have significant implications to future events pertaining to climate changes, this study also reviewed the rapidly increasing body of knowledge regarding Haiyan.

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CHAPTER I: INTRODUCTION

1.1 Introduction

Super Typhoon Haiyan, also known as Typhoon Yolanda in the Philippines, which made first landfall in Guiuan on East Samar Island, Philippines, was an exceptionally powerful tropical cyclone that devastated portions of the Philippines, in early November 2013. With an unofficially recorded wind speed of 313 km/h, for one minute sustained wind, Haiyan could be the strongest recorded wind force associated with a typhoon in history. Previous recorded high wind speeds included Hurricane Allen at 305 km/h and several at 295 km/h with varied damaging effects (NOAA 1983). In the case of Hurricane Haiyan, 6,300 lives were lost across the Philippines. (Del Rosario, 2014).

Among the meteorological and engineering communities there have been increasing concerns about the likelihood of what are commonly described as "Super Storms" – such as Hurricane Sandy in October 2012 (Blake et al. 2013, Stockdon et al. 2013, McCallum et al. 2013). The susceptibility of domestic structures and infrastructure is at the forefront of this alarm, but following Super Typhoon Haiyan, also known as Typhoon Yolanda in the Philippines, the concern in the United States has been escalated (Chen et al. 2015). While Haiyan did not directly affect the United States, U.S. engineers and agencies need to identify and analyze the information from this record typhoon in order to implement improvements for domestic design and construction practices and to identify potential domestic coastlines with susceptibilities to "Super Storms."

In early May 2014, ASCE deployed a team of eight Society members to the Philippines for a week of study at the heart of the Typhoon Haiyan. The team collected and documented evidence of hurricane-induced structural and geo-system damages to commercial structures, residential structures, and public infrastructure, etc. The team consisted of members from the then Technical Council for Forensic Engineering (TCFE, now Forensic Engineering Division, FED) and the Technical Council for Wind Engineering (TCWE).

Most of the members were visiting the Philippines for the first time. Therefore, extensive studies of Google Earth™ images and internet resources were conducted prior to the trip to assist the team in getting familiar with the country and the most significantly affected regions. Satellite and aerial images prior to the event, after the event, and more recent aerial views (during reconstruction) were reviewed and groupings of structures were selected to a tally of 100 identified structures in the most significantly affected region for analysis by the field team. The study area was focused on Tacloban City, which was the largest metropolitan area (largest population) in the direct path of the storm. However, during the actual field trip, the team was able to cover beyond Tacloban and reached other locations, including the East Samar island.

1.2 International Collaboration

Through ASCE, the field team contacted the Philippines Institute of Civil Engineers (PICE) and the Local Chapter of ASCE (division 10). Both PICE and local ASCE chapter provided indispensable ground support throughout the entire study. The field team learned the value of meeting local government officials prior to immersing the field team in the municipality, and the PICE and local ASCE chapter facilitated many, if not

all, of these contacts upon arrival of the field team to the municipality. Thus, the field trip represents a true international joint collaboration. Without ASCE's international partners, would be impossible to conduct such studies.

The field studies included taking pictures of selected structures and surrounding structures with scale references, and field notes. In sum, nearly 12,000 pictures were collected by the field team. GPS cameras were requested for each member of the field team, which allowed the images to be Geo-referenced in Google Earth™, via the geospatial information system (GSIS) embedded data within a standard JPEG image. Figure 1 depicts superimposed designations of picture locations on an aerial view from Google Earth™ as taken by the field team during the week-long study. The pictures were uploaded to a data website, and organization was provided by identification numbers for each selected structure (structure ID's).

The field team observed many opportunities to observe conditions of the construction materials utilized, connection details, bracing, fastener type/size/spacing, and roof covering characteristics that would have left gaping holes filled with un-groomed assumptions for structural analysis from a virtual 10,000 foot view provided by aerials. Differentiation of the effects of forces from wind and storm surge are site by site assessments because of the seemingly subtle differences in adjacent structures. However, broad-based assumptions that each structure experienced the exact same forces are incorrect, and field observation to document orientation, components, age, detailing, opening locations in the building, and other factors provide vital information. Utilization of these site specific details, as obtained by the field team, provide the basis for analysis to decipher wind-related effects from surge-related effects. Without the ability to

differentiate these forces provided by observations of the field team, the comparisons to domestic design and domestic construction practices would be difficult, at best, and the lessons learned domestically would be riddled with broad-brushed (and potentially incorrect) assumptions.

To share the trip outcomes with a broader audience, the collected data have been uploaded on a long term project website (http://asce-philippines.uncc.edu) dedicated to the project. The collected information was collaborated and reviewed by the team prior to encourage more engineers and experts to engage in the data analysis. Thus, the data sharing allows a duo-team approach to disaster data analysis. The post analysis was mostly done with faculty and students from the Department of Civil Engineering at the National Institute of Technology at Trichy (NIT Trichy) in Tiruchirappalli, India, via Skype meetings. Further demonstrated international collaboration efforts. It is the intent of the project to lay out the novel data collection method so that future similar efforts by global civil engineering community can be established using the same data sharing process.

1.3 Thesis Objective

This thesis summarizes the ASCE trip effort and documents the data collected from the trip including findings from preliminary analysis done on the collected data. The goals of this thesis are to document the study methodology, the preliminary analysis results and to report the state of understanding of the Haiyan event.

1.4 Thesis Outlines

The stricture of this thesis consists of seven chapters: Chapter 1 introduces the project; Chapter 2 summarized literatures published on the subject of Super Typhoon Haiyan, and described briefly the insurance issues pertaining to hurricane-related problems; Chapter 3 described the development phase of this project which consists of field trip planning and the development of the project website; Chapter 4 describes the approach in identifying the centroid of the damaged structure from the photographs taken by the field team; Chapter 5 describes the assessment of the damaged states of the 148 structures using a basic rating technique; Chapter 6 discusses the rating results from the 148 structures and differentiates wind and water damaged structures; Chapter 7 concludes the findings from this study; Chapter 8 suggests future studies that may be derived from the current thesis.

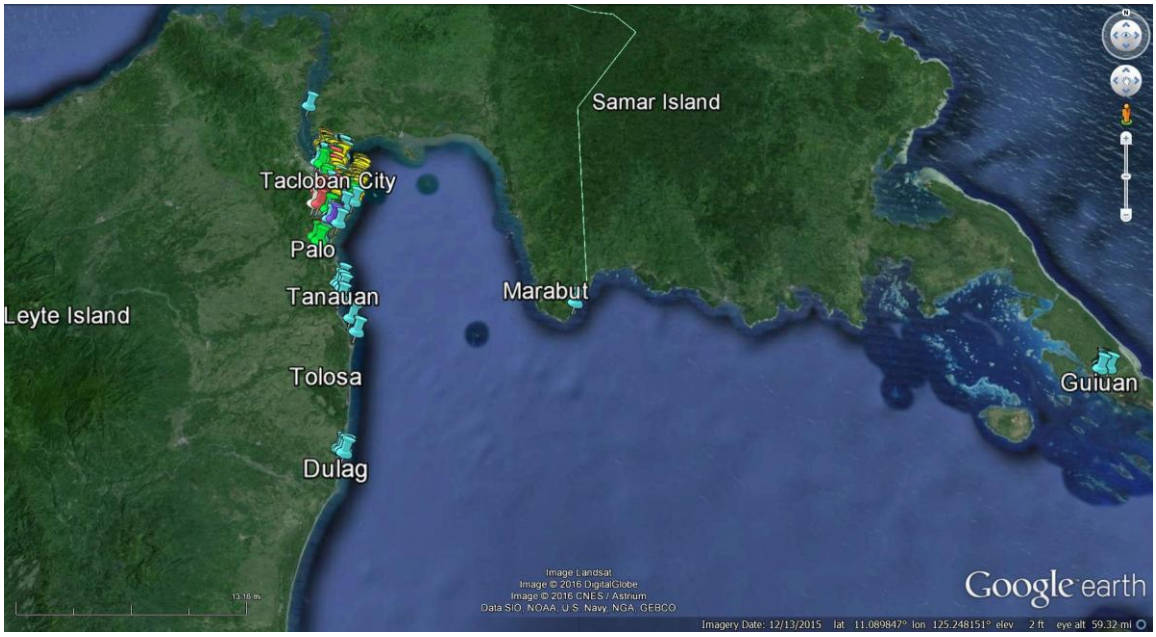


Figure 1: Locations of Pictures Collected During the Field Study Superimposed on Google Earth™.

CHAPTER II: DETAILS

2.1 Timeline of Super Typhoon Haiyan

Typhoon Haiyan was formed on November 3, 2013 over the north-western Pacific (6.1oN, 152.2oE) and dissipated on November 11, 2013 in China: Started out as a local depression, its strength grew rapidly to become a tropical storm at 18:00 UTC on 4th November and then a strong typhoon at 18:00 UTC on the 5th November. As it migrated northwest, the depression finally became a super typhoon with a minimum central pressure of 950 hPa and maximum central mean wind speed of up to 55 m/s (Chen et al. 2014). Haiyan arrived at East Samar at 20:40 UTC of 7th November with a minim central pressure reaching 890 hPa and a maximum central mean wind speed of 75 m/s – the result is devastation to the township of Guiuan. Figure 2 shows the track of Super Typhoon Haiyan with its means velocity and Table 1 with the timed event of Super Typhoon Haiyan (reproduced from Kim 2015).

At 23:00 UTC of 7th November, the storm arrived at Tolosa of the Leyte Island and caused wide spread disasters, which included 722 deaths in the city of Tanauan, which is the second most severely damaged area by Haiyan in Leyte Province (Yi et al. 2015). The significant storm brought precipitation reaching 615 mm between November 3 and 12 (Nguyen et al. 2014a). The flooding through Tacloban city reached 7 m/s (Takagi et al. 2016). However, damage to city building was limited indicating that the flooding did not carry sufficient strong forces. Using hydrodynamic modeling, Bricker et al.

(2014) estimated maximum flow speed not more than 3 m/s. Figures 3 to 4 show downtown structures with minor wind and flood damages.

To reproduce the track of the super typhoon, Takayabu et al. (2015) used super high resolution regional climate model to simulate the event. Takagi and Esteban (2016) studied over 400 past storms in the region and determined that Haiyan is 16% stronger than the second strongest typhoon in the area. Furthermore, it is also the fastest moving (41 km/h) typhoon in the region.

Super Typhoon Haiyan was one of the deadliest tropical cyclones in Philippines history (NOAA 2014). Unofficially, records indicated it has wind speeds of 313 km/h (195 mph), for one-minute sustained wind, which, if verified, are the strongest recorded wind speeds associated with a typhoon in history. The resulting storm surge pushed flood water to come inland and damage structures for hundreds of meters (Yamada and Galat 2014). Lin et al. (2014) suggested that at the 170 knots of 1 minute sustained surface wind speed (measured by the US Joint Typhoon Warning Center), Haiyan may reached a new category of tropical cyclone. Previous recorded high wind speeds included Hurricane Allen at 305 km/h and several at 295 km/h with varied damaging effects (NOAA 1983).

2.2 Storm Surge and Climate Change Implications

Pertinent to current thesis are the structural damages due to wind and storm surge. The observed wave heights included measured heights at 19 m off Eastern Samar (Bricker et al. 2014). Bricker used both field measurements as well as hydrodynamic modeling. However, despite several satellite real monitoring, there is no actual measurements of the storm surge heights (Nguyen et al. 2014). Using high resolution

regional wave model, Takayabu et al. (2015) estimated worst climate change effect in Tacloban resulted in 5.15 m of surge. Based on post-disaster field observations, a storm surge map was constructed for Tanauan, which does not match the storm surge hazard map provided by the local municipal office (Yi et al. 2015).

Extreme water surface elevations during a storm surge can be amplified locally by regional bathymetries (Kennedy et al. 2011, Mori et al. 2014). However, extremely high resolution topography, bathymetry and atmospheric data are needed to accurately hind cast the actual surge heights. Lee and Kim (2015) used a comprehensive hydrodynamic model that included meteorological conditions and wave induced dissipations stress from wave breaks, whitecapping and wave breaks from variable ocean floor depths, to simulate storm surges. Using historical data, Lapidez et al. (2015) determined vulnerable areas in Philippines using simulated Typhoon Haiyan-level storm surges.

The near shore wave phenomenon associated with a tropical storm wind is complicated with time-varying incident forcing and wave-induced motions. As a result, the storm surge is a complex compilation of infragravity motion (short wave forcing), static sea swells, and long waves driven by winds (Holman and Bowen 1979, Contardo and Symonds 2013).

Kim et al. (2015) investigated the effect of surface drag in the modeling of storm surges. Kim (2015) used global climate modeling tool and simulated significant wave heights during Haiyan at 30 m in outer West Pacific. Finally, Nakamura et al. (2015) compared numerical modeling and actual field observations of storm surge and suggested that the storm surge height has reached 5 m at Tacloban on the 8th November. Other storm surge related studies involved the investigation of the coral reefs both as an

indicating of the damaging effect of the storm waves (Engel et al. 2015) and as a modifier of wave energy (Shimozono et al. 2015 and Kennedy et al. 2016).

A great interest is what role Super Typhoon Haiyan plays in the extreme weather projection of climate change. Research suggests that in terms of frequency, the increase in surface wind temperature would actually result in fewer tropical storms. But it is likely to increase the intensity of the tropical storms with increased wind speeds (Lin et al. 2014). For conditions that can create such events, several theories have been proposed: Takagi and Esteban (2016) used statistics of the region to demonstrate a strong correlation between super typhoon and the regional sea surface temperature.

In the case of Hurricane Haiyan, 6,300 lives were lost across the Hurricane Haiyan and increased recent concerns about the effects of climate change, which may result in increased abnormally strong cyclonic activities worldwide (Krishna 2009, Nigam and Guan 2011, Walsh et al. 2012 and McDonald 2011). While climatologists are still investigating the causes of the increased cyclonic activities, an additional question is whether coastal built structures can withstand the storm forces (from both wind and water surges). The documentation of the damaged structures from this storm event should increase our understanding of the damaging forces of the storm and it should help enhance our design of coastal buildings. The projected intensity of Haiyan was weaker than the observed intensity (Chen et al. 2014); hence, the observations of building damage collected on the ground are important data that can help establish the effects of the intense storm on built structures and supplement other disaster observations (Tajima et al. 2014 and Shimozono et al. 2015).

2.3 Structural Damages

A unique aspect of the Super Typhoon Haiyan is the use of advanced remote sensing data in damage analysis. Satellite imaging has been used in quantifying damaged areas (Adriano et al. 2014 and Bricker et al. 2014). The ASCE team has used extensively Google Earth™ images for the planning of the trip. However, due to the rapid nature of the rehabilitation at Leyte and East Samar, clean up works have changed some of the landscape and structure appearances.

The nagging question that everyone had was that if such event were to happen in the US, what level of disaster could be expected? Here, the ASCE Team observed several commonalities in the observations of the selected two-story structures. For example, strong wind created a critical failure mode that left occupants of the building often exposed to the storm because of detachment, in part or in full, of the metal roof coverings from the roof assembly. It is significant to note that the two-story structures featured roof assemblies above the level of the surge inundation and the wave wash, and the roof assemblies experienced the full gestation of the wind forces associated with the Typhoon. The ASCE Team documented several facets regarding this critical failure mode, which are being further analyzed. However, the ASCE Team repeatedly observed concerns regarding the fastener size, type, and spacing being used for the comparatively thin metal roof panels, and lessons from observations like these are directly related to coastal structures along domestic coasts.

2.4 Applications of Insurance to Hurricane Events

After Hurricane Sandy (Category 1, October 2012) which caused widespread flood-related damages to private and public properties, there is a growing realization of the US vulnerabilities against extreme weather events (King 2013). The estimated government compensation from the National Flood Insurance Program (NFIP) is beyond $12 billion dollars. The total loss from Sandy exceeded $75 billion dollars (NOAA 2013). This bags the question how US would fare should an event such as Super Storm Haiyan occurred here. This section discusses the pertinent policy forms and some basic insurance concepts that are critical to considering the utility of inspections. Additionally, a high level overview of the claims process is included.

2.4.1 Policy forms and basic insurance concepts

In the United States, two forms of insurance policies can be activated in the processing of a hurricane event residential indemnification: 1) homeowners form and 2) flood insurance form. Most insurance companies start with an Insurance Services Office (ISO) developed policy form, then add endorsements (either written by ISO or by the insurer) to the personalize coverage. The most common homeowner's policy in use by insurers is the ISO form HO-00-03-10-00 for Homeowners or Insurance Policy Special Form (hereafter HO3) (ISO, 2000). Flood insurance is a federally written policy that is serviced by independent insurers. The HO3 affords all risk coverage for damages to the dwelling. All risk coverage covers only perils except specific exclusions. For example, HO3 covers direct wind damage, but excludes water damage such as storm surge or flood, leaving that to be addressed by a flood policy. The two pertinent definitions of water damage are found in HO3:

Water Damage means:

"a. Flood, surface water, waves, tidal water, overflow of a body of water, or spray from any of these, whether or not driven by wind;

b. Water or water-borne material which backs up through sewers or drains or which overflows or is discharged from a sump, sump pump or related equipment; or

c. Water or water-borne material below the surface of the ground, including water which exerts pressure on or seeps or leaks through a building, sidewalk, driveway, foundation, swimming pool or other structure; caused by or resulting from human or animal forces or any act of nature." (ISO HO3)

Direct loss by fire, explosion or theft resulting from water damage is also covered. Windstorm or hail, even though associates with water, the losses are addressed as follow:

Windstorm or Hail:

"This peril includes loss to watercraft of all types and their trailers, furnishings, equipment, and outboard engines or motors, only while inside a fully enclosed building.

This peril does not include loss to the property contained in a building caused by rain, snow, sleet, sand or dust unless the direction force of wind or hail damages the building causing an opening in a roof or wall and the rain, snow, sleet sand or dust enters through the opening." (ISO HO3)

As can be seen in the above excerpt, the order of events is central to the claims process where the proximate cause (the first damage mode) determines how coverage applies. Fire is the one exception to this chain of events approach. Even if the fire initiated from a peril that is not covered (i.e. flood), the resulting damage is covered. It is

the responsibility of the adjuster to determine which structural components were damaged by water and which by fire, and divide the funds accordingly.

Indemnity of the insured is conducted on a replacement cost (RC) or on an actual cash value (ACV) approach, and is dependent upon the endorsements the insured selected. RC means funds are provided to completely repair the structure to its original design. ACV begins with the RC amount, then decreases to account for age-related depreciation. Should alterations become necessary to bring the structure up to the current building code, law & ordinance coverage activates, an additional 10% above RC/ACV is typically provided. Also, if an insured declines to rebuild a structure after a total loss, they will receive the ACV.

Very large claim (VLC) events, such as the catastrophic acts of nature, can often exceed the amount of funds available to the insurer. To ensure coverage to the insureds and continued solvency of the insurance company, there are two source to replenish funds: reinsurance policies and catastrophic funds. A reinsurance policy is when two or more insurance companies provide joint coverage. This is very common for large commercial and government structures. A catastrophic fund occurs either at the state or federal level, where the government distributes funds to the insurance companies to aid in claims payouts. An example of VLC catastrophic fund would be the FEMA Disaster Relief Fund, which was established according to the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 2013 (FEMA 2013).

2.4.2 Overview of Claims Process

Each insurance company has their own procedures, but this is the typical process for reviewing a claim:

1. The adjuster interviews the insured to obtain details of the type, size and scope of damage. During this discussion, techniques are recommended to mitigate subsequent damage from exposure to the elements. Lastly, the adjuster attempts to verify property details including: year of construction, materials, and prior claim repairs.

2. If the claim is of sufficient scope, an inspector or a field adjuster goes to the site for an inspection to verify damage modes, and to approximate the total value of damage. During this inspection, any remaining property details are obtained.

3. The adjuster confirms whether coverage applies.

4. A second inspection occurs to calculate the amount to perform repairs. An estimate of the claim is produced by the adjuster, subject to alteration as repairs are conducted, should additional damage be discovered.

5. Funds are transmitted either directly to the contractors or to the insured to pay for repairs.

During catastrophic events, each insurance company typically send a team of field adjusters to reside at the location for an extended time to perform both types of inspections.

2.4.3 Utility of damage mode inspections and a universal database

The execution of the claims process is time-consuming where delays not only impact the insureds who have lost use of their structures, but can lead to an exacerbation of the amount of damage as the structures are still vulnerable. The faster the damage mode inspections are completed, the faster the insurer can initiate the process to obtain the necessary funds from reinsurance policies and catastrophic funds. However, it is very

common for an insurer to have hundreds or thousands of structures to be reviewed by a dozen onsite employees.

Damage mode inspections can be and often are performed by independent inspectors in these large loss events. This is a prime example of where the PHYSA model could expedite distribution of pertinent information to the adjusters. The online database approach allows the adjusters to rapidly make their determination of coverage, maintain vital data in the event of claims disputes, and verify property details via the geotagging.

The use of a third party for data acquisition removes any appearance of a conflict of interest, thus reducing claims disputes. Also, strong coordination of the damage mode inspection effort can reduce redundant inspections and aid in the reduction of fraudulent claims (ex. existing damage is attributed to the storm). The reduction of redundant inspections is especially likely if the inspector is a structural engineer who can more easily identify a total loss where the structure will need to be completely rebuilt.

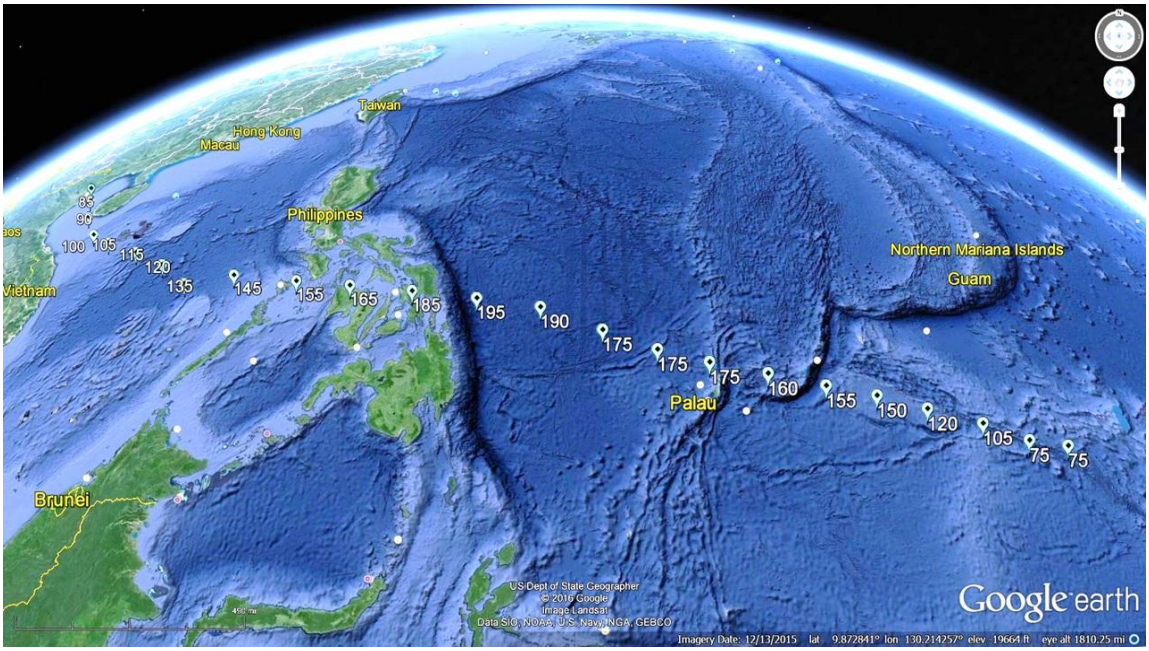


Figure 2: Track of Super Typhoon Haiyan Indicated on Google Earth™ (numbers indicate peak wind speed in mph)

Figure 3: Shopping Mall Showing Structural Damages, Downtown Tacloban. (B38-007)

Figure 4: B13-001 Damaged Structure, Downtown Tacloban. (B13-001)

Table 1: Timeline of Haiyan (modified from Kim 2015)

Timeline (mmdd hh)	Latitude (^{o}N)	Longitude (^{o}E)	Minimum Pressure (hPA)	Max Velocity (m/s)	Event
1105 00	6.5	145.9	985	28.3	
1105 06	6.5	144.6	980	30.9	
1105 12	6.9	142.9	975	33.4	
1105 18	7.1	141.3	965	38.6	
1106 00	7.3	139.7	950	43.7	
1106 06	7.6	138	930	48.9	
1106 12	7.9	136.2	920	54	
1106 18	8.2	134.4	905	59.2	
1107 00	8.7	132.8	905	59.2	
1107 06	9.3	129.1	905	59.2	
1107 12	10.2	126.9	895	64.3	
1107 18	10.6	124.8	895	64.3	East Samar
1108 00	11.0	122.5	910	56.6	Tolosa
1108 06	11.4	120.5	940	46.3	
1108 12	11.9	118.0	940	46.3	
1108 18	12.2	116.6	940	46.3	
1109 00	12.3	114.8	940	46.3	
1109 06	13.5	113.1	940	46.3	
1109 12	14.4	111.4	945	43.7	
1109 18	15.4	110.3	950	41.2	
1110 00	16.5	109.0	955	38.6	
1110 06	17.9	108.0	960	36.0	
1110 12	19.4	107.5	965	33.4	
1110 18	20.4	107.1	975	30.9	

CHAPTER III: PLANNING PHASE AND WEB DEVELOPMENT

3.1 Project Site Construction

As can be seen in the figure 5, the project website design requires multiple components. The project website was developed as an Internet-based open access database (IOAD), so that the damage assessment data can be available to qualified forensic and wind engineers for remote structural evaluation. The home team worked closely with the site architects, who were members of the UNCC Mosaic Department (led by Jack Stein). This dynamic system was designed to have easy access, be intuitive regardless of user computer experience, and to allow simultaneous interactions. The project site was housed on a server running a Linux OS with Apache, MySQL and PHP (LAMP).

To aid the data management and remote assessment tasks, a Google Maps™ gadget was implemented to interpret the geo-referencing display the photographer's location. Figure 6 shows an example of the project website's layout, as well as the Google Maps™ gadget in action.

A GPS-enabled camera stores the coordinates of the camera's position within the Exchangeable Image File Format (Exif) metadata. Using photo geo-tagging, Google Earth™ was able to identify the location of the photos. This allowed the home team to distribute approximately 80% of images taken to the appropriate building. The remainder was identified with input from the field team. Figure 7 provides a flow chart of the

process.

To protect the stored data, the privacy of user information and the site management, user roles were defined to restrict capabilities to the respective duties. The user roles selected were: Super Admin (SUAdmin), Admin, and Helpers. SUAdmins are allowed to make modifications to the website architecture and embedded codings. The Admin group included field team members, who needed greater access than Helpers to participate in the image distribution. Each level of access includes all permissions of lower levels, (ex. A Helper can comment on images, while an Admin can move, delete, and comment on images). The responsibilities for each role are visible in Figure 8.

To protect the data, all users of all access levels were required to agree to the Data Use Agreement (Appendix A).

3.2 Building Name Regimen

To organize the buildings and to facilitate ground operations, the team developed a naming regimen. This regimen was broken down into two basic categories: pre-selected and field-selected. Utilizing satellite imagery obtained from Google Earth™, buildings were identified with observable damages, then subdivided into parcels for daily assignments. As not all damages are visible from an eagle eye view, it is understood that additional buildings would be selected based upon field observation. This was also necessary as some of the pre-selected buildings may have already been repaired by the time the field team arrived. The naming regimen includes a local ordinance designation, the Barangay. Barangay is the Filipino equivalent of a district or township. This was incorporated to aid the field team in locating the structures. The naming regimen is shown in Figure 9.

As can be seen in the figure above, certain special cases arose during investigations. Special Case 1 provides an example of a complex, when a location is a collection of smaller buildings with similar construction materials and techniques (i.e. resort with cabin style rooms, school with external classrooms, etc.). Special Case 2 provides an example of scenarios where a building either was found to be multiple structures or it had two or more distinct construction types (i.e. one half two stories, second half was a single story addition with a different material).

3.3 Travel Logistics

This trip was the first time most of the members were traveling to the Philippines. Therefore, the team performed an extensive pre-investigation via Google Earth™ images and internet resources. This review was performed to aid the team in familiarization with the country, particularly the most significantly impacted regions such as Tacloban City, Dulag, and Palo on Leyte Island as well as nearby Samar Island. Figure 10 shows the field team mobilization during the one week study. The team started from Tanauan and moved towards Tacloban and eventually Samar.

Using the historical data available from Google Earth™ , the field team was able to analyze satellite and aerial images available before the event, immediately following, and while reconstruction was ongoing. From the historical data, 100 structures were pre-selected for analysis by the field team. The majority of these structures were occupied for commercial and municipal use, with a typical height of two stories above surface grade. Given the limited vantages available, the heights were approximated based upon the dimensions of the roof and any description obtained. Additional structures selected fell into the following categories: historical buildings, university campuses, easily

recognizable locations and/or buildings isolated in the vicinity of other pre-selected structures. Proximity was a priority to maximize how many structures could be investigated on each day.

As mentioned above, the study area was focused on Leyte Island, in particular Tacloban City. Tacloban was selected as it was the largest metropolitan area by population in the direct path of the storm. Internet resources were used during the planning phase to compensate for the lack of pertinent regional knowledge, an understandable source of uncertainty that needed addressing. This effort was significantly added by the experiences of a team member, Dr. Andrew Kennedy. Dr. Kenney had visited the most seriously impacted areas in January 2014. This first-hand exposure greatly enhanced the efforts of the ASCE team, and his recommendations were vital in orchestrating this trip. This allowed rapid preparation of considerations for safety, travel visas, coordination and field efforts. Safety concerns included: personal protective and inspection equipment, required immunization, and investigation procedures.

The efforts of ASCE allowed the field team to make contact with the Philippines Institute of Civil Engineers (PICE) and the Local Chapter of ASCE (division 10). PICE and ASCE provided crucial ground support throughout the endeavor. Through their assistance, the team was able to meet with local government officials. This was critical, not just for immersion into the municipalities, but also as a source of first-hand accounts of the storm event.

On the 4th of May 2014, seven of the eight field team members arrived in the Philippines and spent the following day, meeting with members of PICE in Manila. Figure 11 depicts the field team members in a meeting with PICE headquarters in Quezo

City.

PICE also graciously arranged for the team to have dinner with the Undersecretary of Disaster Recovery, the honorable Mr. Danilo Antonio. On the 6th of May 2014, the final member of the field team arrived, and the study was able to commence. The first day of the investigation began in the region closest to the trajectory of the eye of the Typhoon, Dulag. Dulag lies approximately 23 miles (37 km) south of Tacloban City. The first day finished in Anabog (i.e. the limit of the storm damaged area). Through inspections and meetings, this first day was critical for the field team to generate a rough outline of the storm.

Once this foundational information was learned from the initial field day, the eight members of the team split into two groups. The scope of the study was modified so that previously selected structures could more readily be accessed and inspected more efficiently. Group safety specialists, translators, and local engineers from the Department of Public Works (Members of PICE) accompanied each of the two split field teams on successive field days. Figure 12 shows the team with local engineers during a visit to the control tower at the Tacloban Domestic Airport (Daniel Z. Romualdez Airport), which was the first point of landfall in Tacloban City.

The split field teams spent the subsequent days mostly near Tacloban City save the final day trip to East Samar on the 10th. Due to an extended stay, Kennedy and Chen were able to conduct follow-up investigations in East Samar on the 11th and 12th.

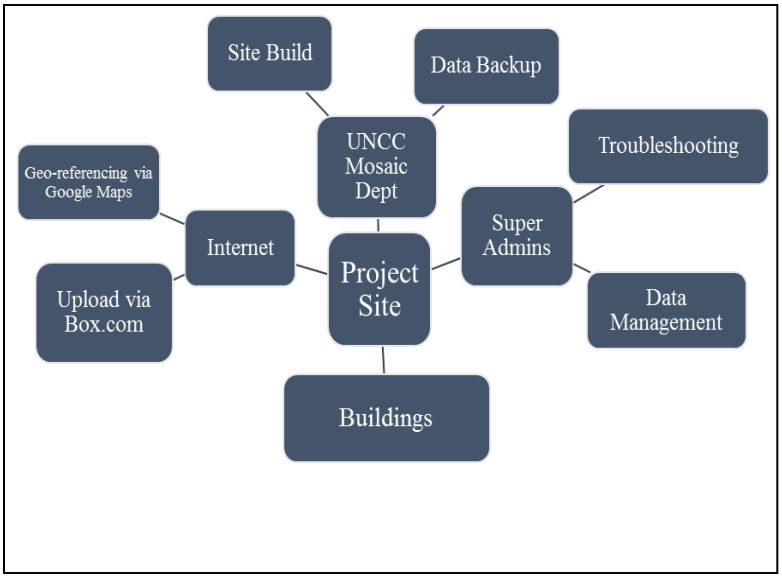


Figure 5: Architecture of Project Site

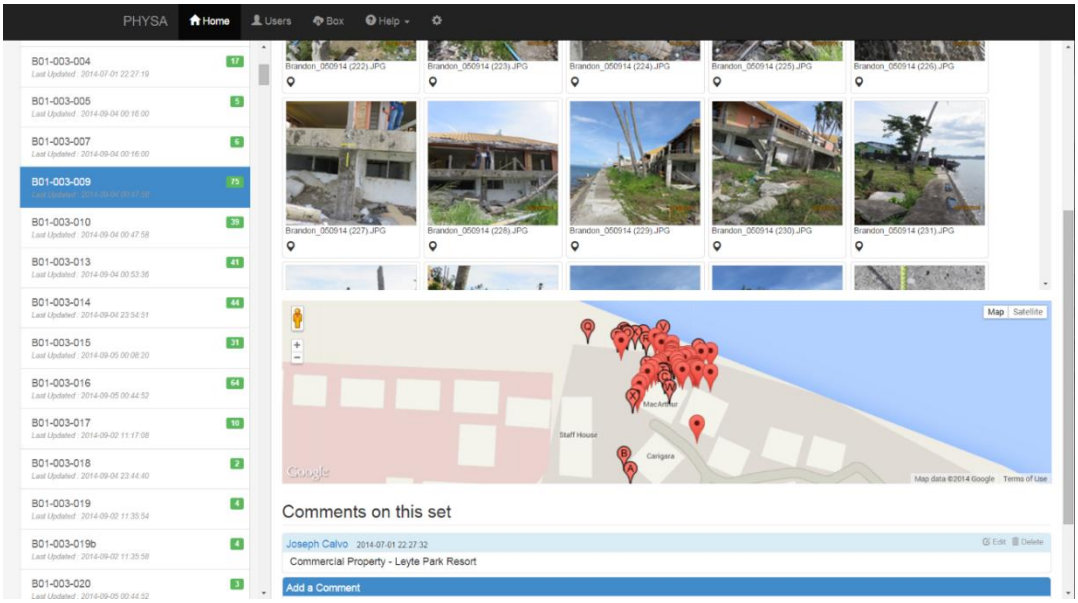


Figure 6: Data Website Layout with Structure ID, Images and Google Map Gadget indicating the photo location.

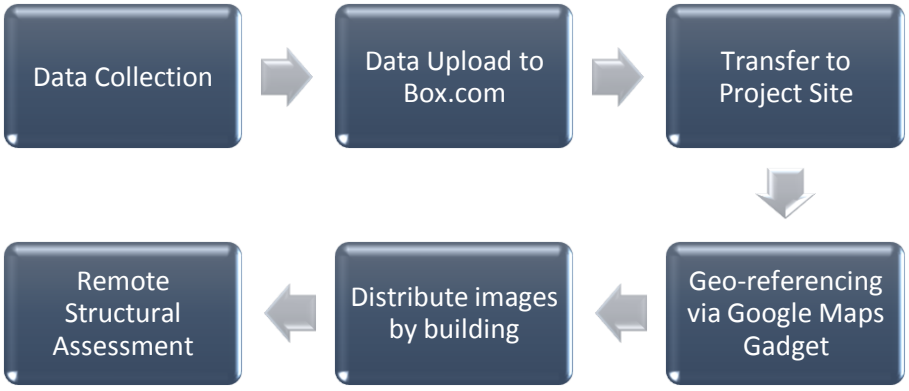


Figure 7: PHYSA Process Flow Chart

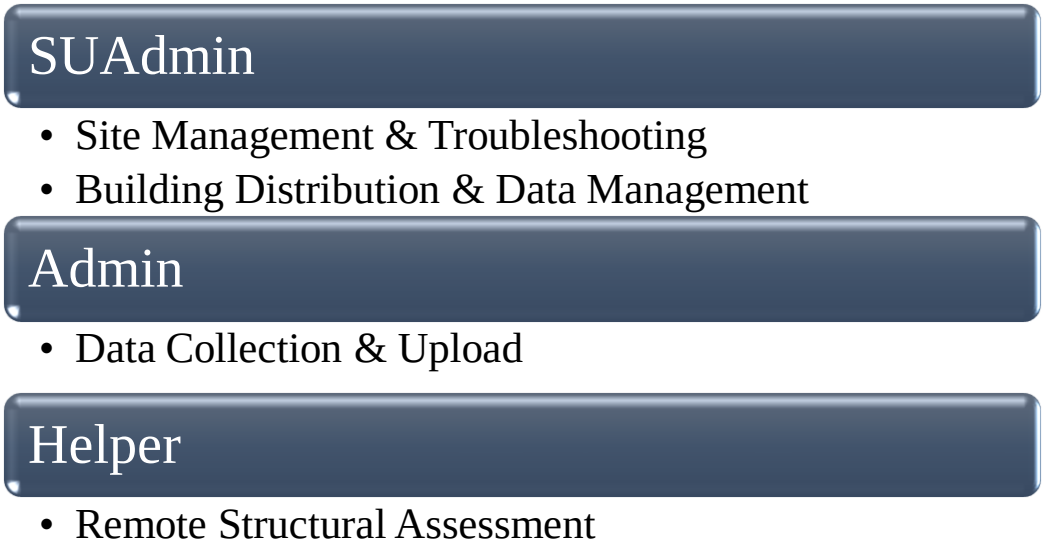


Figure 8: PHYSA Project Site Role Responsibilities

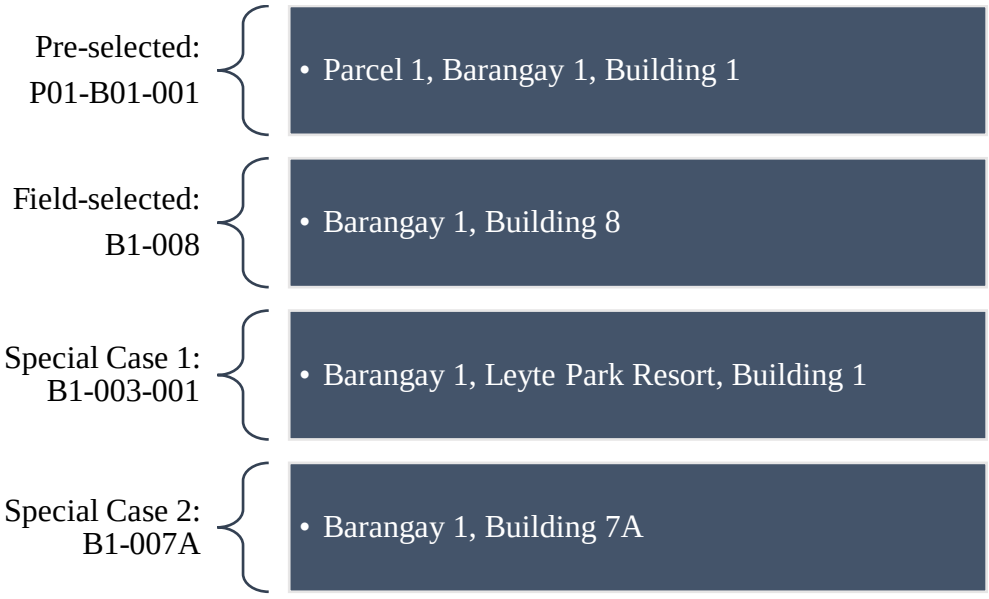


Figure 9: Examples of PHYSA naming regimen

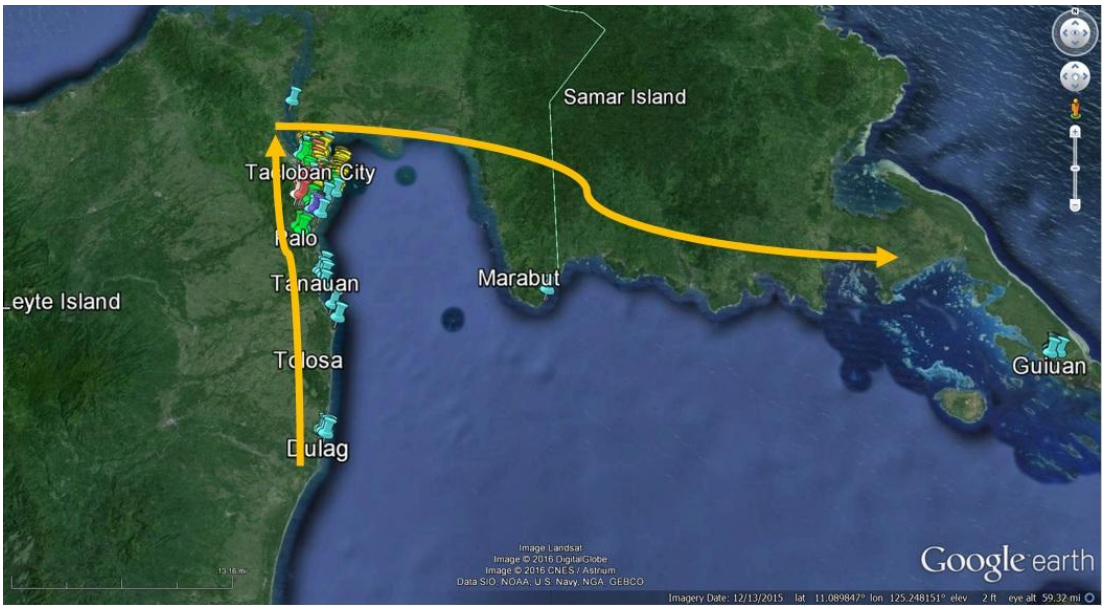


Figure 10: Track of Field Team moving around the Disaster Area.

Figure 11: PICE Initial Meeting (May 5th, 2014)

Figure 12: Research at the Tacloban Domestic Airport Control Tower

CHAPTER IV: STRUCTURE LOCALIZATION

4.1 Introduction

Natural disasters often involve significant amount of structures down or critically damaged that often render daunting amount of data collection efforts for forensic structural or geotechnical engineers. Parsing through the thousands of pictures taken can be an arduous task. Forensic engineers often need to develop concise photo-taking and record-keeping techniques to make sure that the pictures can be identified and referenced in timely manner. In the digital age, this means possible Giga or Terra bytes worth of digital images that need to be systematically stored, documented and analyzed.

During the 2014 investigation, many physical challenges were anticipated including possible lack of access, electricity, WiFi and Internet, etc. Under such circumstances, there is a limit on what equipment may be used at the site. Hence, GPS-enabled photos were taken for the study.

Figure 13 shows investigation team taking pictures of a damaged two-story structure. One of the challenges of the tag team approach is to make sure that the pictures taken (possibly by different photographers) convey relevant and critical information of the structure of interest (SOI). This can be done by meticulously registering each picture with appropriate location geographical references, which is a very tedious process. This is especially challenging if the inspectors are not familiar with the site and if the location has no identifiable landmarks. Even though advanced software-based, cognizant

technologies are available for accurate determination of positions (Guo et al. 2006, Atkinson 1996), this chapter discusses a rapid evaluation technique that can help identify the SOI.

In this case, GPS (global position system) – equipped camera becomes a very useful tool. GPS is a satellite-based radio navigation and positioning system for tracking objects on Earth. Based on triangulating satellite signals, GPS can detect the geographical position of the camera; hence, allows geo-position tagging on each photograph taken. The position information can later be displayed using GIS (geographic information system) software. This is considered as "direct geo-referencing" (Tao 2000 and Cramer et al. 2000).

Actual photographing at a disaster site can be very challenging because inspectors must learn to orient themselves and quickly grasp the situation at hand. Therefore, it is helpful to develop some basic execution strategy in picture taking. One approach is to take a round of peripheral pictures around the SOI. However, this may be hard to do when debris creates a hindrance or when access may be prohibitive. Figure 14 shows two displays of picture positions surrounding structures as displayed in Google Earth™: Figure 14a) shows a well-structured execution around a circular structure and Figure 14b) represents a unplanned (or random-walk) execution of photographing in a neighborhood of multiple structures. Figure 14a) is typically performed by a single photographer. In this case, the circular structure has open areas around the building. Figure 14b) is a collection of pictures taken by multiple photographers, who were walking around the structures taking different shots of the structures. Since the execution was not planned, it is named as "random-walk". In the second case, it is obvious that identifying the SOI

from the picture cluster involving multiple structures can be challenging. Especially when inspectors are taking close up pictures of structural components of different SOIs.

By determining the geometric center of the photo clusters, the CL technique has been used for several localizations in space-time problems including the wireless sensor network localization problem (Bulusu et al. 2000, Qiu et al. 2012 and Wang et al. 2011) and object identification within a picture or multiple frames of pictures (Collins et al .2001), etc. Torrent et al. (2009) described a component identification and localization problem at a construction site using CL method. Most of the wireless communication localization problems were resolved by using a weighted centroid localization method (Qiu et al. 2012 and Wang et al. 2011). Borrowing from the lessons learned by the wireless communication localization scenarios, the current problem is made simpler and a non-weighted CL method was used.

Accuracy of GPS system relies on the availability of satellites and the strength of signals received by its receiver. The quality of the receiver is assessed by determining its accuracy in measuring the pseudo-range and the phase information. Localization using GPS cameras is subjected to the same location and signal issues as any GPS-based measurement, thus antenna system errors may be involved (Ellum et al. 2000). The quality of the GPS camera is not the focus of this study. Instead, the focus is placed on the influence of neighboring structures on the GPS camera positions using the structured scans and CL calculation. To demonstrate the effect of neighboring structures on the GPS position measurements, three different experiments were conducted using the GPS camera for structured scans of various structures.

In this experiment, GPS camera used was a Canon SX280 HS with 20x optical zoom.

Typical images captured have 4,000 x 3,000 pixels. All three case studies were performed using the same GPS camera; hence, the GPS accuracy is assumed to be consistent. GPS accuracy is also dependent on availability of satellites, which is assumed to be consistent in this study. The captured images are then used to determine the centroid. The centroids are calculated by coordinate averaging.

4.2 Centroid Calculation

Time-dependent errors are critical for airborne sensing systems where motion-induced errors can be detrimental to position information (Ellum et al. 2000 and Nurmi and Koolwaaij 2006). The geographical positions (x_i, y_i) recorded for the pictures are assumed to be simultaneous and stationary, therefore, time-dependent errors are neglected. The centroid calculation can use coordinate averaging method (Altshiller-Court 2007):

$$(x_{est}, y_{est}) = \left(\frac{x_1 + \ldots + x_n}{n}, \frac{y_1 + \ldots + y_n}{n}\right) \quad (1)$$

where x_{est} and y_{est} are estimated coordinates and n is the number of pictures taken. To determine the error in localization, the percentage of localization error (LE) is computed follow Bulusu et al. (2000):

$$LE(\%) = 100 \cdot \sqrt{(x_{est} - x_{actual})^2 + (y_{est} - y_{actual})^2} \quad (2)$$

where x_{actual} and y_{actual} are the actual position of the SOI. In this study, the X_{actual} and Y_{actual} are determined using GPS position at the center of the structure.

Because the earth surface is round, hence, the distance deviation between the actual centroid and the computed centroid can be computed using Haversine formula, which

gives us the great-circle distance along earth's surface (Altshiller-Court 2007):

$$d = 2\mathrm{r}\sin^{-1}\left(\sqrt{\sin^2\left(\frac{\mathrm{x}_{est}-\mathrm{x}_{actual}}{2}\right)+\cos(\mathrm{x}_{est})\cos(\mathrm{x}_{actual})\sin^2\left(\frac{\mathrm{y}_{est}-\mathrm{y}_{actual}}{2}\right)}\right) \quad (3)$$

The Haversine formula is commonly used for navigation purposes.

4.3 Case Studies

The three case studies include the localization of a flag pole, an artistic sign structure and a temporary trench. The first two structures are captured in Tiruchirappalli, Tamil Nadu, India. The trench study was performed in Charlotte, North Carolina, USA. Although different structures were captured, the biggest difference between all three case studies was the surrounding conditions – specifically, the neighboring structures. The following describes each of the studied cases:

4.3.1 Flag Pole

The first case study was a light pole structure in front of the main administration building (administrative block) at the National Institute of Technology in Trichy (NIT Trichy), Tiruchirappalli, India. Figure 15 shows the camera GPS positions of the pictures taken using the structured picture taking technique. The pole structure in front of the administration building is actually on top of a platform about 40 cm tall (Figure 16). The administration building is a three story structure with a bell tower at the center of the building. The scan was performed at a distance of 7.23 m from the pole so that it can capture the full height of the pole structure. A total of 16 pictures were taken at equal distances to the structure.

The actual centroid of the pole structure is at a geographical position of (10^{o}45'31.7"N, 78^{o}48'47.5"E). The computed centroid positions are shown in Table 2. Also shown in Figure 15, the circular GPS positions actually are not completely round

indicating deviations from actual photo taking positions.

Figure 16 shows the surroundings of the pole structure, which are mostly medium height trees. The closest structure to the pole is the car port in front of the administration building. The distance from the pole to the exterior wall of the carport is about 11.25 m (Figure 16a). The distance from the pole to the administration building exterior wall (three stories) is about 16.55 m.

4.3.2 Sign Structure

The sign structure is an artistic piece created by the architectural engineering students at NIT Trichy, which consists of several pieces of aluminum cutups that makes up a 3D sign that reads “architecture” (Figure 17). A wall behind the sign structure provides the backdrop to reveal the word. The wall is an arched brick structure of 22 cm thickness, 2.36 m tall and 5.59 m long. The distance from the wall to the architectural engineering building is about 23.50 m. The architectural department building is a two story building (shown in Figure 18). Other than a small, mid-height tree, the area is quite barren.

A circular pattern of picture taking was executed at the sign structure site. Figure 17 shows the trace of picture positions around the sign structure, which is shown to be more circular than the trace of picture positions for the pole structure. A total of 30 pictures were taken for this set of pictures. The actual centroid of the sign structure is at (10^{o}45'35.2"N, 78^{o}48'34.3"E). The computed centroids are presented in Table 2.

4.3.3 Open Trench

Case study 3 shows scans of a temporary trench closely neighboring a tall parking structure. Figure 19 shows the trace of picture positions and the position of the open trench. The trenching work was part of a UNC Charlotte (University of North Carolina at

Charlotte) facility improvement project for underground cable installation. The trenching was performed on a site walk next to a seven story parking deck. The open trench was very close to the parking structure (trench edge to the building wall is less than 2 m); as a result, it was hard to maintain the camera positions and the pictures were taken over the trench at varied distances to the trench between 7 m to 0.1 m (right by the edge of trench). Relative position of the center of the picture taking to the nearest structure was about 5 m. The length of the trench was about 28 m long with a width of 0.6 m.

Again a structured execution was performed over the trench. 222 pictures were taken around the trench. The centroid of the trench is ($35^{o}18'34"$N, $80^{o}44'35$ "W). As shown in Figure 20, the pictures where actually scattered onto one side of the trench and separated into two clusters (Part A and B). Hence, we compute the total centroid and the centroid for each part and the computed centroids are presented in Table 2.

4.4 Results

Table 2 shows the percentage localization errors (LE) involved in the computations for each structure against the actual centroid. Although the percentage LEs are very small, one has to realize that the measurements are made in latitudes and longitudes and for a very small area. The trench experiment is shown to have the highest error (averaged between A and B = 0.011%) and the pole structure experiment has the smallest error (0.004%). The sign structure experiment is shown to have a percentage localization error of (0.007%).

Table 3 shows the computed distance deviation between the computed centroids and the measured centroids. It is shown that the sign structure actually has the least distance deviation (1.6 m) between the two centroids. The trench has the largest distance

deviation of 11.8 m (averaged between Part A and B). The pole structure centroids are deviated at 8.6 m.

4.5 Discussion

The accuracy of GPS position is dependent on many aspects including receiver system noises, climatic effects and satellite position, etc. Mao et al. (1999) modeled the global noise behaviors of 23 GPS receivers for three years and recognize that the time series are similar to white noise and flicker noise. For forensic works at different countries, the availability of satellites is also critical to the GPS position errors.

In this study, we assume the most important aspect of the three selected experimental sites is the distance to a neighboring tall structure, which may affect the recorded GPS positions. Using the percentage localization error (LE), it is showing that the sign structure has larger LE values than the pole structure, yet is further from the nearest tall structure. Also, the shape of the camera GPS positioning for the sign structure is much rounder than the shape of camera GPS positioning for the pole structure. This indicates that there is an influence on the camera GPS positions from the neighboring structures. The trench experiment has the highest percentage LE, and is also the closest to the neighboring structure. There is possibility of other influences on the recorded camera GPS positions in this study, but unfortunately, we are not able to investigate these effects.

To quantify the effect of nearby structures to the scattering of the GPS positioning, the distance to the nearby structure and the distance deviation is plotted together and is shown in Figure 21. Figure 21 shows that the distance deviation between the computed centroid and the actual centroid is inversely related to the distance to neighboring structure. A straight line is used to curve fit the three data points, which has an R2 value

of 0.9281:

$$\text{Distance Deviation}_{Centroid} = -0.6498 \cdot (\text{Distance}_{\text{neighbor structure}}) + 17.769 \quad (4)$$

This straight line fit gives a reasonable first order approximation of the relationship between distance to a tall neighboring structure and the error in centroid estimation using the camera GPS position data.

Using centroid alone may not be sufficient to identify the SOI. To make sure that the right structures were captured, additional efforts including taking picture with sign board showing the structure ID can be used (see Figure 22). These efforts on the ground are very essential to ensure meaningful images are provided to the engineers at home that will review the pictures without the benefit of actually visiting the sites.

It is also possible to use context information to identify the SOI in the picture. For example, in cases where multiple structures are within the same photo, additional characteristics, such as the color of the walls, the roof truss or beam materials, etc., can be used to properly identify the actual SOI. However, these techniques require advanced computer software for post processing the images, which are hard to implement during field forensic investigations.

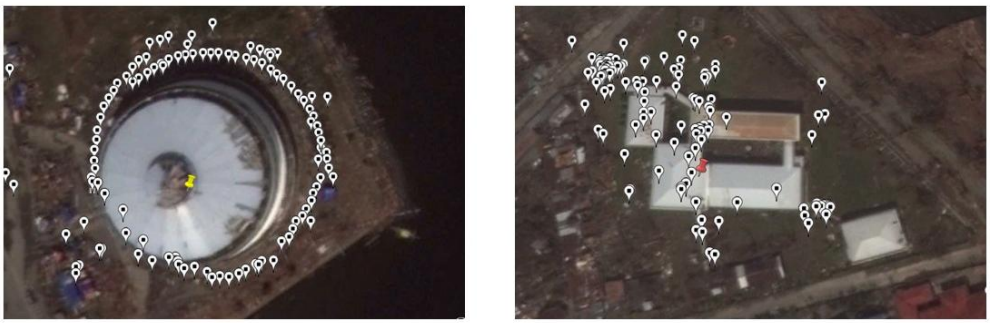
Table 2: Centroid Measurements and Localization Error Based on Geo-referenced Picture Cluster at Each Site

Structure	**Actual Coordinates Position (Lat, Long)**	**Computed Coordinates by Average Method**	**Localization Error (%)**
Flag Pole	10.75881N, 78.81319E	10.75875N, 78.81324E	0.004
Sign	10.75975N, 78.80996E	10.75975N, 78.80957E	0.007
Trench Part 1	35.30932N, 80.74299W	35.30928N, 80.74288W	0.011
Trench Part 2	35.30932N, 80.74299W	35.30942N, 80.74292W	0.012

Table 3: Centroid Offset Distance and Normalized Error Based on Geo-referenced Picture Cluster at Each Test Site

Structure	**Actual Coordinates (Lat, Long)**	**Computed Coordinates by Average Method**	**Computed Distance Deviation by Average Method**	**Distance to Nearest Tall Structure**
Flag Pole	10.75881N, 78.81319E	10.75875N, 78.81324E	8.6 m	16.6m
Sign	10.75975N, 78.80956E	10.75975N, 78.80957E	1.6 m	23.5m
Trench Part A	35.30932N, 80.74299W	35.30928N, 80.74288W	10.9 m	5.0m
Trench Part B	35.30932N, 80.74299W	35.30942N, 80.74292W	12.8 m	5.0m

Figure 13: Structural Investigation Using GPS-Camera in Tanauan, Leyte



a) Structured Photo-Capture Strategy

b) Unstructured Photo-Capture Strategy

Figure 14: Camera Shots Surrounding: a) A Circular Structure (Structured Execution); b) Multiple Structures (Unstructured Execution)

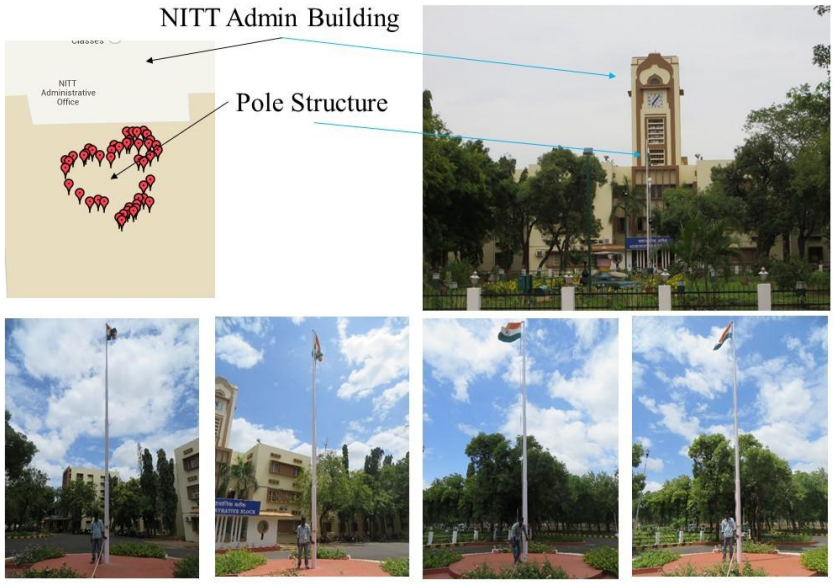


Figure 15: Pole Structure Scan Using Structured Execution (Pole in Front of NIT Trichy Administration Building)

a) Pole Structure in front of Car Port

b) Pole Structure on Top of Platform

Figure 16: Surrounding Shots of Flag Pole Including a) Car Port and b) Trees

Figure 17: Sign to Architecture Department at NIT Trichy and Trace of Photographs

Figure 18: Department of Architecture at NITT as Shown from Sign Structure

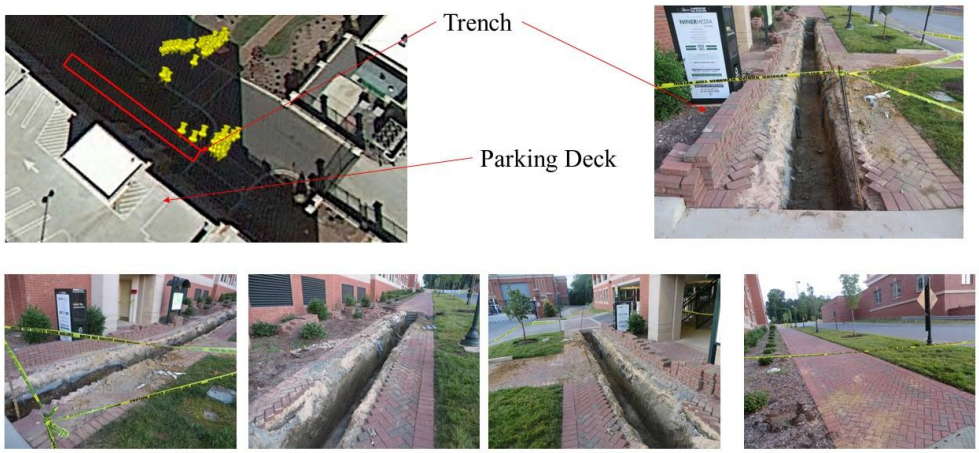


Figure 19: Trench next to a Parking Deck

Figure 20: Photo Clusters for Trench Experiment

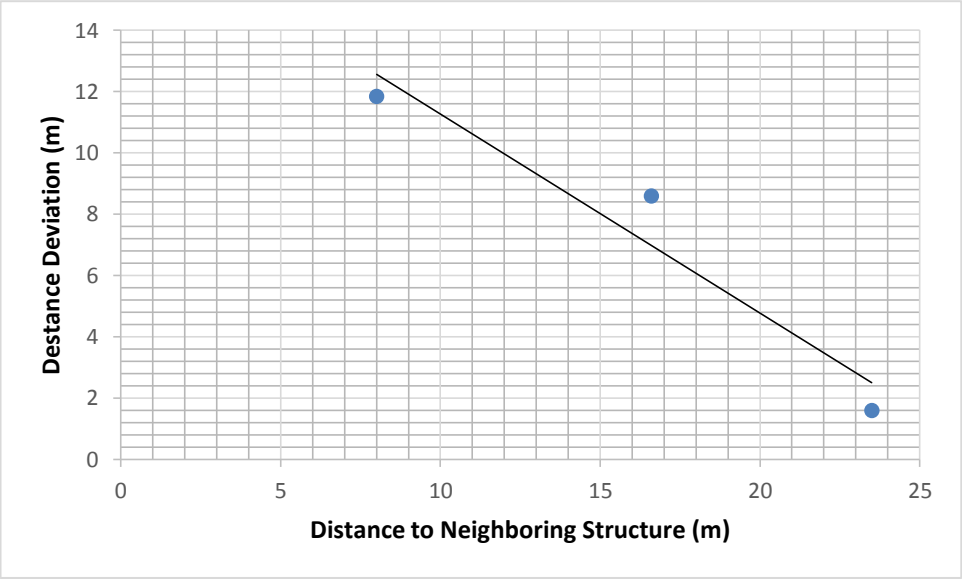


Figure 21: Distance Deviation Shows Inverse Relationship to Distance to Neighboring Structures

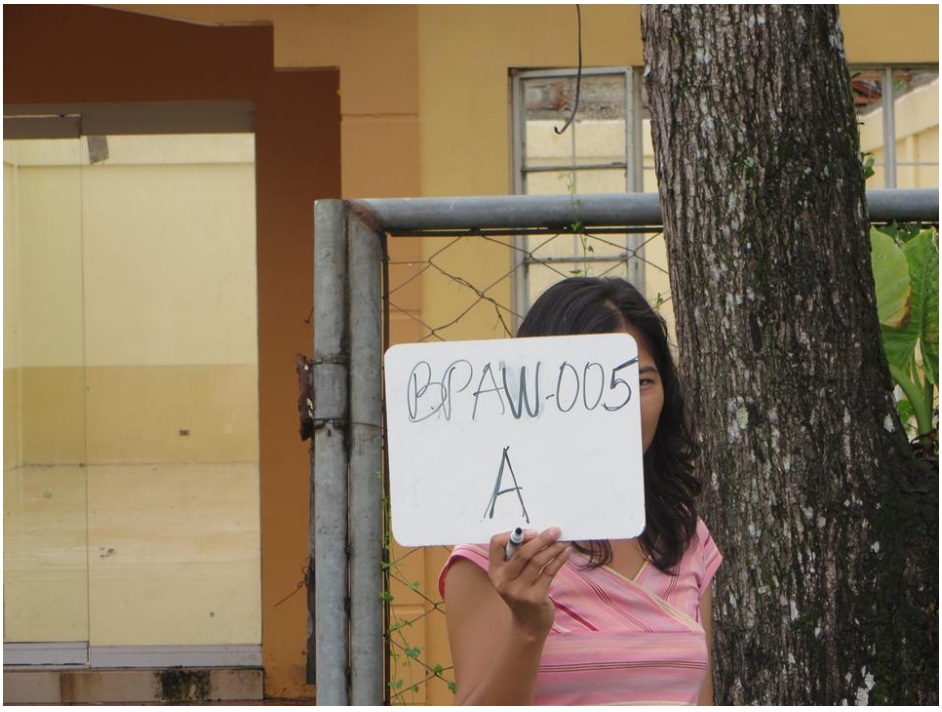


Figure 22: Structure Identification Using Sign Board

CHAPTER V: BASIC STRUCTURAL RATING METHOD

5.1 Introduction

This chapter presents the outcomes of a preliminary assessment of the damaged structures investigated. A basic rating approach is devised and performed on 148 structures. A few structures were eliminated in the analysis due to a lack of sufficient close shots of the structure and associated problems. The structures consist of both commercial (warehouses, shopping malls, in-door basketball courts, school buildings, churches and government offices) and residential structures and are located in the disaster impacted areas including Tacloban, Dulag, Palo, Tanauan on the Leyte Island and Guiuan, on the island of East Samar. Figure 23 shows the study areas which covered the areas affected by the hurricane. The rating technique is based on visual observations made on the structures using photos and data collected. Representative images from each location are also shown in Figure 23. Because the images are taken by different inspectors, different structural details are observed. The GPS positions of the photographs allow clustering and identification of the structures.

5.2 Structures Studied and General Observations

The selected structures can be roughly differentiated into single-story, two-story and three to four-story structures. Commercial large-span structures such as warehouses and in-door basketball courts are considered single story structure, even though the structure

height can be more than 3 or 4 stories tall. Also studied are church structures, which may have high steeples, but still considered based upon the principle stories. This classification is because the inter-story frames may strengthen the structure system and resulting in different failure modes, which may not be the case for open structures with high ceilings or steeple-type roof. Table 4 shows a summary of the structure types based on stories and functions (commercial or residential). The construction types in the selected structures varied in some aspects, but also share many features, for example, framing and cladding.

The most common construction methods in Leyte and eastern Samar are either reinforced masonry or reinforced concrete frames with concrete slab-on-grade foundations that featured metal roofing panels attached to predominantly steel roof frames. Residential structures tend to have masonry or concrete frames with metal roofing, but usually featured wood roof trusses instead of steel. Commercial structures are more typical of reinforced concrete frame with steel roof truss. Some older school structures used wood roof truss systems. The metal roof panels were often the only component that separated the exterior weather conditions from the interior living space (without underlayment or insulation). Almost all roofs studied are sloped roof systems. Figure 24 shows a typical selected structure in Leyte displaying some common construction practices including: reinforced concrete columns, beams and walls, sheet metal roofing and wood roof truss. In this case, there is no underlayment or insulation system beneath the sheet metal roofing.

5.3 Structural Rating Technique

Basic structural ratings are usually performed after hurricanes or major storms to provide engineers, inspectors, first responders, insurance adjusters and relief workers, with a basic appreciation of the conditions of a structure for safety to resident and inspectors. For example, ATC-45, typically regarded as an industrial standard, clearly indicates the evaluation procedure is intended "to determine whether damaged, or potentially damaged, buildings are safer for occupancy, or if entry should be restricted or prohibited." (ATC, 2004)

Current proposed method is a modification from ATC-45 approach with the intent to generate damage level and to characterize damage patterns based on wind, water (storm surge) or combined effects. Hence, throughout this study, the researchers made an inquisition to provide a best guess of possible differentiation between wind or storm surge damages. Table 5 shows the condition assessment chart with six categories that include different damaged states. Condition categories 1 and 2 described the global condition of the structure and distinguished between total collapse (1a), partial collapse (1b) portion collapse (1c) and moving off foundation (2a). Condition category 4 addressed mostly the superstructure conditions. Condition category 5 addressed the sub-structure conditions.

These descriptions are derived from Figure 25, which considered six different failure modes of structures: a) translation or sliding of structure against the foundation; b) rotation motion of structure against the foundation; c) racking or lateral collapse of the structure; d) component failures of structure such as roof damage, wall damage; e) inward racking where structure failed under gravity effect; and f) building envelop failure and

only the structural components remained. These descriptions are generic in nature and could be due to either wind or storm surge. The structures studied do not necessarily satisfy all the failure modes, but the failure modes are integrated into the rating scheme. It is also possible to have combinations of failure modes.

The rating technique assigns a quantitative value of severity of 0 to 3 where 0 means no damage and 3 means severe to complete damage (see Appendix for example ratings). Because each failure condition may not have the same effect to the structure, an importance factor was also assigned to each condition. The importance factor represents the effect of the condition on the building as a system. Because each condition defined may not necessarily have the same effect, hence, different importance factor (or significance factor) is defined. For example, condition 1a) defines a structure either completely collapsed or partially collapsed and has an importance factor of 3, whereas, condition 1b) represents a portion of the structure collapsed – meaning only components may failed, i.e. Figure 25d or 25f, hence, has an importance factor of 2. Because most houses are reinforced concrete structures, trees leaning against structure (condition 6a) and projectile impact on structures (condition 6b) typically would not cause instability of structures, therefore, have importance factor of 1.

Once evaluation is completed, the overall rating of the structure can be calculated as:

$$overall\ rating = \frac{\sum x \cdot I}{\sum I} \tag{5}$$

where x is the individual rating for each condition and I is the importance factor as defined in the table. The number should be reported to the first decimal. Any condition rated as 0 (no damage) will not be considered in the overall rating calculation. If any condition not known (i.e. not visible from any pictures), then it must be acknowledged

and not considered in the calculation. Hence, the denominator of the equation only considers the conditions that are actually ranked 1 to 3.

The above consideration necessarily forced the rating outcomes to be on the conservative side - because of the imposed condition, the rating tend to be larger in value and hence, result in more severe ratings. In some cases, the overall rating can be vary as greatly as 150%, which could downgrade a rating of 1 to a rating of 2, for example.

Not included in the rating scheme but equally important is the question about the cause/causes of the damages – be it wind, storm surge or a combination of both. In general, it is possible to rationalize the damaging cause of the structure, for example, water damage may leave water markings on the structure, such as fallen paint coating or rusting of components. Figure 26 shows a structure (P10-B86-004) very close to the beach (5 m or approx. 16 feet) and the damage conditions show roof damage and wall damages, which clear indicate of water damages. If one looks carefully at the roof damage, one can see that the wind above the water damage actually peered further the roof metal sheet. Thus, we can distinguish water and wind damage and roughly estimate the height of storm surge, which in this case is about 8 m (approx. 26 feet). In this case, the failure mode of the structure (Figure 26) according to Figure 25 is a combination of envelope failure (25f) and component failure (25d).

Because the investigation was conducted six months after the disaster, there is a mixed blessing in the cause analysis: while some structures have been cleaned up and hence, it is harder to determine the cause of damage but there are structures that have accelerated corrosion due to salt water attacks resulting in more visible water damages. There is also the challenge in distinguishing between storm surges and flooding related

damages. Because of the unusual disaster, forensic engineers need to spend a long time to evaluate the actual conditions of a structure and critically evaluate the causes of damages.

5.4 Rating Outcomes

Figure 27 shows a summary of the rating of the structures studied. Predominant damaged structures received a rating of 2 meaning moderately damaged structures. Only one inspected structure received a rating of 0 and about 19 structures received a rating of 3 (severely damaged). Structures received a rating of 1 (minor damages) accounts for 31 structures. There are six structures without any conclusions because insufficient data to make a rating. The primary mode of failure in buildings found in the studied areas are material/component failures and there is no translation or sliding (Figure 25a) and overturning (Figure 25b) occurred. This indicates that most of the structures have foundations sufficient to survive during the storm. There are several structures near the beaches experienced varied degrees of scour, but none constituted instability to the structure. Figure 28 shows one of the most severe scoured structures in the study – the structure (B01-003-013) is about 9 m (approx. 30 feet) from the ocean and elevation at 6 m above sea level (approx. 20 feet). As shown, the wave impacts exposed the foundation of the structure and undermined part of the bottom of the structure, but it did not caused the entire structure from moving. As a result, for this structure the condition 6a is ranked a 2, but condition 1a is ranked 0. The total rating of the structure is 2.

There are several cases of complete destruction of buildings for both residential and commercial buildings. The most common destruction of commercial structures are roof collapse and resulted in pulling down the entire structure (column failures), indicating the

roof system may have applied excessive axial force on the vertical members (columns and walls). This may result in a combination of failure modes (Figures 25b and 25c). Figure 29 shows a typical completely destroyed commercial structure (Palo-008-D2, overall rating is 3). The structure is about 1,175 m away from the seashore and elevation is about 4 m above sea level. The failure mode started with the roofing sheet metals failing and wind load forced the metal roof trusses to fail. Due to the axial forces from the roof system results in the collapse of the structure as a whole. Figure 30 shows the damaged roof system indicating likely roof truss connected to concrete wall and sitting on a pedestal.

The individual condition ranking is shown in Figure 31. The most common condition is roof failures (21%) indicating wind effects. There are a few cases of storm surge force damaging the roof system (wave impact) as shown in Figure 32. Because of roof damages, there are also several cases of falling object hazards (17%). Finally, because of connection design, roof damage also resulted in damages in primary members such as wall beams and columns. The resulting damages to primary members is about 11%.

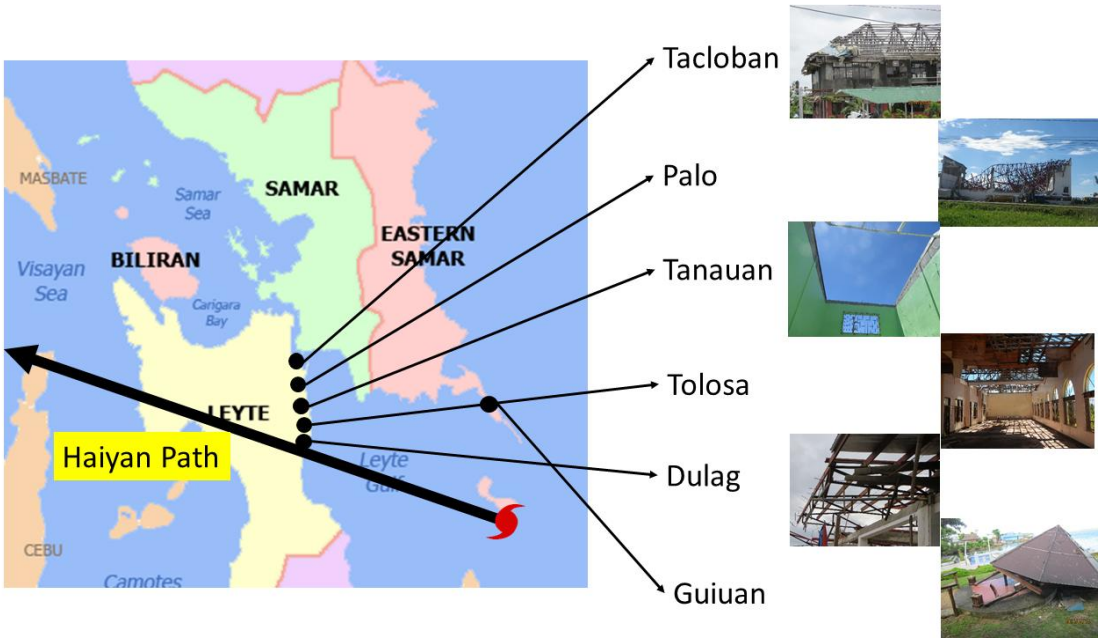


Figure 23: Study areas in Leyte and East Samar: Tacloban, Palo, Tanauan, Tolosa, Dulag and Guiuan.

Figure 24: Damaged Two-story Structure (B88-030) near Tacloban Domestic Airport Depicting Metal Roof Panels, Wood Truss and Reinforced Concrete Walls

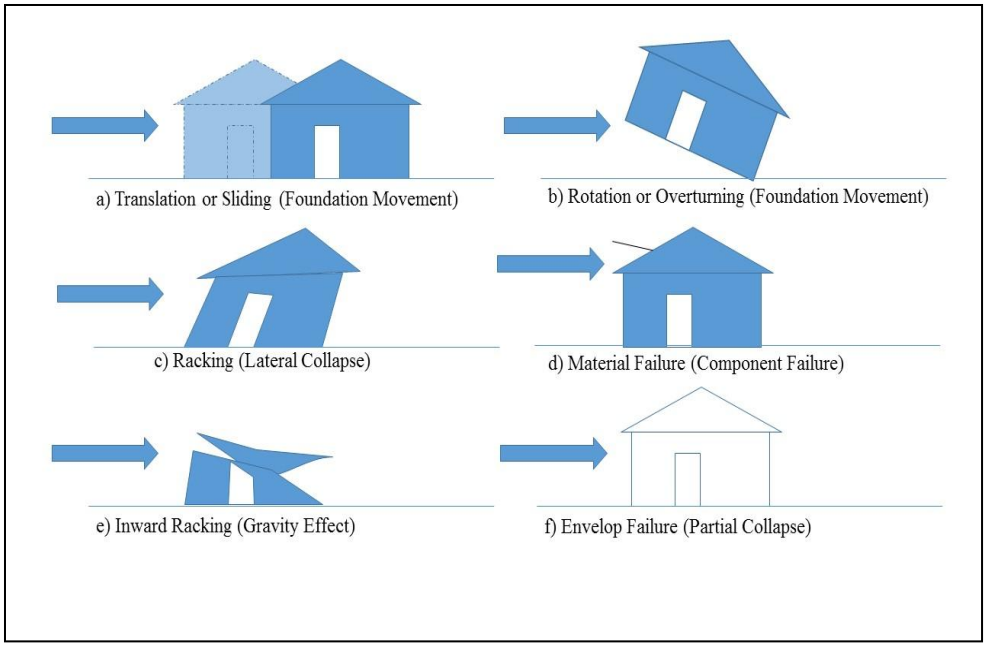


Figure 25: Global Failure Modes of Structures

Figure 26: One-Story Residential Structure (P10-B86-004) with Wind and Water Damages

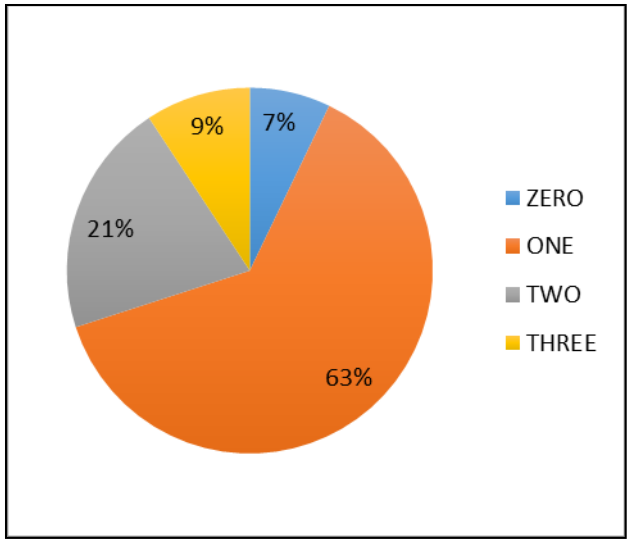


Figure 27: Overall Rating Distribution

Figure 28: Severely Scoured Foundation (B01-003-013)

Figure 29: Collapsed Commercial Structure (Palo-008-D2)

Figure 30: Roof Truss Connection for the Commercial Structure (Palo-008-D2)

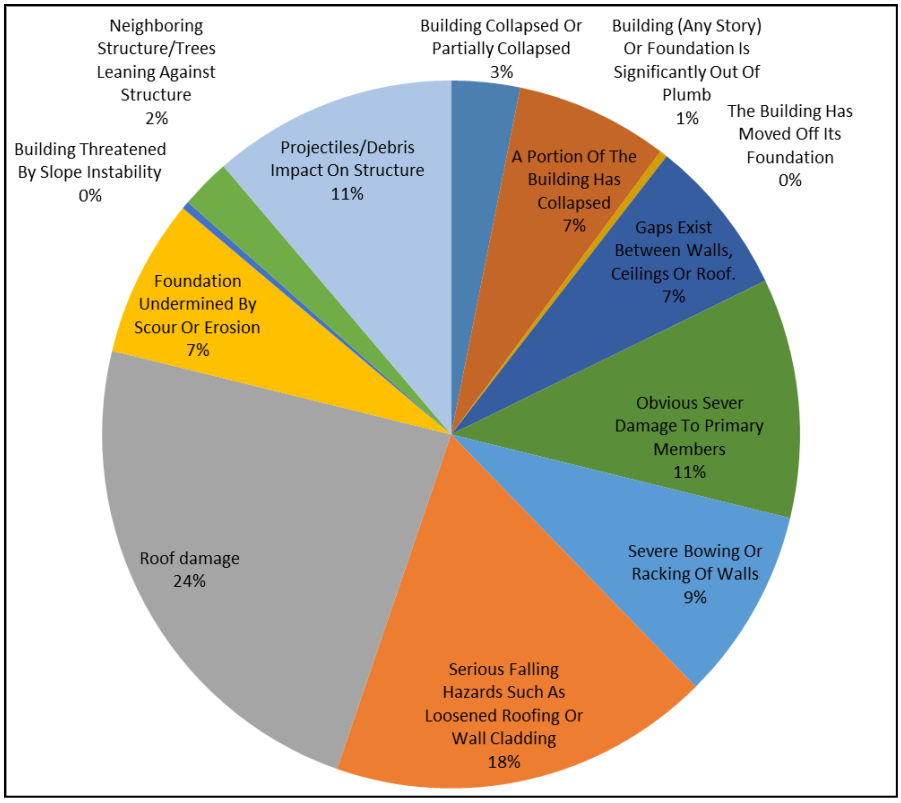


Figure 31: Statistics of Damage Condition Rankings

Figure 32: Storm Damaged Metal Roof (B01-003-013)

CHAPTER VI: BASIC RATING OF DAMAGED STRUCTURES

6.1 Rating of Damaged Structures

The basic rating technique helps in identifying failure modes of the damaged structures. Figure 33 summarizes the different failure modes at Leyte and East Samar Islands into wind, water (storm surge) failures and possible combined effects. The results indicate that wind is the predominant induced damage for about 53% of all studied structures, although that may be a low estimate as there are several combined effect damage (29%). Water damage accounts for 13% of the damaged structures. To clearly distinguish between wind and water damage would require a more detailed analysis of the damaged structures.

Other than building damage, the force of Hurricane Haiyan also caused significant infrastructure and environment damage. Telltale signs of environment damage may sometimes give away indications of storm surge level and water damage effects. However, such observations require trained eyes and are highly speculative. Many times, damage to neighboring structures can also help in evaluating the site situations. Such analysis is typically a hit and miss and a formalization of such procedures is yet to be established.

There are several critical factors that can influence the outcomes of a major hurricane event: The construction quality of the local housing is a critical element in determining the survivability of the structures. The basic rating does not reflect directly the quality of

the construction – we have to rely on more detailed data to establish the effect of construction quality. Observations of the construction of the buildings made in the field indicate that the roof cover connection technique can vary from nailing to strip connections. The roof truss connection to the support member can also vary from bolted connection to simply bending the extended rebars around the truss connection as support. Figure 34 shows different roof sheet connections and Figure 35 shows the different roof support systems in Leyte and East Samar Islands.

It is evident that most failure mechanisms from the hurricane started with the failure of roof covers; however, there are also cases where gusty wind may have brought down the entire roof truss. It is of concern that some of some roof structures are not adequately designed for load reversals and may have brought down the entire building (Failure mode for gravity effect, Figure 35e). This may be the case for the Palo008-D2 structure (Figure 36). If the building frame remained intact it may provide some minimal safety to the occupants within the structure. Hence, it is important to enhance future structural design to include higher lateral loading capacity for wide-spanned structures.

Because of the recording of the structure position coordinates, it is possible to determine the effect of distance to the coast. Figures 37 to 40 show plots of correlations between the number of structures damaged versus distance to the coast for all damage cause case (wind, water and wind and water combined), wind damage only, water damage only and wind and water combined effects, respectively. In each figure, the buildings are further separated by rating. Also included in the figures are trend lines for each rating using logarithmic curves, which fit better than straight lines.

In general, structures further away from the coastline, are less likely to be damaged

by water. The trend lines in Figure 39 show that this is true for all ratings. The effects ended at about 1 km for water damage. For wind damage, the effect of distance to the coast line is equally pronounced, but the distances are extended further (for rating two, it extended beyond 1.5 km (~4,921 ft), but for ratings 1 and 3, the 1 km (~3,280 ft) distance to the coast seem to indicate the extent of influence). For wind and water combined damage, it is shown that all trend lines ends approximately at 1 km (~3,280 ft) for rating 3, 1.25 km (~4,101 ft) for rating 2 and for rating 3 the curve extended beyond 1.5 km (~4,921 ft). The extensive wave damage can be explained by the observation that for some riverine structures, storm surge damage occurred due to waves traveling inland along the rivers.

The intent of the basic rating is to provide a universal rating for structures that can be performed onsite after major hurricanes (even though current work was done after the team has left the Philippines). It provides a first order assessment of wind and water damage to structures that can be compared to other similar events. By altering the significance factor, the rating can be adjusted for local conditions, local construction practices and techniques and disaster preparedness of the impact region. Thus, field rating can be performed with a pocket calculator or easily programmed in a spreadsheet. Finally, there are a few structures that were not assigned any ratings either because of insufficient pictures available or no clear shots of the damage to make any conclusions. Hence, it is critical to ensure that sufficient evidence is available to support the rating outcomes for each individual structure. In Figure 38, these are shown as “no conclusion” case.

The proposed basic rating technique is far from perfect - it may be flawed due to the

following reasons: the basic rating technique does not necessarily resulted in structure ratings that reflect on the actual conditions of the structure. For example, it does not separate component evaluation from the substructure evaluation. In such case, the overall rating of the structure should be manually adjusted. Also, the rating technique is essentially subjective and can be influenced by the opinion of individual inspector.

Two key elements dictate the geospatial distribution of damages from the storm event: The first being the local topography and the second is the availability of structures. For example, there is a small ridge within the Tacloban city stretching from Barangay 57 to Barangay 66, which plays a critical role in limiting the water damages to reach further in land. Figures 41 to 42 show the geospatial distribution of the damage rating in Tacloban: Figure 41 shows the distribution for all structural damage ratings for water damaged only cases, where the extent of damaged structures did not extend beyond the ridge (highest point at elevation around 150 ft). Figure 42 shows the distribution for all structural damage ratings for wind damaged only cases, where the extent of damaged structures extended beyond the ridge. For the second limiting factor, since there is very few structures between Tacloban and Palo, it is shown that the distribution of damages is gapped in both Figures 41 and 42.

6.2 Modeling of Storm Surge

One of the challenges in modeling of the storm surge of the Super Typhoon Haiyan is the resolution of climate models may be insufficient to capture the actual event. Takayabu et al. (2015) used super high resolution regional climate model to simulate the event. The resolution is a 1 km grid and is the highest resolution applied to the event. However, this resolution is not sufficient to model the events occurring at some parts of

Leyte or East Samar. For example, the Port of Tacloban lies within the San Pedro Bay and the shortest distance between Leyte Island and East Samar is only about 1.6 km between Panirugan Point (Tacloban, Leyte) and Binotac Point (San Antonio, Samar), which is too small an area to model using current regional climate models. As a result, it is hard to quantify the storm surge height due to the combined traveling wave from the Pacific and the reflected waves from East Samar.

The ASCE team visited the Leyte Park Resort at the Panirugan Point, which suffered significant wind and storm surge damages to multiple structures. Based on interview of local witnesses, there were two large waves that impacted Tacloban City. A theory is suggested that the initial wave is probably the long distance wave traveling along the path of the typhoon and the second wave is probably reflected waves from the Samar Island side. Figure 43 shows the two-wave hypothesis where the long traveling waves from the Pacific entered into the San Pedro Bay caused significant amount of water trapped within the bay. The waves reflected from the coasts of Samar Island would force more water into the Port of Tacloban. This combined water may be the force behind pushing several cargo ships that eventually docked on land at Balangay 70 near Anibong. Figure 44 shows the one of ships that were docked at Anibong.

More detailed studies and modeling are required to fully understand the forces that have been applied to the ships to move them on land.

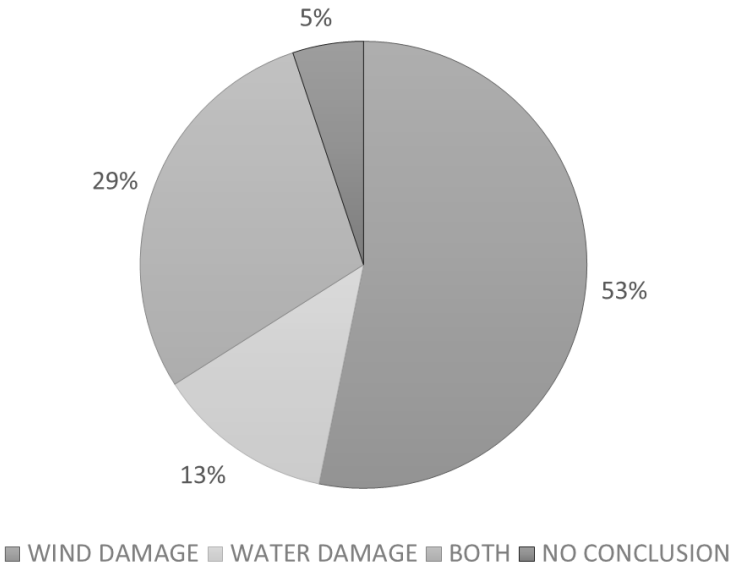


Figure 33: Damage Causes Differentiating Wind and Water (Storm Surge) Damage

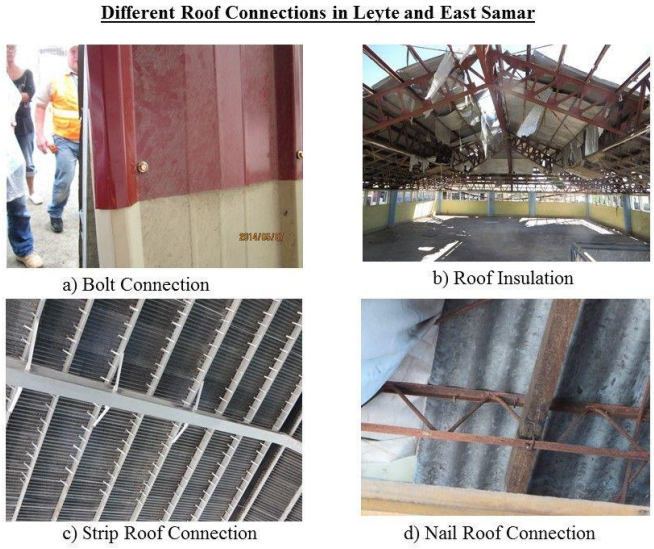


Figure 34: Different Roof Cover Connections in Leyte and East Samar Islands

Figure 35: Different Roof Support Systems in Leyte and East Samar Islands

Figure 36: Collapsed Commercial Structure (Palo008-D2)

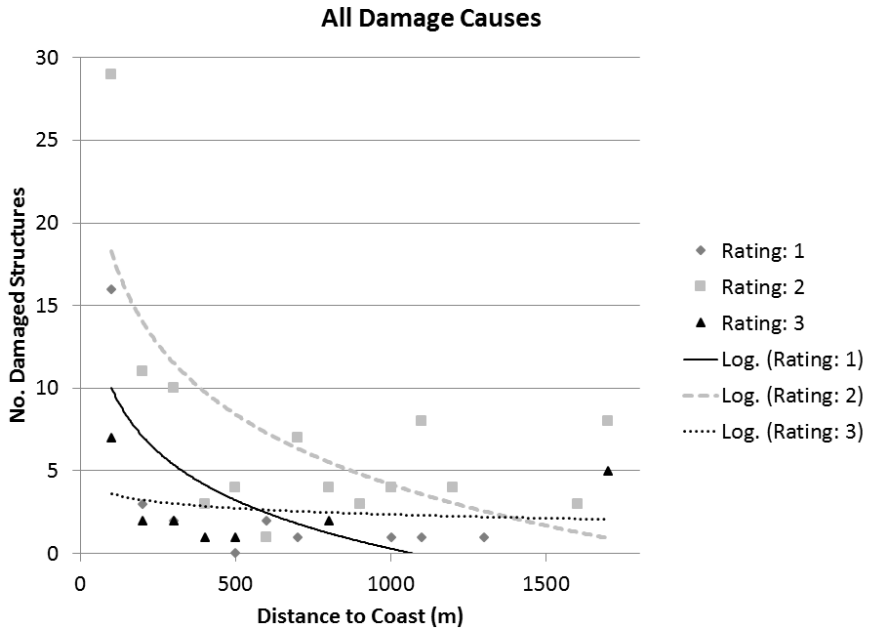


Figure 37: Damage Rating versus Distance to the Coast for All Causes of Damage (Wind, Water and Wind-Water Combined) Including Trend Lines (Logarithmic Curves)

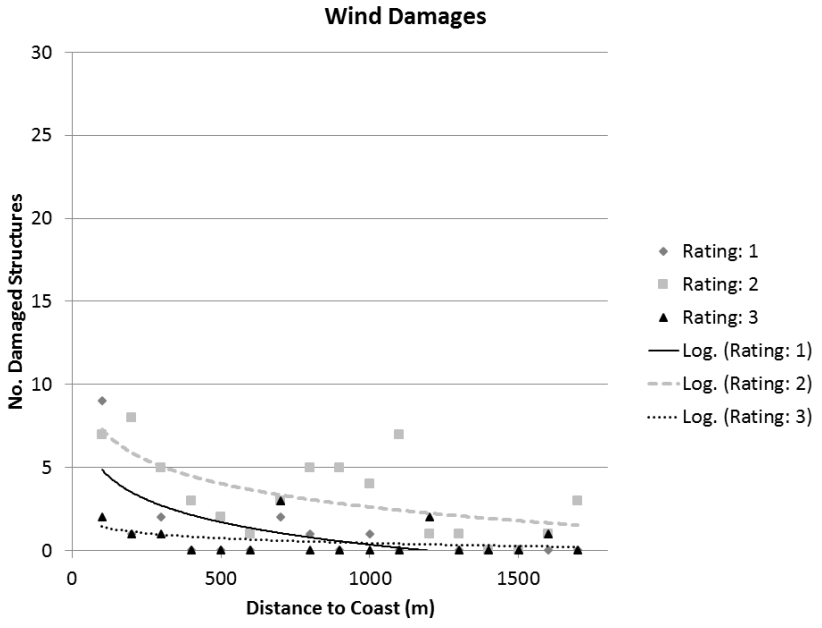


Figure 38: Damage Rating versus Distance to the Coast for Wind Damage Only with Trend Lines (Logarithmic Curves)

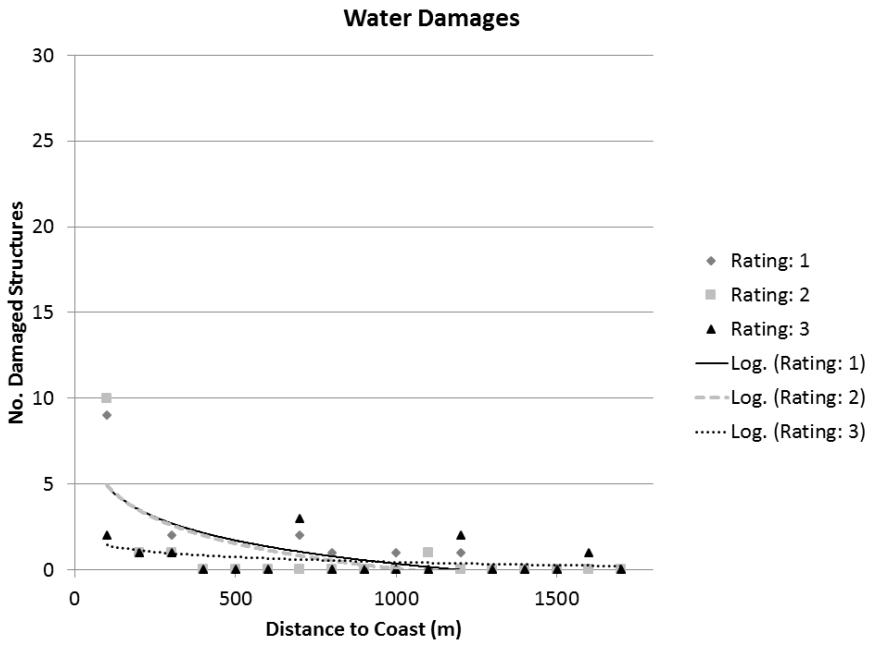


Figure 39: Damage Rating versus Distance to the Coast for Water Damage Only with Trend Lines (Logarithmic Curves)

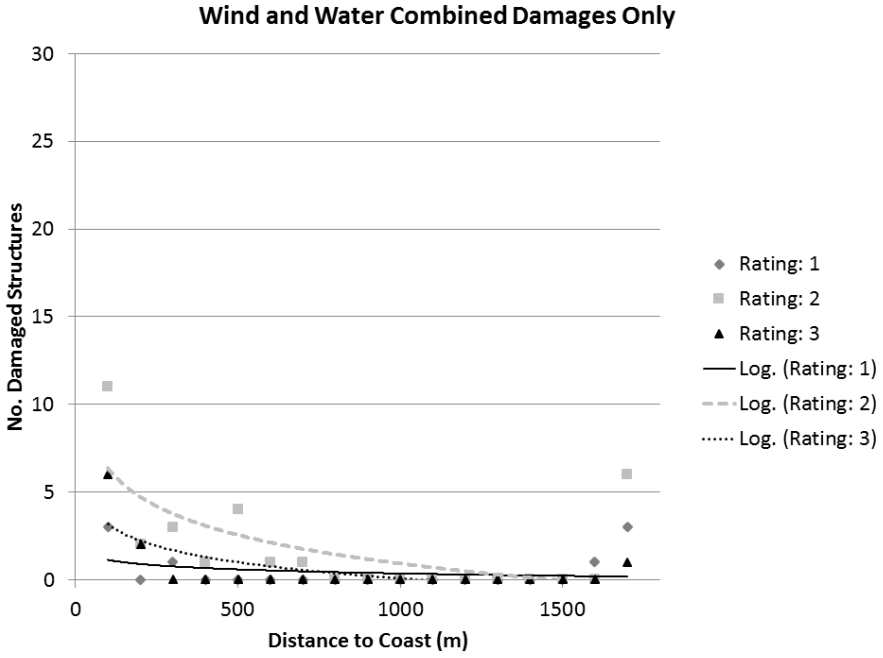


Figure 40: Damage Rating versus Distance to the Coast for Wind and Water Combined Damage with Trend Lines (Logarithmic Curves)

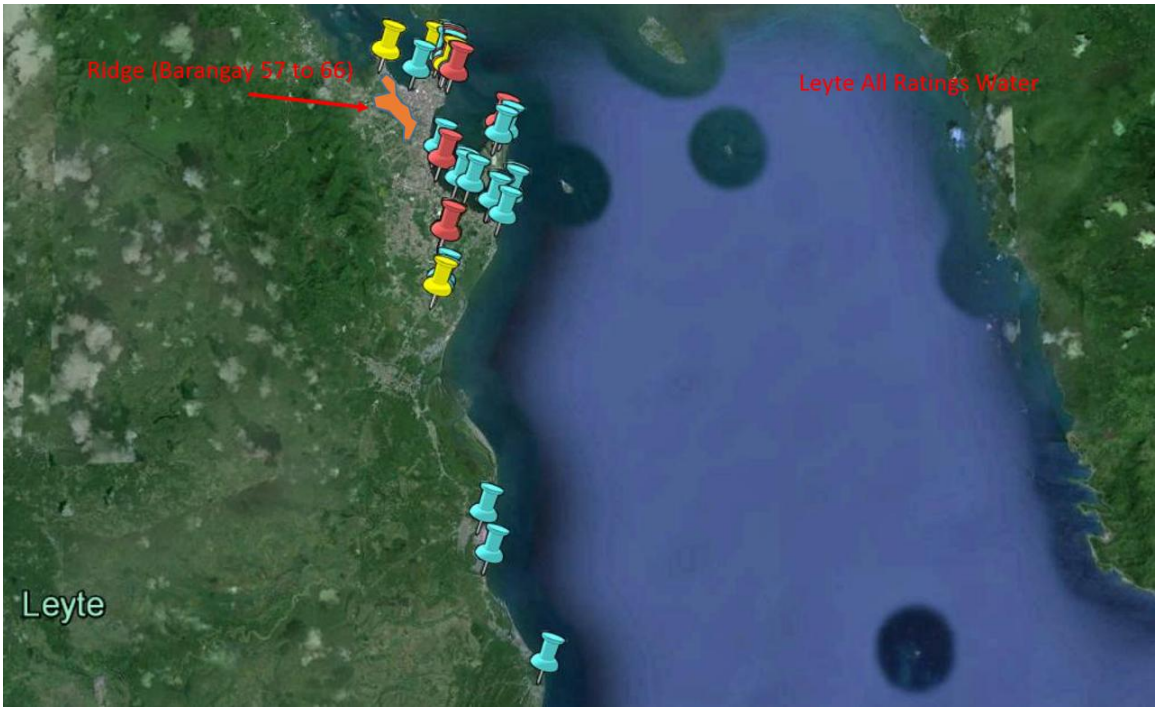


Figure 41: Geospatial Distributions of Water Damages for All Ratings in Tacloban

Figure 42: Geospatial Distributions of Wind Damages for All Ratings in Tacloban

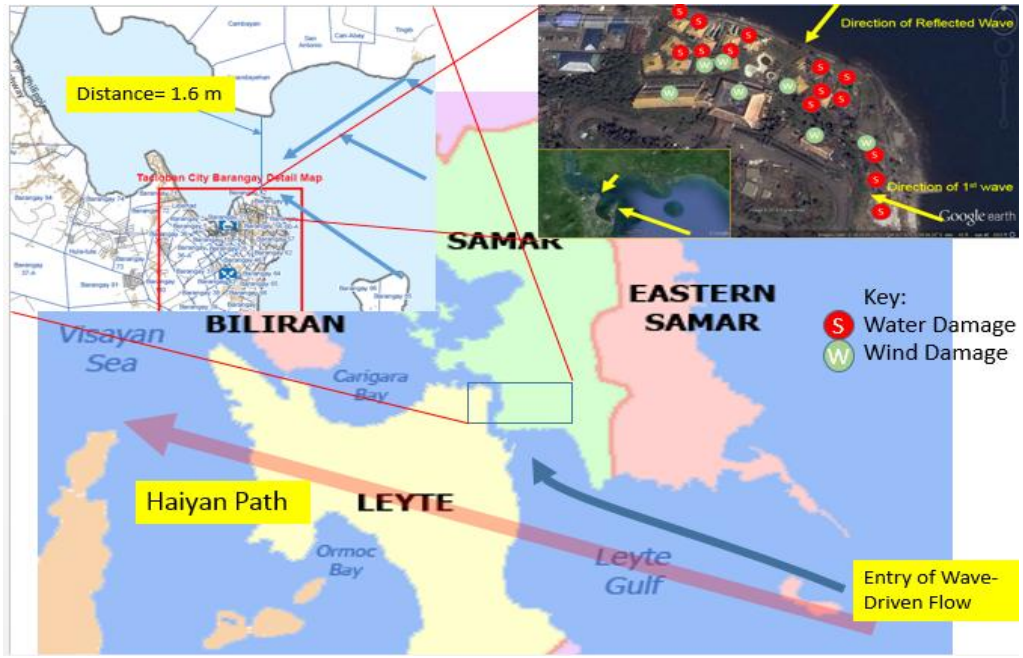


Figure 43: The Hypothetical Scenario of the two Waves that Impacted Tacloban during Super Typhoon Haiyan.

Figure 44: One of the Cargo Ships Docked in Land due to Wave Motion. Ship was originally docked at Anibong

CHAPTER VII: CONCLUSION

This thesis discussed the organization, methodology, and preliminary findings of a field trip for damage assessments following the Super Typhoon Haiyan event. The intent of the study is generate perishable data on the unprecedented storm event that can be shared by the research community. Due to the lack of instrumented storm data, researchers are painstakingly generating simulation models to explain the effect of the storm. This thesis attempts to generate similar assessments through the study of damaged structures. The rating technique described in this thesis is intended to provide an overall assessment of a structure damaged during hurricanes and is applied to the Super Typhoon Haiyan scenario. An initial macro-application of forensic investigation enables the responding insurance carriers to mobilize the proper teams to expedite subrogation of the insured. This damage mode verification and aggregate loss approximation allows the insurers to allocate funds and to establish early if there is a need to pursue reinsurance assistance.

This study also implemented the usage of GPS cameras and GIS tools for the forensic investigation of massive structural failures and suggested using CL method to determine the SOI from geo-tagged picture clusters. A critical effect on the method is possible error introduced due to neighboring structures. This thesis described three experiments with different neighboring structures to determine the effect of distance to neighboring structure on the GPS coordinates. It is shown that the percentage LE and distance

deviation between predicted and actual centroid can be used to determine the effect of distance to neighboring structure, which are inversely correlated.

The study included defining the failure causes of structures differentiating into wind, storm surge and combined effects. From the 148 structures, wind damage was the predominant failure causes (53% for wind damage only) with only 13% water only damages. 29% of structures exhibited both wind and water damages to the structures. The proximate cause of damage to 5% of structures cannot be specifically identified, which may be interpreted as the level of uncertainty for the study. Water damages are mostly for structures close to the shore, however, there are some structures more inland were water damaged due to waves running up the rivers or canals. As a result, water damages due to storm surge can be as far as 1.25 km from shore for Super Typhoon Haiyan. On the other hand, wind damages can extended beyond 1.5 km.

The most critical damage mode is roof system failures, which accounts for 24% of all damage modes. The roof designs are predominately truss-type with steel or wood. It is noted that there are several totally collapsed structures due to roof truss failures that brought down the entire structure. These are commonly wide span, commercial structures or entertainment (gyms or basketball courts) structures. It may be important in the future to consider enhanced axial loading on wide-span structure vertical members.

It can also be an important lesson for US commercial structures of similar designs.

CHAPTER VIII: RECOMMENDATIONS FOR FUTURE STUDIES

Super Typhoon Haiyan represents an unprecedented storm event in recent history and the lessons learned are still trickling through literature publications. It may be years after that we can comprehend the complete story of what happened at Tacloban and East Samar. Specific recommendations for future studies would include:

1. Compare numerical storm surge data to the distribution due to water damages.
2. Investigate the actual wave force on the ships dicked at Anibong.
3. Further analysis of the structural damages for specific recommendations against future events of the same magnitude.

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APPENDIX A: GLOSSARY

All Risk Coverage: aka Open Perils coverage, coverage for all perils except those explicitly excluded, ex. Water damage exclusion.

Bundle Adjustment: the computer vision process of refining the three-dimensional coordinates of interest points with respect to the image geometry and camera position.

Camera Traverse: An image sequence that defines a clear path of motion.

Exif: aka Exchangeable image file format, the embedded meta data within common image formats TIFF and JPEG which includes date, time, GPS coordinates of camera, camera settings including make and model, and a thumbnail. Color depth is 24 bits per pixel (JEITA). Camera manufacturers wishing to exceed 24 bits develop their own proprietary file format, ex. Nikon's NEF images.

Geotagging: aka Georeferencing, the process of associating the geographic location of the camera within the meta data of a digital image.

H03 Special Form: The most commonly used insurance form for personal residences. It affords All Risk coverage for damage to the dwelling excluding water damage such as storm surge or flood.

Indemnity: compensation for loss sustained.

Interest Point Detection: the computer vision process of identifying features with clear definition, position in space, and scale.

JPEG: aka Joint Photographic Experts Group, a common image format used by digital cameras.

Photogrammetry: the science of making measurements from photographs.

Proximate Cause: the initial cause of a measurable loss to property or injury, an important determination for insurance claims practice.

Remote Standoff Capture: the process of associating the geographic location of the point of interest within the meta data of a digital image.

Water Damage (ISO definition of the peril for insurance purposes):

a. Flood, surface water, waves, tidal water, overflow of a body of water, or spray from any of these, whether or not driven by wind;

b. Water or water-borne material which backs up through sewers or drains or which overflows or is discharged from a sump, sump pump or related equipment; or

ci. Water or water-borne material below the surface of the ground, including water which exerts pressure on or seeps or leaks through a building, sidewalk, driveway, foundation, swimming pool or other structure;

caused by or resulting from human or animal forces or any act of nature.

Direct loss by fire, explosion or theft resulting from water damage is covered.

APPENDIX B: DATA USE AGREEMENT

The data collected through the ASCE Philippines Hurricane Yolanda Structural Assessment (PHYSA) project are outcomes of ASCE-NSF joint sponsored study. The underlying data in this application was compiled from different sources and furthermore, the maps included in this application may be subjected to changes and/or updates and for visual presentation only and cannot be used for other purposes.

The data collected are properties of ASCE. By signing in to this website, you agreed to accept the terms and conditions of this agreement including the following:

1. The data are not to be used for commercial purposes.

2. To protect the owners of the specific structures, the conditions of the structure or results of analyses cannot be used for commercial purposes.

3. Permitted uses and disclosures

3.1 Except as otherwise specified herein, users may make all uses and disclosures of the Limited Data Set necessary to conduct damage analysis and damage cause delineation.

3.2 In addition to the users, the individuals, or classes or individuals, who are permitted to use or receive the Limited Data Set for purposes of the research project include: ASCE members, professional engineers, structural inspectors and forensic engineers.

4. User responsibilities

4.1 Users will not use or disclose the Limited Data Set for any purpose other than permitted by this Agreement pertaining to the Research Project or as required by law;

4.2 Users will use appropriate administrative, physical and technical safeguards to prevent use or disclosure of the Limited Data Set other than as provided for by this Agreement;

4.3 Users will report to the Administrator for any use or disclosure of the Limited Data Set not provided for by this Agreement of which the User becomes aware of such use or disclosure;

4.4 User will ensure that any agent, including a subcontractor, to whom it provides the Limited Data Set, agrees to the same restrictions and conditions that apply through this Agreement to the User with respect to the Limited Data Set;

4.5 User will not identify the information contained in the Limited Data Set; and

4.6 User will not contact the individuals who are associated with the structure contained in the Limited Data Set.

5. Term and Termination

5.1 The terms of this Agreement shall be effective as of 4/25/14, and shall remain in effect until 4/25/17.

APPENDIX C: STRUCTURAL RATING SHEETS

Table A1: Parcel 1, Barangay 1, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P01-B01-001		
TYPE OF STRUCTURE	: COMMERCIAL, BASKETBALL COURT, SINGLE STORY		
LOCATION	: 125.0038806,11.25042275		
DISTANCE FROM THE OCEAN	: 240 METERS	**ELEVATION:**	21 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Some portion of the truss is severely damaged.
2.The roof of the building is partially damaged.

Table A2: Parcel 1, Barangay 1, Building 2, Rating Sheet

STRUCTURE IDENTITY	: P01-B01-002		
TYPE OF STRUCTURE	: COMMERICAL BUILDING, TWO STORY		
LOCATION	: 125.0080205,11.24944699		
DISTANCE FROM THE OCEAN	: 160 METERS	**ELEVATION:**	25 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	0
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	0	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.The building is in good condition.

Table A3: Parcel 1, Barangay 1, Building 5, Rating Sheet

STRUCTURE IDENTITY	: P01-B01-005		
TYPE OF STRUCTURE	: COMMERCIAL BUILDING, EVENT BUILDING, TWO STORY		
LOCATION	: 125.0029758,11.25009252		
DISTANCE FROM THE OCEAN	: 09 METERS	**ELEVATION:**	20 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	2	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	3	

Observations:

1.The roof of the building is severely damaged.
2.All windows and doors of bottom story are completely damaged by storm.
3.Primary memebers of the building is partially damaged.

Table A4: Barangay 1, Leyte Park Resort, Building 1, Rating Sheet

STRUCTURE IDENTITY	: B1-003-001		
TYPE OF STRUCTURE	: COMMERCIAL, HOTEL, FOUR STORY		
LOCATION	: 125.006962,11.25137529		
DISTANCE FROM THE OCEAN	: 64 METERS	**ELEVATION:**	42 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.The roof of the building is partially damaged.
2.Some portion of the Eaves are damaged.

Table A5: Barangay 1, Leyte Park Resort, Building 2, Rating Sheet

STRUCTURE IDENTITY	: B1-003-002		
TYPE OF STRUCTURE	: COMMERCIAL, HOTEL, FOUR STORY		
LOCATION	: 125.0064766,11.25141464		
DISTANCE FROM THE OCEAN	: 80 METERS	**ELEVATION:**	46 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	0
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:
1.Minor damage to the roof of the building

Table A6: Barangay 1, Leyte Park Resort, Building 3, Rating Sheet

STRUCTURE IDENTITY	: B1-003-003		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.0068995,11.25178455		
DISTANCE FROM THE OCEAN	: 41 METERS	**ELEVATION:**	30 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	2	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:
1.The roof of the building is partially damaged.
2.The Eave portion of the truss is severely damaged.
3.The exterior wall of the building is damaged by storm.
4.Water damage is observed in lower portion of the building.

Table A7: Barangay 1, Leyte Park Resort, Building 4, Rating Sheet

STRUCTURE IDENTITY	: B1-003-004		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.0067146,11.2517425		
DISTANCE FROM THE OCEAN	: 54 METERS	**ELEVATION:**	32 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	1	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:
1.The roof of the building is partially damaged.
2.The lower portion of the building is damaged by impact of debris.
3.The exterior wall of the building is damaged by storm.

Table A8: Barangay 1, Leyte Park Resort, Building 5, Rating Sheet

STRUCTURE IDENTITY	: B1-003-005		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.0065098,11.25176795		
DISTANCE FROM THE OCEAN	: 60 METERS	**ELEVATION:**	34 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	0
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:
1.Very minor damage to the roof of the building.

Table A9: Barangay 1, Leyte Park Resort, Building 7, Rating Sheet

STRUCTURE IDENTITY	: B1-003-007		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.0064412,11.2519557		
DISTANCE FROM THE OCEAN	: 38 METERS	**ELEVATION:**	28 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	0
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:
1.Very minor damage to the roof of the building.
2.Some portion of the Eaves are damaged.

Table A10: Barangay 1, Leyte Park Resort, Building 9, Rating Sheet

STRUCTURE IDENTITY	: B1-003-009		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), TWO STORY		
LOCATION	: 125.0064577,11.25215015		
DISTANCE FROM THE OCEAN	: 5 METERS	**ELEVATION:**	20 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	2	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	2	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	2	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:
1.Exterior columns of the building are severly damaged.
2.Heavy scouring is observed at the foundation level.
3.The roof of the building is damaged by storm.

Table A11: Barangay 1, Leyte Park Resort, Building 10, Rating Sheet

STRUCTURE IDENTITY	: B1-003-010		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.0065998,11.25210018		
DISTANCE FROM THE OCEAN	: 9 METERS	**ELEVATION:**	20 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	2	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	2	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	3	
5b	Building Threatened By Slope Instability	3	2	
6a	Neighboring Structure/Trees Leaning Against Structure	1	2	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:
1.The wall of the building is completely collapsed.
2.Heavy scouring is observed at the foundation level.
3.The roof of the building is damaged by storm.

Table A12: Barangay 1, Leyte Park Resort, Building 13, Rating Sheet

STRUCTURE IDENTITY	: B1-003-013		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.0070621,11.25197821		
DISTANCE FROM THE OCEAN	: 9 METERS	**ELEVATION:**	21 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	2	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:
1.The wall of the building is completely collapsed.
2.Heavy scouring is observed at the foundation level.
3.The roof of the building is damaged by storm.

Table A13: Barangay 1, Leyte Park Resort, Building 14, Rating Sheet

STRUCTURE IDENTITY	: B1-003-014		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.0074853,11.25176482		
DISTANCE FROM THE OCEAN	: 07 METERS	**ELEVATION:**	25 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	2	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	3	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:
1.Exterior wall of the building is completely collapsed.
2. Heavy scouring is observed at the foundation level.
3.One side of the roof is totally damaged.
4.primary members of the building is damaged by storm.

Table A14: Barangay 1, Leyte Park Resort, Building 15, Rating Sheet

STRUCTURE IDENTITY	: B1-003-015		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.0076148,11.25168039		
DISTANCE FROM THE OCEAN	: 08 METERS	**ELEVATION:**	24 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	2	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:
1.Some portion of the roof is severely damaged.
2. Heavy scouring is observed at the foundation level.

Table A15: Barangay 1, Leyte Park Resort, Building 16, Rating Sheet

STRUCTURE IDENTITY	: B1-003-016		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.0077935,11.25158103		
DISTANCE FROM THE OCEAN	: 14 METERS	**ELEVATION:**	20 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:
1.Exterior wall of the building is completely collapsed.
2. Minor scouring is observed at the foundation level.

Table A16: Barangay 1, Leyte Park Resort, Building 17, Rating Sheet

STRUCTURE IDENTITY	: B1-003-017		
TYPE OF STRUCTURE	: COMMERCIAL BUILDING, SINGLE STORY		
LOCATION	: 125.0072256,11.25167124		
DISTANCE FROM THE OCEAN	: 37 METERS	**ELEVATION:**	33 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	2	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:
1.Exterior wall of the building is completely collapsed.
2. Heavy scouring is observed at the foundation level.
3.Primary members of the building is damaged by storm.

Table A17: Barangay 1, Leyte Park Resort, Building 18, Rating Sheet

STRUCTURE IDENTITY	: B1-003-018		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.0074501,11.25160243		
DISTANCE FROM THE OCEAN	: 29 METERS	**ELEVATION:**	31 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	0
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:
1.Some minor damage to roof of the building.

Table A18: Barangay 1, Leyte Park Resort, Building 19, Rating Sheet

STRUCTURE IDENTITY	: B1-003-019		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.0075966,11.25149542		
DISTANCE FROM THE OCEAN	: 32 METERS	**ELEVATION:**	27 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	0
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:
1.Very minor damage to the roof of the building.
2.Lower portion of the building is damaged by impact of debris.

Table A19: Barangay 1, Leyte Park Resort, Building 19B, Rating Sheet

STRUCTURE IDENTITY	: B1-003-019B		
TYPE OF STRUCTURE	: COMMERCIAL, SINGLE STORY		
LOCATION	: 125.0075349,11.25138118		
DISTANCE FROM THE OCEAN	: 32 METERS	**ELEVATION:**	31 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:
1.Very minor damage to the roof of the building.
2.Lower portion of the building is damaged by impact of debris.

Table A20: Barangay 1, Leyte Park Resort, Building 20, Rating Sheet

STRUCTURE IDENTITY	: B1-003-020		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.0077427,11.25137599		
DISTANCE FROM THE OCEAN	: 23 METERS	**ELEVATION:**	24 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	0
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:
1.Damage to the roof of the building.

Table A21: Barangay 1, Leyte Park Resort, Building 21, Rating Sheet

STRUCTURE IDENTITY	: B1-003-021		
TYPE OF STRUCTURE	: COMMERCIAL BUILDING, SINGLE STORY		
LOCATION	: 125.007543,11.25108		
DISTANCE FROM THE OCEAN	: 69 METERS	**ELEVATION:**	31 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	1	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	2	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1. Damage to the roof of the building.
2.Lower portion of the building is damaged by impact of Water.

Table A22: Barangay 1, Leyte Park Resort, Building 23, Rating Sheet

STRUCTURE IDENTITY	: B1-003-023		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.007964,11.251024		
DISTANCE FROM THE OCEAN	: 23 METERS	**ELEVATION:**	21 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	2	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Severe damage to the roof of the building.
2.Half -of the portion of the building is completely collapsed.
3.Minor scouring is observed at the level of the foundation.

Table A23: Barangay 1, Leyte Park Resort, Building 25, Rating Sheet

STRUCTURE IDENTITY	: B1-003-025		
TYPE OF STRUCTURE	: COMMERCIAL (RESORT RESIDENTIAL), SINGLE STORY		
LOCATION	: 125.00802,11.250829		
DISTANCE FROM THE OCEAN	: 18 METERS	**ELEVATION:**	21 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Severe damage to the roof of the building.
2.Total building is completely collapsed.
3.Minor scouring is observed at the level of the foundation.

Table A24: Barangay 1, Leyte Park Resort, Building 26, Rating Sheet

STRUCTURE IDENTITY	: B1-003-026		
TYPE OF STRUCTURE	: RESTAURANT, COMMERCIAL, SINGLE STORY		
LOCATION	: 125.0080077,11.25063099		
DISTANCE FROM THE OCEAN	: 17 METERS	**ELEVATION:**	21 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Severe damage to the roof of the building.
2.Building is completely collapsed.
3.Minor scouring is observed at the level of the foundation.

Table A25: Barangay 1, Leyte Park Resort, Building 30, Rating Sheet

STRUCTURE IDENTITY	: B1-003-030		
TYPE OF STRUCTURE	: COMMERCIAL, SINGLE STORY		
LOCATION	: 125.007961,11.24985871		
DISTANCE FROM THE OCEAN	: 19METERS	**ELEVATION:**	30 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Severe damage to the roof of the building.
2.Total building is completely collapsed.
3.Minor scouring is observed at the level of the foundation.
4.Chipping of concrete is observed in the top of exterior column.

Table A26: Barangay 1, Leyte Park Resort, Building 32, Rating Sheet

STRUCTURE IDENTITY	: B1-003-032		
TYPE OF STRUCTURE	: SPORT COMPLEX,COMMERCIAL, SINGLE STORY		
LOCATION	: 125.0075277,11.24960668		
DISTANCE FROM THE OCEAN	: 60 METERS	**ELEVATION:**	32 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Severe damage to the roof of the building.
2.Total building is completely collapsed.

Table A27: Barangay 1, Leyte Park Resort, Building 33, Rating Sheet

STRUCTURE IDENTITY	: B1-003-033		
TYPE OF STRUCTURE	: COMMERCIAL, SINGLE STORY		
LOCATION	: 125.006436,11.250046		
DISTANCE FROM THE OCEAN	: 148 METERS	**ELEVATION:**	32 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Severe damage to the roof of the building.
2.Eaves of the building is severely damaged.

Table A28: Barangay 1, Leyte Park Resort, Building 36, Rating Sheet

STRUCTURE IDENTITY	: B1-003-036		
TYPE OF STRUCTURE	: COMMERCIAL, SINGLE STORY		
LOCATION	: 125.0059559,11.25027639		
DISTANCE FROM THE OCEAN	: 210 METERS	**ELEVATION:**	28 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Severe damage to the roof of the building.
2.Eaves of the building is severely damaged.

Table A29: Barangay 1, Leyte Park Resort, Building 37, Rating Sheet

STRUCTURE IDENTITY	: B1-003-037		
TYPE OF STRUCTURE	: COMMERCIAL TWO STORY BUILDING		
LOCATION	: 125.0058686,11.25027639		
DISTANCE FROM THE OCEAN	: 249 METERS	**ELEVATION:**	31 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	0
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	0	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1. Minor eave damage.

Table A30: Barangay 1, Leyte Park Resort, Building 41, Rating Sheet

STRUCTURE IDENTITY	: B1-003-041		
TYPE OF STRUCTURE	: COMMERCIAL, SINGLE STORY BUILDING		
LOCATION	: 125.0055307,11.25136788		
DISTANCE FROM THE OCEAN	: 130 METERS	**ELEVATION:**	31 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Roof of the building is severely damaged.
2.Some of the primary members are damaged.

Table A31: Barangay 1, Leyte Park Resort, Building 41A, Rating Sheet

STRUCTURE IDENTITY	: B1-003-041A		
TYPE OF STRUCTURE	: COMMERCIAL,TWO STORY BUILDING		
LOCATION	: 125.0055307,11.25136788		
DISTANCE FROM THE OCEAN	: 130 METERS	**ELEVATION:**	31 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:
1.Roof of the building is damaged.

Table A32: Barangay 1, Leyte Park Resort, Building 42, Rating Sheet

STRUCTURE IDENTITY	: B1-003-042		
TYPE OF STRUCTURE	: COMMERCIAL, TWO STORY		
LOCATION	: 125.0059623,11.25119368		
DISTANCE FROM THE OCEAN	: 134 METERS	**ELEVATION:**	35 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	0	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:
1.Roof of the building is partially damaged.

Table A33: Barangay 1, Building 7A, Rating Sheet

STRUCTURE IDENTITY	: B01-007A		
TYPE OF STRUCTURE	: COMMERCIAL, SECURITY GATE, SINGLE STORY		
LOCATION	: 125.0086664,11.4991805		
DISTANCE FROM THE OCEAN	: 050 METERS	**ELEVATION:**	18 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Water damage observed in lower portion of the structure.
2.Some windows are damaged.

Table A34: Barangay 1, Building 8, Rating Sheet

STRUCTURE IDENTITY	: B01-008		
TYPE OF STRUCTURE	: COMMERCIAL STORAGE BUILDING, SINGLE STORY		
LOCATION	: 125.0024629,11.25172683		
DISTANCE FROM THE OCEAN	: 035 METERS	**ELEVATION:**	12 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Water damage observed in lower portion of the structure.
2.Roof of the structure is severely damaged.
3.Some portion of the Exterior wall is damaged.

Table A35: Barangay 1, Building 9, Rating Sheet

STRUCTURE IDENTITY	: B01-009		
TYPE OF STRUCTURE	: ADMINISTRATION, COMMERCIAL, THREE STORY		
LOCATION	: 125.001646,11.251269		
DISTANCE FROM THE OCEAN	: 050 METERS	**ELEVATION:**	12 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Water damage observed in lower portion of the structure.
2.Roof of the structure is partially damaged.
3.More wind damage is observed on back of the building.

Table A36: Parcel 1, Barangay 2, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P01-B02-001		
TYPE OF STRUCTURE	: COMMERCIAL, SINGLE STORY, RCC BUILDING		
LOCATION	: 125.00045,11.248749		
DISTANCE FROM THE OCEAN	: 082 METERS	**ELEVATION:**	23 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	0	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Water damage observed in lower portion of the structure.

Table A37: Parcel 1, Barangay 2, Building 2, Rating Sheet

STRUCTURE IDENTITY	: P01-B02-002		
TYPE OF STRUCTURE	: COMMERCIAL, TWO STORY, RCC BUILDING		
LOCATION	: 125.0089729,11.24691362		
DISTANCE FROM THE OCEAN	: 095 METERS	**ELEVATION:**	32 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Roof of the building is partially collapsed.

Table A38: Parcel 1, Barangay 13, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P01-B13-001		
TYPE OF STRUCTURE	: CENTRAL DEVELOPMENT BUILDING,COMMERCIAL, THREE STORY		
LOCATION	125.0007818,11.24632473		
DISTANCE FROM THE OCEAN	: 048 METERS	**ELEVATION:**	14 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Roof of the building is partially collapsed.

Table A39: Parcel 2, Barangay 25, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P02-B25-001		
TYPE OF STRUCTURE	: ADMINISTRATIVE BUILDING,COMMERCIAL, TWO STORY		
LOCATION	: 125.0082276,11.24716613		
DISTANCE FROM THE OCEAN	: 068 METERS	**ELEVATION:**	26 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Roof of the building is partially collapsed.
2.Water damage is observed in lower portion of the building.
3.Minor scouring is observed at foundation level.

Table A40: Barangay 25, Building 1B, Rating Sheet

STRUCTURE IDENTITY	: B25-001B		
TYPE OF STRUCTURE	: SECURITY OFFICE,COMMERCIAL, SINGLE STORY		
LOCATION	: 125.0077743,11.2476123		
DISTANCE FROM THE OCEAN	: 130 METERS	**ELEVATION:**	25 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	2	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Roof of the building is severely collapsed.
2.Water damage is observed in lower portion of the building.
3.Moderate scouring is observed at foundation level.
4.columns are severely damaged.

Table A41: Parcel 2, Barangay 25, Building 2, Rating Sheet

STRUCTURE IDENTITY	: P02-B25-002		
TYPE OF STRUCTURE	: COMMERCIAL SINGLE STORY		
LOCATION	: 125.0093198,11.24649811		
DISTANCE FROM THE OCEAN	: 048 METERS	**ELEVATION:**	28 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	1	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Roof of the building is partially collapsed.
2.Water damage is observed in lower portion of the building.

Table A42: Barangay 25, Building 7, Rating Sheet

STRUCTURE IDENTITY	: B25-007		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 125.0095871,11.24590471		
DISTANCE FROM THE OCEAN	: 059 METERS	**ELEVATION:**	15 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Windows and doors are broken in lower story.
2.Water damage is observed in lower portion of the building.
3.Eaves of the building are damaged.

Table A43: Barangay 25, Building 8, Rating Sheet

STRUCTURE IDENTITY	: B25-008		
TYPE OF STRUCTURE	: COMMERCIAL, SINGLE STORY, LEYTE PARK		
LOCATION	: 125.0101532,11.24545274		
DISTANCE FROM THE OCEAN	: 059 METERS	**ELEVATION:**	17 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	2	3
1b	A Portion Of The Building Has Collapsed	2	2	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	3	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	3	
6b	Projectiles/Debris Impact On Structure	1	3	

Observations:

1.Windows and doors are broken in lower story.
2.Water damage is observed in lower portion of the building.
3.Roof of the building is severely damaged.
4.Severe scouring is observed at foundation level.

Table A44: Parcel 2, Barangay 27, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P02-B27-001		
TYPE OF STRUCTURE	: COMMERCIAL, NINO PARISH CHURCH, TWO STORY BUILDING WITH FOUR STORY TOWE		
LOCATION	: 125.0055948,11.2413559		
DISTANCE FROM THE OCEAN	: 116 METERS	**ELEVATION:**	28 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	2	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Windows & doors are damaged.
2.Water damage is observed in lower portion of the building.
3.Roof of the building is severely damaged.

Table A45: Barangay 49, Building 1A, Rating Sheet

STRUCTURE IDENTITY	: B49-001A		
TYPE OF STRUCTURE	: EASTERN VISCAYA STATE UNIVERSITY,COMMERCIAL, THREE STORY		
LOCATION	: 124.9971031,11.23979726		
DISTANCE FROM THE OCEAN	: 952 METERS	**ELEVATION:**	24 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	2	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Windows & doors are damaged.
2.Some portion of Roof is severely damaged.

Table A46: Barangay 49, Building 1B, Rating Sheet

STRUCTURE IDENTITY	: B49-001B		
TYPE OF STRUCTURE	: COMMERCIAL, THREE STORY BUILDING		
LOCATION	: 124.997338,11.23928325		
DISTANCE FROM THE OCEAN	: 912 METERS	**ELEVATION:**	22 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Windows and doors are damaged.
2.Some portion of the building is severely damaged.

Table A47: Barangay 49, Building 1C, Rating Sheet

STRUCTURE IDENTITY	: B49-001C		
TYPE OF STRUCTURE	: COMMERCIAL, SCHOOL BUILDING, THREE STORY		
LOCATION	: 124.9970515,11.24033537		
DISTANCE FROM THE OCEAN	: 955 METERS	**ELEVATION:**	26 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Windows and doors are damaged.
2.Very minor roof damage observed.

Table A48: Barangay 49, Building 1D, Rating Sheet

STRUCTURE IDENTITY	: B49-001D		
TYPE OF STRUCTURE	: COMMERCIAL, SCHOOL BUILDING, THREE STORY		
LOCATION	: 124.9972393,11.24081525		
DISTANCE FROM THE OCEAN	: 955 METERS	**ELEVATION:**	29 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	1	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Some portion of the building is severely damaged.
2.Minor roof damage observed.

Table A49: Barangay 49, Building 2A, Rating Sheet

STRUCTURE IDENTITY	: B49-002A		
TYPE OF STRUCTURE	: COMMERCIAL, STADIUM, ONE STORY		
LOCATION	: 125.0000676,11.23842806		
DISTANCE FROM THE OCEAN	: 603 METERS	**ELEVATION:**	23 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1. Some window damages are observed.
2.Minor roof damage observed.

Table A50: Barangay 49, Building 2B, Rating Sheet

STRUCTURE IDENTITY	: B49-002B		
TYPE OF STRUCTURE	: COMMERCIAL, STADIUM, TWO STORY		
LOCATION	: 124.999048,11.23859432		
DISTANCE FROM THE OCEAN	: 663 METERS	**ELEVATION:**	22 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	2	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1. Some window damages are observed.
2.Roof of the structure is completely gone.

Table A51: Barangay 49, Building 2C, Rating Sheet

STRUCTURE IDENTITY	: B49-002C		
TYPE OF STRUCTURE	: COMMERCIAL, STADIUM, ONE STORY		
LOCATION	: 124.9987846,11.23967419		
DISTANCE FROM THE OCEAN	: 726 METERS	**ELEVATION:**	20 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:
1. Some russ elements are broken.
2.Roof of the structure is partially damaged.

Table A52: Barangay 49, Building 2D, Rating Sheet

STRUCTURE IDENTITY	: B49-002D		
TYPE OF STRUCTURE	: COMMERCIAL, STADIUM, ONE STORY		
LOCATION	: 124.9999627,11.23928908		
DISTANCE FROM THE OCEAN	: 620 METERS	**ELEVATION:**	20 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:
1. Some Truss elements are broken.
2.Eaves of the truss are severely damaged.
3.Some connection failures are observed.

Table A53: Parcel 3, Barangay 38, Building 2, Rating Sheet

STRUCTURE IDENTITY	: P03-B38-002		
TYPE OF STRUCTURE	: RESIDENTIAL BUILDING, TWO STORY		
LOCATION	: 124.996786,11.246334		
DISTANCE FROM THE OCEAN	: 113 METERS	**ELEVATION:**	11 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1. Some Truss elements are broken.
2.Eaves of the truss are severely damaged.

Table A54: Parcel 3, Barangay 38, Building 4, Rating Sheet

STRUCTURE IDENTITY	: P03-B38-004		
TYPE OF STRUCTURE	: COMMERCIAL, MARKET PLACE, SINGLE STORY		
LOCATION	: 124.9981941,11.2463484		
DISTANCE FROM THE OCEAN	: 47 METERS	**ELEVATION:**	11 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1. Some Truss elements are broken.
2.Roof sheets are completely gone.
3.Some primary members are fall down.

Table A55: Parcel 3, Barangay 38, Building 7, Rating Sheet

STRUCTURE IDENTITY	: P03-B38-007		
TYPE OF STRUCTURE	: COMMERCIAL BUILDING, THREE STORY		
LOCATION	: 124.9986649,11.24569883		
DISTANCE FROM THE OCEAN	: 25METERS	**ELEVATION:**	14 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3		
1b	A Portion Of The Building Has Collapsed	2		
1c	The Building Has Moved Off Its Foundation	2		
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3		
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2		
3a	Obvious Severe Damage To Primary Members	2		
3b	Severe Bowing Or Racking Of Walls	2		
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2		
4b	Roof damage	2		
5a	Foundation Undermined By Scour Or Erosion	3		
5b	Building Threatened By Slope Instability	3		
6a	Neighboring Structure/Trees Leaning Against Structure	1		
6b	Projectiles/Debris Impact On Structure	1		

Observations:

1. No conclusion due to conflicting images.

Table A56: Barangay 64, Building 1, Rating Sheet

STRUCTURE IDENTITY	: B64-001		
TYPE OF STRUCTURE	: COMMERCIAL, RECREATION BUILDING, SINGLE STORY		
LOCATION	: 125.0065302,11.2179575		
DISTANCE FROM THE OCEAN	: 03 METERS	**ELEVATION:**	7 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	2	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Roof of the building is completely gone.
2.The exterior wall of the building is completely collapsed.
3.Some primary members are damaged.

Table A57: Parcel 4, Barangay 110, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P04-B110-001		
TYPE OF STRUCTURE	: COMMERCIAL, COLLEGE BUILDING, TWO STORY		
LOCATION	: 124.9967181,11.23158343		
DISTANCE FROM THE OCEAN	: 90 METERS	**ELEVATION:**	28 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	1	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Roof of the building is completely gone.
2.Primary members are damaged.

Table A58: Parcel 4, Barangay 54, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P04-B54-001		
TYPE OF STRUCTURE	: COMMERCIAL, HOSPITAL, THREE STORY		
LOCATION	: 125.0027197,11.23232376		
DISTANCE FROM THE OCEAN	: 220 METERS	**ELEVATION:**	25 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Doors &windows are severely damaged.
2.Front elevation of the building severely damaged.

Table A59: Parcel 4, Barangay 54, Building 2, Rating Sheet

STRUCTURE IDENTITY	: P04-B54-002		
TYPE OF STRUCTURE	: COMMERCIAL, HOSPITAL, THREE STORY		
LOCATION	: 125.0031021,1123254872		
DISTANCE FROM THE OCEAN	: 174 METERS	**ELEVATION:**	23 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	0	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1. No conclusion due to number of images and all damage repaired.

Table A60: Parcel 4, Barangay 61, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P04-B61-001		
TYPE OF STRUCTURE	: CONVECTION CENTER, COMMERCIAL, FIVE STORY		
LOCATION	: 125.0049741,11.22158057		
DISTANCE FROM THE OCEAN	: 20 METERS	**ELEVATION:**	12 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	2	1
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	2	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Doors & windows are severely damaged.
2.Eaves of the building are severely damaged.
3.Bottom story of the structure severely damaged by water.
4.Punching of wall is observed.
5.Scouring is observed at foundation level.

Table A61: Parcel 4, Barangay 55, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P04-B55-001		
TYPE OF STRUCTURE	: COMMERCIAL, HOSPITAL BUILDING, FIVE STORY		
LOCATION	: 124.9994286,11.23033112		
DISTANCE FROM THE OCEAN	: 552 METERS	**ELEVATION:**	26 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3		
1b	A Portion Of The Building Has Collapsed	2		
1c	The Building Has Moved Off Its Foundation	2		
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3		
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2		
3a	Obvious Severe Damage To Primary Members	2		
3b	Severe Bowing Or Racking Of Walls	2		
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2		
4b	Roof damage	2		
5a	Foundation Undermined By Scour Or Erosion	3		
5b	Building Threatened By Slope Instability	3		
6a	Neighboring Structure/Trees Leaning Against Structure	1		
6b	Projectiles/Debris Impact On Structure	1		

Observations:

1.Eaves of the building are damaged.

Table A62: Parcel 4, Barangay 62A, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P04-B62A-001		
TYPE OF STRUCTURE	: COMMERCIAL, STORAGE BUILDING, TWO STORY		
LOCATION	: 125.0037494,11.22137345		
DISTANCE FROM THE OCEAN	: 110 METERS	**ELEVATION:**	14 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Very minor damage observed in beams.

Table A63: Barangay 66, Building 1A, Rating Sheet

STRUCTURE IDENTITY	: B66-001A		
TYPE OF STRUCTURE	: RESIDENTIAL, SINGLE STORY		
LOCATION	: 124.9891796,11.24323406		
DISTANCE FROM THE OCEAN	: 733 METERS	**ELEVATION:**	30 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Windows & doors are damaged.

Table A64: Barangay 66, Building 1B, Rating Sheet

STRUCTURE IDENTITY	: B66-001B		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 124.9893826,11.24323406		
DISTANCE FROM THE OCEAN	: 733 METERS		30 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Windows & Doors of the Building are damaged.

Table A65: Barangay 66, Building 1C, Rating Sheet

STRUCTURE IDENTITY	: B66-001C		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 124.9888881,11.24423209		
DISTANCE FROM THE OCEAN	: 733 METERS	**ELEVATION:**	40 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Windows & Doors of the Building are damaged.

Table A66: Barangay 66, Building 1D, Rating Sheet

STRUCTURE IDENTITY	: B66-001D		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 124.9892949,11.24322384		
DISTANCE FROM THE OCEAN	: 733 METERS	ELEVATION:	40 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Eaves of the Building are severely damaged.

Table A67: Barangay 66, Building 1E, Rating Sheet

STRUCTURE IDENTITY	: B66-001E		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 124.989136,11.24315609		
DISTANCE FROM THE OCEAN	: 733 METERS	ELEVATION:	50 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Eaves of the Building are severely damaged.
2.Roof sheets are completely gone.

Table A68: Barangay 90, Building 1, Rating Sheet

STRUCTURE IDENTITY	: B90-001		
TYPE OF STRUCTURE	: ST. SCHOLASTICA'S COLLEGE,COMMERCIAL, FOUR STORY		
LOCATION	: 125.014365,11.19094964		
DISTANCE FROM THE OCEAN	: 680 METERS	ELEVATION:	09 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Roof of the structure is completely gone.
2.Windows and doors of the building are severely damaged.
3.Some interior walls are severely damaged.
4.Water damage is observed up to first story of the building.

Table A69: Barangay 90, Building 1B, Rating Sheet

STRUCTURE IDENTITY	: B90-001B		
TYPE OF STRUCTURE	: COMMERCIAL, GYM CENTER, TWO STORY		
LOCATION	: 125.0149867,11.19050189		
DISTANCE FROM THE OCEAN	: 614 METERS	ELEVATION:	08 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Roof of the structure is completely gone.
2.Primary members are severely damaged.
3.Some Exterior & interior wallas are severely damaged.

Table A70: Pawling, Building 5A, Rating Sheet

STRUCTURE IDENTITY	: BPAW-005A		
TYPE OF STRUCTURE	: COMMERCIAL, HOSPITAL COMPLEX, SINGLE STORY		
LOCATION	: 125.0051712,11.18124073		
DISTANCE FROM THE OCEAN	: 1117 METERS	ELEVATION:	17 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Roof of the structure is severely damaged.
2.Windows &doors are severey damaged.
3.Some purlins of the truss are damaged.

Table A71: Pawling, Building 5B, Rating Sheet

STRUCTURE IDENTITY	: BPAW-005B		
TYPE OF STRUCTURE	: COMMERCIAL, TWO STORY		
LOCATION	: 125.0062598,11.18060827		
DISTANCE FROM THE OCEAN	: 1050 METERS	ELEVATION:	17 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	1	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	1	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Roof of the structure is severely damaged.
2.Windows &doors are severey damaged.
3.Some purlins of the truss are damaged.
4.Exterior wall of the building is everely damaged.
5.Water damage is observed in lower story of the building.

Table A72: Pawling, Building 5C, Rating Sheet

STRUCTURE IDENTITY	: BPAW-005C		
TYPE OF STRUCTURE	: COMMERCIAL, HOSPITAL, SINGLE STORY		
LOCATION	: 125.0055172,11.18035983		
DISTANCE FROM THE OCEAN	: 1089 METERS	ELEVATION:	18 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1. Some portion of the Roof is severely damaged.
2.Windows &doors are severey damaged.

Table A73: Parcel 5, Barangay 91, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P05-B91-001		
TYPE OF STRUCTURE	: STORAGE STRUCTURE, COMMERCIAL, SINGLE STORY		
LOCATION	: 124.9894648,11.23610433		
DISTANCE FROM THE OCEAN	: 1636 METERS	ELEVATION:	25 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	2	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Roof of the building is completely gone.
2.Some portion of the interior walis is severely damaged.

Table A74: Parcel 5, Barangay 91, Building 2, Rating Sheet

STRUCTURE IDENTITY	: P05-B91-002		
TYPE OF STRUCTURE	: STORAGE STRUCTURE,COMMERICAL, TWO STORY		
LOCATION	: 124.9902432,11.23610433		
DISTANCE FROM THE OCEAN	: 1561 METERS	ELEVATION:	22 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Roof of the building is completely collapsed.
2.The exterior wall is completely collapsed.

Table A75: Parcel 5, Barangay 66, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P05-B66-001		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 124.988957, 11.24401225		
DISTANCE FROM THE OCEAN	: 821 METERS	**ELEVATION:**	31FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Some Eave portion of the building is severly damaged.

Table A76: Barangay 66, Building 1F, Rating Sheet

STRUCTURE IDENTITY	: B66-001F		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 124.9887445,11.24373194		
DISTANCE FROM THE OCEAN	: 865 METERS	**ELEVATION:**	31 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Some window damages are observedin the building.

Table A77: Barangay 66, Building 1G, Rating Sheet

STRUCTURE IDENTITY	: B66-001G		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 124.9887948,11.24435809		
DISTANCE FROM THE OCEAN	: 812 METERS	**ELEVATION:**	28 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.No window damage.

Table A78: Barangay 66, Building 1H, Rating Sheet

STRUCTURE IDENTITY	: B66-001H		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 12.989036,11.24324857		
DISTANCE FROM THE OCEAN	: 877 METERS	**ELEVATION:**	35 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Slight windows damage are observed in building.

Table A79: Barangay 66, Building 1I, Rating Sheet

STRUCTURE IDENTITY	: B66-001i		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 124.9885642,11.24370561		
DISTANCE FROM THE OCEAN	: 882 METERS	**ELEVATION:**	30 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Slight windows damage are observed in building.

Table A80: Barangay 66, Building 1J, Rating Sheet

STRUCTURE IDENTITY	: B66-001J		
TYPE OF STRUCTURE	: RESIDENTIAL,KRISTINA HEIGHTS SUBDIVISION		
LOCATION	: 124.88957,11.24401225		
DISTANCE FROM THE OCEAN	: 820 METERS	**ELEVATION:**	31 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.No conclusion due to number of images.

Table A81: Barangay 75, Building 4, Rating Sheet

STRUCTURE IDENTITY	: B75-004		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 125.0103744,11.21322196		
DISTANCE FROM THE OCEAN	: 93 METERS	ELEVATION:	11 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Some Eave portion of the building is severly damaged.
2.The truss of the building is partially damaged.

Table A82: Barangay 75, Building 6, Rating Sheet

STRUCTURE IDENTITY	: B75-006		
TYPE OF STRUCTURE	: RESIDENTIAL,TWO STORY		
LOCATION	: 125.0104909,11.21328226		
DISTANCE FROM THE OCEAN	: 93 METERS	**ELEVATION:**	11 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Some Eave portion of the building is severly damaged.

Table A83: Barangay 91, Building 4, Rating Sheet

STRUCTURE IDENTITY	: B91-004		
TYPE OF STRUCTURE	: COMMERCIAL, CHURCH, TWO STORY		
LOCATION	: 124.999316433407,11.237436107		
DISTANCE FROM THE OCEAN	: 1612 METERS	**ELEVATION:**	23 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	1	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Some Eave portion of the building is severly damaged.

Table A84: Parcel 8, Barangay 69, Building 11, Rating Sheet

STRUCTURE IDENTITY	: P08-B69-011		
TYPE OF STRUCTURE	: COMMERICAL, SINGLE STORY		
LOCATION	: 124.9887924,11.25241342		
DISTANCE FROM THE OCEAN	: 237 METERS	**ELEVATION:**	14 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Eaves of the building damaged.

Table A85: Barangay 69, Building 17, Rating Sheet

STRUCTURE IDENTITY	: B69-017-E1		
TYPE OF STRUCTURE	: COMMERICAL, STORAGE BUILDING, SINGLE STORY		
LOCATION	: 124.9886253,11.252292073		
DISTANCE FROM THE OCEAN	: 199 METERS	**ELEVATION:**	15 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	2	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	1	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Roof sheets are completely gone.
2.Water damage is observed up to first story of the buiding.
3.Some portion of the wall is severely damaged.

Table A86: Parcel 9, Barangay 77, Building 2, Rating Sheet

STRUCTURE IDENTITY	: P09-B77-002		
TYPE OF STRUCTURE	: COMMERICAL, FOUR STORY		
LOCATION	: 125.0099898,11.21028203		
DISTANCE FROM THE OCEAN	: 362 METERS	ELEVATION:	16 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1. Some portion of the Roof is damaged.
2.Windows &doors are damaged.
3.Cracks are observed at lower story.
4.Water damage is observed in ground story of the Building.

Table A87: Parcel 9, Barangay 77, Building 4, Rating Sheet

STRUCTURE IDENTITY	: B77-004-MS		
TYPE OF STRUCTURE	: COMMERCIAL, SHOPPING COMPLEX, SINGLE STORY		
LOCATION	: 125.0086697,11.20860246		
DISTANCE FROM THE OCEAN	: 655 METERS	**ELEVATION:**	16 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	2	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Improper wind design and poor construction practice.
2.Bond failure observed in bottom portion of columns.
3.The members are in truss are severely damaged.
4.The parapet wall at the level of roof is completely collapsed.
5.Some columns are completely collapsed.
6.Crack width observed in columns is in the range 0.5to 1 cm.
7.Cracks are observed at the re-entrant corners.

Table A88: Parcel 9, Barangay 77, Building 5, Rating Sheet

STRUCTURE IDENTITY	: B77-005-MS		
TYPE OF STRUCTURE	: COMMERCIAL, STORAGE, SINGLE STORY		
LOCATION	: 125.0076462,11.20883404		
DISTANCE FROM THE OCEAN	: 698 METERS	**ELEVATION:**	15 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1. Some portion of the roof is damaged.
2. The top of the column is damaged.
3. Some parts of the truss are damaged.

Table A89: Parcel 9, Barangay 79, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P09-B79-001		
TYPE OF STRUCTURE	: COMMERCIAL, ELEMENTRY SCHOOL BUILDING ,SINGLE STORY		
LOCATION	: 125.0068416,11.19999221		
DISTANCE FROM THE OCEAN	: 1565 METERS	ELEVATION:	16 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Roof of the structure is severely damaged.

Table A90: Parcel 10, Barangay 83A, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P10-B83A-001		
TYPE OF STRUCTURE	: COMMERCIAL, SINGLE STORY		
LOCATION	: 125.011681,11.21188705		
DISTANCE FROM THE OCEAN	: 154 METERS	ELEVATION:	10 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3		2
1b	A Portion Of The Building Has Collapsed	2		
1c	The Building Has Moved Off Its Foundation	2		
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3		
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2		
3a	Obvious Severe Damage To Primary Members	2		
3b	Severe Bowing Or Racking Of Walls	2		
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2		
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3		
6a	Neighboring Structure/Trees Leaning Against Structure	1		
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Water marks are observed on interior and exterior walls.

Table A91: Parcel 10, Barangay 83A, Building 5, Rating Sheet

STRUCTURE IDENTITY	: P10-B83A-005		
TYPE OF STRUCTURE	: COMMERCIAL, BASKETBALL COURT, SINGLE STORY		
LOCATION	: 125.0154504,11.20971232		
DISTANCE FROM THE OCEAN	: 197 METERS	ELEVATION:	12 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	2	2
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Some portion of the exterior wall is severely damaged.

Table A92: Parcel 10, Barangay 86, Building 3, Rating Sheet

STRUCTURE IDENTITY	: P10-B86-003		
TYPE OF STRUCTURE	: PATIO VICTORIA,COMMERCIAL, TWO STORY		
LOCATION	: 125.0265887,11.20712134		
DISTANCE FROM THE OCEAN	: 96 METERS	**ELEVATION:**	23 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Windows and doors are damaged.
2.Cracks are observed in primary members.
3.Some interior columns are chipped.
4.Water damaged is observed up to lower story of the structure.

Table A93: Parcel 10, Barangay 86, Building 4A, Rating Sheet

STRUCTURE IDENTITY	: P10-B86-004		
TYPE OF STRUCTURE	: COMMERCIAL, RESORT RESIDENTIAL, SINGLE STORY		
LOCATION	: 125.0274132,11.20685204		
DISTANCE FROM THE OCEAN	: 26 METERS	**ELEVATION :**	18 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	2	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	2	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:
1.Some part of the exterior wall collapsed.
2.Beams and columns are damaged.
3.Some purlins are damaged.

Table A94: Parcel 10, Barangay 86, Building 4B, Rating Sheet

STRUCTURE IDENTITY	: P10-B86-004		
TYPE OF STRUCTURE	: COMMERCIAL, EVENT BUILDING, TWO STORY		
LOCATION	: 125.0274132,11.20685204		
DISTANCE FROM THE OCEAN	: 17 METERS	**ELEVATION :**	18 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	1	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:
1.Exterior wall is severely damaged by storm water.
2.Differential settlement in the exterior wall.
3.Roof is severely damaged by wind load.
4.Water damage is up to first story
5.Some part of beams are severely damaged.
6.Concrete pitches observed on walls and columns

Table A95: Parcel 10, Barangay 86, Building 5, Rating Sheet

STRUCTURE IDENTITY	: P10-B86-005		
TYPE OF STRUCTURE	: BALUARTE BEACH RESORT,COMMERCIAL,SINGLE STORY		
LOCATION	: 125.0275361,11.20778614		
DISTANCE FROM THE OCEAN	: 13 METERS	**ELEVATION:**	13 TO 15 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	1	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	2	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.The truss of the building isin good position.
2.Very minor scouring is observed at foundation level.

Table A96: Barangay 83A, Building 6, Rating Sheet

STRUCTURE IDENTITY	: B83A-006		
TYPE OF STRUCTURE	: COMMERCIAL, COMMUNITY BUILDING, TWO STORY		
LOCATION	: 124.9887924,11.25241342		
DISTANCE FROM THE OCEAN	: 204 METERS	**ELEVATION:**	12 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Windows and doors are severely damaged.
2.Roof sheets are completely gone.

Table A97: Barangay 88, Building 27, Rating Sheet

STRUCTURE IDENTITY	: B88-027		
TYPE OF STRUCTURE	: AIRPORT TOWER, FIVE STORY		
LOCATION	: 125.026069,11.227709		
DISTANCE FROM THE OCEAN	: 321 METERS	**ELEVATION:**	12FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Windows and doors are severely damaged.
2.Water damage observed up to first story.

Table A98: Barangay 88, Building 28, Rating Sheet

STRUCTURE IDENTITY	: B88-028		
TYPE OF STRUCTURE	: COMMERCIAL, ONE STORY		
LOCATION	: 125.0245561,11.2289878		
DISTANCE FROM THE OCEAN	: 551 METERS	**ELEVATION:**	09 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Windows and doors are severely damaged.
2.Water damage observed up to first story.

Table A99: Barangay 88, Building 29, Rating Sheet

STRUCTURE IDENTITY	: B88-029		
TYPE OF STRUCTURE	: COMMERCIAL, LEYTE COLLEGE, TWO STORY		
LOCATION	: 125.0240773,11.21591488		
DISTANCE FROM THE OCEAN	: 346 METERS	**ELEVATION:**	10 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Exterior wall of the building is severely damaged.
2.The truss of the building is severely damaged.

Table A100: Barangay 81, Building 2B, Rating Sheet

STRUCTURE IDENTITY	: B81-002B		
TYPE OF STRUCTURE	: SCHOOL BUILDING,COMMERCIAL, SINGLE STORY		
LOCATION	: 125.0072806,11.19561302		
DISTANCE FROM THE OCEAN	: 1673 METERS	**ELEVATION:**	19 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Somertion of the roof is completely gone.
2.Windows &doors of the the building are damaged.

Table A101: Barangay 81, Building 2C, Rating Sheet

STRUCTURE IDENTITY	: B81-002C		
TYPE OF STRUCTURE	: COMMERICAL, SINGLE STORY		
LOCATION	: 125.0075059,11.19552037		
DISTANCE FROM THE OCEAN	: 1621 METERS	**ELEVATION:**	10 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	2	
6b	Projectiles/Debris Impact On Structure	1	3	

Observations:

1.Roof completely gone.
2.Window Damage
3.Wall Damage

Table A102: Barangay 81, Building 2D, Rating Sheet

STRUCTURE IDENTITY	: B81-002D		
TYPE OF STRUCTURE	: SINGLE STORY,COMMERICAL		
LOCATION	: 125.0077858,11.19597736		
DISTANCE FROM THE OCEAN	: 1640 METERS	**ELEVATION:**	10 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Roof of the building is completely gone.
2.Windows and doors of the building are damaged.
3.Some primary members are damaged.

Table A103: Barangay 81, Building 2F, Rating Sheet

STRUCTURE IDENTITY	: B81-002F		
TYPE OF STRUCTURE	: SINGLE STORY, COMMERICAL		
LOCATION	: 125.0077662,11.19585102		
DISTANCE FROM THE OCEAN	: 1631 METERS	**ELEVATION:**	18 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	2	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Some portion of windows &doors are damaged.
2.Some exterior walls are severely damaged.

Table A104: Barangay 81, Building 2G, Rating Sheet

STRUCTURE IDENTITY	: B81-002G		
TYPE OF STRUCTURE	: COMMERCIAL, SINGLE STORY, ADMINISTRATIVE BUILDING		
LOCATION	: 125.0073056,11.19586208		
DISTANCE FROM THE OCEAN	: 1653 METERS	**ELEVATION:**	13 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Some portion of windows & doors are damaged.
2.Water marks are observed in side the building.

Table A105: Barangay 81, Building 2H, Rating Sheet

STRUCTURE IDENTITY	: B81-002H		
TYPE OF STRUCTURE	: SINGLE STORY,COMMERICAL		
LOCATION	: 125.0079171,11.19554731		
DISTANCE FROM THE OCEAN	: 1586 METERS	**ELEVATION:**	16 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Some portion of windows &doors are damaged.

Table A106: Barangay 81, Building 2I, Rating Sheet

STRUCTURE IDENTITY	: B81-002i		
TYPE OF STRUCTURE	: SINGLE STORY, COMMERICAL		
LOCATION	: 125.007431,11.19601865		
DISTANCE FROM THE OCEAN	: 1660 METERS	**ELEVATION:**	16 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Some portion of windows &doors are damaged.

2.Very minor scouring is observed at foundation level.

Table A107: Barangay 81, Building 2J, Rating Sheet

STRUCTURE IDENTITY	: B81-002J		
TYPE OF STRUCTURE	: SCHOOL BUILDING,COMMERCIAL, TWO STORY		
LOCATION	: 125.0078977,11.19586027		
DISTANCE FROM THE OCEAN	: 1619 METERS	**ELEVATION:**	20 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Roof sheeting of the building is completely gone.
2.Very minor scouring is observed at foundation level.

Table A108: Barangay 81, Building 2K, Rating Sheet

STRUCTURE IDENTITY	: B81-002K		
TYPE OF STRUCTURE	: SCHOOL BUILDING, COMMERCIAL, TWO STORY		
LOCATION	: 125.0079634,11.09596495		
DISTANCE FROM THE OCEAN	: 1609 METERS	**ELEVATION:**	21 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Roof sheeting of the building is completely gone.
2.Some primary members are damaged.
3.Water marks are observed in side building.

Table A109: Barangay 81, Building 2L, Rating Sheet

STRUCTURE IDENTITY	: B81-002L		
TYPE OF STRUCTURE	: SCHOOL BUILDING, COMMERCIAL,TWO STORY		
LOCATION	: 125.0075551,11.19595646		
DISTANCE FROM THE OCEAN	: 1643 METERS	**ELEVATION:**	17 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Roof sheeting of the building is completely gone.

Table A110: Barangay 81, Building 2M, Rating Sheet

STRUCTURE IDENTITY	: B81-002M		
TYPE OF STRUCTURE	: SCHOOL BUILDING, CLASS ROOM, COMMERCIAL, SINGLE STORY		
LOCATION	: 125.00732,11.19601042		
DISTANCE FROM THE OCEAN	: 1671 METERS	**ELEVATION:**	16 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	0	
5a	Foundation Undermined By Scour Or Erosion	3	2	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Some portion of the roof is damaged.

2.Very minor scouring is observed at foundation level.

Table A111: Barangay 81, Building 2N, Rating Sheet

STRUCTURE IDENTITY	: B81-002N		
TYPE OF STRUCTURE	: SCHOOL BUILDING, CLASS ROOM,COMMERCIAL,SINGLE STORY		
LOCATION	: 125.007204,11.19594892		
DISTANCE FROM THE OCEAN	: 1669 METERS	**ELEVATION:**	11 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Some portion of the eaves are damaged.
2.Very minor scouring is observed at foundation level.

Table A112: Parcel 12, Barangay 87, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P12-B87-001		
TYPE OF STRUCTURE	: SCHOOL BUILDING, CLASS ROOM,COMMERCIAL,TWO STORY		
LOCATION	: 125.0217151,11.20492906		
DISTANCE FROM THE OCEAN	: 514 METERS	**ELEVATION:**	13 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Exterior wall of the building is damaged due to may be flooding
2.Water damage is observed up to first story of the building
3.Some portion of the Eaves are damaged.

Table A113: Parcel 12, Barangay 87, Building 2, Rating Sheet

STRUCTURE IDENTITY	: P12-B87-002		
TYPE OF STRUCTURE	: SCHOOL BUILDING, CLASS ROOM,COMMERCIAL,SINGLE STORY		
LOCATION	: 125.0224757, 11.20537624		
DISTANCE FROM THE OCEAN	: 442 METERS	**ELEVATION:**	14 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Windows of the building are damaged.
2.Water damage is observed up to first story of the building
3.Some beam-column connection failure.

Table A114: Parcel 12, Barangay 87, Building 3, Rating Sheet

STRUCTURE IDENTITY	: P12-B87-003		
TYPE OF STRUCTURE	: SCHOOL BUILDING, CLASS ROOM,COMMERCIAL,SINGLE STORY		
LOCATION	: 125.021907,11.20458242		
DISTANCE FROM THE OCEAN	: 479 METERS	**ELEVATION:**	14 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	2	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Windows of the building are damaged.
2.Water damage is observed up to first story of the building

Table A115: Parcel 12, Barangay 87, Building 4, Rating Sheet

STRUCTURE IDENTITY	: P12-B87-004		
TYPE OF STRUCTURE	: SCHOOL BUILDING, CLASS ROOM, COMMERCIAL, SINGLE STORY		
LOCATION	: 125.0221295,11.2053034		
DISTANCE FROM THE OCEAN	: 485 METERS	**ELEVATION:**	14 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3		
1b	A Portion Of The Building Has Collapsed	2		
1c	The Building Has Moved Off Its Foundation	2		
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3		
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2		
3a	Obvious Severe Damage To Primary Members	2		
3b	Severe Bowing Or Racking Of Walls	2		
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2		
4b	Roof damage	2		
5a	Foundation Undermined By Scour Or Erosion	3		
5b	Building Threatened By Slope Instability	3		
6a	Neighboring Structure/Trees Leaning Against Structure	1		
6b	Projectiles/Debris Impact On Structure	1		

Observations:

1. No conclusion due to structure built after storm event.

Table A116: Parcel 12, Barangay 87, Building 5, Rating Sheet

STRUCTURE IDENTITY	: P12-B87-005		
TYPE OF STRUCTURE	: COMMERCIAL, TWO STORY, SCHOOL BUILDING		
LOCATION	: 125.0226041,11.20462795		
DISTANCE FROM THE OCEAN	: 413 METERS	**ELEVATION:**	15 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	1	2
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Windows of the building are damaged.

2.Water damage is observed up to first story of the building

Table A117: Parcel 12, Barangay 87, Building 7, Rating Sheet

STRUCTURE IDENTITY	: P12-B87-007		
TYPE OF STRUCTURE	: COMMERCIAL, TWO STORY		
LOCATION	: 125.0244045,11.20044361		
DISTANCE FROM THE OCEAN	: 19 METERS	**ELEVATION:**	19FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-09-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	2	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	3	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	1	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Windows of the building are damaged.
2.Water damage is observed up to first story of the building
3.Exterior wall of the building is completely collapsed.
4.Some eave portion of the building is collapsed.

Table A118: Parcel 13, Barangay 88, Building 8, Rating Sheet

STRUCTURE IDENTITY	: P13-B88-008		
TYPE OF STRUCTURE	: TERMINAL BUILDING, COMMERCIAL, SINGLE STORY		
LOCATION	: 125.0260841, 11.22691169		
DISTANCE FROM THE OCEAN	: 279 METERS	**ELEVATION:**	13 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Water markings are observed at the top of building.

Table A119: Barangay 88, Building 30, Rating Sheet

STRUCTURE IDENTITY	: B88-030		
TYPE OF STRUCTURE	: COMMERCIAL, TWO STORY		
LOCATION	: 125.024076°, 11.225490°		
DISTANCE FROM THE OCEAN	: 466 METERS	**ELEVATION:**	10 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	1	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	1	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	1	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Severe roof damage.

Table A120: Parcel 15, Barangay 92, Building 1, Rating Sheet

STRUCTURE IDENTITY	: P15-B92-001		
TYPE OF STRUCTURE	: CITY HARDWARE STORE,COMMERCIAL, SINGLE STORY		
LOCATION	: 124.9939717,11.21925439		
DISTANCE FROM THE OCEAN	: 1175 METERS	**ELEVATION:**	16 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3		
1b	A Portion Of The Building Has Collapsed	2		
1c	The Building Has Moved Off Its Foundation	2		
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3		
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2		
3a	Obvious Severe Damage To Primary Members	2		
3b	Severe Bowing Or Racking Of Walls	2		
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2		
4b	Roof damage	2		
5a	Foundation Undermined By Scour Or Erosion	3		
5b	Building Threatened By Slope Instability	3		
6a	Neighboring Structure/Trees Leaning Against Structure	1		
6b	Projectiles/Debris Impact On Structure	1		

Observations:

1. No conclusion due to structure fully repaired.

Table A121: Parcel 16, Pawling, Building 5, Rating Sheet

STRUCTURE IDENTITY	: P16-BPAW-005		
TYPE OF STRUCTURE	: LEYTE PROVINCIAL HOSPITAL,COMMERCIAL, SINGLE STORY		
LOCATION	: 125.0060754,11.18105293		
DISTANCE FROM THE OCEAN	: 1070 METERS	**ELEVATION:**	17 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Windows&Doors of the structure are damaged.

Table A122: Barangay 109, Building 1, Rating Sheet

STRUCTURE IDENTITY	: B109-001		
TYPE OF STRUCTURE	: COMMERCIAL, THREE STORY		
LOCATION	: 124.985248730016,11.237436107		
DISTANCE FROM THE OCEAN	: 974 METERS	**ELEVATION:**	18 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1. The roof of the building is damaged due to impact of projectiles.

Table A123: Dulag, Building 1, Rating Sheet

STRUCTURE IDENTITY	: DULUG-001-A1		
TYPE OF STRUCTURE	: COMMERCIAL, TWO STORY		
LOCATION	: 125.0323303,10.95387212		
DISTANCE FROM THE OCEAN	: 438 METERS	**ELEVATION:**	18 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Severely roof of the building is damaged.
2.Roof sheets are completely gone.
3.Windows of the building are completely damaged.

Table A124: Dulag, Building 2, Rating Sheet

STRUCTURE IDENTITY	: DULAG-002-A2		
TYPE OF STRUCTURE	: COMMERCIAL, GABALDON BUILDING (SCHOOL BUILDING), SINGLE STORY		
LOCATION	: 125.03143,10.9556898		
DISTANCE FROM THE OCEAN	: 572 METERS	**ELEVATION:**	15 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	1	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Roof of the building is severely damaged.
2.Roof sheets are completely gone.
3.Windows of the building are completely destroyed.
4.Some portion of the wooden truss is completely collapsed
5.Exterior wall of the building is damaged.
6.Structural cracks observed On columns.
7.Connections failures observed in wooden truss.

Table A125: Dulag, Building 4, Rating Sheet

STRUCTURE IDENTITY	: DULUG-004-A4		
TYPE OF STRUCTURE	: COMMERCIAL, GOVERNMENT BUILDING, SINGLE STORY		
LOCATION	: 125.0341496,10.95356562		
DISTANCE FROM THE OCEAN	: 209 METERS	**ELEVATION:**	22 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	0	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.The building is partially collapsed.
2.Some concrete patches observed in the walls.
3.Structural cracks observed in columns.

Table A126: Palo, Building 6, Rating Sheet

STRUCTURE IDENTITY	: PALO-006		
TYPE OF STRUCTURE	: COMMERCIAL, ICT PARK, SINGLE STORY		
LOCATION	: 125.002077,11.177465		
DISTANCE FROM THE OCEAN	: 1265 METERS	**ELEVATION:**	14 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Loss of roof sheeting.

Table A127: Palo, Building 7, Rating Sheet

STRUCTURE IDENTITY	: PALO-007		
TYPE OF STRUCTURE	: COMMERCIAL, THREE STORY		
LOCATION	: 124.9972759,11.15739497		
DISTANCE FROM THE OCEAN	: 1088 METERS	**ELEVATION:**	26 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	1	2
1b	A Portion Of The Building Has Collapsed	2	2	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	1	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Exterior wall of the building is severely collapsed.
2.Windows & doors of the building damaged.
3.The roof (including trusss& metal sheets) of the building is completely

Table A128: Palo, Building 7B, Rating Sheet

STRUCTURE IDENTITY	: PALO-007B		
TYPE OF STRUCTURE	: STORAGE BUILDING,COMMERCIAL, SINGLE STORY		
LOCATION	: 124.9972759,11.15739497		
DISTANCE FROM THE OCEAN	: 1176 METERS	**ELEVATION:**	22 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.The total structure is completely collapsed.
2.North portion of the structure is completely collapsed where as south

Table A129: Palo, Building 8, Rating Sheet

STRUCTURE IDENTITY	: PALO-008-D2		
TYPE OF STRUCTURE	: COMMERCIAL, THREE STORY		
LOCATION	: 125.002317,11.176337		
DISTANCE FROM THE OCEAN	: 1175 METERS	**ELEVATION:**	13 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	2
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Exterior wall of the building is completely collapsed.
2.Windows & doors of the building are damaged.
3.Improper design practice.

Table A130: Palo, Building 9, Rating Sheet

STRUCTURE IDENTITY	: PALO-009		
TYPE OF STRUCTURE	: COMMERCIAL, TWO STORY		
LOCATION	: 125.0049915,11.1783131		
DISTANCE FROM THE OCEAN	: 1017 METERS	**ELEVATION:**	29 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Minor water damages are observed in side of the building.
2.Window frames are damaged in first story due to storm damage.

Table A131: Palo, Building 10, Rating Sheet

STRUCTURE IDENTITY	: PALO-010		
TYPE OF STRUCTURE	: COMMERCIAL, TWO STORY, STEEL TRUSS		
LOCATION	: 125.005541,11.17896639		
DISTANCE FROM THE OCEAN	: 1019 METERS	**ELEVATION:**	30 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	1	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Some windows frames are damaged.
2.Cracks are observed in walls of the building.

Table A132: Palo, Building 11, Rating Sheet

STRUCTURE IDENTITY	: PALO-011		
TYPE OF STRUCTURE	: COMMERCIAL, TWO STORY, WOODEN TRUSS		
LOCATION	: 125.005346,11.179243		
DISTANCE FROM THE OCEAN	: 1042 METERS	**ELEVATION:**	31 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	1	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.The roof of the building is completely gone.
2.Connection failures are observed in truss elements.

Table A133: Palo, Building 12, Rating Sheet

STRUCTURE IDENTITY	: PALO-012		
TYPE OF STRUCTURE	: COMMERCIAL, SINGLE STORY		
LOCATION	: 125.004892,11.17854209		
DISTANCE FROM THE OCEAN	: 1033 METERS	**ELEVATION:**	29 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-10-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	2	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Steel truss of the building is completely is collapsed.
2.Some portion of the Eaves are damaged.
3.Interior Walls of the building is completely damaged.

Table A134: Palo, Building 13, Rating Sheet

STRUCTURE IDENTITY	: PALO-013		
TYPE OF STRUCTURE	: COMMERCIAL, SINGLE STORY, STORAGE BUILDING		
LOCATION	: 125.004303,11.17855666		
DISTANCE FROM THE OCEAN	: 1118 METERS	**ELEVATION:**	30 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-10-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	2	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	1	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.The roof of the building is partially damaged.
2.Water damaged observed up to first story of the building.

Table A135: Palo, Building 14, Rating Sheet

STRUCTURE IDENTITY	: PALO-014		
TYPE OF STRUCTURE	: COMMERCIAL, TWO STORY, WOODEN TRUSS BUILDING		
LOCATION	: 125.0055865,11.17883489		
DISTANCE FROM THE OCEAN	: 1003 METERS	**ELEVATION:**	29 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1. The pipe line of the builing is damaged.
2.Window frames are damaged on first story.
3.The wooden truss of the building is completely collapsed.

Table A136: Samar, Building 2, Rating Sheet

STRUCTURE IDENTITY	: SAMAR-002		
TYPE OF STRUCTURE	: COMMERCIAL, TWO STORY		
LOCATION	: 125.7305344,11.02951187		
DISTANCE FROM THE OCEAN	: 674 METERS	**ELEVATION:**	17 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	1	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Eaves of the building are damaged.
2.The lower story ceeling is damaged.
3.The exterior of the building is severely damaged.

Table A137: Samar, Building 3, Rating Sheet

STRUCTURE IDENTITY	: SAMAR-003		
TYPE OF STRUCTURE	: SCHOOL BUILDING,COMMERCIAL, SINGLE STORY		
LOCATION	: 125.7241629,11.03149505		
DISTANCE FROM THE OCEAN	: SHORT-274,LONG-5391METERS	**ELEVATION:**	16 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	1	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.The roof of the building is completely gone.
2.Windows & doors of the building are damaged.

Table A138: Samar, Building 4, Rating Sheet

STRUCTURE IDENTITY	: SAMAR-004		
TYPE OF STRUCTURE	: SCHOOL BUILDING, COMMERCIAL, SINGLE STORY		
LOCATION	: 125.7242073,11.03117055		
DISTANCE FROM THE OCEAN	: SHORT-27,LONG-5372METERS	**ELEVATION:**	15 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.The roof of the building is completely gone.

Table A139: Samar, Building 5, Rating Sheet

STRUCTURE IDENTITY	: SAMAR-005		
TYPE OF STRUCTURE	: COMMERICAL BUILDING, SINGLE STORY		
LOCATION	: 125.7228703,11.03048778		
DISTANCE FROM THE OCEAN	: SHORT-100,LONG-5573METERS	**ELEVATION:**	14 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Roof is completely gone.
2.Significant wall damage.

Table A140: Samar, Building 6, Rating Sheet

STRUCTURE IDENTITY	: SAMAR-006		
TYPE OF STRUCTURE	: MARKET PLACE, COMMERCIAL, SINGLE STORY		
LOCATION	: 125.7234635,11.02989548		
DISTANCE FROM THE OCEAN	: SHORT-75,LONG-5559 METERS	**ELEVATION:**	13 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	1	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	1	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Columns of the building are in good position.
2.The roof of the building is severely damaged.

Table A141: Samar, Building 7, Rating Sheet

STRUCTURE IDENTITY	: SAMAR-007		
TYPE OF STRUCTURE	: COMMERCIAL MARKET PLACE, SINGLE STORY		
LOCATION	: 125.7227233,11.0299997		
DISTANCE FROM THE OCEAN	: SHORT-105,LONG-5617 METER **ELEVATION:**	13 FEET	
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	2	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.The roof of the building is completely damaged.
2.Interior wall of the building is completely collapsed.
3.Minor scouring is observed at foundation level.

Table A142: Samar, Building 8, Rating Sheet

STRUCTURE IDENTITY	: SAMAR-008		
TYPE OF STRUCTURE	: BUS STOP,COMMERCIAL, SINGLE STORY OPEN SRUCTURE		
LOCATION	: 125.7227233,11.02989548		
DISTANCE FROM THE OCEAN	: SHORT-60,LONG-5642 METERS **ELEVATION:**	05 FEET	
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	1	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.The roof of the building is completely damaged.

Table A143: Samar, Building 9, Rating Sheet

STRUCTURE IDENTITY	: SAMAR-009		
TYPE OF STRUCTURE	: BUS STOP, COMMERCIAL,SINGLE STORY OPEN SRUCTURE		
LOCATION	: 125.722052,11.02889299		
DISTANCE FROM THE OCEAN	: SHORT-27,LONG-5810 METERS **ELEVATION:**	05 FEET	
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.The roof of the building is completely damaged.
2.Some roof beams of the truss are missing.

Table A144: Samar, Building 10, Rating Sheet

STRUCTURE IDENTITY	: SAMAR-010		
TYPE OF STRUCTURE	: COMMERCIAL, POLICE STATION, TWO STORY		
LOCATION	: 125.72228,11.03411333		
DISTANCE FROM THE OCEAN	: SHORT-266,LONG-5069 METER **ELEVATION:**	22 FEET	
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	2	2
1b	A Portion Of The Building Has Collapsed	2	2	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	1	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	3	

Observations:

1.The roof of the building is completely damaged.
2.Wood columns encased in concrete are damaed due to impact.

Table A145: Samar, Building 11, Rating Sheet

STRUCTURE IDENTITY	: SAMAR-011		
TYPE OF STRUCTURE	: COMMERCIAL, THREE STORY		
LOCATION	: 125.7225557,11.03386278		
DISTANCE FROM THE OCEAN	: SHORT-265,LONG-5107 METER **ELEVATION:**	21 FEET	
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	1	1
1b	A Portion Of The Building Has Collapsed	2	1	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	2	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	1	
6b	Projectiles/Debris Impact On Structure	1	3	

Observations:

1.Windows & doors of the building are damaged.
2.The exterior wall on the top story of the building is collapsed.

Table A146: Samar, Building 12, Rating Sheet

STRUCTURE IDENTITY	: SAMAR-012		
TYPE OF STRUCTURE	: BASKET BALL HALL,COMMERCIAL, SINGLE STORY		
LOCATION	: 125.723731,11.03320184		
DISTANCE FROM THE OCEAN	: SHORT-30,LONG-5047 METERS **ELEVATION:**	15 FEET	
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.The walls of the building are completely collapsed.
2.Primary members are severely damaged.

Table A147: Samar, Building 13, Rating Sheet

STRUCTURE IDENTITY	: SAMAR-013		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 125.7229127,11.03309571		
DISTANCE FROM THE OCEAN	: SHORT-215,LONG-4182 METER	**ELEVATION:**	16 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	3	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.The roof of the building is completely gone.
2.Windows & doors of the building are damaged.

Table A148: Samar, Building 14, Rating Sheet

STRUCTURE IDENTITY	: SAMAR-014		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 125.722989,11.0327597		
DISTANCE FROM THE OCEAN	: SHORT-206,LONG-4095METER	**ELEVATION:**	16 FEET
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-05-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.The roof of the building is completely gone.
2.Windows & doors of the building are damaged.
3.Water damage is observed up to lower story of the structure.

Table A149: Tanauan, Building 2, Rating Sheet

STRUCTURE IDENTITY	: TANAUAN-002-C2		
TYPE OF STRUCTURE	: RESIDENTIAL, TWO STORY		
LOCATION	: 125.0194398,11.11586322		
DISTANCE FROM THE OCEAN	: 364 METERS	**ELEVATION:**	17 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-08-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	2	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.The roof of the building is completely gone.
2.Shear cracks are observed at door panels
3.Primary members are severely damaged.
4.The Eaves of the truss are damaged.

Table A150: Tanauan, Building 3, Rating Sheet

STRUCTURE IDENTITY	: TANAUAN-003		
TYPE OF STRUCTURE	: COMMERCIAL, GOVERNMENT BUILDING (CONVERTED INTO FACTORY),2 STORY		
LOCATION	: 125.0207079,11.09665454		
DISTANCE FROM THE OCEAN	: 97 METERS	**ELEVATION:**	14 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: Aug-26-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	1
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.The wall of the building is completely collapsed due to water damage.
2.Minor scouring action take place.
3.Part of the roof systems are damaged due to wind damage.

Table A151: Tanauan, Building 4, Rating Sheet

STRUCTURE IDENTITY	: TANAUAN-004		
TYPE OF STRUCTURE	: COMMERCIAL, MARKET PLACE ,TWO STORY		
LOCATION	: 125.0189717,11.10894866		
DISTANCE FROM THE OCEAN	: 242 METERS	**ELEVATION:**	30 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	1	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	2	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.Wind damage is severe on the second story of the building.
2.Obvious wall damage/separation of walls is existing.
3.Water markings are observed in ground story
4.Interior and Exterior walls are completely damaged.

Table A152: Tolosa, Building 1, Rating Sheet

STRUCTURE IDENTITY	: TOLOSA-001		
TYPE OF STRUCTURE	: COMMERCIAL, OLD MUNCIPAL BUILDING, TWO STORY		
LOCATION	: 125.0380831,11.06320573		
DISTANCE FROM THE OCEAN	: 172METERS	**ELEVATION:**	30 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	2	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.The roof of the building is completely gone.
2.Water damage is observed up to first story of the building
3.Primary members are severely damaged.
4.The Eaves of the truss are damaged.

Table A153: Tolosa, Building 2, Rating Sheet

STRUCTURE IDENTITY	: TOLOSA-002		
TYPE OF STRUCTURE	: COMMERCIAL, DZRMES ELEMENTRY SCHOOL, TWO STORY		
LOCATION	: 125.0374396,11.06392088		
DISTANCE FROM THE OCEAN	: 249 METERS	**ELEVATION:**	26 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	1	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	1	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	0	

Observations:

1.The roof of the building is completely gone.
2.Water damage is observed up to first story of the building
3.Primary members are severely damaged.
4.The Eaves of the truss are damaged.
5.Exterior wall of the building is completely collapsed.
6.Connection failures are observed in truss members.

Table A154: Tolosa, Building 3, Rating Sheet

STRUCTURE IDENTITY	: TOLOSA-003-B3		
TYPE OF STRUCTURE	: COMMERCIAL, MEMORIAL SPORTS CENTER, SINGLE STORY		
LOCATION	: 125.0319592,11.07626064		
DISTANCE FROM THE OCEAN	: 197 METERS	**ELEVATION:**	33 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	3	3
1b	A Portion Of The Building Has Collapsed	2	3	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	2	
3a	Obvious Severe Damage To Primary Members	2	3	
3b	Severe Bowing Or Racking Of Walls	2	3	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	1	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	2	

Observations:

1.Primary members are severely Damaged.
2.Leaning of columns are observed.
3.Bond failures are observed in columns.
4.Plastic hinges are formed at end portion of the beams.
5.Minor Scouring action is observed.
6.Roof trusses are completely Damaged.
7.connection problems are observed in truss.
8.columns are separated from the walls.

Table A155: Tolosa, Building 4, Rating Sheet

STRUCTURE IDENTITY	: TOLOSA-004-B4		
TYPE OF STRUCTURE	: RESIDENTIAL, SINGLE STORY		
LOCATION	: 125.032127,11.07681491		
DISTANCE FROM THE OCEAN	: 140 METERS	**ELEVATION:**	34 feet
DATE OF DAMAGE	: Nov-13-2013		
DATE OF PICTURES COLLECTED	: May-07-2014		

CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	2
1b	A Portion Of The Building Has Collapsed	2	0	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	1	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall	2	3	
4b	Roof damage	2	3	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	0	
6b	Projectiles/Debris Impact On Structure	1	1	

Observations:

1.Roof of the building is completely gone.

2.Water damages are observed in the building.

APPENDIX D: STRUCTURAL DAMAGE IMAGES

Figure A1: Parcel 1, Barangay 1, Building 1, View 1 (left), View 2 (right)

Figure A2: Parcel 1, Barangay 1, Building 2, View 1 (left), View 2 (right)

Figure A3: Parcel 1, Barangay 1, Building 5, View 1 (left), View 2 (right)

Figure A4: Barangay 1, Leyte Park Resort, Building 1, View 1 (left), View 2 (right)

Figure A5: Barangay 1, Leyte Park Resort, Building 2, View 1 (left), View 2 (right)

Figure A6: Barangay 1, Leyte Park Resort, Building 3, View 1 (left), View 2 (right)

Figure A7: Barangay 1, Leyte Park Resort, Building 4, View 1 (left), View 2 (right)

Figure A8: Barangay 1, Leyte Park Resort, Building 5, View 1 (left), View 2 (right)

Figure A9: Barangay 1, Leyte Park Resort, Building 7, View 1 (left), View 2 (right)

Figure A10: Barangay 1, Leyte Park Resort, Building 9, View 1 (left), View 2 (right)

Figure A11: Barangay 1, Leyte Park Resort, Building 10, View 1 (left), View 2 (right)

Figure A12: Barangay 1, Leyte Park Resort, Building 13, View 1 (left), View 2 (right)

Figure A13: Barangay 1, Leyte Park Resort, Building 14, View 1 (left), View 2 (right)

Figure A14: Barangay 1, Leyte Park Resort, Building 15, View 1 (left), View 2 (right)

Figure A15: Barangay 1, Leyte Park Resort, Building 16, View 1 (left), View 2 (right)

Figure A16: Barangay 1, Leyte Park Resort, Building 17, View 1 (left), View 2 (right)

Figure A17: Barangay 1, Leyte Park Resort, Building 18, View 1 (left), View 2 (right)

Figure A18: Barangay 1, Leyte Park Resort, Building 19, View 1 (left), View 2 (right)

Figure A19: Barangay 1, Leyte Park Resort, Building 19B, View 1 (left), View 2 (right)

Figure A20: Barangay 1, Leyte Park Resort, Building 20, View 1 (left), View 2 (right)

Figure A21: Barangay 1, Leyte Park Resort, Building 21, View 1 (left), View 2 (right)

Figure A22: Barangay 1, Leyte Park Resort, Building 23, View 1 (left), View 2 (right)

Figure A23: Barangay 1, Leyte Park Resort, Building 25, View 1 (left), View 2 (right)

Figure A24: Barangay 1, Leyte Park Resort, Building 26, View 1 (left), View 2 (right)

Figure A25: Barangay 1, Leyte Park Resort, Building 30, View 1 (left), View 2 (right)

Figure A26: Barangay 1, Leyte Park Resort, Building 32, View 1 (left), View 2 (right)

Figure A27: Barangay 1, Leyte Park Resort, Building 33, View 1 (left), View 2 (right)

Figure A28: Barangay 1, Leyte Park Resort, Building 36, View 1 (left), View 2 (right)

Figure A29: Barangay 1, Leyte Park Resort, Building 37, View 1 (left), View 2 (right)

Figure A30: Barangay 1, Leyte Park Resort, Building 41, View 1 (left), View 2 (right)

Figure A31: Barangay 1, Leyte Park Resort, Building 41A, View 1 (left), View 2 (right)

Figure A32: Barangay 1, Leyte Park Resort, Building 42, View 1 (left), View 2 (right)

Figure A33: Barangay 1, Building 7A, View 1 (left), View 2 (right)

Figure A34: Barangay 1, Building 8, View 1 (left), View 2 (right)

Figure A35: Barangay 1, Building 9, View 1 (left), View 2 (right)

Figure A36: Parcel 1, Barangay 2, Building 1, View 1 (left), View 2 (right)

Figure A37: Parcel 1, Barangay 2, Building 2, View 1 (left), View 2 (right)

Figure A38: Parcel 1, Barangay 13, Building 1, View 1 (left), View 2 (right)

Figure A39: Parcel 2, Barangay 25, Building 1, View 1 (left), View 2 (right)

Figure A40: Barangay 25, Building 1B, View 1 (left), View 2 (right)

Figure A41: Parcel 2, Barangay 25, Building 2, View 1 (left), View 2 (right)

Figure A42: Barangay 25, Building 7, View 1 (left), View 2 (right)

Figure A43: Barangay 25, Building 8, View 1 (left), View 2 (right)

Figure A44: Parcel 2, Barangay 27, Building 1, View 1 (left), View 2 (right)

Figure A45: Barangay 49, Building 1A, View 1 (left), View 2 (right)

Figure A46: Barangay 49, Building 1B, View 1 (left), View 2 (right)

Figure A47: Barangay 49, Building 1C, View 1 (left), View 2 (right)

Figure A48: Barangay 49, Building 1D, View 1 (left), View 2 (right)

Figure A49: Barangay 49, Building 2A, View 1 (left), View 2 (right)

Figure A50: Barangay 49, Building 2B, View 1 (left), View 2 (right)

Figure A51: Barangay 49, Building 2C, View 1 (left), View 2 (right)

Figure A52: Barangay 49, Building 2D, View 1 (left), View 2 (right)


Figure A53: Parcel 3, Barangay 38, Building 2, View 1 (left), View 2 (right)


Figure A54: Parcel 3, Barangay 38, Building 4, View 1 (left), View 2 (right)


Figure A55: Parcel 3, Barangay 38, Building 7, View 1 (left), View 2 (right)


Figure A56: Barangay 64, Building 1, View 1 (left), View 2 (right)

Figure A57: Parcel 4, Barangay 110, Building 1, View 1 (left), View 2 (right)

Figure A58: Parcel 4, Barangay 54, Building 1, View 1 (left), View 2 (right)

Figure A59: Parcel 4, Barangay 54, Building 2, View 1 (left), View 2 (right)

Figure A60: Parcel 4, Barangay 61, Building 1, View 1 (left), View 2 (right)

Figure A61: Parcel 4, Barangay 55, Building 1, View 1 (left), View 2 (right)

Figure A62: Parcel 4, Barangay 62A, Building 1, View 1 (left), View 2 (right)

Figure A63: Barangay 66, Building 1A, View 1 (left), View 2 (right)

Figure A64: Barangay 66, Building 1B, View 1 (left), View 2 (right)

Figure A65: Barangay 66, Building 1C, View 1 (left), View 2 (right)


Figure A66: Barangay 66, Building 1D, View 1 (left), View 2 (right)

Figure A67: Barangay 66, Building 1E, View 1

Figure A65: Barangay 90, Building 1, View 1 (left), View 2 (right)

Figure A66: Barangay 90, Building 1B, View 1 (left), View 2 (right)

Figure A67: Pawling, Building 5A, View 1 (left), View 2 (right)


Figure A68: Pawling, Building 5B, View 1 (left), View 2 (right)


Figure A69: Pawling, Building 5C, View 1 (left), View 2 (right)

Figure A70: Parcel 5, Barangay 91, Building 1, View 1 (left), View 2 (right)

Figure A71: Parcel 5, Barangay 91, Building 2, View 1 (left), View 2 (right)

Figure A72: Parcel 5, Barangay 66, Building 1, View 1 (left), View 2 (right)

Figure A73: Barangay 66, Building 1F, View 1 (left), View 2 (right)

Figure A74: Barangay 66, Building 1G, Rating Sheet (top) View 1 (bottom)

Figure A75: Barangay 66, Building 1H, View 1 (left), View 2 (right)


Figure A76: Barangay 66, Building 1I, View 1 (left), View 2 (right)

Figure A77: Barangay 66, Building 1J, View 1 (left), View 2 (right)

Figure A78: Barangay 75, Building 4, View 1 (left), View 2 (right)

Figure A79: Barangay 75, Building 6, View 1 (left), View 2 (right)

Figure A80: Barangay 91, Building 4, Rating Sheet (top) View 1 (bottom)

Figure A81: Parcel 8, Barangay 69, Building 11, View 1 (left), View 2 (right)

Figure A82: Barangay 69, Building 17, View 1 (left), View 2 (right)

Figure A83: Parcel 9, Barangay 77, Building 2, View 1 (left), View 2 (right)

Figure A84: Parcel 9, Barangay 79, Building 1, View 1 (left), View 2 (right)

Figure A85: Parcel 10, Barangay 83A, Building 1, View 1 (left), View 2 (right)

Figure A86: Parcel 10, Barangay 83A, Building 5, View 1 (left), View 2 (right)

Figure A87: Parcel 10, Barangay 86, Building 3, View 1 (left), View 2 (right)

Figure A88: Parcel 10, Barangay 86, Building 5, View 1 (left), View 2 (right)

Figure A89: Barangay 83A, Building 6, View 1 (left), View 2 (right)

Figure A90: Barangay 88, Building 27, View 1 (left), View 2 (right)

Figure A91: Barangay 88, Building 28, View 1 (left), View 2 (right)

Figure A92: Barangay 88, Building 29, View 1 (left), View 2 (right)

Figure A93: Barangay 81, Building 2B, View 1 (left), View 2 (right)

Figure A94: Barangay 81, Building 2C, View 1 (left), View 2 (right)

Figure A95: Barangay 81, Building 2D, View 1 (left), View 2 (right)

Figure A96: Barangay 81, Building 2F, View 1 (left), View 2 (right)

Figure A97: Barangay 81, Building 2G, View 1 (left), View 2 (right)


Figure A98: Barangay 81, Building 2H, View 1 (left), View 2 (right)


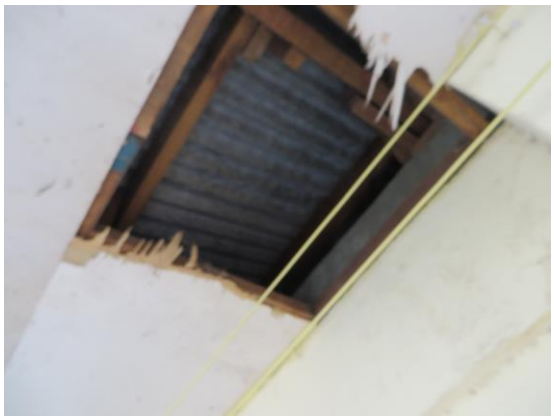

Figure A99: Barangay 81, Building 2I, View 1 (left), View 2 (right)


Figure A100: Barangay 81, Building 2J, View 1 (left), View 2 (right)


Figure A101: Barangay 81, Building 2K, View 1 (left), View 2 (right)

Figure A102: Barangay 81, Building 2L, View 1 (left), View 2 (right)

Figure A103: Barangay 81, Building 2M, View 1 (left), View 2 (right)

Figure A104: Barangay 81, Building 2N, View 1 (left), View 2 (right)


Figure A105: Parcel 12, Barangay 87, Building 1, View 1 (left), View 2 (right)

Figure A106: Parcel 12, Barangay 87, Building 2, View 1 (left), View 2 (right)

Figure A107: Parcel 12, Barangay 87, Building 3, View 1 (left), View 2 (right)


Figure A108: Parcel 12, Barangay 87, Building 4, View 1 (left), View 2 (right)


Figure A109: Parcel 12, Barangay 87, Building 5, View 1 (left), View 2 (right)

Figure A110: Parcel 12, Barangay 87, Building 7, View 1 (left), View 2 (right)

Figure A111: Parcel 13, Barangay 88, Building 8, View 1 (left), View 2 (right)

Figure A112: Barangay 88, Building 30, View 1 (left), View 2 (right)

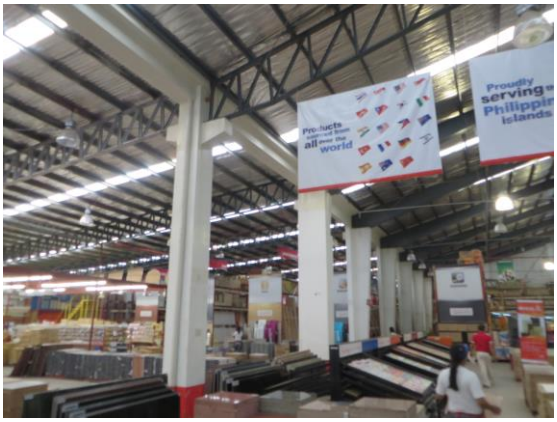

Figure A113: Parcel 15, Barangay 92, Building 1, View 1 (left), View 2 (right)

Figure A114: Parcel 16, Pawling, Building 5, View 1 (left), View 2 (right)

Figure A115: Barangay 109, Building 1, View 1 (left), View 2 (right)


Figure A116: Samar, Building 2, View 1 (left), View 2 (right)


Figure A117: Samar, Building 3, View 1 (left), View 2 (right)

Figure A118: Samar, Building 4, View 1

Figure A119: Samar, Building 5, View 1 (left), View 2 (right)

Figure A120: Samar, Building 6, View 1 (left), View 2 (right)

Figure A121: Samar, Building 7, View 1 (left), View 2 (right)

Figure A122: Samar, Building 8, View 1 (left), View 2 (right)

Figure A123: Samar, Building 9, View 1 (left), View 2 (right)

Figure A124: Samar, Building 10, View 1 (left), View 2 (right)

Figure A125: Samar, Building 11, View 1 (left), View 2 (right)

Figure A126: Samar, Building 12, View 1 (left), View 2 (right)

Figure A127: Samar, Building 13, View 1 (left), View 2 (right)


Figure A128: Samar, Building 14, View 1 (left), View 2 (right)

Figure A129: Dulag, Building 1, View 1 (left), View 2 (right)

Figure A130: Palo, Building 6, View 1 (left), View 2 (right)

Figure A131: Palo, Building 7, View 1 (left), View 2 (right)

Figure A132: Palo, Building 7B, View 1 (left), View 2 (right)

Figure A133: Palo, Building 8, View 1 (left), View 2 (right)

Figure A134: Palo, Building 9, View 1 (left), View 2 (right)

Figure A131: Palo, Building 10, View 1 (left), View 2 (right)


Figure A132: Palo, Building 11, View 1 (left), View 2 (right)

Figure A133: Palo, Building 12, View 1 (left), View 2 (right)

Figure A134: Palo, Building 13, View 1 (left), View 2 (right)

Figure A135: Palo, Building 14, View 1 (left), View 2 (right)


Figure A136: Samar, Building 2, View 1 (left), View 2 (right)


Figure A137: Samar, Building 3, View 1 (left), View 2 (right)

Figure A138: Samar, Building 4, View 1

Figure A139: Samar, Building 5, View 1 (left), View 2 (right)

Figure A140: Samar, Building 6, View 1 (left), View 2 (right)

Figure A141: Samar, Building 7, View 1 (left), View 2 (right)


Figure A142: Samar, Building 8, View 1 (left), View 2 (right)


Figure A143: Samar, Building 9, View 1 (left), View 2 (right)

Figure A144: Samar, Building 10, View 1 (left), View 2 (right)

Figure A145: Samar, Building 11, View 1 (left), View 2 (right)


Figure A146: Samar, Building 12, View 1 (left), View 2 (right)


Figure A147: Samar, Building 13, View 1 (left), View 2 (right)


Figure A148: Samar, Building 14, View 1 (left), View 2 (right)


Figure A149: Tanauan, Building 2, View 1 (left), View 2 (right)


Figure A150: Tanauan, Building 3, View 1 (left), View 2 (right)


Figure A151: Tanauan, Building 4, View 1 (left), View 2 (right)

Figure A152: Tolosa, Building 1, View 1 (left), View 2 (right)


Figure A153: Tolosa, Building 2, View 1 (left), View 2 (right)

Figure A154: Tolosa, Building 3, View 1 (left), View 2 (right)


Figure A155: Tolosa, Building 4, View 1 (left), View 2 (right)