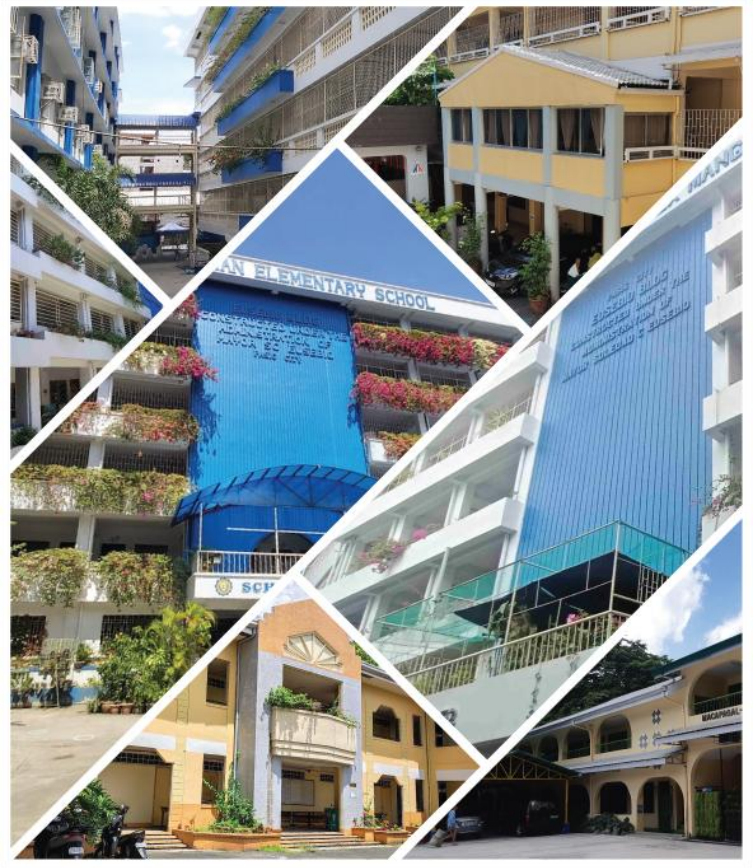
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

CONSULTING SERVICES FOR THE ASSESSMENT AND DESIGN OF FUNCTIONAL ELEMENTS OF PUBLIC-SCHOOL BUILDINGS SELECTED FOR RETROFITTING AND STRENGTHENING/ UPGRADING IN PREPARATION FOR "THE BIG ONE"

UNDER IBRD LOAN NO. 9251-PH: PHILIPPINES SEISMIC
RISK REDUCTION AND RESILIENCE PROJECT

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

(RICARDO P. CRUZ SR. ELEMENTARY SCHOOL)
DEPED STANDARD SCHOOL BUILDING



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LIST OF ACRONYMS

CHSP	Construction Safety and Health Program
CLUP	Comprehensive Land Use Plan
CNC	Certificate of Non-Coverage
COVID-19	Coronavirus Disease
CR	Critically Endangered
DAO	DENR Administrative Order
dB	Decibel
DD	Data Deficient
DENR	Department of Environment and Natural Resources
DepEd	Department of Education
DO	Department Order
DOLE	Department of Labor and Employment
DPWH	Department of Public Works and Highways
ECC	Environmental Compliance Certificate
ECOP	Environmental Codes of Practice
EHS	Environment, Health, and Safety
EMB	Environmental Management Bureau
EN	Endangered
EO	Executive Order
ESMP	Environmental and Social Management Plan
ESMF	Environmental and Social Management Framework
ESS	Environmental and Social Standards
ESSU	Environmental and Social Safeguards Unit
FRP	Fiber Reinforced Polymer
GBV	Gender-based Violence
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
IATF	Inter-Agency Task Force
IEC	Information, Education and Communication
IUCN	International Union for Conservation of Nature
LC	Least Concern
LGU	Local Government Unit
LMP	Labor Management Procedure
LSEN	Learners with Special Education Needs
NCR	National Capital Region
NCCA	National Commission for Culture and the Arts
NCCAP	National Climate Change Action Plan
NGO	Non-governmental organization
NOx	Nitrogen Oxide
NT	Near Threatened
NWMC	National Wildlife Management Committee
NWRB	National Water Resources Board
OSH	Occupational Safety and Health
OTS	Other Threatened Species
OWS	Other Wildlife Species
PAGASA	Philippine Atmospheric, Geophysical, and Astronomical Services Administration
PCMA	Project Contract Management Application
PD	Presidential Decree
PHIVOLCS	Philippine Institute of Volcanology and Seismology
PHP	Philippine Peso
PIU	Project Implementation Unit
PM	Particulate Matter
PMO	Project Management Office
PPE	Personal Protective Equipment
PRECUP	Philippine Registry of Cultural Property

PSA	Philippine Statistics Authority
PSRRRP	Philippines Seismic Risk Reduction and Resiliency Project
RC	Reinforced Concrete
RTR	Roman T. Romulo Building
SEP	Stakeholder Engagement Plan
SO_2	Sulfur Dioxide
SVR	Seismic Vulnerability Rating
TSP	total suspended particulates
TWG	Technical Working Group
USD	United States Dollar
VU	Vulnerable
WB	World Bank
WMP	Waste Management Plan

1 INTRODUCTION

The Philippines Seismic Risk Reduction and Resiliency Project (PSRRRP), a project financed by World Bank, aims to improve the safety and seismic resilience of public-school buildings in Metro Manila. Through structural strengthening and functional upgrades of public-school buildings, selected and prioritized based on a transparent, well-designed, cost-effective retrofitting approach, which will contribute to a reduction in the estimated impacts of earthquakes (particularly 'The Big One' scenario) on the portfolio of critical public-school facilities.

This document presents the Environmental and Social Management Plan (ESMP) of Ricardo P. Cruz Sr. Elementary School that will undergo retrofitting which will comply with the local regulations and WB Environmental and Social Framework (ESF) requirements, and to address potential environmental and social (E&S) impacts of the project.

The project will comprise the retrofitting of DepEd Standard School Building of Ricardo P. Cruz Sr. Elementary School. All retrofitting works will take place within the premises of the school.

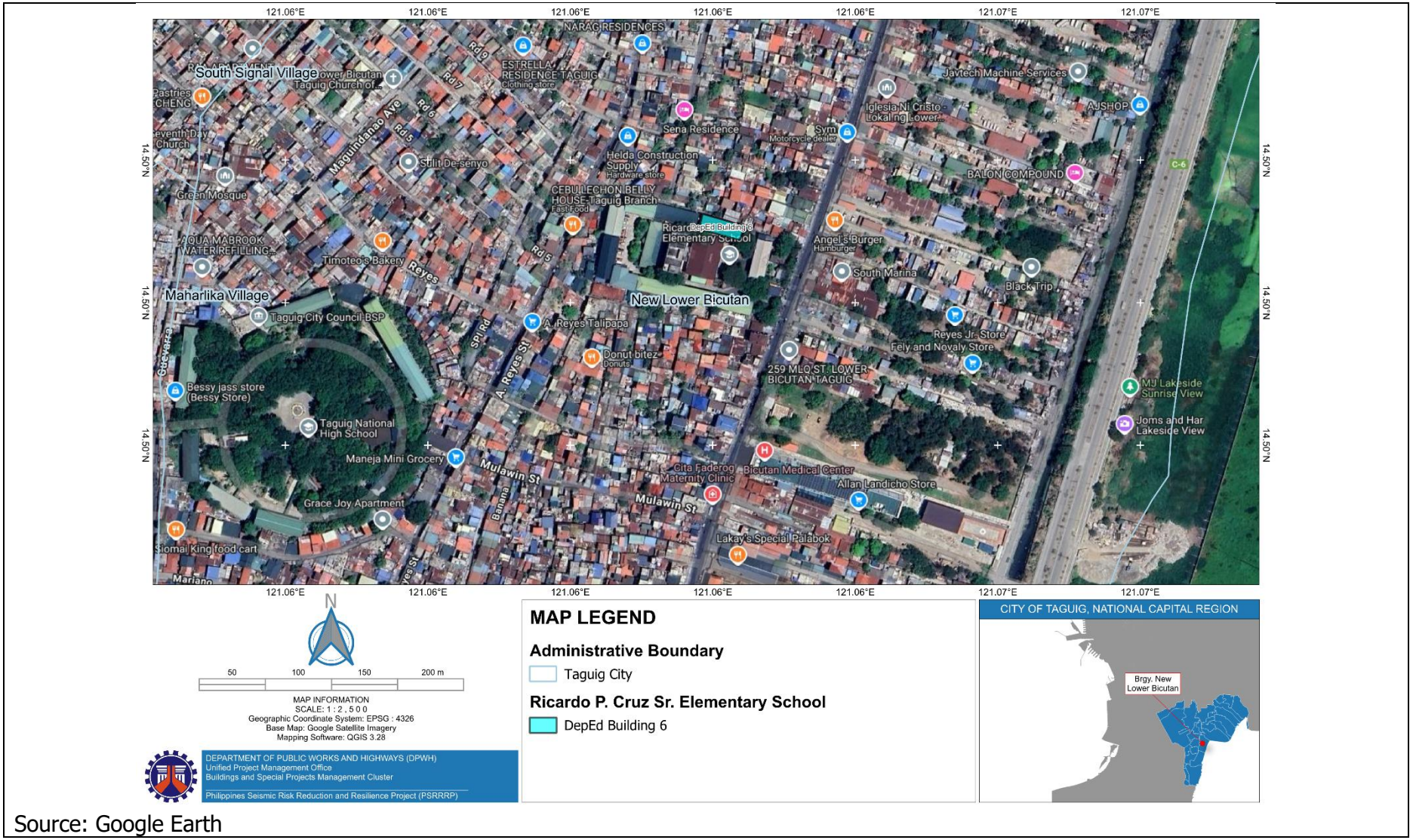
2 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

Ricardo P. Cruz Sr. Elementary School, with School Identification Number 136875, is located at M.L. Quezon St., Purok 3, New Lower Bicutan, Taguig City, Metro Manila. As presented in **Table 2-1** and **Figure 2-1**, Ricardo P. Cruz Sr. Elementary School is surrounded by residential, institutional and mixed use development areas.

Table 2-1: General Vicinity of Ricardo P. Cruz Sr. Elementary School

GENERAL DIRECTION	SENSITIVE RECEPTOR	DISTANCE FROM SCHOOL
NORTH	Institutional Area Residential Area	10 meters 25 meters
WEST	Residential Area Mixed Use Development Area	15 meters 100 meters
EAST	Residential Area	9 meters
SOUTH	Residential Area	40 meters



Source: Google Earth

Figure 2-1: Location Map of Ricardo P. Cruz Sr. Elementary School

2.2 RETROFITTING WORKS FOR RICARDO P. CRUZ SR. ELEMENTARY SCHOOL

2.2.1 Type of Building Retrofitting Works

For the building identified in Ricardo P. Cruz Sr. Elementary School, Concrete Jacketing and FRP Systems will be adopted. The methodology for each type of structural building retrofitting works is provided in **Table 2-2**.

Table 2-2: Description of Building Retrofitting Works

TYPE	DESCRIPTION/METHODOLOGY
Concrete Jacketing	This method is used for poorly detailed or damaged reinforced concrete (RC) members whereby RC jackets are applied around the structural elements. The RC jackets provide increase strength, stiffness, and overall enhancement of structural performance. This is frequently used prior to or after damage of RC members such as beams, columns, and joints. Shotcrete overlay is used on the surface of an existing RC member with an outer assembled reinforcement cage. Shotcrete jacketing can be used in lieu of conventional cast-in-place concrete jackets because of its potential to achieve good bond strength and low permeability. It is also known that the shotcrete process is more versatile than common concrete placement and can be applied in very difficult or complex sections where conventional concrete formwork would prove difficult, cost-prohibitive, or even impossible.
Fiber Reinforced Polymer (FRP) Systems	The FRP materials are composed of high-strength fibers embedded in a polymeric matrix. The fibers (which have very small diameters and are considered continuous) provide the strength and stiffness of the composite, while the matrix separates and disperses the fibers. In concrete strengthening applications, the fibers are typically carbon (graphite), glass, or aramid, and the matrices are typically epoxy. FRP is extremely versatile and is quickly and easily installed, reducing the downtime and disruption during retrofit.

Considering the functional upgrade of the school buildings, activities related to architectural, electrical, mechanical, and sanitary will also be conducted.

2.2.2 Projected Workforce

The number of workforces in the project site may vary depending on the specific activities. **Table 2-3** provides the manpower requirements per project phase.

Table 2-3: Manpower Requirement per Project Phase

PROJECT PHASE	ESTIMATED MANPOWER REQUIREMENT	TASKS TO BE PERFORMED	SKILLS REQUIREMENT
Pre-Construction	~100	• Prepare detailed engineering designs and drawings	Specialized technical skills/expertise on

PROJECT PHASE	ESTIMATED MANPOWER REQUIREMENT	TASKS TO BE PERFORMED	SKILLS REQUIREMENT
		• Facilitate permit requirements and tender documents	various engineering and scientific fields.
Construction	~50	• Perform civil, architectural, and electro-mechanical works • Oversee the entire operations of the proposed project, including emergency situations,	• Project Managers • Project Engineers • Foreman • Skilled workers (plumber, • Non-skilled workers
		• Ensuring the safety and welfare of its personnel • Maintain conformity of the proposed project to relevant government regulations, including Occupational Health and Safety. • Promote and uphold a harmonious relationship with the host community	• EHS Officer • Safety Officer • Social Officer • Pollution Control Officer
Post-Construction	~11	• Restoration of disturbed areas (e.g., classrooms, offices, plant boxes) • Site clearing including of removal temporary facilities	• Project Manager • Laborers

DPWH and its Contractors will adhere to Republic Act No. 6685 of 1998 entitled, "An Act Requiring Private Contractors to Whom National, City and Municipal Public Works Projects Have Been Awarded Under Contract To Hire At Least Fifty Percent of the Unskilled and At Least Thirty Percent of the Skilled Labor Requirement to be Taken From the Available Bona Fide Residents in the Province, City, or Municipality in Which the Projects are to be Undertaken, and Penalizing Those Who Fail to Do So" as well as Republic Act No. 9710 or the "Magna Carta on Women", through the issuance of Department Order No. 130 series of 2016.

Guidelines for the Implementation of the Provisions of Republic Act No. 6685 and Republic Act No. 9710 or the Magna Carta on Women. Pursuant to Section 7 of RA No. 6685 and MCW, the following implementing rules and regulations are issued accordingly:

a. The mandatory minimum percentage of 50% of unskilled labor requirement shall be recruited and be equally accessible to both women and men.

b. The mandatory minimum 30% of the skilled labor requirement shall be recruited and be equally accessible to both women and men.

The conditions for items a. and b. were as follow:

i. First priority shall be recruited from the unemployed bona fide residents of the locality/barangay where the project is being undertaken who are ready, willing, and able as determined/certified by the City/Municipal Mayor concerned;

ii. If the un/skilled labor requirement is not fully met by the recruitment pursuant to item i. above, the deficiency shall be recruited from the unemployed bona fide residents of neighboring barangays of the city/municipality where the project is being undertaken who are ready, willing, and able as determined/certified by the City Mayor concerned; and

iii. If still the un/skilled labor requirement is not fully satisfied after the recruitment pursuant to items i. and ii., then the deficiency shall be recruited from the unemployed bona fide residents of the city where the project is being undertaken who are ready, determined/certified by the mayor.

iv. In case of a project traversing two or more barangays/ municipalities/ cities/ provinces, the labor requirement shall be recruited proportionately from the localities traversed by the project.

DPWH and its Contractor shall also purposively employ women, to comprise at least 20% of the total workforce in skilled or unskilled positions, in various phases and stages of construction/civil work, form planning, design, pre-construction and construction and maintenance of a public works project.

Republic Act No. 10524 defines equal opportunity for employment as "no person with disability shall be denied access to opportunities for suitable employment. A qualified employee with disability shall be subject to the same terms and conditions of employment and the same compensation, privileges, benefits, fringe benefits, incentives, or allowances as a qualified able-bodied person".

2.3 PROJECT ACTIVITIES AND SCHEDULE

Once the detailed engineering design is approved, bidding for the contractor will be initiated by the DPWH BSPMC-UPMO.

Once the winning contractor is mobilized, the following activities will be undertaken by the contractor in coordination with the DPWH BSPMC-UPMO and the Administration of Ricardo P. Cruz Sr. Elementary School.

Table 2-4: Activities Involved in the Retrofitting Works

STAGE	ACTIVITIES
Prior to Construction	• Site investigation by the contractor in close coordination with the end-user (school administration) • Development of a schedule/plan of works • Securing of permits (as necessary) • Installation of project billboard/signboard
Earthworks (for retrofits involving foundation)	• Removal of slab on fill/obstructions • Surface preparation • Installation of shoring • Structure excavation
Building retrofitting	• Removal of obstructions, relocation of utilities • Construction of field office/makeshift office • Installation of scaffoldings, forms, and falseworks • Chipping of concrete • Structural steel fabrication (done offsite) • Cutting and bending of reinforcing steel (deformed) • Concrete / epoxy injection and crack repair (including rectification of honeycombs, exposed rebars, and non-structural defects) • Epoxy-resin base bonding for concrete (structural epoxy) • Structural concreting (28 days) • Welding and bolting of metal structures and accessories • Finishing (painting, repair/restoration of affected architectural finishes)
Post-Construction	• Restoration of disturbed areas • Site clearing including removal of makeshift office

2.4 DESCRIPTION OF THE ENVIRONMENT

2.4.1 Taguig City

2.4.1.1 Physical Environment

a) Land Resources

Soils. The soil classification found in Taguig are Bay Clay Loam, Guadalupe Clay, Marikina Clay Loam, and Quingua Fine Sandy Loam. Ricardo P. Cruz Sr. Elementary School is situated on top of Guadalupe Clay.

Land Use. Ricardo P. Cruz Sr. Elementary School is under institutional use and is surrounded by residential (**Figure 2-**).

Table 2-5: Land Use Plan of Taguig

LAND USE	AREA (HAS.)	PERCENTAGE
Urban Core Zone	344	7.58
Gen. Residential Devt. Zone 1	1,835.32	40.44
Gen. Residential Devt. Zone 2	121	3.33
Light Industrial Zone	280	6.17
Socialized Housing Zone	253	5.58
Low Density Residential Devt. Zone	172	3.79
Institutional Zone	436	9.61
Tourism Development Zone	1	0.02
Entertainment Zone	301	6.63
Military Zone	100	2.20
Open Space Zone	243	5.35
ROW/Creel/Easement	421.88	9.30
Total	4,538.20	100.00

Source: Taguig CLUP (2000-2020)

Land Cover. Ricardo P. Cruz Sr. Elementary School is within the built-up area based on **Figure 2-.**

b) Freshwater Resources

Rivers and Creeks. Taguig City has two major rivers namely: Taguig River and Napindan Channel. There are also 5 minor rivers and 23 creeks in the city. **Table 2-6** presents the list of surface water in Taguig. The city is also located along the shoreline of Laguna Lake.

Ricardo P. Cruz Sr. Elementary School is approximately 2.13 kilometers south of Taguig River and ~2.9 kilometers west of Laguna Lake.

Table 2-6: Rivers and Creeks within Taguig City

NAME OF RIVER/CREEK		
Major Rivers	**Minor Rivers**	**Tributary Creeks**
Taguig River Napindan Channel	Bagumbayan River Mauling Creek/ Tabacuhan Creek Hagonoy River Tipas River/ Labasan River Santa Ana River	Tributary Creeks Daang Paa Creek Bambang na Malaki Sukol Creek/ Daang Manunuso Mabato Creek Katwiran Creek

NAME OF RIVER/CREEK		
		Daang Kalabaw Creek Labasan Creek Panday Creek Sapa ni Beho Palingon Creek Bambang na Putol Tipas River Pagadling Creek Napindan River Lumang Ilog Creek Ilog Clemencia Daang Bianca Creek Sapang Ususan Sapang Malaki Hagonoy Creek Maricaban Creek Bambang ni Peles Daang Kalabaw Creek

Source: Taguig CLUP (2000-2020)

c) Climate

The climate in the Philippines is classified into four (4) types based on the rainfall distribution and pattern. The project sites, located in Taguig City, belong to Type I climate under the modified Coronas classification with two distinct seasons: dry from November to April and wet the rest of the year. The southwest monsoon peaks throughout the months of July to September, resulting in the most wet season.

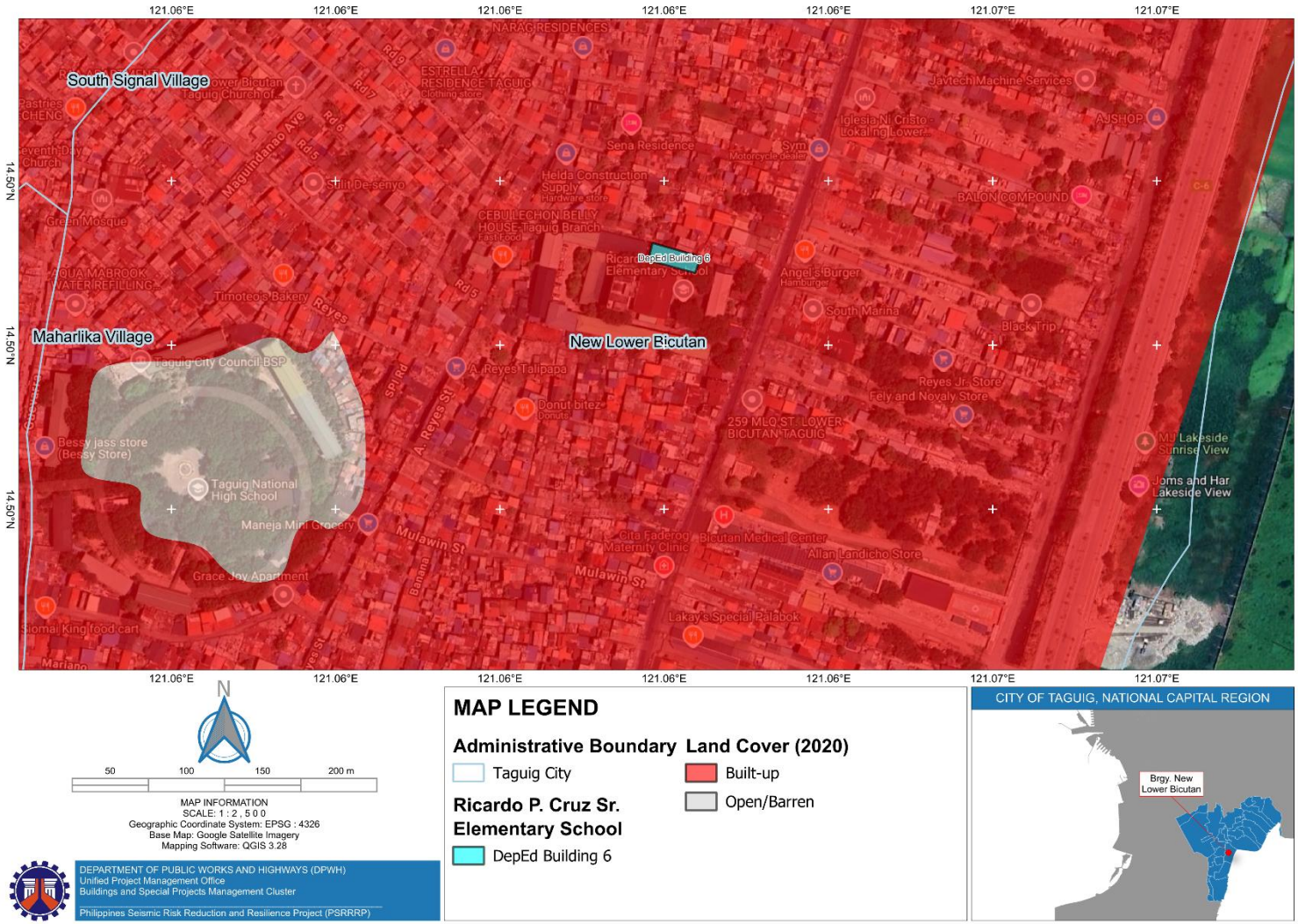
The Science Garden in Quezon City, the nearest PAGASA Weather Stations in the project site, has the latest monitoring records of climatological normals (1991 to 2020) and climatological extremes (as of 2023) which are summarized below:

Table 2-7: Climatological Data

PARAMETER	SCIENCE GARDEN, QUEZON CITY (DESCRIPTION)
Temperature	• The warmest month of the year is May, with an average temperature of 29.8 °C. • The coldest month is January, with an average temperature of 26.0 °C. • The highest temperature recorded was 38.5°C on May 14, 1987. • The lowest temperature was 14.9°C on March 1, 1963.
Rainfall	• An estimated 2,785.60 mm of rainfall and 143 rainy days may be experienced in the area per year. • On September 26, 2009, the region had the highest day rainfall quantity of 455.0 mm.
Relative Humidity	• The most humid are the months of July to December. • The Science Garden recorded a mean annual relative humidity of 78%.
Surface Wind	• The prevailing winds during October to January came from north; southeast during March to May, and southeast from June to September.
Source: PAGASA (1991-2023 data)	

Source: Geoportal

Figure 2-2: Land Use Map of Taguig City



Source: Geoportal

Figure 2-3: Land Cover Map of Taguig City

2.4.1.2 Socio-economic Environment

a) Population

Taguig City is a highly urbanized city with a total land area of 4,521 hectares. Taguig City is politically divided into 28 barangays. According to the 2020 PSA Census, Taguig City has a total population of 886,722 people. The city recorded an annual population growth rate of +2.06% from 2015 to 2020. The total number of households in Taguig is 246,873 having an average household size of 3.58.

Table 2-8: Demographic Data of Taguig City (2020)

CITY/BARANGAY	**POPULATION (2020)**	**HH POPULATION**	**NO. OF HHs.**	**AREA (HAS.)**	**AVE. HH SIZE***	**POP. DENSITY**
City of Taguig	886,722	882,622	246,873	4521	3.58	19,613
New Lower Bicutan	55,928	55,928	15,022	10.61	3.72	5,266
Source: PSA, 2020 Census of Population and Housing; Taguig CLUP Note: * Average HH size= Household Population/ No. of Households **Population Density= Population/Area (km^2)						

b) Gender and Age Profile

The age group of '25-29' has the highest population, with 90,951 individuals or 10.30% of Taguig City's population. Of the total population, the male population comprised a larger portion (50.30%) compared to the female population (49.70%).

Table 2-9: Gender and Age Profile of Taguig City (2020)

AGE GROUP	MALE	FEMALE	BOTH SEXES
0 - 4	47,030	43,799	90,829
5 - 9	44,188	40,935	85,123
10 - 14	41,700	39,119	80,819
15 - 19	37,534	36,716	74,250
20 - 24	43,882	44,050	87,932
25 - 29	46,024	44,927	90,951
30 - 34	41,916	39,849	81,765
35 - 39	34,732	33,598	68,330
40 - 44	29,269	28,215	57,484
45 - 49	22,427	22,408	44,835
50 - 54	18,137	19,187	37,324
55 - 59	14,172	15,576	29,748
60 - 64	10,495	12,444	22,939
65 - 69	6,628	8,074	14,702
70 - 74	3,398	4,904	8,302
75 - 79	1,413	2,447	3,860
80 years and over	973	2,456	3,429
TOTAL	443,918	438,704	882,622
Source: PSA, 2020 Census of Population and Housing			

c) Culture and Heritage

The Republic Act No. 10066, otherwise known as the "National Cultural Heritage Act of 2009" provided for the protection, preservation, and promotion of the nation's cultural heritage. This authorized the National Commission for Culture and the Arts (NCCA) to establish the Philippine Registry of Cultural Property (PRECUP).

The PRECUP is the repository of all culture properties of the Philippines that were deemed important to cultural heritage. As of April 2024, Taguig City is currently home to 14 tangible-immovable cultural properties recorded in the PRECUP-TALAPAMANA.

Ricardo P. Cruz Sr. Elementary School is approximately 2.5 kilometers south of the nearest registered cultural property of Taguig – Parish Church of Saint Anne of Taguig.

The retrofitting works will be confined within the Ricardo P. Cruz Sr. Elementary School and are not expected to impact any registered cultural property nor heritage sites directly and adversely.

2.4.2 Ricardo P. Cruz Sr. Elementary School

Ricardo P. Cruz Sr. Elementary School is located at M.L. Quezon St., Purok 3, New Lower Bicutan, Taguig City, Metro Manila.

The school site has one gate which is designated for entry and exit of vehicles and another two gates for learners, and school personnel. The gate for vehicles measures 4 meters wide.

School Demographics

As of SY 2023-2024, Ricardo P. Cruz Sr. Elementary School has a total of 5,656 (2,939 male and 2,717 female) learners, which includes learners from Kindergarten and Grades 1 to 6. The school has a single shift for all grade levels.

Currently, Ricardo P. Cruz Sr. Elementary School has 206 school teachers and personnel (40 teaching and 166 non-teaching).

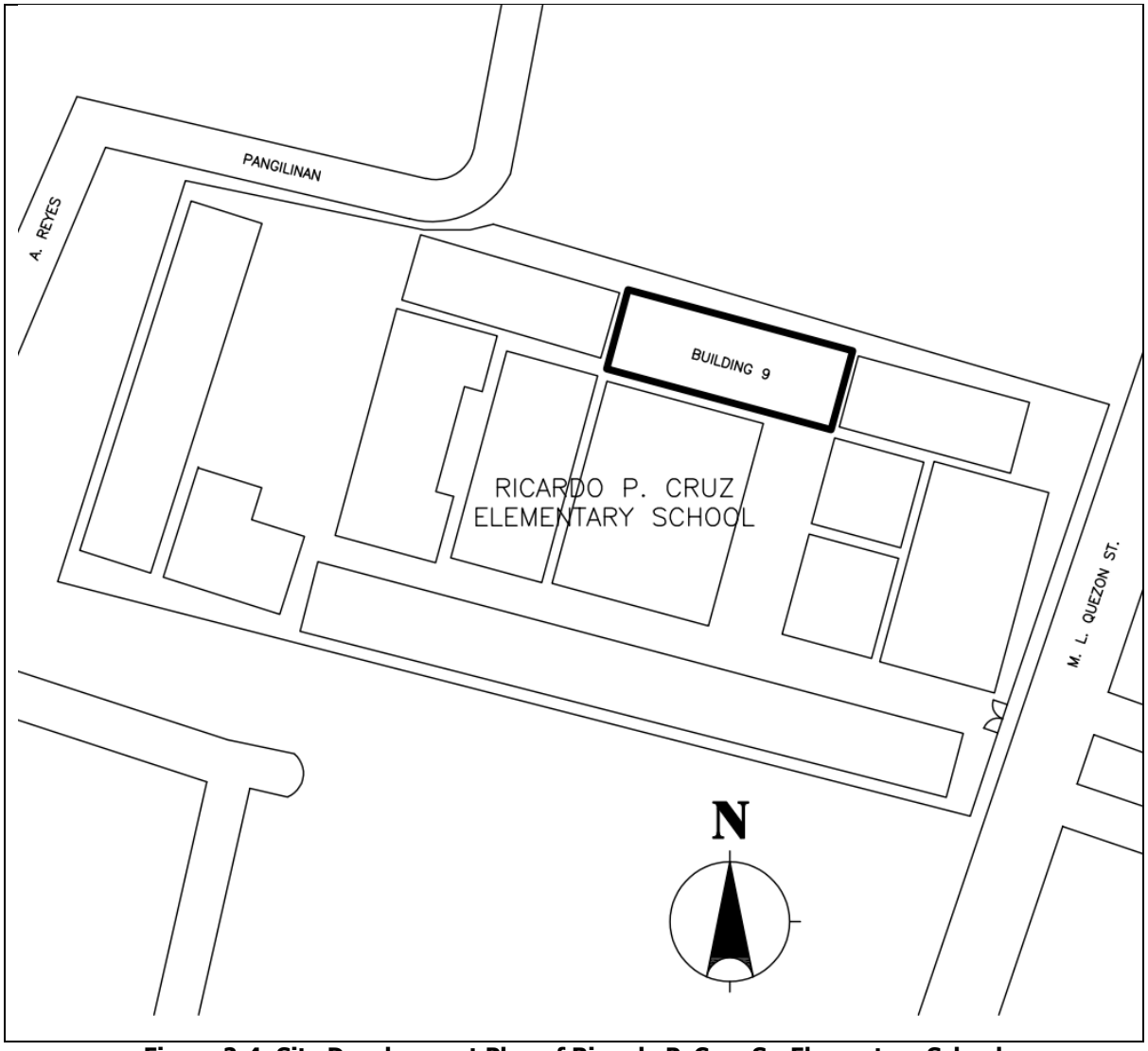


Figure 2-4: Site Development Plan of Ricardo P. Cruz Sr. Elementary School

Hazard Assessment

Based on the hazard assessment report of HazardHunterPH, the location of the school is highly susceptible to ground shaking (Intensity VIII), liquefaction and flooding (see **Table 2-10**).

Table 2-10: Hazard Assessment Report for Ricardo P. Cruz Sr. Elementary School

Seismic Hazards	
Ground Rupture	Safe; Approximately 2 km east of the Valley Fault System: West Valley Fault
Ground Shaking	Prone; Intensity VIII
Liquefaction	High Potential
Earthquake-Induced Landslide	Safe
Tsunami	Safe
Volcanic Hazards	
Nearest Active Volcano	Approximately 67.7 km north of Taal
Ashfall	Prone
Hydro-Meteorological Hazards	
Flood	High Susceptibility; 1 to 2 meters flood height and/or more than 3 days flooding
Storm Surge	Safe
Source: HazardHunterPH	

2.4.2.1 DepEd Standard School Building (Building 9)

Building Information	
Seismic Vulnerability Rating (SVR):	74.30
No. of Floors:	3
Estimated Floor Area:	908.37 sqm
Year Constructed:	2014
Years of the Structure:	10 years
Occupants of the Eligible Building	
Total number enrolled in Learners with Special Educational Needs (LSEN):	52
Total number enrolled in Learners	400
Grade Level	SPED, Kinder, Grade 5
Age Range	5-15
Total Number of Shifts Shift 1:	1 6:00AM-12:00NN
Number of Teachers and Personnel	

Type of rooms directly affected by retrofitting	**Quantity**	**Existing facilities to be affected by retrofitting**	**Quantity**
Offices:		WASH Facilities:	
		Toilet facilities Urinal Handwashing/Lavatory Water Supply (main gate valve – Maynilad) Septic Tank	3 3 1 1
Rooms:		Other structural elements/facilities:	
Classrooms	8	PWD Ramp Ingress/Egress Fire-safety (Fire extinguisher every 15m per floor) Drainage System (connected to city drainage) Electrical power supply	1 2
Others:			
School Based Management (SBM) Room	1		

2.4.2.2 School Vegetation and Trees

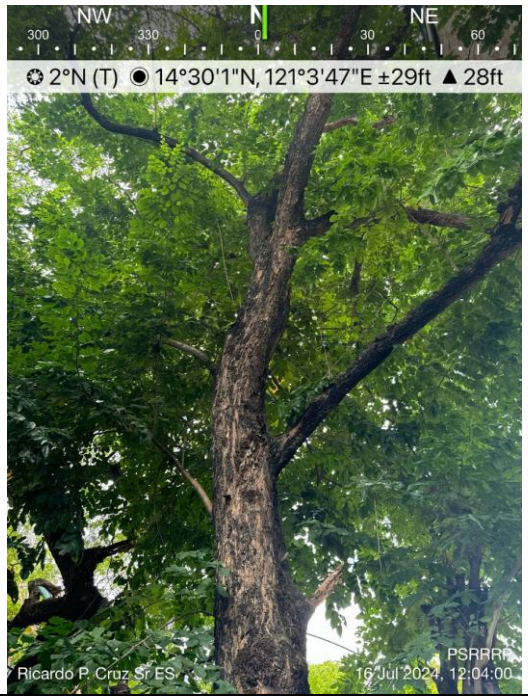
The observed trees in the school perimeter that are relatively near to the identified school buildings are summarized in the **Table 2-11**.

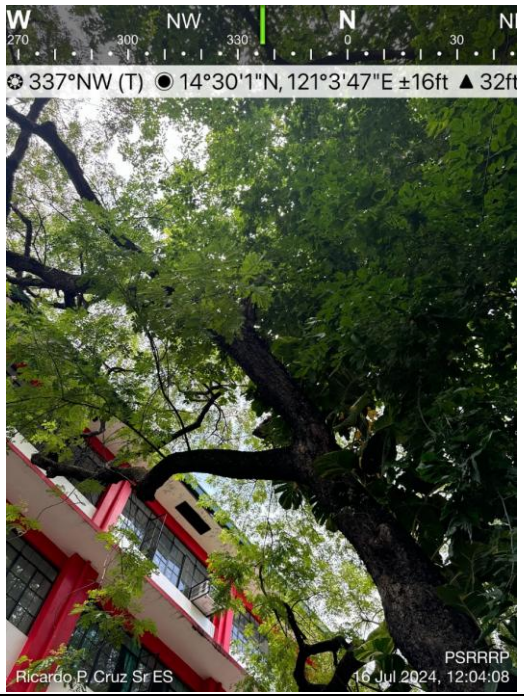
Table 2-11: Conservation Status of Flora Species within the Study Area

OBSERVED TREE	SCIENTIFIC NAME	COUNT	IUCN 2023*	DAO 2017-11
Narra	*Pterocarpus indicus*	2	EN	VU

Note:
*Not Evaluated (NE); Data Deficient (DD); Least Concern (LC); Near Threatened (NT); Vulnerable (VU); Endangered (EN); Critically Endangered (CR); Extinct in the Wild (EW); Extinct (EX)

Red font – Trees that may be subjected to tree cutting due to retrofitting works.





Source: ALAI E&S Consultants

Figure 2-5: Vegetation in the Study Area

3 POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

3.1.1 Land

Potential Environmental and Social Impacts	ESS
Generation of Solid Waste. The build-up of solid waste, particularly construction debris, is a concern during the retrofitting activities. The site preparation for retrofitting activities will result in the generation of demolition waste, such as aggregate, concrete, wood, and glass. Construction wastes, including steel, wood, and empty cement bags, are anticipated to be generated throughout the retrofitting process. In addition, the construction workers will also generate domestic wastes.	ESS 3
Generation of Hazardous Waste. During the retrofitting activities, hazardous wastes such as used oil, grease, paint containers, and busted bulbs may also be generated.	ESS 3
Soil Erosion. Earthworks, for retrofits involving foundation, will require a certain amount of soil to be displaced, which may result in soil erosion. Storm runoff may transport and deposit soil to adjacent drains during rainy seasons, potentially resulting in siltation. Siltation reduces drainage capacity, which may lead to floods in neighboring areas.	ESS 3
Disturbance in Terrestrial Flora. About two trees (**Table 2-11**) was observed close to school buildings – which are both Narra.	ESS 3

3.1.2 Water

Potential Environmental and Social Impacts	ESS
Surface Water Pollution. The generated demolition wastes, construction wastes, and domestic solid wastes during the construction phase may cause pollution to the nearby water bodies if not properly managed. Since heavy equipment will also be used, another concern during the construction is accidental oil spills. Domestic wastewaters will also be generated by the construction workers. Untreated wastewater can contaminate water supplies and endanger the health of the surrounding communities.	ESS 2 ESS 3 ESS 4

3.1.3 Air Quality, Noise, and Vibration

Potential Environmental and Social Impacts	ESS
Dust Emissions. Retrofitting activities involving excavation activities and roughening of concrete substrate will generate dust especially during dry season. Dust can also be produced during loading and offloading of materials, Dust can cause nuisance, reduction of visibility and may cause respiratory diseases.	ESS 2 ESS 3 ESS 4
Gaseous Emissions. Gaseous emissions from heavy equipment and generators used in the construction site will produce impacts on the ambient air quality. An increased concentration of carbon monoxide (CO), sulfur dioxide (SO2), and nitrogen dioxide (NO2) may be realized in the ambient air. Nevertheless, heavy equipment must be kept in prime condition at standard air and fuel ratio in order to limit gaseous emissions, particularly total suspended particulates (TSP). Diesel fuel products emit TSP, SO2 and nitrogen oxides (NOx) due to the hydrocarbon and sulfur content.	ESS 2 ESS 3 ESS 4
Noise and Vibration. Noise and vibration may also be generated during excavation, and concrete chipping of targeted building structural elements. Although construction works are expected to occur regularly, these impacts may be considered temporary. The noise and vibration may affect the nearby school buildings, households, establishments, and offices during the retrofitting works.	ESS 2 ESS 3 ESS 4

3.1.4 People

Potential Environmental and Social Impacts	ESS
Traffic Congestion. The delivery of construction equipment, crossing of heavy vehicles and delivery trucks will affect the traffic condition of the project sites.	ESS 4
Peace and Order. Presence of outsiders (i.e., migrant workers) can bring new influence in the area, especially to the learners of Ricardo P. Cruz Sr. Elementary School.	ESS 4
Gender Related Issues. Issues concerning gender-based violence, sexual harassment, and sexual exploitation and abuse due to the presence of outsiders (workers) in Ricardo P. Cruz Sr. Elementary School.	ESS 2 ESS 4
Health and Safety. Since the project is within the school premises, construction may pose danger to the safety and health of students and school personnel. Potential health and safety risks may also arise from dust, pollutants, noise, and vibration to be generated from construction activities.	ESS 2 ESS 4
Disruption of Student Learning. Due to the nature of the project, the current building occupants will be forced to vacate the building for their safety. School equipment such as cabinets, chairs, tables, and elective-specific equipment will also be relocated. This relocation may have an impact on the learning outcomes of the students if not properly managed.	ESS 1 ESS 4 ESS 5

Generation of Local Employment. The project is predicted to have a favorable influence on the local economy of the host community, given the additional employment opportunities that will be accessible to the local workforce.	ESS 1

4 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Table 4-1 presents the prepared Environmental and Social Management Plan (ESMP) for Ricardo P. Cruz Sr. Elementary School.

Table 4-1: Environmental and Social Management Plan for Ricardo P. Cruz Sr. Elementary School

POTENTIAL RISKS AND IMPACTS	RISK CATEGORY	MITIGATION MEASURES	MONITORING PARAMETERS	COST OF MITIGATION/ MONITORING	INSTITUTIONAL ARRANGEMENT	
					IMPLEMENTATION	SUPERVISION
A. Pre-Construction Phase						
Failure to comply with National Laws and Regulations resulting to delay of the project implementation	**LOW**	• Acquisition of applicable permits and licenses - Certificate of Non-Coverage (CNC) - Building Permit - Electrical Permit - Mechanical Permit - Sanitary Permit - Fire Safety Inspection Certificate (FSIC) - Occupancy Permit - Tree Cutting/Trimming Permit - Temporary Hazardous Waste Generator ID	• Submission of complete requirements for processing all permits	Permits from the local government are free of charge. Refer to item "Loss of Vegetation" for the tree cutting permit (DENR and PCA).	• Contractor	• DPWH BSPMC-UPMO • Ricardo P. Cruz Sr. Elementary School Administration • Third-party construction supervision firm
Disruption of student learning due to temporary relocation of affected school classrooms: Particularly, affecting the building occupants: **DepEd Standard School Building** Learners: 400 (7% of 5,656) School Personnel: 12 (6% of 206)	**HIGH**	• Coordination with Taguig City LGU for the Traffic management, traffic control plan, and the parking availability during material deliveries. • Coordinate the schedule of activities/ program of works with the administration of the school: **School Building** / **Duration (Months)**: DepEd Standard School Building / 3 • Preparation and implementation of temporary student and facilities relocation plan with the approval of the DepEd Schools Division Office. • The school will utilize a Face-to-Face Learning Delivery Modality (Please refer to **ANNEX B** to see the student and facilities relocation plan.) • Establishment of the grievance redress mechanism with designated focal person. • Post billboard containing project information and contact information of complaint focal person.	• Minutes of meetings • Site layout • Temporary relocation plan • Program of works/schedule • Updated site-specific ESMP/ ECOP and other applicable safeguard instruments • CHSP Project billboard • Periodic monitoring of grievance redress mechanism	Please refer to **ANNEX B** for an estimate of the cost associated with the student and facilities relocation plan requirements.	• DPWH BSPMC-UPMO • Contractor	• DPWH BSPMC-UPMO • Ricardo P. Cruz Sr. Elementary School Administration • Third-party construction supervision firm
Disruption of operation of facility due to temporary relocation of other building utilities Specifically, the Project will impact the following facilities: **DepEd Standard School Building** **8 Rooms:** Classrooms	**HIGH**	• Coordination with Taguig City LGU for the Traffic management, traffic control plan, and the parking availability during material deliveries. • Coordinate the schedule of activities/ program of works with the administration of the school: **School Building** / **Duration (Months)**: DepEd Standard School Building / 3	• Minutes of meetings • Site layout • Temporary relocation plan • Inventory of equipment and supplies • Program of works/schedule • Updated site-specific ESMP/ ECOP and other applicable safeguard instruments • CHSP Project billboard	Please refer to **ANNEX B** for an estimate of the cost associated with the student and facilities relocation plan requirements. Please refer to **ANNEX C** for the Traffic Management Plan.	• DPWH BSPMC-UPMO • Contractor	• DPWH BSPMC-UPMO • Ricardo P. Cruz Sr. Elementary School Administration • Adjacent communities (Brgy. New Lower Bicutan) • Third-party construction supervision firm

POTENTIAL RISKS AND IMPACTS	RISK CATEGORY	MITIGATION MEASURES	MONITORING PARAMETERS	COST OF MITIGATION/ MONITORING	INSTITUTIONAL ARRANGEMENT	
					IMPLEMENTATION	SUPERVISION
Others: 1 SBM Room		• Preparation and implementation of temporary student and facilities relocation plan with the approval of the DepEd Schools Division Office. (Please refer to **ANNEX B** to see the student and facilities relocation plan.) • Establishment of the grievance redress mechanism with designated focal person. • Post billboard/ tarpaulin containing project information and contact information of complaint focal person. • Verify if the drainage is working prior to the construction activities.	• Periodic monitoring of grievance redress mechanism			
Establishment of workers' camp and staging area which may result to the increase in crime rate within the school	**LOW**	• The school administration will not allow to construct a barracks within the school perimeter. • The workers will only be allowed within the school building for retrofitting. • Rest area of the workers will be situated within the safe and undisturbed floors within the building subject for retrofitting. • Provision of workers' pass • A designated security guard will be provided by the Contractor	• Monitoring of the workers' pass • Checking of the staging area	Part of the Construction Management cost	• Contractor	• DPWH BSPMC-UPMO • Ricardo P. Cruz Sr. Elementary School Administration • Third-party construction supervision firm
Disruption on the foot traffic and road traffic within the vicinity due to the retrofitting activity (Delivery of materials)	**MEDIUM**	• Coordination with Taguig City LGU and Brgy. New Lower Bicutan LGU for the Traffic management • Installation of the proposed traffic measures such as signs, markers and lighting for pedestrian (learners and school personnel)	• Record or logbook of traffic management • Checking of the installed traffic markers, signage, and other measures	Please refer to **ANNEX C** for the Traffic Management Plan.	• DPWH BSPMC-UPMO • Contractor	• DPWH BSPMC-UPMO • Adjacent communities (Brgy. New Lower Bicutan)
B. Construction Phase						
Disruption of classes (student learning), neighboring homes, and businesses due to noise and vibration from hammering and drilling activities during concrete chipping and stripping down of targeted walls/ ceilings/ beams/ columns	**HIGH**	• Conduct noise monitoring hourly during the conduct of the retrofitting works using a standard decibel reader at the location of the nearest receptors. • Provide noise/ acoustic barriers to barricade the construction area and shield sensitive receptors. • Strictly prohibit heavy noise generating activities beyond 9:00PM, particularly in areas near residential areas and sensitive receptors. • Require workers to properly wear PPEs such as boots with anti-vibration properties, impact gloves with thick padding, and ear protection. • Inspection of tools regularly to ensure that these are not damaged nor worn out. • Keep a daily record of noise and ensure mitigation measure will be applied when exceedance is being observed.	• Check secure barriers • Check work schedule • Check if workers have PPEs • Check tools used in hammering and drilling activities • Check complaints received • Ensure that threshold limit values for noise are being observed: **Area** / **dB(A)** Schools Daytime: 50 Morning/Early Evening: 45 Nighttime: 40 Residential area Daytime: 55	• Procurement of a noise monitoring equipment: 1 unit: PHP 15,000 • Provision for noise barriers: Part of construction management cost.	• Contractor	• DPWH BSPMC-UPMO • Ricardo P. Cruz Sr. Elementary School Administration • Adjacent communities (Brgy. New Lower Bicutan)

POTENTIAL RISKS AND IMPACTS	RISK CATEGORY	MITIGATION MEASURES	MONITORING PARAMETERS	COST OF MITIGATION/ MONITORING	INSTITUTIONAL ARRANGEMENT	
					IMPLEMENTATION	SUPERVISION
		• Monitor complaints from the building end-user and communities.	Morning/Early Evening: 50 Nighttime: 45			
Disruption of classes (student learning), neighboring homes, and businesses due to noise from use of heavy equipment	**MEDIUM**	• Use adequate muffler/ silencer for heavy equipment • Install shields on stationary equipment where considerable noise reduction is required Use less noisy or newer equipment and conduct regular maintenance offsite	• Hourly conduct of noise monitoring during the conduct of the retrofitting works • Check if equipment has mufflers/silencers • Ensure that threshold limit values for noise are being observed: **Area** / **dB(A)** Schools Daytime: 50 Morning/Early Evening: 45 Nighttime: 40 Residential area Daytime: 55 Morning/Early Evening: 50 Nighttime: 45	Part of construction management cost.	• Contractor	• DPWH BSPMC-UPMO • Third-party construction supervision firm
Disruption of classes (student learning), neighboring homes, and businesses due to noise from cutting of steel	**MEDIUM**	• Deliver fabricated steel plates and cut/ bend reinforcing steel to desired size to minimize cutting activities on site. • Require workers to wear ear plugs.	• Check materials delivery • Check if workers' have ear plugs • Hourly conduct of noise monitoring during the conduct of the retrofitting works • Ensure that threshold limit values for noise are being observed: **Area** / **dB(A)** Schools Daytime: 50 Morning/Early Evening: 45 Nighttime: 40 Residential area Daytime: 55 Morning/Early Evening: 50 Nighttime: 45	Part of the construction management cost.	• Contractor	• DPWH BSPMC-UPMO • Third-party construction supervision firm
Noise from delivering construction supplies causes disturbances in the residential area at night	**MEDIUM**	• Coordination with Brgy. New Lower Bicutan LGU for the Traffic management • Keep a daily record of noise and ensure mitigation measure will be applied when exceedance is being observed. • Monitor complaints from the communities.	• Conduct of noise monitoring during the conduct of the delivery of construction materials • Ensure that threshold limit values for noise are being observed:	• Procurement of a noise monitoring equipment: 1 unit: PHP 15,000	• Contractor	• DPWH BSPMC-UPMO • Third-party construction supervision firm

<table>
<tr><th rowspan="2">POTENTIAL RISKS AND IMPACTS</th><th rowspan="2">RISK CATEGORY</th><th rowspan="2">MITIGATION MEASURES</th><th rowspan="2">MONITORING PARAMETERS</th><th rowspan="2">COST OF MITIGATION/ MONITORING</th><th colspan="2">INSTITUTIONAL ARRANGEMENT</th></tr>
<tr><th>IMPLEMENTATION</th><th>SUPERVISION</th></tr>
<tr><td></td><td></td><td></td><td><table><tr><th>Area</th><th>dB(A)</th></tr><tr><td>Residential area</td><td></td></tr><tr><td>Daytime</td><td>55</td></tr><tr><td>Morning/Early Evening</td><td>50</td></tr><tr><td>Nighttime</td><td>45</td></tr></table></td><td></td><td></td><td></td></tr>
<tr><td>Potential loss of vegetation (i.e., trees), particularly the trees near/ adjacent the building:

2 Trees</td><td>HIGH</td><td>• A tree cutting or trimming permit shall be secured from the DENR NCR.
• Replacement of trees in accordance with the DENR-DPWH Joint Memorandum Circular No. 01, s. 2014
• Replant or preserve (marcotting) the tree/ sapling.</td><td>• Conditions of the Tree Cutting or Trimming Permit including but not limited to:

1. Only the identified/ inventoried trees shall be cut.
2. Prior to cutting operation, a signboard with dimension of 4 ft by 8 ft shall be installed in conspicuous place to inform the public that the activity is authorized by the DENR. The signage must indicate the name of the Permittee, the purpose, the activity to be undertaken and number of trees to be cut.
3. The Permittee is required to replace each tree to be cut with at least 100 seedlings to be donated by the Permittee to DENR.
4. Strictly no cutting shall be undertaken without the presence of DENR and/or LGU representatives.
5. A terminal report with photo-documentation shall be submitted to the DENR upon completion of the cutting operation or expiration of the Permit.</td><td>The cost for processing a tree cutting permit:

<table><tr><td>2 trees</td><td>PHP 176,000</td></tr></table></td><td>• Contractor</td><td>• DPWH BSPMC-UPMO
• Third-party construction supervision firm</td></tr>
<tr><td>Dust from excavation, concrete chipping, and drilling affecting the health of the students, school personnel, and the residential area.</td><td>HIGH</td><td>• Provide nets/sheeting and temporary screens for chipping/drilling on the exterior surface of the building.
• Conduct water spraying to suppress dust and minimize discomfort to nearby residents and occupants in the compound.
• Provide impermeable dust barriers and use air vacuum pumps and ventilation exhaust fans for indoor concrete chipping and drilling.
• Require workers to wear dust mask and proper PPEs.</td><td>• Check dust control measures</td><td>Part of the construction management cost.</td><td>• Contractor</td><td>• DPWH BSPMC-UPMO
• Third-party construction supervision firm</td></tr>
</table>

POTENTIAL RISKS AND IMPACTS	RISK CATEGORY	MITIGATION MEASURES	MONITORING PARAMETERS	COST OF MITIGATION/ MONITORING	INSTITUTIONAL ARRANGEMENT	
					IMPLEMENTATION	SUPERVISION
		• Regular clean-up of debris.				
Air pollution caused by emissions from on-site material delivery poses a health concern to the students and school personnel, including respiratory ailments.	**LOW**	• Prohibit idling of vehicles while unloading materials at the site. • Ensure that the vehicles used for delivery shall be properly maintained to prevent smoke-belching. • Ensure that trucks delivering construction materials have covers. • Maintenance of delivery trucks/vehicles shall not be done onsite.	• Monitor delivery vehicles	Part of construction management cost.	• Contractor	• DPWH BSPMC-UPMO • Third-party construction supervision firm
Generation of non-hazardous solid waste/construction debris: Specifically, the Project will generate: **DepEd Standard School Building** Removal of obstructions (plywood ceiling): ~48.00 cu.m. Partial demolition of walls, slabs, beams, floor finishes: ~13.00 cu.m.	**MEDIUM**	• Provide segregation receptacles/bins for different types of solid waste and debris. • Collect recyclable materials such as wires, pipes, rebars, and other pieces of material in separate bins for possible reuse or selling to a recycler. • Avoid extended accumulation of wastes at the site and arrange for collection and offsite disposal of residual wastes in an LGU-approved disposal site. • Prohibit burning of wastes. • Conduct daily cleaning of the work areas after a day's work by clearing of waste materials and obstructions such as exposed nails, broken glass, etc. • Daily collection/ hauling of construction debris	• Monitor non-hazardous solid waste management measures	The initial cost for the provision of receptacle bins and other waste containers: Ricardo P. Cruz Sr. ES: PHP 125,000	• Contractor	• DPWH BSPMC-UPMO • Third-party construction supervision firm
Generation of construction wastewater from washing of equipment and tools which contains concrete mixture. This may cause clogging of canals or drainage in the area.	**MEDIUM**	• The Contractor shall provide containers for excess concrete and concrete wash water to prohibit workers discharging this waste in streets and/or local drainage. • The washout containers have to be transported and treated by an accredited Treatment, Storage and Disposal (TSD) Facility	• Monitor the implementation of wastewater (with concrete) disposal.	Provision of washout container: Ricardo P. Cruz Sr. ES: PHP 50,000	• Contractor	• DPWH BSPMC-UPMO • Third-party construction supervision firm
Soil contamination due to generation of hazardous waste such as empty containers of paints, solvents, epoxy resins, adhesives, degreasers, oil rags, and busted lamps	**MEDIUM**	• Designate a hazardous waste collection area at the work site. • Provide segregate bins/receptacles for the different types of hazardous wastes and affix labels on the bins. • Register as hazardous waste generator with the DENR. • Commission the services of a DENR-registered hazardous waste transporter and treater • Complete the Hazardous Waste Manifest. • Secure the Certificate of Treatment (COT) from the DENR-recognized treater.	• Monitor implementation of hazardous waste management measures	The initial cost for processing a temporary Hazardous Waste Generator ID: Ricardo P. Cruz Sr. ES: PHP 10,000	• Contractor	• DPWH BSPMC-UPMO • Third-party construction supervision firm

POTENTIAL RISKS AND IMPACTS	RISK CATEGORY	MITIGATION MEASURES	MONITORING PARAMETERS	COST OF MITIGATION/ MONITORING	INSTITUTIONAL ARRANGEMENT	
					IMPLEMENTATION	SUPERVISION
Considering that Ricardo P. Cruz Sr. ES is approximately 2.13 kilometers away from Taguig River, soil runoff may cause clogging of canals and induce localized flooding, particularly during the rainy season.	**MEDIUM**	• Minimize earthworks during rainy months. • Provide silt/sediment traps around mounds of excavated soil and aggregate materials. • Minimize stockpiles by only ordering the supplies needed. • Stockpiles of aggregates and sand should be placed inside the rooms under construction. • In exceptional cases, materials stockpile will be allowed in an open area of the building compound within a couple of days, subject to approval of the building administrator. In such case, materials stockpile should be secured, provided with silt traps and with visible signs. The stockpile site should be at least 10 meters away from any canal or surface water. • Consider using sandbags to redirect rainwater runoff. • Consider putting aggregates on sacks for easy conveyance, transfer, and mixing of materials. • Cover cement bags with tarpaulin. • Prohibit washing of cement mixers and other construction vehicles at the site. • Conduct daily cleaning and sweeping of the construction site and periodically remove soils, stones, and wastes from gutters, drainage canals and ditches.	• Monitor implementation of drainage management measures • Monitor ponding of water.	The initial cost for drainage management: Ricardo P. Cruz Sr. ES: PHP 15,000	• Contractor	• DPWH BSPMC-UPMO • Third-party construction supervision firm
Generation of domestic sewage resulting to water pollution.	**HIGH**	• Provide temporary toilet facilities or portable toilets for workers (male and female) with available water and handwashing facilities. Estimated number of portalets: 2 • Keep the portalets clean and sanitary at all times. • Locate the portalets at least 30 meters from an existing water supply well, canal, or surface water body. It should not be located in a place where its odor can reach busy areas of the school premises. • Ensure collection at least weekly or once contents are almost 2/3 full • Hauling of wastewater from the portalets shall be done by third party contractor with license/permit from the LGU and with valid Discharge Permit for wastewater treatment facility.	• Monitor domestic sewage management and sanitation at the site	The initial cost for the provision of portalets: Ricardo P. Cruz Sr. ES: PHP 60,000	• Contractor	• DPWH BSPMC-UPMO • Third-party construction quality assurance firm

POTENTIAL RISKS AND IMPACTS	RISK CATEGORY	MITIGATION MEASURES	MONITORING PARAMETERS	COST OF MITIGATION/ MONITORING	INSTITUTIONAL ARRANGEMENT	
					IMPLEMENTATION	SUPERVISION
		Note: at least one (1) portalet for 60 workers where the number of male workers exceeds 500 (as per IRR- Industrial Hygiene, PD 856 Amending Administrative Order 111 Series of 1991) Note: at least one (1) portalet for 25 workers where the number of male workers exceeds 100 (as per IRR- Industrial Hygiene, PD 856 Amending Administrative Order 111 Series of 1991)				
Delivery of aggregate materials to the site that may cause spillage	**LOW**	• Cover materials with tarpaulin when in transit. • Aggregates should be wet and moist when in transit.	• Monitor if the measure is implemented by delivery personnel • Check complaints	Part of material delivery cost; monitoring cost is part of construction management cost	• Contractor	• DPWH BSPMC-UPMO • Third-party construction quality assurance firm
Road congestion in areas with narrow access roads leading to the site	**MEDIUM**	• Schedule the delivery of materials during non-peak hours. • Prohibit parking of construction vehicles on the road near the site. • Coordinate with the Barangay LGU regarding the implementation of traffic management in the area.	• Monitor if the measure is implemented by delivery personnel • Check complaints	Part of material delivery cost; monitoring cost is part of construction management cost	• Contractor	• DPWH BSPMC-UPMO • Third-party construction quality assurance firm
Gender related issues may arise due to the presence of outsiders (workers) inside the school campus.	**MEDIUM**	• SEA-SH orientation and awareness raising training for the workers. All workers shall sign a Code of Conduct regarding SHA-SH before the construction starts. • SEA/SH Awareness enhancement training for school staff and students, especially female staff and students. GRM Awareness training should be also included. • Project workers should uphold a 'zero tolerance' approach to SEA/SH. • Involvement of the GAD Focal Person of Ricardo P. Cruz Sr. ES in the Grievance Redress Committee. • Through the GRM, potential victims can safely and confidentially report SEA/SH case without fear of discrimination/judgement. • Ingress and egress for construction workers should be physically separated from those used by students, teachers, and school personnel. If only one access point exists, construction workers should enter and exit at a different time with the students and school personnel. Workers are not allowed to mingle with the students and school personnel	• Minutes of meetings • Periodic monitoring of grievance redress mechanism	The indicative cost for trainings: Ricardo P. Cruz Sr. ES: PHP 20,000	• Contractor	• DPWH BSPMC-UPMO • Ricardo P. Cruz Sr. Elementary School Administration

POTENTIAL RISKS AND IMPACTS	RISK CATEGORY	MITIGATION MEASURES	MONITORING PARAMETERS	COST OF MITIGATION/ MONITORING	INSTITUTIONAL ARRANGEMENT	
					IMPLEMENTATION	SUPERVISION
Risks and hazards to health and safety of workers	**HIGH**	• Implement a Construction Safety and Health Program (CSHP) in compliance with the DOLE OSH guidelines. • Ensure all workers undergo the mandatory workers' OSH orientation. • Designate an on-site Safety Officer duly accredited by DOLE. • Ensure that workers who will perform tasks at heights complete the Working at Heights (WAH) Training. • Assign a contact person on site to receive/respond to complaints from the barangay/community; provide the name/contact number of the responsible person to the barangay. • Strictly require workers to properly wear PPEs such as hard hats, gloves, safety belts, safety shoes, and googles, appropriate to the task. • Provide welders with the appropriate PPEs; ensure ventilation in the work area involving welding and painting activities. • Post safety signs/reminders in strategic places to ensure visibility. • Provide sufficient lighting at night. • Provide barricades and safety barriers particularly at excavations and stockpiles of aggregates to prevent unauthorized personnel (students and school staff) from entering the project site • Provide a first-aid kit at the site to ensure immediate emergency medical attention in case of accidents • Strictly no unauthorized person to enter the work site. • Comply with the COVID-19 health and safety protocols in compliance with DPWH DO No. 38, series of 2020 and other instructions from the IATF.	• Monitor implementation of the CSHP	Part of the construction management cost.	• Contractor	• DPWH BSPMC-UPMO • Third-party construction quality assurance firm
Risks and hazards to health and safety of students and school personnel	**HIGH**	• Provide barricades and safety barriers particularly at excavations and stockpiles of aggregates to prevent unauthorized personnel (students and school staff) from entering the project site • Strictly no unauthorized person to enter the work site.	• Monitor implementation of the CSHP	Part of the construction management cost.	• Contractor	• DPWH BSPMC-UPMO • Third-party construction quality assurance firm
Ergonomic hazards from carrying/lifting heavy materials and equipment	**HIGH**	• Lifting heavy equipment, and materials should be done by lifting machine, using stable pulleys, and mechanism approved by the engineers. • Always ensure stability in the lifting mechanism.	• Monitor implementation of the CSHP	Monitoring cost is part of construction management cost	• Contractor	• DPWH BSPMC-UPMO • Third-party construction quality assurance firm

POTENTIAL RISKS AND IMPACTS	RISK CATEGORY	MITIGATION MEASURES	MONITORING PARAMETERS	COST OF MITIGATION/ MONITORING	INSTITUTIONAL ARRANGEMENT	
					IMPLEMENTATION	SUPERVISION
		• Avoid areas where lifting of materials is being conducted.				
Unsafe scaffoldings and falseworks may compromise safety of workers, students, and school personnel.	**HIGH**	• Scaffolding should be strongly fitted using standard hinges, jacks, and clamps. • Provide clear opening and walk through access through the scaffolding to avoid any risk of head bump and trip over while moving around. • Ensure that unauthorized individuals (students and school personnel) will not have access to the construction site	• Monitor implementation of the CSHP	Monitoring cost is part of construction management cost	• Contractor	• DPWH BSPMC-UPMO • Third-party construction quality assurance firm
Welders are exposed to welding fumes that may lead to illness (respiratory diseases) and hazards such as heat, flame/fire, burns, and radiation	**HIGH**	• Hire only licensed NC2 welders • Provide ventilation where welding and hot works are performed. • Provide ventilation fans to diffuse oxides from welding machine away from the welder. • Ensure that eye wash sprinkler is provided. • Welding is prohibited in rooms with combustible materials or near explosives, flammable liquids, dusts, fumes. Or vapors. • Ensure that workers have complete PPEs (i.e., mask, goggles, helmets or head shields fitted with suitable filter lenses, hand shields, fire-resistant aprons, gloves and boots) during the activity. • Provide a portable fire extinguisher at the place where welding operations is undertaken.	• Monitor implementation of the CSHP	Part of the construction management cost.	• Contractor	• DPWH BSPMC-UPMO • Third-party construction quality assurance firm
Workers may be exposed to paint fumes that can cause irritation of the nose, throat, and lungs	**HIGH**	• Ensure proper ventilation in work area. • Provide ventilation fans or air purifiers to diffuse paint fumes while painting. • Ensure that workers are not suffering from any lung diseases. • Consider shifting schedules of painters to prevent exhaustion and longer exposure.	• Monitor implementation of the CSHP	Part of the construction management cost.	• Contractor	• DPWH BSPMC-UPMO • Third-party construction quality assurance firm
Suspension and/or limited retrofitting activities due to extreme weather conditions	**MEDIUM**	• The suspension of retrofitting works shall follow the work suspension order from the national government (i.e., typhoon, heavy rains, and/or other natural calamities). • The Contractor can suspend work with the approval of the PIU.	• Monitor if the measure is implemented • Monitor weather updates • Monitor the public service announcements from the national government and/or Taguig City LGU	Part of the construction management cost.	• Contractor	• DPWH BSPMC-UPMO • Third-party construction quality assurance firm

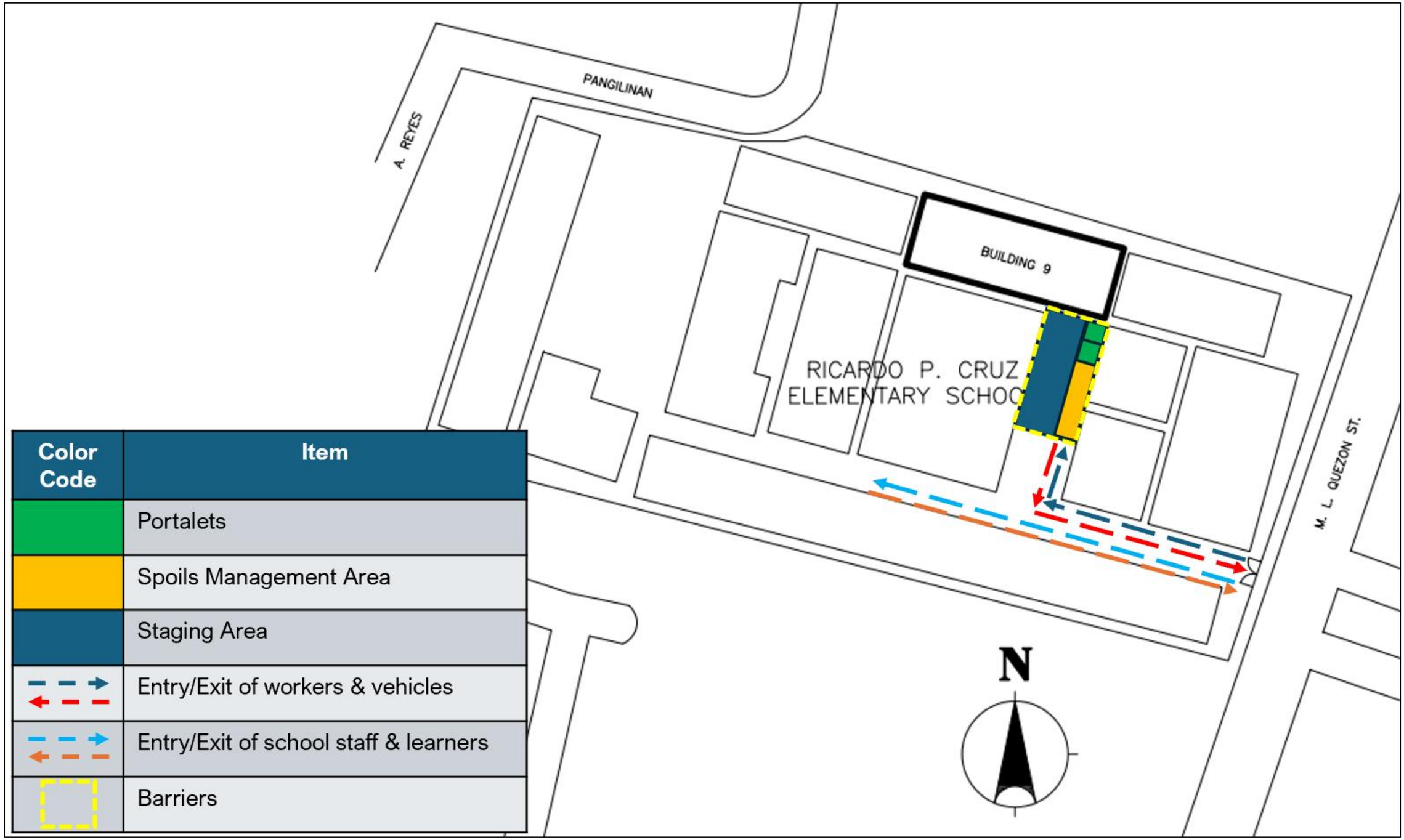


Figure 4-1: Location of Construction Activities and Proposed Mitigation Measures

5 ESMP IMPLEMENTATION

5.1 INSTITUTIONAL PLAN

5.1.1 DPWH-BSPMC-UPMO

The implementation of the ESMF will be consistent and aligned with the project implementation arrangements to ensure that identification and mitigation of risks are incorporated efficiently throughout subproject implementation. This includes the clustering of buildings to be retrofitted where screening and assessments will be programmed according to how the overall project will be grouping the contracts/construction of the buildings.

Safeguards functions will be carried out by designated DPWH staff, through institutionalized safeguards units that perform these functions for World Bank (and other development partners) funded projects. In addition, DPWH BSPMC-UPMO which will be responsible for field monitoring of retrofitting works from pre-works to completion/ acceptance. These functions will be carried out as an in-kind contribution of DPWH staff time and in coordination with the Construction Supervision Consultant, in accordance with the established institutional structure that is utilized for largescale civil works projects (including the 2018-2020 retrofitting program).

Generally, oversight for the Project will be by the DPWH BSPMC-UPMO. Particularly, all pre-construction activities of the project will be managed by the Project Preparation-Technical Working Group (TWG) and the Project Implementing Unit (PIU) will supervise the implementation of the project and subprojects. The DPWH BSPMC-UPMO is the implementing office for the subprojects. shows the proposed organizational set-up for the preparation and implementation of the PSRRRP.

The Environmental and Social Safeguards Unit (ESSU) was established to guarantee that the ESMF and site specific ESMP are properly and strictly implemented throughout the project cycle. The ESSU will be staffed by designated Environmental and Social Specialists as internal evaluators and specialists from other interested parties (stakeholders like DepEd) as external evaluators. The Implementing Offices will also assign EHS/safeguards focal persons while the contractor will be required to appoint a PCO or EHS Officer that will be the focal person on safeguard matters.

Table 5-1 summarizes the tasks and institutional responsibilities for the project and subproject safeguards implementation. **Figure 5-1** shows the proposed organizational set-up for the implementation of the PSRRRP-ESMP.

Table 5-1: Tasks and Responsibilities for Safeguard Implementation

SAFEGUARD ACTIVITIES	TASK DESCRIPTION	FORM/ DOCUMENT	RESPONSIBILITY	SUPERVISION
Implementation	• Prepare site-specific ESMP. • Monitor and record implementation of ESMP/ECOP	• Site-specific ESMP/ECOP	• Contractor	• DPWH-BSPMC-UPMO
Monitoring and Evaluation	• Evaluate the implementation and outcomes of ESMP. • Recommends modification if necessary.	• Site-specific ESMP/ECOP	• BSPMC-UPMO • Contractor	• DPWH-BSPMC-UPMO

5.1.1.1 Contractor

The contractor shall:

a) Have an overall responsibility for project coordination, implementation, and liaison with the PIU;

b) Hire qualified and experienced personnel for the following positions:

a. EHS Officer

i. Responsible for managing the environmental and safety impacts of the contractor;

ii. Ensure compliance with WB safeguards and applicable Philippine legislations and guidelines;

iii. Ensure that all workers are oriented with all environmental and safety requirements, including plans and procedures;

iv. Ensure implementation of the site-specific ESMP;

v. Provide regular monitoring reports and updates to ESSU; and

vi. In coordination with the ESSU, update the ESMP if there are better measures that can be applied to the project.

b. Safety Officer

i. Compliance with the provisions of Republic Act No. 11058 pertaining to occupational safety and health (OSH) and DOLE regulations;

ii. Organize regular health and safety training sessions/toolbox meetings;

iii. Conduct investigation and reporting for any workplace accidents or injuries;

iv. Conduct regular workplace safety inspections and equipment checks; and

v. Implement emergency procedures as needed.

c. Social Officer

i. Responsible for managing the social impacts of the contractor;

ii. Ensure that all workers are oriented with the social requirements, including plans and procedures;

iii. Conduct meetings for project updates and developments with identified stakeholders for the project;

iv. Establish database pertaining to the grievance redress mechanism (GRM);

v. Provide regular monitoring reports and updates to ESSU; and

vi. In coordination with the ESSU, update the ESMP (Social) if there are better measures that can be applied to the project.

d. Pollution Control Officer

i. Compliance with the provisions of DENR rules and regulations;

ii. Preparation and submission of environmental reports and permits to DENR;

iii. Conduct environmental monitoring detailed in the ESMP;

iv. Identify potential causes and implement corrective measures if there samples that did not meet the standards;

v. Provide IEC on pollution prevention practices, waste management, and hazardous materials handling; and

vi. Ensure proper accounting, storage, handling, transport, and disposal of hazardous wastes.

5.1.2 DepEd Schools Division Office (SDO) of Taguig City

The SDO of Taguig City shall maintain close coordination with DPWH-BSPMC UPMO, ESSU with regards to the project development and assist the School Administration with the implementation of the student relocation plan.

5.1.2.1 Ricardo P. Cruz Sr. Elementary School

The School Administration of Ricardo P. Cruz Sr. Elementary School shall cooperate with the SDO of Taguig City, DPWH-BSPMC UPMO, ESSU, and contractor with regards to project development and implementation of the ESMP.

The School Administration shall also ensure its participation and improve membership of existing committees to address specific concerns (i.e., grievances, gender-based violence (GBV), sexual exploitation and abuse, and sexual harassment (SEA-SH), traffic management, among others) that may arise during project implementation.

5.1.2.2 Stakeholders

The project stakeholders, including the Barangay Local Government Unit (BLGU) of New Lower Bicutan, School Parent-Teachers Association (SPTA), and Supreme Secondary Learner Government (SSLG) shall:

a) Attend and participate in project-related meetings;

b) Report possible violations or non-compliances following the project GRM;

c) Provide feedback on the implementation of the ESMP; and

d) Provide recommendations to improve the implementation of the ESMP.

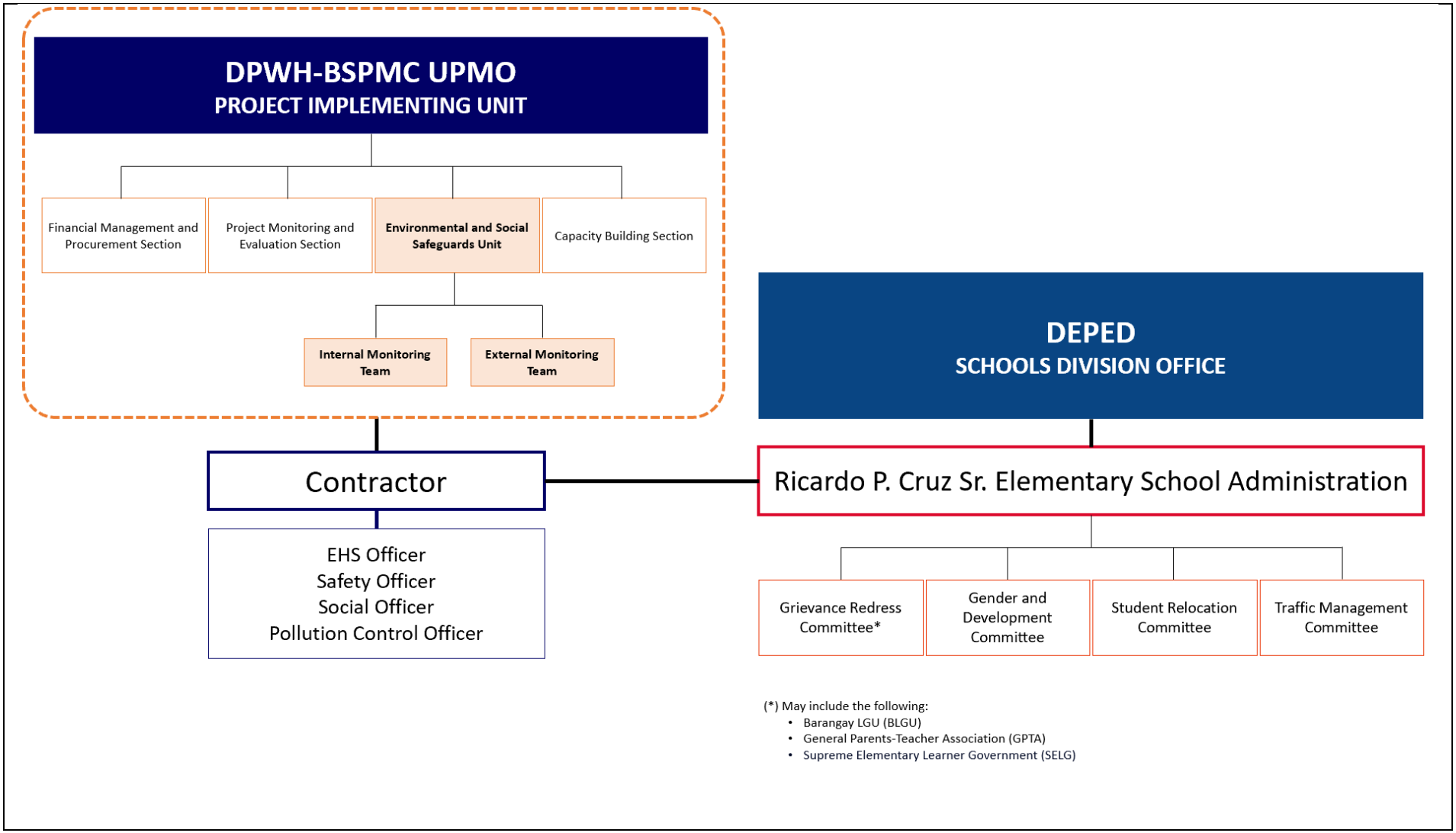


Figure 5-1: Ricardo P. Cruz Sr. Elementary School PSRRRP Organizational Structure

5.2 MONITORING AND REPORTING

Contractor Monitoring and Reporting. A project daily activity logbook/construction logbook will be maintained at the site to detail the daily activities at the site. The contractor will be tasked to prepare the logbook that contains information on the date, weather/weather chart, manpower, equipment, construction activities for the day, site visitors, issues and problems encountered, recommendations and actions taken, complaints received, and accidents and safety incidents. The daily construction logbook will be checked by the PIU during routine monitoring.

PIU Monitoring. Timely and effective monitoring is fundamental to ensure compliance and facilitate adaptive management. The monitoring of implementation of the mitigating measures by the contractor as contained in the site-specific ESMP shall be the responsibility of the PIU, to be supervised by the PSRRRP safeguards team. The PIU, with assistance of a third-party construction supervision firm shall routinely monitor subproject activities to check the progress of works, ensure that the works are in accordance with plans and specifications, and if environment, health and safety measures as embodied in the ESMP are being properly implemented. The PIU through the Safeguards Monitoring Section will also evaluate onsite conditions and inspect work camps, materials yard, and waste storage and disposal site. The PIU will check on workers' health and safety and the overall sanitation and housekeeping practices at the worksites and meet with the school administration and adjacent community to inquire on any issues that they may have about the subproject activities. The Environment and Social Safeguard Site Instruction Form and Inspection Checklist will be filled out by the PIU to document findings during the site visit. Adverse findings during site inspections will be relayed immediately to the contractor through the site instruction so that corrective actions are implemented and closely monitored.

The Contractor will submit to PIU monthly project status report containing information on the progress of project construction, materials logbook, weather chart, together with compilation of monitoring charts, status reports, environment and social safeguard site instructions and inspection checklists, minutes of meetings, and correspondences. The PIU will upload the project monitoring information at DPWH's Project Contract Management Application (PCMA) online monitoring system. The PCMA allows geotagging of a project.

At the end of the construction activities, monitoring will be conducted to check whether the site has been satisfactorily restored. The site should be free of pollution and hazards left over from construction. The result of the inspection is critical because it may become the basis whether the project may be turned over by contractor or not.

5.3 STAKEHOLDER ENGAGEMENT PLAN

The Stakeholder Engagement Plan (SEP) was formulated to ensure that stakeholders are aware of the risks and implications of the project, as well as the mitigation measures in place to address any detrimental impact of the project on stakeholders and communities.

During the project implementation, consultations with subproject-specific stakeholders, such as the school administrations, neighboring communities, pertinent local government units, impacted building users, such students, and small companies or concessionaires. Consultations will take place during project execution. Discussions will center on social and environmental risks unique to the location, along with ways to reduce disruptions to classes and canteen operations.

A. Methods of Engagement

The Project Proponent shall consult the stakeholders in particular subprojects during the project implementation. DepEd will be also consulted to discuss the roles and duties of each agency in the project implementation, to provide updates on its status, and to address any concerns.

To enhance the effectiveness of the engagement process, the following principles will be adhered to:

a. the culture, fundamental human rights, values and traditions of stakeholders are respected in accordance with established legal precedent and accepted practice in the Philippines;

b. stakeholders are treated with sensitivity and respect in terms of their issues, views and suggestions;

c. interaction with stakeholders is meaningful, culturally appropriate (including language, as needed), and is timely, transparent and responsive;

d. vulnerable groups are included in the engagement to assess differential needs and perceptions of stakeholder groups (i.e. men, women, youth);

e. data from stakeholder engagement is incorporated into assessments site-specific environmental and social management and mitigation plans as needed;

f. access to information and disclosure will be ensured to ensure stakeholders are informed about the Project, its potential benefits, impacts and risks, affected peoples' entitlements, GRM channels; and

g. informed consultation without coercion to ensure that communities and households have power of choice to participate, or not, in the Project.

The safeguards officer of the PIU and the implementing office (RO/DEO) will conduct the SEP consultations. The main objectives of the consultations will be to provide an explanation of the Project, its effects, its mitigating measures, and the grievance redress mechanism. On demand, consultations might potentially go over:

a. DPWH earthquake resilience programs to ensure the safety of all public infrastructures;

b. Long-term benefits of seismic retrofitting programs;

c. Facility-based disaster risk awareness;

d. Public awareness campaigns regarding the earthquake safety measures and plans for the Metro Manila in preparation for the "The Big One" Scenario; and

e. Individual survival safety measures.

B. Levels and Frequency of Engagement

The stakeholder engagement activities at different levels during the project implementation are presented in **Table 5-2**.

Table 5-2: Stakeholder Interactions During the Project Implementation

LEVEL OF INTERACTION	STAKEHOLDER	NATURE OF INTERACTION	OBJECTIVE	TIMELINE/ FREQUENCY
National	DepEd Central Office (representative/s)	Coordination Meeting	To discuss the implementation arrangement and timeline of the project.	Before issuance of the Notice to Proceed (NTP) to the contractor.
		Progress Meeting	Update the progress, resolve issues and other concerns about the project.	Quarterly or as necessary
Project Level	School Administrator/s	Project Awareness and Coordination Meeting	To discuss the project's objectives, long-term benefits, implementation arrangement and timeline of the project.	Before project mobilization
		Progress Meeting	Update the progress, resolve issues and other concerns about the project.	Monthly or as necessary
Community Level	Affected Persons i.e. Parents-Teachers Association (PTA), Students, Patients, nearby LGUs, concessionaires, and others	Project Awareness and Consultation	To inform the affected persons of the project benefits, impacts and corresponding mitigating measures; consult with them on issues they may have based on the impacts presented and work out possible ways to address those issues	Before subproject mobilization

5.4 DISCLOSURE AND CONSULTATION

During project implementation, disclosure and consultations will involve subproject-specific stakeholders including administrations of school, nearby communities, relevant LGUs, affected building users such as students, and small businesses or concessionaires. Consultations will be on site-specific social and environmental risks including measures to minimize disruption of classes and canteen services.

The conducted stakeholder consultations for Ricardo P. Cruz Sr. Elementary School are provided below:

Table 5-3: Conducted Disclosure and Consultations

Activity	Schedule and Venue	Attendees
Site Inspection / WB Checklist Interview	16 July 2024 8:00 AM to 04:00 PM Ricardo P. Cruz Sr. Elementary School	• School Administration • DepEd Taguig SDO • DPWH BSPMC-UPMO • ALAI • E&S Consultants
Public Consultation and Focus Group Discussion – Student Relocation Plan	22 January 2025 8:00 to 11:00 AM Ricardo P. Cruz Sr. Elementary School	• Taguig LGU (City Engineering Office) • Ricardo P. Cruz Sr. Elementary School High School Administration • DepEd Taguig SDO • General Parent-Teacher Association • SELG President • Barangay New Lower Bicutan LGU • DPWH Representatives • ALAI • E&S Consultants

The table below summarizes the raised issues, concerns, suggestions and agreements during the consultations.

Table 5-4: Summary of Issues, Concerns, Suggestions, and Agreements

Issues/Concerns/Suggestions	Agreement/s
Environmental Concerns	
Generation of dust and noise	The Contractor will put up a barrier for the building and stockpile as a mitigating measure to ensure that dust and noise will be contained. Daily monitoring of noise (noise meter) and dust (visual) will be conducted.
Water and power consumption of the Contractor	The contractor shall have their own submeters for water and electricity to monitor their own consumption. The payment for the consumed utilities will be paid by the Contractor as part of their contract.
Possible loss of vegetation (ornamental plants and trees)	The consultant recommended that the Contractor restore the vegetation in the school after to the retrofitting activities.
Social Concerns	

Issues/Concerns/Suggestions	Agreement/s
Child Protection	Only the storage for the equipment, the warehouseman and/or security personnel may stay inside the campus. Also, the provided security personnel of the Contractor will assure the safety within the construction site. The Contractor must also ensure that the ingress and egress, and the comfort rooms of the workers are separate from the students and school personnel.
Student relocation / learning continuity	Implementation of school-wide shortened period and blended learning. The inventory, packaging and labelling of supplies and equipment that will be transferred or stored will be done jointly by the school representative of Ricardo P. Cruz Sr. Elementary School and the workforce of the contractor.
Relocation of affected school personnel	
Transfer of equipment within the building	
Safety of the adjacent buildings	The consultant will adopt protection between the buildings. The Contractor shall adopt the strategic approach to ensure the safety of the building and its adjacent buildings.
Other Concerns	
Project implementation	The consultants will consider the suggestion of the school administration. For Ricardo P. Cruz Sr. Elementary School, the contractors can extend the working hours of the retrofitting to finish the retrofitting works based on the provided duration.
Monitoring of the project	The representatives and engineers from the DPWH-Bureau of Construction, and consultant team (ALAI) will visit and monitor the site.
Existing traffic conditions: - Hauling of construction debris - delivery of construction materials	During the construction, the contractor will only adapt the size of the truck that will fit with the existing dimensions of the gates. The contractor will utilize smaller trucks, the delivery of materials will be more frequent. Delivery of materials and hauling of construction debris will also be conducted during nighttime to avoid the disruption of classes
Contractors' Scope of Work	The scope of work will be provided prior to the commencement of retrofitting activities in the school

5.5 GRIEVANCE REDRESS MECHANISM

The project's grievance redress mechanism will address stakeholders' concerns and complaints promptly, using a transparent process that is responsive, culturally appropriate, and readily accessible to all segments of the affected communities at no cost and without retribution. The

mechanism should not impede access to the country's judicial or administrative remedies. The redress mechanism will be communicated to the nearby communities and stakeholders of the project and subprojects. A separate grievance redress mechanism for the workers is established to address their complaints and is described in the Labor Management Procedures.

A Memorandum of Agreement (MOA) will be forged between the project proponent and the asset owners on the procedures in the proper handling of grievances and also the need to create a Grievance Redress Committee (GRC) composed of representatives from the asset owner, the implementing office and the contractor. GRC will receive, evaluate and facilitate the resolution of concerns, complaints and grievances of all stakeholders.

A. Procedure for filing the formal Complaint/Grievance:

1. Any key stakeholder of the project may file a complaint.
2. Complaint should be made to Grievance Redress Committee (GRC). It may be oral, by email citizens_feedback@dpwh.gov.ph or in writing. If the complaint is oral, it will be converted into a written form by the GRC member who received the complaint and authenticated by the complainant under his / her signature as soon as possible.
3. If the complainant would not like to reveal his/her name for any grievance, they can drop the grievance(s) in the drop box specific for the project.

All complaints received by any member of the committee shall be forwarded to citizens_feedback@dpwh.gov.ph for proper documentation.

B. Procedure for filing the formal Complaint/Grievance:

1. Upon receipt of complaint, the GRC should send a response to the complainant acknowledging the receipt of grievance within 48 hours.
2. Based on the nature of the complaint and severity of its possible impact, the GRC may take one of the two options to proceed on addressing the concerns:

a. Option 1 which can be exercised on matters that could be more routine operation:
   i. The asset owner representative may issue a direct instruction to the implementing office and contractor regarding the complaints in the construction.
   ii. It is important that the complainant is well-informed of the actions taken or the work-in-progress within 15 days upon acknowledging receipt of grievance.
   iii. Once the matter has been resolved the GRC should send a final update to the complainant on the matter.

b. Option 2 which can be exercised in matters of very serious concern:
   i. The GRC must convene for a meeting immediately after the complaint has been filed.
   ii. The Committee, as required, may also call for a deposition by the complainant and the person/s involved in the complaint.
   iii. Final decision of the GRC has to be communicated to the complainant within 15 days of the receipt of the complaint.

3. If no understanding or amicable solution can be reached, or if the complainant does not receive or is dissatisfied with the response from the GRC within 15 days of registry of the complaint, he/she can appeal to the PSRRRP Project Implementing Unit (PIU), which should act on the complaint/grievance within 15 days from the day of its filing. Representative from the PSRRRP Project Implementing Unit (PIU) may be contacted in the following means: email address: citizens_feedback@dpwh.gov.ph; office address: DPWH Central Office Bonifacio Drive, Port Area, Manila; Telephone No.: 8888; CP no.: 8888
4. If the affected person is not satisfied with the decision of the PSRRRP PIU, he/she, as a last resort, can submit the complaint to any court of law.

5.6 LABOR MANAGEMENT PLAN

These labor management procedures provide an overview of the applicable Philippine laws and policies, and WB Environmental and Social Standards ESS2 provisions addressing the labor risks and issues that may arise during implementation of the Philippines Seismic Risk Reduction and Resiliency Project.

The LMP is a living document, which is initiated early in project preparation, and is reviewed and updated throughout the project development and implementation.

5.6.1 Characteristics of Project Workers

Direct Workers. These people are employed directly by DPWH to work specifically in relation to the project. The project will assign a Project Implementation Unit (PIU) under the DPWH Earthquake Resiliency - Project Management Office (DPWH ER-PMO) who will supervise and oversee the project implementation. It will consist of permanent employees from the different Bureaus, Services, Project Management Office of the Department as well as the Regional Office (RO) and District Engineering Offices (DEO) of NCR.

Contracted Workers. These people are employed through third parties to perform work related to core functions of the project, regardless of location. Third parties may include contractors, subcontractors, or intermediaries. For this project, contracted workers are identified as follows:

Retrofitting consultants will be engaged in the early stage of the project to conduct detailed engineering works on public school buildings, and to design the retrofitting plans.

Construction workers are anticipated to do the retrofitting works for component 1 of the project hired by the winning contractors. Contractors will be chosen based on the process stipulated in the procurement plan of this project.

Security workers will be employed by the winning contractor/s to protect the project site, project workers and other stakeholders. In each site, security personnel of the contractor may range from 1 to 3 depending on the number of works shifts and arrangements with the school administration on the use of their own security personnel.

Community Workers. These people are engaged or employed from the community to provide labor as a voluntary contribution to the project as an outcome of individual or community agreement. These types of workers will not be utilized by the project.

Primary Supply Workers. These workers are employed by the primary supplier of goods and materials needed for the project. The Contractor and PIU must guarantee that any possible risks associated with primary suppliers, such as child labor, forced labor, and major safety violations, are addressed.

It is not yet identified if there are any vulnerable workers who will be engaged in the project but if so, protection to such workers will be based on the Labor Code of the Philippines, and other laws and guidelines set in the ESS2 of the ESMF.

No person under the age of 18 will be employed in compliance with the Labor Code of the Philippines and the Special Protection of Children Against Child Abuse, Exploitation and Discrimination Act. Also, discrimination against disabled and women workers will be avoided as mandated under the Magna Carta for Disabled Persons (RA 7277, as amended by RA 9442) and Magna Carta of Women (RA 9710) respectively.

5.6.2 Age of Employment

a) Minimum Age of Employment

According to Article 137 of the Labor Code of the Philippines, no person below eighteen (18) years of age shall be allowed to be employed in an undertaking which is hazardous or deleterious in nature as determined by the Secretary of Labor and Employment.

Considering the scope of the project, it is unlikely that the project would hire a person below eighteen (18) years of age.

b) Age Verification Process

To prevent engagement of underage workers, an age verification process is required to be undertaken by the winning contractor/consultant prior to the engagement of the project worker. All contractual provisions should comply with the minimum age requirements and the responsible staff is required to maintain a labor registry of all hired project workers.

5.6.3 Terms and Conditions

a) Specific Wage

Individuals hired through COS shall be paid by the prevailing market rates, subject to the provisions of Republic Act No. 9184 and its Implementing Rules and Regulations; whereas, individuals hired through job order shall be paid wages equivalent to the daily wages/salary of comparable positions in government and a premium of up to 20% of such wage/salary.

Workers employed by the third parties for the retrofitting works shall be paid in accordance with the Labor Code. Minimum wage rates to be applied shall be those prescribed by the Regional Tripartite Wages and Productivity Boards.

b) Hours of Work

The normal hours of work of project workers shall not exceed 8 hours a day, exclusive of time for meals. If the worked performed exceeds the normal working hours, overtime pay shall be given.

c) Rest Per Week

Direct worker is entitled to a 2-day rest period during weekends (Saturday and Sundays). Contracted workers shall also be entitled to rest days depending on the terms and conditions stated in their contract. At minimum, they shall have a rest period not less than twenty-four (24) consecutive hours after every six (6) consecutive normal workdays. Both direct and contracted workers shall also be entitled to a rest day on regular holidays recognized by the State.

d) Termination of Contract

The contract of employment shall cease at the end of the period stated therein. However, the contract may be pre-terminated by the hiring authority due to failure to provide the standard of service required under the agreement, breach of any provision thereof, breach of trust, loss of confidence, and for reasons detrimental to the interest of the agency, provided that the project worker is informed in writing at least 30 days prior to the effectivity of such termination. Likewise, the project worker may pre-terminate the contract provided that a written notice is submitted to the hiring authority, stating therein the reasons for the pre-termination, at least 30 days prior to the proposed date of effectivity thereof, and the same has been received, accepted, and approved in writing by the hiring authority.

e) Deduction from Remuneration

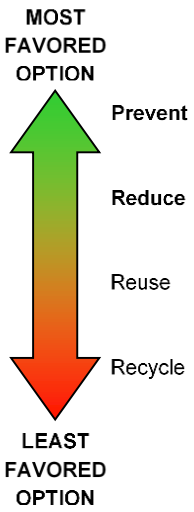
No deductions other than those agreed upon in the contract or those prescribed by law or regulations shall be made from a worker's remuneration. The hiring authority is prohibited to demand or accept from the worker any cash payment or gifts in return for admitting such worker to employment or for any other reasons connected with the terms and conditions of employment. Medical Treatment of Injured and Sick Workers

Any injury, illness or accident sustained by the worker during the work period shall be conveyed to the nearest clinic or hospital by the hiring authority or its representative. For workers who are suspect or confirmed COVID-19 patients, the Project will abide by the Project Implementation Guidelines during COVID-19 pandemic.

5.7 WASTE MANAGEMENT PLAN

Construction waste will inevitably be generated during the retrofitting activities in the school. Wastes are composed of non-hazardous, hazardous, and residual.

To address this concern, the **Contractor** shall implement a waste management plan (WMP), which classifies waste strategies according to the desirability of handling up to the disposal via waste hierarchy scheme. The waste hierarchy scheme is commonly referred to the principle of 3R's – reduce, reuse, and recycle. The principle, in general, is summarized and briefly discussed in in **Figure 5-2**. The strategies for the solid waste management are further discussed in **Table 5-5**.



Prevent – is the elimination or avoidance of producing solid wastes in the first place

Reduce – is the minimization of waste generation by conservation of raw materials, application of new techniques in construction, repair of items, etc.

Reuse – is utilizing an item more than once for the same or different function without or minimal introduction of new raw materials

Recycle – is the reprocessing of discarded items (either through physical or chemical means) in order to form the same or new form of material

Figure 5-2: Waste Hierarchy Scheme

Table 5-5: Waste Hierarchy Scheme – WMP Option and Strategies

WMP Option	Strategy
Prevent	• Prepare an efficient purchase, delivery and inventory system for the essential supplies to prevent expiration or spoilage of the raw materials and products, thus preventing or reducing solid waste generation • Train the Contractor's personnel to handle carefully the construction and raw materials and to prevent rejects and damages • Regularly maintain/clean construction equipment to prevent any contamination to the environment.
Reduce	• Issuance and strict implementation of a waste segregation (biodegradable and non-biodegradable) and collection schedule policy for all Contractor's personnel • Provision of solid waste handling and storage facilities, such as dumpsters, trash cans in common areas in the transport terminal, construction area and administrative office. • Repair equipment and other auxiliaries instead of completely discarding it • For other communications, use electronic forms instead of paper forms to reduce usage of paper • Put residual and other general solid wastes in their appropriate bins, and shall be disposed in accordance to the schedule of the Taguig City solid waste collection system
Reuse	• Use old office forms for other non-confidential documents, communication postings, and other similar applications • The biodegradable wastes, such as discarded kitchen wastes and raw materials, shall be given to traders engaged in composting/organic fertilizer
Recycle	• Gather discarded cardboard, paper-based, plastic-based, and glass-based materials for hauling by waste traders

The concept of the Waste Hierarchy Scheme is also complemented by Waste Segregation. Waste Segregation refers to the separation of recyclable and non-recyclable solid wastes. Further, solid wastes can also be separated by biodegradable and non-biodegradable.

For the solid wastes to be easier to identify and segregate, a color-coding scheme will be applied in the facility. Different types of wastes are placed in color-coded plastic bags or waste bins. The color-coding scheme makes it easier for the waste generators and collection workers/housekeeping personnel alike to segregate the wastes prior to disposal. The solid waste color-coding scheme is summarized in **Table 5-6.**

Table 5-6: Solid Waste Color-Coding Scheme

Color Coding	Type of Waste
Black	• Non-Recyclable/Residual Waste • Non-Recyclable Plastics etc.
Green	• Biodegradable Waste • Food and garden wastes • Left-over or spoiled food, tree trimmings, canteen wastes, discarded raw materials
Blue	• Recyclable items • Plastics bottles, glass, metal caps, newspapers, cardboard boxes, office • forms
Yellow	• Hazardous wastes • Broken light bulbs, discarded batteries, electronic items, chemical containers

Types of Waste and its Management

Non-Hazardous Waste. The non-hazardous waste should be placed in waste segregation bins. Separate bins will be provided for biodegradable waste (food wastes), recyclable waste (wires, pipes, rebars, and other pieces of metal), and hazardous waste. Excavated soil will be used as filling materials while other recyclable materials such as wooden planks may be used for formworks and scaffolding. The recyclable materials will be collected and separated onsite from other waste sources for reuse or for sale.

Burning of garbage and construction wastes shall be strictly prohibited at the site. Materials which are clearly a danger to building occupants e.g. exposed nails, broken glass, steel beams, etc. should be properly collected to avoid accidents. Work areas will be maintained clear of waste materials and obstructions. Stockpiles of waste materials will not be allowed.

Hazardous Waste. Hazardous waste should always be segregated from the non-hazardous wastes. Designate an area for the temporary storage of empty containers (paints, solvents, epoxy resins, adhesives, degreasers), oily rags, and busted lamps. Proper labels should be affixed on bins of these types of hazardous wastes. As a hazardous waste generator, the contractor is required to secure a Hazardous Waste Generator Registration with the DENR and to commission the services of a DENR-registered hazardous waste transporter and treater for the collection and disposal of hazardous wastes. A Hazardous Waste Manifest must be completed to document the amount of hazardous waste generated and collected/disposed for offsite treatment. The DENR-recognized treater should issue a Certificate of Treatment (COT) ascertaining the safe treatment and disposal of the hazardous waste. The COT records shall be kept for proper documentation.

Asbestos Containing Materials. There may be situations wherein the affected building section may contain asbestos materials as high-density products in roofing and flat sheets/walls of existing building. The use of amosite (brown) and crocidolite (blue) asbestos fibers and of products containing these fibers is strictly prohibited and that no spraying of all

forms of asbestos in buildings is allowed. The contractor must undertake specific precautions if materials containing asbestos are present or encountered during works in order to ensure the protection of workers and occupants of the building. Asbestos fibers may be carried to the lungs. Prolonged and cumulative exposure is harmful and may cause asbestos-related diseases.

The procedure for handling asbestos materials must comply with the DENR Chemical Control Order on asbestos and the DOLE Order No. 154, series of 2016 on the management of asbestos in the workplace. In case asbestos materials is encountered at the work site, the following procedures should be followed:

- If asbestos is identified during the dismantling work, work will be suspended until DENR is notified of the situation. Only DENR licensed asbestos handlers are allowed to enter the premises.
- Notify the DENR of the proposed removal work and coordinate the activities with the DOLE with regards to the methods to be employed, inspections, decontamination, control monitoring and clearance inspections.
- The removal work must be assigned to a suitably qualified asbestos removal specialist.
- Isolate the site and provide barriers
- Restrict access from the general public to the site
- Erect appropriate signs and keep all access points locked at all times
- Following removal works, all surfaces are to be thoroughly cleaned using HEPA filtered vacuum and wet pipe techniques.
- On completion, the site must be carefully checked for visible asbestos containing materials.
- Any asbestos materials must be placed into asbestos plastic bags and then removed from the site by DENR-licensed waste transporter and treater.
- A hazardous waste manifest shall be completed for the transport, treatment and disposal of asbestos wastes offsite.

5.8 TRAFFIC MANAGEMENT PLAN

During the retrofitting activities, the project is expected to contribute additional vehicular traffic in the project area. To mitigate this impact, a traffic management plan (TMP) was prepared as **Annex C** of this document. The TMP will be implemented to minimize traffic disruption and to promote road safety in the project site and in its immediate surrounding area.

6 PROJECT TIMELINE AND COST

6.1 SCHEDULE AND IMPLEMENTATION BUDGET

6.1.1 Project Duration

Table 6-1 presents the indicative duration of the retrofitting works in Ricardo P. Cruz Sr. Elementary School based on an 8-hour workday and a 7-day workweek.

Table 6-1: Expected Project Duration

School Building	Duration (Months)
DepEd Standard School Building	3

6.1.2 Implementation Schedule

Table 6-2 presents the indicative implementation of the SRP and retrofitting activities. The implementation schedule is based on the following assumptions:

- Project duration was based on an 8-hour workday;
- The contractor can extend their working hours during vacation months (April and May) and may work during the weekends;
- Project briefing will be on the 3rd Quarter of 2025, once the contractor for the project has been identified. Further briefings will be conducted as necessary;
- Personal belongings of school staff will be brought home to reduce storage requirements during the retrofitting works;
- Retrofitting activities will commence in the month of August; and
- Inspection and punch listing should be done per floor to shorten the turnover period.

6.1.3 Indicative Budget for ESMP Implementation

Table 6-3 shows the projected costs for the Contractor's labor force, mitigation measures, preventative actions, and monitoring.

Table 6-2: Indicative Implementation Schedule

No.	Activity	2025			2026
		O	N	D	J
1	Project Briefing/Status Updating				
2	Mobilization/Inventory of equipment to be transferred or stored				
3	Transfer of equipment, desks, chairs to upper floors				
4	Retrofitting Works (Building No. 9)				
5	Inspection, punch listing and turn-over of Building No. 9				
6	Demobilization				
7	Monitoring of the SRP and GRM Implementation				

Note: - Summer Break

Table 6-3: Indicative ESMP Implementation Budget for Ricardo P. Cruz Sr. Elementary School

COMPONENT/S	UNIT OF WORK MEASUREMENT	UNIT/LOT	UNIT COST (PHP)	DURATION (MONTHS)	TOTAL COST (PHP)
Permits					
• Certificate of Non-Coverage (CNC)	Processing and Application Fee Cost	1	50,000.00	-	50,000.00
• Building, Electrical, Mechanical, Sanitary, and Occupancy Permit; Fire Safety Inspection Certificate (FSIC)					Part of the Structural Cost Estimate
• Tree Cutting/Trimming Permit	Processing and Application Fee Cost	1	-	-	176,000.00
Stockpile Management					Part of the Structural Cost Estimate
Termite Control Works (Soil Poisoning)	Per building	1			Part of the Structural Cost Estimate
Dust Suppression					Part of the Structural Cost Estimate
• Provision of nets/sheeting and temporary screens					Part of the Structural Cost Estimate
• Air vacuum pumps and ventilation exhaust fans for indoor concrete chipping					
• Water spray to suppress dust					
Noise Mitigation					
• Noise Meter Procurement	-	1	15,000.00	-	15,000.00
• Noise/Acoustic Barrier	Per building				Part of the Structural Cost Estimate
Waste Management					
· Non-Hazardous Waste Generation (Provision of receptacle bins) (Hauling)		50	2,500.00	-	125,000.00
• Hazardous Waste Generation (Temporary HW Generator ID)		1	10,000.00	-	10,000.00
• Treatment of Concrete Wash Water (Provision of washout containers)	-	50	1,000.00	-	50,000.00
Drainage Management	-	-	5,000.00	3	15,000.00
Provision of Portalets	1 Portalet/25 workers	2	10,000.00	3	60,000.00
Traffic Management	Personnel/day	2	650	3	93,600.00
• (Signal Man)					
Occupational Health and Safety					Part of the Structural Cost Estimate
• Personal Protective Equipment					
• Safety Signages					
• Scaffolding/Temporary Access for workers					
EHS Officer	Personnel	1	29,075.00	3	87,225.00
Social Officer	Personnel	1	29,075.00	3	87,225.00
Student and Facilities Relocation Plan					
A. General Activities	Whole School	1	-	3	474,750.00
B. Building Specific (Student Learning Continuity)					100,000.00
Stakeholder Engagement Plan (SEP)					
• Project Level SEP Meetings	Per session	-	5,000.00	3	15,000.00

• Community Level SEP Meetings (prior project mobilization)	Per session	1	5,000.00	-	5,000.00
• Other expenses (Brochure, IEC Materials)	-	-	5,000.00	-	5,000.00
GBV-SHA and SH Plan (Trainings)	Per session	4	5,000.00	-	20,000.00
Grievance Redress Mechanism (Meetings)	-	-	5,000.00	3	15,000.00
				SUB-TOTAL	1,403,800.00
				CONTINGENCY 10%	140,380.00
				TOTAL	**1,544,180.00**

PHILIPPINE SEISMIC RISK REDUCTION AND RESILIENCE PROJECT (PSRRRP)

DATE: _____

PART 1: BASIC PROJECT INFORMATION			
1.A. Name of Building: DepEd Building	**1.C. School Identification Number:** 136875		
1.B. Name of School: Ricardo P. Cruz Sr. Elementary School			
2. Project Location/ Coordinates	Complete address: *Street/Sitio/Barangay:* M.L. Quezon St. Purok 3 New *City/Municipality:* Taguig City Coordinates: 14.50036 N, 121.06302 E	Zone/Classification: (R1, R2, R3, C1, C2, C3) *R1 - Low Intensity Residential* *R2 - Medium Intensity Residential* *R3 - High Intensity Residential* *C1 - Low Intensity Commercial* *C2 - Medium Intensity Commercial* *C3 - High Intensity Commercial* *I - Institutional*	
3. Contact Person at School	Name of coordinator/focal person: Dr. Cipriano M. Bisco Jr. Landline No: 83518599 Mobile No./ Viber No./ any available mobile platform: 09360661868	Designation: Principal Fax No: Email Address: sdotapat.rpcruz@deped.gov.ph	
4. Building Condition	Seismic Vulnerability Rating (SVR): No. of floors: 3	Total Estimated Floor Area: 279 sqm Year Constructed: 2014 Years of the structure: 10 years	
5.Retrofitting Conducted?	☐Yes ☒No If Yes, When and proof of Structural Retrofitting: _____		
6. Visible structural Cracks?	Description: ☐ Slab: _____ ☐ Beams: _____ ☐ Columns: _____ ☐ Foundation: _____ ☒ Ground floor slab: _____ ☐ Walls: _____		
7.A. Demographics of the concerned Public School			
Total number of Learners (in the whole school):	Girls: 2717 Boys: 2939	Age Range: 5-15 years old Grade Levels: SPED, Kinder, Grades 1-6	Total no. of class shifts: 2 Shift 1 (Time): 6:00 AM – 12:00 NN Shift 2 (Time): 12:00 PM – 6:00 PM Shift 3 (Time):

Total number enrolled in Learners with Special Educational Needs (LSEN)	Girls: 18 Boys: 34	Age Range: 5-15 years old Grade Levels: SPED (inclusive, non-graded)	Total no. of class shifts: 3
Total Number of Teachers and School Personnel: Women: 166 Men: 40 Teaching 149, non-teaching 52		**Total Number of persons with disabilities:** Teachers/School Personnel: Women: 1 Men: 1 Learners: Girls: 43 Boys: 75	
7.B. Occupants of the Eligible Building			
Number of class shifts:			
Total number of Learners (Shift 1):	Girls: 210 Boys: 190	Age Range: 5-15 Grade Levels: SPED, Kinder, Gr. 5	
Total number of Learners (Shift 2):	Girls: Boys:	Age Range: Grade Levels:	
Total number of Learners (Shift 3):	Girls: Boys:	Age Range: Grade Levels:	
Total number enrolled in Learners with Special Educational Needs (LSEN)	Girls: 18 Boys: 34	Age Range: Grade Levels:	Total no. of class shifts: 4
Total Number of Teachers and School Personnel: Women: 24 Men: 4		**Total Number of persons with disabilities:** Teachers/School Personnel: Women: Men: Learners: Girls: 18 Boys: 34	
PART 2: RETROFITTING (BUILDING SPECIFIC)			
8. Type of retrofitting:	☐Steel Plate Bonding ☐Concrete Jacketing ☐Steel Jacketing ☐Fiber Reinforced Polymer (FRP) Systems ☐Steel Bracing Systems		
9. Type of rooms directly affected by retrofitting	**Offices:** ☐ Principal ☐ Administration ☐ Guidance	Remarks (Quantity)	

	☐ Faculty ☐ Maintenance **Rooms:** ☒ Classrooms ☐ Science Laboratory ☐ Speech Laboratory ☐ Computer Laboratory ☐ Conference ☐ Industrial/Workshop **Others:** ☐ Canteen ☐ Feeding Center ☐ Clinic ☐ Library ☒ Storage rooms ☐ Lodging ☐ Pantry	 8 1 Others: SBM
10. Existing facilities to be affected by retrofitting	**WASH Facilities** ☒ Toilet ☒ Urinal ☒ Handwashing/Lavatory ☐ Water tank ☒ Water supply (i.e., pipes, valves) ☒ Septic Tank **Other structural elements/facilities:** ☒ PWD Ramps ☒ Ingress and egress ☒ Fire-safety (Fire extinguisher cabinet, sprinklers, fire exits) ☒ Drainage system ☐ Ceilings, wall partition ☐ Windows ☐ Stairs ☒ Electrical power supply	Remarks (Quantity) 3 3 1 1 main gate valve (Maynilad) 1 2 Fire extinguisher every 15m per floor Connected to city drainage
11. Other Comments/Observations during the field visit: Grade 5-6 sections Standard class size – 25/25 (4 sections) SPED maximum		

PART 3: DESCRIPTION OF PROJECT SITE AND SURROUNDING COMMUNITIES (BASELINE)		
QUESTION	**YES/NO**	**REMARKS DURING FIELD VALIDATION/ DESCRIBE PHYSICAL APPEARANCE**
12. Project Description		
12.1. Is there a proposed/ ongoing project for the rehabilitation/ reconstruction of school buildings?	**NO**	☐ Repair ☒ Rehabilitation ☐ Retrofit ☐ Demolition ☐ Total reconstruction
12.2. Is the school facility fenced? *-If yes, describe the distance of the building from the fence.*	**YES**	At the back
12.3. Are there any Entry/ Exit Points in the school?	**YES**	Indicate number: 4
12.4. Are there asbestos roofing and other asbestos materials to be removed from the site?	**NO**	
13. General Vicinity		
13.1. Is the project located next to a residential house? *-Indicate if the houses are adjacent or if nearby only*	**YES**	
13.2. Are there any hospitals and health clinics with lying-in services near the school building?	**YES**	Bicutan Medical Center 50m (S) Bicutan Health Center 155m (SE)
13.3. Are there any culturally/historically important buildings or areas near the school?	**YES**	Rizal (Bust) Monument 3,290m (NE) Ricardo P. Sr.
13.4. Are there any other institutions, public offices/ public places (wet market, parks, etc.) near the school?	**YES**	Public Market 160m (SW) Jr. & Sr. Taguig National High School Brgy. Hall & New Cover Bicutan 840m (NE)
13.5. Are there any religious places (churches, mosques, etc.) near the school?	**YES**	Our Lady of Fatima Chapel 1,046m (W) Masjid Al Khuaam 498m (N)
13.6. Is the project site close to a commercial area?	**YES**	Puregold 1,370m (NW) Puregold Extra 1,067 (NE) Ultramega Supermarket 820m NE
13.7. Is there an economic enterprise/s (i.e., canteen) within or outside the project compound that may be affected during construction?	**YES**	Building 10
14. Land		
14.1. Are there trees to be removed/affected by the construction?	**-**	
14.2. Are there available local solid waste management services provided to the school? (i.e., Material Recovery Facilities, Color Coded Trash Bins)	**YES**	• MRF • Daily collection by LGU • Color coded bins
14.3. Are there available hazardous waste transport and treatment services in the locality? (batteries, busted lamps, used oils, welding rods, paint buckets etc.)	**YES**	• Hazwaste storage area • City LGU (separated from regular)
15. Water		

15.1. Have you experienced flooding in the past years? *-If yes, how frequent in a year?* *-Describe extent of flooding (height)* *-Indicate duration of flooding due to typhoon or heavy rain*	**NO**	
15.2. Is the project located next to a waterway, i.e. canal, creek, river?	**YES**	Manmade creek
15.3. Is there a drainage system at the area? (indicate if the drainage system is within/outside the school area) *- If yes, indicate drainage system condition (working, clogged, not working, etc.)*	**YES**	• Maintained during every brigade eskwela • Working
16. Air		
16.1. Is there a back-up generator set in the school?	**YES**	Non-operational
16.2. Is there a presence of backyard burning in the area?	**NO**	
17. People		
17.1. Is the school building being used as an evacuation center?	**NO**	Building 2,5,6 Undergoing construction evac center
18. Construction		
18.1. Is the school allowing overnight stay/work for the workers?	**YES**	With guard
18.2. Is there enough open area within the school compound for storage of construction materials (i.e., steel, wire mesh, cements, and other equipment) and for parking of construction vehicles?	**YES**	In front of: • HE room • Math room • Guidance center
18.3. Is the road going to the site wide enough to accommodate construction vehicles? *-Indicate the width of the road.*	**-**	
18.4. Is there an available space for the construction debris and other waste?	**YES**	
18.5. Is there an available space for the barracks for workers staying overnight? *-Indicate the location of the possible area for the barracks*	**YES**	Back of the building
18.6. Is there an available space for stay out workers to rest/ eat? (all of these are temporary, look for big spaces at school premises)	**NO**	Must not be mixed with students
18.7. Are there available toilet facilities for the workers? *-Indicate the condition and number of toilet facilities*	**YES**	
18.8. Does the construction work for this project trigger relocation of students and school staff?	**YES**	Other buildings Grade 5 – (6 AM – 12 NN) Grades 3-6 (Single shift)

-If this is the case, how many students and school staff will be relocated as of (date).		
18.9. In case of potential relocation of students, is there enough space within the school compound to relocate students? *-Describe in remarks the type of space available e.g., outdoor space for temporary classrooms or existing facility* *- Suggestions for potential relocation of students (i.e., recommendation blended learning, class shifts)*	**YES**	Shift with other rooms

PART 4: HAZARD ASSESSMENT (From HazardHunterPH)

HAZARD	INDICATE LEVEL OF EXPOSURE			REMARKS
	High	Medium	Low	
A. SEISMIC HAZARDS				
A.1. Ground Rupture	Prone /	-	Safe /	Approximately 1 km east of the Valley Fault System: West Valley Fault
A.2. Ground Shaking	Intensity Scale VII-X /	Intensity Scale IV-VI	Intensity Scale I-III	Prone; Intensity VIII
A.3. Liquefaction	High Susceptibility /	Moderate Susceptibility	Low Susceptibility	
A.4. Earthquake-Induced Landslide	High Susceptibility	Moderate Susceptibility	Low Susceptibility /	Safe
A.5. Tsunami	Prone	-	Safe /	Safe
B. VOLCANIC HAZARDS				
B.1. Nearest Active Volcano	Within danger zone	-	Outside danger zone /	Approximately 54.6 km north of Taal
B.2. Ashfall	Prone /	-	Safe	
C. HYDRO-METEOROLOGICAL				
C.1. Flood	High to Very High/Critical /	Moderate Susceptibility	Low Susceptibility	1 to 2 meters flood height and/or more than 3 days flooding
C.2. Storm Surge	Prone	-	Safe /	

D. Nearest Critical Facilities (from HazardHunterPH)

(i.e., institutions, health facilities, road network)

Facility Name	Type	Distance from the Project
Ricardo P. Cruz, Sr. Elementary School	Public Elementary School	47 m
Taguig National High School	Public Secondary School	296 m
New Lower Bicutan Health Center	Government Health Facility	175 m
Dr. Sabili Health Services Corporation	Private Health Facility	1.3 km
C-5 Road; Taguig (second District)	Primary Road Network	2.3 km
PPTA Rd; Taguig Pateros (first District)	Secondary Road Network	75 m

PART 5: ENVIRONMENTAL AND SOCIAL IMPACTS

IMPACTS	High	Medium	Low	REMARKS
A. ENVIRONMENTAL IMPACTS				
1.Land				

1.1. Waste Generation during Retrofitting				
1.1.1. Domestic sewage from workers	No available sanitation facilities for workers	Use of dedicated sanitation facilities within the school premises	Use of sanitation facilities for workers within the building	
		/		
1.1.2. Solid wastes and construction debris/spoils	No space/area available adjacent to the school building	Area available within the school premises	Area available within the school building	
		/		
1.1.3. Hazardous waste and asbestos materials	Will require removal of asbestos and other hazardous waste	Will require removal of other hazardous waste	Will not require removal of asbestos nor hazardous waste	
			/	
1.2. Soil Erosion from excavated materials	No space/area available adjacent to the school building	Area available within the school premises	Area available within the school building	
		/		
1.3. Cutting of Trees	Will involve cutting of trees	Will involve tree trimming only	Will not involve cutting of trees	
	/			
2. Water				
2.1. Change in drainage flow	Permanent diversion of drainage flow	Temporary diversion of drainage flow	Will not require diversion of drainage flow	
			/	
2.2. Inducement of flooding	Will involve earthworks	-	Will not involve earthworks	
			/	
2.3. Clogging of canals (existing drainage system)	Will involve earthworks	-	Will not involve earthworks	
			/	
2.4. Sedimentation of creeks, rivers	Direct discharge to nearby creeks/rivers	Direct discharge to city drainage system	No creeks/rivers adjacent	
		/		
3. Air Quality/ Noise/ Vibration				
3.1. Air Pollution from retrofitting activities and equipment (i.e., Noise from equipment, tools, and workers)	Construction activities will involve use air pollution sources (i.e., gensets, heavy equipment)	-	Construction activities will not involve use air pollution sources (i.e., gensets, heavy equipment)	
	/			
3.2. Dust from retrofitting activities	Construction site is directly adjacent to	Construction site is within 30 meters[1] from the	Construction site is more than 30 meters from the sensitive receptor	

[1] Source: National Pollution Control Commission (NPCC)

	the sensitive receptor	sensitive receptor		
		/		
3.3. Ground Vibration	Construction activities will involve groundworks .	-	Construction activities will not involve groundworks	
			/	
B. SOCIAL IMPACTS				
4. Relocation				
4.1. Relocation of students due to class disruption	> 50% of building occupants (students)	>10% but <50% of the building occupants (students)	<10% of the building occupants (students)	
		/		
4.2. Relocation of affected small businesses (i.e., Canteen) within the project compound	> 50% of small businesses	>10% but <50% of small businesses	<10% of small businesses	
			/	
4.3. Relocation of school staff	> 50% of school staff	>10% but <50% of school staff	<10% of school staff	
		/		
5. Site Security				
5.1. Presence of workers posing risks to peace and order	Allow stay in workers without the presence of school security	Allow stay in workers with the presence of school security	Workers will have construction camp outside the school premises and with the presence of school security	
		/		
5.2. Access to site	Only one entry/exit point within the school building without school security	Only one entry/exit point within the school building with school security	School building with multiple entry/exit points	4
			/	
6. Access to Utilities				
6.1. Project will result to temporary disruption of water supply	Water disruption for the whole construction duration	Water disruption for more than 1 month	Water disruption for less than one month	
	/			
6.2. Project will result to temporary disruption of electricity	Electricity disruption for the whole construction duration	Electricity disruption for more than 1 month	Electricity disruption for less than one month	
	/			
6.3. Impact on existing sanitation and sewerage facilities	> 50% of existing sanitation and sewerage facilities	>10% but <50% of existing sanitation and sewerage facilities	<10% of existing sanitation and sewerage facilities	
			/	
7. Labor and Working Conditions/Community Health and Safety/ GBV and SHA				
7.1. Impact on Community Health and Safety	Construction site is directly adjacent to	Construction site is within	Construction site is more than 30 meters from the	

	the nearby community	30 meters[2] from the nearby community	nearby community	
		/		
7.2. Effect on Gender Based Violence (GBV) and Sexual Harassment and Sexual Exploitation and Abuse	Allow stay in workers without the presence of school security	Allow stay in workers with the presence of school security	Workers will have construction camp outside the school premises and with the presence of school security	
		/		
7.3. Effect on workers for occupational health and safety	Construction activities will involve use of heavy equipment **and** hazardous chemicals.	Construction activities will involve use of heavy equipment **or** hazardous chemicals.	Construction activities will not involve use of heavy equipment **nor** hazardous chemicals	
	/			
7.4. Spread of Communicable Diseases, (i.e. COVID-19, HIV-AIDS, TB, etc.)	Allow stay in workers without the presence of school security	Allow stay in workers with the presence of school security	Workers will have construction camp outside the school premises and with the presence of school security	
		/		
8. Traffic				
8.1. Traffic Congestion/ blocked roadways during delivery of construction materials	One-lane Road	Two-lane Road	Four-lane Road	
		/		
8.2. Available open space for traffic/parking	No space/area available adjacent to the school building	Area available within the school premises	Area available adjacent to the school building	
			/	
8.3. Effect to Pedestrian and traffic safety	One-lane Road	Two-lane Road	Four-lane Road	
		/		

9. List of Observed/Identified Sensitive Receptors/Stakeholders (during site visit)

General Direction	Sensitive Receptor	Name of Facility	Distance from the Project
North			
East			
West			
South	Institution	Bicutan Medical Center	155m (SE)

(Church, HOA, Health Facility, Cultural Heritage)

[2] Source: National Pollution Control Commission (NPCC)

Based on the above screening, the applicable safeguard measures to be developed for the subproject are:

☒ Environmental Code of Practice (ECOP) – applicable to activities generating low (minimal) impacts
- ☒ ECOP 1: Temporary Relocation of School Classrooms and other Building Utilities
- ☒ ECOP 2: General Construction Site Management
- ☒ ECOP 3: Workers' Health and Safety
- ☒ ECOP 4: Community Health and Safety
- ☒ ECOP 5: Cultural Properties

☒ Environmental and Social Management Plan (ESMP) – applicable to activities generating medium (manageable) to high (major) impacts
- ☒ Grievance Redress Mechanism
- ☒ Stakeholder Engagement Plan (SEP)
- ☒ Waste Management Plan
- ☒ Construction Safety and Health Program (CSHP) Checklist
- ☒ Gender-Based Violence Action Plan
- ☒ Consultant-Contractor's Contract
- ☒ Student Relocation Plan
- ☒ Labor Management Plan (LMP)
- ☒ Chance Find Procedure

Note that the applicable safeguards measures are to be included in the bid and contract documents of the contractor.

Recommendations for Safety and Functional Improvement:

Prepared by:		***Attested by:***
Consultant	Project Implementation Unit	(DepEd Representative/s)
LESTER ABANDO	Franklin M. Ballema	NEMESIO G. DABU JR
(Signature over Printed Name)	*(Signature over Printed Name)*	*(Signature over Printed Name)*
	JOSEPH BERNARD B. ARIAS	DR. CIPRIANO M. BISCO JR
	(Signature over Printed Name)	*(Signature over Printed Name)*

1 STUDENT RELOCATION PLAN (SRP)

The Student Relocation Plan (SRP) for Ricardo P. Cruz Sr. Elementary School was collaboratively prepared by the School Administration and Department of Public Works and Highways (DPWH) in order to mitigate the impacts of the retrofitting activities to the school's operations and other stakeholders. The SRP also considered learning continuity for students to reduce the learning gap and businesses/ livelihood activities that may be affected by the project.

The initial iteration of the SRP was anchored on the Basic Education Learning Continuity Plan (BE-LCP) developed by the Department of Education. The BE-LCP served as DepEd's response to the challenges on basic education brought about by the Coronavirus disease 2019 (COVID-19) pandemic in the Philippines.

The principles that guided the BE-LCP, applicable to the project, were as follow:

1) Protect the health, safety and well-being of learners, teachers, and personnel, and prevent the further transmission of COVID-19;
2) Ensure learning continuity and quality through K-12 curriculum adjustments, alignment of learning materials, deployment of multiple learning delivery modalities, provision of corresponding training for teachers and school leaders, and proper orientation of parents or guardians of learners; and
3) Be sensitive to equity considerations and concerns, and endeavor to address them in the best way possible.

This SRP also took into consideration the school's experience and requirements in implementing various learning delivery modalities (LDMs). As much as possible, retaining the face-to-face (F2F) classes will be prioritized or integrated with LDMs.

Lastly, this SRP shall maximize the utilization of various LDMs to limit the impact of the various project activities to other stakeholders within/outside the school premises.

1.1 Objectives

The primary objective of this SRP is to minimize the impacts of the retrofitting activities to the stakeholders and the school's operations.

The objectives of the SRP are to:

- To determine the number of stakeholders, facilities, and equipment that will be affected by the project;
- To provide specific measures to address the project impact;
- To ensure the learning continuity of learners during project implementation;
- To ensure continuous communication with the different stakeholders; and
- To determine the budgetary requirements of implementing the plan.

1.2 Temporary Relocation Options

Aside from the conduct of F2F learning, the following are the proposed temporary relocation options based on existing policies from DepEd:

1. Transfer to Other Buildings/Rooms – Transfer of teachers, personnel, learners, supplies, and equipment to other available buildings and rooms within the school premises.

2. Provide Additional Shift – Implementation of an additional shift (morning/afternoon) to maximize available buildings and rooms within the school premises.

3. Other Learning Delivery Modalities (LDMs) – This is based on DepEd Order (DO) No. 12 series of 2020, "Adoption of the Basic Education Learning Continuity Plan (BE-LCP)[1] for School Year 2020-2021 in the light of the COVID-19 Public Health Emergency", which provided for the utilization of multiple LDMs to ensure continued delivery of learning opportunities for learners without compromising the health and safety of both school personnel and learners.

   The following were the LDMs[2] adopted by DepEd during the time of pandemic:

   Distance Learning: A learning delivery modality where learning takes place between the teacher and the learners who are geographically remote from each other during instruction. This modality has three types: Modular Distance Learning (MDL), Online Distance Learning (ODL), and TV/Radio-Based Instruction.

   - **Modular Distance Learning (MDL) (Print/Digital):** This involves individualized instruction that allows learners to use Self-Learning Modules (SLMs) in print or digital format, whichever is applicable in the context of the learner, and other learning resources like learner's materials, textbooks, activity sheets, study guides, and other study materials.
   - **Online Distance Learning (ODL):** This features the teacher as facilitator, engaging learners' active participation through the use of various technologies accessed through the internet while they are geographically remote from each other during instruction.
   - **TV-Radio Based Instruction:** This utilizes SLMs converted to video lessons for Television-Based Instruction and SLMs converted to radio scripts for Radio-Based Instruction.

   Blended Learning: This refers to a learning delivery that combines face-to-face with any or a mix of online distance learning, modular distance learning, and TV/Radio-based Instruction.

   Homeschooling: This is an Alternative Delivery Model (ADM) that aims to provide learners with quality basic education that is facilitated by qualified parents, guardians, or tutors who have undergone relevant training in a home-based environment.

[1] Accessed from "https://www.deped.gov.ph/wp-content/uploads/2020/06/DO_s2020_012.pdf"
[2] Definitions of LDMs are taken from "https://www.deped.gov.ph/wp-content/uploads/2022/08/7-Databits-Learning-Delivery-Modalities-Jul.pdf"

1.3 Data on Affected Buildings

1.3.1 Building 9

Building Information	
Seismic Vulnerability Rating (SVR):	74.30
No. of Floors:	3
Estimated Floor Area:	908.37 sqm
Year Constructed:	2014
Years of the Structure:	10 years
Occupants of the Eligible Building	
Total number enrolled in Learners with Special Educational Needs (LSEN):	52
Total number enrolled in Learners	400
Grade Level	SPED, Kinder, Grade 5
Age Range	5-15
Total Number of Shifts Shift 1:	1 6:00AM-12:00NN
Number of Teachers and Personnel	

Type of rooms directly affected by retrofitting	Quantity	Existing facilities to be affected by retrofitting	Quantity
Offices:		WASH Facilities:	
		Toilet facilities Urinal Handwashing/Lavatory Water Supply (main gate valve – Maynilad) Septic Tank	3 3 1 1
Rooms:		Other structural elements/facilities:	
Classrooms	8	PWD Ramp Ingress/Egress Fire-safety (Fire extinguisher every 15m per floor) Drainage System (connected to city drainage) Electrical power supply	1 2
Others:			
School Based Management (SBM) Room	1		

1.4 Retrofitting Duration

Table 1-1 presents the indicative duration of the retrofitting works in Ricardo P. Cruz Sr. Elementary School based on an 8-hour workday and a 7-day workweek.

Table 1-1: Indicative Duration of Retrofitting Works

School Building	Duration (Months)
Building 9	3

1.5 Focus Group Discussion

1.5.1 Date and Venue

The Focus Group Discussion (FGD) was conducted last 22nd of January 2025 (Wednesday) at the school's conference room.

1.5.2 Attendance

The total number of stakeholders who participated in the FGD was 15 (12 females and 3 males). The FGD was attended by the School Administration, School-Parent-Teacher Association (SPTA), and Supreme Elementary Learner Government (SELG) representatives of Ricardo P. Cruz Sr. Elementary School, City Engineering Office, and Barangay Local Government Unit (LGU) Representatives. Angel Lazaro & Associates International (ALAI) and LCI Envi Corporation, together with the Department of Public Works and Highways (DPWH), facilitated the FGD.

Table 1-2: Schedule and Participants of the Focus Group Discussion (FGD)

Venue and Schedule	Barangay/Participants	Male	Female	Total
Ricardo P. Cruz Sr. Elementary School 22 January 2025 8:00 AM to 11:00 AM	School Administration - Principal - Assistant to the Principal - Head Teachers - SDRRM Coordinator	2	7	9
	SELG President	-	2	2
	SPTA	-	1	1
	Barangay Official	-	1	1
	City Engineering Office	1	1	2
	TOTAL	**3**	**12**	**15**

1.5.3 Highlights of the FGD

Table 1-3 presents the questions and responses of the participants during the FGD.

Table 1-3: FGD Questions and Responses

No.	Guide Question	Response
1	Given the latest project timeline, will the school allow 12 to 16-hours work/day?	Yes, the school can allow for up to 12 hours' workday or more.
2	What is the preference of the school with regards to learning delivery modality?	**School-wide approach:** Retain face-to-face (F2F) classes and provide additional shift

No.	Guide Question	Response
3	If there are any, what will be the challenges foreseen with the identified modality?	Implementation of 2 shifts: Grade 5 – afternoon shift Kinder – Music room SNED – Mushroom room
4	In what aspects can the project support the school administration in implementing the plan?	None raised.
5	In what aspects can the project support the school staff in implementing the plan?	Relocation of valuable equipment and materials. Room Preparation Additional partitioning for rooms and ventilation. Safety of the students.
6	In what aspects can the project support the parents/learners in implementing the plan?	Inform the parents at least 2 weeks before the project implementation.
7	Are there any other aspects that the proponent and the study team should consider for the plan?	Inform the school at least 2 weeks before the project implementation.

1.6 Student Relocation Plan

1.6.1 Learning Delivery Modality (LDM)

The retention of Face-to-Face (F2F) LDM is preferred by the School Administration of Ricardo P. Cruz Sr. Elementary School. The LDM will be implemented throughout the entire school for the duration of the retrofitting activities for school year 2025-2026.

The selection of the F2F LDM was based on the school's experience during the COVID-19 pandemic. In which, they recalled the difficulties and intricacies of having classes done through online distance learning (ODL).

While preference is the retention of F2F LDM, it will be the Department of Education Schools Division Office (DepEd-SDO) of Taguig City who will make the prerogative decision in the appropriate method of instruction and/or LDM that will be applied during the project's implementation.

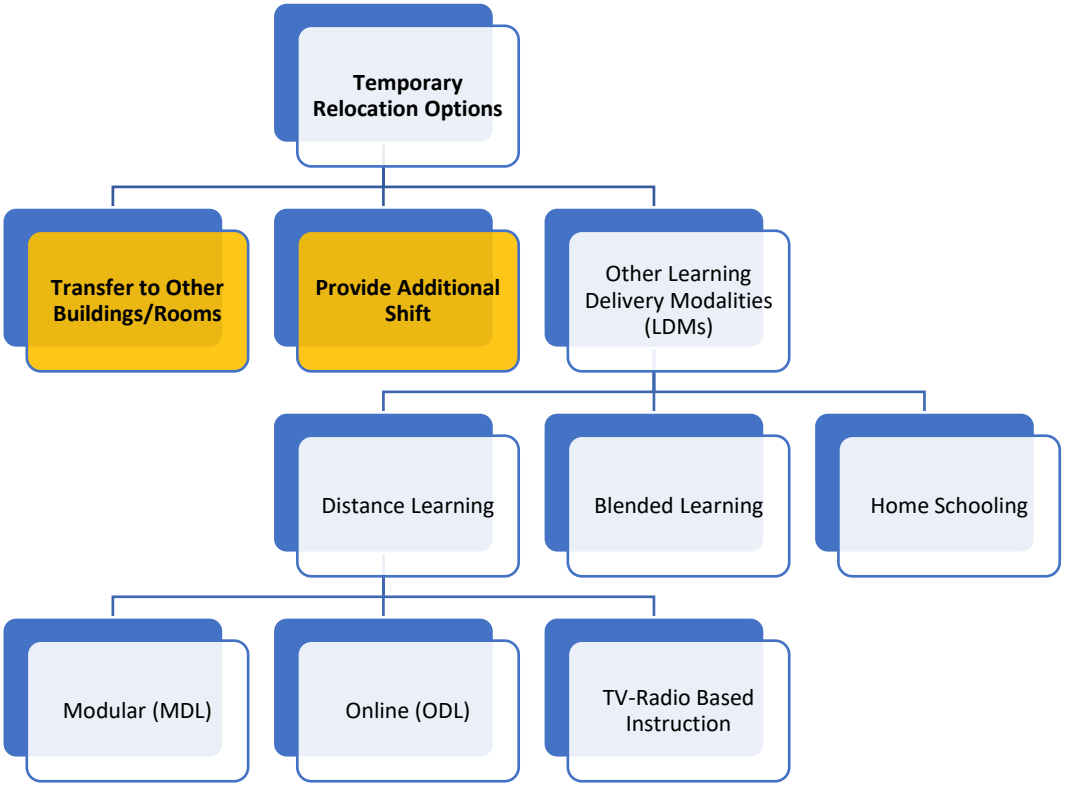


Figure 1-1: Preferred LDM of Ricardo P. Cruz Sr. Elementary School

1.6.2 Provide Additional Shift

Currently, the school operates on a single-shift schedule from Kinder to Grade 6:

- **Shift 1:** 6:00am to 12:00nn (6 hours)

For school year 2025-2026, the School Administration of Ricardo P. Cruz Sr. Elementary School will provide an additional shift for school year 2025-2026:

- **Shift 1:** 6:00am to 12:00nn (6 hours)
- **Shift 2:** 12:00nn to 6:00pm (6 hours)

1.6.3 Transfer to Other Buildings/Rooms

Table 1-4 presents the number of affected buildings, rooms, and/or facilities and the proposed relocation plan and activities for each. The retrofitting works will directly affect 9 classrooms and the school-based management (SBM) room.

Class Size. The ideal classroom ratio of 1 teacher per 35 students (1:35 ratio) will be adhered to. Should there be an increase in enrollment, the teacher-to-student ratio of 1:40 can apply.

Designation of Classrooms. The School Administration of Ricardo P. Cruz Sr. Elementary School will designate the classrooms once they have received the approved LDM of DepEd-SDO of Taguig City.

1.6.3.1 Offices

There are no offices that will be affected by the retrofitting activities in Building 9.

1.6.3.2 Regular Rooms

The Special Needs Education (SNED) classes will be permanently transferred to the renovated mushroom room of the school. Classes for Kinder will be transferred to the Music Room. All Grade 5 learners, occupying 6 regular classrooms, will be assigned in the 2nd shift (PM session).

1.6.3.3 Others

The SBM will be transferred to the new library in Building 16.

Table 1-4: Affected Buildings and Proposed Relocation Plan/Activity

Type of Rooms/Facilities	No.	Proposed Relocation Plan/Activity
Offices		
None		
Rooms		
Classrooms: 6 regular classrooms 1 SNED Room 2 Kinder Room (1 regular room subdivided into 2)	9	Retain the implementation of face-to-face classes; Additional shift for the whole school (from 1 shift to 2 shifts) Classes: - SNED will permanently transfer to the renovated mushroom room - Kinder will transfer Music Room - All Grade 5 learners (6 regular classrooms) will be assigned on the afternoon session
Others		
SBM Room	1	Transfer to new library In Building 16 (LLC Building)

1.6.1 Preparatory Works & General Activities

Preparatory works for the retrofitting and SRP implementation will begin once the contractor has been selected and presented to the School Administration and key-stakeholders of Ricardo P. Cruz Sr. Elementary School in October 2025. The contractor shall be responsible for the conduct of safety orientation for all school personnel and learners during the 1st week of mobilization. In addition, the contractor shall continue to coordinate with the School Administration and key-stakeholders of Ricardo P. Cruz Sr. Elementary School for project updates and development until the completion of the project.

The inventory, packaging and labelling of supplies and equipment that will be transferred or stored will be done jointly by the school representative of Ricardo P. Cruz Sr. Elementary School and the workforce of the contractor. Non-valuable items, such as chairs, tables, and cabinets will be moved

to the upper floors of the building unaffected by the retrofitting activities. The said supplies and equipment will be returned to the original buildings after the completion of the retrofitting works.

Table 1-5: Activities for the Relocation of Supplies and Equipment

Activity	Responsible	Date of Implementation
Conduct inventory, packaging, and labelling of supplies and equipment that will be transferred or stored	Ricardo P. Cruz Sr. ES Representative Contractor Representative	1st week of mobilization
Conduct safety orientation to all school personnel and learners	Ricardo P. Cruz Sr. ES Representative Contractor Representative	1st week of mobilization
Transfer of equipment/ materials	Ricardo P. Cruz Sr. ES Representative Contractor Representative	2nd week of mobilization

Table 1-6 presents the detailed SRP for Ricardo P. Cruz Sr. Elementary School. The budgetary considerations and assumptions associated with its implementation are presented in the said table.

Table 1-6: Student Relocation Plan for Ricardo P. Cruz Sr. Elementary School

General Activities / Type of Rooms/Facilities	Quantity	Proposed Relocation Plan /Activity	Assumption	Unit/No.	Unit Cost (Php)	Estimated Cost (Php)
A. General Activities						
1. Project Meetings/Consultations	-	-	Project briefing and status updating	4	5,000.00	20,000.00
2. Logistics	-					
a. Building preparation	-	Transfer of supplies and equipment to other buildings and rooms in Ricardo P. Cruz Elementary School	Workforce (10 persons) for 1 man-month (22 days)	220	645.00	141,900.00
b. During retrofitting	-	Transfer of classroom chairs and tables to upper/lower floors of Building 9	Workforce (10 persons) for 1 man-month (11 days)	110	645.00	70,950.00
c. Prior to turnover	-	Returning classroom chairs and tables, together with school supplies and equipment, to the retrofitted facilities	Workforce (10 persons) for 1 man-month (22 days)	220	645.00	141,900.00
d. Storage containers	-	Procurement of storage containers	Storage boxes for supplies and equipment (120L)	100	1,000.00	100,000.00
			SUB-TOTAL			**474,750.00**
B. Type of Rooms/Facilities						
Offices						
None						
Rooms						
Classrooms: 6 regular classrooms 1 SNED Room 2 Kinder Room (1 regular room subdivided into 2)	9	Retain the implementation of face-to-face classes; Additional shift for the whole school (from 1 shift to 2 shifts) Classes: - SNED will permanently transfer to the renovated mushroom room - Kinder will transfer Music Room - All Grade 5 learners (6 regular classrooms) will be assigned on the afternoon session	**Room Preparation:** **(Music Room)** Labor and materials (room divider, improvement of electrical system, painting, and etc.)	lot	100,000.00	100,000.00
			Included in labor cost for transfer	-	-	-
Others						
SBM Room	1	Transfer to new library In Building 16 (LLC Building)	Included in labor cost for transfer	-	-	-
WASH Facilities						
N/A			WASH facilities of the building are separate from other buildings within the school premises	-	-	-
Structural Elements						
N/A						
			SUB-TOTAL			**100,000.00**
TOTAL						**574,750.00**

1.7 Implementation Schedule

Table 1-7 presents the indicative implementation of the SRP and retrofitting activities. The implementation schedule is based on the following assumptions:

- Project duration was based on an 8-hour workday;
- The contractor can extend their working hours during the weekends;
- Project briefing will be on the 3rd Quarter of 2025, once the contractor for the project has been identified. Further briefings will be conducted as necessary;
- Personal belongings of school staff will be brought home to reduce storage requirements during the retrofitting works;
- Retrofitting activities will be done in the month of November; and
- Inspection and punch listing should be done per floor to shorten the turnover period.

Table 1-7: Indicative Implementation Schedule

No.	Activity	2025			2026
		O	N	D	J
1	Project Briefing/Status Updating				
2	Mobilization/Inventory of equipment to be transferred or stored				
3	Transfer of equipment, desks, chairs to upper floors				
4	Retrofitting Works (Building No. 9)				
5	Inspection, punch listing and turn-over of Building No. 9				
6	Demobilization				
7	Monitoring of the SRP and GRM Implementation				
Note:	- Summer Break				

1.8 Grievance Redress Mechanism (GRM)

The redress of SRP-related grievances will follow the prepared GRM for the project found in the **Environmental and Social Management Plan (ESMP)**. Monitoring the implementation of the SRP as well as the GRM will be done throughout the project duration.

1.9 Concurrence to the SRP

This Student Relocation Plan (SRP) for Ricardo P. Cruz Sr. Elementary School was prepared based on the Focus Group Discussion (FGD) held last 22nd of January 2025. With the latest available information provided, the School Administration has preliminarily agreed on the details of the SRP.

While the SRP is agreed in principle, it is understood that it will be the Department of Education Schools Division Office (DepEd-SDO) of Taguig City who will have the prerogative decision in the appropriate method of instruction and/or learning delivery modalities (LDMs) that will be implemented during the implementation of the project.

The Department of Public Works and Highways – Unified Project Management Office – Buildings and Special Projects Management Cluster (DPWH-UPMO-BSPMC), as the Project Implementing Unit (PIU), shall support the DepEd SDO of Taguig City through various activities found in **Table 1-6**, once the measures have been approved. Further, the PIU shall monitor the implementation of the SRP and check and redress grievances that may arise.

The School Administration of Ricardo P. Cruz Sr. Elementary School shall continue to coordinate and provide feedback with DPWH-UPMO-BSPMC, the contractor, and DepEd-SDO of Taguig City, during the implementation of the SRP.

1 TRAFFIC MANAGEMENT PLAN (TMP)

The Traffic Management Plan (TMP) for Ricardo P. Cruz Sr. Elementary School focuses on efficient planning and managing the movement of construction materials, waste, and personnel within the project area. The TMP also addresses both stationary and moving traffic, including pedestrians, cyclists, and vehicles.

Additionally, the TMP outlines the types of traffic involved, identifies the existing roads and routes impacted by the project, and details the measures necessary to control traffic flow in the areas affected by the construction activities.

1.1 Objectives

The primary objective of this TMP is to protect the workers, pedestrians, students, teachers, and motorists by minimizing the potential risks associated with traffic movement.

The objectives of the TMP are to:

- Eliminate or reduce the probability of accidents occurring within the vicinity of the project;
- Provide a smooth traffic flow for pedestrians and vehicles; and
- Comply with the City Government of Taguig policies and regulations.

1.2 Existing Site Conditions

1.2.1 Access Roads

Ricardo P. Cruz Sr. Elementary School is accessible via the road network consisting of MRT Ave and M. L. Quezon Ave. The road directly in front of the school, M. L. Quezon Ave, is approximately 6 meters wide and features two lanes (see **Figure 1-1**).

Figure 1-1: Access to Ricardo P. Cruz Sr. Elementary School

1.2.2 School Vicinity

Ricardo P. Cruz Sr. Elementary School is under institutional use and is surrounded by residential and industrial areas. The school site has one gate which is designated for entry and exit of vehicles and another two gates for learners, and school personnel. The gate for vehicles measures 4 meters wide.

Figure 1-2: Vicinity of Ricardo P. Cruz Sr. Elementary School

1.3 Proposed Delivery Route

The proposed delivery route for the project is illustrated in **Figure 1-3**. From MRT Ave, the delivery vehicles will turn right at the M. L. Quezon Avenue, where the school is located. The delivery vehicles will continue to travel approximately 1 kilometer to reach the school. Upon delivery, delivery vehicles will travel the same path back to MRT Ave. All roads along the proposed route are asphalt paved.

It is also necessary that the implementing contractor must conduct a site verification, as the route may require adjustments based on an assessment of road conditions and traffic behavior during the project implementation.

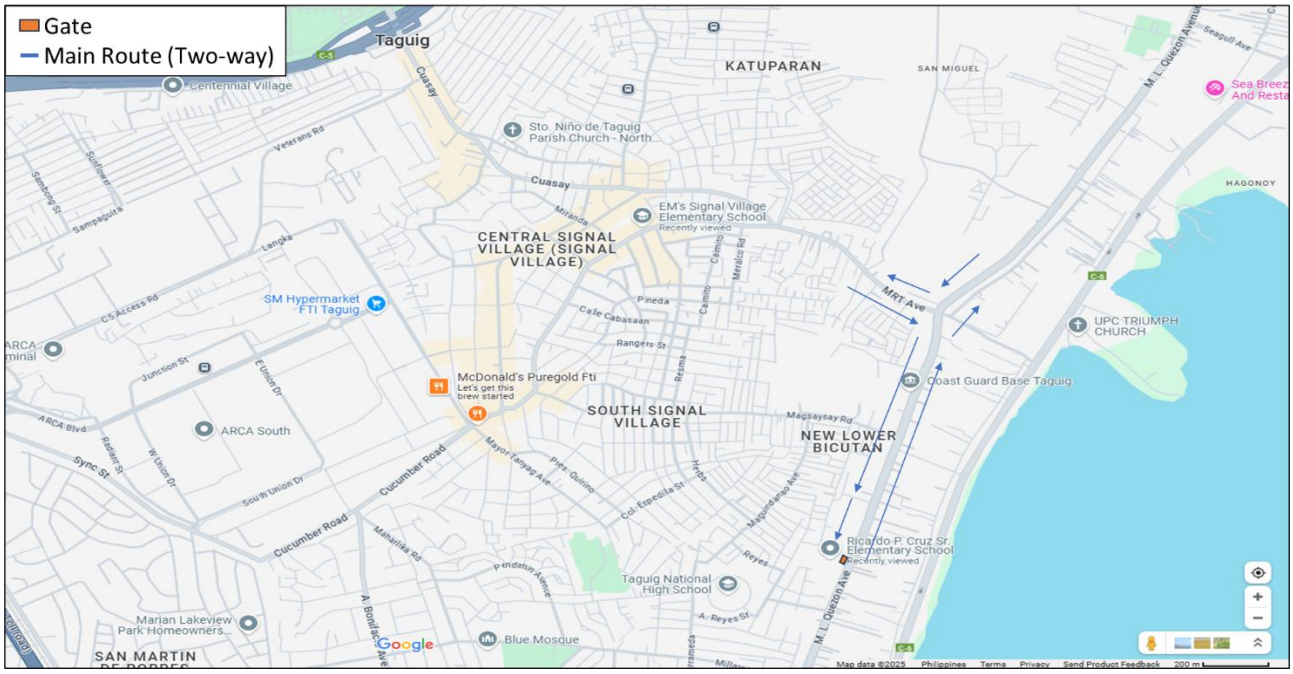


Figure 1-3: Proposed Delivery Route for the Project

1.4 Proposed Delivery Schedule

In an effort to manage traffic congestion, the Taguig Traffic Management Office (TMO) has introduced a truck ban schedule within the city. This initiative is aimed at regulating the movement of large vehicles during peak hours, promoting smoother traffic flow, and improving road safety for both drivers and pedestrians.

This measure highlights the city government's proactive approach to manage traffic issues and enhancing overall road conditions. By limiting truck movement during busy hours, authorities seek to reduce traffic bottlenecks and lower the likelihood of accidents, ultimately improving transportation efficiency throughout Taguig.

The truck ban will be in effect every day of the week, including holidays, with the following schedule:

- **Morning Ban:** Trucks are prohibited from operating within the city from 5:00 AM to 10:00 AM.
- **Evening Ban:** Trucks are also restricted during the evening rush hours, from 5:00 PM to 10:00 PM.

This schedule is the result of a collaborative effort between the local government and key stakeholders in the transportation sector. It aims to strike a balance between supporting business operations and addressing the needs of urban mobility, ensuring that commerce continues while minimizing the impact of heavy traffic on residents and daily commuters.

In line with this, considering the ordinance and class schedules of Ricardo P. Cruz Sr. Elementary School, the proposed delivery window will be from 10:00 PM to 3:00 AM.

The implementing contractor will coordinate with the City Government of Taguig, the local barangay government unit of New Lower Bicutan, and the school administration to finalize the delivery schedule for construction materials.

1.5 Proposed Staging Area

A staging area serves as the temporary place for storing construction material and equipment to ensure safety, efficiency, and cost-effectiveness throughout the construction process. Based on the consultations with the school, the proposed staging area, spoils management area and sanitation facilities (e.g., portalets) will be placed on the vacant lot in front of Building 9 during its construction.

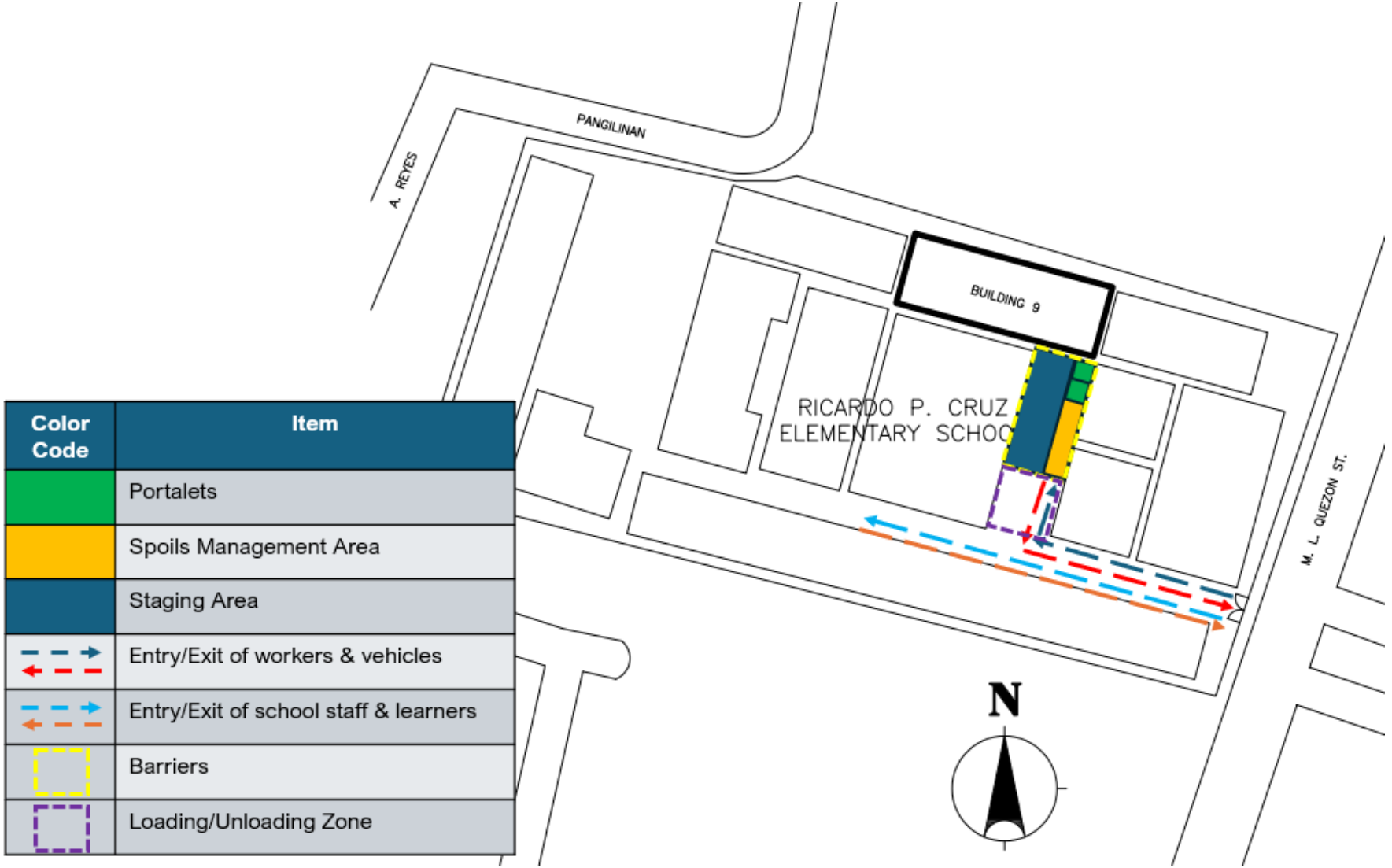


Figure 1-4: Proposed Staging Area and other Support Facilities in Ricardo P. Cruz Sr. Elementary School

1.6 Recommended Delivery Vehicles

The following are the recommended vehicles to be used in the delivery of construction materials and equipment in consideration of the narrow width and low vertical clearance of some roads leading to the school.

Table 1-1: Recommended Delivery Vehicles

Image	Type of Vehicle	Description
	Utility Van	The most used delivery vehicle in Metro Manila, since this type of vehicle is small enough to access the narrow roads in the city while having a sufficient storage capacity. This can also be used to transport the construction workers to and from the school.
	Open Truck	This type of vehicle is used to deliver construction materials that don't require the usual packaging (e.g., sand, gravel). In addition, this type of vehicle is also used to collect and transport the spoils and other construction waste from the school to a designated facility.
	Box Truck	Box trucks use a fully enclosed cargo area, typically made of aluminum or fiberglass, primarily for protection from weather and theft. This type of vehicle has various sizes such as 10 ft for minor deliveries, 12-14 ft for medium-sized loads, and 16-18 ft for transporting large equipment.

1.7 Traffic Risk Management

1.7.1 Road Safety

- **Traffic control devices** – Regulatory signs shall be installed following approval and in coordination with the City Government of Taguig and the DPWH or its delegated authority. These signs are essential for regulating traffic along the designated delivery routes, providing clear directions that must be followed. The examples of regulatory signs are presented in **Figure 1-5**.

R1-1

The STOP sign is used to ensure caution before entering an intersection and shall be used where a complete stop is required by law for safety. It is intended to ensure that drivers have sufficient time in which to assess the degree of hazard prevailing before entering an intersection.

The sign is normally located on the right side of a two-way road facing approaching traffic and at, or as close as practicable to the point where approaching vehicles are required to stop. On one-way roads, however, STOP signs should be erected on both sides facing approaching traffic. Wherever practicable, a stop line shall be used in addition to the STOP sign to indicate the required stopping point more precisely.

Table 2.1: STOP Signs

Sign No.	Size (mm)
R1-1A	450 X 450
R1-1B	600 X 600
R1-1C	750 X 750
R1-1D	900 X 900

2.7.1 Direction to be Followed (R2-1 to R2-7)

a) Disc Type

Reflectorized Blue Background
Reflectorized White arrow.

R2-1 R2-2 R2-3 R2-4

R2-5 R2-6 R2-7

Table 2.4: Direction Signs, Disk Type

Sign No	Size (mm)
R2-1A to R2-7A	450
R2-1B to R2-7B	600
R2-1C to R2-7C	750

2.8.1 No Entry for All Vehicles (R3-1 and R3-1P)

Reflectorized red disc symbol
Reflectorized white bar
Reflectorized white plate background (R3-1P) only
Black legend and border (R3-1P) only

Table 2.8: No Entry for All Vehicles Signs

Sign No	Size (mm)			Letter Size (mm)	
	Disc	Bar	Plate	Line 1	Line 2
R3-1A	600	480X120			
R3-1B	750	600X150			
R3-1PA	300	250X50	400X600	75 DM	75 DN
R3-1PB	450	375X75	600X900	120 DM	120 DN
R3-1PC	600	500X100	800X1200	160 DM	160 DN

R3-1 R3-1P

The NO ENTRY sign shall be used at the termination of a one-way carriageway to prohibit access of all vehicles from the wrong direction.

At one-way street exits, NO ENTRY signs shall be erected on both sides of the street at the intersection facing in the opposite direction to the one-way flow. The signs may need to be located a short distance into the one-way street if there is a possibility of drivers becoming confused as to which street is closed for entry. Sufficient signs shall be erected to ensure that at least one is clearly visible to drivers approaching from any direction, and some signs may have to be set at an angle to achieve this purpose.

2.8.2 No Entry for Specific Type of Road Users (R3-2 to R3-12)

Reflectorized red border and bar.
Reflectorized white background, and Black Symbol.

Table 2.9: No Entry for Specific Type of Road Users Signs

Sign No	Size (mm)	Size of Border and Bar (mm)
R3-2A to R3-12A	450	40
R3-2B to R3-12B	600	50
R3-2C to R3-12C	750	60

R3-2 R3-3

R3-4 R3-5 R3-6

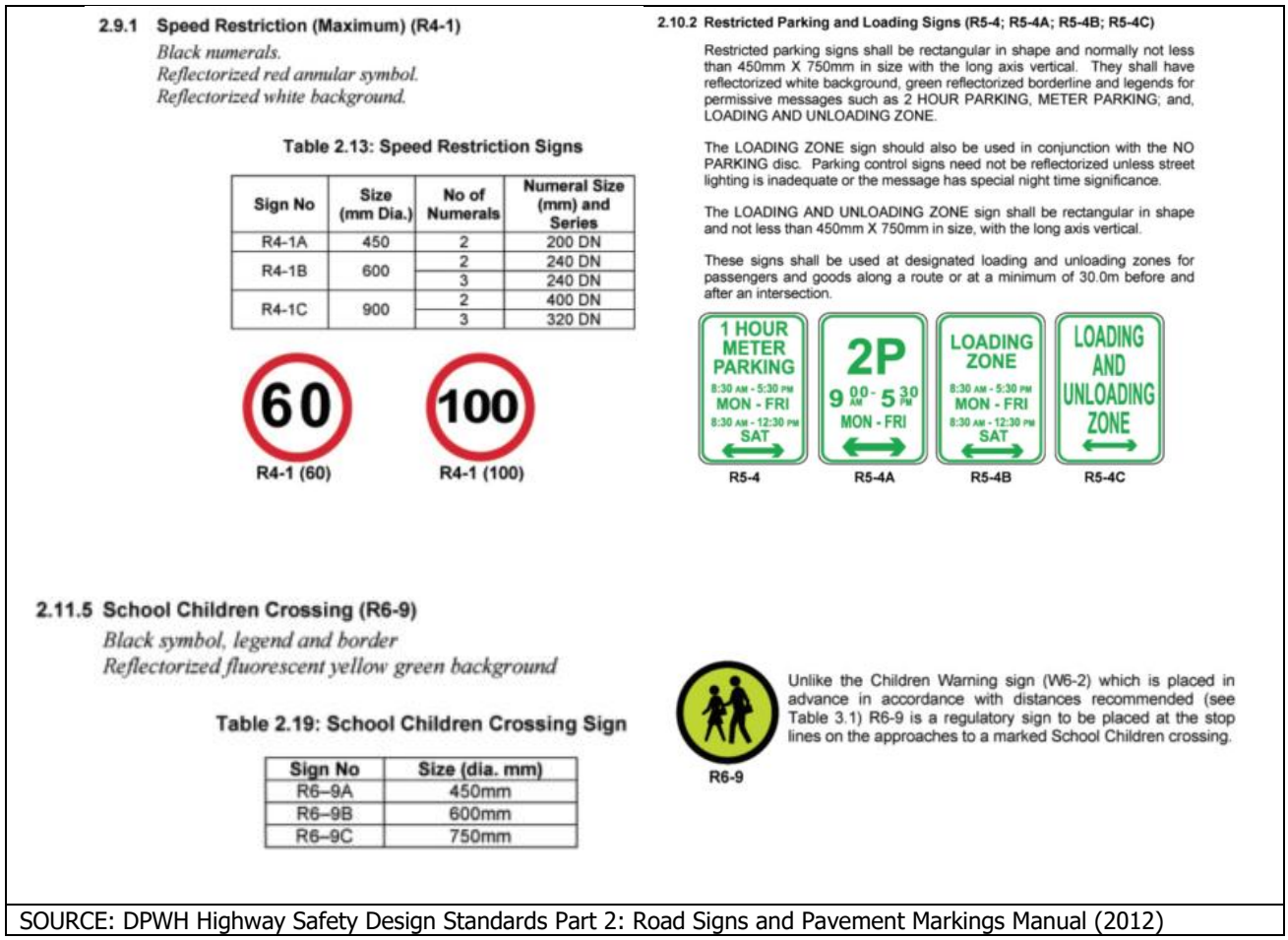
2.11.1 Prohibition on Use of Audible Warning Device – No Blowing of Horns Sign (R6-1)

Reflectorized red annular border and bar
Black symbol
Reflectorized white background

R6-1

Use of audible warning device is prohibited, where this sign is used, except to avoid an accident or those vehicles that are authorized to use warning devices in case of emergency. The No Blowing of Horns sign is usually erected in the vicinity of hospitals, schools, libraries, and churches. The diameter of the disk is 600mm.

(continued in the next page)



2.9.1 Speed Restriction (Maximum) (R4-1)

Black numerals.
Reflectorized red annular symbol.
Reflectorized white background.

Table 2.13: Speed Restriction Signs

Sign No	Size (mm Dia.)	No of Numerals	Numeral Size (mm) and Series
R4-1A	450	2	200 DN
R4-1B	600	2	240 DN
		3	240 DN
R4-1C	900	2	400 DN
		3	320 DN

R4-1 (60) R4-1 (100)

2.10.2 Restricted Parking and Loading Signs (R5-4; R5-4A; R5-4B; R5-4C)

Restricted parking signs shall be rectangular in shape and normally not less than 450mm X 750mm in size with the long axis vertical. They shall have reflectorized white background, green reflectorized borderline and legends for permissive messages such as 2 HOUR PARKING, METER PARKING; and, LOADING AND UNLOADING ZONE.

The LOADING ZONE sign should also be used in conjunction with the NO PARKING disc. Parking control signs need not be reflectorized unless street lighting is inadequate or the message has special night time significance.

The LOADING AND UNLOADING ZONE sign shall be rectangular in shape and not less than 450mm X 750mm in size, with the long axis vertical.

These signs shall be used at designated loading and unloading zones for passengers and goods along a route or at a minimum of 30.0m before and after an intersection.

R5-4 R5-4A R5-4B R5-4C

2.11.5 School Children Crossing (R6-9)

Black symbol, legend and border
Reflectorized fluorescent yellow green background

Table 2.19: School Children Crossing Sign

Sign No	Size (dia. mm)
R6–9A	450mm
R6–9B	600mm
R6–9C	750mm

Unlike the Children Warning sign (W6-2) which is placed in advance in accordance with distances recommended (see Table 3.1) R6-9 is a regulatory sign to be placed at the stop lines on the approaches to a marked School Children crossing.

R6-9

SOURCE: DPWH Highway Safety Design Standards Part 2: Road Signs and Pavement Markings Manual (2012)

Figure 1-5: Recommended Regulatory Signs

- **Lane designation and speed limit** - According to Section 35b of Republic Act No. 4136 (Land Transportation and Traffic Code of 1964), a speed limit of 20 kilometers per hour is required "on congested streets, near intersections at blind corners, in school zones, when passing stationary vehicles, or in other potentially hazardous situations." This speed limit must be followed by all vehicles, including delivery trucks, when approaching intersections and other critical areas along their designated routes, as well as at the access point to the school.

- **Improvement of truck visibility during nighttime** - The visibility of delivery trucks operating at night or in low-light conditions can be enhanced by using retro-reflective contour markings. These markings involve applying retro-reflective tape along the vehicle's outline, making it more visible to other road users.

  While retro-reflective markings are not yet required by law for trucks in the Philippines, the proposed project can significantly contribute to improving the visibility and safety of heavy vehicles in the area by introducing the use of these markings on delivery trucks.

  In August 2016, the Australian Trucking Association Industry Technical Council published a Technical Advisory Procedure (TAP) for Heavy Vehicle Visibility. The TAP is a voluntary

guideline that provides recommendations on contour markings, suggested colors, and their applicability to different vehicle types.

Contour markings can be applied in three variations: full contour, partial contour, and stripe marking. It is important to note that retro-reflective markings designed for moving vehicles have distinct performance characteristics compared to traffic sign sheeting (see **Figure 1-6**).

1.7.2 Pedestrian Safety

Whenever possible, pedestrians should be kept separated from vehicles. It is recommended that the site be divided into the following zones:

- Pedestrian zones – Walkways and work areas designated for pedestrians.
- Restricted areas – Work zones and roadways designated for vehicles only; pedestrian access is typically not allowed here.
- Shared zones – Crossings over roadways and certain work zones where both pedestrians and vehicles are permitted to interact.

Walkways and work areas should be clearly separated from vehicle zones using physical barriers or line markings. These barriers will generally serve as visual boundaries for the pedestrian areas.

In certain cases, it may be necessary to temporarily close a pedestrian zone to pedestrians and allow vehicle traffic. In such instances, appropriate equipment, such as signage, barriers, and traffic cones, should be used, and communication with all affected parties (e.g. barangay LGU) is essential.

a) Full contour – the preferred layout.

Reflective tape is applied as close as possible to the edge of the vehicle to form a continuous line depicting the outline of the vehicle. This provides maximum visibility to other road users and is best practice. This method must also be chosen if there are retro-reflective graphics on the side of the vehicle.

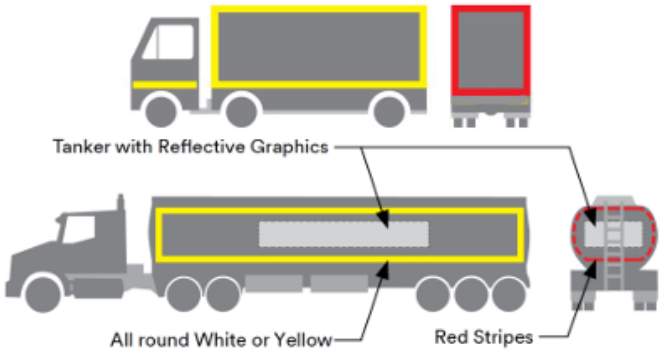


Figure 4: Full contour marking for a tanker

b) Partial contour

A single stripe of retro-reflective tape is applied along each side and rear of the body or trailer, with 'L' shape sections 0.5 m long in each corner.

Figure 5: partial contour marking

c) Stripe marking

A single stripe of retro-reflective tape is applied along each side of the vehicle and body or trailer side, and a strip across the rear. This basic layout shall only apply to those vehicles that do not utilise retro-reflective graphics or logos or have limited structure onto which tape can be applied on the upper sections of the trailer.

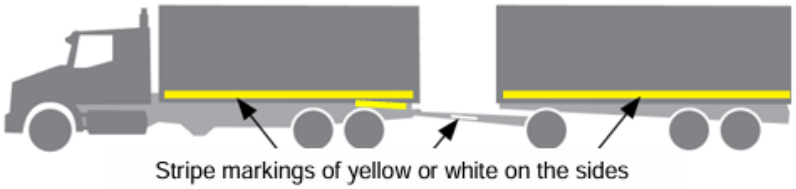


Figure 6: Stripe contour marking for truck and dog

SOURCE: ATA Technical Advisory Procedure: Heavy Vehicle Visibility 2nd Edition (2016)

Figure 1-6: Retro-Reflective Marking Option for Trucks

1.7.3 Workers Safety

The contractor should take necessary measures to ensure that all workers are physically capable and properly trained to operate the vehicles, equipment, and attachments they use on site. This can include:

- Conducting inspection during the recruitment of drivers/operators or when hiring contractors;
- Providing training for drivers and operators; and
- Managing the activities of visiting drivers.

Individuals who direct vehicle movements (such as signallers) must be adequately trained and authorized for the task. Accidents may occur if untrained or inexperienced workers operate construction vehicles without proper authorization. Access to vehicles should be controlled, and workers should be made aware of the associated risks.

1.7.4 Loading and Unloading Operations

Each loading and unloading zone, which is in front of Building 9, should have an exclusion zone marked around the vehicle. Additionally, there should be a designated driver safety zone located a short distance away, with a clear line of sight to the loading area. The loading/unloading process should be carried out in two distinct phases:

- Phase 1: The driver should not be allowed to perform any tasks on the truck (e.g., securing curtains, chains, or straps) while it is being loaded or unloaded. The driver must remain in the safety zone, where the site operator can see them clearly. It is the site operator's responsibility to ensure the driver stays clear of the vehicle during these activities. If the driver leaves the safety zone or moves out of the operator's direct line of sight, all project site movements must stop immediately.

- Once loading or unloading is complete, the site operator must move their vehicle out of the exclusion zone and notify the driver that it is safe to enter. Site equipment must not enter the exclusion zone while the driver is still inside (for example, while securing the load or adjusting gates or curtains).

If the site can only accommodate a three-meter exclusion zone on one side, as well as the front and rear of the truck, the exposed side should be protected by a barrier strong enough to withstand potential impacts. This will help safeguard pedestrians, vehicles, and project site from falling loads on that side of the truck.

1.7.5 Deployment of Traffic Marshal

The traffic marshal ensures that the vicinity of the school is clear and safe for the arrival and departure of the delivery vehicles. The marshal will also assist the delivery driver when it needs to maneuver.

The marshal then walks in front of the vehicle, removing any obstacles from its path while also staying alert for anything that could impede its movement or distract the driver. Once the path is clear, the marshal takes a safe position where the driver can see them and communicate, regardless of the

communication method used. For long-distance movements, the marshal repeats this process, ensuring each section of the route is clear and positioning themselves in a place where the driver can continue to see them.

In addition, the marshal must remain vigilant for other pedestrians and vehicles in the area. This broader situational awareness is essential for identifying potential hazards or issues before they arise and is just as important as any other aspect of the role. Moreover, the workers onsite can help the traffic marshal by keeping them up to date with possible changes in plans or delivery routes.

Site Instruction No. __

Name of Project: _____
Location: _____
Date: _____

To:

(Name and Address of Contractor)
_____
_____
_____
_____

Please be informed that during the site inspection the following were observed:

1. _____
2. _____
3. _____
4. _____

The above-mentioned works are not in compliance with the ESMP/ECOP, specifically, ___
_____
_____
_____
_____.

In this regard, you are hereby instructed to _____
_____
_____
_____
_____
(State actions to be performed by the contractor as remedial measure/s and the target schedule for completion of action)

For your compliance.

_____
Project Engineer/DPWH

Noted by:

_____
District Engineer/Regional Director

Inspection Checklist on Environment and Social Safeguard

	Acceptable? Yes/No	Remarks
1. Housekeeping		
☐ Solid waste segregation bins (biodegradable, non-biodegradable, recyclables, residual wastes, construction debris)		
☐ Waste bins removed regularly		
☐ Drainage system kept clear		
☐ Portable toilets (portalets) are clean		
☐ Clean and potable water available for workers		
☐ Passageways are clean		
☐ Materials are properly stored at site		
☐ Welding gas containers are organized		
☐ Billboard/sign is posted at the site		
☐ Materials delivery vehicles are parked properly		
2. Hazardous waste management:		
☐ Hazardous waste generator registration secured from DENR		
☐ Asbestos material management system (if applicable)		
☐ Separate hazardous waste bins/containers		
☐ Hazardous waste manifest available onsite		
3. Pollution Control Officer (PCO) onsite		
4. Health and Safety		
☐ Safety officer is onsite		
☐ Workers wearing proper PPEs		
☐ First-aid equipment is in-place		
☐ Workers comply with the COVID-19 control instructions		
☐ Working area is barricaded		
☐ Working area is well-lighted		
☐ Safety warning signs are available		
☐ Scaffoldings and braces firmly erected		
☐ Safety net installed (for works on outer surface of building)		
☐ Fire extinguishers available		
Identify any inconveniences:		
Identify any site accidents and safety incidents:		
5. Air pollution control		
☐ Area where adhesives are being applied or where welding activities are ongoing is well-ventilated		
☐ Dust control measures are effective		
☐ Dust is being monitored (visually)		

	Acceptable? Yes/No	Remarks
☐ Results of the onsite monitoring of TSP, PM2.5 and PM 10 are within the NAAQS guidelines.		
6. Noise and vibration control		
☐ Noise and vibration managed		
☐ Noise is being monitored		
☐ Results of the noise monitoring are compliant with NPCC MC No. 002 Series of 1980		
7. Emergency response		
☐ Fire extinguishers available onsite		
☐ Spill control and management instruction available onsite		
☐ Workers are aware of emergency response procedures		
☐ Materials (rags, saw dust, sand, etc.) for oil spill management are available onsite		
8. Community complaints Identify any community complaints received including issues from the school/health facility end-user about the construction activities:		
9. Chance Find (as applicable) Are there any chance find of artifact?		
10. Condition of Temporary Relocation Site of School/Health Facility		
☐ Are temporary classrooms convenient and safe?		
☐ Is the temporary health facility operating well?		
Identify issues from end-user about the temporary relocation sites:		
11. Post-Construction		
☐ Work area cleaned up		
☐ There are no materials and wastes left onsite		
☐ Disturbed areas restored properly		