



## REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES PROJECT

Site Specific Environmental and Social Management Plan

**Site No. 43**

**St. John Boaco's College (Primary Section) - Hatton  
Nuwara-Eliya District**

**January 2021**

Prepared for:



ASIAN INFRASTRUCTURE  
INVESTMENT BANK

Prepared by:



National Building Research Organisation  
99/1, Jawatta Rd | Colombo 05  
Tel: 011-2588946, 011-2503431, 0112-2500354



## Table of Content

1. Introduction.....	1
1.1 Project overview .....	1
1.2 Intended users .....	1
2. Description of the project and site descriptions.....	1
2.1 Name of the project .....	1
2.2 Location details.....	1
2.3 Topography and Land Ownership .....	2
2.4 Meteorology of the area.....	3
3. Landslide hazard incident details .....	3
3.1 Account of incident .....	3
3.2 Effects and consequences of landslide .....	3
3.3 Description of any remedial measures already undertaken to reduce the potential risk .....	3
3.4 Evacuations.....	3
3.5 Resettlement (progress) .....	3
4. Description of the area of the landslide/slope failure and areas adjacent to the landslide and current level of risk. ....	6
4.1 Surrounding area of the slope failure.....	6
4.2 Areas adjacent to the slope failure.....	6
4.3 Current level of risk.....	6
5. Description of the works envisaged under the project .....	6
6. Brief description on the surrounding environment with special reference to sensitive elements that may be affected by the project actions.....	6
7. Identification of social and environmental impacts and risks related to the works .....	9
7.1 Positive impacts.....	6
7.2 Negative impacts .....	6
8. Site Specific Risk Analysis.....	10
9. Significant Environmental and Social Impacts .....	10
9.1 Priority Health and Safety Issues. Specific H&S concerns that require measures that go beyond the standard contractual requirements for contractors.....	10
9.2 Child labour & forced labour.....	10
9.3 Environmental Social Management Plan (ESMP).....	10
9.4 Resettlement action plan.....	10
9.5 Evacuation of people .....	11
9.6 Procedure for removal of damaged structures, facilities infrastructure (consent from owners to remove the articles) .....	11
9.4 Requirement for compensation for loss of property /uses due to project actions .....	11
9.5 Public awareness and education- needed for following areas .....	11
9.6 Design based Environmental/ Social Management considerations .....	11
9.7 Mitigation of impacts during the construction phase.....	12

9.7.1 Construction contractors' requirement to comply with environmental and social management during the construction phase .....	12
9.7.2 Site Specific mitigation .....	13
10. Monitoring requirements specific to the site.....	18
11. Labor management.....	18
12.Preventive measures for COVID-19 that was issued by Sri Lankan national health authority .....	19
13. Public and Stakeholder Consultations - the public consultations that have been and/or will be held .	19
13.1 Public Consultations .....	19
13.2 Stakeholders involved in the consultations any recommendations or agreements reached in the consultations (Refer annexure II) .....	19
14.Clearances, no objection, consent and approvals required for the implementation of the project.....	19
15. Grievance redress mechanism for this site.....	21
16. Information disclosure .....	21

## **List of Annexures**

Annexure I: Images of the site condition and the consultation .....	i
Annexure II: Report on the Stakeholder Consultation: Kandy District .....	i
Annexure III: Study team.....	ii
Annexure IV: List of references.....	ii

## **List of Figures**

Figure 1: Road access to the mitigation site .....	2
Figure 2: Google image of the proposed landslide mitigation site, the surrounding environmental features and service infrastructure.....	2
Figure 3: Google image, cross sections, land use, risk elements and the photographs of special features of the location.....	1
Figure 4a: Front view of the school and church.....	7
Figure 4b: Unstable slope of the location 1 .....	7
Figure 4c: Unstable slope behind the grade 3,4,5 building (location 2) .....	7
Figure 4d: Constructed soil bag retaining wall (location 2).....	7
Figure 4e: Constructed concrete retaining wall (location 2) .....	8
Figure 4f: Damaged toilet complex (location 2) .....	8

## **List of Tables**

Table 1: Negative impacts and their level of significance .....	6
Table 2: Site specific risk analysis .....	10
Table 3: Design stage Environmental & Social considerations .....	11
Table 4: Contractor requirement to comply with ES & HS .....	12
Table 5: Site specific ES & HS mitigation measures.....	14
Table 6: Environmental and Social monitoring plan; construction phase .....	18
Table 7: Clearances, no objection, consent and approvals.....	19
Table 8: Tentative timeline for getting approvals.....	20
Table 9: Proposed scheme of information disclosure .....	21
Table 10: Level of information gathered through consulting institutions.....	21

## **Abbreviations**

AIIB	Asian Infrastructure Investment Bank
CEA	Central Environmental Authority
CEB	Ceylon Electricity Board
DFC	Department of Forest Conservation
DS	Divisional Secretary
DWLC	Department of Wild Life Conservation
EH & S	Environmental Health & Social
E&SU of PMU	Environmental & Social Unit of Project Management Unit
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
GN	Grama Niladhari
GOSL	Government of Sri Lanka
GSMB	Geological Surveys & Mines Bureau
LHS	Left Hand Side
NBRO	National Building Research Organization
RDA	Road Development Authority
RHS	Right Hand Side
SSE & SMP	Site Specific Environmental and Social Management Plan

## **1. Introduction**

### **1.1 Project overview**

The Government of Sri Lanka has received a loan from the Asian Infrastructure Investment Bank (AIIB) for mitigating/rectifying unstable slopes in high-risk areas especially in 11 districts of 06 provinces of the country. The project requires to be implemented in accordance with environmental and social safeguards and mandates of the AIIB and that of Sri Lanka. Considering the nature of project actions and its implementation, an environmental and social management framework (ESMF) has been prepared as required by the AIIB environmental and social safeguard policy.

The purpose of the environmental and social management framework (ESMF) is to provide a guide for application of AIIB safeguards and national environmental and social mandates during the implementation of project actions. The project implementing agency (NBRO) is expected to ensure implementation of environmental and social management plans prepared under the ESMF during all phases of project implementation so that the impacts on the environment and community are minimum.

During the scoping exercise it was revealed that the environmental & social setting, and health & safety conditions are more site specific, and require to be addressed specific to site conditions. Therefore, the ESMF has recommended a site specific environmental and social assessments followed by Site Specific Environmental and Social Management Plans (SSE&SMP) for each site. The SSE&SMP gives planning, design, construction and operation phase environmental, social, and health & safety management measures to be considered in the project Implementation.

This is the site specific environmental and social management plan for **St. Bosco's Primary College** landslide mitigation site. This plan has been prepared by an in-depth environmental and social assessment to:

- i. Identify sensitive environmental and social elements in the project influence area
- ii. Identify significant environmental and social impacts due to project actions
- iii. Propose mitigation measures
- iv. Decide appropriate environmental and social monitoring requirements specific to this project
- v. Study relevant environmental regulations and procedures to be followed during project implementation specific to the site

### **1.2 Intended users**

The document provides an in-depth insight into site specific environmental and social issues associated with the proposed project and the mitigation measures and intend to be used by landslide mitigation design team, the PMU and the contractor in the implementation of ESMP component of the project. The SSE&SMP is published in NBRO website and in AIIB websites can be viewed by wide range of interested parties (public, stakeholder organizations) can be utilized by the contractors for the project and will form the basis of site-specific management plans that will be prepared by the contractors as part of their Site Specific Environmental and Social Management Action Plans (SS- ESMAP) prior to commencing works.

## **2. Description of the project and site descriptions**

### **2.1 Name of the project**

Rectification of Site No. 43, Nuwara Eliya District, St. Bosco's Primary College - Hatton

### **2.2 Location details**

The proposed mitigation site falls under 319 E Hatton GN division of Ambagamuwa DS division in Nuwara Eliya District of Central Province.

**GPS references of the site** - 6.8942592°N and 80.5969511°E

**Elevation** – 1271 AMSL

**Nearest town to the site** – Hatton (within the city).

### **Nearest town and accessibility to the site**

St. Bosco's Primary College is located near the Hatton Railway Station. The site can be accessed via Bosco road from Hatton city. The nearest town is Hatton to the mitigation site. *Refer figure 1 Road access to the mitigation site.*

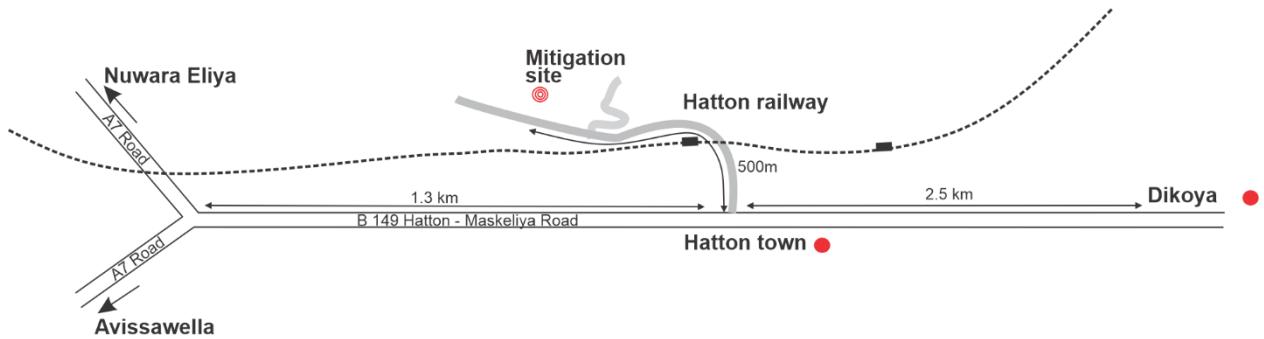


Figure 1: Road access to the mitigation site

### **2.3 Topography and Land Ownership**

The proposed mitigation site is located within the St. Bosco's Primary College premises. The extent of the land area of the school is about 50 perches. The general topography of the school is characterized by undulating slopes. The school stand towards to the Hatton railway station. The school is bordered by St Cross Church, private lands and Bosco road.

The land ownership is the Department of Education. The church land is owned to the Bishop of the Central Province. The school has a population of 600 students from grade 1 to 5, 18 teachers at present. *Ref. Fig 2 for Google image of the proposed landslide mitigation site and surrounding features and service infrastructure.*



Figure 2: Google image of the proposed landslide mitigation site, the surrounding environmental features and service infrastructure.

## **2.4 Meteorology of the area**

Annual average rainfall –4125mm

Annual average temperature –19.6 °C

(Source: Web Site of Divisional Secretariat – Ambagamuwa.)

## **3. Landslide hazard incident details**

### **3.1 Account of incident**

According to the information provided by the principal of the college, a slope failure had occurred at the slope behind the building of grade 4 and 5 located four years back during high precipitation events in the area. Cutting failures and unstable slopes had been identified at three locations in the school premises as given below.

Location 1: Slope failure at the slope between the building of grade 1,2 and Bosco road

Location 2: Unstable slope behind the building of grade 4 and 5

Location 3: Unstable slope between the church boundary wall and Bosco road

About 6,000 m<sup>2</sup> of the area at a risk within the school premises due to unstable slopes.

The observations of the upslope area indicates, the main cause of the slope failure and instability is cut slopes and poor drainages within the school premises. Several cuts too have been made in the sloppy lands within the school premises for buildings. This also has contributed to slope instability and cutting failures. The slope modifications have not followed engineering slope stability norms while drainage management on the slopes were poor. The cumulative impact had resulted cutting and slope failures. The tension cracks had appeared in the floor in front of the church boundary wall.

*Refer Fig 3: cross sections, land use, risk elements and the photographs of special features of the location.*

### **3.2 Effects and consequences of landslide**

In 2017, the slope behind the building of grade 1,2 was collapsed and dislodged soil mass had moved towards the Bosco road. There were no damages to school properties and to the school population due to the incident. In the upslope of the location 2, also collapsed towards the building of grade 3,4,5 and toilet complex of the school. The toilet complex was damaged and it is not utilized at present because of the risk. Tension cracks were developed at the floor near the church boundary wall.

However, if the land is utilized under poor land management, there will be possibilities to fail area of the unstable slopes and vertical slope cuts during the rainy periods.

### **3.3 Description of any remedial measures already undertaken to reduce the potential risk**

With the occurrence of cut slope failures and unstable slope sections in surrounding areas of the school premises, the school management has constructed a green net to reduce the slope failure towards the road and also constructed concrete wall and a retaining wall (soil bag) behind the building of grade 3,4,5.

### **3.4 Evacuations**

The students of the building of grade 1 and 2 (location 1) were evacuated due to the risk.

### **3.5 Resettlement (progress)**

No any resettlement for this site.

## Location : Site no 43; Hatton Bosco College

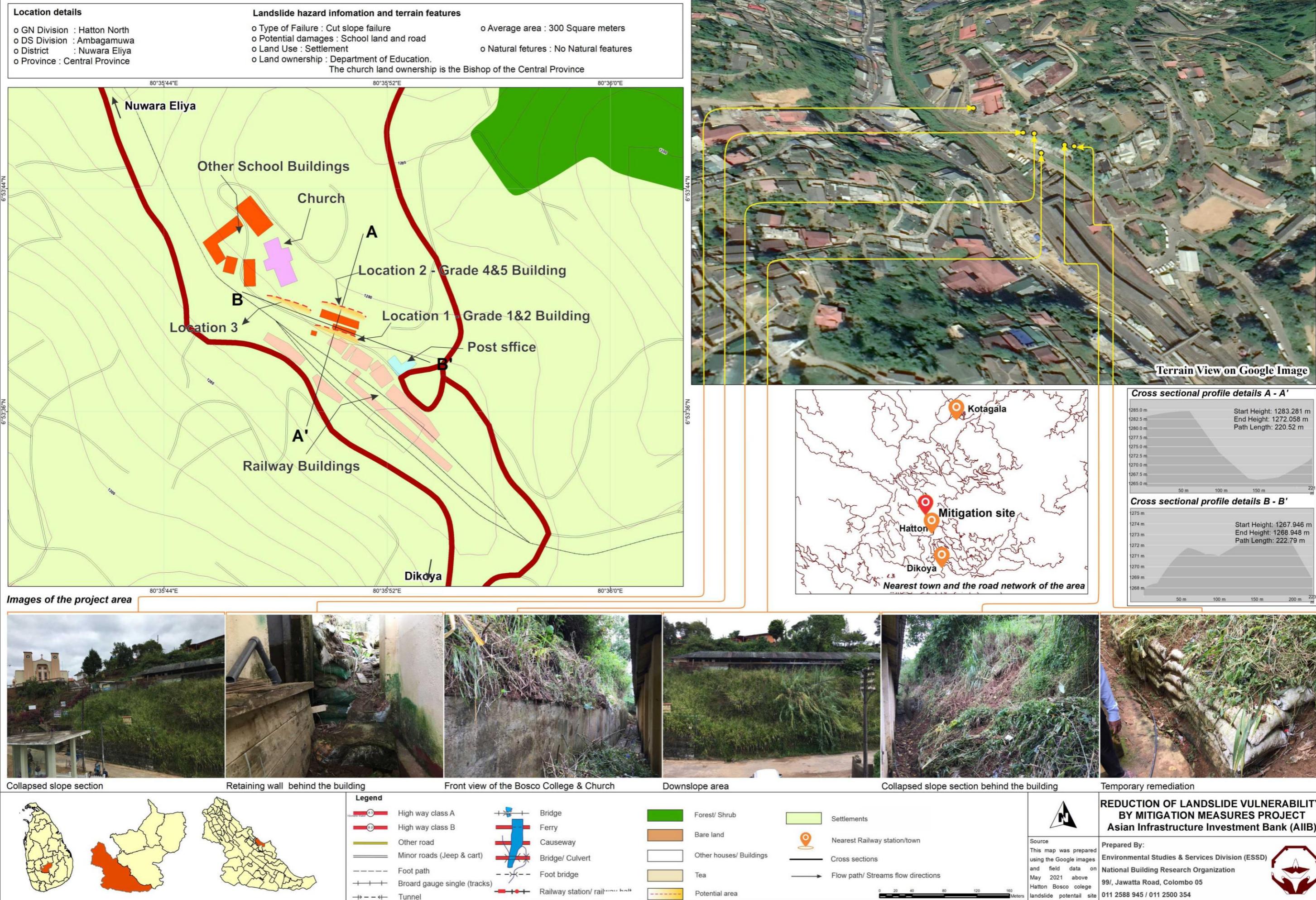


Figure 3: Google image, cross sections, land use, risk elements and the photographs of special features of the location

#### **4. Description of the area of the landslide/slope failure and areas adjacent to the landslide and current level of risk.**

##### **4.1 Surrounding area of the slope failure**

The affected site is located at the primary section of St. Bosco's College in Hatton. Two school buildings are at risk due to slope instability and vertical slope cuts. The slope informant of the church is also unstable.

**Location 1:** The location 1 is a slope behind the building of grade 1,2 and it slopes towards the Bosco road. This slope is identified as a cutting failure. The unstable slope behind this hall is with an inclination of about  $60^0$ . The primary section of the school comprises of two buildings, staff room, principal's office and toilet complex. The adjacent building to the unstable slope has no proper storm water drains. A retaining green net had been constructed at the downslope sloppy area. About 600 students are studying at the primary section. Eighteen (18) teachers are in the primary section.

Water conveying lines of the school premises are running through the slope of location 1. Some understorey grass species can be identified in upslope area and the downslope consists with herbs, grass species, and wild corn species.

**Location 2:** The unstable slope behind the building of grade 3,4,5. The slope is at about  $60^0 - 70^0$  inclination. Toilet complex, septic tank and sewage lines are located in the right-hand side of the unstable slope. Eight classrooms are located in this building and building is at high risk.

**Location 3:** The boundary wall of the St. Cross church has cracked due to the surcharge of the filled soil. The tension cracks can be seen at the floor near the boundary wall. The St Cross church is the historical Roman Catholic church in Hatton. It has 175 years of historic period. Currently about 1800 Roman Catholic families are engaging with the church religious activities. A Sunday Dhamma school is held with 600 students by the church.

##### **4.2 Areas adjacent to the slope failure**

The area adjacent to the school is highly residential and commercial. Bosco road and the St Cross church are to the primary section premises of the school. Hatton railway station is located down slope of location 1, just opposite side of Bosco road. A Catholic statue is located downslope area at Bosco road opposite to the school premises. Next to the secondary school, the quarters of the department of railway is located.

##### **4.3 Current level of risk**

The almost vertical non-engineered slope cut in the location 1 which has already failed will be at risk of future failure due to recurring extreme precipitation events. Due to this the school buildings will be at risk. The future cut slope failure may impact on toilet complex and water conveying pipe lines, pedestrians and commuters of Bosco road.

The location 3 if failed may pose risk to the road and the building of the secondary section, school activities, Church buildings and its religious activities. The school population, and the surrounding properties will be at risk due to the structural damages in building due to slope failures.

#### **5. Description of the works envisaged under the project**

The proposed project aimed to combat further progressive failure of soils/slopes. The school and church premises are highly potential to damage by for cutting and slope failures; therefore, preventive measures such as soil nailing, reshaping, turfing and surface drainage management will be implemented as the mitigation measures.

#### **6. Brief description on the surrounding environment with special reference to sensitive elements that may be affected by the project actions**

The affected site is located within school and church premises. The buildings are located at different elevations. The open spaces of the school are very limited.

Following sensitive elements will be at risk due to project actions;

- i. School children, teachers and non-academic staff
- ii. School buildings
- iii. Activities of the school
- iv. Teachers' parking facility
- v. Septic tank and sewage lines
- vi. Water conveying lines to school
- vii. Catholic statue at the downslope
- viii. Church and its religious activities, devotees
- ix. Bosco road and its commuters and pedestrians

Ref. Fig.4 Sensitive elements that may be affected by the project actions.



Figure 4a: Front view of the school and church



Figure 4b: Unstable slope of the location 1



Figure 4c: Unstable slope behind the grade 3,4,5 building (location 2)



Figure 4d: Constructed soil bag retaining wall (location 2)



Figure 4e: Constructed concrete retaining wall (location 2)



Figure 4f: Damaged toilet complex (location 2)

Figure 4: Sensitive elements that may be affected by the project actions

## 7. Identification of social and environmental impacts and risks related to the works

Chart below summaries the positive and negative impacts which are envisaged during project actions and their significance.

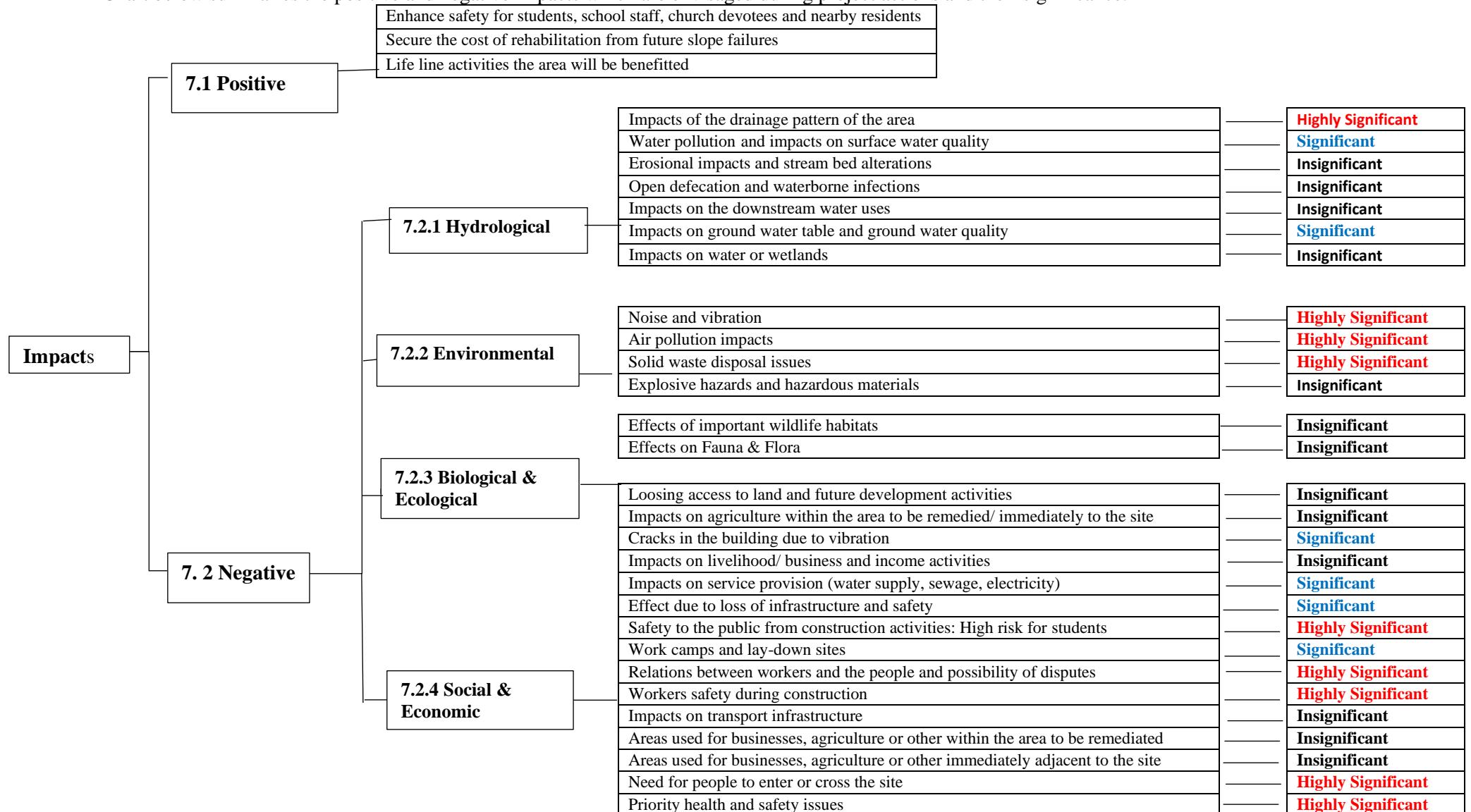


Figure 5: Summary of the impacts which are envisaged during project

## 7.1 Positive impacts

- The objective of this project is to ensure that further failures of slopes are prevented to an acceptable level in the primary section of the St. John Bosco's College in Hatton. The buildings in the school premises currently at risk will be safe and the unstable areas of the school will be secured from future slope failures. The improved slope stability with the proposed structural mitigation will enhance significantly the safety of school population and its property.
- The water supply lines (location 1) running through the sloppy area will be safe from discontinuing supply by future failures. The septic tank and sewage lines of the school premises will be safe from future collapse.
- The religious activities of the St Cross Church will be safe after the mitigation.
- The Bosco road will be safe for pedestrians and commuters.

## 7.2 Negative impacts

The mitigation works are generally confined to an area which is already unstable and highly potential for slope failures. Therefore, negative impacts are much localized and also limited to construction period.

Table 1: Negative impacts and their level of significance

Impacts during the construction period	Level of Significance
<b>7.2.1 Hydrological and water quality impacts</b>	
<b>7.2.1.1 Impacts of the drainage pattern of the area</b>  Disruption of existing surface and sub-surface drainage pattern in the area is envisaged during the construction period due to the reshaping of the unstable slopes, removal of soils, and diversions of existing drainage and surface runoff flow paths. The mitigation works in this site will focus on the drainage and slope improvement. Therefore, during rainy season heavy flow of water is expected to be generated and would be accumulated in the downslope drainages. Due to diversions, cut-off drains and increased sub-surface drainage, the downslope area will have increased flows at higher velocities in rainy periods.	Highly Significant
<b>7.2.1.2 Water pollution and impacts on surface water quality</b>  During the slope excavation, removal of debris can generate high sediment laden runoff there could be a possibility that contaminated runoff may pollute the water within the high seepage in the area. Improper disposal of oils and other harmful substances/contaminants from machineries, leakages from temporary storage tanks, solid waste and wastewater disposal/dumping could occur causing adverse impacts on quality of the water. However, during rainy season, the rainwater running through the disturbed slope tends to pick up sediment, oil and other pollutants generated during construction. Since there are no water streams close to the site, water pollution impact will not be highly significant.	Significant
<b>7.2.1.3 Erosional impacts and stream bed alterations</b>  The project activities will open the slope for surface erosion during the construction phase. The existing surface and sub-surface drainage pattern in the area will be disrupted during construction phase. Therefore, the erosional impacts are significant. Since there are no water streams close to the site, stream bed alteration impact will not be significant.	Insignificant
<b>7.2.1.4 Open defecation and waterborne infections</b>  As site is located within a school premises, possibility of open defecation is very low.	Insignificant
<b>7.2.1.5 Impacts on the downstream water uses</b>  Since there are no water streams close to the site, impact will be insignificant.	Insignificant

<b>7.2.1.6 Impacts on ground water table and ground water quality</b>	Addition or mixing of construction materials including cements, grout materials with sub-surface water flows will cause temporary water quality degradation and accumulation of unwanted substances. During the construction period, the hazardous waste from chemical substances, waste water from the construction activities and discharge of waste matter from onsite septic systems would not cause adverse impacts on the ground water quality as there is no residential area nearby.	Insignificant
<b>7.2.1.7 Impacts on water or wetlands</b>	There are no water streams close to the mitigation site	Insignificant
<b>7.2.2 Environmental Impacts</b>		
<b>7.2.2.1 Noise and vibration impacts</b>	Construction noise are expected from machinery in site preparation and landscaping. This impact is significant as the construction is carried out in the proximity of the class rooms. The noise generated from the machinery will disturb the classes and other school functions. Hence the impacts of noise are <b>considered highly significant at this site</b> .  If heavy machinery is operated the vibration can affect the school buildings and the buildings of church. As a result, structural deformations such as cracks and collapse of walls etc. may happen. Hence vibration impacts at this site is <b>considered as significant</b> . The pedestrians and commuters on road will also have an effect from noise and vibration.	<b>Highly Significant</b>
<b>7.2.2.2 Air pollution impacts</b>	Potential impacts on the air quality during the construction stage will be due to the fugitive dust and the exhaust gases generated in and around the construction site due to vehicular movement. Dust is a major component of air pollution, generated mainly from the following construction activities: Site clearance and use of heavy vehicles and machinery/ equipment etc. Storage and handling of construction materials such as sand, cement, etc. and other gaseous emissions during construction result from: operating of construction vehicles, plant, and equipment. As the students in classrooms are in the close proximity to the location the air pollution impacts and dust fumes are significant. The effect is highly significant to school children if heavy air polluting activities are carried out during school hours. As the sensitive elements commuters, pedestrian etc. are in the close proximity the air pollution impacts from dust and fumes from the construction are highly significant.	<b>Highly Significant</b>
<b>7.2.2.3 Solid waste disposal issues</b>	Haphazard disposal of solid waste; various types of waste such as litter, food waste, construction waste will be generated and may store or dispose on site. The littering and haphazard storage and disposal of solid waste in and around the site will create unaesthetic appearance to the railway commuters. Littering can block the water seepages and will make breeding grounds for mosquitoes. Waste can pollute the soil, and leave various environmental impacts if proper disposal mechanism is not in place during the construction period.	<b>Highly Significant</b>
<b>7.2.2.4 Explosive hazards and hazardous materials</b>	Since the affected area has no rock boulders, explosives may not be used if the rock blasting is envisaged.	Insignificant
<b>7.2.3 Biological /Ecological Impacts</b>		
<b>7.2.3.1 Effects of important wildlife habitats</b>	There are no forested/ wild-life reservation areas within the project influence area with high biodiversity.	Insignificant
<b>7.2.3.2 Effects on fauna &amp; flora</b>	Majority of the trees found in the area are not endemic, threatened and identified in the red list of IUCN.	Insignificant

<b>7.2.4 Social and Economic Impacts</b>	
<b>7.2.4.1 Loosing access to land and future development activities</b>	
The mitigation works will be concentrated within the school premises. Hence there will be no significant impact to the land owners with regard to loosing access to the land or loss to valuable uses.	Insignificant
<b>7.2.4.2 Impacts on agriculture within the area to be remedied/ immediately to the site</b> There is no any cultivation immediately adjacent to unstable slope area.	Insignificant
<b>7.2.4.3 Cracks in the building due to vibration impacts</b> There are several buildings are located in the proximity of the mitigation site. These are located closes to the unstable slopes. There are other school buildings also located in the school premises at different elevations. During the construction heavy machinery will be used and the vibration can cause cracks in these buildings and the effects are significant. Vibration can affect the stability of the nearby buildings immediate to the slope in the school.	Significant
<b>7.2.4.4 Impacts on livelihood/ business and income activities</b> There are no any livelihood/ business or income activities near the unstable area. The impacts are insignificant.	Insignificant
<b>7.2.4.5 Impacts on service provision (water supply, sewage, electricity)</b> There are water supply lines, sewage and electricity service provision near the unstable area. The impacts are significant.	Significant
<b>7.2.4.6 Effect due to loss of infrastructure and safety</b> During construction phase, the vehicle movement of Bosco Road and vice versa will be obstructed by frequently moving machinery, loaders, trucks etc. Therefore, most of the heavy machinery, trucks and loaders can obstruct the pedestrian passage and cause traffic during school times. <b>Therefore, effect due to loss of infrastructure and safety is locally significant.</b>	Significant
<b>7.2.4.7 Work camps and lay-down site requirements</b> The work camps will be established closer to the site. Often the contractor rent out houses in the proximity. The camps site will be selected in the neighbourhood of community. If proper camp management is not in place, it may result several labour issues, social issues with community, conflicts for shared resources with the community, nuisances, and management of waste etc. If temporary camps are built in the close proximity of the site, management of solid waste and sewage will be an issue. <b>Therefore, the effects are significant.</b>	Significant
<b>7.2.4.8 Relations between workers and the school children / staff / people living in the vicinity of the site and possibility of disputes</b> The mitigation site is a school. The construction workers at this site will be from different social backgrounds and from different geographical areas often under poverty. Usually, they are with poor educational and social background. Such communities may have a wide range of social issues to cause dis-stress on the school staff and the children as indicated below. <ul style="list-style-type: none"> <li>• Cause nuisance to smooth operation of school works</li> <li>• Unauthorised entry into school premises</li> <li>• Bullying and harassment to children</li> <li>• Quarrels with children and parents</li> <li>• Distracting children from education</li> <li>• Tempting children and parents towards offensive deals</li> <li>• Informal form of child labour</li> <li>• Use of sanitary facilities of school by the workforce</li> <li>• Sexual abuses for the children</li> </ul> Further, the proposed mitigating sites are located close to the hostel there will be labour nuisance from night-time construction activities. Although the workers who would engage	Highly Significant

in such issues will be rare, even few possibilities cannot be ignored. Therefore, issues indicated above at this site will be considered <b>highly significant</b> .	
<b>7.2.4.9 Workers safety during construction</b>  The workers may be exposed to risk of facing railroad accidents. The constructions are carried out in a very limited space. They also may face risk of falling from the unstable slope. Fatal injuries may occur due to the ignorance of workers and overstepping the moving dimensions resulting into train accidents. The heavy construction machinery may be used in limited work spaces. Risk of hazard from vehicles and construction machineries accidents is also highly significant at this site. Contractor may engage under age workers (children) for construction work, which is risky and can result serious accidents and injuries.	<b>Highly Significant</b>
<b>7.2.4.10 Risks of school children accessing the site during construction</b>  During the construction phase site may use excavation machineries, loaders, trucks etc. These machines and heavy vehicles etc. will be used in the school premises where school children and staff are moving. Site may use high voltage power for operation of certain machinery. Construction may use materials such as metal aggregates, steel etc. which can be injurious under improper storage and handling. The school children will be attracted to these machineries, materials and may even enter the site without proper awareness of the site staff. Ignorance of entry of school children and careless operation of machinery can cause fatal injuries and accidents to school children. <b>The risk on school children at site is therefore highly significant.</b>	<b>Highly Significant</b>
<b>7.2.4.11 Safety to the public from construction activities: High risk for commuters</b>  The area where people from different ages and backgrounds with poor knowledge on construction risk, use for transportation purposes. As the site is located on a land section with a school, the safety of commuters will be highly significant due to some heavy locomotives such as excavators, rollers, water bowsers, trucks and lorries carrying material, water etc. on railway may pose risk of accidents as the station is frequently used by people for travelling.	<b>Highly Significant</b>
<b>7.2.4.12 Impacts on transport infrastructure (especially temporary loss of road or rail access, risks of traffic congestion)</b>  Machinery and material transportation will interrupt the transportation of road. Further, material & machinery transportation to the proposed mitigatory site may affect the access to the quarts of the railway department.	<b>Highly Significant</b>
<b>7.2.4.13 Areas used for businesses, agriculture or other within the area to be remediated</b>  There are no areas used for business, specific agriculture practices or other within the area to be remediated.	Insignificant
<b>7.2.4.14 Areas used for businesses, agriculture or other immediately adjacent to the site</b>  There are no areas used for business, specific agriculture practices or other immediately adjacent to the site.	Insignificant
<b>7.2.4.15 Need for people to enter or cross the site</b>  Excavation machineries, loaders, trucks etc. will be used in the school premises where school children and staff are moving. There is no special need for students and the staff to enter the site for other purposes. Construction may use materials such as metal aggregates, steel etc. which can be injurious under improper storage and handling. However, unauthorised entry of ordinary people may occur due to intentional or unintentional purposes and they may be at risk due to operating machinery, vehicles, electricity, and may be blasting materials.	<b>Highly Significant</b>

## 8. Site Specific Risk Analysis

Table 2: Site specific risk analysis

Risk	Affected group	Risk level
1. Facing accidents when working / shifting in between roads	Workers/school children / commuters/ pedestrians	Very high
2. Transporting materials and machineries	Workers/school children / commuters/ pedestrians	Very high
3. Throw out disposals (litter, bottles, and food) to the school premises from the construction site	school children/ teachers	Very high
4. Injuries due to rock particles due to explosions/ blasting	Workers/school children / commuters/ pedestrians	High
5. Soil mas fall from the unstable area	Workers/school children / commuters/ pedestrians	High
6. Work with electrified supply lines	Workers/school children / commuters/ pedestrians	High
7. Site Working – Working in poor visibility	Workers	High
8. Lone Working	Workers	High
9. Emergency evacuation	Workers/school children / commuters/ pedestrians	High
10. Extreme weather conditions (wind, rain etc.)	Workers	High

## 9. Significant Environmental and Social Impacts

Environmental, social impacts or risks that will require special attention on the part of NBRO.

### 9.1 Priority Health and Safety Issues. Specific H&S concerns that require measures that go beyond the standard contractual requirements for contractors

The health and safety issues pertinent to this site is significant as the workers have to work on almost vertical unstable slope with a risk of slope collapse. The health and safety issues of workers safety is highly significant at this site. Such common E & HS issues have been discussed in the **ESMF**. Worker safety requirement in the construction site is more detailed under 2003 5: Safety equipment and clothing in the section 2003: Working conditions and community health and safety in the Bidding document.

### 9.2 Child labour & forced labour

Child labor & Forced labor is detailed under 2003.3 under section 2003: Working conditions and community health and safety in the Bidding document.

## 10. Environmental Social Management Plan (ESMP)

Measures to manage and or mitigate the impacts and risk. Especially the significant impacts and risks identified in sections 7 & 8. This section will include the specific recommendations and requirements of the ESMP for design stage, construction phase and maintenance operation phase.

### 10.1 Resettlement action plan

There is no project-based resettlement in this site. The buildings may have some impacts in the form of structural damage during the project actions due to ground vibration induced by heavy machinery operation. (The scheme of compensation, in case of damage to structures due to project should be arranged, (Refer 2002.2.17) utilities and roadside amenities in contracts requirement to ESMP.

## **10.2 Evacuation of people**

During the construction period of the project, it may not require to evacuate of the school children from school buildings.

## **10.3 Procedure for removal of damaged structures, facilities infrastructure (consent from owners to remove the articles)**

This risk may not be triggered in this site.

## **10.4 Requirement for compensation for loss of property /uses due to project actions**

It may require to compensate for the loss occurred due to closing the water supply lines due to project actions. If the water line is disturbed, it may require to provide alternative water sources to maintain discontinuous water supply to the school. The engineer should consult the school management on this matter before construction of the location.

## **10.5 Public awareness and education- needed for following areas**

- i. Programs to inform and educate about the risks posed by landslide to specially the school children, teachers and the parents of the primary section of the St. John Bosco's College.
- ii. Requirement for special awareness for commuters and the people passing through the area using the railway track with potentially high-risk during construction phase and early warning.

## **10.6 Design based Environmental/ Social Management considerations**

Following environmental and social design considerations are recommended for this depending on its environmental and social relevance.

Table 3: Design stage Environmental & Social considerations

Design feature	Recommended level of consideration for this site
<b>i. Natural resource management and resource optimized designs</b> Project specific designs should be considered to eliminate mass clearing of vegetation and minimum number of removals of grown tree species. Sufficient emphasis should be made to consider conservation of trees if important tree species are found.	Moderate
<b>ii. Site Planning</b> During site planning it is necessary to be cautious on possible re-activation of slope failures and movements of soil masses. Hence vehicle parking sites, material storage and temporary shelters etc. should not be installed in the danger zones of the slides.	Very High
<b>iii. Habitat connectivity and animal trails</b> If large fractions of vegetation are required to be cleared in ecologically fragile habitats as for permanent structures or for access, or if deep drains etc. are to be made the designs should include habitat connectivity features, animal trails and vegetation strips and etc. even if the impacts are localized.	Low
<b>iv. Conservation of water resources</b> If extraction of water is involving as a mitigation measure, as the extracted water is in a good quality and yield it can be considered as a source of water for school usage such as gardening and sanitary activities.	High
<b>v. Interruption to water supply lines, sewage lines and waste water lines</b> Water supply lines are located in the mitigated slope and a septic tank with the sewage lines are located in upslope area. The design should consider these elements and should try to minimize the impacts by selected design considerations.	Very High

<b>vi. Aesthetically compatible design considerations</b> The designs in aesthetically sensitive school environment should consider structures that blend with natural environment to keep the visual pollution to minimum. Service of landscape architect may be important for the design of suitable mitigation structures.	Very high
<b>vii. Consideration of green environmental features</b> As many of the migratory works are carried out in well maintained school premises with green landscape, it is recommended to consider green environmental designs as much as possible in the designs e.g.: use of local vegetation species for erosion control, combination of plants to sustain species diversity in the environment, avoiding inclusion of potentially invasive species & etc.	Very high
<b>viii. Workers / students and community safety</b> Activation of slide may occur during construction phase and may pose threat to workers, commuters, school children and the staff. Therefore, design based safety consideration such as berms, safety nets, safety fencing etc. should be considered specific to safety of school children should be considered.	Very high
<b>ix. Erosion control structures</b> During rainy season the flow in these drainage structures can be significantly high. During rainy season the heavy flow of surface runoff can be expected through the unstable slopes. This water should be conveyed to nearby storm water drains. Hence the design should adequately consider flow speed breakers to reduce erosive flows of slopes within the school.	High
<b>x. Low post maintenance and operation designs</b> The mitigation should consider passive techniques such as gravity drains for drainage management. Correct pipe diameters, pore diameters and laying angles should be considered to avoid clogging of drains. Low maintenance structures and designs such as designs to withstand erosive forces, sediment trapping systems etc should be considered if drain water is expected be directed to natural streams. The materials used for structures and should be chosen carefully so as to withstand weather conditions with high durability. Designs should specially consider corrosion prevention techniques if steel structures are used.	High

## 10.7 Mitigation of impacts during the construction phase

### 10.7.1 Construction contractors' requirement to comply with environmental and social management during the construction phase

Measures to manage and to mitigate the environmental and social impacts are generally common to all landslide mitigation sites. Such impacts are largely attributed to activities in the construction phase. The mitigation of impacts therefore becomes an obligation of construction contractor. NBRO has prepared a comprehensive document on "**contractors' requirement to comply with Environmental and Social Health and Safety (ES & HS) management during the construction phase**" to be included in construction contractors' bid document. The main sections are summarised below (Table 4) indicating the degree of relevancy for this site. For details ESMP for construction contractors should be referred.

Table 4: Contractor requirement to comply with ES & HS

Reference No. as per construction contractor's obligation to ESMP	Item	Relevant to the project
<b>2002. Environmental and Social Monitoring</b>		
2002.2 1)	Storage on site	Highly Relevant (school premises)
2002.2 2)	Noise and Vibration	Highly Relevant (school premises)
2002.2 3)	Cracks and damages to the buildings	Highly Relevant (buildings)
2002.2 4)	Disposal of waste	Highly Relevant (school premises)

2002.2 5)	Disposal of refuse	Highly Relevant (school premises)
2002.2 6)	Dust control	Highly Relevant (school premises)
2002.2 7)	Transport of Construction materials and waste	Highly Relevant (road reservation, commuters, pedestrians)
2002.2 8)	Water	Relevance
2002.2 9)	Flora and Fauna	Low Relevance
2002.2 10)	Physical and cultural resources	Relevant
2002.2 11)	Soil Erosion	Highly Relevant
2002.2 12)	Soil Contamination	Relevant
2002.2 13)	Borrowing Earth	Relevant
2002.2 14)	Quarry Operations	Not Relevant
2002.2 15)	Maintenance vehicles and Machinery (pollution)	Highly Relevant
2002.2 16)	Disruption to public (school children)	Highly Relevant
2002.2 17)	Utilities and roadside amenities (road)	Highly Relevant
2002.2 18)	Visual environment enhancement	Highly Relevant
<b>2002.5. Environmental Monitoring</b>	Baseline surveys (air, water, noise, vibration, crack surveys)	Refer site specific monitoring plan
	Surveys during construction (air, water, noise, vibration, crack surveys)	Refer site specific monitoring plan
	Surveys during operation phase	Refer site specific monitoring plan
	Reporting and maintenance of records	Relevant
<b>2003. Working Conditions and Community Health and Safety (school children)</b>		
2003.2	Safety organization and communication	Highly Relevant (school children and staff)
2003.3	Child Labor and Forced Labor	Highly Relevant (school premises)
2003.4	Safety reports and notification of accidents	Highly Relevant (school premises)
2003.5	Safety Equipment and Clothing	Highly Relevant (school premises)
2003.6	Safety inspections	Highly Relevant (school premises)
2003.7	First Aid Facilities	Highly Relevant (school premises)
2003.8	Health and safety information and training	Highly Relevant (school premises)
2003.9	Plant equipment and qualified personnel	Highly Relevant (school premises)
<i><b>Relevant:</b> The section is relevant to the site as a common ESMP applicable to any site</i>		
<i><b>Highly relevant:</b> The contractor should pay special emphasis in the preparation of environmental method statements to ensure that the relevant ESMP is implemented specific to the site</i>		
<i><b>Possibly relevant:</b> This ESMP will be triggered if the site come across with relevant aspect during project implementation</i>		
<i><b>Not relevant:</b> The section may not be relevant to this site under disclosed conditions</i>		
<i><b>Optional:</b> require to be implement if needed only</i>		
<i><b>Refer site specific monitoring plan:</b> Contractor is obliged to carry out monitoring as specified in the site specific monitoring plan in addition to monitoring requirement indicated in contractors ESMP</i>		
<i><b>Reference:</b> Contractors Obligation for implementation of ESMP</i>		

## 10.7.2 Site Specific mitigation

Given below are the site-specific mitigation measures that the project is expected to implement during the construction period.

Table 5: Site specific ES & HS mitigation measures

Mitigation item	Project implementation phase	Responsibility
<b>i. Minimize erosional impacts during construction</b> <p>It is recommended that mitigation works involved with site clearance, slope reshaping, removal of debris etc. are avoided during rainy season. Therefore, it is imperative that site works in upslope mitigation are carried out in the dry season and avoid such activities on upslope area in the wet season as much as possible. This should be considered in project planning stage. Silt traps should be introduced to cut down sediment laden runoff.</p>	Site preparation & construction	Construction Contractor
<b>ii. Planning project activities inside the school premises</b> <p>As contractor has to operate mitigation actions within the school premises and church premises, he should carefully prepare a plan for management of construction activities inside the school premises. This should include careful selection of material storage as vehicle parking, mixing of concrete, cleaning activities etc. which considering the safety and optimization of space.</p> <p>The contractor should discuss scales of project operations with a time plan and should make the school management adequately aware on the construction plan.</p> <p>Necessary adjustments to the plan should be made after discussing with the school management in order to minimize the disruption to school activities with special attention to working hours minimizing nuisance to during conducting classes special school events etc.</p>	Site preparation & construction	Construction Contractor
<b>iii. No Entry Zone</b> <p>The PMU should make a detailed assessment on possible risk of slope destabilization in the site during construction phase. No entry zones may require to be declared. This should be made adequately documented and communicated to the contractor and the school management.</p> <p>Also mitigate the risk of accidents from moving vehicles operational machinery construction activities, electrical leakages etc. should be given high priority in the health and safety management plan especially considering potential high risk on school children. As there is a school premises within the site proper safety measures should be included with warning signs and permanent trained watchmen. Sign boards indicating slope instability risk are strongly recommended at this site.</p>	Construction	E & S Unit of PMU contractor
<b>iv. Machinery and material transportation</b> <p>Access roads need to be used for machinery, materials and vehicle transportation for three locations during construction phase. Machinery and material transportation should not be done through the staircase of the school. School premises should not be used as a location for material storage.</p> <p>The contractor should pay special attention for this matter and extreme care should be taken to prevent possible accidents in the road and damages to the school assets.</p> <p>Also contractor should not obstruct the car parking area of the school located down slope of location 1, opposite to the road.</p> <p>The management of the school should aware if the location requires shifting machineries.</p>	Construction	Construction Contractor
<b>v. Invasive species</b> <p>Should be avoided in using vegetative erosion control structures. Native plants in the local environment should be chosen for vegetative control.</p>	Construction	Construction Contractor

<b>vi. Noise and vibration control</b> The noise and vibration generating activities may disturb the smooth flow of activities of the school, and the Church. Vibration generating activities should be done within the prescribed limits to avoid damage to structures. Cracks in the buildings should be monitored before, during and after completion of the project. Suitable compensation should be made if cracks from the damages or cracks enlarge due to construction work.	Construction	Construction Contractor
<b>vii. Disposal of construction waste</b> The contractor should pay special attention with respect to disposal of construction waste. This site is located within a school premises with a pleasing and clean environment. Therefore, such waste if generated should store properly without getting washed off and dispose according to approved procedures by the PMU. Construction waste should not dispose within the school premises or along the road.	Site preparation & construction	Construction Contractor
<b>viii. Dust and aerosol control screens</b> The dust particles generated during the construction period can influence the school children and the staff members. Special screens etc. should be used if heavy dust or aerosol generating activities are envisaged.	Site preparation & construction	Construction Contractor
<b>ix. Impacts on transport infrastructure (especially temporary loss of road or rail access, risks of traffic congestion)</b> A good traffic control should be implemented in the construction stage. As there is a flyover to the railway station opposite to the location 1, it must not be blocked and proper road safety measures should be included with warning signs and permanent trained watchmen, luminous sign boards indicating slope instability risk and road obstruction signs. Night lamps etc. are strongly recommended at this site.	Construction	Construction Contractor
<b>x. Water and electricity for construction</b> Water and electricity for construction works should be obtained only from a separate supply lines under the approval from school and church management. Contractor intends to use water and electricity from separately.	Construction	Construction Contractor
<b>xi. Priority Health and Safety Issues</b> As the workers in the site have to work in high-risk conditions, it is imperative to implement recommendations given in section 2003 of contractors' obligation on ESMP under "working conditions and community health and safety". These recommendations should be followed carefully in a proper organization and safety monitoring system. <ul style="list-style-type: none"> <li>i. Additionally, work should be discontinued for sufficient time period during rainy period as working on unstable slopes will be highly risky in the rainy season.</li> <li>ii. A good warning system and fulltime watchmen is highly recommended for this site for both worker and school children safety.</li> <li>iii. Safety barriers and safety nets should be installed at places of risk to protect workers and school children from boulder falling risk</li> <li>iv. Proper emergency management unit for other accidents (first aids facilities, safety items, hospitalization facilities and transportation facilities) should be maintained for this site.</li> </ul>	Construction	E & S Unit of PMU contractor

<b>xii. Safety structures/sign boards</b> During construction phase adequate safe fencing should be established to prevent potential falling risk of workers from upslope areas. Warning sign board indicating slope instability risk should be placed at the unstable slope areas with the road which are occupied by the public for various reasons (commuters, pedestrians, school children, devotees of the church and parents etc). As the risk is high during the rainy season where there is no construction work it is mandatory that safety signs boards are displayed even during the no project period as well.	Construction	E & S Unit of PMU contractor
<b>xiii. Interruption to water tanks and school water supply</b> The water lines currently running across failed slope need to be installed properly without being affected during the construction phase. The school management should be consulted during project mobilization to inform the requirement to shift the water lines to a safer location.	Construction	Construction Contractor
<b>xiv. Impact on septic tank and sewage lines</b> The septic tank and the sewage lines of the school is located near the unstable slope (location 2). During construction period these sewage lines may be damaged. Therefore, necessary actions should be taken.	Site preparation & construction	Construction Contractor
<b>xv. Use of sanitary facilities of contractor's workforce</b> School management does not allow using toilets of the school for the contractor's workforce. Therefore, separate sanitary facilities should be arranged for the workforce.	Construction	Construction Contractor
<b>xvi. Working hours</b> The construction activities should be in accordance with school management. Noise, vibration and dust generation activities should be carried out after school hours, however, not disturbing the devotees and students of Sunday Dhamma school (during works at location 3). During exam times disturbing (noise and vibration) activities are not allowed. Night time operations at location 1 & 2 are allowed only during school vacations.  If night time operations are required to achieve project targets such works should be carried out with adequate safety measures and the consent from the school management. The construction activities at the location 3 should be carried out not obstructing the activities and the devotees of the church.	Construction	Construction Contractor
<b>xvii. Traffic management and safety</b> Traffic management system should be in place day and night. A good traffic management plan should be prepared with the concurrence of RDA as this is a busy congested road with bends vulnerable to accidents. It should be approved by the PMU. As there is a flyover to access to railway station adjacent to the school, proper road safety measures should be included with warning signs and permanent trained watchmen, luminous sign boards indicating slope instability risk and road obstruction signs, night lamps etc. are strongly recommended at this site.	Construction	Construction Contractor
<b>xviii. Need for people to enter or cross the site</b> Possible unauthorized access to the site should be avoided by awareness, warning signs and vigilance by the contractor's full time watchmen.	Construction	Construction Contractor
<b>xix. Safety of school children</b> The school management should be made adequately aware of possible issues detrimental to school children as indicated below	Construction	E & S Unit of PMU contractor

<ul style="list-style-type: none"> <li>i. Expose school children towards narcotics, alcohol, sex abuse, smuggling, and various criminal offenses and a wide range of unsuitable habitual behaviours</li> <li>ii. Unauthorised entry into school premises</li> <li>iii. Bullying and harassment to children</li> <li>iv. Quarrels with children and parents</li> <li>v. Distracting children from education</li> <li>vi. Tempting children and parents towards offensive deals</li> <li>vii. Informal form of child labour</li> </ul>		
<p>The PMU ES unit should engage in meaningful full consultation with school management regarding above mentioned issues. Each issue should be properly communicated and adequately discussed with the school management. Also, it is advised that PMU request from the school management on the following</p> <ul style="list-style-type: none"> <li>i. Make students and parents aware of the project</li> <li>ii. Possible social issues that will have impact on children</li> <li>iii. Establish a system of vigilance to monitor the behaviour of children with the workforce and the movement of workforce during construction phase</li> <li>iv. Establish a confidential information receive system in the school premises to receive any complaints pertinent to the project</li> <li>v. Enforce a system to punish or remove troublesome workers</li> </ul>		
<p>The PMU should make contractor aware of all potential issues with contractor workforce and school children that should be properly managed. Following are recommended for contractors' workforce</p> <ul style="list-style-type: none"> <li>i. Proper awareness, education, monitoring and punishing.</li> <li>ii. Define project activity zone beyond which workers cannot enter</li> <li>iii. Workers cannot use water sources of the school</li> <li>iv. Workers cannot use sanitary facilities of the school</li> <li>v. The contractor should not use children for any form of project related works (direct/indirect)</li> <li>vi. The heavy machinery operators should be extremely cautious in operation of machinery as possible accidents will be high.</li> <li>vii. Full time watchmen should be kept in the risk area to ensure safe movement of heavy machinery and vehicles</li> </ul>		
<p>Other</p> <ul style="list-style-type: none"> <li>i. Adequate no entry / danger signs and monitoring should be established so that school children are not permitted in the project area</li> <li>ii. The electrical wiring systems and layout should be done with proper safety measures approved by the PMU to ensure that accidents mainly to children from electric shocks are prevented</li> <li>iii. Parking and storage areas should be done in approved locations by the PMU</li> </ul>		
<p><b>xx. During construction good housekeeping</b> should be maintained to minimize visual pollution</p>	Site preparation & construction	Construction Contractor

<b>xxi. Workers code of conduct</b> Possible disputes between the labor force and the students, staff and the parents, commuters and pedestrians should be prevented by maintaining the agreed code of conduct by the contractor.	Construction	Construction Contractor
--	--------------	-------------------------

## 11. Monitoring requirements specific to the site

Following monitoring plan is strongly emphasized during the construction phase specific to this site. In addition to this, monitoring procedure indicated in the contractors' obligation to ESMP should also be implemented by construction contractor. The contractor is expected to indicate in the bid the ESMP procedure to be implemented along with relevant proofs of his competency. The cost for ESMP will require to be indicated as a separate pay item. The environmental and social management method statement is expected to be submitted by the selected construction contractor and to be approved by the PMU unit.

Table 6: Environmental and Social monitoring plan; construction phase

Monitoring requirement	Parameters	Frequency
i. Baseline monitoring	Water quality	-
	Pre crack survey for the school buildings	Once*
	Ground vibration	Once*
	Air quality: particulate matter	Once*
	Background noise measurement	Once*
ii. During construction	Water quality	-
	Crack survey for the school buildings	If noticeable displacement is observed during construction **
	Ground vibration	During operation of drilling machinery, boring works, or any works that generate ground vibrations*
	Construction noise	Once a month during heavy noise generation times *
	Air quality particulate matter	Once a month *
iii. Vehicular Emission	All machinery/vehicles operational should have the emission control test certificate as applicable - should be checked by the site ES officer of the consultant	
iv. Monitoring agency	* A competent independent monitoring agency with registration of Central Environmental Authority for all parameters except crack surveys **Crack surveys should be conducted by competent agency acceptable to PMU	
v. Reporting requirements	<b>Stream water quality</b> – Comparison with ambient water quality standards published by the CEA, 2017 <b>Pre crack survey of the risk houses, hospital and the school</b> -Professional report <b>Ground vibration</b> -as per The interim standards on vibration for the Machinery, Construction activities and Vehicular movements, CEA <b>Background noise measurement</b> –Extraordinary Gazette No.924.1, May 23,1996, CEA <b>Air quality particulate matter</b> - The National Ambient Air Quality standards stipulated under the Extraordinary Gazette, No. 1562/22 August 15, 2008 -Central Environmental Authority of Sri Lanka.	

## 12. Labor management

Sound worker-management relationships, treating workers in the project fairly and providing safe and healthy working conditions is required. Responsibility is lies with the PMU and the construction contractor.

The Objectives are;

- To promote safety and health at work.
- To promote the fair treatment, nondiscrimination and equal opportunity of project workers.

- To protect project workers, including vulnerable workers such as women, persons with disabilities, children and migrant workers, contracted workers, community workers and primary supply workers, as appropriate.
- To prevent the use of all forms of forced labor and child labor.
- To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national laws.
- To provide project workers with accessible means to raise workplace concerns.

### **13.Preventive measures for COVID-19 that was issued by Sri Lankan national health authority**

COVID-19, the novel coronavirus infection has not been totally eradicated in the world. Therefore, to prevent/ control of the spread of infection also to prevent panic situations in the event of detecting a suspected case, all contractors are required to develop a COVID-19 Preparedness plan and need implementing in the site as per the “Health and Safety Guidelines for Sri Lankan Construction Sites to be adopted during COVID 19 outbreak” Guidelines given by Construction Industry Development Authority CIDA 29th April 2020.

### **14. Public and Stakeholder Consultations - the public consultations that have been and/or will be held**

#### **14.1 Public Consultations**

Mr. A. Robert, the principal of the primary section of Bosco’s College was consulted. He stated that the mitigation works are appreciable and the school management will highly consider about the safety of the school children and the aesthetically beautiful landscape with greenery concept.

Rev. Numan Peris, Father of the Church was consulted during the field visit. He made aware of the mitigation project and the funding mechanism. He stated that before the start construction activities within the church premises, the approval of Bishop Biyani (Central Province chief Bishop) must be obtained and also expressed their willingness to the project and full support to the project.

#### **14.2 Stakeholders involved in the consultations any recommendations or agreements reached in the consultations (Refer annexure II)**

Mr. M.K.P Welikannage, the Provincial Director of Central Environmental Authority in Central Province was informed about the project works and got the clearances for the project. He emphasized; landslide mitigation projects are not considered as prescribed projects in the Gazette. As the proposed project intends to reduce the risk from landslide for an emergency action, CEA approval is not needed considering the priority of the project.

### **15.Clearances, no objection, consent and approvals required for the implementation of the project**

Table 7: Clearances, no objection, consent and approvals

<b>Requirement / Approval / Institution</b>	<b>Relevance to the project</b>
<b>15.1 Project implementation</b>	
Approval from the District Secretariat	The approvals will be required and the proposals need to be presented at the District Coordinating Committee, to which chief minister and stakeholder agencies in the district will also participate. The Officer of PMU will present the project, disclose the project details and various concerns including environmental and social issues will be discussed at this meeting. The issues arrived will be addressed in the ESMP, the decisions and recommendations taken up at this meeting will be considered in the ESMP.
Approval from the planning committee	The approval from the planning committee of the Hatton Urban Council.

<b>15.2 Approval from the state land owners relevant to the project</b>	
Central Environmental Authority	Approval from the Central Environmental Authority is required as the project should comply with National Environmental Regulations
Department of Forest Department of Wildlife Conservation	As there are no forest reservations and wildlife habitats within the affected area; Department of Forest and Department of Wildlife Conservation approvals are not needed
Geological Surveys and Mines Bureau	Approval will be obtained for extraction of materials, transportation and disposal of earth, rocks and mineral debris. (If necessary, only).
Hatton Urban Council	Approvals from Hatton Urban Council will be obtained for the disposal of waste and plant litter.
Ceylon Electricity Board	Approvals from regional office of Ceylon Electricity Board will be required for power supply for site operation.
National Plant Quarantine Service	Approval from Additional Director National Plant Quarantine Service Katunayake for Director General of Agriculture under the Plant Protect Act No. 35 of 1999 Plant or seed if needed for bio Project Managed slope mitigation shall be imported into Sri Lanka under the authority and in accordance with the conditions, of a plant importation permit issued.
<b>15.3 Consent/ no objection/ legally bound agreement from the private land ownerships</b>	
Land owner (Department of Education & Bishop of Central Province)	Signing a legally bound agreement between the land owner and the project implementing authority allowing no-objection to remove the structures, access the land, implement construction works, and engage in long-term maintenance works

The tentative timeline for getting approval is given in the table 8.

Table 8: Tentative timeline for getting approvals

Approvals	Month 1				Month 2			
	W1	W2	W3	W4	W1	W2	W3	W4
<b>Project implementation</b> <i>Approval from the District Secretariat</i> Submission of application Project briefing Respond to comments Approvals								
<i>Approval from planning committee</i> Submission of application Project briefing Respond to comments Approvals								
<i>Approval from CEB, Department of Education,</i> Bishop of Central Province Submission of application Respond to comments Approvals								
<i>Other approvals</i> GSMB Ministry of Defense (Depends on the requirement) Consent/ no objection from the land ownership (school,church)								

## 16. Grievance redress mechanism for this site

The PMU ES officer is responsible for establishing the grievance redress mechanism for this site for impact communities; school children, staff, hostellers, pedestrians and commuters (*Reference: Environmental and Social Management Framework for recommended procedure for establishment of grievance redress mechanism*).

## 17. Information disclosure

It is the responsibility of the PMU to disclose the ES information to following agencies and organizations by indicated modes as a minimum as given in the following table.

Table 9: Proposed scheme of information disclosure

<b>Information</b>	<b>Proposed agencies</b>	<b>Mode of information disclosure</b>
i. Project plan (site details, design, implementation arrangements)	District CEA, District Secretariat, Divisional secretary, RDA, Other district levels Agencies, NBRO district office, AIIB	Meetings, District coordination committee, submission of relevant report to sign agreements, approvals and consents.
ii. Environmental and Social Management plan	District CEA, AIIB	Meetings, District Coordination Committee, submission of relevant report to sign agreements, approvals and consents
iii. Monitoring reports (baseline and during construction)	District CEA, AIIB and relevant parties as appropriate	Progress meetings, special meetings, submission of relevant reports
iv. Site inspections for environmental conformance workers health and safety	District CEA, Divisional secretary, Police, , District Office NBRO, AIIB and relevant parties as appropriate	Written and verbal communications, submission of relevant reports
v. Decisions taken and progress review meetings pertinent to ES matters	District CEA, Divisional secretary, Police, school and church management, District Office NBRO, AIIB and relevant parties as appropriate	Meetings, submission of relevant reports
vi. Grievance redress mechanism	Relevant parties, AIIB	Meetings, written and verbal communications

Table 10: Level of information gathered through consulting institutions

<b>Date</b>	<b>Institution</b>	<b>Person contacted for information</b>
17/01/2021 @ 9.30 hrs	Primary Section of St John Bosco's College - Hatton	Mr. A. Robert Principal, Primary Section of St. John Bosco's College - Kandy
17/01/2021 @ 9.45 hrs	St. Cross Church - Hatton	Rev. Niuman Peris, Father, St. Cross Church - Hatton
04/07/2019 @ 10.00 hrs	Central Environmental Authority	Mr. M.K.P Welikannage, Provincial Director, Central Environmental Authority Central Province

## Annexure I: Images of the site condition and the consultation



*Consultation with Mr. A. Robert  
Principal of the primary section of St Bosco's  
College*

## Annexure II: Report on the Stakeholder Consultation: Nuwara Eliya District

Institution	Name and designation of the contact officer	Concerns raised
Central Environmental Authority	Mr. M.K.P Welikannage, Provincial Director, Central Environmental Authority Central Province.	<ul style="list-style-type: none"><li>✓ Under the Soil Conservation Act no 25 of 1951 and No 29 of 1953. of National Resource Management Centre, Kandy District has been gazetted as a sensitive area.</li><li>✓ Under this gazette any development is not allowed irrespective of the magnitude of the project.</li><li>✓ In a disaster this is not needed.</li><li>✓ Landslide mitigation projects are not considered projects prescribed in the Gazette</li><li>✓ As the proposed project (mitigation) intends to reduce the risk from landslide for an emergency action CEA approval is not needed considering the priority of the project.</li><li>✓ Before project commence a request indicating the mitigation sites need.</li><li>✓ If the project is carried out in a sensitive area, even not within a prescribed project, consideration of sensitive area will govern the process.</li></ul>

### **Annexure III: Study team**

Name	Designation	Position in the study
SAMS Dissanayake	Senior Scientist/ESSD/NBRO	Senior Environmental Scientist
P Liyanaarachchi	Scientist/ ESSD/NBRO	Environmental scientist
H Kusalasiri	Technical Officer/ESSD/NBRO	GIS/Demographic data /survey support
MPAN Mihindukulasooriya	Technical Officer/ESSD/NBRO	Report Preparation
TGLA Chandrarathna	Technical Officer/ESSD/NBRO	Report Preparation

### **Annexure IV: List of references**

1. Contractor's obligations for Generic Environmental and Social Management Plan- Sri Lanka Landslide Mitigation Project-AIIB
2. Environmental and Social Management Framework-Sri Lanka Landslide Mitigation Project -AIIB
3. Felling Trees (Control) Act by Ministry of Agriculture, Rural Economic Affairs, Livestock Development, Irrigation and Fisheries and Aquatic Resources Development
4. Resettlement Planning Framework- Sri Lanka Landslide Mitigation Project –AIIB
5. Census and Statistical Report (2012), Department of Census and Statistic