MIN DHAMA STEEL STRUCTURES COMPANY LIMITED

Environmental Management Plan

Manufacturing of Steel Structures on CMP Basis

Prepared by:

MYANWEI ENVIRONMENTAL SOLUTIONS COMPANY LIMITED

12-May-23

MYANWEI
ENVIRONMENTAL SOLUTIONS

No. 49 (B), Inya Yeik Thar Street, Mayangone Township, Yangon Region, The Republic of the Union of Myanmar.
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Commitment

Prepared by; **MYANWEI ENVIRONMENTAL SOLUTIONS COMPANY LIMITED**

To our knowledge, all information contained in this report is accurate and truthful presentation of all findings as relating to the project.

This report has been prepared by Myanwei Environmental Solutions Company Limited with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

Approved by:

Min Dhama
Steel Structures Co., Ltd.

ISO 9001:2015
Certificate No. QM 4890

Commitment of Project Proponent

Date : 5th May 2023

MYANWEI ENVIRONMENTAL SOLUTIONS COMPANY LIMITED has prepared this project report on Environmental Management Plan (EMP). MIN DHAMA STEEL STRUCTURES COMPANY LIMITED; as proponent of this project, do hereby solemnly affirm and declare that:

1. The project particulars in this report are correct and true to the best of my knowledge
2. The report is prepared by complying with all Myanmar laws, rules and regulations and Environmental Conservation Law (2012)
3. The project will fully comply with the commitment, environmental impact reduction activities, and programs contained in EMP report.
4. Legal and other obligations are incorporated in the designs, procedures and project controls,
5. The arrangement will be made to prevent environmental and social harm in the decommission phase.

MIN DHAMA STEEL STRUCTURES COMPANY LIMITED, Manufacturing of steel structures on CMP basis is located at No. (88), Myay Taing Block No.(65/Industry), Industrial Zone (4), Shwe Pyi Thar Township, Yangon Region.

Do hereby solemnly affirm and declare that I fully understand and undertake to operate the project strictly in accordance with the said conditions and commitments in this EMP report.

Min Dhama Steel Structures Co., Ltd.
No.....
Date.....

Daw Cherry
Director
Min Dhama Steel Structures Co.,Ltd

No.(74,75,76,77,78,91), Kanaung Min Thar Gyi Street,
Industrial Zone(4), Shwe Pyi Thar Township,Yangon, Myanmar.
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Abbreviation

1. CEMP = Construction Environmental Management Plan
2. CMP = Contract Manufacturing Process
3. CSR = Corporate Social Responsibility
4. ECC = Environmental Compliance Certificate
5. ECD = Environmental Conservation Department
6. EIA = Environmental Impact Assessment
7. EMoP = Environmental Monitoring Plan
8. EMP = Environmental Management Plan
9. EMS = Environmental Management System
10. RH = Rectangular Hollow
11. ESW = Electro-Slag Welding
12. MS Plate = Mild Steel Plate
13. CNC = Computer Numerical Control
14. QC = Quality Control
15. MT = Metric Ton
16. M/C = Machine
17. SAE = Society of Automotive Engineer
18. HR = Human Resources
19. mm = Milli meter
20. ft = Feet
21. CPU = Central Processing Unit
22. kVA = Kilovolt-amps
23. hPA = hecto-Pascals
24. PM = Particulate Matter
25. SO_2 = Sulphur dioxide
26. NO_2 = Nitrogen dioxide
27. CO_2 = Carbon dioxide
28. CO = Carbon monoxide
29. VOC = Volatile Organic Compound
30. MSDS = Material Safety Data Sheet
31. OSHA = Occupational Safety and Health Administration
32. GIIP = Good International Industry Practices
33. HSE = Health, Safety and Environment
34. IEE = Initial Environmental Examination
35. IFC = International Finance Corporation
36. NEQG = National Environmental Quality (Emission) Guidelines
37. MIC = Myanmar Investment Commission
38. YRIC = Yangon Region Investment Committee
39. MOECAF = Ministry of Environmental Conservation and Forestry
40. MONREC = Ministry of Natural Resources and Environmental Conservation
41. NSDS = National Sustainable Development Strategy
42. OEMP = Operation Environmental Management Plan
43. OSHA = Occupational Safety and Health Administration
44. PPE = Personal Protective Equipment
45. WHO = World Health Organization

46. CPR = Cardiopulmonary Resuscitation
47. AED = Automated External Defibrillator
48. YCDC = Yangon City Development Committee
49. YESB = Yangon City Electricity Supply Board

အစီရင်ခံစာအကျဉ်းချုပ်

၁။ နိဒါန်း

ဤအစီရင်ခံစာသည် CMP စနစ်ဖြင့် အမျိုးမျိုးသော Steel Structuresများ ထုတ်လုပ်သည့် Min Dhama Steel Structures Company Limited ၏ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီရင်ခံစာမှ တွေ့ရှိချက်များအား ဖော်ပြထားခြင်းဖြစ်ပါသည်။ ဤအစီရင်ခံစာ၏ အဓိကရည်ရွယ်ချက်မှာ စီမံကိန်းကြောင့် ဖြစ်ပေါ်နိုင်သော ဆိုးကျိုးများအား လျော့နည်းစေရန်အတွက် ထိရောက်သော ဆောင်ရွက်ချက်များနှင့်အတူ စီမံကိန်းအကောင်အထည်ဖော်ခြင်းကြောင့် ပတ်ဝန်းကျင်အပေါ် အဓိက အကျိုးသက်ရောက်နိုင်မှုများကို ဖော်ထုတ်ရန်အတွက် ဖြစ်ပါသည်။

အဆိုပြုစီမံကိန်းလုပ်ငန်းသည် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီရင်ခံစာ ရေးဆွဲတင်ပြရမည်ဖြစ်ကြောင်း ၂၀၂၂ ခုနှစ်၊ နိုဝင်ဘာလ၊ ၅ ရက် ရက်စွဲပါစာအမှတ်၊ ရက/အီးအိုင်အေ/၂(၁) (၂၉၆၃/၂၀၂၂) ဖြင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ ရန်ကုန်တိုင်းဒေသကြီးမှ သဘောထားမှတ်ချက် ရရှိပြီးဖြစ်ပါသည်။ ထို့ကြောင့် Min Dhama Steel Structures Company Limited မှ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီရင်ခံစာအတွက် Myanwei Environmental Solutions Company Limited အား တာဝန်ယူရေးဆွဲစေခဲ့ပါသည်။

ရင်းနှီးမြှုပ်နှံသူ၏ အချက်အလက်များ

ရင်းနှီးမြှုပ်နှံသူ၏ အမည်	ဒေါ်ချယ်ရီ
ID No:	၁၂/လမန(နိုင်)၀၃၄၈၆၁
နိုင်ငံသား	မြန်မာ
ဖုန်းနံပါတ်	၀၉-၂၅၀၆၈၄၁၉၅
အီးမေးလ်	cherry@mindhamasteel.com
မှတ်ပုံတင်ထားသည့်ရုံးလိပ်စာ	အမှတ် (၈၈) ၊ မြေတိုင်းရပ်ကွက်အမှတ် (၆၅/စက်မှု)၊ စက်မှုဇုန်(၄)၊ ရွှေပြည်သာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး။

စီမံကိန်း၏ လက္ခဏာများ

အဆိုပြုစီမံကိန်းအမျိုးအစား	CMP စနစ်ဖြင့် Steel Structures များ ထုတ်လုပ်ခြင်း
ရင်းနှီးမြှုပ်နှံမှုအမျိုးအစား	ဖက်စပ်လုပ်ကိုင်ခြင်း (မြန်မာနိုင်ငံသား ၆၀%၊ နိုင်ငံခြားသား ၄၀%)
ရှယ်ယာအမျိုးအစား	ပုံမှန်အစုရှယ်ယာ
မြေအမျိုးအစား	စက်မှုဇုန်မြေ
မြေဧရိယာစုစုပေါင်း	၅.၅၁၉ ဧက (၂၂၃၃၄.၆၂ စတုန်ရန်းမီတာ)
အဆောက်အဦအရေအတွက်	(၆၄၀ ပေ × ၁၆၀ ပေ) စက်ရုံအဆောက်အဦ - ၁ (၅၄၀ ပေ × ၈၀ ပေ) စက်ရုံအဆောက်အဦ - ၂

	(၃၄၀ ပေ × ၈၀ ပေ) စက်ရုံအဆောက်အဦ - ၃ (၁၀၀ ပေ × ၂၀ ပေ) ရုံးခန်းနှင့် လုံခြုံရေးအခန်း (၅၀ ပေ × ၃၀ ပေ) နှင့် (၃၃ ပေ × ၂၀ ပေ) ထမင်းစားဆောင်
ရင်းနှီးမြှုပ်နှံမှု ပမာဏ စုစုပေါင်း	အမေရိကန်ဒေါ်လာ ၁.၉၂၀ သန်း
ခွင့်ပြုမိန့်ကာလ	၂၀ နှစ်
ပြင်ဆင်ရေးကာလ	၁ နှစ်
မြေငှားသက်တမ်း	ကနဦး (၂၀) နှစ် + (၅) နှစ် သက်တမ်းတိုး (၂) ကြိမ်
စက်ရုံလိပ်စာ	အမှတ် (၈၈) ၊ မြေတိုင်းရပ်ကွက်အမှတ် (၆၅/စက်မှု) ၊ စက်မှုဇုန် (၄) ၊ ရွှေပြည်သာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး။
ဆက်သွယ်ရန် ပုဂ္ဂိုလ်	ဦးဇေယျဇော် စီမံခန့်ခွဲမှုမန်နေဂျာ ၀၉-၅၅၀၅၀၅၁ zayyazaw@mindhamasteel.com အမှတ် (၇၄/၇၅/၇၆/၇၇/၇၈/၉၁) ၊ ကနောင်မင်းသားကြီးလမ်း၊ စက်မှုဇုန် (၄) ၊ ရွှေပြည်သာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး။

MYANWEI ENVIRONMENTAL SOLUTIONS COMPANY LIMITED မှ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီရင်ခံစာအား Min Dhama Steel Structures Company Limited အတွက် ရေးဆွဲပြုစုပေးပါသည်။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီရင်ခံစာရေးဆွဲမည့် MYANWEI ENVIRONMENTAL SOLUTIONS COMPANY LIMITED ၏ အဖွဲ့ဝင်များ၏ အချက်အလက်များအား **အခန်း (၁) ၊ အပိုဒ် (၁.၄)** တွင် အသေးစိတ်ဖော်ပြထားပါသည်။

၂။ မူဝါဒ၊ ဥပဒေနှင့် မူဘောင်များ

Environmental Impact Assessment Procedure (2015) နှင့် သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနမှ ထုတ်ပြန်ထားသော National Environmental Quality (Emission) Guidelines အပါအဝင် ဒေသတွင်းနှင့် နိုင်ငံတကာမှ ထုတ်ပြန်ထားသော အောက်ပါ ပတ်ဝန်းကျင်နှင့်လူမှုရေးရာ မူဝါဒများအား ခြံငုံသုံးသပ်ခြင်း ဖြစ်ပါသည်။

၁. ဖွဲ့စည်းပုံအခြေခံဥပဒေ၊ ၂၀၀၈

၂. ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ၊ ၂၀၁၂

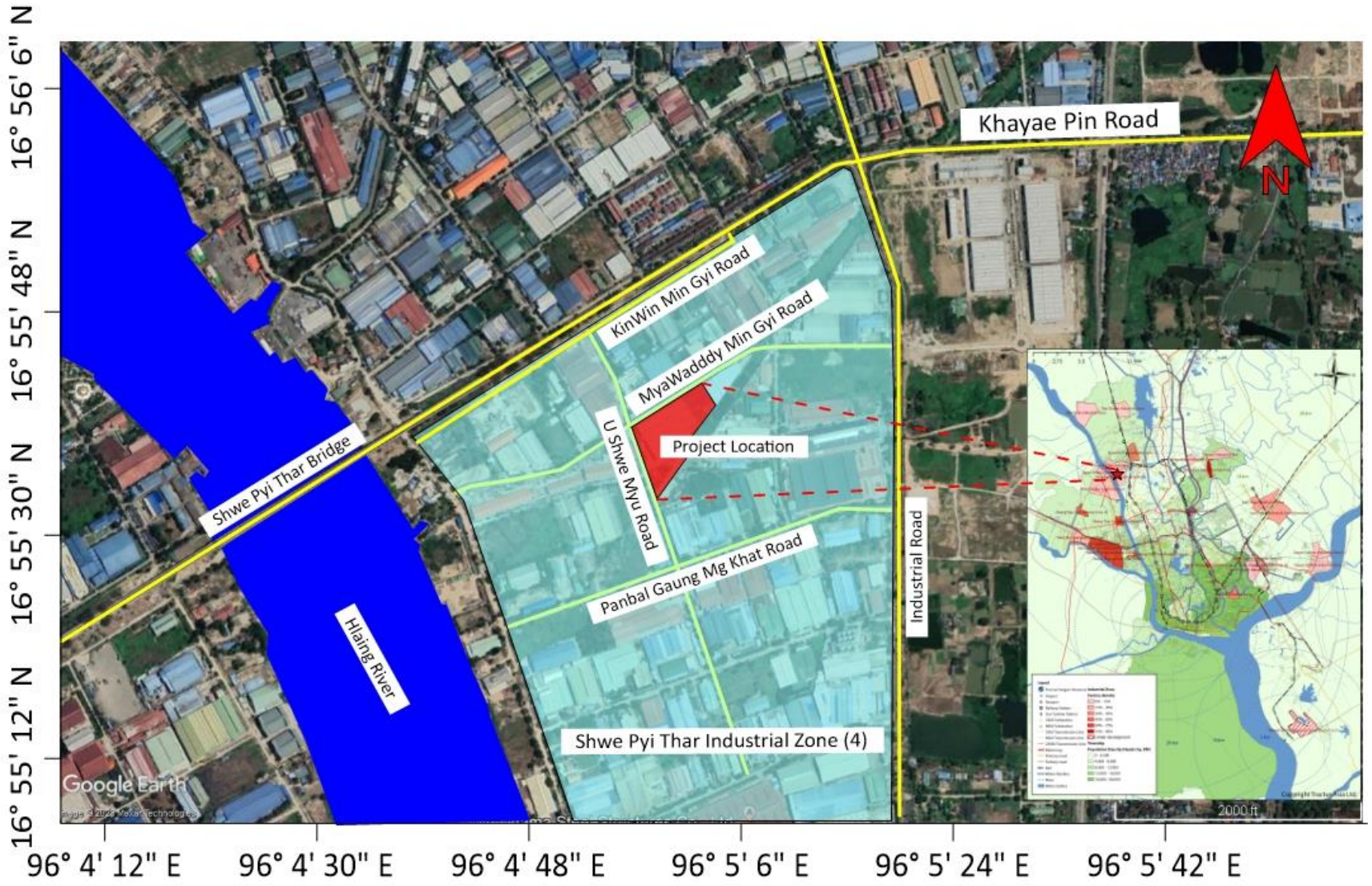
၃. ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနည်းဥပဒေ၊ ၂၀၁၂

၄. ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း၊ ၂၀၁၅

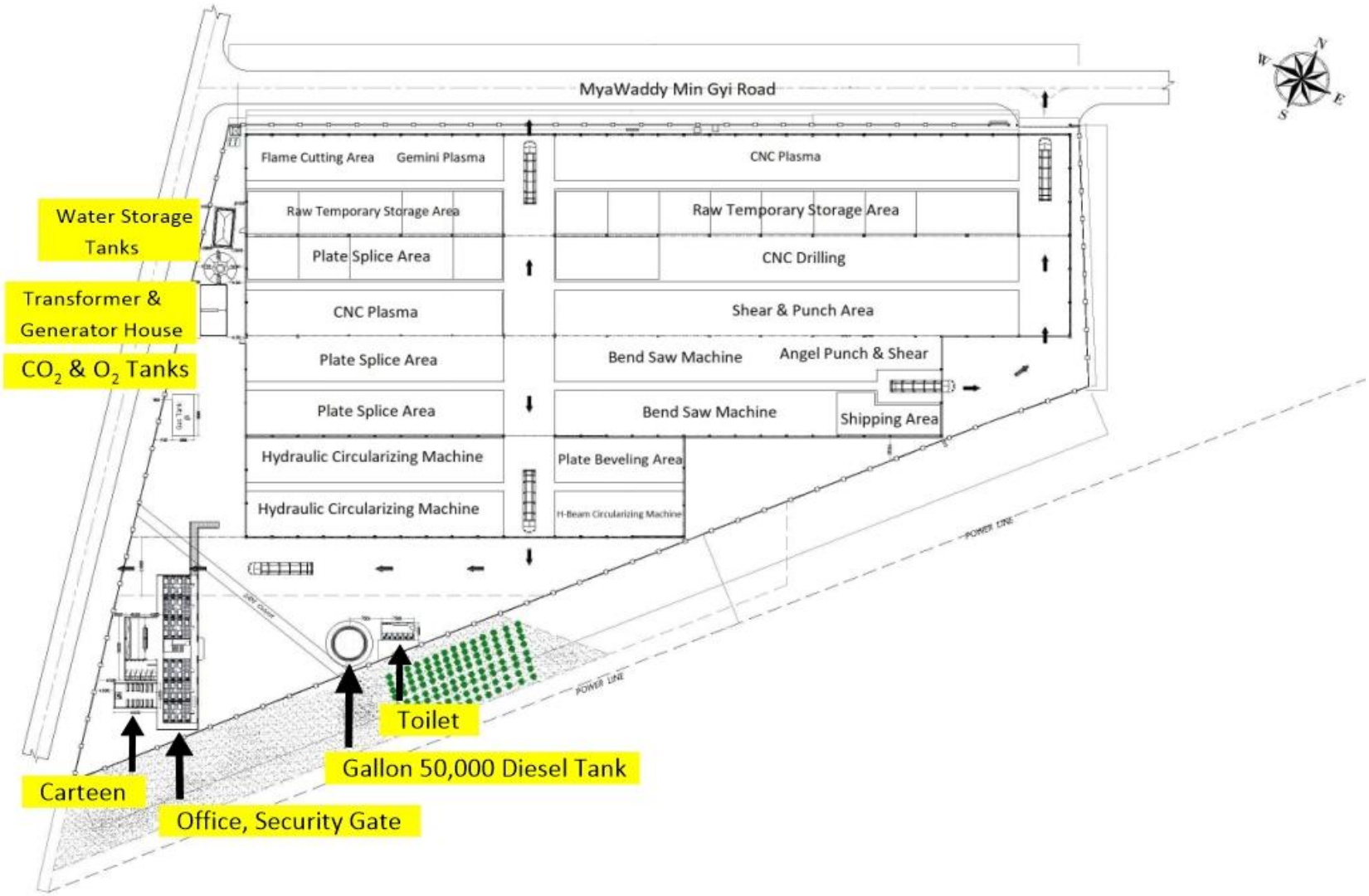
၅. အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များ၊ ၂၀၁၅

၃။ လုပ်ငန်းအကြောင်းအရာဖော်ပြချက်

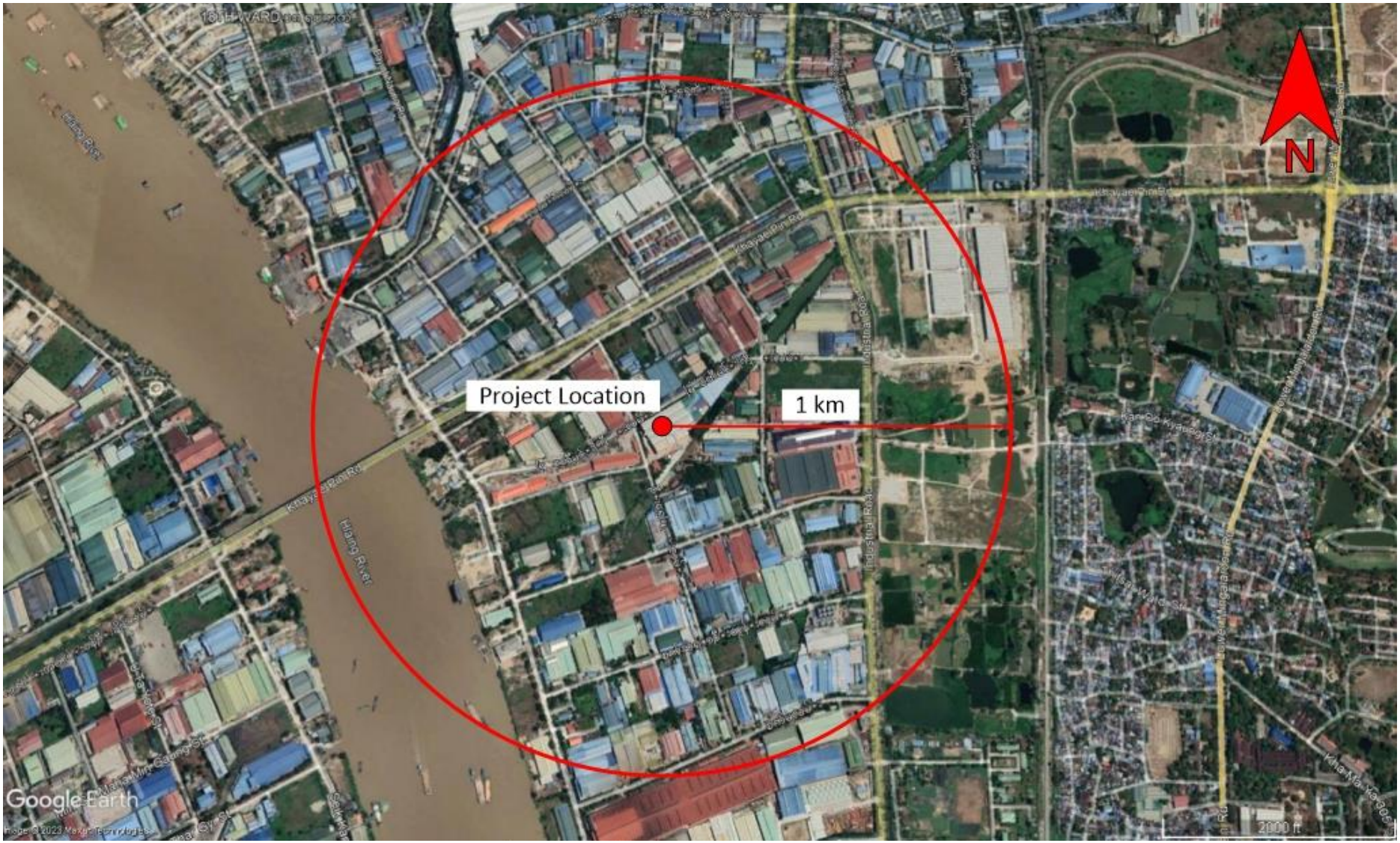
Min Dhama Steel Structures Company Limited သည် အမှတ် (၈၈)၊ မြေတိုင်းရပ်ကွက်အမှတ် (၆၅/စက်မှု)၊ စက်မှုဇုန် (၄)၊ ရွှေပြည်သာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး၊ မြောက်လတ္တီကျူ ၁၆°၅၅'၃၈.၁၅'' နှင့် အရှေ့ လောင်ဂျီကျူ ၉၆°၅'၀.၅၄'' တွင် တည်ရှိပါသည်။ မြေဧရိယာစုစုပေါင်း ၅.၅၁၉ ဧက (၂၂၃၄.၆၂ စတုန်ရန်းမီတာ) ကျယ်ဝန်း ပြီး ရွှေပြည်သာစက်မှုဇုန် အဝိုင်း (၄)၊ ရွှေပြည်သာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီးတွင် တည်ရှိပါသည်။ စက်ရုံနှင့် အနီးဆုံး ရေအရင်းအမြစ်မှာ လှိုင်မြစ်ဖြစ်ပြီး စက်ရုံ၏ အရှေ့မြောက်ဘက်တွင် Fruitful Groups of companies တည်ရှိပါသည်။ စက်ရုံ၏ အနီးရှိ အဓိကလမ်းများမှာ ကင်းဝန်မင်းကြီးလမ်း၊ မြဝတီမင်းကြီးလမ်းနှင့် ဦးရွှေမြူလမ်းတို့ ဖြစ်ပါသည်။


16° 56' 6" N
16° 55' 48" N
16° 55' 30" N
16° 55' 12" N
96° 4' 12" E
96° 4' 30" E
96° 4' 48" E
96° 5' 6" E
96° 5' 24" E
96° 5' 42" E
Khayae Pin Road
N
KinWin Min Gyi Road
MyaWadddy Min Gyi Road
U Shwe Myu Road
Project Location
Shwe Pyi Thar Bridge
Hlaing River
Panbal Gaung Mg Khat Road
Industrial Road
Shwe Pyi Thar Industrial Zone (4)
Google Earth
2000 ft

စက်ရုံ၏ တည်နေရာပြမြေပုံ


MyaWaddy Min Gyi Road
Flame Cutting Area
Gemini Plasma
CNC Plasma
Raw Temporary Storage Area
Raw Temporary Storage Area
Plate Splice Area
CNC Drilling
CNC Plasma
Shear & Punch Area
Plate Splice Area
Bend Saw Machine
Angel Punch & Shear
Plate Splice Area
Bend Saw Machine
Shipping Area
Hydraulic Circularizing Machine
Plate Beveling Area
Hydraulic Circularizing Machine
H-Beam Circularizing Machine
POWER LINE
POWER LINE
Water Storage Tanks
Transformer & Generator House
CO_2 & O_2 Tanks
Toilet
Gallon 50,000 Diesel Tank
Carteen
Office, Security Gate

စက်ရုံ၏ ဖွဲ့စည်းပုံပြမြေပုံ



စက်ရုံ၏ အနီးပတ်ဝန်းကျင်ပြမြေပုံ

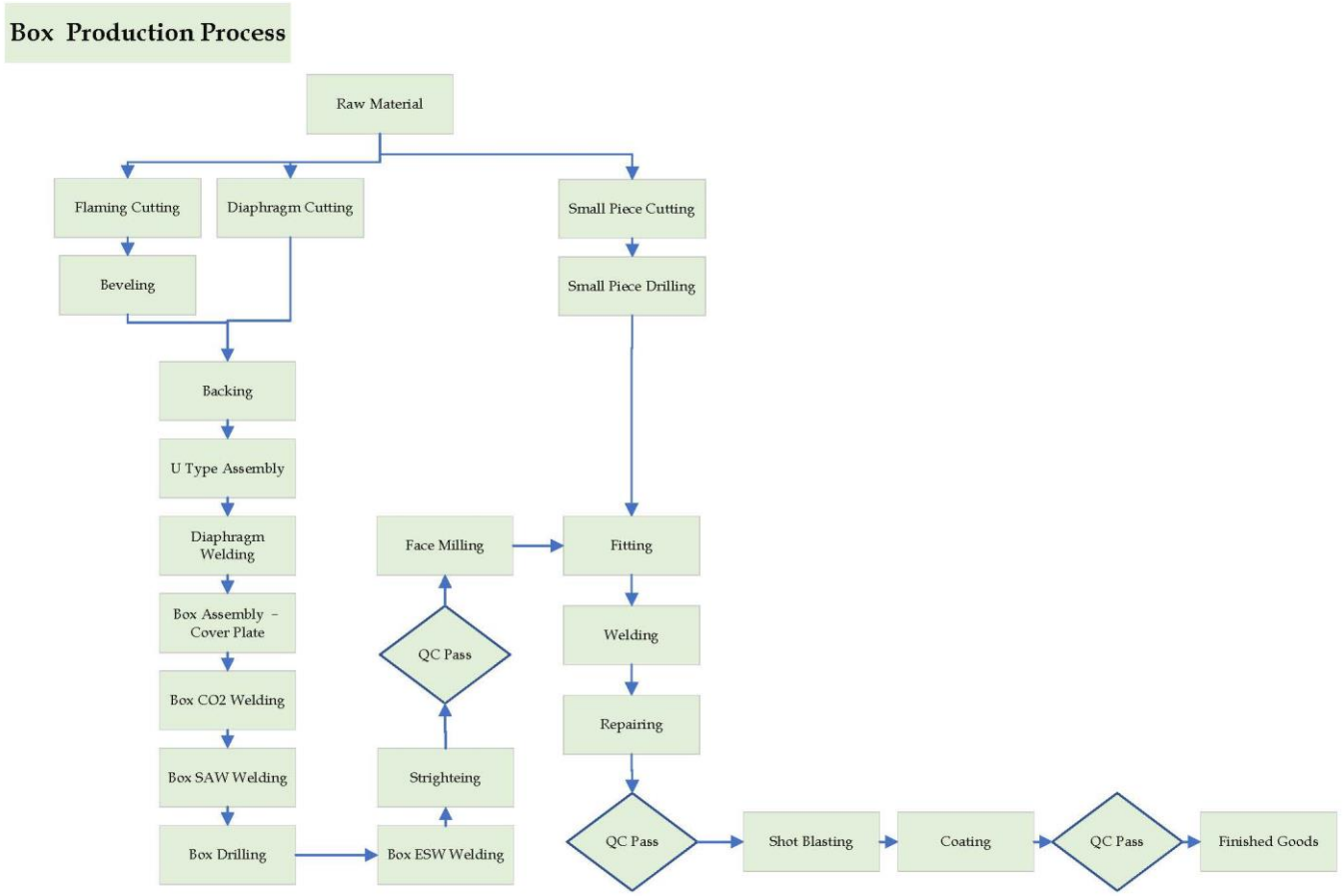
အဓိကစက်ရုံအဆောက်အဦ (၃)လုံးအား ထုတ်လုပ်မှုဧရိယာအဖြစ် တစ်ပေါင်းတည်း တည်ဆောက်ထားရှိပြီး ထရန်စဖော်မာအခန်း၊ မီးစက်ခန်း၊ CO_2 and O_2 ဖြည့်သည့်ရုံ၊ ရေသိုလှောင်ကန်များနှင့် ဒီဇယ်သိုလှောင်ကန်များသည် အဓိကစက်ရုံ အဆောက်အဦနှင့် တစ်ဆက်တည်းတည်ဆောက်ထားခြင်းမရှိပါ။ Min Dhama Steel Structures Company Limited ၏ အဓိက ထုတ်ကုန်များမှာ box structures type၊ build up structures type၊ RH structures type နှင့် အခြားသော ဆောက်လုပ်ရေးလုပ်ငန်းခွင်သုံး steel structures များ ဖြစ်ပါသည်။ အရေးပေါ်မီးစက်အသုံးပြုရန်အတွက် လောင်စာဆီများနှင့် အထွေထွေသုံးရေများအား စက်ရုံလုပ်ငန်းလည်ပတ်ရန်အတွက် အသုံးပြုပါသည်။ လျှပ်စစ်မီးအား လုပ်ငန်းလည်ပတ်ရန်နှင့် လုပ်ငန်းခွင်အတွင်း အလင်းရောင်ရရှိစေရေး အသုံးပြုပါသည်။ ကုန်ကြမ်းများအား တရုတ်၊ ထိုင်ဝမ်၊ ကိုရီးယားနှင့် ဂျပန်နိုင်ငံများမှ တင်သွင်းပါသည်။ နှစ်စဉ် ကုန်ကြမ်း ၂၉,၈၈၀ မက်ထရစ်တန်အား ပထမနှစ်၊ ၄၀,၀၄၂ မက်ထရစ်တန်အား ဂုနှစ်မှ ၁၀နှစ်အတွင်း၊ ၄၂,၀၄၄ မက်ထရစ်တန်အား ၁၁နှစ်မှ နှစ်၃၀အတွင်း အသုံးပြုသွားမည်ဖြစ်ပါသည်။ နှစ်စဉ် ကုန်ချော ထွက်ရှိမှုမှာ ပထမနှစ်တွင် ၃၀,၀၀၀ မက်ထရစ်တန်၊ ဂုနှစ်မှ ၁၀နှစ် အတွင်းတွင် ၄၀,၂၀၃ မက်ထရစ်တန် နှင့် ၁၁နှစ်မှ နှစ်၃၀အတွင်းတွင် ၄၂,၂၁၃ မက်ထရစ်တန်အထိ ထုတ်လုပ်သွားမည် ဖြစ်ပါသည်။ ကုန်ချောများအား ဂျပန်၊ ထိုင်ဝမ်၊ စင်္ကာပူ၊ ထိုင်း၊ ဖိလစ်ပိုင်၊ ဩစတေးလျ၊ ယူအေအီး၊ ကာတာ၊ မော်လဒိုက်၊ မက္ကဆီကိုနိုင်ငံများသို့ ဝယ်သူများ၏ ညွှန်ကြားချက်များအတွင်း ပေးပို့ရောင်းချပါသည်။

စက်ရုံလုပ်ငန်းလည်ပတ်ရန်အတွက် လိုအပ်သော စက်ပစ္စည်းများမှာ hydraulic bending press brake, mechanical crank press, band saw, hydraulic circularizing machine, CNC drilling machine, punching machine, plate bending machine, hydraulic shear cutter, CNC gas/plasma cutting machine and beveling milling machine တို့ဖြစ်ပါသည်။ လက်ရှိအချိန်တွင် အလုပ်သမားဦးရေ ၇၀ ဦးဖြင့် လုပ်ငန်းလည်ပတ်လျက်ရှိပါသည်။ စက်ရုံမှ အလုပ်သမားများအတွက် ထမင်းစားဆောင်၊ အိမ်သာနှင့် နားနေခန်းတို့ ထားရှိပေးထားပါသည်။ တစ်နှစ် အလုပ်လုပ်ရက် စုစုပေါင်းမှာ ၂၆၅ ရက်ဖြစ်ပါသည်။

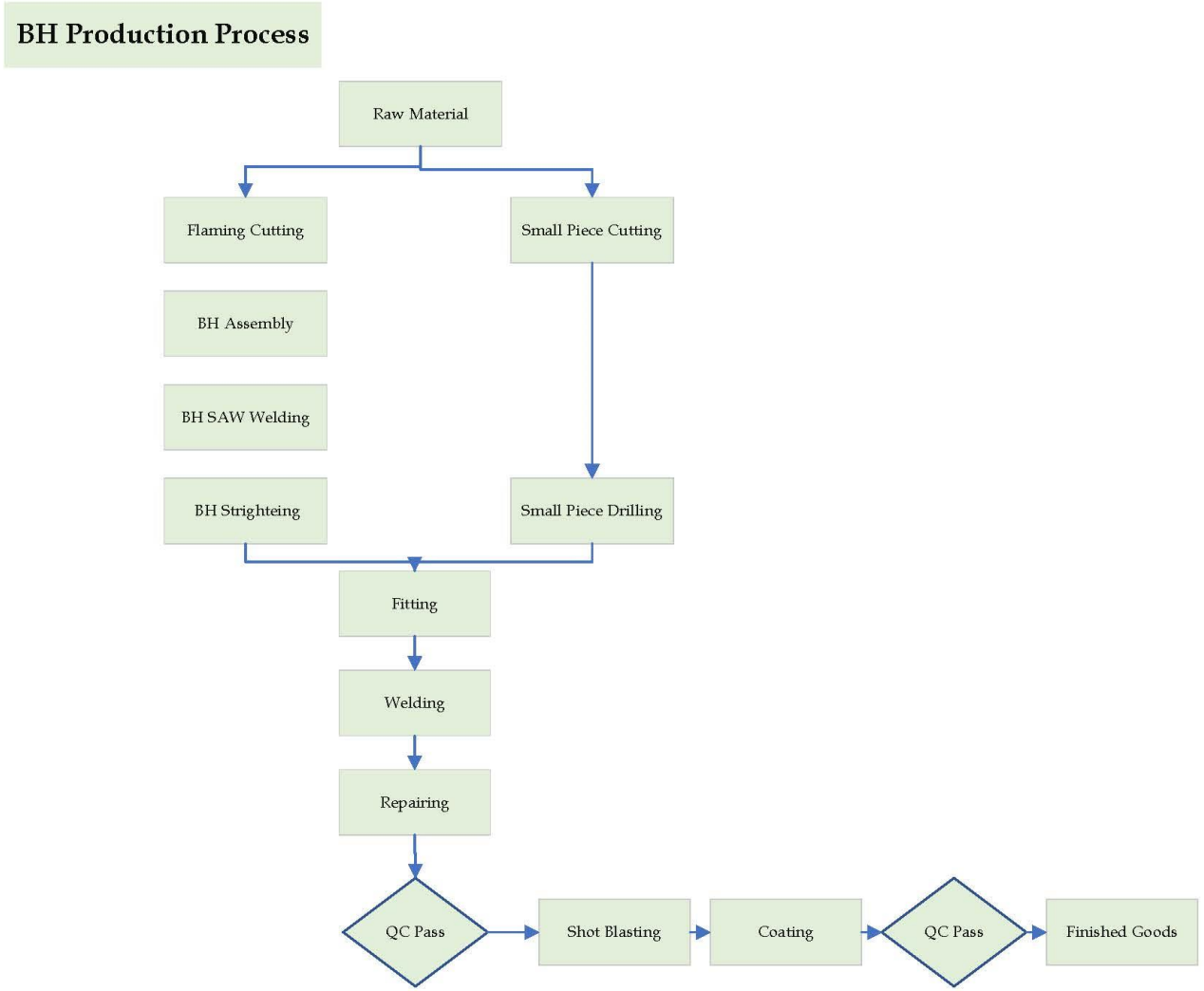





ကုန်ချောဓာတ်ပုံများ



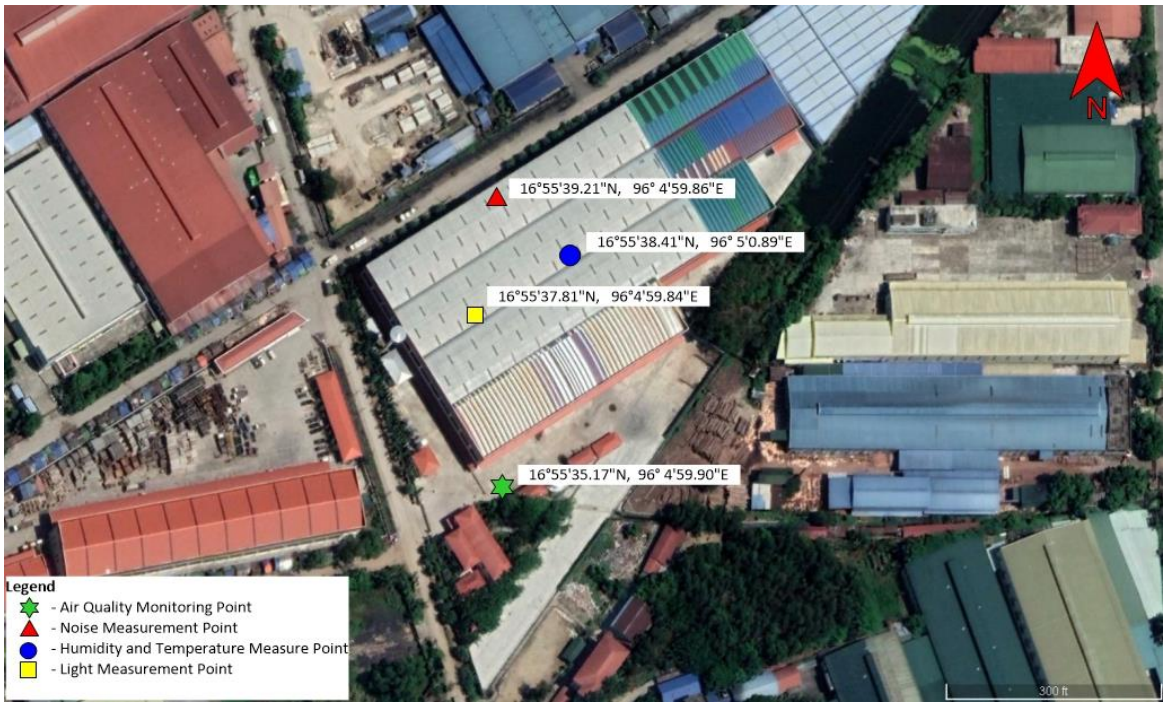
စက်ရုံ၏ ကုန်ချော ထုတ်လုပ်ပုံအဆင့်ဆင့်



စက်ရုံ၏ ကုန်ချော ထုတ်လုပ်ပုံအဆင့်ဆင့်

၄။ အနီးပတ်ဝန်းကျင်အခြေအနေ

ပတ်ဝန်းကျင်ဆိုင်ရာ အခြေခံအချက်အလက်များအတွက် အချက်အလက်များစုဆောင်းကောက်ယူခြင်းအား ၂၀၂၃ခုနှစ်၊ ဇန်နဝါရီလ ၅ ရက်နေ့တွင် အဆိုပြုစီမံကိန်းအတွင်း တိုင်းတာဆန်းစစ်ကောက်ယူခဲ့ပါသည်။ အဆိုပြုစီမံကိန်း၏ အပူချိန်နှင့်စိုထိုင်းဆအခြေအနေ၊ လေအရည်အသွေး၊ ဆူညံသံနှင့် အလင်းရောင်ရရှိမှုတို့အား တိုင်းတာခြင်း၊ နမူနာကောက်ယူခြင်းများ ဆောင်ရွက်ခဲ့ပါသည်။ အဆိုပြုစီမံကိန်းဇရိယာအနီးရှိ လူမှုစီးပွား အခြေအနေများ၊ ရုပ်ပိုင်းဆိုင်ရာ၊ ဇီဝပတ်ဝန်းကျင်ဆိုင်ရာ၊ ရာသီဥတုဆိုင်ရာ အချက်အလက်များအား ရွေးပြည်သာမြို့နယ်မှ ရယူထားရှိပါသည်။



ပတ်ဝန်းကျင်ဆိုင်ရာ အခြေခံအချက်အလက်များ ကောက်ယူခဲ့သည့် မြေပုံ

အဆိုပြုစီမံကိန်းအတွက် ကွင်းဆင်းကောက်ယူခဲ့မှု ရလဒ်များ

အမျိုးအစား	ရလဒ်	လမ်းညွှန်ချက်တန်ဖိုး
ရာသီဥတုဆိုင်ရာအခြေအနေများ		
စီမံကိန်းအတွင်း အပူချိန်	၃၅.၅ °C	-
ပျမ်းမျှ စိုထိုင်းဆ	၅၁.၆၉ %	-
လေအရည်အသွေး		
PM_{10}	၁၉ µg/m^3	၅၀
$PM_{2.5}$	၁၂ µg/m^3	၂၅
SO_2	၅ µg/m^3	၂၀
NO_2	၂၃ µg/m^3	၂၀၀

O_3	၁၆ µg/m^3	၁၀၀
CO	၀.၅ µg/m^3	No Guideline
VOC	၀.၀၂ ppm	No Guideline
ဆူညံသံ		
စီမံကိန်းဧရိယာ	၇၅.၅ dBA	၇၀ dBA
အလင်းရောင်တိုင်းတာမှု		
Cutting Area	၅၄၁ Lux	၄၀၀
Welding Area	၆၇၃ Lux	၄၀၀
Drilling Area	၈၂၁ Lux	၆၀၀
Punching Area	၇၅၇ Lux	၆၀၀

စက်ရုံ၏ ရေတွင်းမှ ထွက်ရှိသော ရေစစ်ဆေးချက်အား **နောက်ဆက်တွဲ (ဃ)**တွင် ဖော်ပြထားပါသည်။

လေထုအရည်အသွေးတိုင်းတာခြင်းတွင် CO နှင့် VOC ပါဝင်မှုနှုန်းမှာ လက်ခံနိုင်သော အခြေအနေတွင် ရှိပြီး PM_{10}, $PM_{2.5}$ ၊ O_3 ၊ NO_2 ၊ SO_2 တိုင်းတာမှုများမှာလည်း အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်အတွင်း ရှိပါသည်။ လုပ်ငန်းခွင်အတွင်း အလင်းရောင်ရရှိမှုတိုင်းတာခြင်းမှာလည်း စံချိန်စံညွှန်းများအတွင်း ရှိပါသည်။ လုပ်ငန်းခွင် ဆူညံသံတိုင်းတာမှုမှာ အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက်များထက် အနည်းငယ်ကျော်လွန်နေသည်ကို တွေ့ရှိရပါသည်။ အဆိုပြုစီမံကိန်းသည် ကြီးမားသော စက်ပစ္စည်းများ ဖြစ်သည့် ဖြတ်တောက်သည့်စက်များ၊ စတီးအပေါက်ဖောက်သည့်စက်များ၊ ဂဟေဆော်သည့် စက်ပစ္စည်းများ အသုံးပြုရခြင်းကြောင့် လုပ်ငန်းခွင် ဆူညံသံထွက်ရှိမှုမှာ လမ်းညွှန်ချက်ထက် ကျော်လွန်နေရခြင်း ဖြစ်ပါသည်။ ဆူညံသံထွက်ရှိသော စက်ပစ္စည်းများဖြင့် လုပ်ဆောင်ရသော ဝန်ထမ်းများအတွက် တစ်ကိုယ်ရေးသုံးကာကွယ်ရေးပစ္စည်းများ၊ နားကြပ်များ ထားရှိ၍ လုပ်ငန်းလုပ်ဆောင်စေပါသည်။

အဆိုပြုစီမံကိန်း၏ ဖွံ့ဖြိုးတိုးတက်မှုသည် ရုပ်ပိုင်းဆိုင်ရာ၊ ဇီဝပိုင်းဆိုင်ရာနှင့် လူမှုစီးပွားရေး ရှုထောင့်များနှင့် ပတ်သက်၍ အပြုသဘောနှင့် အပျက်သဘောဆောင်သော အကျိုးသက်ရောက်မှု နှစ်ခုစလုံးအပေါ် အခြေခံ၍ ဒေသတွင်း ပတ်ဝန်းကျင်တွင် ပြောင်းလဲမှုများ ဖြစ်ပေါ်နိုင်ဖွယ်ရှိပါသည်။ အဆိုပြုစီမံကိန်း၏ လုပ်ဆောင်မှုများကြောင့် ဖြစ်ပေါ်လာနိုင်သော ပတ်ဝန်းကျင်ဆိုင်ရာ အကျိုးသက်ရောက်မှု အလားအလာများအား ကွင်းဆင်းစစ်ဆေးခြင်း၊ စီမံကိန်းအဆိုပြုသူ၊ စီမံကိန်းမန်နေဂျာ၊ တာဝန်ရှိသူများနှင့်တွေ့ဆုံဆွေးနွေးခြင်းများပြုလုပ်၍ အမျိုးအစား ခွဲခြားပြီး ဆန်းစစ်ရမည် ဖြစ်ပါသည်။

၅။ အကျိုးသက်ရောက်မှုများအား အမျိုးအစားခွဲခြားခြင်းနှင့် လျော့ချရေးနည်းလမ်းများ

အကျိုးသက်ရောက်မှုတစ်ခုချင်းစီအတွက် အမျိုးအစားခွဲခြားခြင်းအား လုပ်ငန်းလုပ်ဆောင်နေသည့် အချိန်ကာလအတွင်း သက်ရောက်မှုများ၏ ပမာဏ၊ ကြာချိန်၊ အတိုင်းအတာနှင့် ဖြစ်နိုင်ခြေများအပေါ် မူတည်၍ တွက်ချက်သွားမည်ဖြစ်ပါသည်။

အကဲဖြတ်ခြင်း	အတိုင်းအတာ				
	၁	၂	၃	၄	၅
ပမာဏ	မလုံလောက်သော	အနည်းငယ် နှင့် လုပ်ငန်းခွင် ပြောင်းလဲမှု ဖြစ်စေနိုင် သော	အသင့်အတင့်နှင့် အနည်းငယ် လုပ်ငန်းခွင် ပြောင်းလဲမှု ဖြစ်စေနိုင်သော	မြင့်မားနှင့် သိသာစွာ လုပ်ငန်းခွင် ပြောင်းလဲမှု ဖြစ်စေနိုင်သော	အလွန်မြင့်မားနှင့် အမြဲတမ်း လုပ်ငန်းခွင် ပြောင်းလဲမှု ဖြစ်စေနိုင်သော
အချိန်	၀-၁နှစ်	၂-၅နှစ်	၆-၁၅နှစ်	လုပ်ငန်းလည်ပတ်စဉ် ကာလ တစ်လျှောက်	လုပ်ငန်းပိတ်သိမ်း ခြင်းကာလအထိ
ကျယ်ပြန့်မှု	လုပ်ငန်းခွင်အတွင်း	ဒေသအတွင်း	မြို့နယ်အတွင်း	နိုင်ငံအတွင်း	နိုင်ငံတကာအတွင်း
ဖြစ်နိုင်ချေ	လုံးဝမဖြစ်နိုင်သော	မဖြစ်နိုင်သော	ဖြစ်နိုင်သော	ဖြစ်နိုင်ခြေ မြင့်သော	အတိအကျ

သတ်မှတ်ချက် = (ပမာဏ + အချိန် + ကျယ်ပြန့်မှု) x ဖြစ်နိုင်ချေ

ပတ်ဝန်းကျင်ထိခိုက်မှုကို အောက်ပါအတိုင်း ခွဲခြားနိုင်သည်။

သတ်မှတ်ချက်	ထိခိုက်မှုအဆင့်
<၁၅	အလွန်နိမ့်
၁၅ - ၂၉	နိမ့်
၃၀ - ၄၄	အလယ်အလတ်
၄၅ - ၅၉	မြင့်
၆၀	အလွန်မြင့်

လုပ်ငန်းစဉ်အဆင့်တွင် အသင့်အတင့်နှင့် အနည်းငယ်လုပ်ငန်းခွင် ပြောင်းလဲမှု ဖြစ်စေနိုင်သော အတိုင်းအတာ (၄)ခု၊ အနည်းငယ်လုပ်ငန်းခွင်ပြောင်းလဲမှုဖြစ်စေနိုင်သော အတိုင်းအတာ (၄)ခုနှင့် ပြောင်းလဲမှုမဖြစ်စေနိုင်သော အတိုင်းအတာ (၅)ခုရှိပါသည်။ လုပ်ငန်းပိတ်သိမ်းချိန်တွင် အနည်းငယ်လုပ်ငန်းခွင်ပြောင်းလဲမှုဖြစ်စေနိုင်သော အတိုင်းအတာ (၄)ခုနှင့် ပြောင်းလဲမှုမဖြစ်စေနိုင်သော အတိုင်းအတာ (၂)ခုရှိပါသည်။ လုပ်ငန်းစဉ်အဆင့်နှင့် လုပ်ငန်းပိတ်သိမ်းခြင်းအဆင့်တွင်

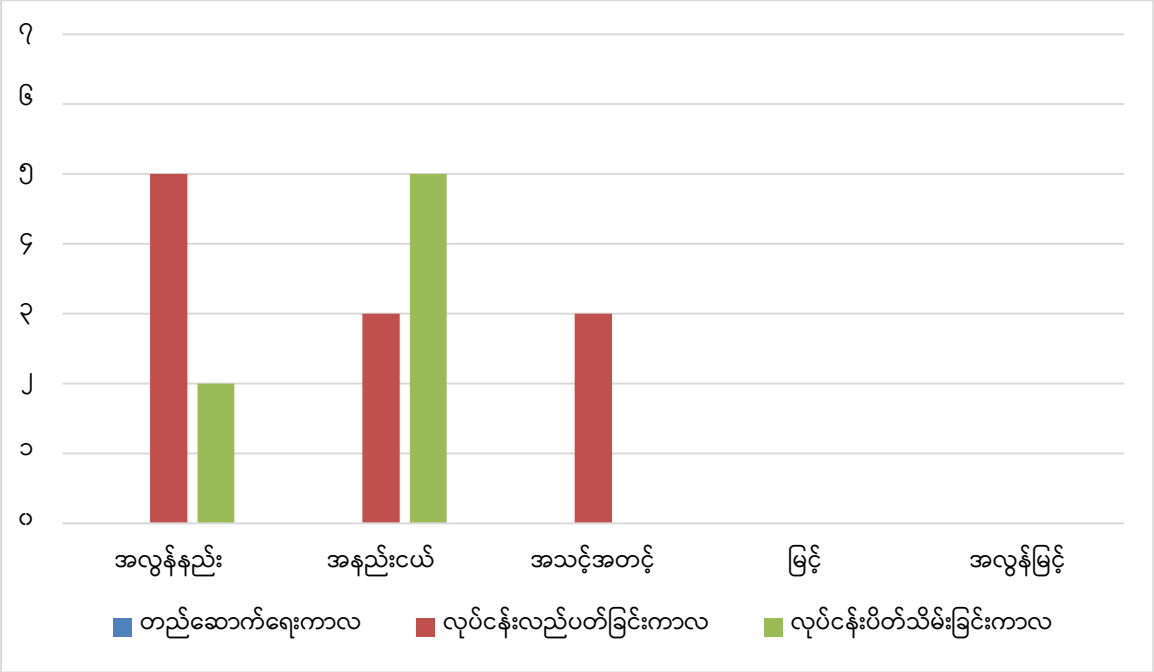
ဖြစ်ပေါ်နိုင်သော အကျိုးသက်ရောက်မှုအားလုံးအား လျော့ချရေးနည်းလမ်းများနှင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အား အကောင်အထည်ဖော်ခြင်းများဖြင့် လျော့နည်းအောင် ဆောင်ရွက်နိုင်ပါသည်။

ပတ်ဝန်းကျင်လက္ခဏာ	လုပ်ငန်းလုပ်ဆောင်မှု	ထိခိုက်မှုအဆင့်	လျော့ချရေးနှင့် ထိန်းချုပ်မှု
လုပ်ငန်းလည်ပတ်ခြင်းကာလ			
လေထုညစ်ညမ်းမှု	• လုပ်ငန်သုံး ကုန်ကြမ်း၊ ကုန်ချော၊ သယ်ယူပို့ဆောင်ရေး ယာဉ်များမှ ဖုန်နှင့် ဖန်လုံအိမ်ဓာတ်ငွေ့များ ထွက်ရှိခြင်း၊ • အရေးပေါ် မီးစက်များနှင့် စက်ပစ္စည်းများမှ မီးခိုးများထွက်ရှိခြင်း	အနည်းငယ်	• လေထုညစ်ညမ်းမှုကို ထိန်းချုပ်နိုင်ရန် မီးစက်နှင့် စက်ပစ္စည်းများအား ပုံမှန်စစ်ဆေး ပြုပြင်ထိန်းသိမ်းခြင်း၊ • စက်ပစ္စည်းများ၊ လုပ်ငန်းခွင်သုံး စက်ကိရိယာများနှင့် မီးစက်များအားကောင်းမွန်စွာ ထိန်းသိမ်းခြင်း၊ • ကာဗွန်ထွက်ရှိမှုကို လျော့ချနိုင်ရန်နှင့် လေထုညစ်ညမ်းမှုကို လျော့ချနိုင်ရန် စက်ရုံအတွင်း သစ်ပင်များ စိုက်ပျိုးထားခြင်း၊
မြေဆီလွှာညစ်ညမ်းမှု	• စက်သုံးဆီများ ဖြည့်နေစဉ် စက်ဆီများယိုဖိတ်ခြင်း၊ ဒီဇယ်ယိုဖိတ်ခြင်း	အလွန်နည်း	• စက်ရုံဝန်းအတွင်း ကွန်ကရစ်များ ခင်းကျင်းထားသဖြင့် မြေထုအတွင်းသို့ ယိုစိမ့်နိုင်မှုမရှိပါ။
ရေထုညစ်ညမ်းမှု	• စက်ရုံ၏ လုပ်ငန်းစဉ်အတွင်း ရေသုံးစွဲမှု မရှိပါ။	အလွန်နည်း	• လျော့ချရန်မလိုပါ။
ဆူညံသံနှင့် တုန်ခါမှု	• လုပ်ငန်းသုံးစက်ကိရိယာများမှ ဆူညံသံထွက်ရှိခြင်း	အနည်းငယ်	• မီးစက်များအား သီးသန့်အခန်းဖြင့် ထားရှိခြင်း၊ • ဆူညံသံထွက်ရှိမှုများသော စက်ကိရိယာများဖြင့် လုပ်ကိုင်နေရသော ဝန်ထမ်းများအတွက် နားကြပ်များ၊ တစ်ကိုယ်ရေသုံး ကာကွယ်ရေးပစ္စည်းများ ထားရှိပေးခြင်း၊ • စက်ရုံအတွင်းမှ ဆူညံသံများသည် ပတ်ဝန်းကျင်သို့ ပျံ့လွင့်မှု မရှိပါ
ကုန်းမြေပေါ်နှင့် ရေထဲရှိ အပင်နှင့် တိရစ္ဆာန်များအား ထိခိုက်နိုင်မှု	• စက်ရုံ၏ လုပ်ငန်းလုပ်ဆောင်ချက်များ	အလွန်နည်း	• စက်ရုံလုပ်ငန်း လည်ပတ်မှုကြောင့် အပင်နှင့် တိရစ္ဆာန်များအား ထိခိုက်နိုင်မှု မရှိပါ။
မီးဘေးအန္တရာယ်	• လျှပ်စစ်သွယ်တန်းအသုံးပြုမှု အားနည်းခြင်း	အသင့်အတင့်	• မီးသတ်ဆေးဘူးများနှင့်မီးသတ်ကိရိယာများအား အရေးပေါ်မီးဘေးအန္တရာယ်

	• စွန့်ပစ်ပစ္စည်းများအား စနစ်တကျ စွန့်ပစ်ခြင်း		ဖြစ်ပေါ်ပါက အသုံးပြုနိုင်ရန် စက်ရုံအတွင်း အဆင်သင့်ထားရှိခြင်း၊ • မီးသတ်ဆေးဘူးနှင့် မီးသတ်ကိရိယာများအား ပုံမှန်စစ်ဆေးလဲလှယ်ခြင်း၊ အရေးပေါ် မီးငြိမ်းသတ်ရန်အတွက် မီးသတ်ရေကန်ထားရှိခြင်း၊ • မီးဘေးအန္တရာယ်အချက်ပေး ခေါင်းလောင်းများအား စက်ရုံအတွင်း တပ်ဆင်ထားခြင်း၊ • အရေးပေါ်ထွက်ပေါက်များတွင် ကုန်ပစ္စည်းများနှင့် စက်ကိရိယာများ ပိတ်ဆို့မှု မရှိစေရေး ဂရုပြု ဆောင်ရွက်ခြင်း၊
လုပ်ငန်းခွင် အန္တရာယ် ကင်းရှင်းရေး	• လုပ်ငန်းသုံး စက်ပစ္စည်းများကြောင့် မတော်တဆ ထိခိုက်မှုများ ဖြစ်ပွားနိုင်ခြင်း (ကုန်ပစ္စည်းအတင်အချပြုလုပ်ခြင်း၊ ဖြတ်တောက်ခြင်း၊ ဂဟေဆော်ခြင်းနှင့် အပေါက်ဖောက်ခြင်း လုပ်ငန်းများ)	အသင့်အတင့်	• အရေးပေါ်သူနာပြုသင်တန်းများ၊ အန္တရာယ်ကင်းရှင်းရေး သင်တန်းများ၊ မီးဘေးအန္တရာယ်ကာကွယ်ရေး သင်တန်းများနှင့် စက်ပစ္စည်း စနစ်တကျ ကိုင်တွယ်အသုံးပြုနိုင်ရေး သင်တန်းများအား ဝန်ထမ်းများအား သင်တန်းပေးခြင်း၊ • လုပ်ငန်းခွင်အတွင်း အမြင်အာရုံရှင်းလင်းနိုင်စေရန်နှင့် အန္တရာယ်ကင်းစွာ စက်ပစ္စည်းများအား အသုံးပြုနိုင်ရန် လုံလောက်သော အလင်းရောင်ရရှိရန် ဆောင်ရွက်ပေးထားခြင်း၊ • လျှပ်စစ်ဓာတ်လိုက်ခြင်းများ မဖြစ်ပေါ်စေရန် စက်ပစ္စည်းများအား ပုံမှန်စစ်ဆေးခြင်းနှင့် ကာကွယ်ရေးနည်းလမ်းများ ထားရှိပေးခြင်း၊
ကျန်းမာရေး	• လူဦးရေထူထပ်ခြင်း • အရေးပေါ်မီးစက်များနှင့် စက်ကိရိယာများမှ ဆူညံသံများ ထွက်ရှိခြင်း၊	အလွန်နည်း	• စက်ရုံမှ အလုပ်သမားများအတွက် တစ်ကိုယ်ရေသုံး ကာကွယ်ရေးပစ္စည်းများ ဝတ်ဆင်ပြီးမှသာ လုပ်ငန်းလုပ်ဆောင်စေခြင်း၊ စက်ရုံအား အလုပ်သမား အရေအတွက်၊ စက်ပစ္စည်း အရေအတွက်နှင့် ကိုက်ညီမှုရှိအောင် တည်ဆောက်ထားခြင်း၊ • စက်ရုံရှိ အလုပ်သမားများအတွက် အလုပ်ချိန်(၈)နာရီအတွင်း သင့်တော်သော ဆူညံသံထွက်ရှိမှု ပမာဏမှာ ၇၀ dB(A) ဖြစ်ပါသည်။ စက်ရုံမှ ဆူညံသံ

			ထွက်ရှိမှုများသော စက်ကိရိယာများနှင့် လုပ်ငန်းလုပ်ဆောင်ရသော အလုပ်သမားများအား နားကြပ်များ၊ ဆူညံသံကာကွယ်ရေးပစ္စည်းများ ထားရှိပေးခြင်း
လူမှုစီးပွားအခြေအနေ	• ဒေသခံပြည်သူများအတွက် အလုပ်အကိုင် အခွင့်အလမ်းများ ရရှိစေခြင်း	ကောင်းမွန်သော သက်ရောက်မှု	
စွန့်ပစ်အမှိုက်	• ထုတ်လုပ်ရေးလုပ်ငန်းမှ ထွက်ရှိသော စတီးဖြတ်စများ၊ • ဆေးသုတ်ခြင်းအပိုင်းမှ သုတ်ဆေးဗူးအခွံများ၊ • စားသောက်ဆောင်၊ နားနေဆောင်နှင့် ရုံးခန်းမှ အမှိုက်များ	အသင့်အတင့်	• လုပ်ငန်းစဉ်တစ်ခုချင်းစီတွင် အမှိုက်ပုံးများ ထားရှိပေးခြင်း၊ • အမှိုက်များအား အမျိုးအစားခွဲခြား၍ ယာယီသိမ်းဆည်းခြင်း၊ စွန့်ပစ်ခြင်း၊ • ရန်ကုန်စည်ပင်သာယာရေးကော်မတီနှင့် ချိတ်ဆက်၍ အမှိုက်စွန့်ပစ်ခြင်း၊
စွန့်ပစ်အရည်	• နေအိမ်၊ စားသောက်ဆောင် တို့မှ စွန့်ထုတ်ရေ၊ • မိလ္လာကန်စနစ်	အနည်းငယ်	• ပုံမှန်စစ်ဆေးခြင်း၊ သန့်ရှင်းရေးပြုလုပ်ခြင်း၊ သိုလှောင်ရုံနှင့် စွန့်ပစ်ပစ္စည်းများအတွက် လုံလောက်သော ဖုံးအုပ်မှုများ ထားရှိစေခြင်း၊
အန္တရာယ်ရှိအမှိုက်	• စက်များမှ ဆီယိုစိမ့်မှုများ၊ မော်တော်ယာဉ်များပြုပြင် ထိန်းသိမ်းမှုမှ ထွက်ရှိသည့် အမှိုက်များ၊ • liquid CO_2 and liquid O_2 tanks များမှ ယိုစိမ့်မှုများ၊	အလွန်နည်း	• စက်သုံးဆီများအား စနစ်တကျ အသုံးပြုစေခြင်း၊ စနစ်တကျ သိုလှောင်ခြင်း၊ • liquid CO_2 and liquid O_2 tanks များအား ပုံမှန်စစ်ဆေးခြင်း၊ ပြုပြင်ထိန်းသိမ်းခြင်း
လုပ်ငန်းပိတ်သိမ်းခြင်းကာလ			
လေထုညစ်ညမ်းမှု	• အဆောက်အဦများ ဖြိုချမှုများ၊ • ဖြိုချပစ္စည်းများ သယ်ယူမှုများ	အနည်းငယ်	• ဖုန်ထွက်ရှိမှု လျှော့နည်းစေရန် တစ်နေ့နှစ်ကြိမ် ရေဖြန်းပေးခြင်း၊ • ဖြိုချပစ္စည်းများအား စနစ်တကျ ဖုံးအုပ်ထားခြင်း၊ • ပိတ်သိမ်းမှုဧရိယာအတွင်း ခြံစည်းရိုးများ အပေါ်တွင် အမြင့် ၂ မီတာရှိ အရိပ်ရ ပိုက်များ တပ်ဆင်ထားခြင်း၊ • ဖြိုချပစ္စည်းများ သယ်ယူရာတွင် စနစ်တကျ ဖုံးအုပ်၍ သယ်ဆောင်ခြင်း၊
ရေညစ်ညမ်းမှု	• ဖျက်သိမ်းရေး အလုပ်သမားများမှ အထွေထွေ စွန့်ထုတ်ရေများ၊ မိလ္လာစနစ်၊	အနည်းငယ်	• စွန့်ထုတ်ရေလှောင်ကန်များနှင့် မိလ္လာစနစ်များ ဖျက်သိမ်းရာတွင် အစီအစဉ်တကျ ဖျက်သိမ်းဆောင်ရွက်ခြင်း၊

			• ရန်ကုန်စည်ပင်သာယာနှင့် ချိတ်ဆက်၍ စနစ်တကျ စွန့်ပစ်ခြင်း၊
မြေဆီလွှာ ညစ်ညမ်းမှု	• အဆောက်အဦနှင့် ဆက်စပ် ပစ္စည်းများ • ဖြိုချပစ္စည်းများ သယ်ယူမှုများ	အနည်းငယ်	• စွန့်ထုတ်ရေ၊ မိလ္လာများ၊ စက်ဆီ၊ ဒီဇယ် ဆီများ ယိုဖိတ်မှု မရှိအောင် စီမံ ဆောင်ရွက်ခြင်း၊
ဆူညံသံနှင့် တုန်ခါမှု	• ဖြိုချဖျက်သိမ်းခြင်း လုပ်ငန်းများ၊ • ဖြိုချပစ္စည်းများအား သယ်သူ ပို့ဆောင်ခြင်း	အနည်းငယ်	• ဖြိုချဖျက်သိမ်းခြင်းလုပ်ငန်းများအား နေ့အချိန်တွင်သာ ဆောင်ရွက်စေခြင်း၊ • ဆူညံသံထွက်ရှိမှု လျော့နည်းစေရန် စက်ပစ္စည်းများနှင့် ယာဉ်ယန္တရားများ ,အား ပုံမှန်စစ်ဆေး ထိန်းသိမ်းခြင်း • အလုပ်သမားများအား နားကြပ်များ၊ တစ်ကိုယ်ရေသုံးကာကွယ်ရေးပစ္စည်း များ တပ်ဆင်ဆောင်ရွက်စေခြင်း၊
အမှိုက်စွန့်ပစ်မှု	• ဖြိုချပစ္စည်းများဖြစ်သော အုတ် အကျိုးအပဲ့များ၊ ကွန်ကရစ် အ စိတ်အပိုင်းများ၊	အလွန်နည်း	• ပြန်လည်အသုံးပြု၍ရသော ပစ္စည်းများ နှင့် ခွဲခြားစွန့်ပစ်ရမည့် ပစ္စည်းများဟူ၍ ခွဲခြားစွန့်ပစ်ဆောင်ရွက်ခြင်း၊
အန္တရာယ်ရှိ စွန့်ပစ် ပစ္စည်းများ	• ဖြိုချရေးဆောင်ရွက်သည့် စက် ပစ္စည်းများနှင့် ယာဉ်ယန္တရားများမှ စက်သုံးဆီယိုဖိတ်ခြင်း၊ • liquid CO_2 နှင့် liquid O_2 သိုလှောင်ကန်များ	အလွန်နည်း	• မတော်တဆ စက်သုံးဆီယိုဖိတ်မှု မဖြစ်စေရန် ထိန်းသိမ်းဆောင်ရွက်ခြင်း၊ • liquid CO_2 နှင့် liquid O_2 သိုလှောင်ကန်များ ပြန်လည်အသုံးပြုနိုင်သည့် နေရာများသို့ ပြန်လည်ရောင်းချခြင်း၊ ပြန်လည်အသုံးပြု၍ မရပါက ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီနှင့် ချိတ်ဆက်၍ စနစ်တကျ စွန့်ပစ်ခြင်း၊
လုပ်ငန်းခွင် ကျန်းမာရေးနှင့် ဘေးအန္တရာယ်ကင်းရှင်းရေး	• ဖျက်သိမ်းရေးလုပ်ငန်းစဉ်များ • ဖြိုချပစ္စည်းများသယ်ယူခြင်း	အနည်းငယ်	• အကာအကွယ်စည်းရိုးများ၊ သတိပေးဆိုင်းဘုတ်များ၊ လုံခြုံရေးဆိုင်းဘုတ်များ ချိတ်ဆွဲထားခြင်း၊ • ဖြိုချ စွန့်ပစ်ပစ္စည်းများအား သန့်ရှင်းရေး ပုံမှန်ပြုလုပ်ခြင်း, • တတိယအဖွဲ့အစည်းမှ ကျွမ်းကျင်သူ အား ငှားရမ်း၍ အန္တရာယ်ရှိ စွန့်ပစ် ပစ္စည်းများနှင့် ဖြိုချပစ္စည်းများ ရှင်းလင်းရာတွင် အန္တရာယ်ကင်းရှင်းမှု ရှိစေရေး ကြီးကြပ်စေခြင်း၊



အဆိုပြုစီမံကိန်း၏ သိသာထင်ရှားသော ထိခိုက်မှုများ

United Kingdom မှ Institute of Environmental Management and Assessment (IEMA) ၏ ပြန်လည်ဆန်းသစ်ထားသော နည်းလမ်းကို အကျိုးသက်ရောက်မှုများအား အကဲဖြတ်ရန်အတွက် ဤအစီရင်ခံစာတွင် အသုံးပြုခဲ့ပါသည်။ ဆန်းစစ်လေ့လာမှု၏ ရလဒ်များတွင် စီမံကိန်းလုပ်ဆောင်မှုအများစုသည် ပတ်ဝန်းကျင်အပေါ် ထိခိုက်မှု အလွန်နည်းပါးပြီး အချို့မှာ ပတ်ဝန်းကျင်လုပ်ဆောင်မှုအတွက် တိုးတက်ကောင်းမွန်စေရန် အသင့်အတင့် သိသာထင်ရှား ကြောင်း ဖော်ပြထားပါသည်။ လူမှုရေးနှင့် စီးပွားရေးဖွံ့ဖြိုးတိုးတက်မှုများအတွက် အဆိုပြုစီမံကိန်းသည် အပြုသဘော ဆောင်သော အကျိုးသက်ရောက်မှုများ ဖြစ်စေပါသည်။

၆။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ကို သတ်မှတ်ထားသော အကျိုးသက်ရောက်မှုများ၊ လျှော့ချမှု၊ တိုင်းတာမှု များ၊ စီမံခန့်ခွဲမှုနှင့် စောင့်ကြပ်ကြည့်ရှုရေးအစီအစဉ်များပေါ် မူတည်၍ အကောင်အထည်ဖော်ခဲ့ပါသည်။ အဆိုပြုစီမံကိန်း၏ ပတ်ဝန်းကျင်ဆိုင်ရာတိုးတက်မှုများနှင့် ပြုပြင်ပြောင်းလဲမှုများအတွက် အောက်ဖော်ပြပါ အစီအစဉ်များ ပြီးမြောက်ရန်၊ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အား သုံးသပ်ရန်အတွက် Min Dhama Steel Structers Company Limited မှ စက်ရုံ၏ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအဖွဲ့အား ဖွဲ့စည်းထားရှိပါသည်။ ပတ်ဝန်းကျင်လေထုအရည်အသွေး၊ ဆူညံသံ၊ ရေအရည်အသွေး၊ အညစ်အကြေးနှင့် အစိုင်အခဲစွန့်ပစ်ပစ္စည်းများစွန့်ပစ်ခြင်းအတွက် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအဖွဲ့၏ ခေါင်းဆောင်မှု စောင့်ကြပ်ကြည့်ရှုသွားမည်ဖြစ်ပါသည်။ စီမံကိန်းအဆိုပြုသူမှ လူမှုရေးတာဝန်ယူ ဆောင်ရွက်မှုအစီအစဉ်နှင့် အရေးပေါ် ပြင်ဆင်ထားရှိမှုများအား ဒေသခံပြည်သူများ၏ အကျိုးကျေးဇူးအတွက် ဆောင်ရွက်သွားမည်ဖြစ်ပါသည်။

- ❖ လေထုညစ်ညမ်းမှုနှင့် ဖုန်မှုန့်ဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်
  - စက်ရုံတွင် ကာဗွန်နှင့် လေထုညစ်ညမ်းမှုလျော့ချနိုင်ရန် သစ်ပင်ပန်းပင်များစိုက်ပျိုးထားခြင်း
  - စက်ရုံအတွင်း မည်သည့် စွန့်ပစ်အမှိုက်များကိုမဆို မီးရှို့ဖျက်စီးခြင်းအား မပြုလုပ်စေခြင်း
  - အမှုန်များသော နေရာများတွင် လုပ်ငန်းလုပ်ဆောင်ရမည့် လုပ်သားများကို မျက်နှာအုပ် (Mask) များ တပ်ဆင်စေခြင်း
- ❖ ရေအသုံးပြုမှုဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်
  - ရေအသုံးပြုမှုအတွက် ရေအသုံးပြုမှု ထိန်းချုပ်သည့် ပစ္စည်းများ တပ်ဆင်ထားရှိစေခြင်း
  - ရေအသုံးပြုသည့်နေရာများ၊ အိမ်သာများတွင် ရေကို သင့်လျော်သော နည်းလမ်းနှင့် အသုံးပြုခြင်းနှင့် ထိန်းသိမ်းစောင့်ရှောက်ခြင်းဆိုင်ရာ နည်းလမ်းများ သိရှိစေခြင်းနှင့် သင်တန်းပို့ချခြင်း၊
- ❖ ရေဆိုးစွန့်ပစ်မှု စီမံခန့်ခွဲမှုအစီအစဉ်
  - ဆီယိုဖိတ်မှုမရှိစေရေးအတားအဆီးများ၊ မိလ္လာကန်နှင့် အခြားစွန့်ပစ်ရည်ထွက်ရှိသည့်နေရာများအား ပုံမှန် စစ်ဆေးကြည့်ရှုခြင်းနှင့် သန့်ရှင်းရေးပြုလုပ်ခြင်း
- ❖ ဆူညံမှုထိန်းချုပ်ခြင်းဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်
  - မီးစက်အသုံးပြုမှုအတွက် အသံလုံခန်းများဆောက်လုပ်ထားရှိခြင်း
  - လုပ်ငန်းသုံးသည့်ယာဉ်များကို သတ်မှတ်အရှိန်ထက် ကျော်လွန်၍ မမောင်းနှင်စေခြင်း
  - လုပ်ငန်းခွင်အတွင်း လုပ်သားများအတွက် တစ်ကိုယ်ရေသုံးကာကွယ်ရေးပစ္စည်း (PPE)များ လုံလောက်စွာ ထားရှိပေးခြင်း
  - လုပ်သားများကို PPE အသုံးပြုမှုနှင့်ပတ်သက်၍ သင်တန်းများ ပို့ချပေးခြင်းနှင့် ဆူညံသံများသော နေရာတွင် အလုပ်လုပ်စဉ် PPE များကို သေချာစွာ အသုံးပြုစေခြင်း
- ❖ အစိုင်အခဲစွန့်ပစ်ပစ္စည်းဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်
  - စက်ရုံလုပ်ငန်းခွင်တစ်ခုချင်းစီအလိုက် လုံလောက်သော အမှိုက်ပုံးများ ထားရှိပေးခြင်း
  - အစိုင်အခဲစွန့်ပစ်ပစ္စည်းများအား ခွဲခြားထားရှိပြီး ယာယီအမှိုက်စွန့်ပစ်သည့်နေရာတွင် ထားရှိ၍ YCDC နှင့် ချိတ်ဆက်၍ စွန့်ပစ်ခြင်း
- ❖ မီးဘေးအန္တရာယ် စီမံခန့်ခွဲမှုအစီအစဉ်
  - စက်ရုံအတွင်း မီးသတ်ဆေးဘူး၊ မီးသတ်စနစ်နှင့် မီးသတ်ရေများအား အဆင်သင့်ထားရှိစေခြင်း
  - အရေးပေါ်ထွက်ပေါက်များနှင့် စုရုပ်များအား သတ်မှတ်ထားရှိခြင်းနှင့် အရေးပေါ်ထွက်ပေါက်များတွင် ပစ္စည်းများ ပိတ်ဆို့နေခြင်း မရှိအောင် ဆောင်ရွက်ထားရှိခြင်း
  - မီးသတ်ဆေးဘူးများ၊ မီးသတ်ရေကန်များအား ပုံမှန်စစ်ဆေးကြည့်ရှုခြင်း
  - စက်ရုံအတွင်း မီးဘေးအချက်ပေးစနစ်များ တပ်ဆင်ထားရှိခြင်း

- ❖ လုပ်ငန်းခွင်ဘေးကင်းလုံခြုံရေးနှင့် ကျန်းမာရေး စီမံခန့်ခွဲမှုအစီအစဉ်
  - ဝန်ထမ်းများအား အရေးပေါ်ကုသရေးသင်တန်းများ၊ လုံခြုံရေးသင်တန်းများနှင့် စက်ပစ္စည်းကိုင်တွယ် အသုံးပြုခြင်းသင်တန်းများပေးခြင်း
  - စက်ရုံအတွင်း လုံလောက်သော အလင်းရောင်ရရှိစေရန် ဆောင်ရွက်ထားရှိခြင်း
  - လုပ်ငန်းခွင်တစ်ခုချင်းစီအလိုက် တစ်ကိုယ်ရေသုံးကာကွယ်ရေးပစ္စည်းများထားရှိပေးခြင်း
  - လျှပ်စစ်အန္တရာယ်မဖြစ်ပေါ်စေရေး ပုံမှန်စစ်ဆေးစောင့်ကြည်ခြင်း
  - စက်ရုံရှိရေမြောင်းများအား ရေစီးရေလာကောင်းမွန်စေရေး စီမံထားရှိခြင်း
- ❖ စွမ်းအင်အသုံးပြုမှုဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်
  - လုပ်ငန်းခွင်အတွင်း အပူအအေးမျှတစေရန် တိုင်းတာနိုင်သည့် စက်ပစ္စည်းများ ထားရှိခြင်း
  - လုပ်ငန်းခွင်အတွင်း အလင်းရောင်ရရှိစေရန် မီးချောင်းများအသုံးပြုရာတွင် စွမ်းအင်ချွေတာရေးမီးချောင်း၊ မီးသီးများ တပ်ဆင်အသုံးပြုခြင်း၊
  - စက်ပစ္စည်းများနှင့် အခြားလျှပ်စစ်စွမ်းအင်သုံးပစ္စည်းများအား အသုံးမပြုပါက ပိတ်ထားရမည့် အလေ့အကျင့်ကောင်းများ ဝန်ထမ်းများသို့ သင်ကြားပေးခြင်း
- ❖ အရေးပေါ်တုံ့ပြန်ရေးနှင့် သဘာဝဘေးဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်
  - သဘာဝဘေးအန္တရာယ်များဖြစ်ပေါ်လာပါက ကိုင်တွယ်ဖြေရှင်းနိုင်မည့် အစီအစဉ်များ ထားရှိခြင်း
  - လုပ်ငန်းခွင်တစ်ခုချင်းစီအလိုက် မီးသတ်ပစ္စည်းများအား ထားရှိစေ၍ ပုံမှန်စစ်ဆေး ကြည့်ရှုခြင်း
  - ဝန်ထမ်းများအား သဘာဝဘေးအန္တရာယ်၊ မီးဘေးလုံခြုံရေးနှင့် လုပ်ငန်းခွင်ကျန်းမာရေးတို့နှင့် ပတ်သက်သည့် သင်တန်းများ ပို့ချထားရှိခြင်း
- ❖ စွမ်းဆောင်ရည်မြှင့်တင်ရေးနှင့် လေ့ကျင်ရေးဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်
- ❖ မကျေနပ်မှုများဆိုင်ရာ ဖြေရှင်းမှု နည်းလမ်း
- ❖ လူမှုရေးဆိုင်ရာ တာဝန်ယူဆောင်ရွက်မှု အစီအစဉ်

အဆိုပြုစီမံကိန်း၏ ပတ်ဝန်းကျင်ဆိုင်ရာစောင့်ကြပ်ကြည့်ရှုမှု အစီအစဉ်၊ အချိန်ဇယားနှင့် ငွေကြေးအစီအစဉ်များအား **အခန်း (၆) ၊ အပိုဒ် (၆.၁၀) ၊ ဇယား (၆-၁) နှင့် အပိုဒ်ခွဲ (၆.၁၀.၁) ၊ ဇယား (၆-၂)** တွင် အသေးစိတ်ဖော်ပြထားရှိပါသည်။

အဆိုပြုစီမံကိန်းသည် ရွှေပြည်သာစက်မှုဇုန်အပိုင်း(၄)၊ ရွှေပြည်သာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီးတွင် တည်ရှိသောကြောင့် စီမံကိန်းမှ ဒေသခံပြည်သူများအား ထိခိုက်နိုင်ချေ မရှိပါ။ အဆိုပြုစီမံကိန်း၏ အကြောင်းအချက်များနှင့် ဤပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီရင်ခံစာအား အများပြည်သူနှင့် သက်ဆိုင်သူများမှ အောက်ဖော်ပြပါ Website၊ Facebook Page များတွင် ဝင်ရောက်လေ့လာ ကြည့်ရှုနိုင်ပါသည်။

Myanwei website: **www.myanweiconsulting.com**

https://www.facebook.com/Myanwei-Environmental-Solutions-Company-Limited.

၇။ အများပြည်သူနှင့်တွေ့ဆုံဆွေးနွေးခြင်း

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အစီရင်ခံစာအတွက် အများပြည်သူနှင့်တွေ့ဆုံဆွေးနွေးခြင်းအား ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ထုံးလုပ်နည်းအရ ၂၇ ရက်၊ ဧပြီလ၊ ၂၀၂၃ခုနှစ်တွင် ပြုလုပ်ခဲ့ပါသည်။

အချိန်နှင့်နေရက်	ကြာသပတေးနေ့၊ ၂၇ ရက်၊ ဧပြီလ၊ ၂၀၂၃ခုနှစ် မနက် ၁၀:၀၀ မှ ၁၁:၁၅ အထိ
ကျင်းပသည့်နေရာ	Min Dhama Steel Structures Company Limited၏ အစည်းအဝေးခန်းမ၊ အမှတ် (၈၈)၊ မြေတိုင်းရပ်ကွက်အမှတ် (၆၅/စက်မှု)၊ စက်မှုဇုန် (၄)၊ ရွှေပြည်သာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး။
အစည်းအဝေး အကြောင်းအရာ	• Min Dhama Steel Structures Company Limited. အား မိတ်ဆက်ခြင်း။ • ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အစီရင်ခံစာအား မိတ်ဆက်ခြင်း။ • သက်ရောက်မှုဆန်းစစ်ခြင်းရလဒ်များနှင့် ထိခိုက်မှုအဆင့်သတ်မှတ်ချက်များ။ • ပတ်ဝန်းကျင်အပေါ်သက်ရောက်မှုများနှင့် ဖြေလျှော့ရေးနည်းလမ်းများ။ • ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်နှင့် • စက်ရုံ၏ဆောက်ရွက်ချက်များ။
ဆွေးနွေးတင်ပြသည့် အဖွဲ့အစည်း	Myanwei Environmental Solutions Company Limited

၈။ နိဂုံးနှင့်အကြံပြုချက်

နိဂုံးချုပ်အားဖြင့် အများပြည်သူနှင့် တွေ့ဆုံဆွေးနွေးပွဲတွင် မှတ်တမ်းတင်ထားသော ဒေသခံပြည်သူများ၏ အကြံပြုချက်များ၊ လိုလားမှုများနှင့် လိုအပ်ချက်များအားလုံးကို ကောင်းစွာ ကိုင်တွယ်ဖြေရှင်းနိုင်ခဲ့ပြီး ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီရင်ခံစာ ရေးဆွဲရာတွင် ထည့်သွင်းအသုံးပြုထားပါသည်။ Min Dhama Steel Structures Company Limited မှ ဒေသခံပြည်သူများအား အလုပ်အကိုင်အခွင့်အလမ်းများ ဖန်တီးပေးနိုင်ပြီး ဝန်ထမ်းများ၏ လုပ်နိုင်စွမ်းရည်နှင့် အလုပ်ကျွမ်းကျင်မှုများအား မြင့်တင်ပေးနိုင်ကြောင်း တွေ့ရှိရပါသည်။ ထို့ကြောင့် ဒေသခံပြည်သူများ၏ လူမှုစီးပွားရေး

စံနှုန်းများ တိုးတက်ကောင်းမွန်စေရန်အတွက် တင်ပြထားသည့် လူမှုရေးဆိုင်ရာ တာဝန်ယူဆောင်ရွက်မှုအစီအစဉ်အတိုင်း ဆောင်ရွက်သွားမည် ဖြစ်ပါသည်။ ဒေသခံပြည်သူများနှင့် နိုင်ငံဖွံ့ဖြိုးတိုးတက်ရေးအတွက် ဤစီမံကိန်းမှ အပြုသဘော ဆောင်သော အကျိုးသက်ရောက်မှုများ ရရှိနိုင်ပါသည်ဟု ကောက်ချက်ချနိုင်ပါသည်။

အကြံပြုချက်များအရ

- အစီရင်ခံစာတွင် ဖော်ပြထားသည့်ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်နှင့် ကတိကဝတ်များကို စီမံကိန်း၏ သက်တမ်းတလျှောက်တွင် အကောင်အထည်ဖော် ဆောင်ရွက်ရမည်။
- အစိုင်အခဲနှင့်အရည်စွန့်ပစ်ပစ္စည်းများကို ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီ၏ စည်းကမ်းများ အတိုင်းစွန့်ပစ်ရမည်။
- အလုပ်သမားများအား သင့်တော်သော သင်တန်းများပေးခြင်း၊ လုပ်ငန်းခွင်အတွင်း တစ်ကိုယ်ရည် ကာကွယ်ရေး ပစ္စည်းများ အသုံးပြုစေခြင်းများ ဆောင်ရွက်ရမည်။
- ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုအစီအစဉ်များကို နေ့စဉ်၊ လစဉ်နှင့် နှစ်စဉ် လုပ်ငန်းခွင်အတွင်း လုပ်ဆောင်ရမည်။
- ပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုအစီအစဉ် မှတ်တမ်းများကို သေချာသိမ်းဆည်း၍ တတိယအဖွဲ့အစည်း သို့တင်ပြရမည်။
- ပြည်ထောင်စုသမ္မတ မြန်မာနိုင်ငံတော်၏ လမ်းညွှန်ချက်များ၊ ပတ်ဝန်းကျင်ဆိုင်ရာ ဥပဒေ၊ နည်းဥပဒေ၊ စည်းမျဉ်းစည်းကမ်းများနှင့် ချမှတ်ထားသောမူဝါဒ လမ်းညွှန်ချက်များအတိုင်း ပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှု အလေ့အကျင့်များ၊ လုပ်ငန်းစဉ်များနှင့် လိုက်နာဆောင်ရွက်ရမည်။

အချုပ်အားဖြင့်ဆိုသော် အဆိုပြုသူသည် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဦးစီးဌာနမှ ညွှန်ကြားလာသော အဆိုပြုချက်များ၊ အကြံပြုချက်များကို လိုက်နာဆောင်ရွက်ရမည်။ ထိရောက်သော ပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှုကို အဆိုပြုသူမှ ဆောင်ရွက်ရမည်။ အဆိုပြုသူသည် ပြည်ထောင်စုသမ္မတ မြန်မာနိုင်ငံတော်၏ လမ်းညွှန်ချက်များ ၊ ပတ်ဝန်းကျင်ဆိုင်ရာ ဥပဒေ၊ နည်းဥပဒေ၊ စည်းမျဉ်းစည်းကမ်းများနှင့် ချမှတ်ထားသော မူဝါဒ လမ်းညွှန်ချက်များ အတိုင်းလိုက်နာ ဆောင်ရွက်ရမည်။

စီမံကိန်းဖော်ဆောင်မှုကြောင့် စက်မှုကဏ္ဍဖွံ့ဖြိုးတိုးတက်မှုများ၊ လူမှုစီးပွားတိုးတက်မှုများ၊ အလုပ်အကိုင် အခွင့်အလမ်းများ ရရှိစေနိုင်ပါသည်။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် ရေးဆွဲခြင်းဖြင့် စီမံကိန်းအပေါ် သက်ရောက်မှုများကို လျော့ချနိုင်ခြင်း နှင့် စောင့်ကြပ်ကြည့်ရှုမှုများကို တစ်နှစ်လျှင် ၂ကြိမ် ပြုလုပ်ရမည် ဖြစ်ပါသည်။

EXECUTIVE SUMMARY

1. Introduction

This report describes the findings of the Environmental Management Plan (EMP) for the Manufacturing of various kinds of steel structures on CMP Basic by Min Dhama Steel Structures Company Limited. The main objective of this report is to identify the major environmental impacts due to implementation of the project along with the effective measures to mitigate the potential adverse impacts.

According to the Myanmar Environmental Conservation Law (2012), it requires that the proponents of every development project in the country submit either an Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA) to Ministry of Natural Resources and Environmental Conservation (MONREC). As per the comments of Environmental Conservation Department (ECD), said project requires an Environmental Management Plan (EMP) to meet the environmental assessment requirements of Notification No. Yaka/EIA/2(1) (2963/2022) on 5th November 2022. Therefore, Min Dhama Steel Structures Company Limited commissioned MYANWEI ENVIRONMENTAL SOLUTIONS COMPANY LIMITED for EMP report study.

Information of Investor

Investor Name:	Daw Cherry
ID No.:	12/LaMaTa(N)034861
Citizenship:	Myanmar
Phone No:	09-250684195
Email	cherry@mindhamasteel.com
Address of Registration office:	Plot No. (88), Myay Taing Block No. (65/Industry), Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region.

Salient Features of the Project

Type of Proposed Business	Manufacturing of steel structure
Type of investment	Joint Venture (Myanmar Citizen Share 60% + Foreign Share 40%)
Type of Share	Ordinary Share
Type of land	Industrial Land
Total land area	5.519 acre (22334.62 sq meter)
Total building area	(640ft × 160ft) Factory Building – 1 (540ft × 80ft) Factory Building – 2 (340ft × 80ft) Factory Building –3 (100ft × 20ft) Office & Security Room (50ft × 30ft) & (33ft × 20ft) Canteen
Amount of Investment	US$ 1.920 Million (100%)
Validity of Endorsement	20 years
Preparation period	1 year
Land Lease Period	initially 20 years + extendable to two times of (5) years

Project Address	Plot No. (88), Myay Taing Block No. (65/Industry), Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region, Myanmar.
Contact person	U Zay Ya Zaw Administration Manager 09-5505051 zayyazaw@mindhamasteel.com No. (74/75/76/77/91), Kanaung Min Thar Gyi Street, Industrial Zone (4), Shwe Pyi Thar Township, Yangon Region.

Environmental Consultant Profile of Myanwei Environmental Solutions Company Limited is described and shown detail in **Chapter 1, Section 1.4**.

2. Policy, Legal and Institutional Framework

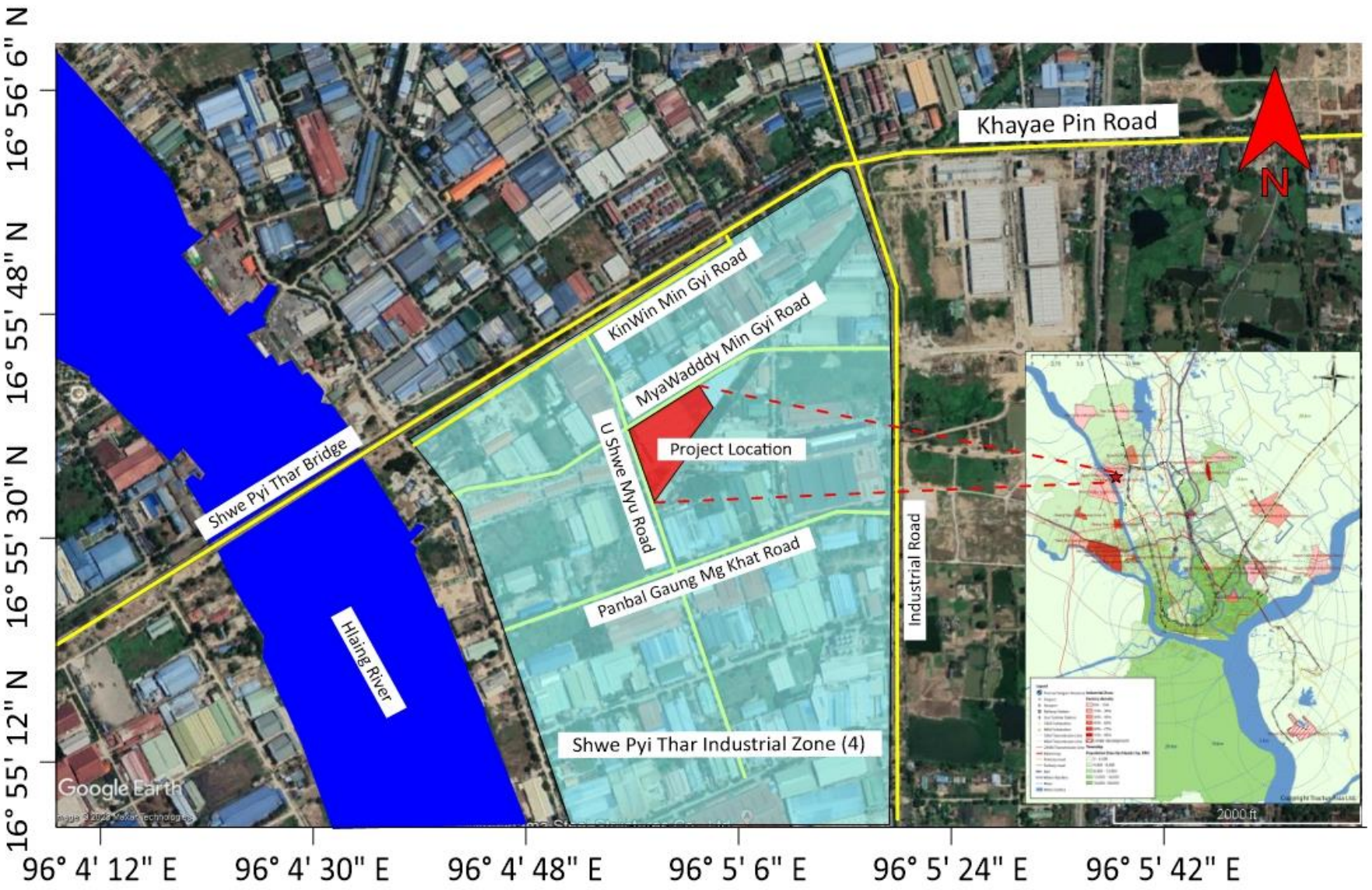
The brief summary of relevant national environmental legislations such as Environmental Impact Assessment Procedure (2015) and National Environmental Quality (emission) Guidelines, established by the Ministry of Natural Resources and Environmental Conservation (MONREC) and overview of current local and international environmental and social policies including related international or regional convention for the proposed project.

1. Constitution 2008
2. Environmental Conservation Law 2012
3. Environmental Conservation Rules 2012
4. Environmental Impact Assessment Procedure 2015
5. National Environmental Quality (Emission) Guidelines (NEQG) 2015
6. National Myanmar Environmental Policy 2019
7. Myanmar Forest Law 2017
8. Foreign Investment Rule 2013
9. Myanmar Investment Rules 2017
10. Myanmar Insurance Law 1993
11. Payment of Wages Law 2016
12. Yangon City Development Committee Law 2018
13. The Amended Law for Factories Act 1551 (2016)
14. The Private Industrial Enterprise Law 1990
15. The Export and Import Law 2012
16. The Prevention of Hazard from Chemical and Related Substances Law 2016
17. Underground Water Act 1930
18. Myanmar Fire Brigade Law 2015
19. The Electricity Law 2014
20. Labor Dispute Settlement Law 2012

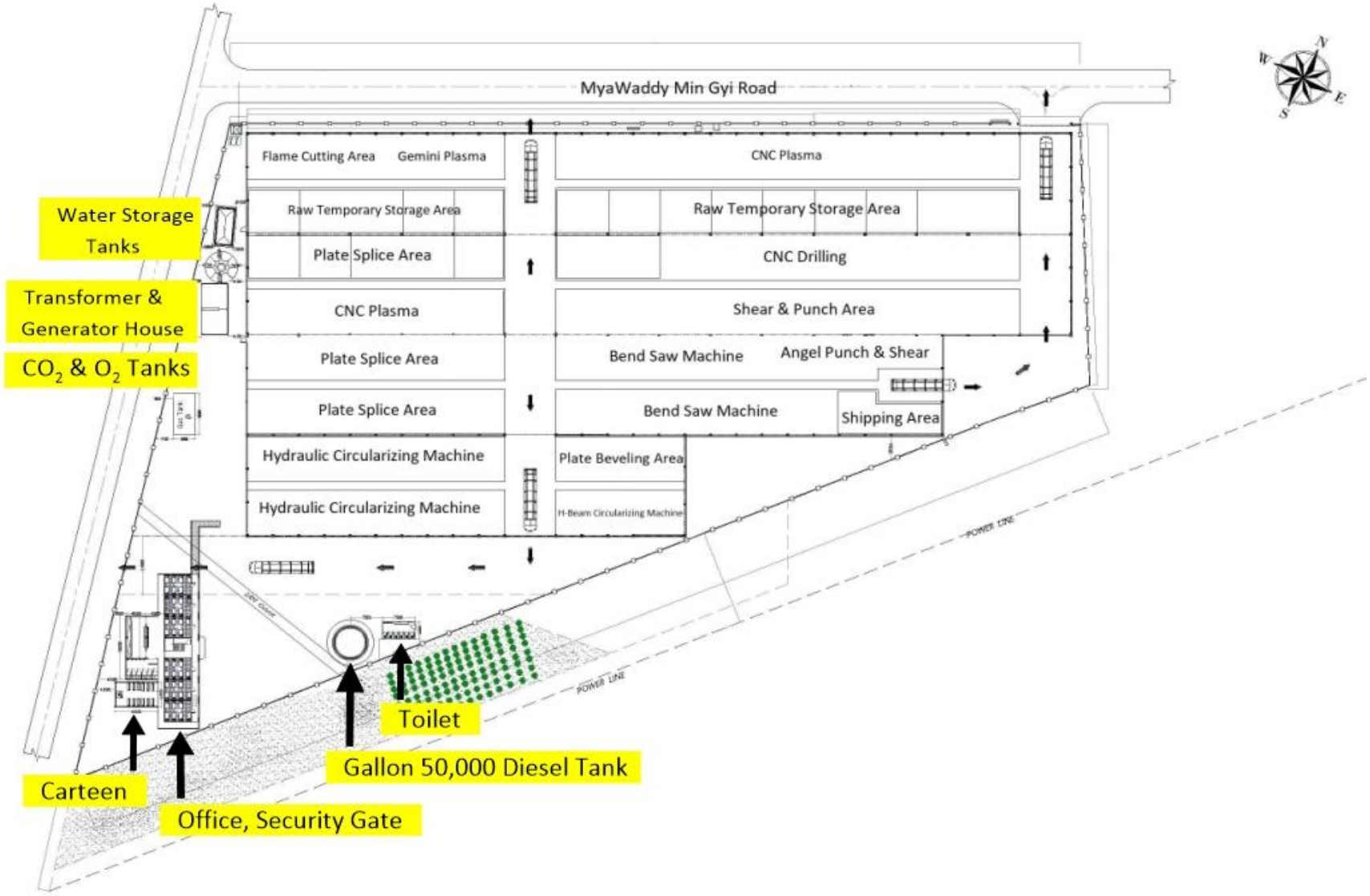
21. The Social Security Law 2012
22. The Employment and Skill Development 2013
23. Prevention and Control of Communicable Disease Law 2011
24. Occupational Safety and Health Law 2019
25. The Law on Standardization 2014
26. လုပ်ငန်းခွင်သုံးပေါက်ကွဲစေတတ်သော ဝတ္ထုပစ္စည်းများဆိုင်ရာ ဥပဒေ၊ ၂၀၁၈
27. The Motor Vehicles Law 2015
28. The Conservation of Water Resources and Rivers Law 2016
29. The Commercial Tax Law 1990

3. Project Description

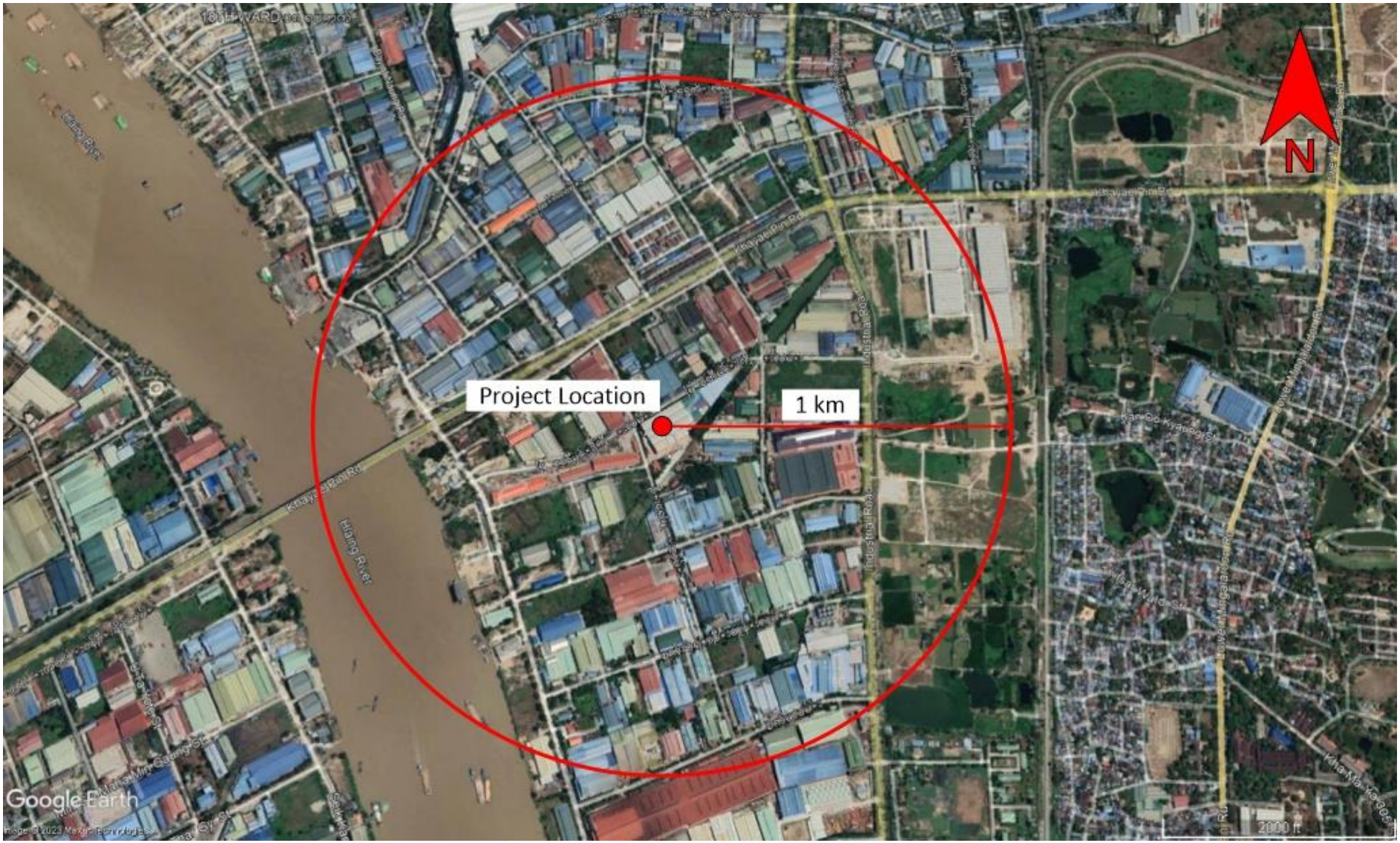
Min Dhama Steel Structures Company Limited is located at Plot No. (88), Myay Taing Block No.(65/Industry), Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region. The proposed factory locates at the coordinates of North Latitude 16°55'38.15"N and East Longitude 96° 5'0.54"E. The total area of project site is 5.519 acres (22,334.62 Sq.m). Min Dhama Steel Structures Company Limited is located at Shwe Pyi Thar Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region. The nearest water source is Hlaing River and Fruitful Groups of companies is located at the northeast of the factory. The main streets of the proposed project are Kin Win Min Gyi street, Myawaddy Min Gyi street and U Shwe Myu street.



Location Map of Min Dhama Steel Structures Company Limited



Factory Layout Drawing



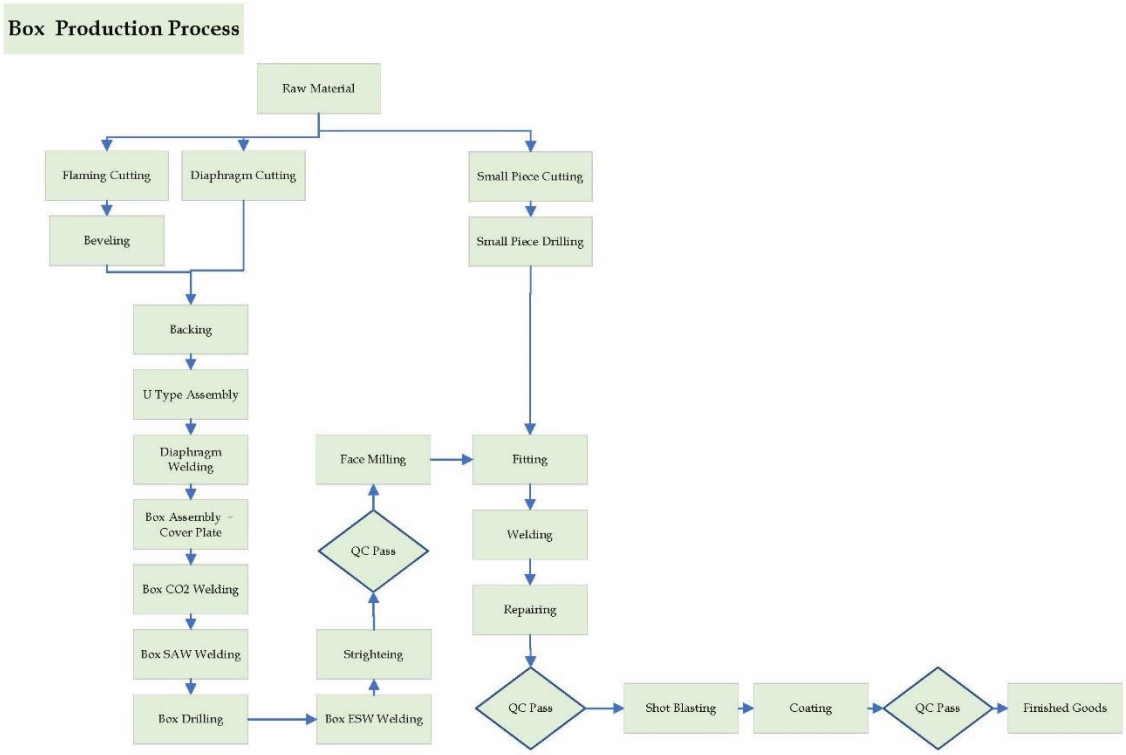
Adjacent Map of Min Dhama Steel Structures Company Limited

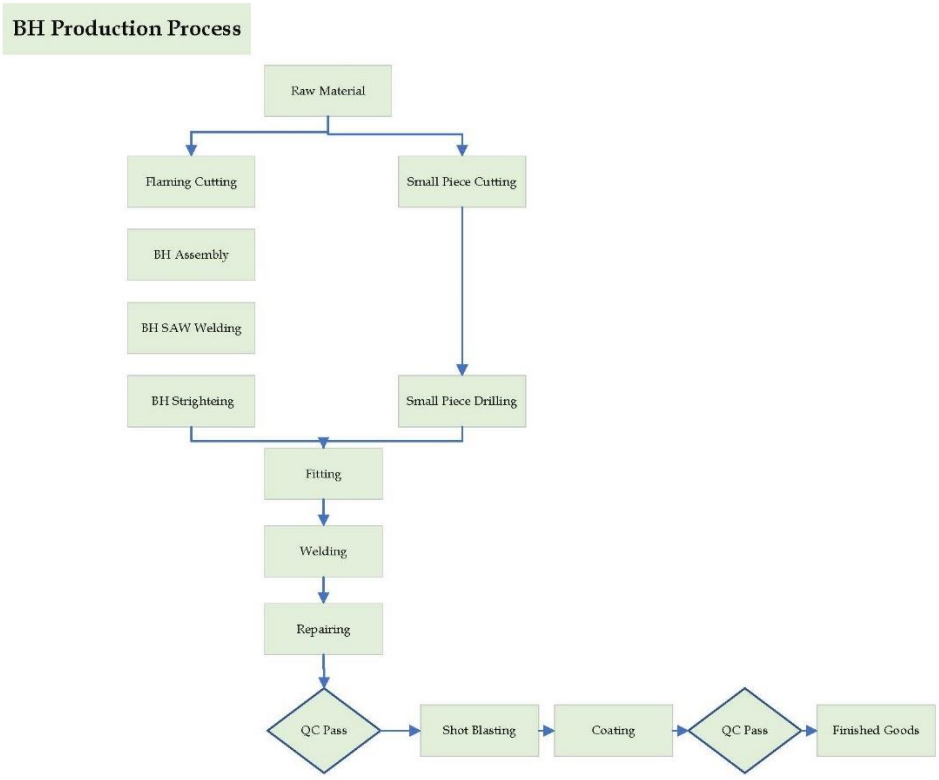
Three main factory buildings are designed into production area. Transformer room, generator room, CO_2 and O_2 filling station, water storage tanks and diesel storage tanks are separated from main factory building structure. The main products of the Min Dhama Steel Structures Company Limited are box structures type, build up structures type, RH structures type and other structures type. The Utilities for proposed factory include electrical power, fuel oil for emergency used generator and water for domestic use. Electric power is used for the purpose of to run the operation and to provide lighting. Raw materials are imported from China, Taiwan, Korea and Japan. Annually raw materials require 29,880 metric ton in 1st year, 40,042 metric ton in 7th – 10th year and 42,044 metric ton in 11th – 30th year. Annual production rate is 30,000 metric ton in 1st year, 40,203 metric ton in 7th to 10th year, and 42,213 metric ton in 11th – 30th years for the products. Products are exposed to Japan, Taiwan, Singapore, Thailand, Philippines, Australia, UAE, Qatar, Maldives, Mexico and according to the buyer instruction.

Necessary machinery equipment are hydraulic bending press brake, mechanical crank press, band saw, hydraulic circularizing machine, CNC drilling machine, punching machine, plate bending machine, hydraulic shear cutter, CNC gas/plasma cutting machine and beveling milling machine. Currently there are total 70 employees. Factory provide canteen, toilet and rest camp for employees. Total running day is 265 days per year.




Product Photos

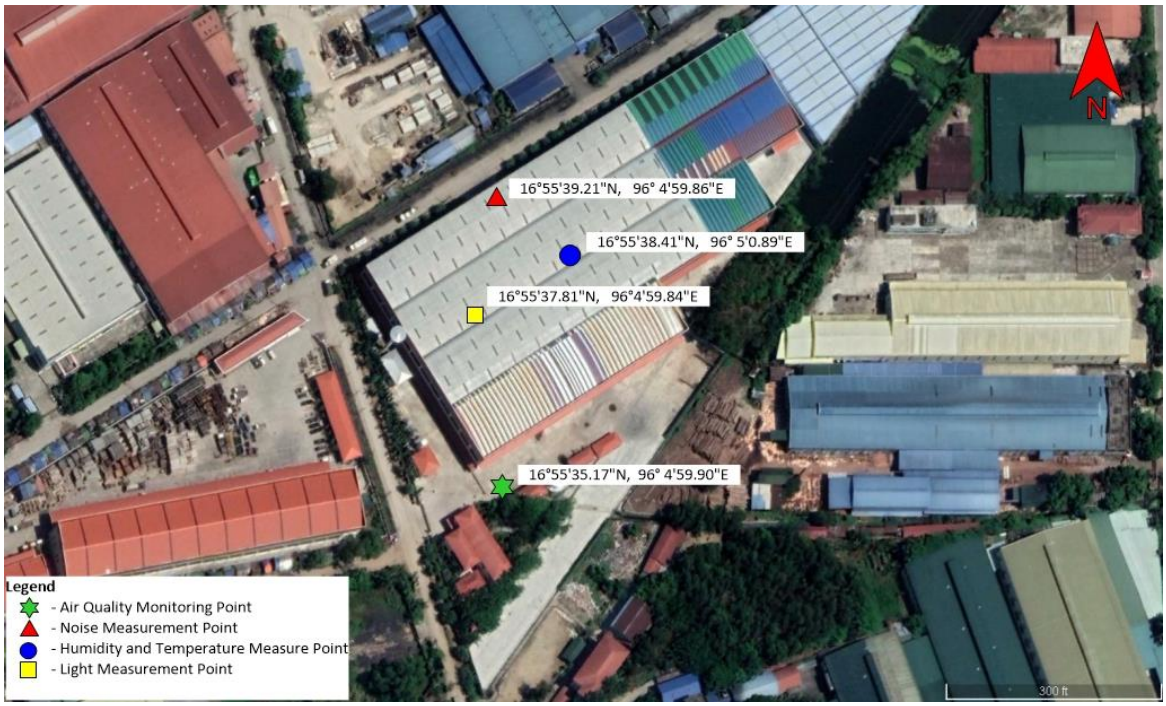




Production Process of Min Dhama Steel Structure Company Limited

4. Brief Description of Surrounding Environment

For environmental baseline, data were collected by onsite measurements analysis during operation phase on 5th January 2023. On-site measurement was taken by Temperature & Humidity, Air quality, Noise level and operation light condition at the factory. Moreover, secondary data collection of proposed project site area such as socio-economic condition, physical/ biological environment, weather data were collected from official township data was obtained from Regional Data of Shwe Pyi Thar Township.



Baseline Environmental Quality Monitoring Point

Survey Result in Proposed Project

Type	Results	Guideline Value
Weather Condition		
Indoor Temperature	35.5 °C	-
Relative Humidity	51.69 %	-
Air Quality		
PM_{10}	19 µg/m^3	50
$PM_{2.5}$	12 µg/m^3	25
SO_2	5 µg/m^3	20
NO_2	23 µg/m^3	200
O_3	16 µg/m^3	100
CO	0.5 µg/m^3	No Guideline
VOC	0.02 ppm	No Guideline
Noise Level		
Project Site	75.5 dBA	70 dBA

Light		
Cutting Area	541 Lux	400
Welding Area	673 Lux	400
Drilling Area	821 Lux	600
Punching Area	757 Lux	600

Factory tube well water testing results are shown in **APPENDIX D**.

The contents of CO and VOC concentration level are acceptable and particulate matter (PM_{10}, $PM_{2.5}$) and gases level of Ozone ($O_{3)}$, Nitrogen Dioxide (NO_2) and Sulfur dioxide (SO_2) are also within the National Environmental Quality (Emission) Guideline. Noise source monitoring at the project site overall level of noise in the workshop area is a little exceed when compared with National Environmental Quality (Emission) Guideline because the factory generates heavy machines and equipment. To minimize noise level, factory provides earmuffs and ear plugs to those workers near the noisy machines.

The development of infrastructure for the proposed project likely to happen changes in the local environment in terms of physical, biological and socio-economic aspects along with the perspective on both positive and negative impacts. The potential environmental impacts brought by various activities of proposed factory project will be identified and judged by site surveying with checklist, meeting with client team, including plant manager and supervisor, representatives from the factory operators and assessing the environmental baseline information for operation and decommissioning phases along with its mitigation measure.

5. Risk Assessment and Mitigation Measure

The assessment of each impact is based on consideration of the magnitude, duration, extent and probability of activities, which are going to be carried out during operation phases.

Impact Assessment Parameter and Its Skill

Assessment	Scale				
	1	2	3	4	5
Magnitude (M)	Insignificant	small and will have no effect on working environment	Moderate and will result in minor changes on working environment	High and will result in significant changes on working environment	Very high and will result in permanent changes on working environment
Duration (D)	0 - 1 year	2 - 5 year	6 - 15 year	Life of operation	Post Closure
Extent (E)	Limited to the site	Limited to the local area	Limited to the region	National	International
Probability (P)	Very improbable	Improbable	Probable	Highly probable	Definite

Then, the Significant Point (SP) calculated by following formula.

Significant Point (SP) = (Magnitude + Duration + Extent) × Probability

Impact Significance: Based on calculated significant point, impact significance can categorize as follows:

Significant Point (SP)	Impact Significance
<15	Very Low
15-29	Low
30-44	Moderate
45-59	High
60	Very high

In operation phase, there are 4 moderate significance impact, 4 low significant impacts and 5 very low significant impacts. In decommission phase, there are 4 low significant impacts and 2 very low significant impacts. All of the impacts during operation phases can be minimized by using mitigation measures and implementing Environmental Management Plan that is described detail in **Section 5.6**.

Evaluation and Prediction of Significant Impacts and Mitigation Measure

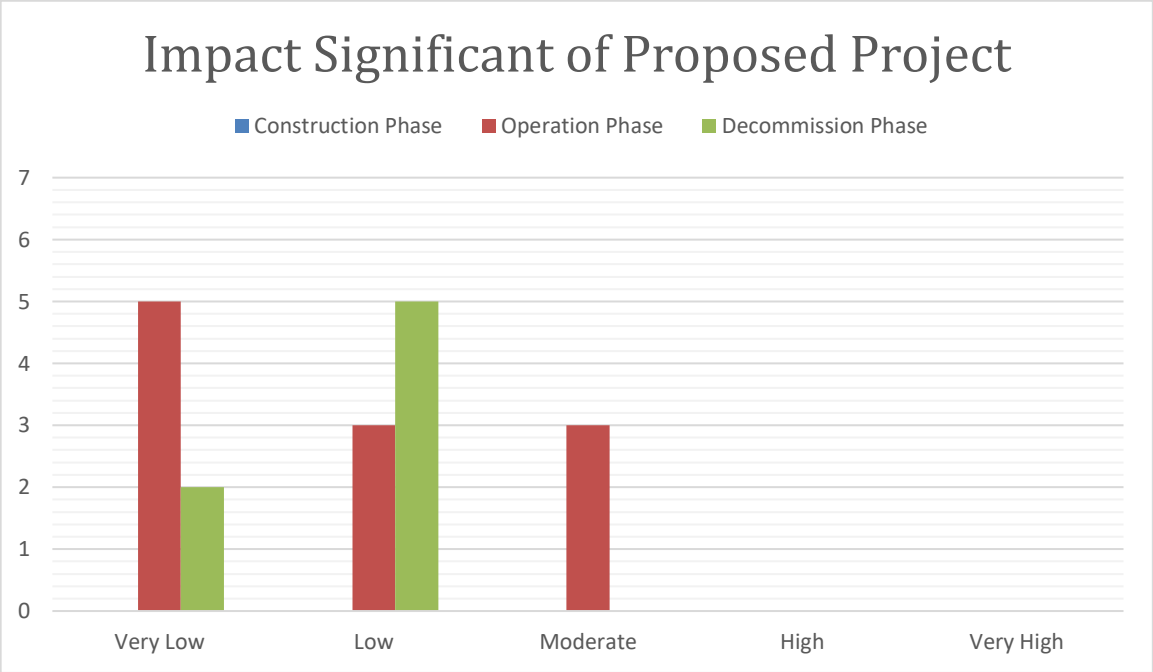
Environmental Impact	Project Activities	Impact Significance	Mitigation Measure
Operation Phase			
Air	• Dust and GHGs emission from vehicles used for transporting raw materials and final products • Emission of smoke from emergency diesel generator and vehicle movement	Low	• To control air pollution, the vehicles, generators and machineries have to check and maintain regularly. • Ensuring vehicles, compressor and generator are well maintained. • The factory has planted trees to reduce carbon emission and minimize air pollution.
Soil	• Engine oil leaks, spills at diesel storage and during fuel refueling.	Very Low (Insignificant)	No Mitigation Measure
Water	• Operation area	Very Low (Insignificant)	No Mitigation Measure
Noise and Vibration	• Generating noise from the production machinery	Low	• Should be built individual room like as generator room, • Should be provided the noise covering equipment or personal protective equipment (PPE) Should be provided the noise covering

Environmental Impact	Project Activities	Impact Significance	Mitigation Measure
			equipment or personal protective equipment (PPE) for the workers operated in noisy area.
Flora and fauna on terrestrial and aquatic life	• Operation of the steel structure factory	Very Low (Insignificant)	No Mitigation Measure
Fire	Poor electrical installations • Waste disposed area raw materials and paint containers	Moderate	• To provide fire extinguishers, fire hose reels and fire hydrants on the walls of the factory for fire emergency cases. • Regular inspection for existing firefighting equipment must be done. In case of fire emergency, water storage tank for fire frightening. • The emergency fire alarms are installed at the factory for alerting the workers in case of fire. • The main entrances and route for emergency cases of the factory must not be blocked with materials or machines for fire emergency cases.
Occupational Safety	Accidental cases cause by operating machines. • Unloading and loading, cutting, welding and drilling activities.	Moderate	• First aid training, safety training, firefighting training or other essential training for machinery handling must be provided for emergency cases of workers. • According to the observed light intensity values, the proponent provides sufficient lighting for workers for safe working and reducing optical problems of the workers. • Personal Protective Equipment (PPEs) like earmuffs, safety gloves, helmets and goggles are provided for each department. • To prevent electric shock hazards, electrical

Environmental Impact	Project Activities	Impact Significance	Mitigation Measure
			maintenance staff (handyman) is to be assigned to do regular inspections and take preventive measures.
Health	• Influx of people • Noise from the generating of the emergency generators	Very Low (Insignificance)	• Operating only after wearing personal protective equipment for workers at the factory; factory area is large enough for the amounts of workers • The maximum allowable noise level for workers is 90dB(A) for 8hours exposure a day. Thus, adequate protective noise impact measures in the form of ear muffs/ear plugs to the workers working in high noise areas.
Social-economic Condition	• Job opportunities for local people	Positive Impact	
Solid Waste	• Residual pieces of steel scraps from the production lines • Waste from coating area (paint containers) • Waste from canteen, rest camp and office.	Moderate	• Provides separate garbage bins at each place. • All of the solid wastes will be collected separately in garbage based on their types and stored in relevant separated waste storage area • Final wastes should be disposed by using YCDC's service.
Liquid Waste	• Septic system and sewage. • Domestic liquid waste disposal from office, canteen and rest camp.	Low	Regular inspection and cleaning, oil traps, septic tank and adequate covers for all storage and waste disposal areas can decrease these contaminations.
Hazardous Waste	• Used oil and lubricant discharged from the maintenance of vehicles and machines. • Liquid CO_2 and liquid O_2 leakage from liquid CO_2 and liquid O_2 tanks	Very Low (Insignificance)	• Carefully use and store oil and lubricant. • Proper inspection and maintenance in liquid CO_2 and liquid O_2 tanks

Environmental Impact	Project Activities	Impact Significance	Mitigation Measure
Decommission Phase			
Air	• Demolish of buildings and related materials • Transportation of demolished materials	Low	• Spray water twice a day • Cover mesh trap around the decommission area • Install shading net about 2 meters above temporary fence of decommission area • Carry broken material with cover by canvas.
Water pollution	• Sewage form decommissioning workers • Demolition machinery equipment	Low	Systematically demolish the septic tanks.
Soil	• Demolish of buildings and related materials • Transportation of demolished materials	Low	Manage the spillage of oil and diesel and sewage.
Noise and Vibration	• Decommission activities • Transportation of demolished materials	Low	• Carry out the activities during day time. • Maintain the machines and vehicles to reduce noise pollution. • Provide the ear plugs to the workers.
Waste disposal	• Demolished debris such as bricks, concrete materials	Very Low	Recyclable materials and dispose to the define areas.
Hazardous waste	• Used lubricants from decommissioning vehicles and machines	Very Low	Manage the disposal way of hazardous waste.
Occupational Health and Safety (Accidents, Injuries)	• Decommissioning activities • Transportation of demolished materials	Low	• Provide protective fencing or demarcation with tape at the boundaries of dangerous / hazardous zone and the appropriate warning signs, marking and safety signs and installation of the lost time injury notice board. • Clean up excessive waste debris and liquid spills regularly. • Use the third-party expert assisted by trained personnel to identify and

Environmental Impact	Project Activities	Impact Significance	Mitigation Measure
			remove hazardous materials.



Modified method of Institute of Environmental Management and Assessment (IEMA) from United Kingdom is applied in this report to assess the significance of the impacts. Results of analysis mention that most of the project activities are very low/low significant and some are moderate significant to be improved for environmental performance. Social and economic developments are positive impacts of the proposed project.

6. Environmental Management (Action) Plan

The Environmental Management Plan (EMP) formulated with the anticipated impacts, mitigation measures, management and monitoring plans during all phases are implemented. Min Dhama Steel Structures Company Limited has organized Environmental Management Team to accomplish these plans and to review EMP regularly for improvements and modifications. Ambient air quality, noise, water quality, sewage and solid waste disposal are monitored by Team Leaders of Committee. The project proponent has performed Corporate Social Responsibility (CSR) plan and Emergency Preparedness for the benefits of residents and local community.

- ❖ Air Pollution/Dust Management Plan
  - Must be plant around the proposed project to reduce carbon emission
  - Should be prohibited burning of waste material at the proposed project site
  - Provide PPE for employees to prevent from dust and air pollution

- ❖ Water Consumption Management Plan
  - Install water meter for internal control of water consumption
  - All staff trains and makes aware conservation practices and proper methods of water use must be place in toilets and other areas of water consumption
- ❖ Wastewater Management Plan
  - Regular inspection and cleaning, oil traps, septic tank and adequate covers for all storage and waste disposal areas can decrease these contaminations.
- ❖ Noise Management Plan
  - Building noise insulated generator room and ensure satisfactory maintenance of relevant equipment
  - Impose speed limit to track and vehicles at the transportation route.
  - Provide sufficient personal protective equipment (PPE) at the work place
  - All the related personnel will be provided proper training about the relevant issues and ensure PPE wear during working in noisy area.
- ❖ Solid Waste Management Plan
  - Must be provides separate garbage bins at each building.
  - All of the solid wastes will be collected separately in garbage based on their types and stored in relevant separated waste storage area
  - Final wastes should be disposed by using YCDC's service.
- ❖ Fire Management Plan
  - Must be provide fire extinguishers, fire hose reels and fire hydrants on the walls of the factory for fire emergency cases.
  - Must be indicated the emergency exit and assembly point in public area.
  - Regular inspection for existing firefighting equipment must be done. In case of fire emergency, water storage tank for fire frightening.
  - The emergency fire alarms are installed at the factory for alerting the workers in case of fire.
  - The main entrances and route for emergency cases of the factory must not be blocked with materials or machines for fire emergency cases.
- ❖ Occupational Safety and Health Management Plan
  - First aid training, safety training, firefighting training or other essential training for machinery handling must be provided for emergency cases of workers.
  - According to the observed light intensity values, the proponent provides sufficient lighting for workers for safe working and reducing optical problems of the workers.

- Personal Protective Equipment (PPE) like earmuffs, safety gloves, helmets and goggles are provided for each department.
- To prevent electric shock hazards, electrical maintenance staff (handyman) is to be assigned to do regular inspections and take preventive measures.

❖ Energy Management Plan

- Installation of timers and thermostats to control heating and cooling
- Energy saving light installed in different area of the factory for saving energy
- Used of energy saving devices must be installed
- Ensure that good housekeeping measures such as turning off equipment and lights when not in use

❖ Emergency Response and Disaster Management Plan

- The factory management has taken proper measures to handle any emergency situations like fire, earthquake, flood and storm
- Provision and inspection of firefighting equipment and fire hydrant system in all the sections
- A detail evaluation plan (fire exist, emergency exit door, etc.) is established and communicated with workers
- Periodic inspection of safety relief valve provided with pressure vessels and equipment, preventive maintenance; aware the workers about electric shock by necessary training.

❖ Capacity Building and Training Plan

❖ Grievance Redress Mechanism (GRM)

❖ Corporate Social Responsibility (CSR) Plan

The environmental monitoring plan, schedule and budget plans of Min Dhama Steel Structures Company Limited are described and shown detail in **Chapter (6), Section (6.10), Table (6-1) and Sub Section (6.10.1) Table (6-2)**.

Summary of Monitoring plan and Budget plan

No	Item	Frequency/Times	Cost (MMK)
Mitigation Plan			
1	Maintenance of air ventilation system	Once per year	1200,000 per year
2	Tree plantation within the area of factory compound	Once per three months	200,000 per three months
3	Solid waste disposal	Monthly	50,000 per month
4	Purchase of Personal Protective Equipment (PPE)	Once per half a year	200,000 per month
5	Medical Check-up and Health Insurances	Once per year	1,000,000 per year

No	Item	Frequency/Times	Cost (MMK)
Emergency Preparedness			
1	Fire extinguisher	Once per month	500,000 per month
2	Fire alarm system	Once per month	
3	First Aid Fits	Once per month	
Monitoring Plan			
1	Air Quality	Biannually	1,000,000 per year
2	Water Quality	Biannually	800,000 per year
3	Noise level	Biannually	100,000 per year
4	Waste generation (Solid)	weekly	50,000 per month
5	Occupational health and safety	Monthly	500,000 per year
6	Environmental compliance auditing	1	600,000 lump sum

The project is located at Shwe Pyi Thar Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Division and there are no affected local people by project. The project information and this EMP will be accessible to public and stakeholders via.

Myanwei Website**: www.myanweiconsulting.com**

Myanwei Facebook Page: **https://www.facebook.com/Myanwei-Environmental-Solutions-Company-Limited**.

7. Public Consulting

Public consultation during preparation of EMP report was conducted on 27th April 2023, following the EIA procedure. The project's stakeholders in this category are key officials or representatives of the regional and local authorities who have direct responsibilities for the administration of the EMP process for environmental and social clearance and issuing operation permits for proposed development projects.

Time and Date	Thursday, 27th April 2023 10:00 AM – 11:15 Am
Venue	Min Dhama Steel Structures Company Limited's meeting room.
Agenda	• Introduction of Min Dhama Steel Structures Company Limited. • Introduction of Environmental Management Plan • Environmental Baseline Study of the proposed project • Impact Assessment, Environmental Mitigation Measure • Environmental Management Plan and Monitoring Plan • Performances of Min Dhama Steel Structures Company Limited

Organized by	Myanwei Environmental Solutions Company Limited

8. Conclusion & Recommendation

In Conclusion, the environmental management practices, procedures and responsibilities are defined here in to get full compliance with the existing environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar. All the feed backs, desired and needs of local public recorded in public consultation meetings are well addressed and incorporated in formulation of EMP. It has been figured out that, Min Dhama Steel Structures Company Limited is going to generate local employment opportunities and enhance capabilities and working skills of employees. Consequently, their socio-economic standard is expected to be improved and undertaking corporate social responsibilities (CSR) as recommended. The study further concluded that positive impacts will be of immense benefit to the local community and national development as well.

This is recommended that;

- All appropriate environmental management measures detailed in this report, together with any other environmental management commitments should be implemented throughout the entire life of the factory
- Solid wastes and liquid wastes need to dispose according to YCDC rules and regulation
- Workers should be provided proper training and it should be ensured that workers use PPE during factory operation area.
- Daily, monthly and annual action plan shall be formulated based on this EMP and practiced at operation level.
- Keep full records of environmental management activities and present to annual independent third-party environment audit.
- Abide environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar.

Finally, the proponent should follow the comments and suggestions made by ECD after reviewing this EMP report. Once concerned authorities approve EMP, effective implementation of EMP by the project proponent is essential. The proponent should abide environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar.

There are many positive impacts such as industrial development, social development, job opportunities for the regional people due to project implementation. And environmental management planning for the factory can mitigate the impacts on environment due to project and monitoring plan will also be always check and do for 2 times per year.

1. INTRODUCTION

1.1. PROJECT BACKGROUND

The project is new investment for manufacturing of steel structures on CMP Basis from Myanmar. The Yangon Region Investment Committee (YRIC) issues the project on 25th January 2022 with the Endorsement No. (YGN - 515/2022). The committee must issue the notification for the environmental approval and comments of the Ministry of the Natural Resources and Environmental Conservation (MONREC) on the proposed project and had approved the proposal for investment in manufacturing of steel structures on CMP Basis under the name of MIN DHAMA STEEL STURCTURES COMPANY LIMITED.

According to the Myanmar Environmental Conservation Law (2012), it requires that the proponents of every development project in the country submit either an Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA) to Ministry of Natural Resources and Environmental Conservation (MONREC). As per the comments of Environmental Conservation Department (ECD), said project requires an EMP to meet the environmental assessment requirements of Notification No. Yaka/EIA/2(1) (2963/2022) on 15th November 2022. Therefore, MIN DHAMA STEEL STRUCTURES COMPANY LIMITED commissioned to MYANWEI ENVIRONMENTAL SOLUTIONS COMPANY LIMITED for EMP report study.

1.1.1. Project Proponent Profile

This is the information of project proponent from the YRIC's registration that is describing in below Table 1-1 and Table 1-2.

Table 1-1 Information of Investor

Investor Name:	Daw Cherry
ID No.:	12/LaMaTa(N)034861
Citizenship:	Myanmar
Phone No:	09-250684195
Email	cherry@mindhamasteel.com
Address of Registration office:	No. (74/75/76/77/91), Kanaung Min Thar Gyi Street, Industrial Zone (4), Shwe Pyi Thar Township, Yangon Region.

1.1.2. Director List

No	Name of Shareholder	Citizenship	Share Percentage
(A)	**MOTTAMA HOLDINGS LIMITED** Represented by its Directors :- (1) JIN HPIN@Daw Khin Htwe Hla (2) Daw Cherry	**Jurisdiction of Incorporation Myanmar Registration No. 104581056** Myanmar Myanmar	60 %
(B)	**MUTUAL PROFIT TRADING LTD.** Represented by its Director :-	**Jurisdiction of Incorporation Hong Kong Registration No. 2004646** Chinese	40%

	(1) Ms. Wang, Tung-Chin		

1.1.3. Investment Plan and Salient Features of the Project

The estimated authorized capital investment is 1.920 million US Dollar. Organization chart of Min Dhama Steel Structures Company Limited is presented in Figure 1-1. Proposed project's Land lease period is initially 20 years + extendable to two times of (5) years.

Table 1-2 Salient Features of the Project

Type of Proposed Business	Manufacturing of steel structure
Type of investment	Joint Venture (Myanmar Citizen Share 60% + Foreign Share 40%)
Type of Share	Ordinary Share
Type of land	Industrial Land
Total land area	5.519 acre (22334.62 sq meter)
Total building area	(640ft × 160ft) Factory Building – 1 (540ft × 80ft) Factory Building – 2 (340ft × 80ft) Factory Building –3 (100ft × 20ft) Office & Security Room (50ft × 30ft) & (33ft × 20ft) Canteen
Amount of Investment	US$ 1.920 Million (100%)
Validity of Endorsement	20 years
Preparation period	1 year
Project Address	Plot No. (88), Myay Taing Block No. (65/Industry), Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region, Myanmar.
Contact person	U Zay Ya Zaw Administration Manager 09-5505051 zayyazaw@mindhamasteel.com No. (74/75/76/77/91), Kanaung Min Thar Gyi Street, Industrial Zone (4), Shwe Pyi Thar Township, Yangon Region.

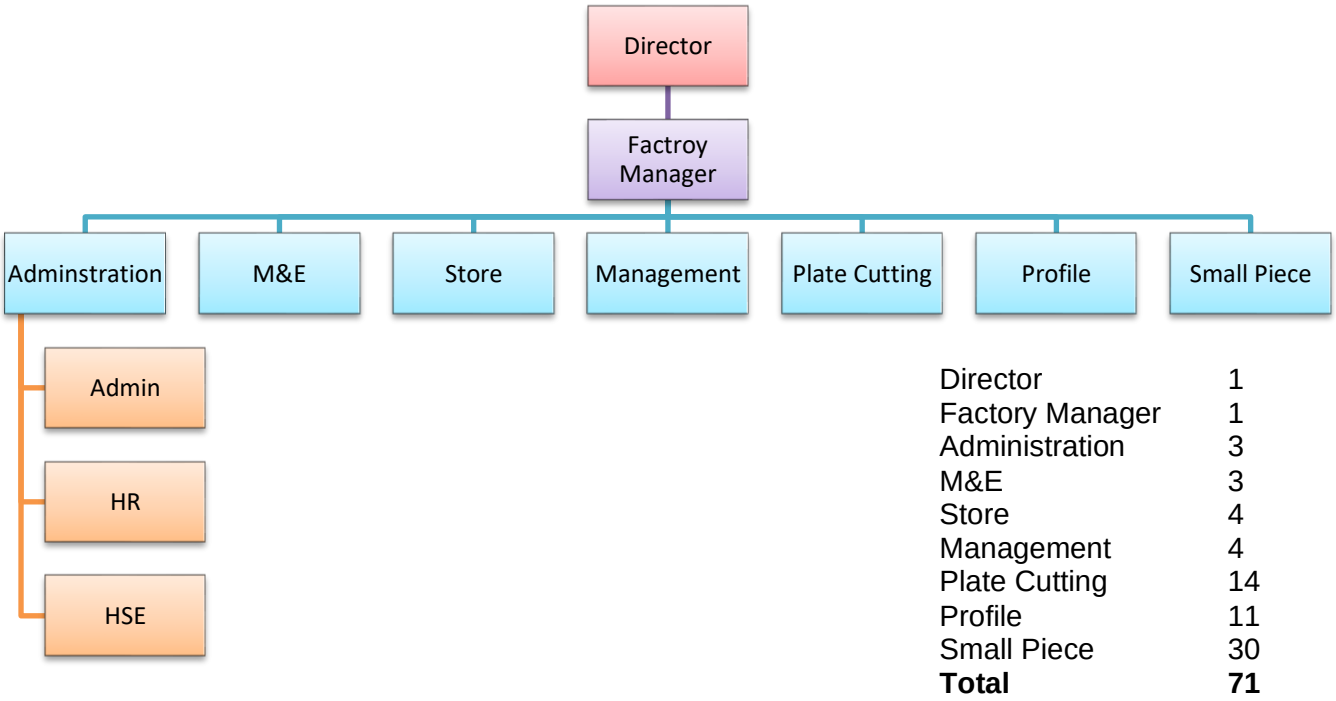


Figure 1-1 Organization Chart of Min Dhama Steel Structures COMPANY LIMITED

1.2. ENVIRONMENTAL CONSULTANT PROFILE

MYANWEI ENVIRONMENTAL SOLUTIONS COMPANY LIMITED prepares the EMP for the proposed project. The field studies were carried out by MYANWEI ENVIRONMENTAL SOLUTIONS COMPANY LIMITED having experiences in conducting environmental assessments for various types of projects in Myanmar. The MYANWEI (Environmental team) conducted field survey, assessment activities, and prepared the report. A reconnaissance study was performed on the proposed project site and baseline environmental data were also collected from possible sources using the appropriate measuring devices. Data interpretation and analysis were made based on those collected data for the present and potential future conditions. Suitable measures were proposed for the impacts to be mitigated to reduce to acceptable ones. The environmental study was carried out by the study team and the following is a summary of team members responsibilities during the study period.

Myanwei Environmental Solutions Co., Ltd. **Transition Consultant Registration Certificate** **No. 0069**	No. 49 (B), Inya Yeik Thar Street, Mayangone Township, Yangon Region, The Republic of the Union of Myanmar. Office: (+95) 95185776, Mobile: (+95) 9421137569; env@myanweiconsulting.com www.myanweiconsulting.com	1. Facilitation of meeting 2. Land use 3. Legal analysis 4. Geology and soil 5. Occupational Safety and Health 6. Public Health

Table 1-3 Members of EMP Study Team

No.	Name	Qualifications	Responsibilities	Areas of expertise
1.	Mr. Lin Htet Sein **TCR No. 0048** **Under Myanwei Consulting Co., Ltd.** **(0068)**	MSc (Regional Geology) BSc (Hons) Geology Dip in Environmental Science Certificate in Environmental & Social Assessment Certificate in Environmental Stainability	Project Director, Environmental Consultant, Project Management	1. Geology and Soil 2. Environmental Sustainability 3. Environmental and Social Impact Assessment 4. Industrial Management 5. Air Pollution Control
2.	Dr. Hein Lynn Aung **Under Myanwei Consulting Co., Ltd.** **(0068)**	M.B, B.S (Yangon), Business Management (International Collage of Management Sydney, Australia)	Project Director, Public Health Consultant, Project Management	1. Occupational Safety and Health 2. Public Health
3.	Mr. Nyan Lynn Aung **Under Myanwei Consulting Co., Ltd.** **(0068)**	B.Sc, Business Administration, San Francisco State University, San Francisco, M. Sc,(Finance) Business Administration (Finance), Golden Gate University, San Francisco, CA.	Legal Analysis	Legal Analysis
4.	Mr. Htun Lynn Kyaw	B.Sc (Geology)	Environmental Specialist	1. Modeling for air quality 2. Hazard Management
5.	Ms. Su Myat Hlaing	B.E. Civil Engineering B. Tech Civil Engineering	Environmental Engineer	1. Civil Engineering 2. Air Pollution Control
6.	Mr. Saw Yan Naung	B.E. Chemical Engineering B. Tech Chemical Engineering	Junior Environmental Consultant, Monitoring Measure, Document Administration	Chemical Engineering Process Design
7.	Mr. Kaung Sett Lwin	B.Sc (Hons) Geology Certificate of Geotechnical Engineering (Myanmar Geoscience Society)	Junior Environmental Consultant, Monitoring Measure, Document Administration	1. Geology and Soil 2. Hydrology 3. Mapping Technique and Surveying Fundamentals

No.	Name	Qualifications	Responsibilities	Areas of expertise
8.	Ms. May Soe Kyi	B.Agr Sc (Qualified)	Junior Environmental Consultant, Monitoring Measure, Document Administration	Water Management
9.	Ms. Pyae Phyo Win	MS.c (Botany)	Junior Environmental Consultant, Monitoring Measure, Document Administration	Biodiversity (Flora)
10.	Ms. Haymar Htet Naing	B.A (English) Certificate of Achievement (English Access Micro Scholarship Program) U.S Embassy Rangoon	Junior Environmental Consultant, Monitoring Measure, Document Administration	1. Socio-economic 2. Ground water & Hydrology
11.	Mr. Lynn Than Thaung	B.Sc (Forestry)	Junior Environmental Consultant, Monitoring Measure, Document Administration	Natural Resource Management (Forest)

2. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

This section provides a brief summary of relevant national environmental legislations established by the MONREC and overview of current local and international environmental and social policies including related international or regional convention for the proposed project.

2.1. MYANMAR REGULATORY FRAMWORK

Myanmar has 24 ministries under the Office of the President as of May 2016. The leading ministries in-charge of environmental and social considerations is the Environmental Conservation Department (ECD) of the MONREC that was reorganized Ministry of Environmental Conservation and Forestry (MOECAF) in April 2016.

2.1.1. Laws and Regulations Related to Environmental and Social Considerations

Requirements related to environmental (and social) impact management for development projects are described in Table 2-1.

Table 2-1 List of Myanmar's Law Relating to Environmental Management

Law and Regulation	Description
National Environmental Policy of Myanmar, (Notification No. 26/94 dated 5 December 1994)	To achieve harmony and balance between socioeconomic, natural resources and environment through the integration of environmental considerations into the development process enhancing the quality of the life of all its citizens.
Constitution 2008	
Section 37, (a)	The Union is the ultimate owner of all lands and all-natural resources above and below the ground, above and beneath the water and in atmosphere in the Union.
Section 37, (b)	The Union shall permit citizens rights of private property, right of inheritance, right of private initiative and patent in accord with the laws.
Section 372	The Union guarantees the right to ownership, the use of property and the right to private invention and patent in the conducting of business if it is not contrary to the provisions of this Constitution and the existing laws.
Section 45	The Union shall protect and conserve natural environment.
Section 390, (a),(b),(c),(d)	Every citizen has the duty to assist the Union in preserving and safeguarding the cultural heritage, conserving the environment, striving for the development of human resources, and protecting and preserving the public property.
Environmental Conservation Law, 30 March 2012	
Objectives	to contract a healthy and clean environmental and to conserve natural and cultural heritage for the benefit of present and future generations; to maintain the sustainable development through effective management of natural resources and to enable to promote international, regional and bilateral cooperation in the matters of environmental conversation.
Section 3	c) to enable to emerge a healthy and clean environment and to enable to conserve natural and cultural heritage for the benefit of present and future generations; (d) to reclaim ecosystems as may be possible which are starting to degenerate and disappear; (e) to enable to manage and implement for decrease and loss of natural resources and for enabling the sustainable use beneficially;

Provisions of Duties and Powers relating to the Environmental Conservation of the Ministry: Section 7	(a) To specify categories and classes of hazardous wastes generated from the production and use of chemicals or other hazardous substances in carrying out industry, agriculture, mineral production, sanitation and other activities; (b) To prescribe categories of hazardous substances that may affect significantly at present or in the long run on the environment; (c) To promote and carry out the establishment of necessary factories and stations for the treatment of solid wastes, effluents and emissions which contain toxic and hazardous substances; (j) To prescribe the terms and conditions relating to effluent treatment in industrial estates and other necessary places and buildings and emissions of machines, vehicles and mechanisms; (m) To lay down and carry out a system of EIA and SIA as to whether or not a project or activity to be undertaken by any Government department, organization or person may cause a significant impact on the environment; (o) To manage to cause the polluter to compensate for environmental impact, cause to contribute fund by the organizations which obtain benefit from the natural environmental service system, cause to contribute a part of the benefit from the businesses which explore, trade and use the natural resources in environmental conservation works.
Chapter VI Environmental Quality Standards: Section10	The Ministry may, with the approval of the Union Government and the Committee, stipulate the following environmental quality standards: (a) suitable surface water quality standards in the usage in rivers, streams, canals, springs, marshes, swamps, lakes, reservoirs and other inland water sources of the public; (b) water quality standards for coastal and estuarine areas; (c) underground water quality standards; (d) atmospheric quality standards; (e) noise and vibration standards; (f) emissions standards; (g) effluent standards; (h) solid wastes standards; (i) other environmental quality standards stipulated by the Union Government.
Section 14	A person causing a point source of pollution shall treat, emit, discharge and deposit the substances which cause pollution in the environment in accord with stipulated environmental quality standards.
Section 15	The owner or occupier of any business, material or place which causes a point source of pollution shall install or use an on-site facility or controlling equipment in order to monitor, control, manage, reduce or eliminate environmental pollution. If it is impracticable, it shall be arranged to dispose the wastes in accord with environmentally sound methods.
Section 16	A person or organization operating business in the industrial estate or business in the SEZ or category of business stipulated by the Ministry: (a) is responsible to carry out by contributing the stipulated cash or kind in the relevant combined scheme for the environmental conservation including the management and treatment of waste; (b) shall contribute the stipulated users' charges or management fees for the environmental conservation according to the relevant industrial estate, SEZ and business organization; (c) shall comply with the directives issued for environmental conservation according to the relevant industrial estate, SEZ or business.

Section 24	The project proponent has to allow relevant governmental organization or department to inspect whether performing is conformity with the terms and condition include in prior permission, stipulated by the ministry, or not.
Section 25	The project proponent has to comply with the terms and conditions include in prior permission.
Section 29	The project proponent has to abide by the stipulations included in the rules, regulations, by-law, order, notification and procedure, which are issued by said law.
Environmental Conservation Rules, 2014	
Rules 58	The Ministry shall form the EIA Report Review Body with the experts from the relevant Government departments, organizations.
Rules 59	The Ministry may assign duty to the Department to scrutinize the report of EIA prepared and submitted by any organization or person relating to EIA and report through the EIA Report Review Body.
Rules 61	The Ministry may approve and reply on the EIA report o IEE or EMP with the guidance of the Committee.
Sub-rule (a) of rule 68	The project proponent has to avoid emit, discharge or dispose the materials which can pollute to environment, or hazardous waste or hazardous material prescribed by notification in the place where directly or indirectly injure to public.
Sub-rule (b) of rule 68	The project proponent has to avoid performing to damage to ecosystem and the environment generated by said ecosystem.
Environmental Impact Assessment Procedure (December 2015)	
Objectives	The project proponent has to be liable for all adverse impacts caused by doing or emitting of project owner or contractor, sub-contractor, officer, employee, representative or consultant who is appointed or hired to perform on behalf of project owner, under sub-paragraph (a) of paragraph 102. The project proponent has to support, after consulting with effected persons by project, relevant government organization, government department and other related persons, to resettlement and rehabilitation for livelihood until the effected persons by the project receiving the stable socio-economy which is not lower than the status in pre-project, under sub-paragraph (b) of paragraph 102 The project proponent has to fully implement all commitments of project and conditions included in EMP. Moreover the project proponent has to be liable for contractor and sub-contractor who perform on behalf of him/her have to fully abide by the relevant laws, rules, this procedure, EMP and all conditions, under paragraph 103. The project proponent has to be liable and fully & effectively implement all requirements included in ECC, relevant laws and rules, this procedure and standards under rule 104. The project proponent has to inform the completed information, after specifying the adverse impacts caused by the project, from time to time, under paragraph 105. The project proponent has to continuously monitor all adverse impacts in the pre-construction phrase, construction phrase, operation phrase, suspension phrase, closure phrase and post-closure phrase, moreover has to implement the EMP with abiding the all conditions included in ECC, relevant laws & rules and this procedure, under paragraph 106. The project proponent has to submit, as soon as possible, the failures of his or her responsibility, other implementation, ECC or EMP. If dangerous impact caused by this failure or failure should be known by the Ministry the project

	proponent has to submit within 24 hours and other than this situation has to submit within 7 days from knowing it, under paragraph 107. The project proponent has to submit the monitoring report dually or prescribed time by Ministry in line with the schedule of EMP, under paragraph 108. The project proponent has to prepare the monitoring report in accord with the rule 109. The project proponent has to show this monitoring report in public place such as library, hall and website and office of project for the purpose to know this report by public within 10 days from the date which the report is submitted to the Ministry. Moreover, has to give the copy of this report, by email or other way which way agreed with the asked person, to any asked person or organization, under paragraph 110. The project proponent has to allow inspector to enter and inspect in working time and if it is needed by Ministry has to allow inspector to enter and inspect in the office and work-place of project and other work-place related to this project in any time, under paragraph 113. The project proponent has to allow inspector to immediately enter and inspect in any time if it is emergency or failure to implement the requirements related to social or environment or caused to it, under paragraph 115. The project proponent has to allow inspector to inspect the contractor and sub-contractor who implement on behalf of project, under paragraph 117.
Screening: Section 23	a) The project proponent shall submit the Project Proposal to the Ministry for Screening. b) The Ministry will send the Project Proposal to the Environmental Conservation Department to determine the need for environmental assessment. c) Following the preliminary Screening and verification that the Project Proposal contains all required documents and related materials, subject to Articles 8, 9, 10, 11, 26 and 27 the Department shall make a determination in accordance with Annex 1=Categorization of Economic Activities for Assessment Purposes', taking into account Article 25 and the additional factors listed in Article 28 in order to designate the Project as one of the following, and then submit it to the Ministry: i) An EIA Type Project, or ii) An IEE Type Project, or iii) A Non IEE or EIA Type, and therefore not required to
National Environmental Quality (Emission) Guidelines (NEQG) (December 2015)	
Objectives	To provide the basis for regulation and control of noise and vibration, air emissions, and liquid discharges from various sources in order to prevent pollution for purposes of protection of human and ecosystem health.
Note Air quality, noise, water and wastewater quality of proposed project are monitored and allowed according to the parameters of NEQG.	
National Myanmar Environmental Policy (2019)	
National Environmental Policy Vision & mission	**Vision** A clean environment, with healthy and functioning ecosystem, that ensures includes development and wellbeing for all people in Myanmar. **Mission** To establish national environmental policy principle for guiding environmental protection and sustainable development and for mainstreaming environmental consideration into all polices, laws, regulation, plans, strategic, programmes and projects in Myanmar.

Myanmar Forest Law, 2017	
Rule (3)	(a) Implementation of the Federal Government's Resources and Environmental Conservation Policy (b) To promote the role of public cooperation in implementing the federal government's forestry policy and resources and environmental policies (c) To comply with international agreements on forest conservation, resources and environmental protection
Foreign Investment Rule, 2013	
Rule 54	The promoter or investor shall: (a) comply with Environmental Protection Law in dealing with environmental protection matters related to the business; (b) shall carry out socially responsible investment in the interest of the Union and its people; (c) shall co-operate with authorities for occasional or mandatory inspection; (d) shall exercise due diligence to be in conformity and harmony with norms and standards prescribed by relevant Union Ministry in conducting construction of factories, workshops, buildings, and other activities; (e) shall enforce Safety and Health
Myanmar Investment Rules, 2017	
Rule 202	The project proponent has to comply with the conditions of the permit issued by the MIC and applicable laws when making the investment
Rule 203	The project proponent has to fully assist while negotiating with the authority for settling the grievance of the local community which has been affected due to investment
Rule 206.	The project proponent has to submit the passport, expert evidence or document of degree and profile to the MIC office for approval if decide to appoint a foreigner as senior management, technician expert or consultant according to subsection (a) of section 51 of Myanmar Investment Law
Myanmar Insurance Law (1993)	
Section 15	If the project proponent uses the owned vehicles the project owner has to ensure the insurance for the injured person.
Section 16	The project proponent has to ensure insurance to compensate for general damages because the project may cause damages to the environment and injury to the public.
Payment of Wages Law (2016)	
Section 3 & 4	The project proponent has to pay the wages in accord with section 3 and 4 of said law,
Section 5	The project proponent has to submit with the agreements of employees & reasonable ground to the department if it is difficult to pay because of force majeure included in a natural disaster
Section 7-13	The project proponent has to abide by the provisions of section 7 to 13 in the chapter (3) in respect of deduction from wages.
Section 14	The project proponent has to pay the overtime fees, prescribed by law, to the employees who work over working hours

Yangon City Development Committee Law (2018)	
Section (317)	The proponent shall not block the natural river channel, change the course, and disrupt the water channel, filling with soil within the city boundaries without the consent of the Committee
Section (318)	The project proponent shall not construct buildings, factories, and industries without sewage, toilet, septic tanks, and wastewater treatment system
Section (322)	The project proponent is not allowed to make activities that will produce noise pollution, water pollution, air pollution, and soil pollution to impact the environment within the city's boundaries
The Amended Law for Factories Act, 1951 (2016)	
Hygiene in Working Environment: Section 3	Mentions responsibilities of employer and manager regarding waste disposal, ventilation, extreme temperature, dust and gas generation, minimum space for each worker, lighting, portable drinking water and toilets for employees.
Safety in Working Environment: Section 4	States responsibilities of employer and manager concerning with machine guarding, personal protective equipment, housekeeping, aisles and exits, chemical storage and fire protection system to avoid accident.
The Private Industrial Enterprise Law, 1990	
Basic Principles: Section 3	Private Industrial Enterprises shall be conducted in accordance with the following basic principles:- (a) to enhance the higher proportion of the manufacturing value added in the gross national product and value of services, and to increase the production of the respective economic enterprises which are related to the industrial enterprise; (b) to acquire modern technical know-how for raising the efficiency of industrial enterprises and to establish the sale of finished goods produced by the industrial enterprise not only in the local market, but also in the foreign market; (d) to cause narrowing down of the gap between rural development and urban development by causing the development and improvement of industrial enterprises; (e) to cause opening up of more employment opportunities; (f) to cause avoidance of or reduction of the use of technical know-how which cause environmental pollution; (g) to cause the use of energy in the most economical manner.
The Export and Import Law (2012)	
Objectives	The objectives of this law are as follows: a) To enable to implement the economic principles of the State successfully. b) To enable to lay down the policies relating to export and import that supports the development of the State. c) To cause the policies relating to export and import of the State and activities are to be in conformity with the international trade standards. d) To cause to be streamlined and speedy in carrying out the matters relating to export and import.
Prohibitions: Section 5	No persons shall export or import restricted, prohibited and banned goods.
Prohibitions: Section 6	Without obtaining license, no person shall export or import the specified goods which are to obtain permission.

Prohibitions: Section 5	A person who obtained any license shall not violate the conditions contained in the license.

The Prevention of Hazard from Chemical and Related Substances Law, 2013

This law was enacted with the objectives of:

a. To protect from being damaged the natural environment resources and being hazardous any living beings by chemical and related substances;

b. To supervise systematically in performing the chemical and related substances business with permission for being safety;

c. To perform the system of obtaining information and to perform widely educative and research for using the chemical and related substance systematically;

d. To perform the sustainable development for the occupational safety, health and environmental conservation.

Regarding the chemical management and storage, currently, regulations governing chemicals management are divided between various Acts, mostly dating from colonial times; hence the legislation is in many respects related to the British framework. The Factory Act and the Public Health Act contain the provisions for chemicals management and storage. Some chemicals are likely to require permits.

Underground Water Act

The underground water act enacted on the date of 21st June in 1930 whereas it is expedient to conserve and protect underground sources of water supply in the Union of Burma. This act prohibits sinking of a tube for the purpose of obtaining underground water except under and in accordance with the terms of a license granted by the water officer. Township Officer or sub-divisional officer had power to close a license tube after exercising jurisdiction over the local area concerned and the expense of such closure shall be recoverable from the owner of the tube as if it were an arrear of land-revenue.

Myanmar Fire Brigade Law (2015)

The Pyidaungsu Hluttaw enacted this law by Law No.11/2015 on the date of 17th March, 2015 with the following objectives :

(a) to take precautionary and preventive measures and loss of state own property, private property, cultural heritage and the live and property of public due to fire and other natural disasters

(b) to organize fire brigade systemically and to train the fire brigade

(c) to prevent from fire and to conduct release work when fire disaster, natural disaster, epidemic disease or any kind of certain danger occurs

(d) to educate, organize and inside extensively so as to achieve public corporation

(e) to participate if in need for national security, peace for the citizens and law and order

Section-8 Fire Safety Procedures

Rule17	The relevant Government Department or organization shall, for the purpose of precaution and prevention obtain the approval of the Fire Force Department before granting permission for the following cases: a. Constructing three-storied and above buildings market and condominium buildings, b. Operating hotel, motel, guest house enterprise c. Constructing factory, workshop, storage facilities and warehouse d. Operating business expose to fire hazard by using in inflammable materials or explosive materials e. Producing and selling fire-extinguishing apparatuses f. Doing transport business ,public utility vehicles train, airplane, helicopter ,vessel, ship, tonkin tug
Rule18	The relevant government department or organization shall obtain the opinion of the Fire Services Department for the purpose of fire precaution and prevention, when laying down plans for construction for town, village and downtown or village development plans

The Electricity Law (2014)	
In 2014, the new Electricity Law, a comprehensive piece of legislation covering licensing, a new regulatory commission, standards, inspection, tariff, and restrictions, replaced the Electricity Law of 1984. The Electricity Law divides projects into “small” (up to 10 MW), “medium” (between 10 MW to 30 MW) and large (upwards of 30 MW); the states and regions can issue permits for small and medium power plants. In case these plants are not connected to the national grid, the Union Government Ministry is not the primary authority involved. The authorities have a legal right to use land for the purpose of power plants under the Electricity Law, and have the right to expand and maintain their facilities. The law also provides that the authorities can build transmission lines in accordance with existing laws.	
Labor Dispute Settlement Law (28 Mar 2012 replacing 1929 version)	
The Pyidaungsu Hluttaw hereby enacts this Law for safeguarding the right of workers or having good relationship between employer and workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by settling the dispute of employer and worker justly.	
The Social Security Law (2012)	
The Social Security Law, enacted in 2012, was amended the Social Security Act in 1954. It stipulates the formation and implementation of social security systems.	
Section 53(a)	The employers and workers shall co-ordinate with the Social Security Board or insurance agency in respect of keeping plans for safety and health in order to prevent employment injury, contracting disease and decease owing to occupation and in addition to safety and educational work of the workers and accident at the establishment;
Labor Dispute Settlement Law (28 Mar 2012 replacing 1929 version)	
This law was enacted for safeguarding the right of workers or having good relationship between employer and workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by settling the dispute of employer and worker justly. It stipulates that employer in which more than 30 workers are employed shall form the workplace coordinating committee consisting of the representatives of workers and the representatives of employer.	
Section 23	A party, employer or worker, may complain individual dispute relating to his grievance to the Conciliation Body and if he is not satisfied with the conciliation of such body in accord with stipulated manners, may apply to the competent court in person or by the legal representative.
Section 24	The relevant Conciliation Body shall, in respect of the collective dispute known or received by the complaint of either party, employer or worker, in respect of the dispute; information sent by the Minister or the Region or State Government or any other means, carry out as follows: (a) conciliating so as to be settled within three days, not including the official holidays, from the day of knowing or receipt of such dispute; (b) concluding mutual agreement if the settlement is reached in conciliating under sub-section (a), before the Conciliation Body.
Section 25	The Conciliation Body shall refer the collective dispute which does not reach settlement to the relevant Arbitration Body and inform the persons relating to the dispute.
Section 38	No employer shall fail to negotiate and coordinate in respect of the complaint within the prescribed period without sufficient cause.
Section 39	No employer shall alter the conditions of service relating to workers concerned in such dispute at the consecutive period before commencing the dispute within the period under investigation of the dispute before the Arbitration Body or Tribunal, to affect the interest of such workers immediately.
Section 40	The project proponent has to not close the work without negotiation, discussion on dispute in accord with this law, decision by Tribunal

Section 51	The project proponent has to pay the compensation decided by Tribunal f violates any act or any emission to omission to damage the interest of labour by reducing of product without efficient cause.
Section 46	Any employer who violates any prohibition contained in sections 38 and 39 shall, on conviction, be punished with a fine for a minimum of one-lakh kyats.
The Employment and Skill Development (2013)	
This law was enacted for safeguarding the right of workers or having skillful of workers and making peaceful workplace or obtaining the rights fairly, rightfully and quickly by settling the dispute of employer and worker justly. Employer shall conduct occupational training to enhance the skills of workers.	
Section 5	The project proponent has to appoint employees with the contract in line with the provision of section 5 of said law.
Section 14	Employer shall conduct occupational training to enhance the skills of workers who are to be employed as well as workers who are presently employed in accordance with the requirements of the enterprise and the policy of the Skills Development Agency.
The Worker's Compensation Act, 1923	It stipulates that employer is required to make payments to employees who become injured or who die in any accidents arising during and in consequence of their employment. Such compensation also must be made for diseases which arise as a direct consequence of employment, such as carpal tunnel syndrome.
The Payment of Wages Act, 1936	The Payment of Wage Act defines the payment obligation to the workers employed in the factories or railway administration. It stipulates the method of payment stating that the payment should be made in cash on a regular payday, and allows legal action against delayed payment or un-agreeable deduction.
The Leave and Holidays Act (1951, partially revised in 2014)	This act has been used as the basic framework for leaves and holidays for workers with minor amendment in 2006 and 2014. This defines the public holidays that every employee shall be granted with full payment. It also defines the rules of leaves for workers including medical leave, earned leave and maternity leave.
The Minimum Wage Law (2013)	The minimum wage law, passed in March 2013, was replaced the 1949 Minimum Wage Act. The law provides a framework for minimum wage determination: the presidential office establishing a tripartite minimum wage committee shall decide minimum wage with industrial variation based on a survey on living costs of workers possibly every two years. This also stipulates equal payment.
Public Health Law (1972)	**Chapter 2; Prevention of Public Health**
Objectives	To ensure the public health include not only employees but also resident people and cooperation with the authorized person or organization of health department. This law focuses as follows The project owner has to cooperate with the authorized person or organization in line with the section 3 and 5 of said law. The project proponent has to abide by any instruction or stipulation for public health under the section 3 of said law. The project proponent has to allow any inspection, anytime, anywhere if it is needed under the section 5 of said law.
Prevention and Control of Communicable Disease Law 1995 (Amendment in 2011)	
Chapter 2 Prevention	4. When a Principal Epidemic Disease of a Notifiable Disease occurs; Immunization and other necessary measures shall be undertaken by the Department of Health, in order to control the spread thereof;

	The public shall abide by measures undertaken by the Department of Health under sub-section (a).
Chapter 4 Environmental Sanitation	For prevention of the outbreak of Communicable Disease and effective control of Communicable Disease when it occurs, the public shall under the supervision and guidance of the Health Officer of the relevant area, undertake the responsibility of carrying out the following environmental sanitation measures; Indoor, outdoor sanitation or inside the fence outside the fence sanitation; Well, ponds and drainage sanitation; Proper disposal o refuse and destruction thereof by fire; Construction and use of sanitary latrines; Other necessary environmental sanitation measures.
Occupational Safety and Health Law (2019)	
Purpose:	To effectively implement measures related to safety and health in every industry and to set occupational safety and health standards;
Section-26 Sub-section (e)	The project proponent has to provide adequate and relevant personal protective equipment to workers free of charge and make them wear it during work so as not to expose workers to any serious occupational diseases or hazards.
Section-26 Sub-section (1)	The project proponent has to arrange and display occupational safety and health instructions, warning signs, notices, posters, and signboards.
Section-30 Sub-section (a)	The worker shall wear or use at all times any protective clothes, equipment and tools provided by the employer for the purpose of safety and health.
Section-30 Sub-section (d)	The worker shall proper and systematic use any equipment and tools, machines, any parts of the machines, vehicles, electricity and other substances being used at the workplace.
Section-30 Sub-section (e)	The worker shall take reasonable care for the safety and health of himself/ herself and of other persons who may be affected by his/ her acts or omissions at work.
The law on Standardization	
Objectives	The Objectives of this Law are as follows: to enable to determine Myanmar Standard to enable to support export promotion by enhancing quality of production organizations and their product, production processes and services to enable to protect the consumers and user by guaranteeing imports and products are not lower than prescribed standard, and safe from health hazards to enable to support protection of environment related to products, production process and services from impact, and conservation of natural resources to enable to protect manufacturing, distributing and importing the disqualified goods which do not meet the prescribed standard and those which are not safe and endangered to the environment to support on establishing the ASEAN Free Trade Area and to enable to reduce technical barriers to trade to facilitate technological transfer and innovation by using the standards for the development of national economic and social activities in accordance with the national development programme.
Chapter 7 Taking Action by Committee No. 19	The committee may, if it is found out that holder of certificate of certification violates any term or condition contained in the relevant recommendation, pass any of the following administrative order:

	warning suspending the certificate of certification for limited period cancelling the certificate of certificaion
လုပ်ငန်းခွင်သုံးပေါက်ကွဲစေတက်သောဂတ္တုပစ္စည်းများဆိုင်ရာဥပဒေ (၂၀၁၈)	
ရည်ရွယ်ချက်	လုပ်ငန်းခွင်သုံးပေါက်ကွဲစေတက်သော ဂတ္တုပစ္စည်းများကို စနစ်တကျပြုလုပ်ခြင်း၊ တင်သွင်းခြင်း၊ သယ်ယူခြင်း၊ သိုလှောင်ခြင်းနှင်း သုံးစွဲခြင်းတို့ပြုနိုင်ရန်၊ ယမ်းဘီလူးနှင့် ဆက်စပ်သုံးပစ္စည်းများ အသုံးပြုသည့် လုပ်ငန်းခွင်ဘေးအန္တရာယ် ကင်းရှင်း၍ လုံခြုံမှုရှိစေရန်၊ လုပ်ငန်းခွင်သုံး ပေါက်ကွဲစေတက်သော ဂတ္တုပစ္စည်းများ ပြုလုပ်သုံးစွဲမှုများကို စနစ်တကျ ကြီးကြပ်နိုင်ရန်။
အခန်း ၇ တားမြစ်ချက်များ အမှတ် ၁၈	လိုင်စင်ရရှိသူနှင့် ခွင့်ပြုချက်ရရှိသူ မည်သူမျှ စစ်ဆေးရေးအရာရှိချုပ် သို့မဟုတ် စစ်ဆေးရေးအရာရှိ၏ စစ်ဆေးခြင်းကို ခံယူရန် ငြင်းပယ်ခြင်းမပြုရ။
အမှတ် ၁၉ (ခ)	ပုဒ်မ ၈ အရ ကာကွယ်ရေးဌာနကောင်စီ အမှုဆောင်အဖွဲ့၏ အတည်ပြုချက်မရရှိဘဲ လုပ်ငန်းခွင် ပေါက်ကွဲစေတက်သော ဂတ္တုပစ္စည်းများကို ဖျက်ဆီးခြင်းမပြုရ။
အမှတ် ၁၉ (ဂ)	ဤဥပဒေအရ ထုတ်ပြန်သည့် နည်းဥပဒေ၊ စည်းမျဉ်း၊ စည်းကမ်း၊ အမိန့်ကြော်ငြာစာ၊ အမိန့်နှင့် ညွှန်ကြားချက်များနှင့်အညီ ဆောင်ရွက်ရန် ပျက်ကွက်ခြင်း မရှိစေရ။
The Motor Vehicles Law (2015)	
Objectives	When the constructions periods and if it is needed in operation and production period for all vehicles • The project proponent has to promise to abide by the nearly all provisions of said law and rules, especially the provisions related to air pollution, noise pollution and life safety.
The Conservation of Water Resources and Rivers Law (2006)	
Aims	The aims of this Law are as follows: (a) to conserve and protect the water resources and rivers system for beneficial utilization by the public; (b) to smooth and safety waterways navigation along rivers and creeks; (c) to contribute to the development of State economy through improving water resources and river system; (d) to protect environmental impact.
Chapter 5 Prohibitions No. 8	No person shall: (a) carry out any act or channel shifting with the aim to ruin the water resources and rivers and creeks. (b) cause the wastage of water resources wilfully.
No. 10	No person shall anchor the vessels where vessels are prohibited from anchoring in the rivers and creeks.
No.11 (a)	No person shall: dispose of engine oil, chemical, poisonous material and other materials which may cause environmental damage, or dispose of explosives from the bank or from a vessel which is plying, vessel which has berthed, anchored, stranded or sunk.

No. 12	No person shall carry out growing of garden, digging, filling, silt trapping, closing pond, dyke building or erecting spur in the river-creek boundary, bank boundary and waterfront boundary without the permission of the relevant government department and organization.
No. 15	No person shall carry out the construction of switchback, dockyard, wet dockyard, water-tight dockyard, building of jetty, pier, landing stage or vessel landing by drainage in the river-creek boundary, bank boundary and waterfront boundary without the permission of the Directorate.
The Commercial Tax Law (1990) Amended 2014	
Chapter 5 Registration and Intimation of Commencement of Enterprise 11 (b)	Any Person who commences operation of a goods production enterprise or service enterprise shall furnish letter of intimidation on the commencement of the operation as such to the relevant Township Revenue Officer as stipulated by regulations.
Chapter 6 Monthly Payment of Tax and Sending of Three-Monthly Return 12 (a)	Any person who has taxable proceed of sale or receipt from service within a year, shall pay due monthly tax within ten days after the end of the relevant month. Moreover, a three-monthly return shall be furnished to the relevant Township Revenue Officer within one month after the end of relevant three-month.
12 (b)	The Township Revenue Officer may intimate any person to pay due monthly tax and send three-monthly return if there is cause to consider that he has taxable proceed of sale or receipt from service within a year.
12 (c)	If it is failed to pay tax under sub-section (a) or (b), or if there is cause to consider that the tax paid is less than the tax payable, the Township Revenue Officer may, based on the information received, estimate and claim the tax payable or the additional tax payable.
12 (d)	The tax paid under sub-section (a), (b) or (c) shall be set-off from the tax due in the assessment.
12 (e)	The tax payable on goods imported under sub-section (c) of section 4 of the Law shall be collected together with the customs duties by the Customs Department in accord with the manner of collecting customs duties.

2.2. INTERNATIONAL GUIDELINES

Organization's Guidelines, World Bank Safeguard Policies, IFC Performance Standards and National Environmental Quality (Emission) Guidelines (2015) are referred for EMP of the proposed factory project.

2.3. POLICY AND LEGAL FRAMEWORK INCLUDING INTERNATIONAL CONVENTIONS, TREATIES AND AGREEMENTS, AND INTERNATIONAL STANDARDS, GUIDELINES

International Conventions, Treaties and Agreements Myanmar has signed a number of international treaties related to the environment which may have implications for the Project. These include:

a) Plant Protection Agreement for the Asia and Pacific Region; Vienna Convention for the Protection of the Ozone Layer; Montreal Protocol on Substances that Deplete the Ozone Layer;

b) London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer;

c) United Nations Framework Convention on Climate Change (UNFCCC); United Nations Convention to Combat Desertification;

d) International Civil Aviation Organization: ANNEX 16 Annex to the Convention on International Civil Aviation Environmental Protection Vol. I, II, Aircraft Noise;

e) Vienna Convention for the Protection of Ozone Layer;

f) Montreal Protocol on Substances that Deplete the Ozone Layer;

g) Convention Concerning the Protection of the World Cultural and Natural Heritage;

h) Convention on Biological Diversity (CBD); International Tropical Timber Agreement (ITTA);

i) Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);

j) ASEAN Agreement on the Conservation of Nature and Natural Resources; Catagena Protocol on Bio-safety

k) Kyoto Protocol to the United Nations Framework Convention on Climate Change; Ramsar Convention on Wetlands; and

l) Copenhagen Amendment to Montreal Protocol on Substances that deplete the Ozone Layer.

m) United Nations Declaration on the Rights of Indigenous People

2.4. INTERNATIONAL STANDARDS AND GUIDELINES

The following international standards, guidelines, policies and procedures are referred to, in preparation of this Report:

a) UNEP Environmental Impact Assessment Training Resource Manual

b) European Bank for Reconstruction and Development (Sub-sectoral Environmental and Social Guidelines)

c) International Finance Corporation, World Bank Group (Environmental, Health, and Safety Guidelines)

d) NHS, Health, Scotland (Health Impact Assessment in Practice)

e) BS 14001:2004 Environmental management systems - Requirements with guidance for use

f) Principles of Environmental Impact Assessment Best Practice International Association for Impact Assessment

g) OHSAS 18001, Occupational Health and Safety Assessment

2.5. NATIONAL SUSTAINABLE DEVELOPMENT STRATEGY

The National Sustainable Development Strategy (NSDS) is part of a broader programme of the UN Sustainable Development Commission set up after the World Summit on Sustainable Development in 2002.Every country, including Myanmar, that signed Agenda 21 at the Earth Summit in Rio de Janeiro in 1992, agreed to develop an NSDS by 2010 in line with the Millennium Development Goals (MDGs). UNEP provided funding for Myanmar to develop an NSDS. The main aim of the process was to develop an NSDS in line with international standards by meeting the MDGs and ensure that environmental and social impacts are mitigated when implementing development projects. Myanmar's NSDS was published

in August 2009. The three goals described in Myanmar's NSDS are sustainable management of natural resources, integrated economic development and sustainable social development. Specific strategies are outlined under each goal. For example, the goal for Sustainable Management of Natural Resources suggests strategies for forest resource management, sustainable energy production and consumption, biodiversity conservation, sustainable freshwater resources management, sustainable management of land resources, sustainable management for mineral resources utilization, and so on.

2.6. NATIONAL ENVIRONMENTAL QUALITY (EMISSION) GUIDELINES

As specified in the EIA Procedure, all projects are obliged to use, comply with and refer to applicable national guidelines or standards or international standards adopted by the Ministry. As specified in the EIA Procedure, following project approval a project shall commence implementation strictly in accordance with the project EMP and any additional requirements set out in the project ECC, which will encompass conditions relating to emissions. While these Guidelines generally apply to all projects subject to the EIA Procedure, it is the prerogative of the Ministry to decide how the Guidelines should be applied to existing projects as referred to in the EIA Procedure.

According to the Environmental Conservation Law, MOECAF shall set standards of environmental qualities as agreed by the Union Government and the Environmental Conservation Committee to provide the basis for regulation and control of noise and vibration, air emissions and liquid discharges from various sources in order to prevent pollution for purposes of protection of human and ecosystem health.

2.6.1. General Guidelines

General guidelines of related environmental impact guideline for proposed project are -

2.6.1.1. Air emission

Projects with significant sources of air emissions, and potential for significant impacts to ambient air quality, should prevent or minimize impacts by ensuring that: (i) emissions do not result in concentrations that reach or exceed national ambient quality guidelines and standards, or in their absence current World Health Organization (WHO) Air Quality Guidelines1 for the most common pollutants as summarized below; and (ii) emissions do not contribute a significant portion to the attainment of relevant ambient air quality guidelines or standards (i.e. not exceeding 25 percent of the applicable air quality standards) to allow additional, future sustainable development in the same air shed. Industry-specific guidelines summarized hereinafter shall be applied by all projects to ensure that air emissions conform to good industry practice. Reference should be made to WHO's Air Quality Guidelines for Europe2 for air pollutants not included in the following Table 2-2.

Table 2-2 WHO's Air Quality Guideline

Parameter	Averaging Period	Guideline Value
Nitrogen Dioxide	1-year 1-hour	40 200
Ozone	8-hour	100
Particulate Matter PM10[a]	1-year 24-hour	10 50
Particulate Matter PM2.5[b]	1-year	10

	24-hour	25
Sulfur dioxide	24-hour 10-minute	20 500

[a] Particulate matter 10 micrometers or less in diameter

[b] Particulate matter 2.5 micrometers or less in diameter

2.6.1.2. Wastewater

Industry-specific guidelines apply during the operations phase of projects and cover direct or indirect discharge of wastewater to the environment. They are also applicable to industrial discharges to sanitary (domestic) sewers that discharge to the environment without any treatment. Wastewater generated from project operations includes process wastewater, wastewater from utility operations, runoff from process and storage areas, and miscellaneous activities including wastewater from laboratories, and equipment maintenance shops. Projects with the potential to generate process wastewater, sanitary sewage, or storm water should incorporate the necessary precautions to avoid, minimize, and control adverse impacts to human health, safety or the environment. Industry-specific guidelines summarized hereinafter shall be applied by all projects, where applicable, to ensure that effluent emissions conform to good industry practice.

For project types where industry-specific guidelines are not set out in these Guidelines, the following general guideline values, or as stipulated on a case-by-case basis, apply during project operations.

Table 2-3 Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges

Parameter	Unit	Guideline Values
5-day Biochemical oxygen demand	mg/l	50
Ammonia	mg/l	10
Arsenic	mg/l	0.1
Cadmium	mg/l	0.1
Chemical oxygen demand	mg/l	250
Chlorine (total residual)	mg/l	0.2
Chromium (hexavalent)	mg/l	0.1
Chromium (total)	mg/l	0.5
Copper	mg/l	0.5
Cyanide (free)	mg/l	0.1
Cyanide (total)	mg/l	1
Fluoride	mg/l	20
Heavy metals (total)	mg/l	10
Iron	mg/l	3.5
Lead	mg/l	0.1
Mercury	mg/l	0.01
Nickel	mg/l	0.5
Oil and grease	mg/l	10
pH	S.U.[a]	6-9

Phenols	mg/l	0.5
Selenium	mg/l	0.1
Silver	mg/l	0.5
Sulphide	mg/l	1
Temperature increase	°C	<3[b]
Total coliform bacteria	100 ml	400
Total phosphorus	mg/l	2
Total suspended solids	mg/l	50
Zinc	mg/l	2

2.6.1.3. Noise levels

Noise prevention and mitigation measures should be taken by all projects where predicted or measured noise impacts from a project facility or operation exceed the applicable noise level guideline at the most sensitive point of reception. Noise impacts should not exceed the levels shown below, or result in a maximum increase in background levels of three decibels at the nearest receptor location off-site.

Table 2-4 Noise Levels of National Environmental Quality (Emission) Guideline

Receptor	**One Hour LAeq (dBA)[a]**	
	Daytime **07:00 – 22:00** **(10:00 – 22:00 for public holidays)**	**Nighttime** **22:00 – 07:00** **(22:00 – 10:00 for public holidays)**
Residential, institutional, education	55	45
Industrial, commercial	70	70

[a] Equivalent continuous sound level in decibels

2.6.2. IFC EHS Guidelines

The EHS Guidelines[1] by International Finance Cooperation (IFC) are technical reference documents with general and industry–specific examples of Good International Industry practice (GIIP), as defined in IFC's Performance Standard 3: Resources Efficiency and Pollution Prevention. The EHS Guidelines contain the performance levels and measures that are normally acceptable to IFC, and that are generally considered to be achievable in new facilities at reasonable costs by existing technology.

There are two kinds of guidelines, General EHS Guidelines and Industry Sector Guidelines. The General EHS Guidelines contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors in the following section: (1) Environment, (2) Occupational Health and Safety, (3) Community Health and Safety and (4) Construction and Decommissioning. Table 2-5 shows the contents of the section of Community Health and Safety.

Table 2-5 Community health and safety contents

Contents	Brief Description
Water Quality and Availability	Drinking water sources should at all times be protected so that they meet or exceed applicable national acceptability standards or in their absence the current edition of WHO Guidelines for Drinking-Water Quality. Project activities should not compromise the availability of water for personal hygiene needs and should take account of potential future increases in demand. The overall target should be the availability of 100 liters per person per day.
Structural Safety of Project Infrastructure	Reduction of potential hazards is best accomplished during the design phase when the structural design, layout and site modifications can be adapted more easily. The following issues should be considered and incorporated as appropriate into the planning, siting, and design phases of a project (1) inclusion of buffer strips or other methods of physical separation around project sites to protect the public from major hazards associated with hazardous materials incidents or process failure (2) incorporation of siting and safety engineering criteria to prevent failures due to natural risks posed by earthquakes, tsunamis, wind, flooding, landslides and fire, and (3) application of locally regulated or internationally recognized building codes, standards and regulations, and mitigation measures.
Traffic Safety	Traffic safety should be promoted by all project personnel during displacement to and from the workplace, and during operation of project equipment on private or public roads. Prevention and control of traffic related injuries and fatalities should include the adoption of safety measures that are protective of project workers and of road users, including those who are most vulnerable to road traffic accidents.
Transport of Hazardous Materials	Projects should have procedures in place that ensure compliance with local laws and international requirements applicable to the transport of hazardous materials.
Disease Prevention	Recommended interventions against the communicable diseases at the project level include (1) providing surveillance and active screening and treatment of workers, (2) preventing illness among workers in local communities by undertaking health awareness and education initiatives, training health workers in disease treatment and conducting immunization programs for workers, and (3) providing treatment through standard case management in on-site or community health care facilities.
Emergency preparedness and Response	All projects should have an Emergency preparedness and Response Plan that is commensurate with the risks of the facility and that includes the following basic elements: (1) Administration (policy, purpose, distribution, definitions, etc.) (2) Organization of emergency areas (command centers, medical stations, etc. (3) Roles and responsibilities, (4) Communication systems, (5) Emergency response procedures, (6) Emergency resources, (7) Training and updating, (8) Checklists (role and action list and equipment checklist), and (9) Business Continuity and Contingency.

2.7. INSTITUTIONAL ARRANGEMENT

The Ministry of Environmental Conservation and Forestry (MOECAF) was reformed as the Ministry of Natural Resources and Environmental Conservation (MONREC) on 30th March, 2016 in order to undertake both environmental and natural resources conservation and management more effectively. Under Section 3 of the Environmental Impact Assessment Procedure (2015), pursuant to section 21 of the law and Articles 52, 53 and 55 of the Environmental Conservation Rules, all projects and project expansions undertaken by any organization, which may cause impact on environmental quality that, are required to obtain prior permission. This is to be in accordance with section 21 of the Environmental Conservation Law, and Article 62 of the Environmental Conservation Rules, having the potential to cause adverse impacts, that are required to undertake IEE or EIA or to develop an EMP, and to obtain an Environmental Compliance Certificate (ECC) in accordance with this EIA procedure.

2.8. PROJECT'S ENVIRONMENTAL AND SOCIAL STANDARD

Principle 17 of the Rio Declaration on Environment and Development stated; 'Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of competent national authority.

2.9. COMMITMENT OF MIN DHAMA STEEL STRUCTURES COMPANY LIMITED

Min Dhama Steel Structures Company Limited shall be responsible for the preservation of the environment at and around the area of project site. In addition to this, It shall carry out as per instructions made by Ministry of Natural Resources and Environmental Conservation (MONREC) in which to conduct an EMP which describe the measure to be taken for preventing, mitigation and monitoring significant environment impacts resulting from the implementation and operation of proposed project or business or activity has to be prepared and submitted and to perform activities in accordance with this EMP and be abided by the environment policy, Environmental Conservation Law and other environmental related rules and procedures. Min Dhama Steel Structures Company Limited shall be responsible for the environmental assessment of factory development as follows:

- Monitoring the factory area operations according to EMP and Environmental Monitoring Plan (EMP)
- Submitting environmental monitoring reports to ECD
- Planning and implementation of CSR activities
- To set up welfare plan such as staff medical checkup, training program and public talk for getting knowledge, risk prevention, bonus and social security service
- To carry out fire safety assessment and ensure adequate and appropriate fire safety measures for employees

Min Dhama Steel Structures Co., Ltd.
No.....
Date.....

Daw Cherry
Director
Min Dhama Steel Structures Co.,Ltd

3. PROJECT DESCRIPTION

3.1. LOCATION

Min Dhama Steel Structures Company Limited is located at Plot No. (88), Myay Taing Block No.(65/Industry), Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region. The proposed factory locates at the coordinates of North Latitude 16°55'38.15"N and East Longitude 96° 5'0.54"E. Location map is as shown in Figure 3-1.

3.2. OBJECTIVES OF THE PROJECT

The proposed project intends to manufacture steel structure on CMP basic and to export 100% of the finished products.

3.3. SITE DESCRIPTION OF THE PROJECT SITE

The total area of project site is 5.519 acres (22,334.62 Sq.m). There are three main operation buildings (640ft x 160ft), (540ft x 80ft) and (340ft x 80ft), office & security room (100ft x 20ft) and two canteen (50ft x 30ft) and (33ft x 20ft). Transformer room, generator room, CO_2 and O_2 gas tank station, ground water tank and tower tank are separated by main factory buildings. The factory layout plan can be seen in Figure 3-2. Factory started to lease land in 9th November 2022. Working time is from 8:00 AM to 17:00 PM (Monday – Friday) and 8:00 AM to 12:00 PM (Saturday). Total working days is 265 days in a year.

3.4. ADJACENT LOCATION OF PROPOSED PROJECT

Min Dhama Steel Structures Company Limited is located at Shwe Pyi Thar Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region. The nearest water source is Hlaing River and Fruitful Groups of companies is located at the northeast of the factory. The main streets of the proposed project are Kin Win Min Gyi street, Myawaddy Min Gyi street and U Shwe Myu street.

3.5. PROJECT OPERATION

Construction phase of the factory is started in November 2022 according to the YRIC's Endorsement and the validity of endorsement is 20 years. Min Dhama Steel Structures Company Limited will close the factory as their YRIC proposal.

Table 3-1 Min Dhama Steel Structures Company Limited's Project Life Span

Phase	2022	2023	2023	2043		
Construction/Preparation Phase	→	→				
Operation Phase			→	→		
Decommissioning Phase					→	→

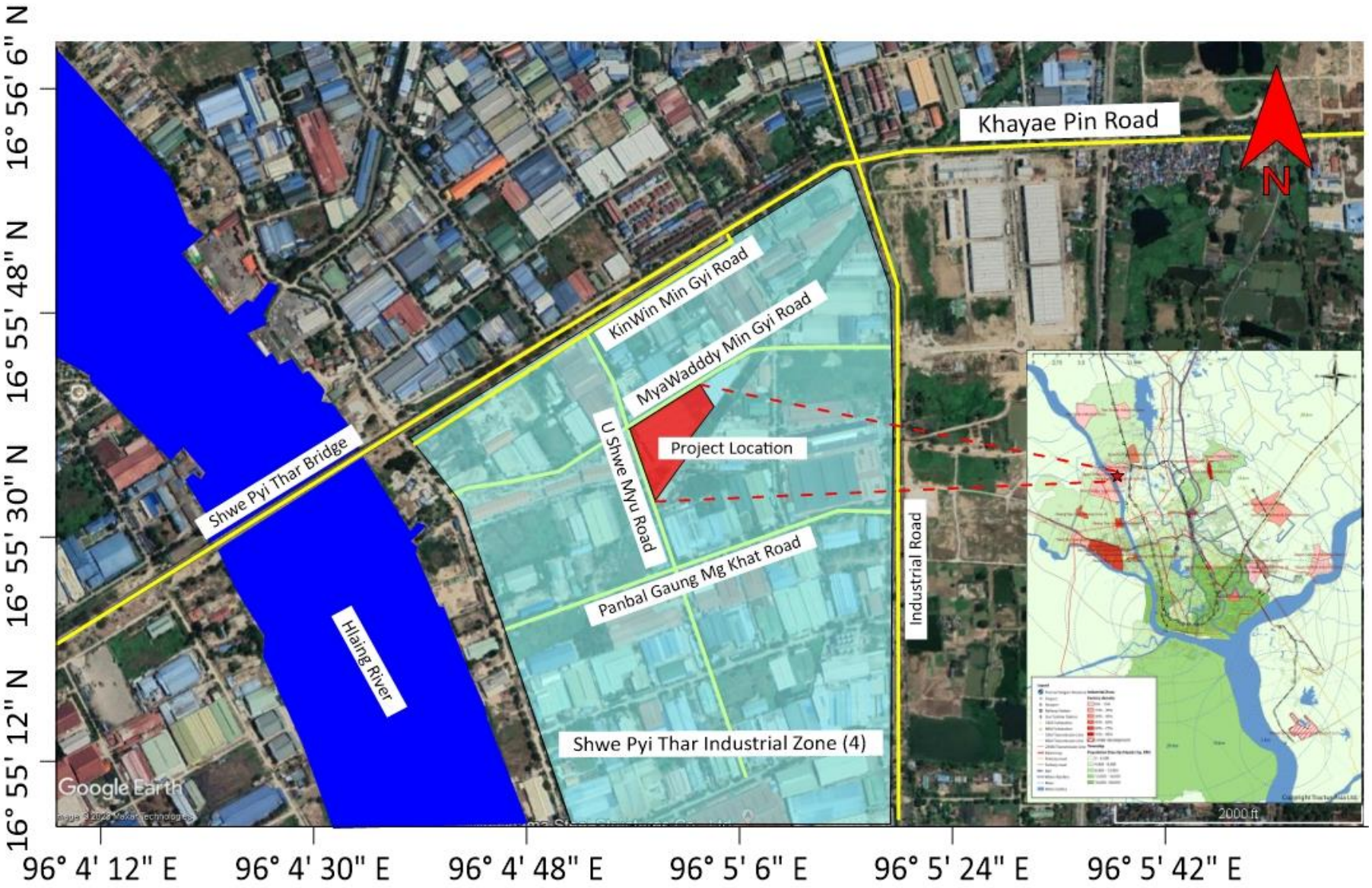


Figure 3-1 Location Map of Min Dhama Steel Structures Company Limited

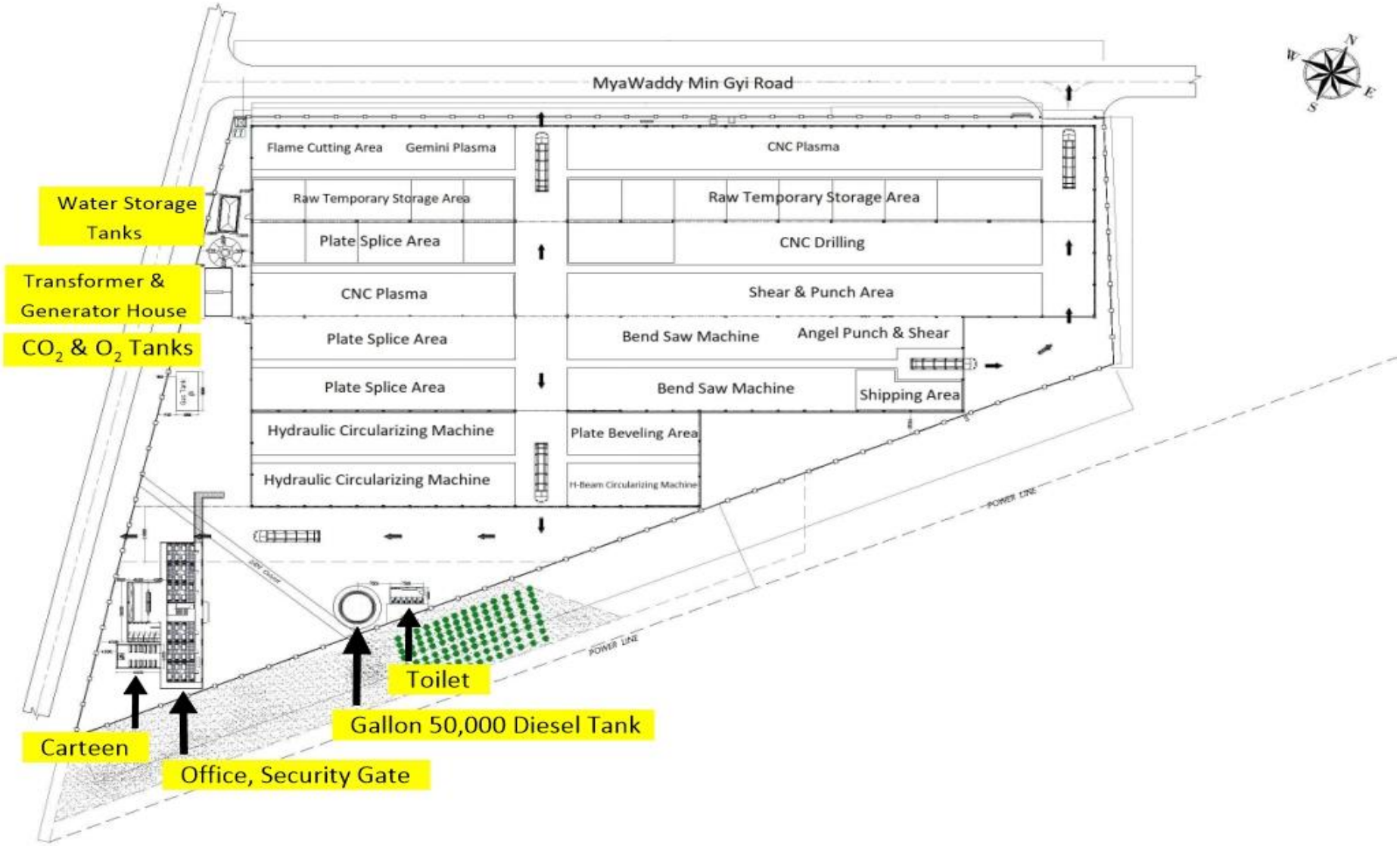


Figure 3-2 Factory Layout Drawing of Min Dhama Steel Structures Company Limited

Figure 3-3 Adjacent Map of Min Dhama Steel Structures Company Limited

3.6. PRODUCTION PROCESS

The production line in cutting, beveling, drilling, fitting, welding, straightening and repairing are the basic operations. Manufacturing Steps are widely expressed about the environmental conservation way of business in details.

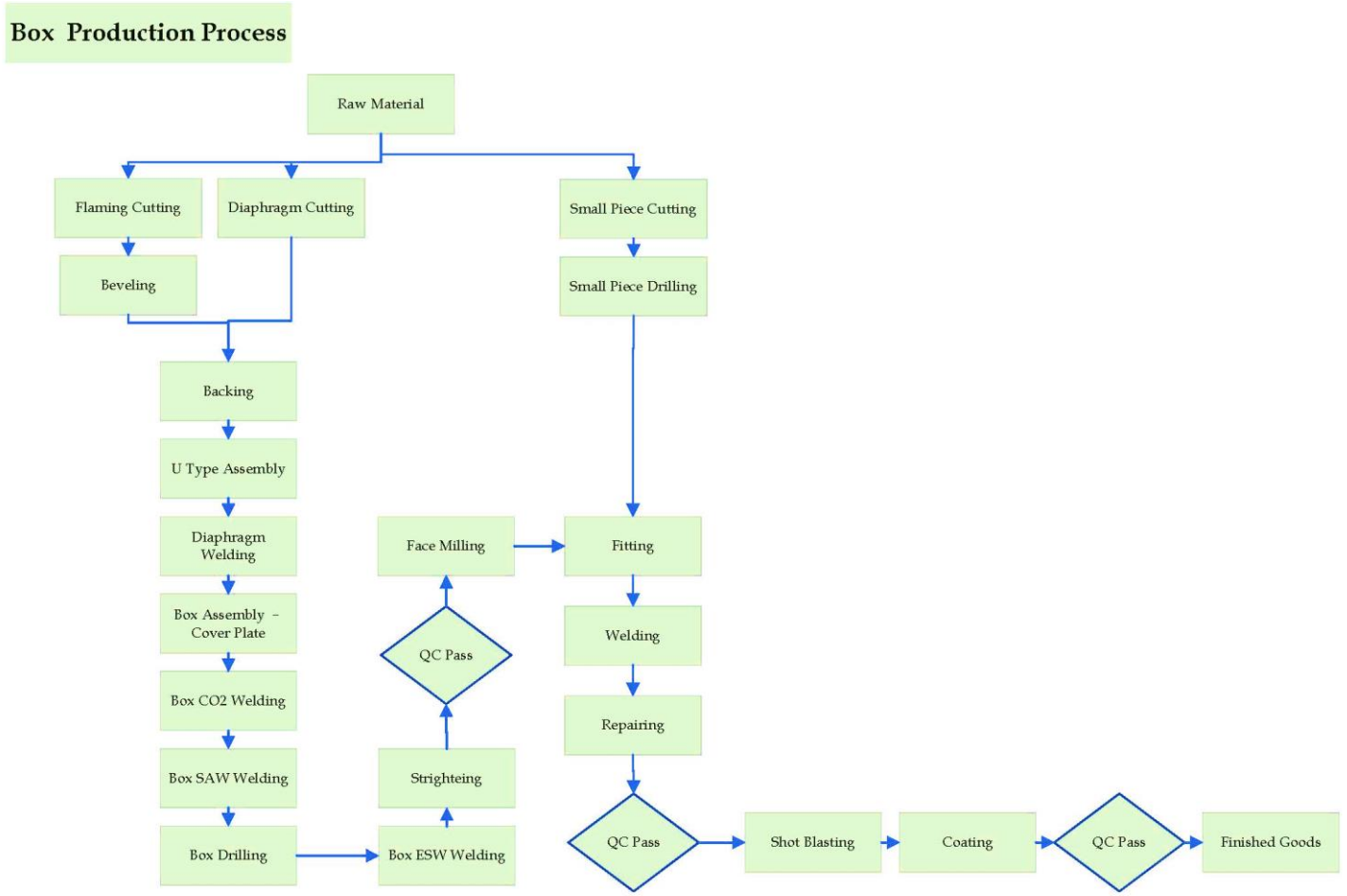


Figure 3-4 Process Flow Diagram of Min Dhama Steel Structure Company Limited

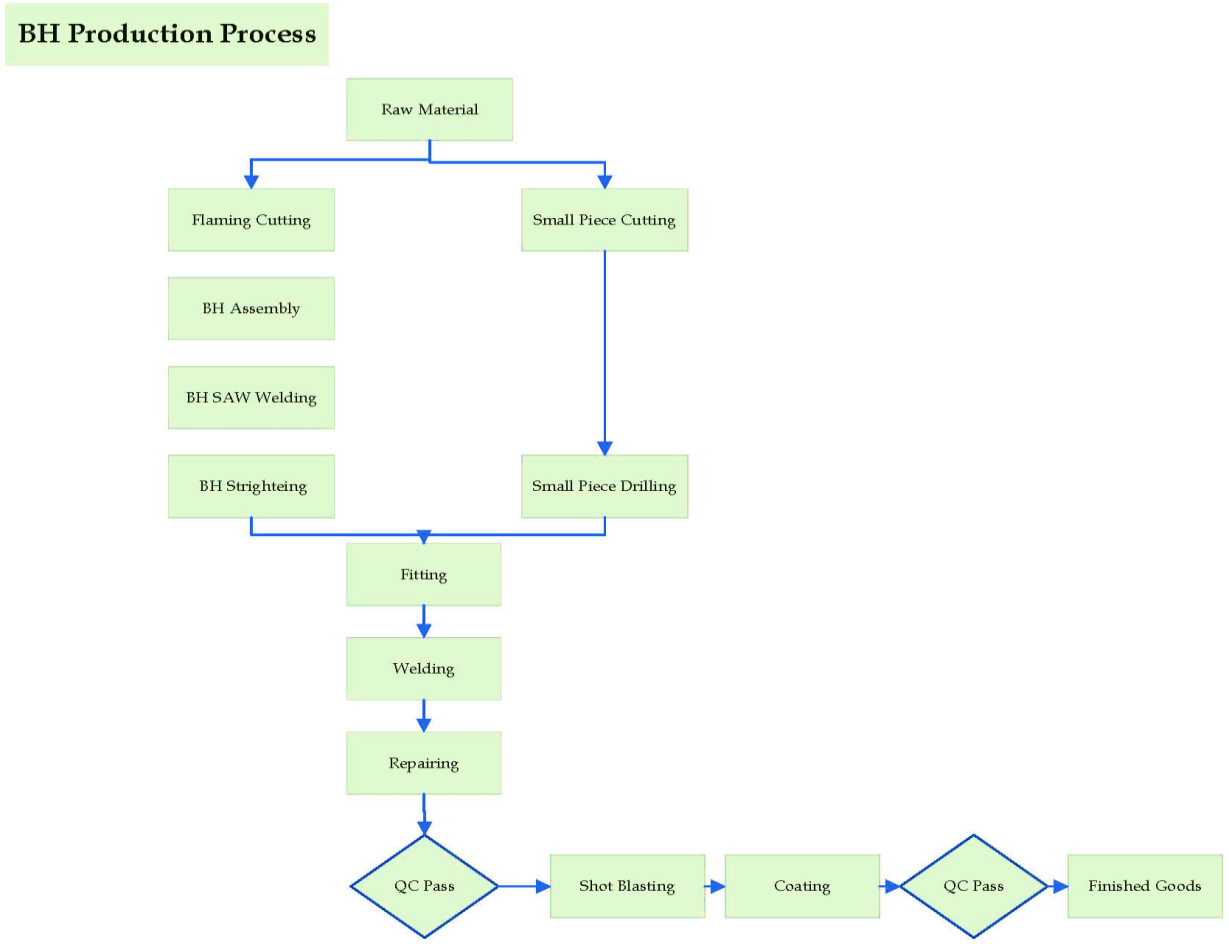


Figure 3-5 Process Flow Diagram of Min Dhama Steel Structure Company Limited

Manufacturing process of Steel Structure production is expressed in details;

- **Flame Cutting**: It is to use the heat burned from pressured air, oxygen and carbon dioxide fuel gas, to cut steel materials to the panels or profiles required. It can cut steel thickness from 1 mm to 1200 mm.

Flame Cutting

- **CNC Drilling:** This CNC machining process uses a rotating cutting tool or drilling bit to make holes in a product. The hole takes the dimension of the CNC drilling bits and is most time applicable in accommodating screws and bolts. This process is common among products that need part assembly.

CNC Drilling

- **Hydraulic Shearing:** A hydraulic shearing machine is a type of machine that uses a moving upper blade and a fixed lower blade to apply a shearing force to metal plates of varying thicknesses, resulting in the separation of the plates into the desired size by utilizing an appropriate blade clearance. It is used for direct shearing of a variety of metal materials to meet the demands of the proposed project.

Hydraulic Shearing

- **Hydraulic Punching:** Hydraulic punching machine is a machine used to punch holes in steel sheet, angle steel, U-steel (channel steel) and other metals. It is a customized multi-cylinders punch machine, driven by hydraulic power, manual feeding steel by workers.

Hydraulic Punching

- **Hydraulic Bending Press Brake:** Press brake bending involves the elastic deformation of metal sheeting under the pressure of the upper die or lower die of a press brake machine. Press brake bending is a process technology that modifies the plate or angle of the plate by exerting pressure on it.

Hydraulic Bending Press Brake

3.6.1. **Products**

The products of Min Dhama Steel Structures Company Limited are Box Structures Type, Build Up Structures Type, RH Structures Type and Other Structure Type. Annual production rate is 30,000 metric ton in 1st year, 40,203 metric ton in 7th to 10th year, and 42,213 metric ton in 11th – 30th years for products. Daily production rate is about 120 metric ton. Products are exported to Japan, Taiwan, Singapore, Thailand, Philippines, Australia, UAE, Qatar, Maldives, Mexico and according to the buyer instruction.

Table 3-2 Annual Production Rate

No.	Particular	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7-10	Year 11-30
	Total Production		**30,000**	**31,500**	**33,075**	**34,729**	**36,465**	**38,288**	**40,203**	**42,213**
	Fabricated Steel Structures Export – 100% CMP System									
1	Box Structures Type	MT	6,000	63,000	6,615	6,945.75	7,293.04	7,657.69	8,040.57	8,442.60
2	Build Up Structures Type	MT	12,000	12,600	13,230	13,891.50	14,586.08	15,315.38	16,081.15	16,885.21
3	RH Structures Type	MT	7,200	7,560	7,938	8,334.90	8,751.65	9,189.23	9,648.69	10,131.12
4	Others Structures Type	MT	4,800	5,040	5,292	5,556.60	5,834.43	6,126.15	6,432.46	6,754.08
	Total		30,000	31,500	33,075	34,728.75	36,465.19	38,288.45	40,202.87	42,213.01








Figure 3-6 Product Photo

3.7. UTILITIES

The utilities for proposed factory include electrical power, fuel oil for emergency used generator and water for general uses. Electric power is used for the purpose of to run the machinery and to provide lighting.

3.7.1. Raw Material

The main Raw Materials are MS Plate, H Beam and Square Pipe/Angle Iron which are imported from China, Taiwan, Korea and Japan. Annually raw materials required for production process is 29,880 metric ton of three main raw materials in 1st year, 40,042 metric ton in 7th – 10th year and 42,044 metric ton in 11th – 30th year. Daily consumption of raw materials from the factory is about 150 metric ton.

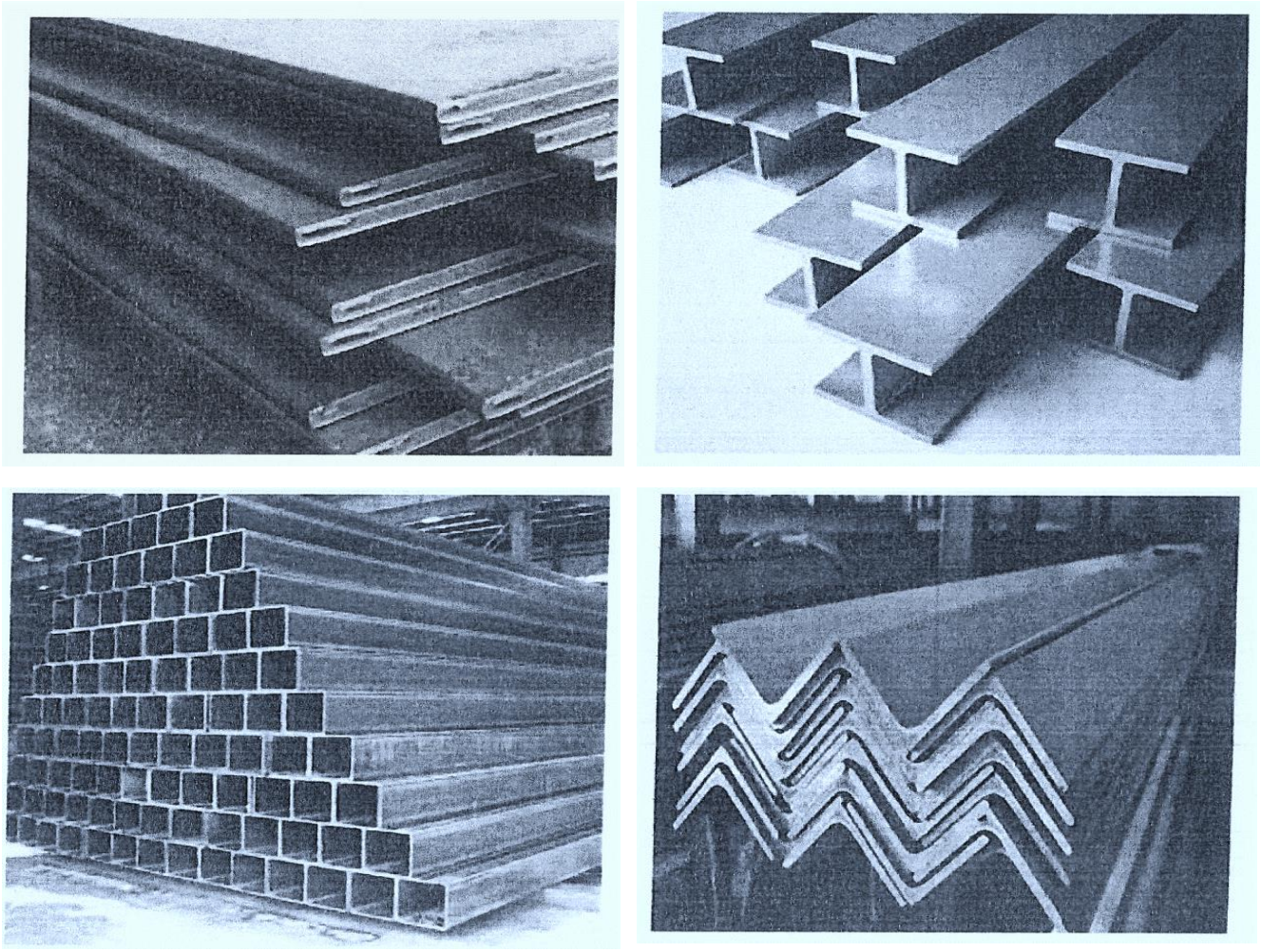


Figure 3-7 Raw Materials Photos

Table 3-3 Annual Raw Materials Requirement

No.	Particular	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7-10	Year 11-30	Hs Code
	Raw-Materials		**29,880**	**31,374**	**32,943**	**34,590**	**36,319**	**38,135**	**40,042**	**42,044**	
1	MS Plate	MT	21,660	22,680	23,814	25,005	26,255	27,568	28,946	30,393	7208.52
2	H Beam	MT	8,280	8,694	9,129	9,585	10,064	10,568	11,095	11,651	7216.33
3	Square Pipe/ Angle Iron	MT	5,520	5,796	6,086	6,390	-	7,045	7,397	7,767	7303.00/7228.71
	Sub-Materials										
1	Welding Consumable	MT	360	378	397	417	438	459	482	507	8311.90
2	Steel Ball	MT	120	126	132	139	146	153	161	169	7205.10
3	Liquid Oxygen & Liquid CO_2	MT	2,000	2,100	2,205	2,315	2,431	2,553	2,680	2,814	2804.40/2811.21
4	Paint	Liter	30,000	31,500	33,075	34,729	36,465	38,288	40,203	42,213	3208.10

3.7.2. Machinery and equipment

Lists of machinery and equipment required for the Min Dhama Steel Structures Company Limited is following in Table 3-4. All the machinery equipment are brand new items and bought from Local.

Table 3-4 List of Machinery and Equipment

No.	Particular	Model	Quality
1.	CNC Angle Iron Punching & Shearing M/C	A – 164	1
2.	Fixed Angle Notching	NM – 2260	1
3.	Hydraulic Bending Press Brake 13'	TW – 40040	1
4.	Hydraulic Bending Press Brake 10'	TW – 20032	1
5.	Hydraulic Bending Press Brake 10'	TW – 10026	1
6.	Hydraulic Bending Press Brake 5'	TW – 5014	1
7.	Hydraulic Bending Press Brake 5'	TW – 5015	1
8.	Mechanical Crank Press (60 Tons)	60T	1
9.	Mechanical Crank Press (50 Tons)	CHT-AJ	1
10.	Mechanical Crank Press (50 Tons)	50T-LG 460	1
11	Mechanical Crank Press	TW504	1
12	Band Saw M/C	IMBS-650 MNC	2
13	Band Saw M/C (Double Milter)	IMBS-1000DM	1
14	Band Saw M/C (Double Milter)	IMBS-800DMNC	1
15	Band Saw M/C (Milter Cut0	IMBS-270M	1
16	Hydraulic Circularizing M/C	JF-125 A 5H	1
17	Hydraulic Circularizing M/C (Heavy Duty)	JF-250 A 10H	1
18	Hydraulic Circularizing M/C (Heavy Duty)	JXW-500	1
19	CNC Drilling M/C	FSD-2040	1
20	Air Compressor,50.0 HP, Screw Type	EAS-50	1
21	Air Compressor,50.0 HP, Screw Type	EAS-50	1
22	Air Compressor,5.5 HP, Piston Type	TA 100	1
23	Punching M/C (Manual)	PM-200LT	1
24	Punching M/C (Manual)	DC – 1200	1
25	Punching M/C (CNC)	PM-120-CT-CNC	1
26	Plate Bending M/C (MG3 Roll Double Pinch)	AK-2530M/S	1
27	Hydraulic Shear Cutter 5'	DC-15250	1
28	Hydraulic Shear Cutter 5'	DC-15220	1
29	Hydraulic Shear Cutter 10'	HY-102	1
30	Hydraulic Shear Cutter 10'	DC-31130	1

No.	Particular	Model	Quality
31	Single Cylinder Shear Machine	IW-60H	1
32	CNC Gas/Plasma Cutting M/C (Plate & Pipe)	IMPF-4000SC	1
33	CNC Gas/Plasma Cutting M/C	PSC-5000D	1
34	Dust Collection M/C	F-180-18	1
35	Bevelling Milling M/C	ART-900	1
36	Bevelling Milling M/C	ART-900	1
37	Bevelling Milling M/C	CHP-12	1
38	Bevelling Milling M/C	IRONMACK IMP8-20	1
39	Overhead Crane 3 ton		2
40	Overhead Crane 5 ton		19
41	Overhead Crane 10 ton		6
42	Liquid Carbon Dioxide Storage Tank 10,000 L Vertical		1
43	Liquid Oxygen Storage Tank 10,000 L Vertical		1
44	Liquid Oxygen Storage Tank 20,000 L Vertical		1
Total			**69**

Brand Saw Machine

CNC Angle Shearing & Punching Machine

CNC Punching Machine

Hydraulic Bending Press Break

Hydraulic Circularizing Machine (Heavy Duty)

Hydraulic Shear Cutter

Mechanical Crank Press

Punching Machine (Manual)

Hydraulic Swing Beam Shear Machine

CNC Drilling Machine

Figure 3-8 Machinery Photos

3.7.3. Building and Vehicle Requirement

Required vehicles are bought from local and there are 11 kinds of buildings in the factory area. There are two liquid O_2 tanks and one liquid CO_2 tank and the required liquid O_2 and liquid CO_2 are bought from Yangon Industrial Gas Co., Ltd. These liquid O2 and CO2 are used in flame cutting processes; each pressure testing report is shown in **APPENDIX M**.

Table 3-5 List of Vehicles (Local Purchase)

No.	Particular	Quantity
1	5 MT Forklift	1
2	Canter Truck	1
3	Suzuki Ciaz	2
Total		**4**

Table 3-6 Building Requirement (Renovation)

No.	Kind of Building		Area of Building	No. of Building
1	Main Factory Building	Production Line 1 & 2	640' × 160'	1
2	Main Factory Building	Production Line 3	540' × 80'	1
3	Main Factory Building	Production Line 4	340' × 80'	1
4	Labour Toilet		23' × 13'	1
5	Office & Security Room		100' × 20'	1
6	Canteen		50' × 30'	1
7	Canteen		20' × 33'	1
8	Gas Filling Station		45' × 25'	1
9	Transformer & Generator House		60' × 20'	1
10	Ground Water Tank		15,000 gallons	1

No.	Kind of Building	Area of Building	No. of Building
11	Tower Tank	10,000 gallons	1
Total			**11**

CO_2 & O_2 Gas Filling Station

CO_2 & O_2 Gas Tanks

Office & Security Room

Factory Main Buildings

Figure 3-9 Buildings Photos

3.7.4. Human Resource

Human resource required by technicians and local persons for administrative and production process is about maximum 110 persons during 30 years (Table 3-7). Currently there are total 70 employees.

Table 3-7 List of Employee

No.	Designation		No. of Person
Local			
1	Admin Assistant	Administration	1
2	HR Manager	Administration	1
3	Store Assistant	Inventory Management	1

No.	Designation		No. of Person
4	Storekeeper	Inventory Management	3
5	Assistant Manager	Maintenance	1
6	General Worker	Maintenance	1
7	Junior Engineer	Maintenance	1
8	Skilled Worker	Maintenance	1
9	Assistant Manager	Production	1
10	Factory Manager	Production	1
11	Foreman	Production	5
12	General Worker	Production	45
13	Junior Engineer	Production	4
14	SAE	Production	3
15	Skilled Worker	Production	39
Total			**108**
Foreign			
1	Technical Engineer	Management	2
Total			**2**

3.7.5. **Water**

Shwe Pyi Tar industrial zone (4) has no centralized water supply system and the factory gets water from the tube well (70 m depth) installed inside the factory compound. Groundwater from this tube well is pumped in the underground water storage tank (15,000 gallons) and tower tank (10,000 gallons) for the factory and domestic use. Estimated water usage for the factory and domestic use is 200 gallon daily. Drinking water will be provided by outsource suppliers. Figure 3-10 is described by water storage tanks for Min Dhama Steel Structures Company Limited.

Drinking Water Supply

Tower tank

Figure 3-10 Water facilities of Min Dhama Steel Structure Company Limited

3.7.6. Electricity and Fuel Requirement

The proposed project is waiting to get required electricity supply form Yangon City Electricity Supply Board (YESB). The Current source of energy is 1,000KVA transformer and three 500 kVA generator and one 100 kVA generator are used for production. Monthly electricity usage is about 35,640 unit. Monthly diesel usage is about 2,800 gallons. Required petrol and diesel for vehicles and generator are purchased from the nearest petrol station and stored in two Diesel storage tanks (50,000 gallons and 5,600 gallons). 5,600 gallons diesel tank is stored in (15ft x 30 ft) building.

1,000 kVA Transformer

Generators

Diesel tank

Diesel tank

Figure 3-11 Electricity System at Min Dhama Steel Structure Company Limited

3.8. FACILITIES

3.8.1. Fire Fighting Facility

The project proponent has provided 25 fire extinguishers and fire hydrants on the walls of the factory for fire emergency cases. The emergency contact numbers of township and district fire services department must be printed and tagged at easily visible places for fire emergency cases. The emergency

fire alarms are installed at the factory for alerting the workers in case of fire. The main entrances and route for emergency cases of the factory must not be blocked with materials or machines for fire emergency cases. The fire precaution plan of Min Dhama Steel Structures Company Limited is shown in **APPENDIX K**.

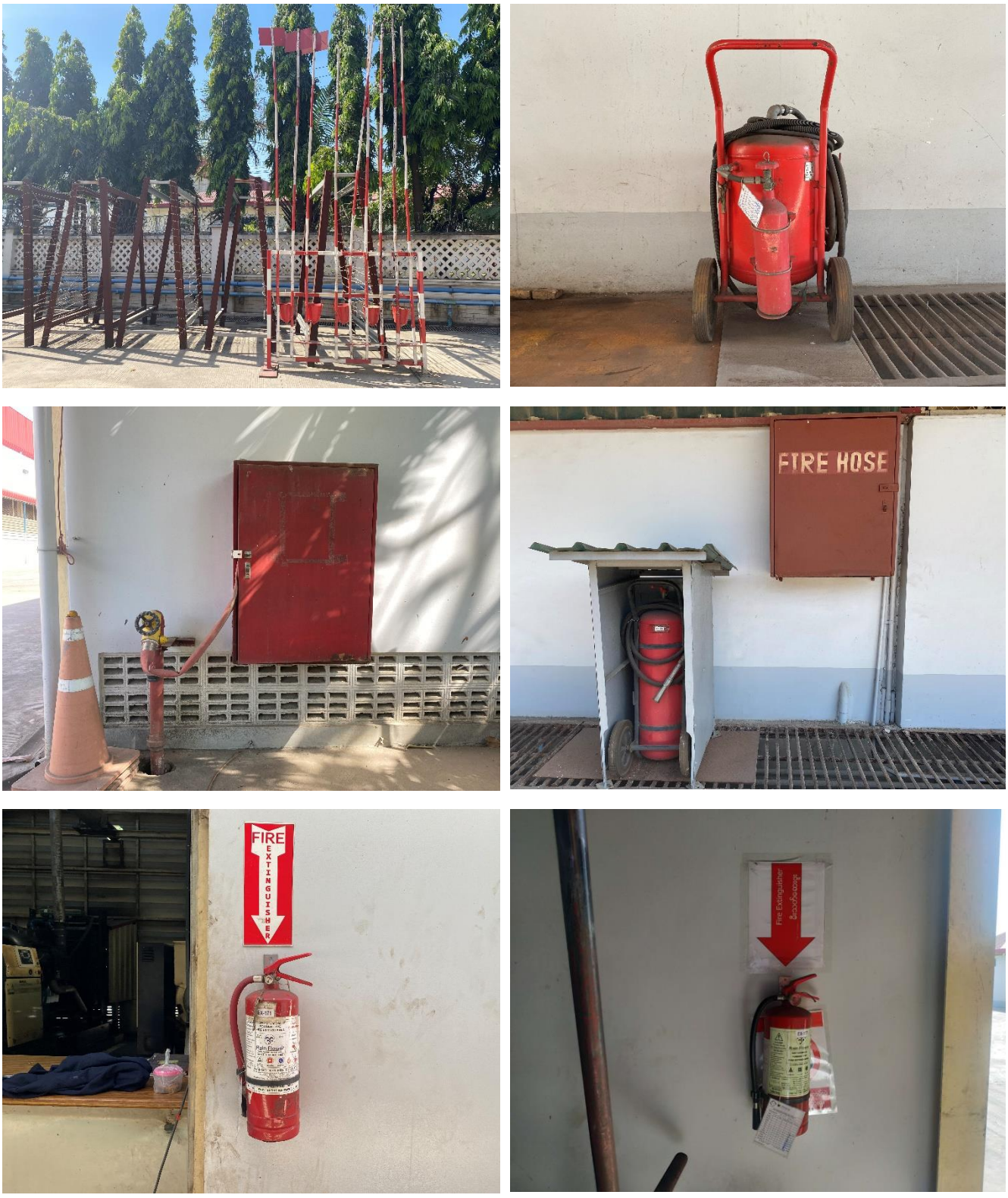


Figure 3-12 Firefighting facility in Factory

3.8.2. Dormitory, Canteen and Toilet facility

The factory has dormitory (15ft x 30 ft) for 36 employees and the factory also has office, rest camp, smoking area, bathroom, canteen and toilet facilities provided in factory compound. There are 6 rooms for male employee and 2 rooms for female employee in factory toilet.

Toilet

Bathroom

Rest Camp & Smoking Area

Canteen

Factory Office

Dormitory

Figure 3-13 Facilities provided for employees

3.8.3. Drainage System

Around the compound area of the project area, drainages are also provided and maintain to flow storm water (rain water, snow and surface water). The compound area of the factory is paved with concrete and the drainages are covered and holes are there to flow the storm water. The existing drainage at the project area can be seen in Figure 3-14**Error! Reference source not found.**. Besides, the factory plans to use separate wastewater channels, septic type toilet system. Liquid waste from canteens and toilet facilities are collected in septic tanks and the proponent will connect and cooperate with YCDC to be carried out for disposing of these septic tank wastes. To mitigate the impact on water, the drainages around the compound area of the factory are maintained and cleaned regularly. Spillage and leakages of oil and grease should also be minimized.

Figure 3-14 Drainage System in Factory Compound

3.8.4. Factory Waste Management Facility

The factory provides separate garbage bins at each building. Factory's main solid waste is steel scraps and paint containers collected in each operation process and will be disposed by using YCDC's service.

Factory Wastes

Factory Wastes

Waste Storage Bins

Waste Storage Bins

Figure 3-15 Factory waste management photos

3.9. GENERATION OF WASTE, EMISSION AND DISTURBANCES

3.9.1. Industrial wastes

Wastes generated from the factory are steel scraps in the operation section. Estimated amount of waste about maximum 2.19 ton per day are generated from operation process.

3.9.2. Human wastes

The number of staff and workers required in the day shift for the factory is maximum 69 persons during operation. Solid waste generated from maximum amount of operation and office staffs with assumption of waste generation rate at 26.91 kg/day was calculated based on solid waste generation rate of 0.39 kg/person/day[1].

Domestic wastewater generated by maximum amount of 69 persons with assumption rate 6.9 m^3/day was calculated based on domestic wastewater generated rate of 0.1 m^3/person/day[2]. This water will be released in operation hour discharge to septic tank or factory drainage.

Table 3-8 Waste Generation and Waste Amount

Waste		Type of Wastes	Estimated waste amount	Source of generation
Solid waste	Reusable	Steel scraps	2.19 ton/day	the whole operation
	Non re-usable	domestic waste	26.91kg/day	Canteen, rest room
Liquid waste		Sanitary discharge water	6.9 m^3/day	Toilet facility, canteen
Hazardous waste		Paint containers	10 kg/day	Steel painting operation
		Oil leakage and spills	-	Generator, movement of vehicles

Figure 3-16 Temporary Waste Disposal Area

[1] The Yangon City solid waste generation rate as of 2012 is 0.39 kg per person per day (Pollution Control and Cleansing Department, Yangon City Development Committee, 2014).
[2] The domestic wastewater generation was based on typical wastewater generation rate of 0.1 m3 per person per day (Metcalf & Eddy, 2004)

4. BRIEF DESCRIPTION OF SURROUNDING ENVIRONMENT

The purpose of this Chapter is to predict how environmental and socio-economic conditions will affect because of the implementation of the proposed Project. This requires a sound understanding of the baseline conditions at the project site, which established through desktop study research, site surveys, primary data collection and projections for future developments. Findings provide the current and future characteristics of the project site and the value and vulnerability of the key environmental and socio-economic resources and receptors. The following sections provide a description of the environmental and socio-economic aspects of the project.

4.1. METHODOLOGY FOR DATA COLLECTION AND ANALYSIS

The followings methodologies are used for Environmental Management Plan (EMP) for this report preparation;

- Onsite Measurements and Analysis – Baseline parameters such as Indoor temperature, humidity, operation light conditions, and noise and water quality of the project site during operation phase were measured onsite. The analyzed results are mentioned in this chapter.
- Secondary data collection of proposed project site area – Socio economic condition, physical/biological environment, and weather data are collected from official township data of Shwe Pyi Thar Township, Yangon Region.

4.2. BASELINE ENVIRONMENTAL MONITORING

The baseline environmental quality at the Project Site and its immediate surroundings was established by air quality samples, noise measurement and temperature and humidity measurement. The data is presented below.

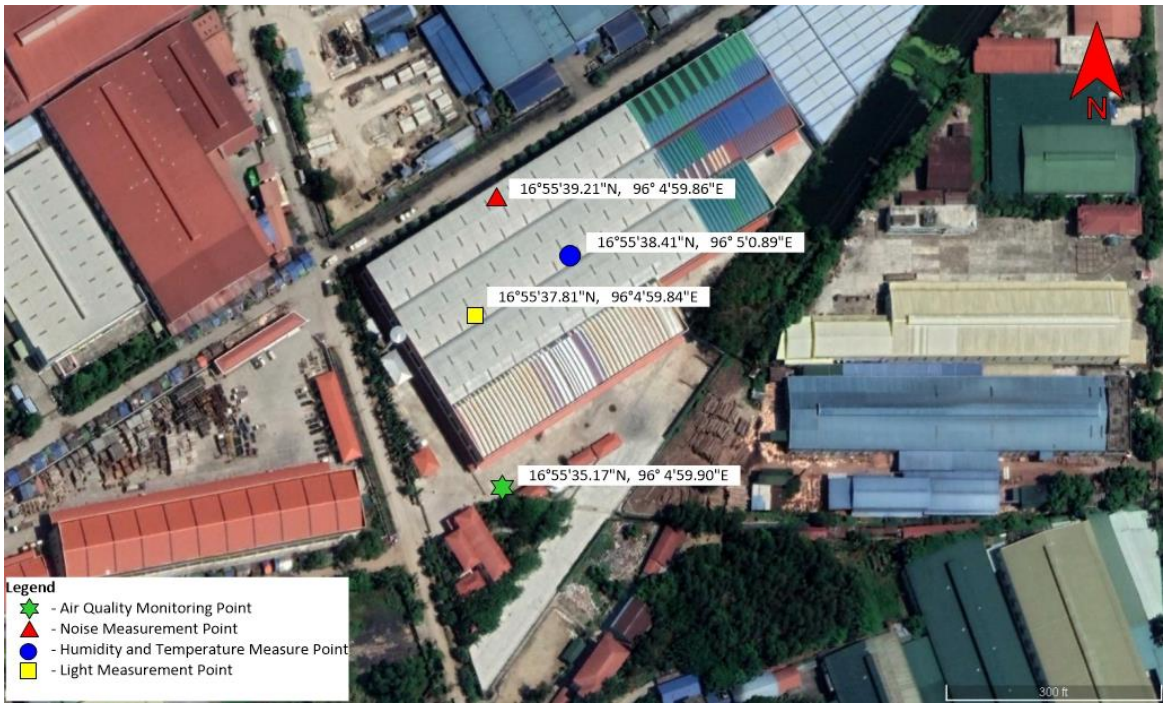


Figure 4-1 Baseline Environmental Quality Monitoring Point

4.2.1. Temperature and Humidity

The weather condition during 5th January 2023 shows the average temperature of 35.5 °C while the average humidity is 51.69% and its cloudy day. The wind speed is 7.91 km/h SW direction and average air pressure is 893.22 hPa.

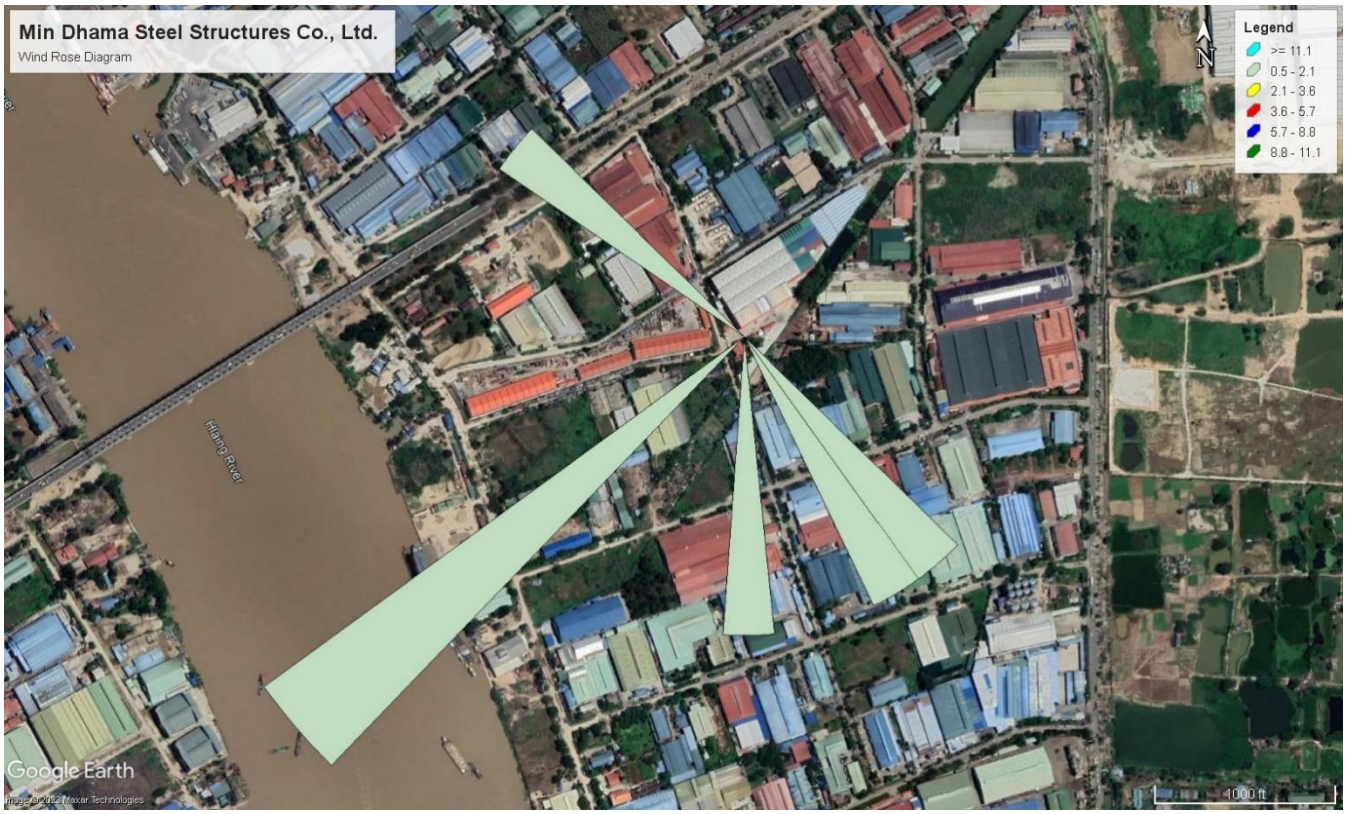


Figure 4-2 Wind Rose Diagram of Min Dhama Steel Structures Company Limited

Table 4-1 Relative Humidity and Temperature Measure at Proposed Factory

Date and Time	Description	Result value	Environmental parameter air station guideline
5th January 2023 (10:00 am to 4:00 pm)	Relative Humidity RH %	51.69 (%)	Present condition
	Temperature	35.5 °C	Present condition

Figure 4-6 Temperature and Humidity Measurement in Operation Area

4.2.2. Air Quality

To determine the existing baseline ambient air quality status within the project site on 5th January 2023, 8-hours of working period air pollutants level, which include dust (PM_{10} and $PM_{2.5}$). To reveal the existing status of baseline air quality, the average ambient air qualities measured were compared with National Environmental Quality (Emission) Guideline and international ambient air quality standard (NAAQS, ACGIH) guidelines. The measurement location point is situated at 16°55'35.17"N and 96° 4'59.90"E.

It was observed that the air quality of SO_2 concentration level is within the limit of NEQ (emission) guideline but particulate matter (PM_{10}, $PM_{2.5}$) and gases level of Nitrogen Dioxide (NO_2) are higher the National Environmental Quality (Emission) Guideline. At that time, we surveying in factory, raw material carrying vehicles are transported and products are delivered. So, dust is observed in the factory compound.

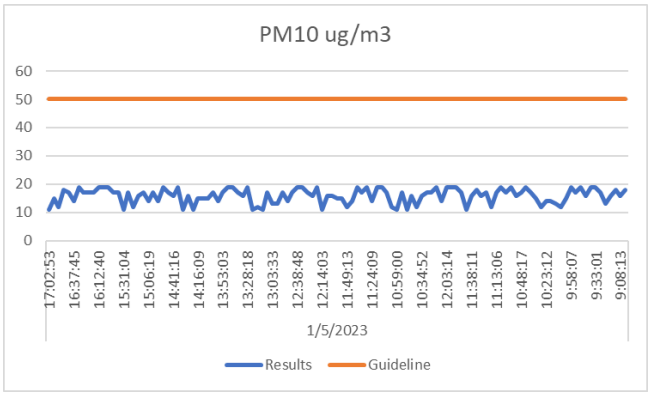
Table 4-2 Observed air quality results

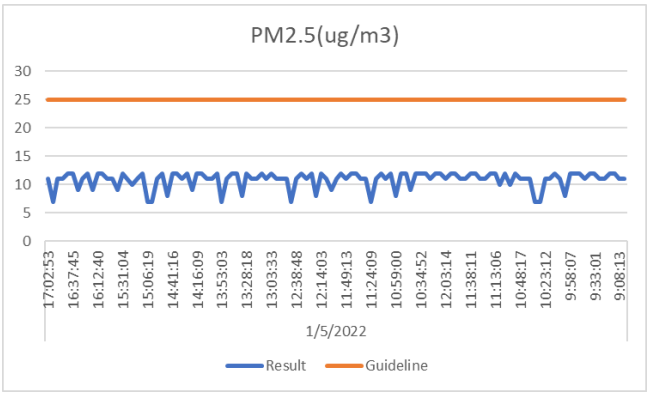
Parameters	Observed value	Guideline value	Unit	Organization	`Period
PM_{10}	19	50	$\mu g/m^3$	NEQG	8 hours
$PM_{2.5}$	12	25	$\mu g/m^3$	NEQG	8 hours
SO_2	5	20	$\mu g/m^3$	NEQG	8 hours
NO_2	23	200	$\mu g/m^3$	NEQG	8 hours
O_3	16	100	$\mu g/m^3$	NEQG	8 hours
CO	0.5	NG	$\mu g/m^3$	-	-
VOC	0.02	NG	ppm	-	8 hours

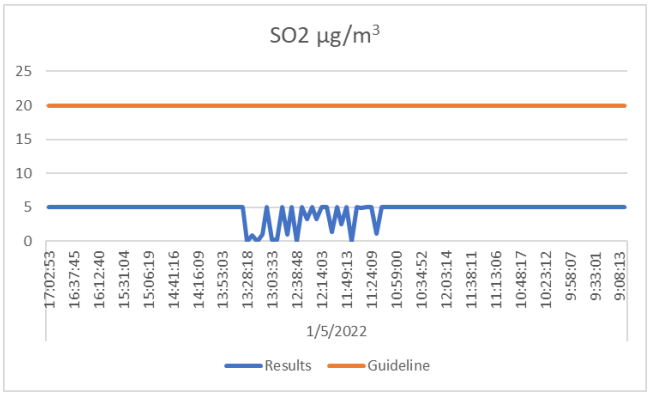
NEQ = National Environmental Quality (Emission) Guideline

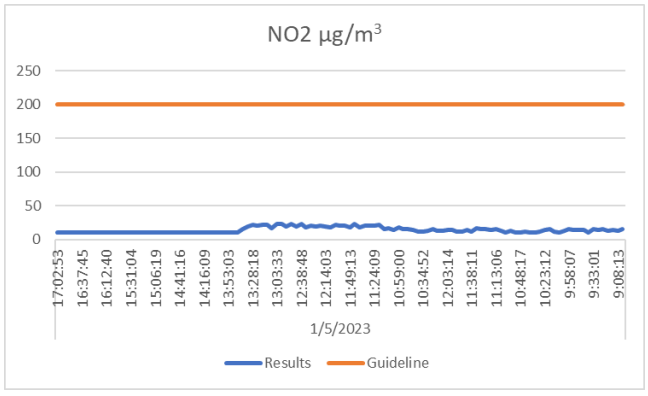
NAAQS = National Ambient Air Quality Standards were developed by the U.S. EPA

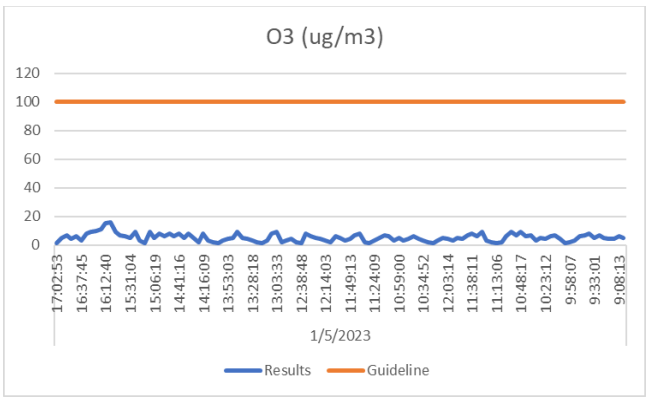
ACGIH = the American Council of Governmental Industrial Hygienists recommends

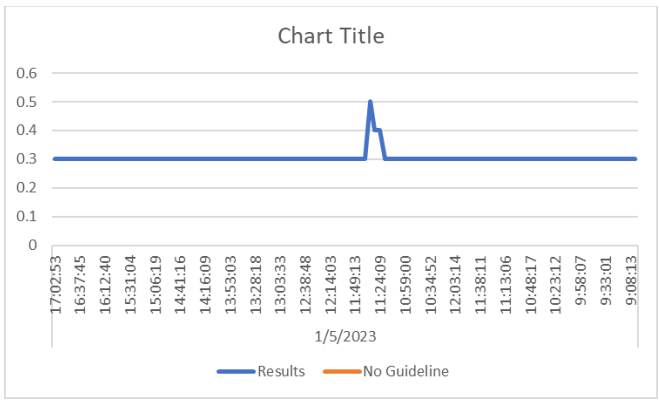












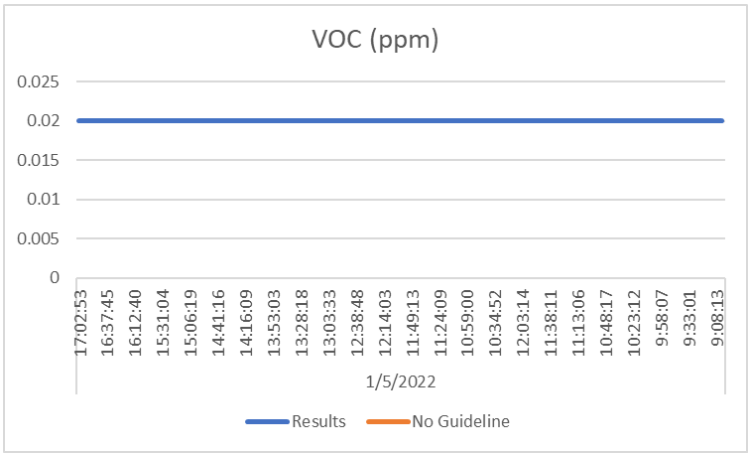


Figure 4-3 Air Quality Measurement at the Project Site

4.2.3. Light

Activities of the workers in the steel structures manufacturing factory are highly dependent on the quality of light. Therefore, the consultant conducted the light measurement in the proposed factory is presented. The illustrates the recommended illumination and limiting glare index applicable to typical works (fairly severe to very severe tasks) in factory is provided in Table 4-3.

Appropriate lighting is the need for every department, irrespective to the task being handled. Although, there are some areas where focus on maintaining proper illumination is very crucial in a factory, like the inspection points (on-floor and in stores), sampling, and the finishing section, as these areas are crucial for the quality of the production. The tasks involved in these areas require high levels of worker focus and accurate lighting to ensure lower errors and defects passing on to the next stage.

However, according to the result of light measurement at operation area (inside the production sector) is in good condition and at the acceptable level of standard.

Table 4-3 Recommended illumination and limiting glare index based on IES Code, 1968

Visual test	Illumination (lux)	Glare index
Casual seeing	100	28
Rough task with large detail	200	25-28
Ordinary task medium detail	400	25
Fairly severe task, small detail (e.g. drawing office, sewing)	600	19-22
Severe, prolonged task, very small detail (e.g. fine assembly, hand tailoring)	900	16-22
Very severe, prolonged task, very small detail (e.g. gem cutting, hosiery mending, gauging very small parts)	1,300 -2,000	13-16

Source: Koenigsberger, et al. 1975

Table 4-4 Result of Light Measurement in Min Dhama Steel Structure Company Limited

No.	Location	GPS Location Point	Measure value (Lux)	Standard*
1	Cutting Area	16°55'37.81"N 96°4'59.84"E	541	400
2	Welding Area		673	400
3	Drilling Area		821	600
4	Punching Area		757	600

* Lighting standards and codes usually provide recommended illuminance ratios between the task area and its surroundings (EN 12464-1 2002) (CIBSE 1997) (IESNA 2000, 676708).

4.2.4. Noise

The Noise level was measured by using Digital Sound Level Meter for working hours on 5th January 2023. The average noise level in the project site area is presented in Table 4-5 compared with NEQ guideline. However, according to the Noise source monitoring at operation area (inside the production sector) of noise level is exceeding the acceptable level of National Environmental Quality (Emission) Guideline because the proposed project is steel structure manufacturing factory and the project's operation are noise output processes. The factory provides personal protective equipment (PPE) for employees worked in operation area.

Table 4-5 Noise Level Measurement Result

Date and Time	Location	GPS value	Result value	Guideline
5th January 2023 (10:00 am to 4:00 pm)	Operation area	16°55'39.21"N 96°4'59.86"E	75.5 dBA	70 dBA

Figure 4-4 Sound Level Measurement Photo

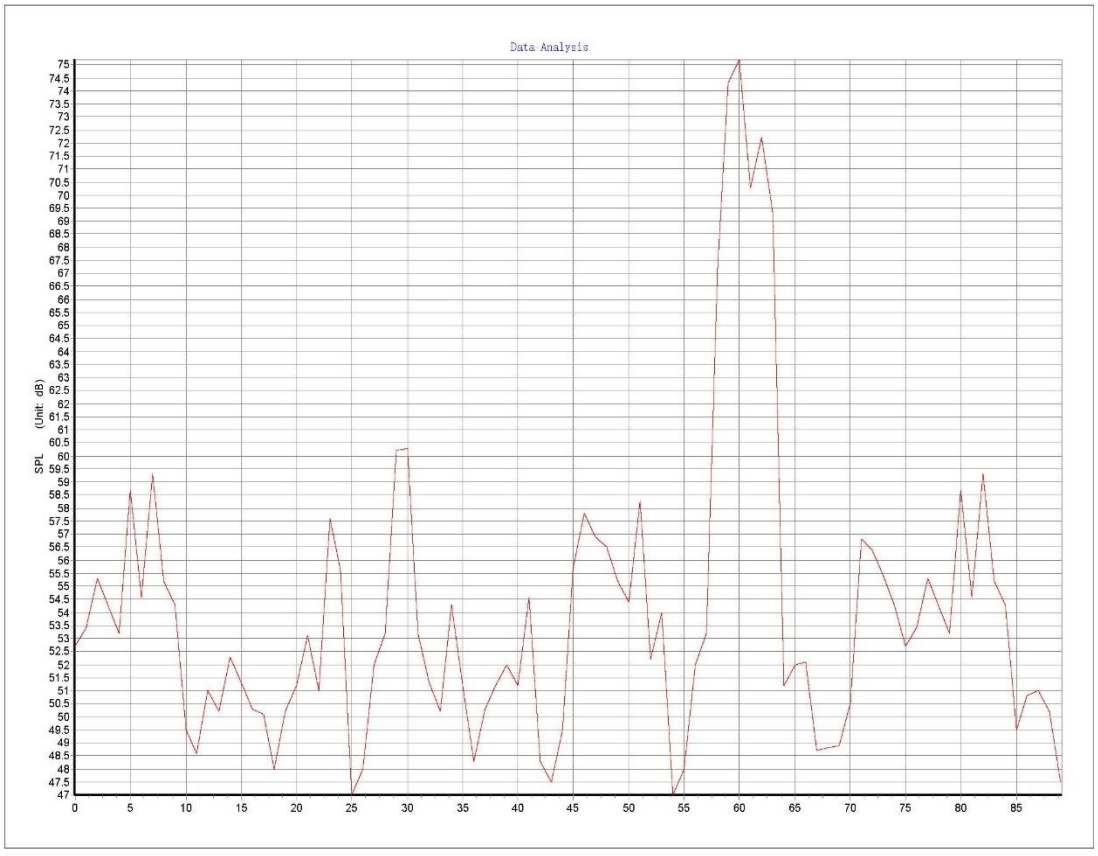


Figure 4-5 Noise Measurement Graph

4.3. ENVIRONMENTAL BASELINE STUDY

The field observation for determining the environmental baseline of the proposed project area was undertaken during construction period. The survey team consists of the senior consultant and environmental quality team. The baseline data collected regarding the environmental condition of the project area was conducted in the following section.

4.1. PHYSICAL COMPONENT

4.1.1. Topography

The proposed project area is situated Shwe Pyi Tar Industrial Zone (4), Shwe Pyi Thar Township, and its topographic condition is flat. The proposed project site is primarily agricultural land, but now is initiated into the industrial zone area.

4.1.2. Geology

Alluvial deposits (Pliestocene to Recent), the non-marine fluvialtile sediments of Irrawady formation (Pliocene), and hard, massive sandstone of Pegu series (early-late Miocene) underlie the Yangon area. Alluvial deposits are composed of gravel, clay, silts, sands and laterite which lie upon the eroded surface of the Irrawaddy formation at 3-4.6 m above mean sea level (MSL). The rock type in Yangon is mainly soft rocks, which consist of sandstone, shale, limestones and conglomerate. Geological map of Yangon Regional area is shown in Figure 4-6.

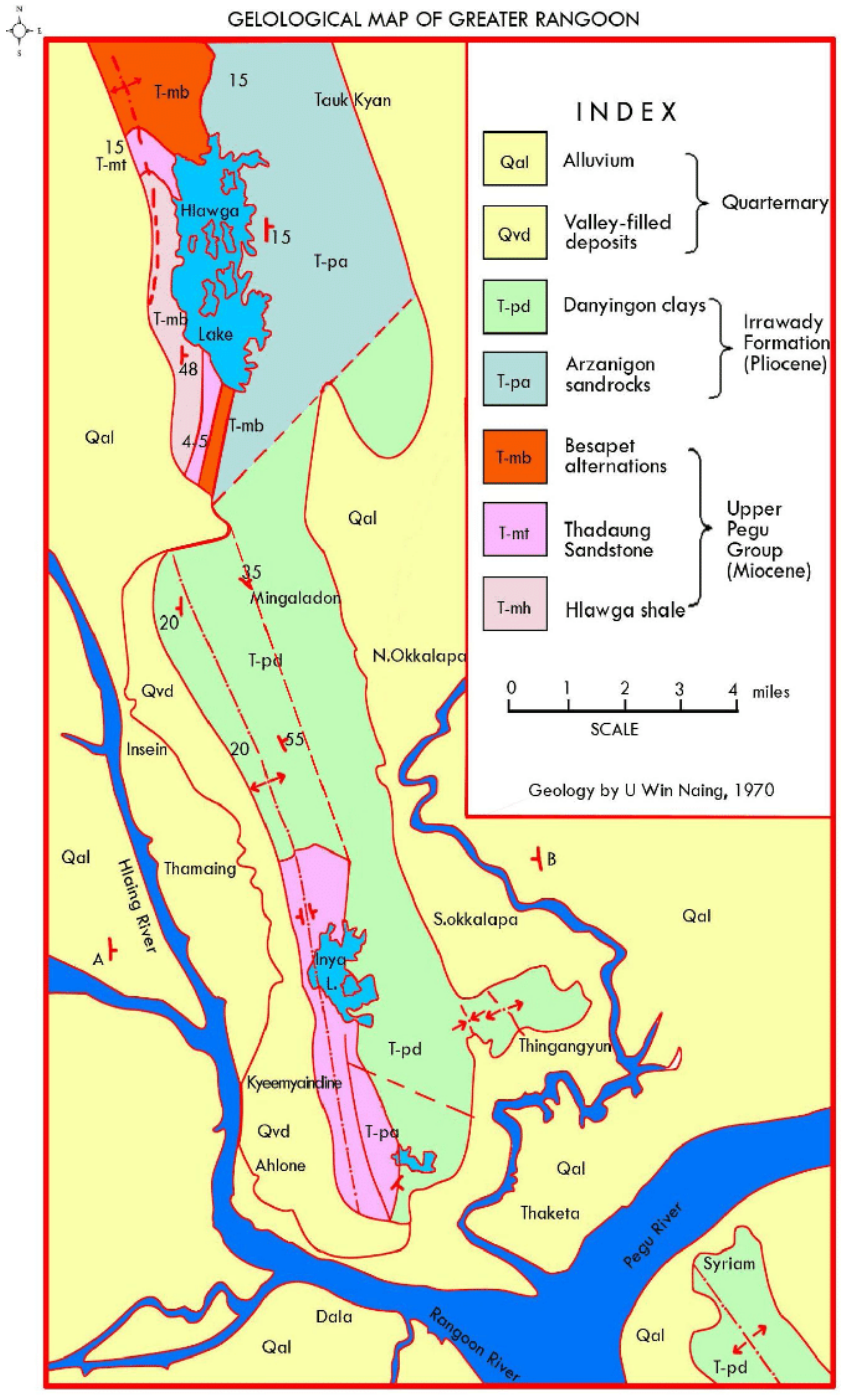


Figure 4-6 Geological Map of Yangon Region

4.1.3. Tectonics

Yangon is situated in the southern part of the Central Lowland which is one of the three major tectonic provinces of Myanmar. The Taungnio Range of the Gyophyu catchments area of Taikkyi District, north of Yangon, through the Thanlyin Ridge, south of Yangon forming a series of isolated hills probably resulted from the progressive deformation of the Upper Miocene rocks as the eastern continuation of the subduction or stretching and compression along the southern part of the Central Basin and regional uplifting of the Pegu Yoma (Aung Lwin 2012).

4.1.4. Soil

The underlying soil type at the Project Site and its surroundings is characterized as the Meadow and Meadow Alluvial Soil. Meadow Soil is soil, which occurs near the river plains exposed to occasional tidal floods, is non-carbonate and usually contains a large amount of salt. Both materials mainly comprise salty clay loam and neutral soil rich in plant nutrient. The upper layers (approximately 0 to 7 m) of the soil at the Project Site comprise largely of cohesive layers with traces of sand and gravel, followed by sand layers with low silt content and trace gravel from 7 to 35 m. The lower layers comprise denser silt layer with traces of sand and gravel from approximately 57 to 70 m. Standard Penetration Test (SPT) results obtained from testing at the Project Site indicate that the soil strength generally increases with depth. The STP results showed that the current soil quality could accommodate the construction of the Project.

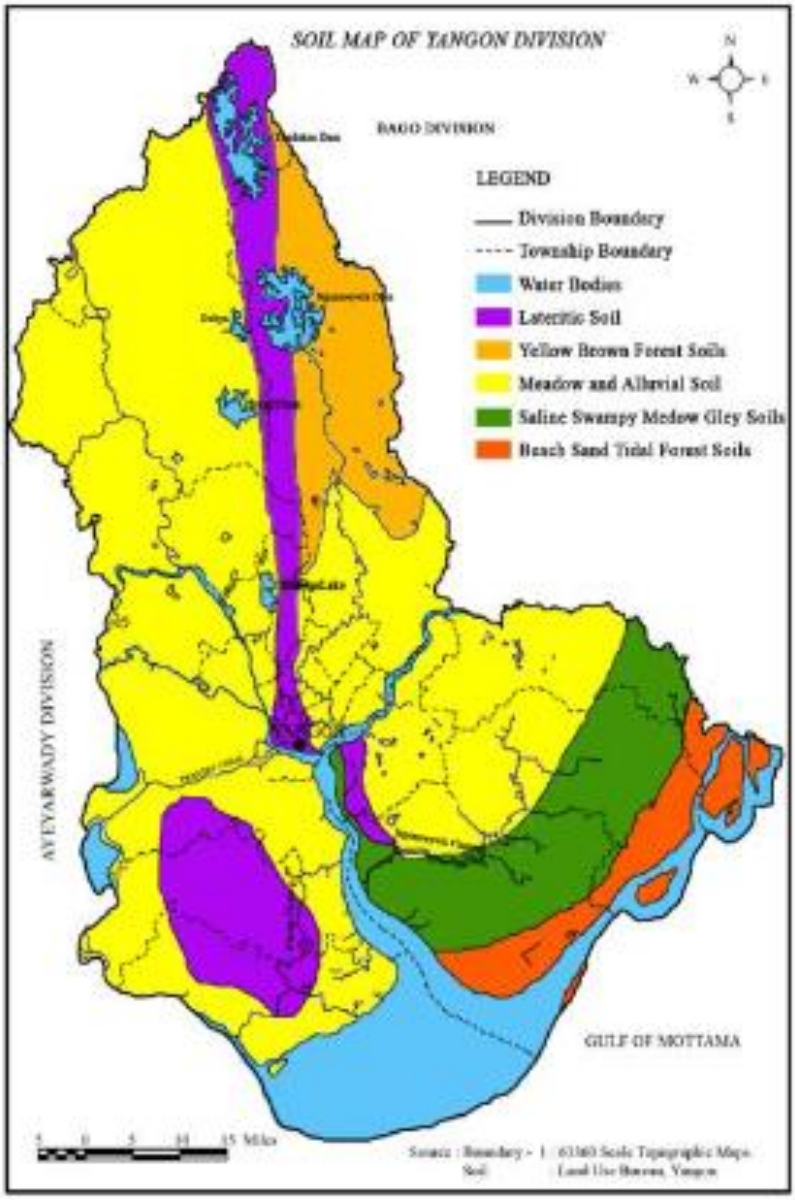


Figure 4-7 Soil map of Yangon (Source: Land use of Bureau of Yangon)

4.1.5. Hydrogeology

Yangon is rich in groundwater resources conserved by unconsolidated Tertiary-Quaternary deposits. In Yangon, groundwater is mostly extracted from Valley filled deposits and Ayeyarwady sandstones.

Groundwater: Groundwater availability is generally based on the distribution of permeable and relatively impermeable rocks. The nature of openings in the rocks determines permeability of rocks. Based on local geological considerations, potential groundwater source of Yangon can be roughly divided into two sub regions, namely the low potential area and high potential area. Low potential areas are areas with those rock units of Hlawga Shale, Thadugan Sandstones and Basepet Alternation of upper Pegu Group (Miocene epoch) and Danyingon Clays of Irrawaddy rocks. These rocks and formations are a dense, massive and consolidated nature and have impervious characteristic. High potential areas are underlain by Pliocene Series and recent Formations. High potential area covers approximately 85 percent of the Yangon city including Pabedan. Stand pipe piezometers were installed at a depth of up to 30 m from the existing ground level while a pumping well was installed upon completion of the soil investigation works. Based on the results recorded up to the 8th of December 2012, stabilized groundwater level was observed to range between 0.49 m MSL to -1.81 m MSL4.

Water Supply: The Yangon City Development Committee (YCDC) has an overall responsibility for the management and distribution of water for Yangon City. Presently, YCDC's water supply is obtained from two main sources: (1) reservoir (Hlawga, Gyobu, Pugyi and Ngameoyeik reservoirs) and, (2) groundwater from YCDC's tube wells. Water from these sources is utilized to varying degrees. Areas not supplied with water from the YCDC rely on shallow surface wells and private boreholes. Water supply for the Project Site will be obtained from onsite borewells for both construction and operations due to the poor reliability of municipal supply. Permitting is part of the Planning Consent Application currently underway. The boreholes will be provided and operated by the Developer.

Hydrology: The Project Site lies along the catchment of the Pazundaung River which flows east of the site in a southerly direction to converge into the Yangon River. The Yangon River (also known as the Rangoon River or Hlaing River) is formed by the confluence of the Pegu and Myitmaka rivers and flows into the Gulf of Martaban which is part of the larger Andaman Sea. The river flows along a 40 km stretch flowing from southern Myanmar as an outlet of the Ayeyarwady River into the Ayeyarwady delta. A small portion of the Bago River (the estuary) lies within the Yangon Division. The Pazundaung Creek and Bago River joins the Yangon River and from there, flow towards the southwestern direction into Andaman Sea.

4.1.6. Climate and Meteorology

4.1.6.1. Average Weather in Yangon

In Yangon, the wet season is oppressive and overcast, the dry season is muggy and partly cloudy, and it is hot year-round. Over the course of the year, the temperature typically varies from 67 °F to 97 °F and is rarely below 62 °F or above 101 °F. [6]

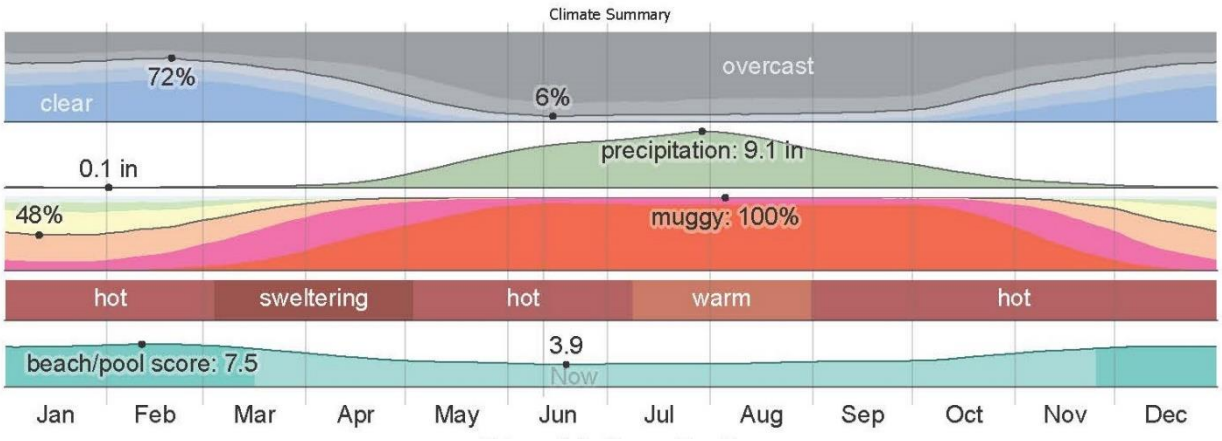


Figure 4-8 Climate summary of Yangon Region

4.1.6.2. Temperature

The hot season lasts for 2.0 months, from March 2 to May 3, with an average daily high temperature above 95 °F. The hottest day of the year is April 11, with an average high of 97 °F and low of 78 °F.

The cool season lasts for 3.9 months, from June 2 to September 29, with an average daily high temperature below 87 °F. The coldest day of the year is January 10, with an average low of 67 °F and high of 88 °F. [6]

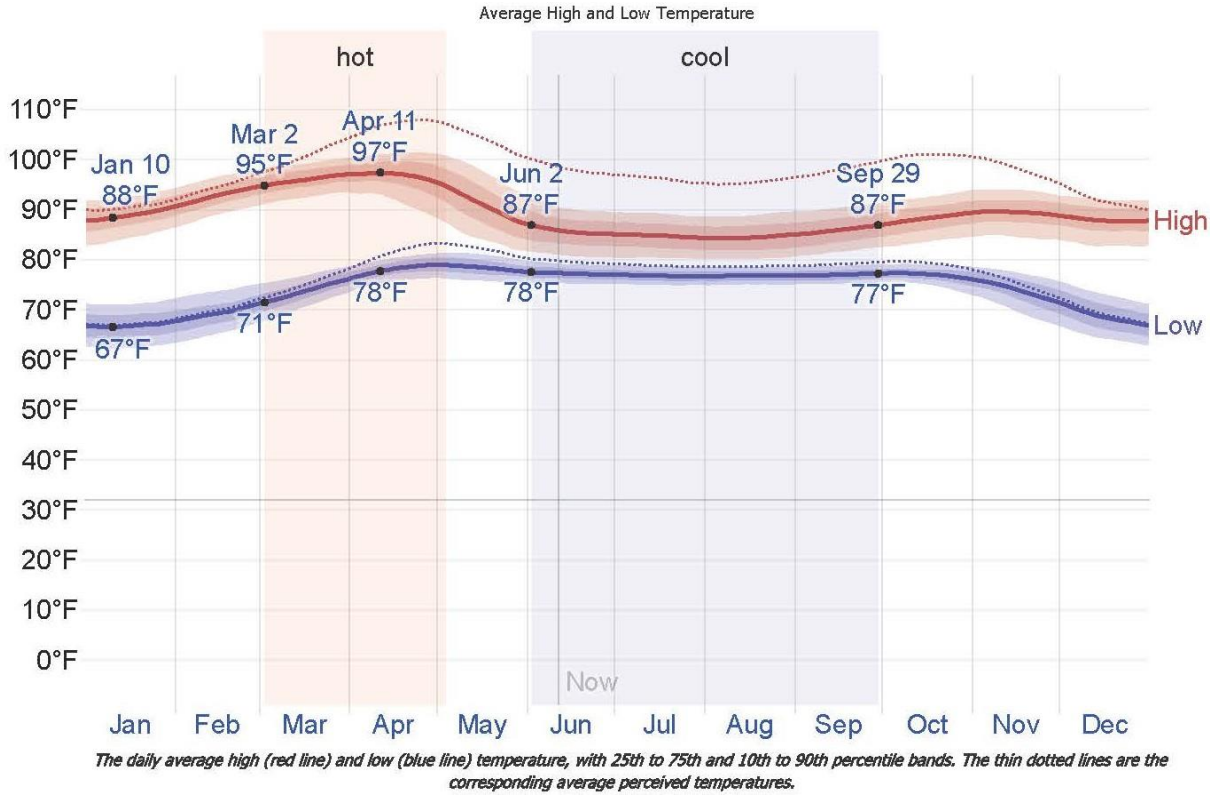


Figure 4-9 Average Temperature of Yangon

4.1.6.3. Clouds

In Yangon, the average percentage of the sky covered by clouds experiences extreme seasonal variation over the course of the year. In clearer part of the year in Yangon begins around November 2 and lasts for 5.6 months, ending around April 22. On February 20, the clearest day of the year, the sky is clear, mostly clear, or partly cloudy 72% of the time, and overcast or mostly cloudy 28% of the time. [6]

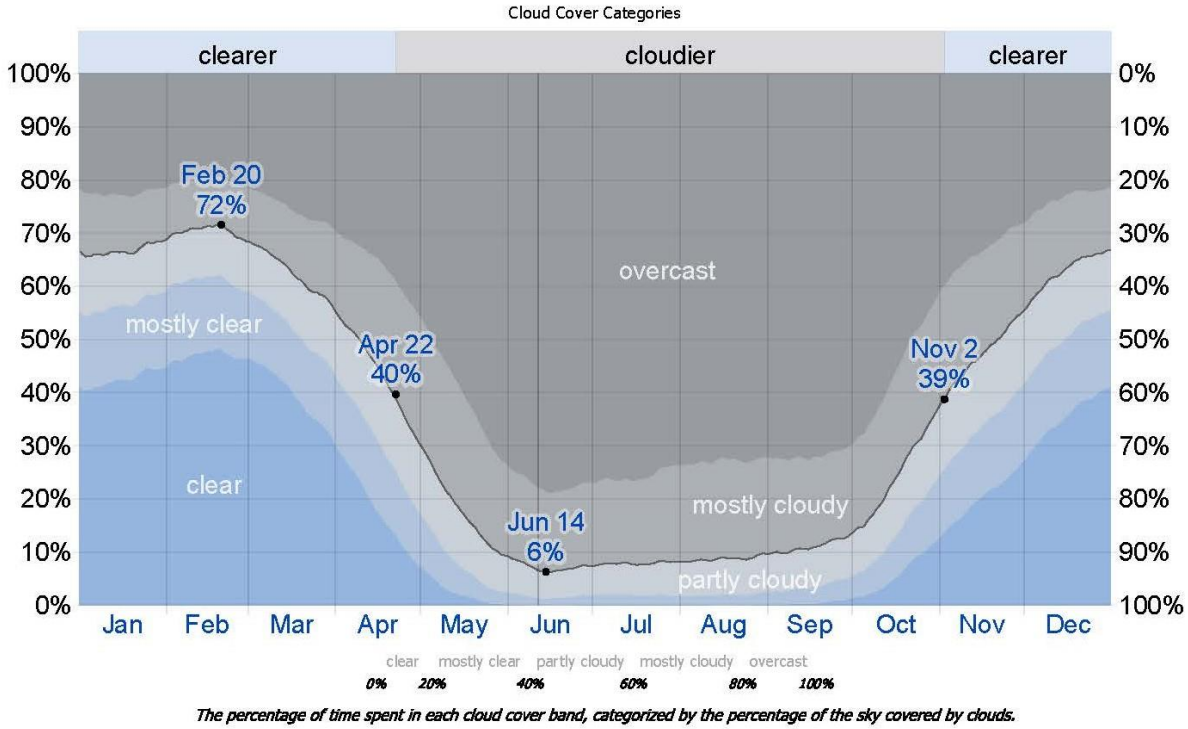


Figure 4-10 Cloud Cover Categories

4.1.6.4. Rainfalls

To show variation within the months and not just the monthly totals, we show the rainfall accumulated over a sliding 31-day period centered on each day of the year. Yangon experiences extreme seasonal variation in monthly rainfall. The rainy period of the year lasts for 7.7 months, from April 5 to November 28, with a sliding 31-days rainfall of at least 0.5 inches. The most rain falls during the 31 days centered around July 30, with an average total accumulation of 9.1 inches. The rainless period of the year lasts for 4.3 months, from November 28 to April 5. The least rain falls around February 1, with an average total accumulation of 0.1 inches. [6]

Table 4-6 Annual Rainfall and Temperature

Year	Rainfall		Temperature	
	Raining day	Rainfall value	Summer season Max (°C)	Winter season Min (°C)
2013	107	87.78	34	30
2014	103	70.88	34	30
2015	107	84.91	34	30
2016	106	87.78	37	30
2017	107	85.89	38	30

Source: Department of Administrative Shwe Pyi Thar Township, Regional data (www.gad.gov.mm.com)

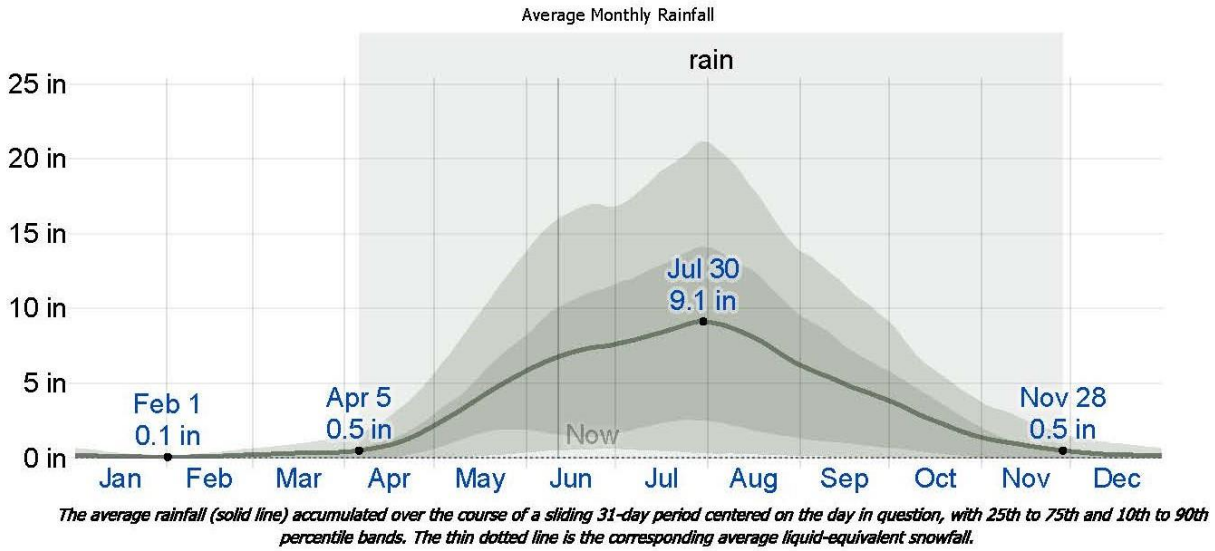


Figure 4-11 Average Monthly Rainfall at Yangon Region

4.1.6.5. Humidity

We base the humidity comfort level on the dew point, as it determines whether perspiration will evaporate from the skin, thereby cooling the body. Lower dew points feel drier and higher dew points feel more humid. Unlike temperature, which typically varies significantly between night and day, dew point tends to change more slowly, so while the temperature may drop at night, a muggy day is typically followed by a muggy night.

Yangon experiences extreme seasonal variation in the perceived humidity. The muggier period of the year lasts for 10 months, from February 22 to December 23, during which time the comfort level is muggy, oppressive, or miserable at least 61% of the time. The muggiest day of the year is August 5, with muggy conditions 100% of the time. The least muggy day of the year is January 11, with muggy conditions 48% of the time. In February 27, 2020, the weather condition of prosed project is 35.3 °C average temperature and 38.9 % average humidity. [6]

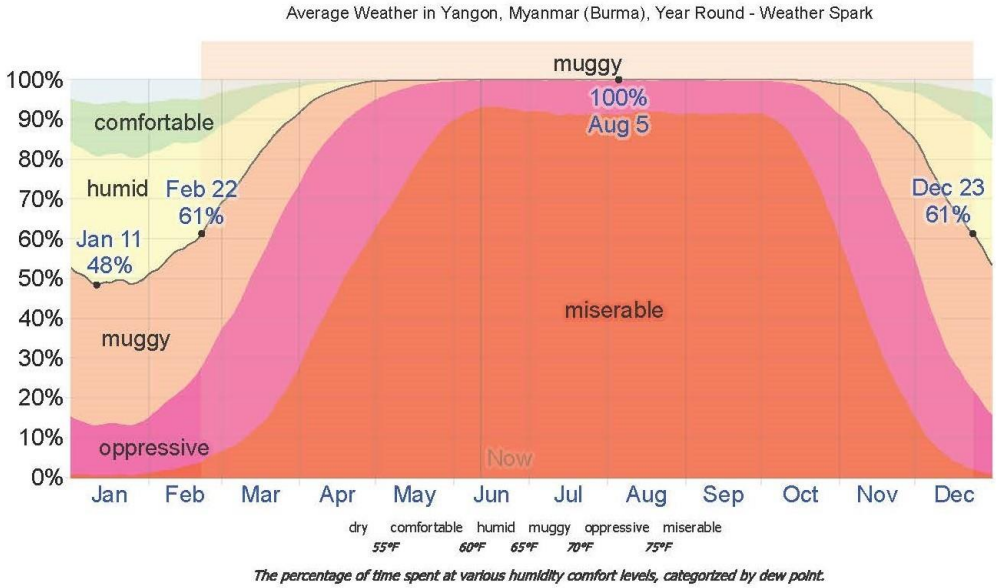


Figure 4-12 Humidity of Yangon

4.1.6.6. Wind

This section discusses the wide-area hourly average wind vector (speed and direction) at 10 meters above the ground. The wind experienced at any given location is highly depended on local topography and other factors, and instantaneous wind speed and direction vary more widely than hourly averages. The average hourly wind speed in Yangon experiences significant seasonal variation over the course of the year. The winder part of the year lasts for 4.1 months, from May 1 to September 4, with average wind speeds of more than 8.2 miles per hour. The windiest day of the year is June 24, with an average hourly wind speed of 10.6 miles per hour. The calmer time of year lasts for 7.9 months, from September 4 to May 1. The calmest day of the year is January 9, with an average hourly wind speed of 5.8 miles per hour. [6]

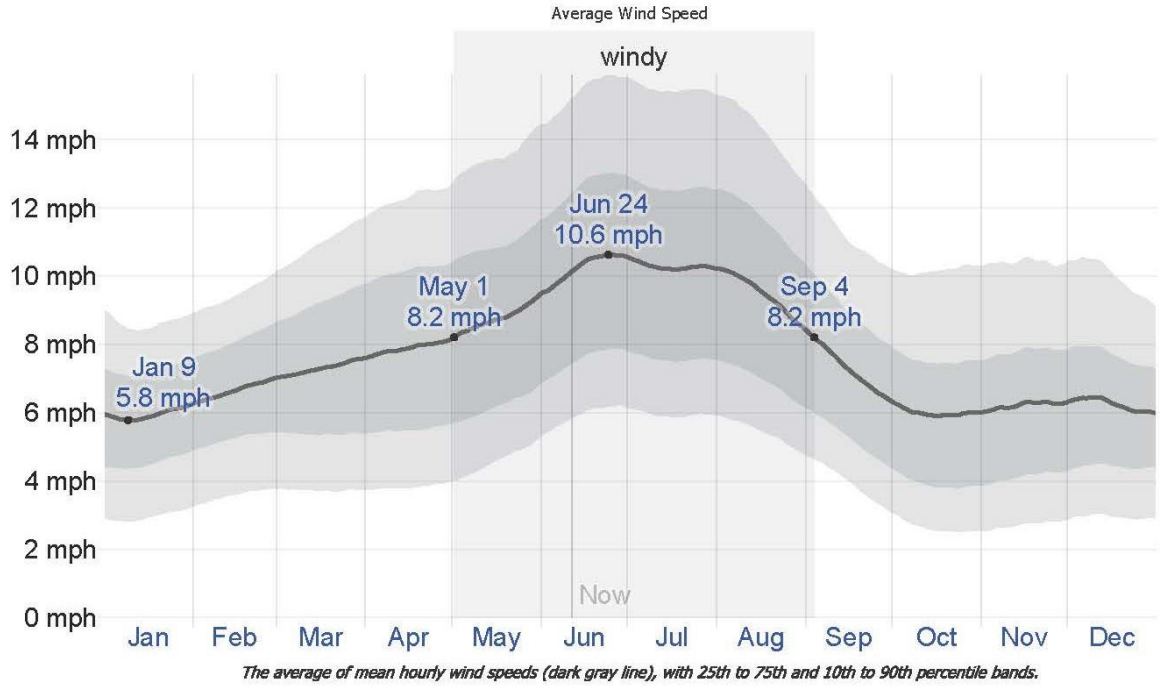


Figure 4-13 Average Wind Speed in Yangon

4.1.7. Natural Hazards

Myanmar is exposed to multiple natural hazards including cyclones, earthquakes, floods and fire. It has been periodically exposed by natural disasters. The Yangon District is in the vicinity of the southern section of the Sagaing Fault which has not been active in the past 50 to 75 years indicating that the faults may be under accumulating stress increasing the potential for an earthquake to occur. The Sagaing Fault is the most prominent active fault in Myanmar trending roughly north to south. It has been the originator of a large proportion of destructive earthquakes in Myanmar. The Project Site is also located in an earthquake zone and therefore the building construction design needs to cater for this hazard with adequate planning on emergency response procedures. Myanmar is exposed to cyclones and associated storm surges from the Bay of Bengal. Annually, there are approximately 10 tropical storms in the Bay of Bengal from April to December. Severe cyclones occur during the pre-monsoon period of April to May and post-monsoon period of October to December. The threat of flooding usually occurs in three waves each year: June, August and late September to October.

Notes

Physical components of Topography, Googology, Tectonics, Soil and Hydrology are referenced from Yangon University and bought from meteorology, Yangon.

4.2. BIOLOGICAL COMPONENT

The proposed project site is not located in or near a sensitive ecosystem as the proposed project area is situated in the Shwe Pyi Thar industrial zone (4). The Project Site is a built-environment and the species of flora surveyed at the site are native species uncommon to the Yangon area. There were no protected species or species of conservation value identified.

4.3. SOCIO-ECONOMIC COMPONENT

4.3.1. Population

Min Dhama Steel Structures Company Limited is located across Shwe Pyi Thar Township in Yangon Region. In 2017, the population of Shwe Pyi Thar Township is about 272,721people as present in Table 4-7.

Table 4-7 Population of Males and Females at Shwe Pyi Thar Township (2019)

Item	Older 18 year			Younger 18 year			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Urban	78,154	89,908	168,062	31,725	33,061	64,786	109,879	122,969	232,848
Rural	14,081	15,965	30,046	5,375	5,452	10,827	19,456	21,417	40,873
Total	92,235	105,873	198,108	37,100	38,513	75,613	129,335	144,386	272,721

Source: Department of Administrative Shwe Pyi Thar Township, Regional data (www.gad.gov.mm.com)

4.3.2. Religion

The different kinds of religion present in Shwe Pyi Thar Township are shown in Table 4-8. More than 90% of the people living in the township are Buddhists. Table 4-8

Table 4-8 Religion in Shwe Pyi Thar Township (2019)

Township	Buddhist	Christian	Hindu	Muslim	other	Total
Shwe Pyi Thar	258,467	7,072	2,716	5,266	200	272,721

Source: Department of Administrative Shwe Pyi Thar Township, Regional data (www.gad.gov.mm.com)

4.3.3. Local Economy

Among regional towns, Shwe Pyi Thar Township has a variety of businesses and services operating in the community with other businesses/services, based in the region. Most of the source of livelihood in the Township is employment of factory. Services and facilities available include:

- post office
- beauticians
- butcher
- hairdressers
- furniture and electrical store
- restaurants

- cafes
- shoe and clothing shops
- industrial services
- pharmacy
- veterinarian
- bus service
- gift stores
- music store
- pubs and bars
- florist

4.3.4. Public Infrastructure and Access

4.3.4.1. Communication and Transportation

Major transportation route in Shwe Pyi Thar Township are railway, port, and car road as presented in Table 4-10.

Table 4-10 Transportation route

Categories	Township		Miles
	From	to	
Railway (Yangon-Pyay railway)	Hlwaga	1 ward	4/2
Inland water way	18 ward	Hlwaga	4.2
Bus line (39, 40, 42, 44, 65, 69, 72, 73, 74, 77)	Hlwaga	Downtown area	
Car (No 4. Main road)	1 ward	Hlwaga	

Source: Department of Administrative Shwe Pyi Thar Township, Regional data (www.gad.gov.mm.com)

4.3.4.2. Electricity

The electricity demand of Shwe Pyi Thar Township is higher and higher due to the normally increased in population and infrastructure.

4.3.4.3. Education

Location of major schools were situated i.e. basic education primary school (B.E.P.S.), basic education middle school (B.E.M.S), basic education high school (B.E.H.S) and university, in the Shwe Pyi Thar Township. The name and the located village tract/ ward of schools are described in Table 4-11.

Table 4-11 List of major school in Shwe Pyi Thar Township

No.	Name of School	Location
1	Computer University Yangon	Kyaung Kone Village Tract
2	BEHS (1)	No 6. Ward
3	BEHS (2)	Hlawga Village Tract
4	BEHS (3)	No 8. Ward
5	BEHS (4)	ZeeKone Village Tract
6	BEMS (Branch) (2)	No 19. Ward

No.	Name of School	Location
7	BEMS (Branch) (3)	No 5. Ward
8	BEMS (Branch) (4)	No 9. Ward
9	BEMS (Branch) (8)	No 23. Ward
10	BEPS (1)	Hlawga Village
11	BEPS (5)	No 15. Ward
12	BEPS (6)	No 17. Ward
13	BEPS (7)	No 9. Ward
14	BEPS (9)	No 11. Ward
15	BEPS (10)	No 14. Ward

Source: Department of Administrative Shwe Pyi Thar Township, Regional data (www.gad.gov.mm.com)

4.3.4.4. Health Status

The diseases of high prevalence reported in 2013 are Tuberculosis (TB), followed by Acute Respiratory Infection (ARI), Diarrhea, TB and snakebites. With reference to the Township Health Profile 2014 of Shwe Pyi Thar Township, no accidental work injuries reported to the township hospital in 2013. The common diseases are shown in Table 4-9 and Table 4-10.

Table 4-9 Common Diseases in the Shwe Pi Thar Township

Disease	Shwe Pyi Thar Township	
	Morbidity	Mortality
Malaria (Per 100000P)	3.2	-
ARI (Per 100000<5Children)	681	-
Diarrhea (Per 100000P)	126	-
TB (Sputum+) (Per 10000P)	152	-

Table 4-10 Lists of hospital in the Shwe Pyi Thar Township

Hospital Name	Beds/Services	Responsible
Township Hospital	25	Government

Source: Department of Administrative Shwe Pyi Thar Townships, Regional data (www.gad.gov.mm.com)

4.4. CULTURAL AND VISUAL COMPONENTS

Shwe Pyi Thar Township is growing into a busy and vibrant community. The population fluctuates; however, there has been steady growth over the last decade. It tends to be a stopover on a journey rather than a destination. It has a number of sites that are interesting; however, there is no main attraction. Visitors to the town are generally visiting for work, investment or family reasons.

5. RISK ASSESSMENT AND MITIGATION MEASURE PLAN

5.1. IMPACT IDENTIFICATION

The development of infrastructure for the proposed project likely to happen changes in the local environment in terms of physical, biological and socio-economic aspects along with the perspective on both positive and negative impacts. The potential environmental impacts brought by various activities of proposed factory project will be identified and judged by site surveying with checklist, meeting with client team, including plant manager and supervisor, representatives from the factory operators and assessing the environmental baseline information for operation and decommissioning phases along with its mitigation measure.

5.1.1. Positive Impact

During the project implementation, local people can get job opportunities in administrative sectors, office works, transportation sectors, skill and unskilled workers, etc. Due to the implementation of the project, there will be employment opportunities especially for workers from the local community. Employees will also improve more in their professional knowledge and skills. The net effect of job creation is the improvement of the livelihoods and living standards of the beneficiaries and poverty reduction, development of local people's livelihood. Cause of the proposed project is located at Shwe Pyi Thar Industrial Zone, there may have business opportunities to local people. Local people can have a market by selling foods, snacks and drinks nearby the factory.

5.1.2. Negative Impact

The following briefly described the potential negative impacts of the proposed project. There are four main types of impacts; impact on environmental resources, impact on ecological resource, impact on human and impact of waste generation.

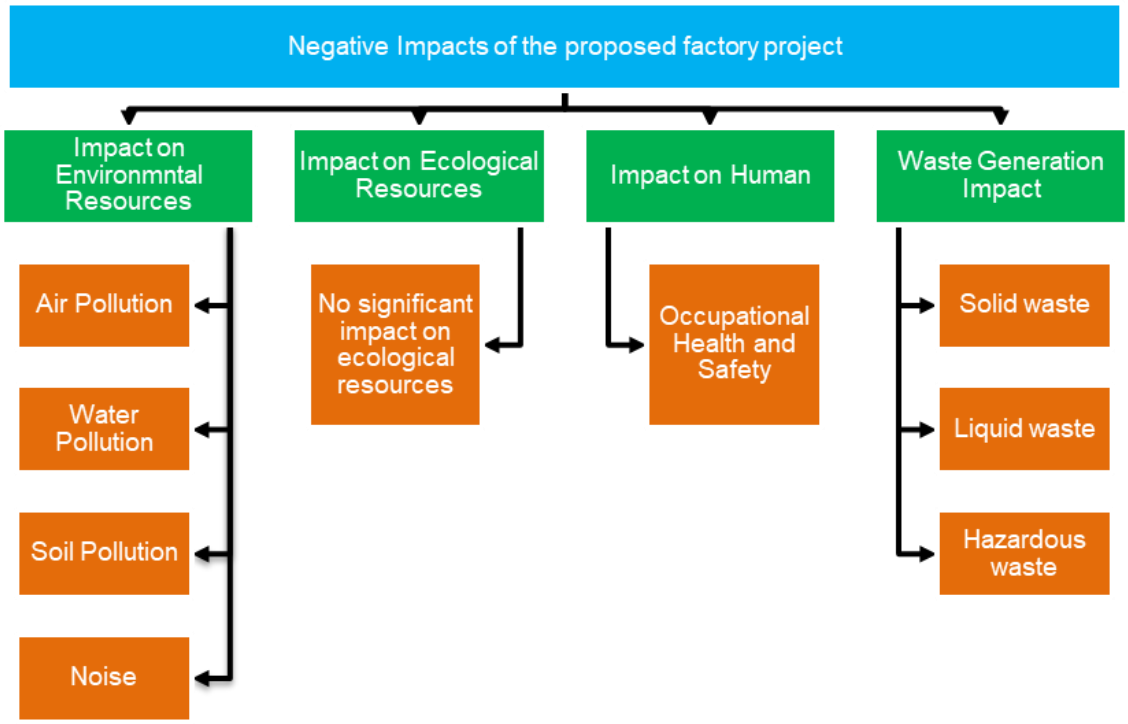


Figure 5-1 Potential Negative Impact Affect from Proposed Project

5.2. METHODOLOGY FOR THE ASSESSMENTS

The assessment of each impact is based on consideration of the magnitude, duration, spatial and frequency of activities, which are going to be carried out during three phases and characteristics of the project site. The assessment is qualitative and the significance of each impact is classified into 5 categories in overall.

The following methodology has been applied to assess the environmental impacts of the factory mainly on air, water, land, biodiversity, including human beings. Each source of impact has been assessed by four parameters, magnitude, duration, extent and probability and each assess point have 5 scales as mentioned in Table 5-1:

Table 5-1 Impact assessment parameters and its scale

Assessment	Scale				
	1	2	3	4	5
Magnitude (M)	Insignificant	small and will have no effect on working environment	Moderate and will result in minor changes on working environment	High and will result in significant changes on working environment	Very high and will result in permanent changes on working environment
Duration (D)	0 - 1 year	2 - 5 year	6 - 15 year	Life of operation	Post Closure
Extent (E)	Limited to the site	Limited to the local area	Limited to the region	National	International
Probability (P)	Very improbable	Improbable	Probable	Highly probable	Definite

Then, the Significant Point (SP) is calculated by following formula.

Significant Point (SP) = (Magnitude + Duration + Extent) x Probability

Impact Significance: Based on calculated significant point, impact significance can be categorized as follows:

Significant Point (SP)	Impact Significance
<15	Very Low
15-29	Low
30-44	Moderate
45-59	High
60	Very high

5.3. POTENTIAL ENVIRONMENTAL IMPACT DURING CONSTRUCTION AND DECOMMISSIONING PHASE

Construction phase: The project factory is already constructed during environmental assessment study and site visit. Therefore, the proposed project is located at industrial zone and already finished the construction, the potential impact on environment is not assessed and affected must be caused the construction period.

Decommissioning phase: The proposed duration of the investment shall be 20 years. The term of the Lease shall be initial 20 years commencing from the date of signing of the Lease Agreement between Local owner and Min Dhama Steel Structures Company Limited for proposed project site for 5.519 acres (22,334.62 sqm) of land. The project of land and building will be restitution to land owner after close the operation. Therefore, the assessment study cannot be need for environmental impact assessment during decommission phase.

These two phases of operation shall be represented by land owner. If the owner will be demolished their factory, they will need mitigation and monitoring plan for environmental impact. Therefore, Myanwei's environmental assessment team presented for monitoring plan during decommissioning phase.

5.3.1. Impact on Air Quality

During the operation phase, there is no emission of smoke from the process of production. Particulate matters are generated during cutting, welding and drilling the raw materials. However, that particles amount is low. Dust particles, CO2 and SO2 would be emitted from the activities of loading, unloading and transportation of the raw materials and final product. Various activities using air conditioners in office building, storage of raw materials, vehicles movements and operating diesel generators would also be a factor slightly affecting to air quality.

Though main electricity source for the factory is the national grid line, sound-proof diesel generators will be set-up in case of electricity shortages. So, 1000 kVA transformer, and three 500 kVA and one 100 kVA of standby generator will be used for both operation and administration appliances. The proposed project will use annually about 33,600 gallons of diesel for vehicles such as transportation vehicle and emergency use of a generator when the electricity goes off. The following table shows the amount of CO_2 emission coming from the combustion of fuels.

Burning diesel or other fuels creates exhaust gasses. Diesel generators produce carbon dioxide (CO2), nitrogen oxide (NOx), and particulate matter. These generators release this into the atmosphere and substantially reduce air quality in the nearby regions. Every liter of fuel has 0.73 kg of pure carbon, 2.6 kg of carbon dioxide released per liter of diesel fuel.

Category of GHGs Assessment

Category	Range
Negligible	no GHG assessment necessary
Low	< 20 kt/y CO_2-equivalent per year
Medium-Low	20 – 100 kt CO_2- equivalent per year
Medium-High	100 kt – 1 Mt CO_2- equivalent per year
High	>1 Mt CO_2-e equivalent per year

Source: EBRD GHG Assessment Methodology, 2010

CO_2 Emission by the Uses of Fuel

No.	Type	Amount(gallon/year)	Equivalent CO2 emission (Kilotons)	Status
1	Diesel for generator	33,600	0.39	Low

Furthermore, likewise the construction phase, negative impact on ambient air quality such as emissions of dust particles emission from the movement of vehicles used for carrying decommissioned materials and gaseous emission from these vehicles and machines can be expected during the decommissioning phase of the proposed project after its lifespan, 20 years.

5.3.2. Impact on Water Quality

During the construction period, water consumption is for implementation of the construction works and domestic water usage by construction workers. Surface water and ground water could be contaminated from the several activities of construction works such as mixing of the concrete, wetting of dry surfaces, washing of the equipment, etc. Moreover, oil spill from the vehicles and machinery can pollute water quality and can enter to the ground water and run into near river during the rainy season. However, the project factory is already constructed during environmental assessment study and site visit. Therefore, impact on water quality is not assessed for this project.

During operation phase of steel structure manufacturing factory, a small amount of water is used for operation process. Tube well is the main source of raw water for domestic waster use. The raw water is provided for the whole factory use of general office facilities such as canteen and toilets. Moreover, sewage disposed from the employees, staffs, oils spill and grease leakage from transporting vehicles and machinery equipment used in operating can seriously pollute the quality of underground water source. But the factory plans to use separate waste water channels, septic type toilet system and sewage treatment plants in accordance with YCDC guidelines to avoid potential contaminations and hazards by waste water and sewages. So, it can cause low impact to the water quality.

During the decommissioning phase, oil spill from the demolished vehicles and machinery can penetrate to the ground water quality. Water can also be contaminated by activities related with decommissioning works and waste disposed by workers.

5.3.3. Impact on Soil Quality

During the construction phase, the excavation works from the construction activities must be the major impact on soil. The soil is compacted by the vehicles and the solid waste disposal improperly by the workers can affect the soil quality. Oil spillage from the vehicles could be also polluted to the soil. However, the project factory is already constructed during environmental assessment study and site visit. Therefore, impact on soil quality is not assessed for this project.

During the operational phase, there is no significant impact on soil quality due to steel structure manufacturing activities because concrete road facilities have been implemented at the whole project site area. However, there may be effect on soil if domestic wastes from office, canteen and rest camp are disposed improperly.

During the decommissioning phase, transportation of decommissioning materials and transferred of heavy machinery may happen oil leakage and lubricants, and thus it can lead to impact on

soil. Moreover, hazardous releases of materials or oil utilized in the infrastructure can contaminate the existing soil during the decommissioning phase.

5.3.4. Impact of Noise

During the construction phase, significant impact on noise and vibration to surrounding environment must be generated from the movements of vehicles, operating the machinery, excavation activities and transportation of equipment and construction materials by heavy trucks. However, the project factory is already constructed during environmental assessment study and site visit. Therefore, the proposed project is located at industrial zone and already finished the construction, the potential impact on noise and vibration is not assessed and short-term affect must be caused, the construction period is temporary.

During the operation phase, noise impact may be a significant impact for steel structure production sectors. The significant sources of noise impact activities are the operation of various machinery and equipment listed in for cutting, welding, drilling and the emergency used of generator, vehicles and automobile movements (short-term noise) will be noise impacts sources. According to the noise results of 8 hours continuously measurement, at the source of operation area inside the factory is a little exceed in noise level of 70 dBA of NEQ (emission) guideline. Therefore, workers in operation area can cause hearing disorders.

During the decommissioning phase, the heavy vehicles, machineries and equipment used for decommissioning activities can affect the noise level and vibration of the area.

5.4. IMPACT ON ECOLOGICAL RESOURCES

The proposed project is located at the industrial zone. Therefore, there is no wildlife, forests, protected area, coastal resource or mangrove area and rare and endangered species are found around the project area. The nearest water body is Pan Hlaing River.

5.5. IMPACT ON HUMAN

5.5.1. Socio-economic

The proposed project is the long-term investment in the industrial sector. Most of the impacts of the proposed project on socio-economic environment may be positive. Implementation of proposed project may create temporary employment during construction and decommissioning phases and permanent jobs in the operation phase. Subsequently, socio-economic standards of local people will be increased and eventually it may lead to the economic growth at local and regional level.

5.5.2. Occupational Health and Safety

During the construction phase, significant accidents and injuries like electric shocks, falling from heights, chemical exposure, crushing injury, fire hazards can be occurred due to the construction activities including metal grinding and cutting, concrete work and welding the metals. Moreover, accidents and injuries to workers and local communities could be caused from heavy vehicles movement for the transport of construction materials and equipment. Small injuries due to slips, headache and sickness must be caused of the noise and air pollution could also be affected to the workers and local people.

During the operation phase, using the machinery for production process can get injuries. Noise from the generating of the machine and generator may also affect the health of people working in the project area. Fire and explosion hazards are mainly cause from the storage of diesel fuel and poor management of waste disposal. The usage of fuel must carefully handle because spillage and leakage of oil and grease can cause ignition of fire. Domestic wastewater or grey water produced from canteen, rest camp and toilets will cause enormous breeding of mosquitos, which can lead to diseases like malaria and dengue fever, if not carefully managed.

During the decommissioning phase, activities related with decommissioning process can cause injuries and can affect the health of decommissioning workers

5.5.3. **Waste Disposal**

5.5.3.1. Solid Waste

During the construction and decommissioning phase, various kinds of solid wastes will be generated. These wastes will be collected and clean every day to avoid any undesirable working condition and environmental impacts. Based on their types (glass, metal, plastic, wood, cement residues, oil spills and paper based), these solid wastes will be collected separately in rubbish bins and regular and proper disposal will be done in accordance with YCDC guidelines.

In the operation phase, major solid wastes of the proposed steel structure factory may be generated from operation area, office and canteen. Factory only use steel plate, steel beam and steel pipe as raw materials. The residual pieces of steel scraps from the cutting and drilling sections and paint containers used for painting finished products are the main source of solid waste. In addition to factory solid waste, canteen and kitchen will produce solid wastes mainly personal remnants, household wastes and food residues.

5.5.3.2. Liquid Waste

There may be expected significant liquid waste from the construction and decommissioning phase. The main source of the liquid waste of these two phases may be from the operation and sanitary wastewater.

During the operation phases, sanitary wastewater from the usage of toilet facilities and canteens will be discharged as liquid waste. All the liquid waste will be collected in septic tanks and regular monitoring should be done in cooperation with YCDC and follow the YCDC guidelines for proper disposal.

5.6. PROJECT ACTIVITIES AND ITS SIGNIFICANT IMPACTS

The relative importance of each impact is assessed based on the understanding that general mitigation measures will be integrated into the baseline project. Therefore, when the general mitigation measures reduce impacts to the point of rendering them negligible they are excluded from further analysis. Once the significance of the impact is established as more than negligible, it is described and additional, specific mitigation measures may be proposed to allow optimal integration of the project into the environment.

Table 5-2 Evaluation and Prediction of Significant Impacts and Mitigation Measures on Operation Phase

Categories	Source of Impact	Significant of Potential Impacts					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	SP			
Impact on Environmental Resource									
Air	• Dust and GHGs emission from vehicles used for transporting raw materials and final products • Emission of smoke from emergency diesel generator and vehicle movement	2	4	1	3	21	Low	• Air pollution in atmosphere. • Inhaling them can increase the chance you'll have health problems. • People with heart or lung disease, older adults and children are at greater risk from air pollution.	• To control air pollution, the vehicles, generators and machineries have to check and maintain regularly. • Ensuring vehicles, compressor and generator are well maintained. • The factory has planted trees to reduce carbon emission and minimize air pollution.
Soil	• Engine oil leaks, spills at diesel storage and during fuel refueling.	2	4	1	1	7	Very Low (Insignificant)	The factory compound area was paved with concrete and hence, contamination due to the oil spillage at this area is insignificant.	• No Mitigation Measure
Water	• Operation area	1	4	1	1	6	Very Low (Insignificant)	The factory not generated wastewater from production process of steel structure.	• No Mitigation Measure
Noise and Vibration	• Generating noise from the production machinery	3	4	1	3	24	Low	• The factory operates heavy machinery • The major noise source of operation activities such as cutting, welding and drilling by respective machines. • There is insignificant impact on surrounding environment.	• Should be built individual room like as generator room, • Should be provided the noise covering equipment or personal protective equipment (PPE) for the workers operated in noisy area.

Categories	Source of Impact	Significant of Potential Impacts					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	SP			
Impact on Ecological Resources									
Flora and fauna on terrestrial and aquatic life	• Operation of the steel structure factory	1	4	1	1	6	Very Low (Insignificant)	Not Significant Impact on Ecological Resources	• No Mitigation Measure
Impact on Human									
Fire	• Poor electrical installations • Waste disposed area raw materials and paint containers	3	4	1	4	32	Moderate	Serious damage to property and even injury and death	• To provide fire extinguishers, fire hose reels and fire hydrants on the walls of the factory for fire emergency cases. • Regular inspection for existing firefighting equipment must be done. In case of fire emergency, water storage tank for fire frightening. • The emergency fire alarms are installed at the factory for alerting the workers in case of fire. • The main entrances and route for emergency cases of the factory must not be blocked with materials or machines for fire emergency cases.
Occupational Safety	• Accidental cases cause by operating machines. (Unloading and loading, cutting, welding and drilling activities)	3	4	1	4	32	Moderate	Accident in workplace (physical injuries or even death) can occur during operation.	• First aid training, safety training, firefighting training or other essential training for machinery handling must be provided for emergency cases of workers. • According to the observed light intensity values, the proponent provides sufficient lighting for workers for safe working and reducing optical problems of the workers.

Categories	Source of Impact	Significant of Potential Impacts					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	SP			
									• Personal Protective Equipment (PPEs) like earmuffs, safety gloves, helmets and goggles are provided for each department. • To prevent electric shock hazards, electrical maintenance staff (handyman) is to be assigned to do regular inspections and take preventive measures.
Health	• Influx of people • Noise from the generating of the emergency generators	2	4	1	2	14	Very Low (Insignificance)	• Change in demographic structure, new diseases form immigrant workers • To cause a range of health problems ranging from stress, poor concentration, productivity losses in the workplace, and communication difficulties and fatigue from lack of sleep, to more serious issues	• Operating only after wearing personal protective equipment for workers at the factory; factory is large enough for the amounts of workers. • The maximum allowable noise level for workers is 90dB(A) for 8hours exposure a day. Thus, adequate protective noise impact measures in the form of ear muffs/ear plugs to the workers working in high noise areas.
Social and Economic Conditions	Job opportunities for local people						Positive Impact		
Waste Generation Impact									
Solid Waste	• Residual pieces of steel scraps from the production lines • Waste from coating area (paint containers)	3	4	1	4	32	Moderate	Surrounding environmental pollution and soil contamination	• Provides separate garbage bins at each place. • All of the solid wastes will be collected separately in garbage based on their types and stored in relevant separated waste storage area

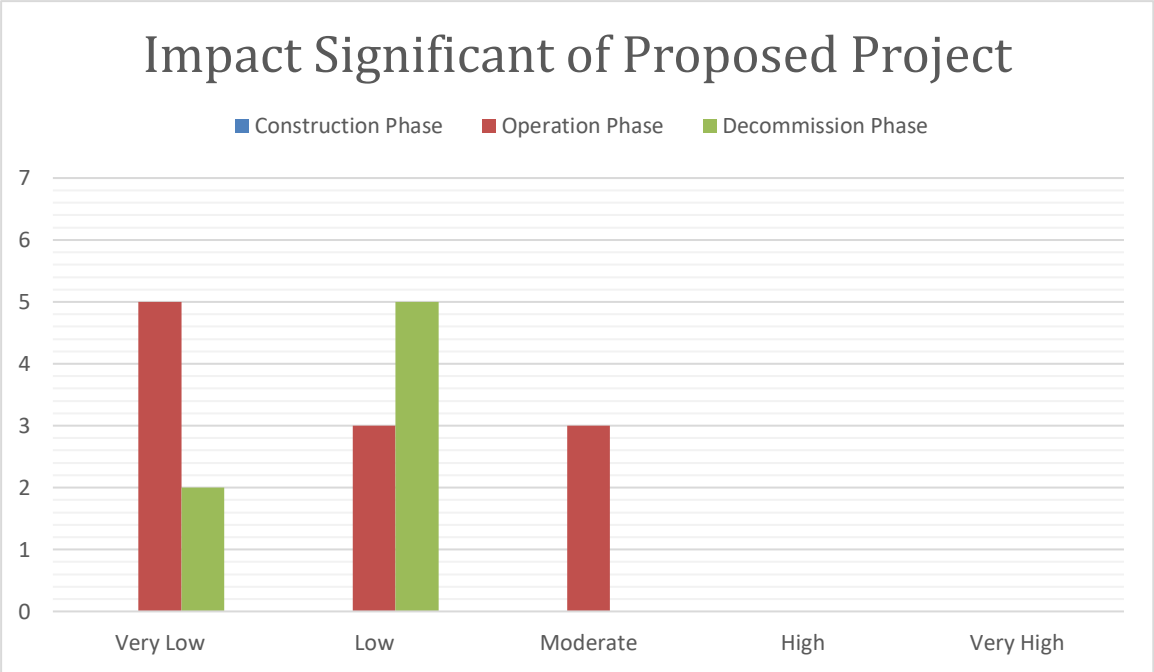
Categories	Source of Impact	Significant of Potential Impacts					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	SP			
	• Waste from canteen, rest camp and office.								• Final wastes should be disposed by using YCDC's service.
Liquid Waste	• Septic system and sewage. • Domestic liquid waste disposal from office, canteen and rest camp.	3	4	2	2	18	Low	Contamination of soil, surface water, ground water	• Regular inspection and cleaning, oil traps, septic tank and adequate covers for all storage and waste disposal areas can decrease these contaminations.
Hazardous Waste	• Used oil and lubricant discharged from the maintenance of vehicles and machines. • Liquid CO_2 and liquid O_2 leakage from liquid CO_2 and liquid O_2 tanks	2	4	1	2	14	Very Low (Insignificance)	• Reduce the risk of contamination from fuels, oils and hazardous wastes • Response effectively to incident and accident	• Carefully use and store oil and lubricant. • Proper inspection and maintenance in liquid CO_2 and liquid O_2 tanks
Natural Disaster (Earthquakes, Floods, landsides and cyclone)									Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency

Table 5-3 Evaluation and Prediction of Significant Impacts and Mitigation Measure on Decommissioning Phase

Categories	Source of Impact	Significant of Potential Impacts					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	S			
Air	• Demolish of buildings and related materials • Transportation of demolished materials	3	1	1	4	20	Low	Emissions of particulate matters and carbon dioxide gases into the air	• Spray water twice a day • Cover mesh trap around the decommission area • Install shading net about 2 meters above temporary fence of decommission area • Carry broken material with cover by canvas.
Water pollution	• Sewage form decommissioning workers • Demolition machinery equipment	3	1	1	3	15	Low	Contamination of surface water and ground water	Systematically demolish the septic tanks.
Soil	• Demolish of buildings and related materials • Transportation of demolished materials	3	1	1	3	15	Low	Contamination of soil	Manage the spillage of oil and diesel and sewage.
Noise and Vibration	• Decommission activities • Transportation of demolished materials	3	1	1	3	15	Low	Noise pollution to the surrounding	• Carry out the activities during day time. • Maintain the machines and vehicles to reduce noise pollution. • Provide the ear plugs to the workers.
Waste disposal	Demolished debris such as bricks, concrete materials	2	1	1	3	12	Very Low	Dumping to the surrounding environment	Recyclable materials and dispose to the define areas.

Categories	Source of Impact	Significant of Potential Impacts					Impact Significance	Reason	Mitigation Measure
		M	D	E	P	S			
Hazardous waste	• Used lubricants from decommissioning vehicles and machines • Liquid CO_2 and O_2 tanks	2	1	1	3	12	Very Low	Spillage of lubricant	• Maintaining and preventing accidental mechanical oil spill, • Resale liquid CO2 and liquid O2 tanks to recyclable locations; if it is not recycled, contact YCDC and disposed carefully.
Occupational Health and Safety (Accidents, Injuries)	• Decommissioning activities • Transportation of demolished materials	3	1	2	3	18	Low	Injuries and accidents	• Provide protective fencing or demarcation with tape at the boundaries of dangerous / hazardous zone and the appropriate warning signs, marking and safety signs and installation of the lost time injury notice board. • Clean up excessive waste debris and liquid spills regularly. • Use the third-party expert assisted by trained personnel to identify and remove hazardous materials.

The assessment of each impact is based on consideration of the magnitude, duration, extent and probability of activities, which are going to be carried out during operation phases. In operation phase, there are 3 moderate significance impact on human and waste generation (Fire, occupational safety and solid waste). 3 low significant impacts on environmental resources and waste (air, noise, vibration and liquid waste). 5 very low significant impact on environmental resources, ecological, human and waste generation (soil, water pollution, flora, fauna, health and hazardous waste). In decommissioning phase 2 very low significant impact on environment and human (waste disposal and hazardous waste). 5 low significant impacts on environmental and human (air, water pollution, soil contamination, noise and vibration and occupational health and safety). Significance impacts on environmental and human and detail impact assessment for operation phases and decommissioning can be seen in above tables. All the impacts during operation phases and decommissioning phase can be minimized by using mitigation measures and implementing Environmental Management Plan.



5.7. MITIGATION MEASURES OF IMPACT ON ENVIRONMENTAL RESOURCES

5.7.1. Recommended Air Impact Mitigation Measures

During the operation phases, ventilation system of the factory is enough for the workers cause the proponent has installed Moist Fan around the factory building. To control air pollution, the vehicles, generators and machineries had to be checked and maintained regularly. Since the factory compound area is paved with concrete, dust emission from the movements of vehicles and cars is not significant. Ensuring vehicles, compressor and generator are well maintained.

During the decommissioning phases, the impact on air quality can be controllable and reduced to minimum level and minimized dust emissions from material handling sources. Sprinkling water on the top soil can reduce dust emission from the demolishing activities. In the proposed project area, vehicle movements should be limited, maintained, and checked the vehicles and machineries regularly. Burning the demolished materials and residual wastes must not be allowed.

5.7.2. Mitigation Measure of Impact on Water

During the operation phase, water discharge from the factory site will be treated by silts track tank before discharging. The factory plan has canteen and toilet facilities attached in various buildings of the factory. In addition, around the compound area of the project area, drainages are also provided and maintain to flow storm water (rain water, snow and surface water). The compound area of the factory is paved with concrete and the drainages are covered and holes are there to flow the storm water. Besides, the factory plans to use separate wastewater channels, septic type toilet system. Wastewater from canteens and toilet facilities are collected in septic tanks which are attached with sewer treatment plant and the proponent will connect and cooperate with YCDC to be carried out for disposing of these septic tank wastes. To mitigate the impact on water, the drainages around the compound area of the factory had to be maintained and cleaned regularly. Spillage and leakages of oil and grease should also be minimized.

During the decommissioning phases, appropriate sanitary facilities should be provided for demolishing workers. An accidental spill of fuel and oil should be avoided. Wastes generated from the demolishing activities should not be disposed directly into the drainage channels.

5.7.3. Mitigation Measure of Impact on Soil Contaminate

During the operation phase, the compound area of the factory area will be paved with concrete and hence, contamination due to the oil spillage at this area is insignificant. However, refilling fuel must be done with great care for preventing spillage.

During the decommissioning phase, impact on soil can be mitigated by using modernized machineries, these machines would be maintained regularly and isolated maintenance area would be identified. Any accidental spills of fuel, oil or other hazardous waste must be avoided. Construction wastes and demolishing debris should be disposed properly.

5.7.4. Mitigation Measure of Impact on Noise

During the operation phase, the regular maintenance plans for vehicles, machines and generators should be provided to mitigate impact on noise. Using modernized low noise machines should be used if possible. Noise impact to employees shall be minimized by providing earmuffs and ear plugs to those working near the noisy machines.

During the decommissioning phases, temporary noise pollution can be controlled by planning regular maintenance for decommissioning vehicles and machines. Moreover, construction and decommissioning activities should not be worked during nighttime.

5.8. MITIGATION MEASURES OF IMPACT ON HUMAN

5.8.1. Mitigation Measures on Fire Hazard

The project proponent has provided fire extinguishers, fire hose reels and fire hydrants on the walls of the factory for fire emergency cases. Regular inspection for existing firefighting equipment must be done. In case of fire emergency, water storage tank for fire frightening is also constructed with the capacity of 15,000 gallons at the proposed area. The emergency contact numbers of township and district fire services department must be printed and tagged at easily visible places for fire emergency cases. The emergency fire alarms are installed at the factory for alerting the workers in case of fire. The

main entrances and route for emergency cases of the factory must not be blocked with materials or machines for fire emergency cases. In addition, the project proponent has plans to provide trainings on firefighting for the workers by a professional or otherwise by sending to training courses. The plan to install fire alarm system and fire-frightening system are mentioned in below.

5.8.2. Mitigation Measure for Occupational Health and Safety

Medicines and first aid kits are provided in this proposed area. Moreover, these medicines and first aid are provided for emergency cases of workers. First aid training, safety training, firefighting training or other essential training for machinery handling must be provided for workers. According to the observed light intensity values, the proponent provides sufficient lighting for workers for safe working and reducing optical problems of the workers. Personal Protective Equipment (PPEs) like earmuffs, safety gloves, helmets and goggles are provided for each department. To prevent electric shock hazards, electrical maintenance staff (repairperson) is to be assigned to do regular inspections and take preventive measures. The project proponent must manage the drainage systems of the factory to prevent health risk of the workers.

The Occupational Safety and Health Administration (OSHA) have recommended permissible noise exposure limit for industrial workers, which is based on 92 dB (A) for 6hours exposure a day with 5dB trading rates. The limits are mentioned in. According to OSHA, the maximum allowable noise level for workers is 92 dB (A) for 6hours exposure a day. Thus, adequate protective noise impact measures in the form of ear muffs/ear plugs to the workers working in high noise areas, need to provide if actual noise level monitoring results are more than 90 dB (A) at the work site for working time hours for 8 hours.

Table 5-4 Permissible exposure of noise limits

Total Time of Exposure Per Day in Hours	Noise Level dB(A)
6	92
4	95
3	97
5	100
1	105
½	110
¼	115

5.8.3. First Aid Guidelines and Facilities

A well-organized and proper first aid system is implanted to provide immediate first aid to anyone who is injured in the workplace and had also conducted the first aid training by Myanmar Red Cross Society. Adequate number of first-aid kits are listed and made available at all workplaces and contacts of medical providers; hospitals will be notified. The followings are some of the contents in a sample first aid kit.

- Bandage
- Adhesive Tape
- Antiseptic wipe

- Burn dressing and treatment items
- Cold pack
- CPR barrier
- Sterile wound dressings
- Sterile eye coverings
- Scissors, tweezers, compress

5.8.4. Mitigation Measure of Waste Generation

During the operation phase, the project proponent provides separate garbage bins at each building. All the solid wastes will be collected separately in garbage based on their types and stored in relevant separated waste houses: Non-hazardous Waste Production related house, Hazardous Waste Production related house, Non- Hazardous Waste Non-Production related house and Hazardous Waste Non-Production related house and final wastes will be disposed by using YCDC's service.

During the decommissioning phase, some of demolished solid wastes must be recycled and the other solid wastes should be stored in dedicated waste storage area in the project site and transferred to YCDC for final disposal.

The objective of the Industrial Disaster Management Plan is to make use of the combined resources of the plant and the outside services to achieve the following:

• Effect the rescue and medical treatment of casualties;

• Safeguard other people;

• Minimize damage to property and the environment;

• Initially contain and ultimately bring the incident under control;

• Identify any dead;

• Provide for the needs of relatives;

• Provide authoritative information to the news media;

• Secure the safe rehabilitation of affected area;

• Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency.

It is attempted to plan and construct the buildings following all safety norms. However, it is not always possible to eliminate such eventualities and random failures of equipment or human errors. An essential part of major hazard control has therefore, to be concerned with mitigating the effects of such emergency and restoration of normalcy at the earliest. Detailed Table showing activities during construction and operation phases along with mitigation measures are given in Table 5-5.

Table 5-5 Activities during Construction and Operation along with Mitigation Measures

Hazards Associated with Activities	Control / Mitigation Measures
Manual Handling Strains and sprains - incorrect lifting - too heavy	Exercise/ warm up-get help when needed control

Hazards Associated with Activities	Control / Mitigation Measures
loads -twisting - bending - repetitive movement - body vibration.	loads-rest breaks/ no exhaustion-no rapid movement/ twisting/bending/repetitive movement – good housekeeping.
Falls - Slips - Trips Falls on same level - falls to surfaces below - poor housekeeping- slippery surfaces uneven surfaces -poor access to work areas climbing on and off plant-unloading materials into excavations wind - falling objects.	Housekeeping - tidy workplace - guardrails, handholds, harnesses, hole cover, hoarding, no slippery floors/trip hazards - clear/ safe access to work areas-egress from work areas - dust/water controlled - PPE.
Fire Flammable liquids/Gases like LPG, Diesel Storage area and combustible building materials - poor housekeeping - grinding sparks – open flames, absence of Fire hydrant network.	Combustible/ flammable materials properly stored /used -good housekeeping-fire extinguishers made available & Fire hydrant Network with reserve Fire water (As per NFPA Code) - Emergency Plan in case of Fire or collapse of structure.
Absence of Personal Protective Equipment Lack of adequate footwear- head protection hearing/ eye protection - respiratory protection gloves-goggles.	Head / face- footwear- hearing / eye-skin respiratory protection provided - training maintenance.
Defective or wrong Hand Tools Wrong tool - defective tool - struck by flying debris- caught in or on -missing guards - carbon monoxide - strains and sprains - dust.	Right tool for the job - used properly – good condition/ maintenance guards- isolation eye/ face protection - flying debris controlled.
Electricity Electrocution – overhead / underground services - any leads damaged or poorly insulated temporary repairs -no testing and tagging circuits overloaded-non-use of protective devices.	Leads good condition and earthed – no temporary repairs - no exposed wires-good insulation-no overloading - use of protective devices - testing and tagging -no overhead/ underground services
Scaffolding Poor foundation-lack of ladder access insufficient planking-lack of guardrails and toe boards-insufficient ties or other means- all scaffolds incorrectly braced or stabilized to prevent overturning.	All scaffolds correctly braced and stabilized - 3:1 height to base ratio - firm foundation, plumb and level - ladder access provided and used - proper platform (3 planks/ 675 mm) - planks secured- guardrails and toe boards – 900 mm to 1100mm high, within 200 mm of working face, mid - rail.
Ladders Carrying loads - not secured against dislodgement - defective ladders– not sufficient length- wrong positions - incorrectly placed (angles, in access ways, vehicle movements.	Secured against movement or footed - ladders in good condition – regularly inspected - extend one (1 m) meter above platform - 4:1 angle - out of access ways, vehicle movements - climbing - no carrying loads - 3 points of contact - no higher than 3rd step down - use for access only, not working platforms.
Excavations Trench collapse - material falling in undetected underground services-falls-	Soil stability known-no water accumulation existing services known - material 600 mm from edge - clear of suspended loads hardhats/ PPE- ladders - public

Hazards Associated with Activities	Control / Mitigation Measures
hazardous atmosphere struck by traffic and mobile plant.	protection - atmospheric testing- traffic controls - Emergency Plan.
Gas Cutting and Welding Fire-welding flash, burns, fumes, electrocution in wet conditions- flashback in oxygen set, leaking cylinders, acetylene cylinders lying down-poorly maintained leads.	Welding flash and burns controlled with PPE and shields -fumes controlled with ventilation and PPE (in good condition and properly positioned), Gas cylinders be kept upright & secured position (properly tied) - combustible materials to be kept at secured place to avoid fire & Fire Extinguishers to be kept in fire prone area with training to people for its use.
Noise Unknown noise levels - known noise levels over 85 decibels	Levels below 85 decibels – proper protection.
Falling Material Fall during carrying/ Lifting materials dislodged tools and materials from overhead work areas.	Materials to be secured-kept away from edge- toe boards -Use of hard hats.
Carnage & Lifts Display of carrying capacity i.e., load (No. of person) incorrectly slung, defective lifting equipment, unsecured loads, craning in close proximity to building people and plant-falls falling materials.	Periodic testing by competent authority correctly slung/ secured loads, lifting equipment good condition-use of proper hand signals - falls while unloading controlled.
Visitors Presence at site Falls -struck by - dropped materials-road accidents -insufficient hoarding or fencing pedestrian access past site-mechanical plant movement on and off site	Sufficient hoarding - fencing and barricades safe pedestrian access past site traffic management for loading and delivery construction separated from occupied areas of projects

Figure 5-2 Factory's Notification Prohibitions

6. ENVIRONMENTAL MANAGEMENT (ACTION) PLAN

Environment Management Plan is required for ensuring sustainable development. It should not affect the surrounding environment adversely. The management plan presented in this chapter needs to be implemented by the proposed expansion of MIN DHAMA STEEL STRUCTURES COMPANY LIMITED. The Environment Management Plan (EMP) aims at controlling pollution at source with available and affordable technology followed by treatment measures. Waste minimization and waste recycling measures are emphasized. In addition to the industry specific control measures, the proposed industry should adopt following guidelines. Proposed project aims to export the steel structures to other countries. The specific objectives of this study are

- ✓ Identify the major impacts that are may arise from the activities of the proposed project on natural environmental and socio-economic environment of the project area
- ✓ Describe the mitigation measures to minimize these impacts
- ✓ Prepare and implement Environmental Management Plan for the project
- ✓ Make sure that EMP is developed sufficiently and sound for the proposed project and
- ✓ Corporate Social Responsibility Plan (CSR) plays an essential part for the improvement of the social welfare of community as well as development of the region.

6.1. AIM OF ENVIRONMENTAL MANAGEMENT PLAN

- Provide environmental management plan that minimize the environmental impact of the works and identify those responsible for its implementation.
- Define the monitoring program, which assess the implementation.

6.2. OBJECTIVE OF ENVIRONMENTAL MANAGEMENT PLAN

An Environment Management System (EMS) is a framework that helps an organization achieves its environmental goals through consistent review, evaluation, and improvement of its environmental performance. The assumption is that this consistent review and evaluation will identify opportunities for improving and implementing the environmental performance of the organization. The EMS itself does not dictate a level of environmental performance that must be achieved; each organization's EMS is tailored to its own individual objectives and targets.

An EMS encourages an organization to continuously improve its environmental performance. The system follows a repeating cycle the organization first commits to an environmental policy, then uses its policy as a basis for establishing a plan, which sets objectives and targets for improving environmental performance. The next step is implementation. After that, the organization evaluates its environmental performance to see whether the objectives and targets are being met. If targets are not being met, corrective action is taken. The results of this evaluation are then reviewed by top management to see if the EMS is working. Management revisits the environmental policy and sets new targets in a revised plan. The company then implements the revised plan. The cycle repeats, and continuous improvement occurs.

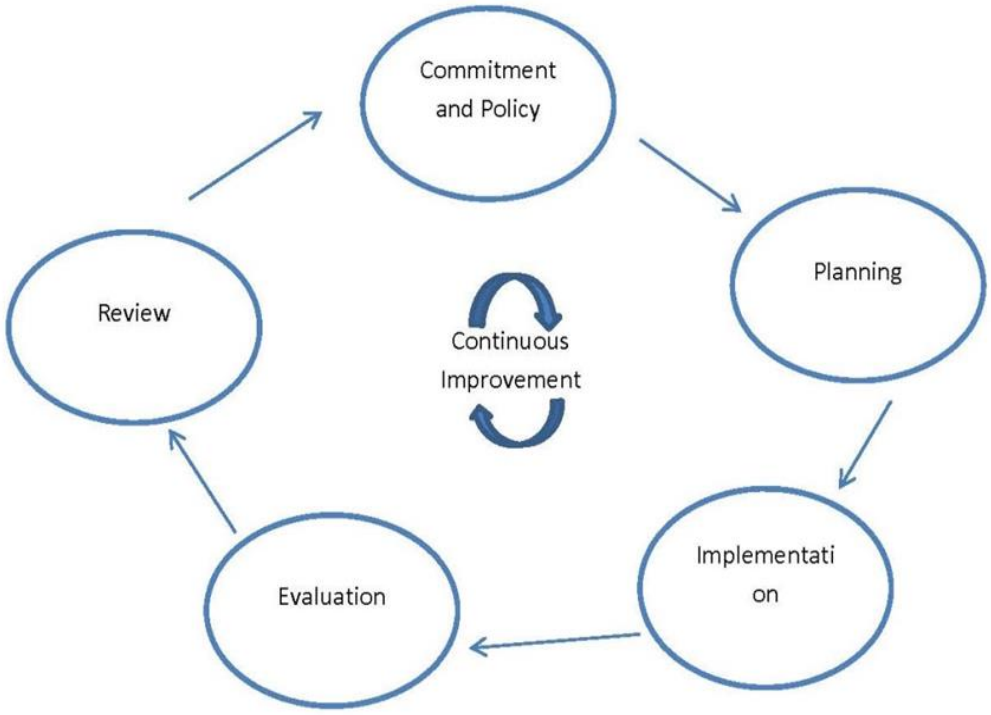


Figure 6-1 Continuous Improvement Circle

- **Commitment and Policy** – Top management commits to environmental improvement and establishes the organization's environmental policy. The policy is the foundation of the EMS.
- **Planning** – An organization first identifies environmental aspects of its operations. Environmental aspects are those items, such as air pollutants or hazardous waste that can have negative impacts on people and the environment. An organization then determines which aspects are significant by choosing criteria considered most important by the organization. For example, an organization may choose worker health and safety, environmental compliance, and cost as its criteria. Once significant environmental aspects are determined, an organization sets objectives and targets. An objective is an overall environmental goal (e.g., minimize use of chemical X). A target is a detailed, quantified requirement that arises from the objectives (e.g., reduce use of chemical X by 25% by September 1998). The final part of the planning stage is devising an action plan for meeting the targets. This includes designating responsibilities, establishing a schedule, and outlining clearly defined steps to meet the targets.
- **Implementation** – An organization follows through with the action plan using the necessary resources (human, financial, etc.). An important component is employee training and awareness for all employees. Other steps in the implementation stage include documentation, following operating procedures, and setting up internal and external communication lines.
- **Evaluation** – A company monitors its operations to evaluate whether targets are being met. If not, the company takes corrective action.
- **Review** – Top management reviews the results of the evaluation to see if the EMS is working. Management determines whether the original environmental policy is consistent with the

organization's values. The plan is then revised to optimize the effectiveness of the EMS. The review stage creates a loop of continuous improvement for a company.

6.2.1. Institutional Requirement

Min Dhama Steel Structures Company Limited will manage the development of the proposed project. The project proponent should appoint Health, Safety and Environment (HSE) issues throughout the duration of the project phases. HSE team is responsible for implementation and monitoring of EMP and Environmental Monitoring Plan (EMoP) as well as coordination with local authorities and the nearby communities. The HSE Team also makes regular review of EMP to cover all potential impacts, amendments and modifications.

6.2.2. Responsibilities of the EMP

In order to ensure the sound development and effective implementation of the EMP, it will be necessary to identify and define the responsibilities. The environmental management practices, procedures, and responsibilities are defined herein to get full compliance with the existing environmental policy, laws, rules and regulations of the Republic of the Union of Myanmar. The following entities should be involved in the implementation of this EMP:

Min Dhama Steel Structures Company Limited: The proponent will be charged with the responsibility for ensuring that the proposed development has been accomplished in an environmentally sound manner. This can be achieved by inclusion of environmental specifications in the tender specifications, selection of environmentally conscious contractors, and supervision to ensure that the objectives of this EMP are met. The implementation of Environmental Management Plan (EMP) process will prepare and follow up by appointed persons for health, safety, and environmental management under the instruction of management team of Min Dhama Steel Structures Company Limited for EMP implementation facilities.

ECD (Yangon Region): The responsibility of ECD is to exercise general supervision and coordinating over all matters relating to the environment and to be instrumental in providing guidance for recognized regulatory frameworks.

Third-Party Environmental Consultant: The environmental consultant will have to ensure that the proposed EMP is up to date and is being followed properly by the proponent. Periodic audits of the EMP will have to be done to ensure that its performance is as expected, by comparing with operating standards so that any corrective actions can be taken.

6.2.3. Structure and Responsibilities for the EMP Development and Implementation

The HSE officer is responsible to the HSE components of the project and on matters relating to the implementation of the EMP throughout operation life. The HSE officer will have responsibilities that include:

- Ensure a monitoring system is in place to track and report all health, safety and environmental incidents;
- Carry out a thorough initial site inspection of environmental controls prior to work commencement;

- Record and provide a written report to the General Manager and production team of non-conformances with the EMP and require the HR supervisor to undertake mitigation measures to avoid or minimize any adverse impacts on environment or report required changes to the EMP.

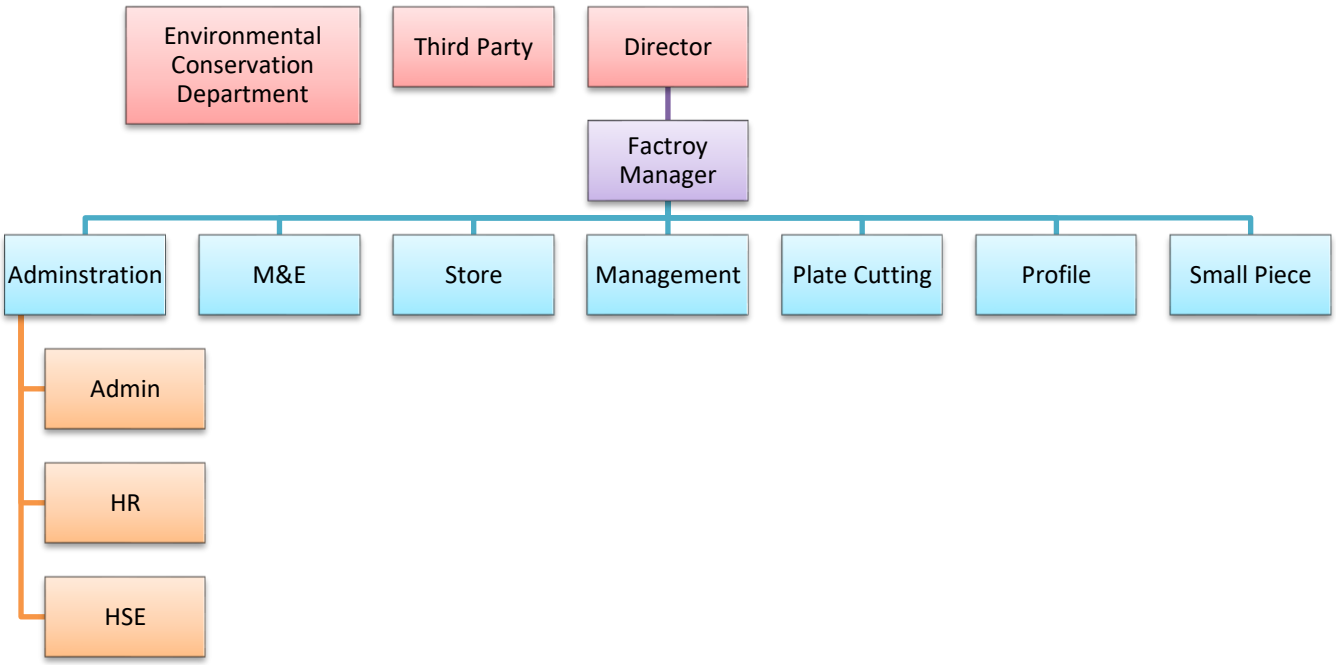


Figure 6-2 Organization Structure of Environmental Management Plan

Table 6-1 Responsibilities of HSE Members

Roles	Responsibilities
Factory Manager	The Factory Manager will be assisted by the Operations Manager and also the HR and HSE Officer. In terms of environmental protection commitments, the Operation Manager will be the key driving force and will be responsible for: • Establishing overall environmental direction and policy • Ensuring the implementation of the EMP • Ensuring investigation of all environmental incidents are reviewed and that reports are submitted on time • Ensuring an effective system of internal and external communication is in place • Providing advice regarding the environmental program
Operation Manager	The Operation Manager will assist the Factory Manager in looking into the overall environmental matters during the operational phase of the Project. The Operation Engineer will also be responsible for: • Adherence to the overall environmental direction and policy • Ensuring the implementation of the recommended actions in the investigation of all environmental incidents • Managing resources for operation wastes
HR Manager	The HR Manager will carry out the day-to-day management of workers and social issues in the factory. The HR Manager will be responsible for: • Assisting the management in publicising and implementing corporate and local policies, objectives and programs • Maintaining key environmental-related documents and information

Roles	Responsibilities
	• Communicating/ liaising with the local authorities on environmental issues
HSE Officer	The HSE Officer will be the key person in charge of all environmental matters pertaining to the site. The HSE Officer will be responsible for: • Coordinating the implementation of environmental programs, including monitoring of the project site environmental performance • Performing periodic internal environmental audits and inspections to ensure compliance with the legal environmental requirements • Ensure a monitoring system is in place to track and report all health, safety and environmental incidents; • Carry out a thorough initial site inspection of environmental controls prior to work commencement; • Record and provide a written report to the General Manager and production team of non-conformances with the EMP and require the HR Manager to undertake mitigation measures to avoid or minimize any adverse impacts on environment or report required changes to the EMP.

The EMP for Min Dhama Steel Structures Company Limited has been prepared to added potential issues based upon discussion with factory management, workers, local community view, stakeholder consultation and the site visit. The EMP is additional to and compliments the factory's safety management system. The following environmental impact issues which require environmental management plans based upon the potential impact activities of Min Dhama Steel Structures Company Limited are as follows:

6.3. AIR POLLUTION/DUST MANAGEMENT PLAN

Objectives:	• To minimize the adverse impact to air quality caused by stack gas emission from generator and also dust management generated from vehicular movement. • To comply with relevant government rules	
Relevant government law and rule	• National Environmental Quality (Emission) Guidelines (2015) • Motor Vehicles Act, (2015)	
Time Frame	• Entire life spans of the factory operation	
Management Plan	• Must be plant around the proposed project to reduce carbon emission • Should be prohibited burning of waste material at the proposed project site • Must be control air pollution, the vehicles, generators and machineries have to check and maintain regularly. • The factory should use chimney for generator through which the flue gas is emitted for reducing the impact of stack emission on environment. • Must be ensuring vehicles, compressor and generator are well maintained.	
Monitoring & Reporting	Frequency	Biannually
	Monitoring Point	Indoor and outdoor of proposed project (16°55'35.17"N, 96° 4'59.90"E) (16°55'38.18"N, 96° 5'0.35"E)
	Parameters	$PM_{2.5}$, PM_{10}, SO_2, NO_2, O_3, CO, VOC

Estimated cost	1,000,000 Kyats per year
Responsibility	Management of the factory; • Head of maintenance: Total implementation of above of air pollution management plan • Production manager: Air quality in the production area is good enough • Manager: To hire organization/independent third-party testing air quality • EHS officer-Monitor the hygiene of ambient air quality in surrounding of the factory

6.4. WATER CONSUMPTION MANAGEMENT PLAN

Objectives:	• The water consumption management is aimed at minimizing ground water use
Performance Indicator:	• Prohibitions on accessing and using underground water without a license • Water consumption saving of general water use from groundwater
Relevant government law and rule	• The Underground Water Act (1930)
Management Plan	• Install water meter for internal control of water consumption • All staff trains and makes aware conservation practices and proper methods of water use must be place in toilets and other areas of water consumption • The contamination of water is avoided by suitable management of oil and fuel used in machineries and vehicles • Trees plantation surrounding the factory
Monitoring & Reporting	• Daily visual inspections 16°55'37.96"N, 96° 4'57.83"E
Time Frame	• Once in a year throughout the factory life
Estimated cost	• Approximately 500,000 kyats (annually)
Responsibility	• Factory Manager • Arrange audit on water usage controls environmental officer

6.5. WASTEWATER MANAGEMENT PLAN

Objectives:	• To implementation plan for the management of liquid waste from collection, through treatment and resource recovery, to residual disposal	
Relevant government law and rule	Yangon City Development Committee Law (2018), National Environmental Quality (Emission) Guidelines (2015), Underground Water Act	
Time Frame	• Entire life spans of the factory operation	
Management Plan	• Regular inspection and cleaning, oil traps, septic tank and adequate covers for all storage and waste disposal areas can decrease these contaminations.	
	Frequency	Biannually (16°55'34.07"N, 96° 4'59.21"E)

Monitoring & Reporting	Parameters	pH, Turbidity, Conductivity, Iron, Sulphate, TSS, TDS, Manganese, COD, BOD, Cyanide, Copper, Zinc, Carbonate
	Proper maintenance of drainage and sewerage system will be conducted periodically	
Estimated cost	800,000 Kyats per year	
Responsibility	Manager -To hire organization/independent third-party testing wastewater quality EHS officer-Monitor the condition of factory's drainage and sewerage system	

6.6. NOISE MANAGEMENT PLAN

Objectives:	• To avoid nuisance noise to nearby residents generated from generator and other machineries. • To comply with noise standard of National Environmental Quality (Emission) Guideline	
Relevant government law and rule	National Environmental Quality (Emission) Guidelines (2015)	
Time Frame	• Throughout the project life	
Management Plan	• Building noise insulated generator room and ensure satisfactory maintenance of relevant equipment • Impose speed limit to track and vehicles at the transportation route. • Provide sufficient personal protective equipment (PPE) at the work place • All the related personnel will be provided proper training about the relevant issues and ensure PPE wear during working in noisy area.	
Monitoring & Reporting	Frequency	Biannually
	Monitoring Point	Two points in operation area (cutting and drilling) (16°55'37.51"N, 96° 4'59.21"E) (16°55'39.06"N, 96° 5'1.91"E)
	Parameters	Sound Decibel (dBA)
Estimated cost	100,000 Kyats per year	
Responsibility	HSE Manager or Environmental Management Team of Min Dhama Steel Structures Company Limited	

6.7. SOLID WASTE MANAGEMENT PLAN

Objectives:	• To minimize waste generation by developing strategies for the management and disposal of all waste in a manner that is sustainable and sensitive to the environment • To comply government waste management policy

Relevant government law and rule	Yangon City Development Committee Law (2018), National Waste Management Strategy and Action Plan (Draft 2018)
Time Frame	• Entire life spans of the factory operation
Management Plan	• Must be provides separate garbage bins at each building. • All of the solid wastes will be collected separately in garbage based on their types and stored in relevant separated waste storage area • Final wastes should be disposed by using YCDC's service.
Monitoring & Reporting	• Daily wastes had to be collected and hand over to YCDC waste collector • The inventory record of waste disposal will be maintained as proof for proper management as designed (16°55'36.83"N, 96° 5'2.83"E)
Estimated cost	50,000 Kyats per month
Responsibility	Manager (HR) • Responsible for overall site cleanliness and waste management • Regular waste collection to minimize excessive waste storage

6.8. FIRE MANAGEMENT PLAN

Objectives:	• To ensure that fire control practices are implemented on site to minimise the risk of fire from site operations and bush fires
Relevant government law and rule	Myanmar Fire Brigade Law 2015
Time Frame	• Entire life spans of proposed project operation
Management Plan	• Must be provide fire extinguishers, fire hose reels and fire hydrants on the walls of the factory for fire emergency cases. • Must be indicated the emergency exit and assembly point in public area. • Regular inspection for existing firefighting equipment must be done. In case of fire emergency, water storage tank for fire frightening. • The emergency fire alarms are installed at the factory for alerting the workers in case of fire. • The main entrances and route for emergency cases of the factory must not be blocked with materials or machines for fire emergency cases.
Monitoring & Reporting	To check monthly Visual inspection, Firefighting equipment (fire extinguish, firefighting hose, portable fire pumps, fire hose reels, fire monitor and firefighting nozzles) (16°55'38.15"N, 96° 5'0.54"E)
Estimated cost	1,200,000 Kyats per year
Responsibility	HSE Manager, Operation Manager or Environmental Management Team of Min Dhama Steel Structures Company Limited

6.9. OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT PLAN

Objective	• To provide a broad framework for improving standards of workplace health and safety to reduce work-related injury and illness.
Relevant Government Law and Rule	Public Health Law (1972), Prevention and Control of Communicable Diseases Law 1995 (Amendment 2011), Occupational Safety and Health Law (2019)
Time Frame	• Entire life spans of proposed project
Management Action	• First aid training, safety training, firefighting training or other essential training for machinery handling must be provided for emergency cases of workers. • According to the observed light intensity values, the proponent provides sufficient lighting for workers for safe working and reducing optical problems of the workers. • Personal Protective Equipment (PPE) like earmuffs, safety gloves, helmets and goggles are provided for each department. • To prevent electric shock hazards, electrical maintenance staff (handyman) is to be assigned to do regular inspections and take preventive measures. • Manage the drainage systems of the factory to prevent health risk of the workers. • The maximum allowable noise level for workers is 70dB(A) for 8hours exposure a day. Thus, adequate protective noise impact measures in the form of ear muffs/ear plugs to the workers working in high noise areas.
Monitoring and Reporting	• Weekly check fire extinguishers and water hydrant in position • Daily inspect that all fire exist are open • Servicing fire extinguisher and records accidents (16°55'38.15"N, 96° 5'0.54"E)
Estimated Cost	500,000 Kyats per year
Responsible Person	HSE Manager, Operation Manager or Environmental Management Team of Min Dhama Steel Structures Company Limited

6.10. ENERGY MANAGEMENT PLAN

Objectives:	• To improve energy efficiency, reduce cost, optimize capital investment, reduce environmental and greenhouse gas emissions, and conserve natural resources
Relevant government law and rule	National Energy Management Committee (Myanmar Energy Master Plan 2015)

Time Frame	Once in a year throughout the factory life
Management Plan	• Installation of timers and thermostats to control heating and cooling • Energy saving light installed in different area of the factory for saving energy • Used of energy saving devices must be installed • Ensure that good housekeeping measures such as turning off equipment and lights when not in use
Monitoring & Reporting	Conduct annual energy efficiency of adult to find out the scope for energy saving (16°55'38.15"N, 96° 5'0.54"E)
Estimated cost	Approximately 100,000 Kyats per year
Responsibility	Manager • To arrange energy audit technical personnel • To monitor and record electricity consumption, other related energy issues and take necessary actions if any problem arises

6.11. EMERGENCY RESPONSE AND DISASTER MANAGEMENT PLAN

Objectives:	• To reduce the harmful effects of all hazards, including disasters. The World Health Organization defines an emergency as the state in which normal procedures are interrupted, and immediate measures (management) need to be taken to prevent it from becoming a disaster, which is even harder to recover from.
Relevant government law and rule	• The Employment and Skill Development Law (August 2013), ILO guide to Myanmar Labour Law (2017)
Time Frame	• Entire life spans of the factory operation
Management Plan	• The factory management has taken proper measures to handle any emergency situation like fire, earthquake, flood and storm • Provision and inspection of firefighting equipment and fire hydrant system in all the sections • A detail evaluation plan (fire exist, emergency exit door, etc.) is established and communicated with workers • Periodic inspection of safety relief valve provided with pressure vessels and equipment, preventive maintenance; aware the workers about electric shock by necessary training. • Regular fire drill operation is conducted • Workers are informed about what to do in earthquake like stay in a safe place such as under table of desk, not to try move outside during earthquake, workers who will be outside during earthquake shall remain stay out of the building, trees, lump post, etc. Other relevant safety instruction of emergency situation it informed to workers by training • Workers are aware of dangers from physical hazards such as obstacles covered by floodwater (storm debris, drainage opening, ground erosion) and from displaced reptiles (Snake) or other animals. • A medical team has been prepared for primary treatment (First Aid)

	• Prepare an emergency contact directory consisting contact numbers of nearest fire service, local police station, hospitals, etc. and display it in a place that everybody can see it easy. • Build a safety committee which from firefighting team, rescue team. The committee arrange a meeting every month to discuss about safety management • Ensure proper training of the employees about the disaster management, fire safety as well as occupational health and safety
Monitoring & Reporting	Weekly check fire extinguishers and water hydrant in position Daily inspect that all fire exist are open Servicing fire extinguisher and records accidents, (16°55'38.15"N, 96° 5'0.54"E)
Estimated cost	Approximately 1,500,000 Kyats per year
Responsibility	Factory Manager and EHS officer • Arrange firefighting training after every 3 months • Responsible for fire control and response Monitoring daily danger warning and bans

6.12. ENVIRONMENTAL MONITORING SCHEDULE AND REPORTING

The EMoP cell members responsible may conduct daily, weekly or monthly general inspections of the project area and facilities. The objectives are to identify non-compliances to EMoP. Table 6-2 is provided the environmental monitoring schedule for Min Dhama Steel Structure Company Limited. The factory submits monitoring report to the Ministry not less frequently than every six (6) months, as provided in a schedule in the EMP.

Table 6-2 Environmental Monitoring Schedule for Min Dhama Steel Structure Company Limited

Issues	Parameter	Frequency	Area to be monitored	Monitoring cost	Responsible Organization
Operation Phase					
Air quality	PM 2.5, PM 10, SO2, NO2, O3, CO, VOC	Biannually monitoring and reporting to ECD	Outdoor and Indoor of proposed project (16°55'35.17"N, 96° 4'59.90"E) (16°55'38.18"N, 96° 5'0.35"E)	1,000,000 Kyats	Environmental Management Team's Min Dhama Steel Structure Company Limited
Waste Generation	Solid waste	weekly	Waste storage area (16°55'36.83"N, 96° 5'2.83"E)	50,000 Kyats	Environmental Management Team's Min Dhama Steel Structure Company Limited

Issues	Parameter	Frequency	Area to be monitored	Monitoring cost	Responsible Organization
	wastewater	Biannually	Domestic waste at the factory (office, canteen) (16°55'34.07"N, 96° 4'59.21"E)	800,000 Kyats	Environmental Management Team's Min Dhama Steel Structure Company Limited
Fire Hazardous	Visual inspection, firefighting equipment	Monthly	At the factory (16°55'38.15"N, 96° 5'0.54"E)	500,000 Kyats	Environmental Management Team's Min Dhama Steel Structure Company Limited
Light intensity	Illuminance	Monthly	At the production area (Especially Drilling) (16°55'39.06"N, 96° 5'1.91"E)	20,000 Kyats	Environmental Management Team's Min Dhama Steel Structure Company Limited
Occupational safety and health	-	Weekly	Operation area (16°55'38.15"N, 96° 5'0.54"E)	500,000 kyats per year	Environmental Management Team's Min Dhama Steel Structure Company Limited
Noise	Noise level in decibel (dBA)	Biannually monitoring and reporting to ECD	Two points in operation area (cutting and drilling) (16°55'37.51"N, 96° 4'59.21"E) (16°55'39.06"N, 96° 5'1.91"E)	100,000 kyats per year	Environmental Management Team's Min Dhama Steel Structure Company Limited
Emergency response	-	Weekly	the whole factory	500,000 Kyats per year	Environmental Management

Issues	Parameter	Frequency	Area to be monitored	Monitoring cost	Responsible Organization
			(16°55'38.15"N, 96° 5'0.54"E)		Team's Min Dhama Steel Structure Company Limited
Water consumption		Daily actual inspection	16°55'37.96"N, 96° 4'57.83"E	500,000 kyats per year	Environmental Management Team's Min Dhama Steel Structure Company Limited
Decommissioning Phase					
Air quality	PM 2.5, PM 10, SO2, NO2, O3, CO, VOC	One time during this phase	One point in the production area (16°55'38.15"N, 96° 5'0.54"E)	1,000,000 Kyats	Project proponent
Noise	Noise level in decibel (dBA)	One time during this phase	One points in demolishing area (16°55'38.15"N, 96° 5'0.54"E)	1,000,000 Kyats	Project proponent
Wastewater management	pH, Turbidity, Conductivity, Iron, Sulphate, TSS, TDS, Manganese, COD, BOD, Cyanide, Copper, Zinc, Carbonate	One time during this phase	One points in demolishing area (16°55'38.15"N, 96° 5'0.54"E)	800,000 Kyats	Project proponent
Occupational safety and health	-	One time during this phase	All decommissioning area (16°55'38.15"N, 96° 5'0.54"E)	500,000 Kyats	Project proponent
Fire	-	One time during this phase	All decommissioning area	800,000 Kyats	Project proponent

Issues	Parameter	Frequency	Area to be monitored	Monitoring cost	Responsible Organization
			(16°55'38.15"N, 96° 5'0.54"E)		
Emergency Response	-	One time during this phase	All decommissioning area (16°55'38.15"N, 96° 5'0.54"E)	100,000 Kyats	Project proponent
Rehabilitation	Recovering and Revegetation	-	All decommissioning area (16°55'38.15"N, 96° 5'0.54"E)	500,000 Kyats	Project proponent

6.12.1. Budget Plan for Environmental Management and Monitoring

This section describes the budget plans for the environmental management and environmental monitoring by the project proponent. On the other hand, Min Dhama Steel Structures Company Limited will take necessary environmental mitigation measures and its expenses for the environmental management not only at the construction and operation phases but also at the closing phase in accordance with their responsibility for the studies of recommendation.

The following table shows the expenditures for the implementation of Environmental Management Plan for operation phase annually. Estimation cost for EMP implementation is presented in Table 6-3.

Table 6-3 Cost Estimation for EMP Implementation

No	Item	Frequency/Times	Cost (MMK)
Mitigation Plan			
1	Maintenance of air ventilation system	Once per year	1200,000 per year
2	Tree plantation within the area of factory compound	Once per three months	200,000 per three months
3	Solid waste disposal	Monthly	50,000 per month
4	Purchase of Personal Protective Equipment (PPE)	Once per half a year	200,000 per month
5	Medical Check-up and Health Insurances	Once per year	1,000,000 per year
Emergency Preparedness			
1	Fire extinguisher	Once per month	500,000 per month
2	Fire alarm system	Once per month	

No	Item	Frequency/Times	Cost (MMK)
3	First Aid Fits	Once per month	
Monitoring Plan			
1	Air Quality	Biannually	1,000,000 per year
2	Water Quality	Biannually	800,000 per year
3	Noise level	Biannually	100,000 per year
4	Waste generation (Solid)	weekly	50,000 per month
5	Occupational health and safety	Monthly	500,000 per year
6	Environmental compliance auditing	1	600,000 lump sum

6.13. CAPACITY BUILDING AND TRAINING PLAN

The emergency preparedness is vital, as quick and correct response is necessary in case of emergency to reduce injuries, harm and other damage. Care should be given for during processing activities in order to prevent synthetic errors and accidental cases (e.g., electricity shock and fire hazards).

The emergency response plans should be established for handling all foreseeable emergencies in the workplace and must provide the following;

6.13.1. Assignment of Responsibilities

All senior staff such as a line/production manager or safety officer should be assigned to lead the emergency response team and charged with the duties of (1) assessing the emergency and taking necessary actions (2) overseeing the implementation of the emergency response plan (3) organizing regular drill (4) ensuring all emergency equipment is well maintained.

6.13.2. Emergency Procedures

Emergency procedures are operating instructions for employees to follow in emergency case

About work safety in the concerned processing, the management team should

a) Identify and list out all possible emergency situations in the workplace
b) Assess the effects and impacts of the emergency situations
c) Establish emergency response plans
d) Provide and maintain emergency equipment and other necessary resources
e) Ensure that staff are familiarized with the arrangements in case of emergencies by providing procedural instructions and employee training and organizing drills

6.13.3. Training for Emergencies

The type, amount and frequency of training varies, depending upon the task's employees are expected to perform. Although training must be provided to employees at least annually, safety meetings and drills should be conducted at more frequent intervals.

Regardless of the specific type of facility, training should include, though not be limited to the following;

- Hazard recognition and prevention (fire, explosion, etc.)
- Proper use of fire extinguishers
- Emergency reporting procedures
- Preventive maintenance
- Hazardous materials spill response
- First Aid

6.13.4. Fire Prevention and Protection

The fire prevention and protection program must address the following topics:

Prevention; policies, practices and procedures designed to keep the conditions necessary for a fire from coming together

- Hot work permits
- Lockout/tag out policies
- Design specifications for storage of flammable materials

Severity reduction; policies, practices and procedures designed to reduce the spared of fire and end the fire.

- Emergency plans
- Alarm systems
- Portable fire extinguishers
- Fire Protection Equipment

Cleanup; policies, practices and procedures designed to return the affected area to an operational level and reduce other losses created by improper cleanup

- First aid
- Removal of debris to an appropriate waste site
- Equipment and facility repair

6.13.5. Fire Protection Equipment

1. Explosion Suppression Systems: Explosion suppression systems should be used in unusually hazardous areas such as elevator legs, boots and head, or in areas such as bins, distributors and tanks.

2. Portable Fire Extinguishers: All buildings within a facility must have fully charged and operable portable fire extinguishers. If employees are expected to use portable extinguishers or other firefighting equipment against incipient fires, they must be trained to use the equipment. Training must include the following:
   - Correct type of extinguisher to use on different classes of fire
   - Proper techniques for use of the equipment to extinguish a fire

3. Standpipes and Hoses: All areas within a facility that are above 75 feet from ground level and in which combustible materials other than grain are stored should have wet or dry standpipes and hoses installed.

4. Automatic Sprinkler Systems: Automatic sprinkler systems are recommended in areas containing combustible materials.

5. Fire Hydrants: All grain and feed mill facilities should have adequate public or private fire hydrants on site. Each fire hydrant should have an adequate water supply.

6.13.6. Fire Safety and Evacuation Plan

Fire Evacuation plans should include the following information

- Emergency escape routes must be clearly shown on floor plans and workplace maps
- Employers must know that their employees know the emergency escape routes
- Procedures for employees who must remain to operate critical equipment before evacuating
- Identification and assignment of personnel responsible for rescue or emergency medical aid

Fire Safety Plans should include the following information:

1. Procedure for reporting a fire or other emergency
2. Site plans indicating the following
   - The Occupancy assembly point
   - The locations of fire hydrants
   - The normal routes of fire department vehicles access
3. Floor Plans identifying the locations of the following
   - Exits
   - Primary evacuation routes
   - Secondary evacuation routes
   - Accessible egress routes
   - Areas of refuge
   - Exterior area for assisted rescue
   - Manual fire alarm boxes
   - Portable fire extinguishers
   - Occupant-use hose stations
   - Fire alarm annunciators and controls

The following American National Fire Fighting Association (NFFA) Standards must be following.

Table 6-4 American National Fire Fighting Association (NFFA) Standards

No.	Parameters	Proposed Capacity	Remark
1.	Fire water flow	14 bars	
2.	Deluging rate	12.0 liters/m2/min	
3.	Foam rate	10.0 liters/m2/min	
4.	Maximum water pressure	190 liters/min	For storage area

Emergency evacuation Drill: An exercise performed to train staff and occupants and to evaluate their efficiency and effectiveness in carrying out emergency excavation procedures

Employee Training and Response Procedures: Employee shall be trained in the fire emergency procedure described in their fire evacuation and fire safety plans and training should be based on these plans;

Frequency: Employee shall receive training in the contents of fire safety and evacuation plans and their duties as part of new employee orientation and at least annually thereafter. Records shall be kept and made available to the fire code official upon request.

Employee Training Program: Employee shall be trained in fire prevention, evacuation and fire safety in accordance with the following sections.

Fire Prevention Training - Employee shall be apprised of the fire hazards of the materials and processes to which they are exposed. Each employee shall be instructed in the proper procedures for preventing fires in the conduct of their assigned duties

Evacuation Training – Employees shall be familiarized with the fire alarm and evacuation signals, their assigned duties in the event of an alarm or emergency, evacuation routes, areas of refuge, exterior assembly areas and procedures for evacuation

Fire Safety Training – Employee assigned fire-fighting duties shall be train Toiled to know the locations and proper use of portable fire extinguishers or other manual fire-fighting equipment and the protective clothing or equipment required for its safe and proper use.

6.13.7. Site Fire Control

1. Alert other people through fire alarm
2. If small, control using an extinguisher
3. Contact fire brigade if not under immediate control
4. Attend to human life in immediate danger
5. For electrical fires turn off power before fighting
6. Once out of the building, stay out. Do not allow people to go back into the burning building to collect valuables. While evacuating the building, close doors (but do not lock) to slow down the spread of fire
7. Obey all instructions
8. Proceed to an emergency evacuation area (Muster Point)

6.13.8. Employee Information and Training

Employees must be informed about any operations in their work area where hazardous chemicals or materials are present. They must also be informed about the locations and availability of the hazard communication program, list of chemicals and SDSs. Employees must receive training on the following:

- Methods for detecting the presence or release of a hazardous chemical, such as monitoring devices and the visual
- appearance or odor of the chemical
- Physical and health hazards of chemicals in their work area
- How to protect themselves using work practices, emergency procedures and personal protective equipment
- How to interpret the information on the labels and MSDS of chemical materials

6.13.9. Health and Safety Training Plan for Worker

Health and Safety Training plan currently used and provided in Min Dhama Steel Structures Company Limited to all employees and workers by trainings internally and externally. Specific trainings are recommended and conducted according to the health and safety guidelines to enhance worker's

health and to prevent all potential risks and hazards might occur in the factory. All required trainings related to health and the respective departments propose safety or operational parts, top management makes decision and HR organizes and conducts the trainings.

Table 6-5 Training Plan Used in Min Dhama Steel Structures Company Limited

No.	Health and Safety Guidelines	Training needs
1.	Management	General fire and emergency response plan, evacuation. All training materials and procedures covering health and safety for workers and employees
2.	Machine safety and noise management	Training for machine operations to all operators Use of PPE and proper use of any necessary protection Maintenance and Emergency procedures
3.	Environment safety	Understanding and training on recognition and maintenance not to affect environment
4.	Material storage and safety	Safety use of related devices and machines Use of necessary protections in working areas Sanitation work
5.	Fire Safety	Firefighting and evacuating training and practices Firefighting materials/ devices use
6.	First Aid	first aid / CPR/ AED training from providers (Outsource) training on hazard of pathogens

6.14. GRIEVANCE REDRESS MECHANISM (GRM)

People who live near the project affected area or stakeholders can complain about the problems and impacts that they suffer; they can complain though Grievance Committee, which includes the responsible persons of Min Dhama Steel Structures Company Limited representative from Hlaing Thar Yar Industrial Zone Part (4) and representative from General Administration Department (Hlaing Thar Yar Township). Small issues will be solved at the Grievance Committee stage and other unsolved problems will be submitted to higher responsible authorities and finally the responsible person decided by the court in legal terms. The following diagram show steps of Grievance Redress Mechanism of Proposed Factory Project.

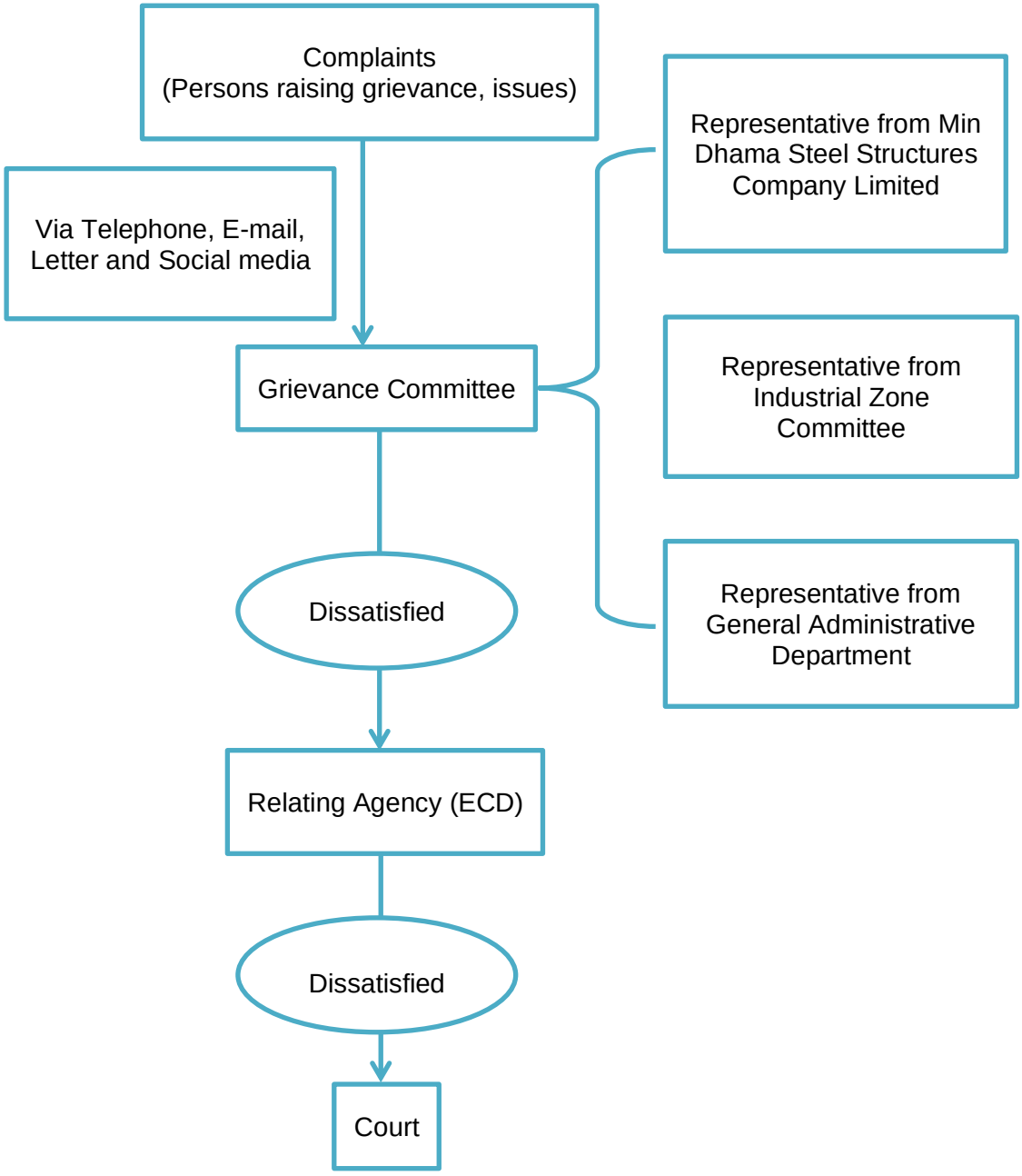


Figure 6-3 Grievance Redress Mechanism Flow Diagram

6.15. CORPORATE SOCIAL RESPONSIBILITY (CSR) PLAN

The CSR activities have the objective to uplift quality of life and gain favorable relations from all communities in the operation area. The CSR program of Min Dhama Steel Structures Company Limited consists of rural area development and health care of employees. CSR activities are conducted in compliance with MIC's guideline for implementation of CSR program.

Min Dhama Steel Structures Company Limited will subscribe (2%) from the net profit for CSR. The contributions are made us follows;

1. 25% for supporting to all-round development of rural area.

2. 25% for basic health care of the employees by opening medical clinics in the factory compound, emergency healthcare program and providing allowances when any of the employee families suffer from illness.
3. The Company will follow the social security rules and regulations as per the Social Security Law.

7. PUBLIC CONSULTATION

7.1. PUBLIC CONSULTATION PROCESS

This chapter presents public consultation and information disclosures during the remaining period of (Environmental Management Plan-EMP). Public consultation is the activities for gathering opinions and suggestions from related stakeholders. It will help to improve the implementation of the project, set the scope for the environmental impact assessment and development mitigation measures, which will be reported in the project's EMP report.

Public consultation conducted as part of this EMP project has three purposes:

1) Information the stakeholders about the Project, environmental and social issues related to project construction and operation, and mitigation measures to minimize environmental and social impacts;
2) Considering the views, concerns, and perceptions of stakeholders, communities and individuals that could be affected by the project or who otherwise have an interest in the project;
3) Participation and partnership where issues and needs are jointly discussed and assessed.

7.2. PUBLIC CONSULTATION MEETING

Public consultation meeting was conducted on 27th April 2023, following the EIA procedure. The project's stakeholders in this category are key officials or representatives of the regional and local authorities who have direct responsibilities for the administration of the EMP process for environmental and social clearance and issuing operation permits for proposed development projects. For this company, relevant key offices at the national level are Environmental Conservation Department (ECD). Relevant key office at the regional level is General Administrative Department, Fire Department, General Labor Law Inspection Department and, Public Health Department.

Public consultation carried out after the presentation on the project, followed by questions, answers and discussion. U Htun Lynn Kyaw presented EMP study and findings from Myanwei, after the presentation following questions and answer section. Summary of public consultation meeting is presented Table 7-1.

Table 7-1 Summary of Public Consultation Meeting

Time and Date	Thursday, 27th April 2023 10:00 AM – 11:15 PM
Venue	Meeting Room of Min Dhama Steel Structures Company Limited, Shwe Pyi Thar Industrial Zone (4), Shwe Pyi Thar Township.
Agenda	➢ Introduction of Min Dhama Steel Structures Company Limited. ➢ Project Activities and its Significant Impacts ➢ Environmental Baseline Study of the proposed project ➢ Risk Assessment and Mitigation Measures ➢ Environmental Management Plan

	▪ Environmental Monitoring Plan and Budget Plan ▪ Corporate Social Responsibilities and factory's activities
Organized by	Myanwei Environmental Solutions Company Limited.

7.3. RECOMMEND SUGGESTION AND COMMENT

Public Consultation Meeting for the EMP of Min Dhama Steel Structures Company Limited was held on 27th April 2023. The detailed of the meeting, including the meeting time, venue and names of participated attended the consultation meeting are listed in **APPENDIX F**.

After the presentation, the floor opened for questions and answers. Most of the government stakeholders are suggested for good monitoring measure during operation.

Table 7-2 Summary of Public Consultation Meeting

Name	Description	Photos
U Moe Kyaw Thu (Senior Manager) Min Dhama Steel Structures Company Limited	Min Dhama Steel Structures Company Limited မှ စီနီယာ မန်နေဂျာ ဦးမိုးကျော်သူမှ အဖွင့်အမှာစကားအနေဖြင့် စက်ရုံသည် CMP စနစ်ဖြင့် လည်ပတ်ဆောင်ရွက်သွားမည် ဖြစ်ပါကြောင်း၊ ကုန်ကြမ်းပစ္စည်းများအား လိုအပ်သလို ဖြတ်တောက်ခြင်း၊ ဂေဟဆော်ခြင်း အစရှိသဖြင့် မှာယူသူများ၏ လိုအပ်ချက်အတိုင်းExport ပြုလုပ်သွားမည် ဖြစ်ပါကြောင်းနှင့် တက်ရောက်လာသော လူကြီးမင်းများမှ အကြံပြု ဆွေးနွေးပေးလိုပါကြောင်း ပြောကြားခဲ့ ပါသည်။	
U Htun Lynn Kyaw (Environmental Specialist) Myanwei Environmental Solutions Company Limited	Myanwei Environmental Solutions Company Limited မှ Environmental Specialist ဦးထွန်းလင်းကျော်မှ Min Dhama Steel Structures Company Limited ၏ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်အား Power Point Presentation ဖြင့် ဆွေးနွေးတင်ပြခဲ့ပါသည်။ ရှင်းလင်းဆွေးနွေးတင်ပြခဲ့သော အကြောင်းအရာများမှာ Min Dhama Steel Structures Company Limited ၏ လုပ်ငန်းဆောင်ရွက်မှု အခြေအနေများ၊ စီမံကိန်း၏ ပတ်ဝန်းကျင်အပေါ် သက်ရောက်မှုဆန်းစစ်ခြင်းနှင့် ထိခိုက်မှုအဆင့်သတ်မှတ်ချက်များ၊ ၎င်းပတ်ဝန်းကျင်အပေါ်သက်ရောက်မှုများအား ဖြေလျော့ရေးနည်းလမ်းများ၊ စီမံကိန်း၏ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု	

	အစီအစဉ်များ အကျဉ်းချုပ်၊ ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုမှုအစီအစဉ်နှင့် ခန့်မှန်းကုန်ကျစရိတ်နှင့် စက်ရုံ၏ လူထုအကျိုးတူ ပူးပေါင်းဆောင်ရွက်မှုများ၊ စက်ရုံ၏ ဆောင်ရွက်ထားရှိမှုများ ဖြစ်ပါသည်။	
U Than Soe (Secretary) Shwe Pyi Thar Industrial Zone Committee (2+3+4)	ရွှေပြည်သာစက်မှုဇုန်စီမံခန့်ခွဲမှုကော်မတီ (ဇုန် ၂+၃+၄) မှ အတွင်းရေးမှူး ဦးသန်းစိုးမှ စက်ရုံသည် ဂျင်နရေတာ၊ မီးစက်များ မောင်းနှင်၍ လုပ်ငန်းဆောင်ရွက်ရပြီး ၎င်းတို့မှ ထွက်ရှိသော ဆူညံသံများကြောင့် ဝန်ထမ်းများ၏ ကျန်းမာရေးကို ထိခိုက်နိုင်သဖြင့် ဂျင်နနေရတာအခန်း၊ မီးစက် အခန်းများအား ဆူညံသံ ပျံ့လွင့်မှု မရှိစေရန် အသံလုံခန်း တည်ဆောက်၍ မောင်းနှင်အသုံးပြုသင့်ပါကြောင်း၊ စတီးဖြတ်တောက်ခြင်းလုပ်ငန်းမှ ထွက်ရှိသော စတီးအမှုန်အမွှားများ လေထဲသို့ ပျံ့လွင့်မှုမရှိစေရန် လေသန့်စင်သည့် fan များ၌ လျှပ်စစ်သံလိုက်တပ်ဆင်ထားပြီး စတီးအမှုန်အမွှားများအား ဖမ်းယူသင့်ပါကြောင်း၊ စက်ရုံအတွင်း သစ်ပင်ပန်းမန်များ စိုက်ပျိုးထားသောကြောင့် ကာဗွန်ဒိုင်အောက်ဆိုဒ် ထွက်ရှိမှု လျှော့ချနိုင်သဖြင့် ကောင်းမွန်ပါကြောင်း အကြံပြုဆွေးနွေးတင်ပြခဲ့ပါသည်။	

		
Daw Zaw Naing Win (Staff Officer) Environmental Conservation Department (North Yangon District)	ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၊ မြောက်ပိုင်းခရိုင်မှ ဦးစီးအရာရှိ ဦးဇော်နိုင်ဝင်းမှ အသံညစ်ညမ်းမှုကြောင့် ဝန်ထမ်းများအား ပထမဆုံးအကျိုးသက်ရောက် နိုင်မည်ဖြစ်ကြောင်း၊ အမြဲမပြတ် လုပ်ငန်းလည်ပတ်နေသည့်အတွက် ဆူညံသံထွက်ရှိမှုများပြားပြီး ပတ်ဝန်းကျင်နှင့် ဝန်ထမ်းများအား စိတ်ဖိစီးမှုပြဿနာများ၊ လူမှုရေးပြဿနာများ နှင့် အာရုံကြောဆိုင်ရာရောဂါများ ဖြစ်ပေါ်နိုင်သည့်အတွက် ဆူညံသံအား အတတ်နိုင်ဆုံး လျှော့ချ၍ လုပ်ငန်းလည်ပတ်သွားရမည် ဖြစ်ပါကြောင်း၊ စီမံကိန်းလုပ်ငန်းမှ ထွက်ရှိသည့် စတီးဖြတ်စများသည် အန္တရာယ်ရှိ စွန့်ပစ်ပစ္စည်းများဖြစ်သည့်အတွက် ၎င်းတို့အား Recycle factory များသို့ ပေးပို့ခြင်း၊ ရန်ကုန်မြို့တော်စည်ပင်သာယာရေးကော်မတီနှင့် ချိတ်ဆက်၍ စနစ်တကျ စွန့်ပစ်ခြင်းများ ပြုလုပ်ဆောင်ရွက်သွားသင့်ပါကြောင်း အကြံပြု ဆွေးနွေးခဲ့ပါသည်။	

U Htun Lynn Kyaw (Environmental Specialist) Myanwei Environmental Solutions Company Limited	Myanwei Environmental Solutions Company Limited မှ Environmental Specialist ဦးထွန်းလင်းကျော်မှ လူကြီးမင်းတို့၏ အကြံပြုတင်ပြချက်များအား စက်ရုံနှင့် ပူးပေါင်း၍ လိုက်နာဆောင်ရွက်သွားမည်ဖြစ်ပါကြောင်းနှင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် အစီရင်ခံစာအား ပြည့်စုံစွာ ပြုစုရေးသားသွားမည် ဖြစ်ပါကြောင်း ပြောကြားခဲ့ပါသည်။	
U Moe Kyaw Thu (Senior Manager) Min Dhama Steel Structures Company Limited	Min Dhama Steel Structures Company Limited မှ စီနီယာ မန်နေဂျာ ဦးမိုးကျော်သူမှ လူကြီးမင်းတို့၏ အကြံပြုဆွေးနွေးတင်ပြချက်များအား လိုက်နာဆောင်ရွက်သွားမည်ဖြစ်ကြောင်းနှင့် တက်ရောက်ဆွေးနွေးပေးသည့်အတွက် အထူးကျေးဇူးတင်ရှိပါကြောင်း ပြောကြားခဲ့ပါသည်။	

8. CONCLUSION & RECOMMENDATION

8.1. CONCLUSION

Environmental Management Plan (EMP) has been prepared for Min Dhama Steel Structures Company Limited is located at Plot No. (88), Myay Taing Block No.(65/Industry), Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region. The main objective of the study is focused specially on the required environmental management measures or creating environmentally friendly workplace.

Thus, the factory management can take proper mitigation steps against adverse environmental impacts by following this EMP. The necessary measure to mitigate impact regarding different environmental parameter such as air, water, waste, noise has been proposed in this EMP.

However, all necessary implementation measures to mitigate adverse environmental, health and safety impacts have already taken to meet National Environmental Quality (Emission) Guideline (2015). On the other, the factory has positive impacts in terms of environmental in the operation phase. Further, this will indirectly help in boosting up the national economic condition through foreign investment. An outline of EMP has been given in the present report to mitigate/enhance the impacts, which occurs during operation phase of the factory.

The effective implementation of the mitigation measures proposed will ensure towards good environmental management within the proposed project area. Furthermore, the environmental monitoring plan prepared as part of the EMP will provide adequate opportunities to address any residual impacts during the operation phase.

In conclusion, it has been figured out that, the proposed steel structures manufacturing factory is going to generate local employment opportunities and enhance capabilities and working skills of employees. Consequently, their socio-economic standard is expected to be improved and undertaking corporate social responsibilities (CSR) as recommended. CSR plan will be applied according to the section 6.13 for rural development and employee's healthcare. The study further concluded that positive impacts will be of immense benefit to the local community and national development as well. There are many positive impacts such as industrial development, social development, job opportunities for the regional people due to project implementation. And environmental management planning for the factory can mitigate the impacts on environment due to project and monitoring plan will also be always check and do for 2 times per year.

8.2. RECOMMENDATION

This is recommended that;

- All appropriate environmental management measures detailed in this report, together with any other environmental management commitments should be implemented throughout the entire life of the factory
- Solid wastes and liquid wastes need to dispose according to YCDC rules and regulation
- Workers should be provided proper training and it should be ensured that workers use PPE during factory operation area.
- Daily, monthly and annual action plan shall be formulated based on this EMP and practiced at operation level.

- Keep full records of environmental management activities and present to annual independent third party environment audit.
- Abide environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar.

Finally, the proponent should follow the comments and suggestions made by ECD after reviewing this EMP report. Once concerned authorities approve EMP, effective implementation of EMP by the project proponent is essential. The Project Proponent shall submit monitoring report to the Ministry every six (6) months, as provided in a schedule in the EMP. The proponent should abide environmental policy, laws, rules and instructions of the Republic of the Union of Myanmar.

9. REFERENCES

[1] General Administrative Department (Shwe Pyi Thar Township), Shwe Pyi Thar Township Data (2017).

[2] Hla Hla Aung, “Potential Seismicity of Yangon Region (Geological Approach), “Yangon Surface Displacement as Detected by Insar Time Series Analyisi” July 2011.

[3] Ministry of Natural Resources and Environmental Conversation (MONREC), “Environmental Impact Assessment Procedure” December 2015.

[4] Ministry of Natural Resources and Environmental Conversation (MONREC), “National Environmental Quality (Emission) Guidelines’’ December 2015.

[5] Specifications for accident prevention signs and tags, regulations (standards 29-CFR), Occupational Safety and Health Administration.

APPENDIX A
Company Documents of Min Dhama Steel Structures Company Limited

ကုမ္ပဏီမှတ်ပုံတင်လက်မှတ်

Certificate of Incorporation

MIN DHAMA STEEL STRUCTURES COMPANY LIMITED
Company Registration No. 104958419

မြန်မာနိုင်ငံကုမ္ပဏီများအက်ဥပဒေ ၁၉၁၄ ခုနှစ် အရ
MIN DHAMA STEEL STRUCTURES COMPANY LIMITED
အား ၂၀၁၅ ခုနှစ် ဇွန်လ ၁၉ ရက်နေ့တွင်
အစုရှယ်ယာအားဖြင့် တာဝန်ကန့်သတ်ထား သည့် အများနှင့်မသက်ဆိုင်သောကုမ္ပဏီ
အဖြစ် ဖွဲ့စည်းမှတ်ပုံတင်ခွင့် ပြုလိုက်သည်။

This is to certify that
MIN DHAMA STEEL STRUCTURES COMPANY LIMITED
was incorporated under the Myanmar Companies Act 1914 on 19 June 2015 as a Private Company Limited by Shares.

ကုမ္ပဏီမှတ်ပုံတင်အရာရှိ
Registrar of Companies
ရင်းနှီးမြှုပ်နှံမှုနှင့်ကုမ္ပဏီများညွှန်ကြားမှုဦးစီးဌာန
Directorate of Investment and Company Administration

DICA
Directorate of Investment and Company Administration

Former Registration No. 254FC/2015-2016(YGN)

ပုံစံ (၅-ခ)

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်

ရန်ကုန်တိုင်းဒေသကြီးရင်းနှီးမြှုပ်နှံမှုကော်မတီ

အတည်ပြုမိန့်

အတည်ပြုမိန့်အမှတ် ရကတ-၅၁၅/၂၀၂၂ ၂၀၂၂ ခုနှစ် နိုဝင်ဘာလ ၂၅ ရက်

ရန်ကုန်တိုင်းဒေသကြီး ရင်းနှီးမြှုပ်နှံမှု ကော်မတီသည် မြန်မာနိုင်ငံ ရင်းနှီးမြှုပ်နှံမှု ဥပဒေ ပုဒ်မ-၂၅(ဃ) အရ ဤအတည်ပြုမိန့်ကိုထုတ်ပေးလိုက်သည် -

(၁) **ရင်းနှီးမြှုပ်နှံသူ/ကမကထပြုသူအမည်** DAW CHERRY

(၂) **နိုင်ငံသား** MYANMAR

(၃) **နေရပ်လိပ်စာ** BUILDING NO.(B-2), ROOM NO.(401), MIN DHAMA ROAD, SHWE GABAR HOUSING, MAYANGONE TOWNSHIP, YANGON

(၄) **ပင်မအဖွဲ့အစည်းအမည်နှင့်လိပ်စာ** MIN DHAMA STEEL STRUCTURES COMPANY LIMITED ၊ အမှတ်(၈၈)၊ မြေတိုင်းရုပ်ကွက်အမှတ်(၆၅/စက်မှု)၊ စက်မှုဇုန် (၄)၊ ရွှေပြည်သာမြို့နယ် ၊ ရန်ကုန်မြို့

(၅) **ဖွဲ့စည်းရာအရပ်** မြန်မာ

(၆) **ရင်းနှီးမြှုပ်နှံသည့်လုပ်ငန်းအမျိုးအစား** CMP စနစ်ဖြင့် ဆောက်လုပ်ရေးလုပ်ငန်း သုံးပစ္စည်းများ ထုတ်လုပ်ခြင်းလုပ်ငန်း

(၇) **ရင်းနှီးမြှုပ်နှံသည့်အရပ်ဒေသ(များ)** အမှတ်(၈၈)၊ မြေတိုင်းရုပ်ကွက်အမှတ် (၆၅/စက်မှု)၊ စက်မှုဇုန် (၄)၊ ရွှေပြည်သာမြို့နယ် ၊ ရန်ကုန်တိုင်းဒေသကြီး

(၈) **နိုင်ငံခြားမတည်ငွေရင်း ပမာဏ** အမေရိကန်ဒေါ်လာ ၀.၇၇၀ သန်း

(၉) **နိုင်ငံခြားမတည်ငွေရင်းယူဆောင်လာရမည့်ကာလ** အတည်ပြုမိန့် ရရှိသည့်နေ့မှ ၆ လအတွင်း

(၁၀) **စုစုပေါင်း မတည်ငွေရင်းပမာဏ(ကျပ်)** အမေရိကန်ဒေါ်လာ ၁.၉၂၀ သန်း နှင့် ညီမျှသော မြန်မာကျပ်ငွေ (အမေရိကန်ဒေါ်လာ ၀.၇၇၀ သန်းအပါအဝင်)

(၁၁) **တည်ဆောက်မှုကာလ** ၁ နှစ်

(၁၂) **ရင်းနှီးမြှုပ်နှံမှုခွင့်ပြုသည့်သက်တမ်း** ၂၀ နှစ်

(၁၃) **ရင်းနှီးမြှုပ်နှံမှုပုံစံ** ဖက်စပ် နိုင်ငံခြားရင်းနှီးမြှုပ်နှံမှု

(၁၄) **မြန်မာနိုင်ငံတွင်ဖွဲ့စည်းမည့်ကုမ္ပဏီအမည်** MIN DHAMA STEEL STRUCTURES COMPANY LIMITED

(စိုးသိန်း)

ဥက္ကဋ္ဌ

Form (5-B)

THE REPUBLIC OF THE UNION OF MYANMAR

Yangon Region Investment Committee

ENDORSEMENT

Endorsement No. YGN-515/2022 Date 25 November 2022

This endorsement is issued by Yangon Region Investment Committee in accordance with Section 25(d) of the Myanmar Investment Law-

(1) **Name of Investor** DAW CHERRY

(2) **Citizenship** MYANMAR

(3) **Residence Address** BUILDING NO.(B-2), ROOM NO.(401), MIN DHAMA ROAD, SHWE GABAR HOUSING, MAYANGONE TOWNSHIP, YANGON

(4) **Name and Address of Principal Organization** MIN DHAMA STEEL STRUCTURES COMPANY LIMITED, PLOT NO. (88), MYAY TAING BLOCK NO-(65/INDUSTRY), INDUSTRIAL ZONE PART (4), SHWE PYI THAR TOWNSHIP, YANGON

(5) **Place of Incorporation** MYANMAR

(6) **Type of business** MANUFACTURING OF CONSTRUCTION MATERIALS (HIGH RISE BUILDING, WAREHOUSE AND BRIDGES) ON CMP BASIS

(7) **Place(s) of investment Project** PLOT NO. (88), MYAY TAING BLOCK NO-(65/INDUSTRY), INDUSTRIAL ZONE PART (4), SHWE PYI THAR TOWNSHIP, YANGON REGION

(8) **Foreign Capital Amount** US$ 0.770 MILLION

(9) **Period for Foreign Capital to be brought in** WITHIN 6 MONTHS FROM THE DATE OF ISSUANCE OF ENDORSEMENT

(10) **Total Amount of Capital (Kyat)** EQUIVALENT IN KYAT OF US$ 1.920 MILLION (INCLUDING US$ 0.770 MILLION)

(11) **Construction/ Preparation Period** 1 YEAR

(12) **Validity of Endorsement** 20 YEARS

(13) **Form of Investment** JOINT VENTURE

(14) **Name of Company Incorporated in Myanmar** MIN DHAMA STEEL STRUCTURES COMPANY LIMITED

(Soe Thein)
Chairman

APPENDIX B
Transitional Consultant Registration Certificate

REPUBLIC OF THE UNION OF MYANMAR

Ministry of Natural Resources and Environmental Conservation

CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION

(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်း:အထောက်အထား:လက်မှတ်)

No. 10048 Date

The Ministry of Natural Resources and Environmental Conservation, hereby, issues this certificate to the person under Environmental Impact Assessment Procedure, Notification No. 616/2015.

(ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း၊ အမိန့်ကြော်ငြာစာအမှတ်၊ ၅၁၆/၂၀၁၅ အရ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသည် ဤအထောက်အထားလက်မှတ်ကို လူပုဂ္ဂိုလ်အားထုတ်ပေးလိုက်သည်။)

(a)	Name of Consultant (အကြံပေးပုဂ္ဂိုလ်အမည်)	U Lin Htet Sein
(b)	Citizenship (နိုင်ငံသား)	Myanmar
(c)	Identity Card / Passport Number (မှတ်ပုံတင်/နိုင်ငံကူးလက်မှတ် အမှတ်)	7/ Tha Ka Na (N) 101377
(d)	Address (ဆက်သွယ်ရန်လိပ်စာ)	No.54, Room No.704, Waizayantar Tower, Waizayantar Road, Thingangyun Township, Yangon. lin.tbs@gmail.com , 09 421137569
(e)	Organization (အဖွဲ့အစည်း)	Total Business Solution Co., Ltd.
(f)	Type of Consultancy (အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)	Person
(g)	Duration of validity (သက်တမ်းကုန်ဆုံးရက်)	31 March 2018

EXTENSION

သက်တမ်းတိုးပြုခြင်း၊

The VALIDITY of this certificate is extended for one year from (1.4.2018) to (31.3.2019)

ဤလက်မှတ်အား (၀၁-၄-၂၀၁၈) ရက်နေ့မှ (၃၁.၃.၂၀၁၉) ရက်နေ့အထိ တစ်နှစ်သက်တမ်း တိုးပြုပြီးသည်။

12.10.2018

For Director General

(Soe Naing, Director)

Environmental Conservation Department

Director General

Environmental Conservation Department

Ministry of Natural Resources and Environmental Conservation

Areas of Expertise Permitted
(ခွင့်ပြုသည့် ကျွမ်းကျင်မှုနယ်ပယ်များ)

1. Geology and Soil

EXTENSION
သက်တမ်းတိုးမြှင့်ခြင်း
The VALIDITY of this certificate is extended for six month from (1.1.2021) to (30.6.2021)
ဤလက်မှတ်အား(၁-၁-၂၀၂၁)ရက်နေ့မှ(၃၀-၆-၂၀၂၁)
ရက်နေ့အထိ (၆)လသက်တမ်းတိုးမြှင့်သည်။
For Director General
(Soe Naing, Director)
Environmental Conservation Department

EXTENSION
သက်တမ်းတိုးမြှင့်ခြင်း
The VALIDITY of this certificate is extended for nine months from (1.4.2019) to (31.12.2019)
ဤလက်မှတ်အား(၁-၄-၂၀၁၉) ရက်နေ့မှ (၃၁-၁၂-၂၀၁၉)
ရက်နေ့အထိ (၉)လသက်တမ်း တိုးမြှင့်သည်။
For Director General
(Soe Naing, Director)
Environmental Conservation Department

EXTENSION
သက်တမ်းတိုးမြှင့်ခြင်း
The VALIDITY of this certificate is extended for six months from (1.7.2021) to (31.12.2021)
ဤလက်မှတ်အား(၁-၇-၂၀၂၁)ရက်နေ့မှ(၃၁-၁၂-၂၀၂၁)
ရက်နေ့အထိ (၆)လသက်တမ်းတိုးမြှင့်သည်။
For Director General
(Soe Naing, Director)
Environmental Conservation Department

EXTENSION
သက်တမ်းတိုးမြှင့်ခြင်း
The VALIDITY of this certificate is extended for one year from (1.1.2020) to (31.12.2020)
ဤလက်မှတ်အား(၁-၁-၂၀၂၀)ရက်နေ့မှ(၃၁-၁၂-၂၀၂၀)
ရက်နေ့အထိ တစ်နှစ်သက်တမ်းတိုးမြှင့်သည်။
For Director General
(Soe Naing, Director)
Environmental Conservation Department

EXTENSION (သက်တမ်းတိုးမြှင့်ခြင်း)
The VALIDITY of this certificate is extended for one year from (1.1.2022) to (31.12.2022)
ဤလက်မှတ်အား(၁-၁-၂၀၂၂)ရက်နေ့မှ(၃၁-၁၂-၂၀၂၂)
ရက်နေ့အထိ တစ်နှစ်သက်တမ်းတိုးမြှင့်သည်။
For Director General
(Soe Naing, Director)
Environmental Conservation Department

EXTENSION (သက်တမ်းတိုးမြှင့်ခြင်း)
The VALIDITY of this certificate is extended for six months from (1.1.2023) to (30.6.2023)
ဤလက်မှတ်အား(၁-၁-၂၀၂၃)ရက်နေ့မှ(၃၀-၆-၂၀၂၃)
ရက်နေ့အထိ (၆)လသက်တမ်းတိုးမြှင့်သည်။
For Director General
(Sa Aung Thu, Director)
Environmental Conservation Department

THE REPUBLIC OF THE UNION OF MYANMAR

Ministry of Natural Resources and Environmental Conservation

Environmental Conservation Department

CERTIFICATE FOR TRANSITIONAL CONSULTANT REGISTRATION

(ကြားကာလအကြံပေးလုပ်ကိုင်သူမှတ်ပုံတင်ခြင်းအထောက်အထားလက်မှတ်)

No. 00068 Date 24 MAY 2019

The Ministry of Natural Resources and Environmental Conservation, hereby, issues this certificate to the organization under Environmental Impact Assessment Procedure, Notification No. 616/2015.

(ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်း၊ အမိန့်ကြော်ငြာစာအမှတ်၊ ၆၁၆/၂၀၁၅ အရ သယံဇာတနှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနသည် ဤအထောက်အထားလက်မှတ်ကို ထုတ်ပေးလိုက်သည်။)

(a)	Name of Organization (အဖွဲ့အစည်းအမည်)	Myanwei Consulting Co., Ltd.
(b)	Name of the representative in the organization (အဖွဲ့အစည်းကိုယ်စားလှယ်၏အမည်)	U Nyan Lynn Aung
(c)	Citizenship of the representative in the organization (အဖွဲ့အစည်းကိုယ်စားလှယ်၏နိုင်ငံသား)	Myanmar
(d)	Identity Card /Passport Number of the representative person in the organization (အဖွဲ့အစည်းကိုယ်စားလှယ်၏ မှတ်ပုံတင်/ နိုင်ငံကူးလက်မှတ် အမှတ်)	12/Sakhana(N)056196
(e)	Address of organization (ဆက်သွယ်ရန်လိပ်စာ)	No. 28, Myay nu street, Sanchaung Township, Yangon, Myanmar. Mobile phone: 09440251888 E mail: ceo@myanweiconsulting.com
(f)	Type of Consultancy (အကြံပေးလုပ်ကိုင်မှုအမျိုးအစား)	Organization
(g)	Duration of validity (သက်တမ်းကုန်ဆုံးရက်)	31 December 2019

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဦးစီးဌာန

Director General

Environmental Conservation Department

Ministry of Natural Resources and Environmental Conservation

Areas of Expertise Permitted
(ခွင့်ပြုသည့် ကျွမ်းကျင်မှုနယ်ပယ်များ)

1. Facilitation of meeting,
2. Land use,
3. Legal analysis,
4. Geology and soil,
5. Occupational Safety and Health,
6. Public Health

ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဦးစီးဌာန

EXTENSION
သက်တမ်းတိုးမြှင့်ခြင်း
The VALIDITY of this certificate is extended for one year from (1.1.2020) to (31.12.2020)
ဤလက်မှတ်အား(၁-၁-၂၀၂၀) ရက်နေ့မှ (၃၁-၁၂-၂၀၂၀) ရက်နေ့အထိ တစ်နှစ်သက်တမ်းတိုးမြှင့်သည်။
For Director General
(Soe Naing, Director)
Environmental Conservation Department

EXTENSION
သက်တမ်းတိုးမြှင့်ခြင်း
The VALIDITY of this certificate is extended for six month from (1.1.2021) to (30.6.2021)
ဤလက်မှတ်အား(၁-၁-၂၀၂၁) ရက်နေ့မှ (၃၀-၆-၂၀၂၁) ရက်နေ့အထိ (၆)လသက်တမ်းတိုးမြှင့်သည်။
For Director General
(Soe Naing, Director)
Environmental Conservation Department

EXTENSION
သက်တမ်းတိုးမြှင့်ခြင်း
The VALIDITY of this certificate is extended for six months from (1.7.2021) to (31.12.2021)
ဤလက်မှတ်အား(၁-၇-၂၀၂၁) ရက်နေ့မှ (၃၁-၁၂-၂၀၂၁) ရက်နေ့အထိ (၆)လသက်တမ်းတိုးမြှင့်သည်။
For Director General
(Soe Naing, Director)
Environmental Conservation Department

EXTENSION (သက်တမ်းတိုးမြှင့်ခြင်း)
The VALIDITY of this certificate is extended for one year from (1.1.2022) to (31.12.2022)
ဤလက်မှတ်အား(၁-၁-၂၀၂၂) ရက်နေ့မှ (၃၁-၁၂-၂၀၂၂) ရက်နေ့အထိ တစ်နှစ်သက်တမ်းတိုးမြှင့်သည်။
25.3.2022
For Director General
(Soe Naing, Director)
Environmental Conservation Department

EXTENSION (သက်တမ်းတိုးမြှင့်ခြင်း)
The VALIDITY of this certificate is extended for six months from (1.1.2023) to (30.6.2023)
ဤလက်မှတ်အား(၁-၁-၂၀၂၃) ရက်နေ့မှ (၃၀-၆-၂၀၂၃) ရက်နေ့အထိ (၆)လသက်တမ်းတိုးမြှင့်သည်။
For Director General
(Sa Aung Thu, Director)
Environmental Conservation Department

APPENDIX C
Monitoring Result

Air Quality Result

MYANWEI
ENVIRONMENTAL SOLUTIONS
No. 49 (B), Inya Yeik Thar Street, Mayangone Township, Yangon Region, The Republic of the Union of Myanmar.
Office: (+95) 95185776, Mobile: (+95) 9421137569; Website: www.myanweiconsulting .com

Project Name:	MIN DHAMA STEEL STRUCTURES COMPANY LIMITED
Project Location:	Plot No. (88), Myay Taing Block No.(65/Industry), Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region.
Sampling Date:	5th January, 2023
Sampling Time:	9:00 AM ~ 5:00 PM (8-Hours)
Sampling Condition:	
Sampling By:	Environmental Team Represented by Myanwei Environmental Solutions Company Limited

Instrument	Type	Sampling Rate	Location
OCEANUS-AQM-09	PM_{10}, $PM_{2.5}$, O_3, NO_2, SO_2, CO, VOC	0-999.9 ($\mu g/m^3$)	16°55'35.17"N 96° 4'59.90"E

National Environmental Quality (Emission) Guideline

Parameter	Averaging period	Guideline value	Unit
PM 10[a]	1-year 24-hour	20 50	($\mu g/m^3$)
PM 2.5[a]	1-year 24-hour	10 25	($\mu g/m^3$)
O_3[a]	8-hour	100	($\mu g/m^3$)
NO_2[a]	1-year 1-hour	40 200	($\mu g/m^3$)
SO_2[a]	24-hour 10-min	20 500	($\mu g/m^3$)

a. Values from air quality guidelines-global update 2005: particulate matter, ozone, nitrogen dioxide and sulfur dioxide.

Monitoring Result

Parameters	Observed Value	Guideline Value	Unit	Organization	Period
PM10	19	50	µg/m3	NEQG	8 hours
PM2.5	12	25	µg/m3	NEQG	8 hours
SO2	5	20	µg/m3	NEQG	8 hours
NO2	23	200	µg/m3	NEQG	8 hours
O3	16	100	µg/m3	NEQG	8 hours
CO	0.5	NG	µg/m3	-	-
VOC	0.02	NG	ppm	-	8 hours

LIN HTET SEIN
DIRECTOR
MYANWEI ENVIRONMENTAL SOLUTIONS
COMPANY LIMITED.

Noise Monitoring Result

MYANWEI
ENVIRONMENTAL SOLUTIONS
No. 49 (B), Inya Yeik Thar Street, Mayangone Township, Yangon Region, The Republic of the Union of Myanmar.
Office: (+95) 95185776, Mobile: (+95) 9421137569; Website: www.myanweiconsulting .com

Project Name:	MIN DHAMA STEEL STRUCTURES COMPANY LIMITED
Project Location:	Plot No. (88), Myay Taing Block No.(65/Industry), Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region.
Sampling Date:	5th January 2023
Sampling Time:	10:00 AM ~ 4:00 PM
Sampling Condition:	
Sampling By:	Environmental Team Represented by Myanwei Environmental Solutions Company Limited

Instrument	Type	Sampling Rate	Location
Digital Sound Level Meter	GM 1356 USB	30 -130 dB	16°55'39.21"N 96°4'59.86"E

No	Place	Unit	Result	Standard	Remark
1	Operation Area	dBA	75.5	70	a little exceed

National Environmental Quality (Emission) Guideline

Receptor	One Hour Laeq (dBA)	Guideline value
	Daytime	Nighttime
	7:00 – 22:00 (10:00 – 22:00 for Public holidays)	22:00 – 07:00 (22:00 – 10:00 for Public holidays)
Residential, Institutional, Educational	55	45
Industrial, Commercial	70	70

LIN HTET SEIN
DIRECTOR
MYANWEI ENVIRONMENTAL SOLUTIONS
COMPANY LIMITED.

Light Result

MYANWEI
ENVIRONMENTAL SOLUTIONS
No. 49 (B), Inya Yeik Thar Street, Mayangone Township, Yangon Region, The Republic of the Union of Myanmar.
Office: (+95) 95185776, Mobile: (+95) 9421137569; Website: www.myanweiconsulting .com

Project Name:	MIN DHAMA STEEL STRUCTURES COMPANY LIMITED
Project Location:	Plot No. (88), Myay Taing Block No.(65/Industry), Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region.
Sampling Date:	5th January 2023
Sampling Time:	8:00 am to 4:00 pm
Sampling Condition:	
Sampling By:	Environmental Team Represented by Myanwei Environmental Solutions Company Limited

Instrument	Type	Sampling Rate	Location
Uni-T (Luminometer)	UT380 Series	100 times/second	16°55'38.15"N, 96° 5'0.54"E

light Measurement Results

No.	Location	Measure value (Lux)	Standard*
1	Cutting Area	541	400
2	Welding Area	673	400
3	Drilling Area	821	600
4	Punching Area	757	600

IEESNA Lighting Handbook

Department	Type of Light	Wattage of Light	Lux Level
Warehouse	Fluorescent tube light	40 W	300
Sewing floor	LED tube light	20 W (T8)	400
Cutting floor	LED tube light	22 W (T8)	1000
Finishing	LED tube light	28 W (T8)	600
Inspection points	LED tube light	28 W (T8)	900 (except 1500 at audit tables)
Sampling	LED tube light	22 W (T8)	500
Office areas	Fluorescent tube light	36 W (T)	300

LIN HTET SEIN
DIRECTOR
MYANWEI ENVIRONMENTAL SOLUTIONS COMPANY LIMITED.

APPENDIX D

Water Result

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

W0522 744

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 1 of 1

WATER QUALITY TEST RESULTS FORM

Client: မင်းဓမ္မ
Nature of Water: Tube Well Water
Location: Shwe Pyi Thar Township
Date and Time of collection: 27.5.2022
Date and Time of arrival at Laboratory: 28.5.2022
Date and Time of commencing examination: 29.5.2022
Date and Time of completing: 31.5.2022

Results of Water Analysis — **WHO Drinking Water Guideline (Geneva - 1993)**

pH	7.1		6.5 - 8.5
Colour (True)	Nil	TCU	15 TCU
Turbidity		NTU	5 NTU
Conductivity	1134	micro S/cm	
Total Hardness	244	mg/l as $CaCO_3$	500 mg/l as $CaCO_3$
Calcium Hardness		mg/l as $CaCO_3$	
Magnesium Hardness		mg/l as $CaCO_3$	
Total Alkalinity	32	mg/l as $CaCO_3$	
Phenolphthalein Alkalinity		mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)		mg/l as $CaCO_3$	
Bicarbonate (HCO_3)		mg/l as $CaCO_3$	
Iron	0.28	mg/l	0.3 mg/l
Chloride (as CL)	315	mg/l	250 mg/l
Sodium Chloride (as NaCL)		mg/l	
Sulphate (as SO_4)		mg/l	500 mg/l
Total Solids		mg/l	1500 mg/l
Total Suspended Solids		mg/l	
Total Dissolved Solids	567	mg/l	1000 mg/l
Manganese		mg/l	0.05 mg/l
Phosphate		mg/l	
Phenolphthalein Acidity		mg/l	
Methyl Orange Acidity		mg/l	
Salinity		ppt	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by
Signature: Hein
Name: Zaw Hein
B.Sc (Chemistry)
Sr.Chemist
ISO Tech Laboratory

Approved by
Signature: soethit
Name: Soe Thit
B.E (Civil) 1980,
Technical Officer
ISO TECH Laboratory

No.18, Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
Ph: 01-640955, 09-880100172, 09-880100173, 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

APPENDIX E
Public Disclose Power Point Presentation

Min Dhama Steel Structures Company Limited ၏
CMP စနစ်ဖြင့် Steel Structures အမျိုးမျိုး ထုတ်လုပ်ခြင်းလုပ်ငန်း

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီရင်ခံစာ အတွက်
သက်ဆိုင်သူများနှင့် တွေ့ဆုံဆွေးနွေးပွဲ အခမ်းအနား

၂၇ ရက် ၊ ဧပြီလ ၊ ၂၀၂၃ ခုနှစ်

Prepared By
Myanwei Environmental Solutions Company Limited

အစည်းအဝေး အကြောင်းအရာ

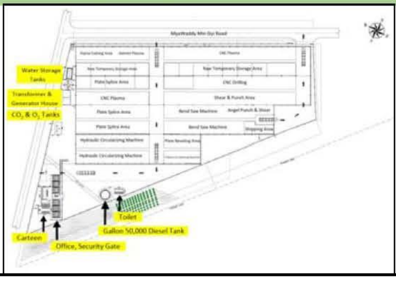
၁။ Min Dhama Steel Structure Company limited ၏ လုပ်ငန်းလုပ်ဆောင်မှု အခြေအနေများအား ရှင်းလင်းတင်ပြခြင်း။
၂။ ပတ်ဝန်းကျင်အပေါ်သက်ရောက်မှုဆန်းစစ်ခြင်းနှင့် ထိခိုက်မှုအဆင့်သတ်မှတ်ချက်များ
၃။ ပတ်ဝန်းကျင်အပေါ် သက်ရောက်မှုများနှင့် ဖြေလျော့ရေးနည်းလမ်းများ
၄။ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်
၅။ ပတ်ဝန်းကျင်ဆိုင်ရာစောင့်ကြပ်ကြည့်ရှုမှုအစီအစဉ်နှင့် ခန့်မှန်းကုန်ကျစရိတ်။
၆။ လူထုအကျိုးတူပူးပေါင်းဆောင်ရွက်မှုနှင့် စက်ရုံ၏ ဆောင်ရွက်ချက်များ

Min Dhama Steel Structures Company Limited	
လုပ်ငန်းအမျိုးအစား	Steel Structures အမျိုးမျိုးထုတ်လုပ်ခြင်းလုပ်ငန်း
အတည်ပြုအမိန့်အမှတ်	၂၅ရက် - ဇန်နဝါရီလ - ၂၀၂၂၊ YRIC အတည်ပြုမိန့်အမှတ် (ရက-၅၁၅/၂၀၂၀)၊
ရင်းနှီးမြှုပ်နှံမှု	ဖက်စပ်လုပ်ကိုင်ခြင်း (မြန်မာနိုင်ငံသားရှယ်ယာ ၆၀% + နိုင်ငံခြားရှယ်ယာ ၄၀%)
မြေဧရိယာ	စုစုပေါင်းမြေဧက (၅.၅၁၉ ဧက) (၂၂၃၃၄.၆၂ စတုရန်းမီတာ)
ရင်းနှီးမြှုပ်နှံမည့်ပမာဏ	အမေရိကန်ဒေါ်လာ (၁.၉၂၀) သန်း
ရင်းနှီးမြှုပ်နှံသည့်ကာလ	နှစ် (၂၀) ရင်းနှီးမြှုပ်နှံမှု
စက်ရုံလိပ်စာ	အမှတ် (၈၈)၊ မြေတိုင်းရပ်ကွက်အမှတ် (၆၅/စက်မှု)၊ စက်မှုဇုန် (၄)၊ ရွှေပြည်သာမြို့နယ်၊ ရန်ကုန်တိုင်းဒေသကြီး

Min Dhama Steel Structures Company Limited		
စီမံကိန်းရှယ်ယာပါဝင်သူများစာရင်း		
ရှယ်ယာရှင်	နိုင်ငံသား	ရှယ်ယာရာနိုင်နှုန်း
Mottama Holdings Limited	Myanmar	၆၀%
Mutual Profit Trading Limited	Chinese	၄၀%

Min Dhama Steel Structures Company Limited ၏ စီမံကိန်းတည်နေရာ

Min Dhama Steel Structures Company Limited ၏ Layout Photo

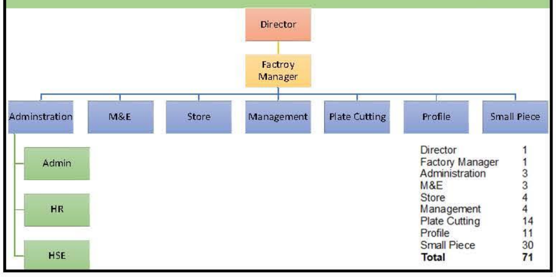


Min Dhama Steel Structures Company Limited ၏ အနီးဝန်းကျင်ပြမြေပုံ

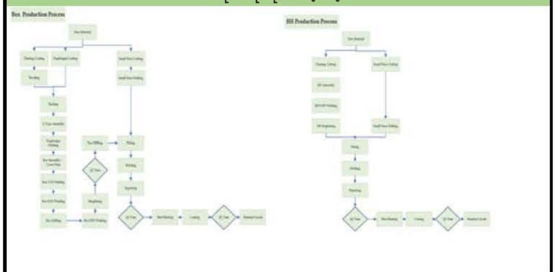
လုပ်ငန်းအကြောင်းအရာဖော်ပြချက်

ကုန်ကြမ်းရရှိမှု	နှစ်စဉ် ပျမ်းမျှ၄၀,၀၀၀ မက်ထရစ်တန်ခန့် (ဂျပန်၊ ထိုင်ဝမ်၊ စကော်ပူ၊ ထိုင်း၊ ဖိလစ်ပိုင်၊ ဩစတေးလျ၊ ယူအေအီး၊ ကာတာ၊ မော်ဒိုက်၊ မက္ကဆီကို)
နှစ်စဉ်ကုန်ချောထွက်ရှိနိုင်မှု	နှစ်စဉ် ပျမ်းမျှ ၃၅,၈၀၉ မက်ထရစ်တန်ခန့် (ဂျပန်၊ ထိုင်ဝမ်၊ စကော်ပူ၊ ထိုင်း၊ ဖိလစ်ပိုင်၊ ဩစတေးလျ၊ ယူအေအီး၊ ကာတာ၊ မော်ဒိုက်၊ မက္ကဆီကို)
အဆောက်အဦအမျိုးအစား	စက်ရုံအဆောက်အဦ (၃)လုံးတွဲ၊ Toilet၊ ရုံးခန်း၊ ထမင်းစားဆောင်၊ မီးစက်ခန်း၊ ရေလှောင်ကန်၊ ရေလှောင်တာဝါ၊ Gas filling station
ခန့်ထားမည့် လုပ်သားဦးရေ	၁၁၀ ဦး၊ လက်ရှိလုပ်သားဦးရေ (၇၀)ဦး၊ တစ်နှစ်အလုပ်လုပ်ရက် (၂၆၅)ရက်
ရေအရင်းအမြစ်	Underground water storage tank (15,000 gallons) Tower tank (10,000 gallons); နေ့စဉ် ရေသုံးစွဲမှု ပမာဏ - ပျမ်းမျှ (၂၀၀) ဂါလန်ခန့်

Min Dhama Steel Structures Company Limited ၏ ဖွဲ့စည်းပုံ



Min Dhama Steel Structures Company Limited ၏ ထုတ်လုပ်ပုံအဆင့်ဆင့်



Min Dhama Steel Structures Company Limited ၏ စက်ပစ္စည်းများ အသုံးပြုပုံ

Flame Cutting Machine

CNC Drilling Machine

Hydraulic Shearing Machine

Hydraulic Punching Machine

Hydraulic Bending Press Brake

Welding Process



ကုန်ချောဓာတ်ပုံများ

လုပ်ငန်းအကြောင်းအရာဖော်ပြချက်	
လျှပ်စစ်မီးရရှိမှု	Yangon City Electricity Supply Board (YESB) – 1,000 kVA Transformer, 5 generators (three 500 kVA & One 100 kVA)
ဝန်ထမ်းများအတွက် စီမံထားရှိမှု	Toilet, Bathroom, Rest camp, Canteen, Smoking area, Basin
ကော်ရုပ်ထုတ်ရှိသည့် အစိုင်အခဲ စွန့်ပစ်အမှိုက်	တစ်ရက်လျှင် ၂၉ တန် (စတီးဖြတ်စများ)
ဝန်ထမ်းများမှ ထွက်ရှိသည့် အမှိုက်	တစ်ရက်လျှင် ၂၆.၉၁ ကီလိုဂရမ်
Toilet နှင့် ထမင်းစားဆောင်မှ စွန့်ပစ်ရေ ထွက်ရှိမှု	တစ်ရက်လျှင် ၆.၉ m3
လမ်းပန်းဆက်သွယ်ရေး	ကင်းဝန်မင်းကြီးလမ်း၊ မြဝတီမင်းကြီးလမ်း၊ ဦးဆွေမြူလမ်း
ကိုဩဒိနိတ်	မြောက်လတ္တီတျူ ၁၆°၅၅'၃၅.၁၇'' အရှေ့ လောင်ဂျီတျူ ၉၆°၄'၅၉.၁၄''



လုပ်ငန်းခွင်ထွက် စွန့်ပစ်ပစ္စည်းများ


ယာယီအမှိုက် သိုလှောင်သည့်နေရာ

ပတ်ဝန်းကျင်အပေါ် သက်ရောက်မှုဆန်းစစ်ခြင်းနှင့် ထိခိုက်မှုအဆင့်သတ်မှတ်ချက်များ

ပတ်ဝန်းကျင်ဆိုင်ရာ အခြေခံအချက်အလက်များ ကောက်ယူခဲ့သည့် မြေပုံ

အပူချိန်နှင့် စိုထိုင်းဆ

Date & Time	Description	GPS Location	Result
5th January 2023 (10:00 am to 4:00 pm)	Relative Humidity (RH%)	16°55'35.17"N 96° 4'59.90"	51.69 (%)
	Temperature		35.5 °C



လေတိုက်ဒေါ်ပြပုံ အပူချိန်နှင့် စိုထိုင်းဆ တိုင်းတာနေပုံ

လေအရည်အသွေး

Parameter	Observed Value	Guideline Value	Unit	Guideline	Period	GPS Location
PM_{10}	19	50	µg/m³	NEQG	8 hours	16°55'35.17"N 96° 4'59.90"E
$PM_{2.5}$	12	25	µg/m³	NEQG	8 hours	
SO_2	5	20	µg/m³	NEQG	8 hours	
NO_2	23	200	µg/m³	NEQG	8 hours	
O_3	16	100	µg/m³	NEQG	8 hours	
CO	0.5	NG	µg/m³	-	-	
VOC	0.02	NG	ppm	-	8 hours	

အထက်ဖော်ပြပါ လေအရည်အသွေးတိုင်းတာမှု ရလဒ်များအရ Min Dhama Steel Structures Company Limited တွင် လေအရည်အသွေးတိုင်းတာမှု ရလဒ်မှာ **National Environmental Quality (Emission) Guideline** **အတွင်း** တည်ရှိနေသည်ကို ဆန်းစစ်တွေ့ရှိရပါသည်။


လေအရည်အသွေးတိုင်းတာသည့် မှတ်တမ်းဓာတ်ပုံများ

ဆူညံသံတိုင်းတာမှု

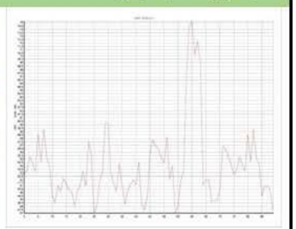
Date & Time	Location	GPS Location	Noise Result	NEQ Guideline
5th January 2023 (10:00 am to 4:00 pm)	Operation Area	16°55'39.21"N 96°4'59.86"E	75.5 dBA	70 dBA

အထက်ဖော်ပြပါ ဆူညံသံတိုင်းတာမှု ရလဒ်များအရ Min Dhama Steel Structures Company Limited တွင် ဆူညံသံတိုင်းတာမှု ရလဒ်မှာ **National Environmental Quality (Emission) Guideline** ထက် **အနည်းငယ်ကျော်လွန်** နေသည်ကို ဆန်းစစ်တွေ့ရှိရပါသည်။

စက်ရုံလုပ်ငန်းအနေဖြင့် steel structures များ ဖြတ်တောက်ခြင်း၊ ဂဟေဆော်ခြင်း၊ အပေါက်ဖေါက်ခြင်း အစရှိသဖြင့် ကြီးမားလေးလံသော ဆူညံသံထွက်ရှိမှုများသော စက်ပစ္စည်းများဖြင့် လုပ်ငန်းလုပ်ဆောင်ရသောကြောင့် စက်ရုံအတွင်း ဆူညံသံထွက်ရှိမှု များပြားနေရခြင်းဖြစ်ပါသည်။

စက်ရုံမှ ဆူညံသံထွက်ရှိမှုများသော လုပ်ငန်းခွင်တွင် လုပ်ကိုင်နေရသော ဝန်ထမ်းများအတွက် နားကြပ်များ၊ တစ်ကိုယ်ရေသုံးကာကွယ်ရေးပစ္စည်းများ ဝတ်ဆင်ပြီးမှသာ လုပ်ငန်းဆောင်ရွက်စေပါသည်။

Min Dhama Steel Structures Company Limited ၏ ဆူညံသံတိုင်းတာမှုပြ ဂရပ်ဖ်

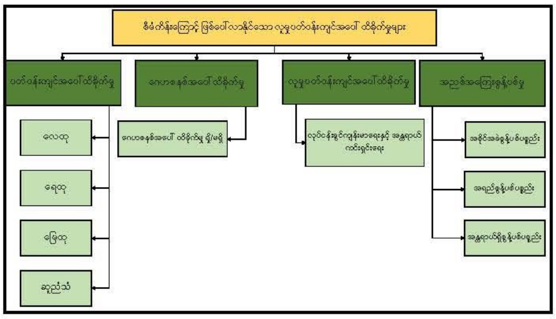
အလင်းရောင်ရရှိမှု တိုင်းတာခြင်း

Date & Time	Parameter	Observed Value	Standard	Unit
5th January 2023	Cutting Area	541	400	Lux
	Welding Area	673	400	Lux
	Drilling Area	821	600	Lux
	Punching Area	757	600	Lux

အထက်ဖော်ပြပါ စက်ရုံအတွင်း အလင်းရောင်ရရှိမှုအခြေအနေအား တိုင်းတာသည့် ရလဒ်များအရ Min Dhama Steel Structures Company Limited တွင် စက်ရုံ၏ လုပ်ငန်းခွင်အတွင်း အလင်းရောင်လုံလောက်စွာရရှိစေသော ပစ္စည်းများ တပ်ဆင်အသုံးပြုထားပြီး ရလဒ်များမှာလည်း **လက်ခံနိုင်သည့် အခြေအနေ** တွင်ရှိသည်ကို ဆန်းစစ်တွေ့ရှိ ရပါသည်။

Min Dhama Steel Structures Co., Ltd. တွင် အသုံးပြုနေသည့် မြေအောက်ရေ အရည်အသွေး တိုင်းတာထားရှိမှု

ပတ်ဝန်းကျင်အပေါ် အကျိုးသက်ရောက်မှုများနှင့် ဖြေလျှော့ရေးနည်းလမ်းများ



ပတ်ဝန်းကျင်အပေါ်သက်ရောက်မှုများ တိုင်းတာခြင်းနှင့် ဖြေလျှော့ရေးနည်းလမ်းများ

အကဲဖြတ်ခြင်း	အတိုင်းအတာ				
	၁	၂	၃	၄	၅
ပမာဏ	မလုံလောက်သော	အနည်းငယ် နှင့် လုပ်ငန်းခွင် ပြောင်းလဲမှု ဖြစ်စေနိုင်သော	အသင့်အတင့်နှင့် အနည်းငယ် လုပ်ငန်းခွင် ပြောင်းလဲမှု ဖြစ်စေနိုင်သော	မြင့်မားနှင့် သိသာစွာ လုပ်ငန်းခွင် ပြောင်းလဲမှု ဖြစ်စေနိုင်သော	အလွန်မြင့်မားနှင့် အမြဲတမ်း လုပ်ငန်းခွင် ပြောင်းလဲမှု ဖြစ်စေနိုင်သော
အချိန်	၀-၁နှစ်	၂-၅နှစ်	၆-၁၅နှစ်	လုပ်ငန်းလည်ပတ်စဉ် ကာလ တစ်လျှောက်	လုပ်ငန်းပိတ်သိမ်း ခြင်းကာလ အထိ
ကျယ်ပြန့်မှု	လုပ်ငန်းခွင်အတွင်း	ဒေသအတွင်း	မြို့နယ်အတွင်း	နိုင်ငံအတွင်း	နိုင်ငံတကာ အတွင်း
ဖြစ်နိုင်ခြေ	လုံးဝမဖြစ်နိုင်သော	မဖြစ်နိုင်သော	ဖြစ်နိုင်သော	ဖြစ်နိုင်ခြေ မြင့်သော	အတိအကျ

သတ်မှတ်ချက် = (ပမာဏ + အချိန် + ကျယ်ပြန့်မှု) x ဖြစ်နိုင်ခြေ

သတ်မှတ်ချက်	ထိခိုက်မှုအဆင့်
<၁၅	အလွန်နိမ့်
၁၅ - ၂၉	နိမ့်
၃၀ - ၄၄	အလယ်အလတ်
၄၅ - ၅၉	မြင့်
၆၀	အလွန်မြင့်

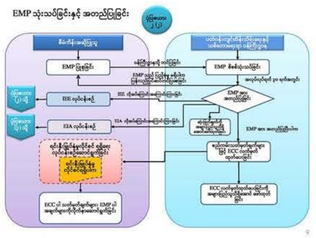
သက်ရောက်မှု	စိုးရိမ်ရသောအချက်များ	သတ်မှတ်ချက်	လျော့နည်းစေရန် အရေးယူသောဆောင်ရွက်မှု
စီမံကိန်းလည်ပတ်ချိန်			
လေထုညစ်ညမ်းမှု	▪ လုပ်ငန်းသုံး ကုန်ကြမ်း၊ ကုန်ချော၊ သယ်ယူပို့ဆောင်ရေး ယာဉ်များမှ ဖုန်နှင့် ဖန်လုံအိမ်ဓာတ်ငွေ့များ ထွက်ရှိခြင်း၊ ▪ အရေးပေါ် မီးစက်များနှင့် စက်ပစ္စည်းများမှ မီးခိုးများထွက်ရှိခြင်း	၂၀ (အနည်းငယ်)	▪ လေထုညစ်ညမ်းမှုကို ထိန်းချုပ်နိုင်ရန် မီးစက်နှင့် စက်ပစ္စည်းများအား ပုံမှန် စစ်ဆေး ပြုပြင် ထိန်းသိမ်းခြင်း၊ ▪ စက်ပစ္စည်းများ၊ လုပ်ငန်းခွင်သုံး စက် ကိရိယာများနှင့် မီးစက်များအားကောင်း မွန်စွာ ထိန်းသိမ်းခြင်း၊ ▪ ကာဗွန်ထွက်ရှိမှုကို လျှော့ချနိုင်ရန်နှင့် လေထုညစ်ညမ်းမှုကို လျှော့ချနိုင်ရန် စက်ရုံအတွင်း သစ်ပင်များ စိုက်ပျိုး ထားခြင်း၊
မြေဆီလွှာညစ်ညမ်းမှု	▪ စက်သုံးဆီများ ဖြည့်နေစဉ် စက် ဆီများယိုဖိတ်ခြင်း၊ ဒီဇယ်ယိုဖိတ် ခြင်း	၇ (အလွန်နည်း)	▪ စက်ရုံဝန်းအတွင်း ကွန်ကရစ်များ ခင်း ကျင်းထားသဖြင့် မြေထုအတွင်းသို့ ယို စိမ့်နိုင်မှုမရှိပါ။
ရေထုညစ်ညမ်းမှု	▪ စက်ရုံ၏ လုပ်ငန်းစဉ်အတွင်း ရေ သုံးစွဲမှု မရှိပါ။	၆ (အလွန်နည်း)	▪ လျှော့ချရန် မလိုပါ။
ဆူညံသံနှင့် တုန်ခါမှု	▪ လုပ်ငန်းသုံးစက်ကိရိယာများမှ ဆူညံသံထွက်ရှိခြင်း	၂၄ (အနည်းငယ်)	▪ ဝန်ထမ်းများအား သီးသန့်အခန်းဖြင့် ထား ရှိခြင်း၊ ▪ ဆူညံသံထွက်ရှိမှုများသော စက်ကိရိယာများဖြင့် လုပ်ကိုင်နေရသော ဝန်ထမ်းများအတွက် နားကြပ်များ၊ တစ်ကိုယ်ရေသုံး ကာကွယ်ရေး ပစ္စည်းများ ထားရှိပေးခြင်း၊ ▪ စက်ရုံအတွင်းမှ ဆူညံသံများသည် ပတ်ဝန်းကျင်သို့ ပျံ့လွင့်မှု မရှိပါ
မီးဘေးအန္တရာယ်	▪ လျှပ်စစ်လွယ်တန်းအသုံးပြုမှု အားနည်းခြင်း	၃၂ (အသင့်အတင့်)	▪ မီးသတ်ဆေးဘူးများနှင့် မီးသတ်ကိရိယာများအား အရေးပေါ် မီးဘေး အန္တရာယ် ဖြစ်ပေါ်ပါက အသုံးပြုနိုင်ရန် စက်ရုံအတွင်း အဆင်သင့် ထားရှိခြင်း၊ ▪ မီးသတ်ဆေးဘူးနှင့် မီးသတ်ကိရိယာများအား ပုံမှန်စစ်ဆေး လဲလှယ်ခြင်း၊ အရေးပေါ် မီးငြိမ်းသတ်ရန်အတွက် မီးသတ်ရေကန် ထားရှိခြင်း၊ ▪ မီးဘေးအန္တရာယ်အချက်ပေး ခေါင်းလောင်းများအား စက်ရုံအတွင်း တပ်ဆင်ထားခြင်း၊ ▪ အရေးပေါ်ထွက်ပေါက်များတွင် ကုန် ပစ္စည်းများနှင့် စက်ကိရိယာများ ပိတ်ဆို့မှု မရှိစေရေး ဂရုပြု ဆောင်ရွက်ခြင်း၊

သက်ရောက်မှု	စိုးရိမ်ရသောအချက်များ	သတ်မှတ်ချက်	လျော့နည်းစေရန် အရေးယူသောဆောင်ရွက်မှု
လုပ်ငန်းခွင် အန္တရာယ်ကင်းရှင်းရေး	▪ လုပ်ငန်းသုံး စက်ပစ္စည်းများ ကြောင့် မတော်တဆ ထိခိုက်မှု များဖြစ်ပွားနိုင်ခြင်း (ကုန်ပစ္စည်း အတင်အချ ပြုလုပ်ခြင်း၊ ဖြတ်တောက်ခြင်း၊ ဂဟေဆော်ခြင်းနှင့် အပေါက်ဖောက်ခြင်း လုပ်ငန်းများ)	၃၂ (အသင့်အတင့်)	▪ အရေးပေါ် သူနာပြုသင်တန်းများ၊ အန္တရာယ်ကင်းရှင်းရေး သင်တန်းများ၊ မီးဘေးအန္တရာယ်ကာကွယ်ရေး သင်တန်းများနှင့် စက်ပစ္စည်း စနစ်တကျ ကိုင်တွယ်အသုံးပြုနိုင်ရေး သင်တန်းများအား ဝန်ထမ်းများအား သင်တန်းပေးခြင်း၊ ▪ လုပ်ငန်းခွင်အတွင်း အမြင်အာရုံရှင်း လင်းနိုင်စေရန်နှင့် အန္တရာယ်ကင်းစွာ စက်ပစ္စည်းများအား အသုံးပြုနိုင်ရန် လုံလောက်သော အလင်းရောင်ရရှိရန် ဆောင်ရွက်ပေးထားခြင်း၊ ▪ လျှပ်စစ်ဓာတ်လိုက်ခြင်းများ မဖြစ်ပေါ် စေရန် စက်ပစ္စည်းများအား ပုံမှန်စစ် ဆေးခြင်းနှင့် ကာကွယ်ရေးနည်းလမ်းများ ထားရှိပေးခြင်း၊
ကျန်းမာရေး	▪ လျှပ်စစ်ရောင်ခြည်ထိတွေ့ခြင်း ▪ အရေးပေါ်မီးစက်များနှင့် စက်ကိရိယာများမှ ဆူညံသံများ ထွက်ရှိခြင်း၊	၁၄ (အလွန်နည်း)	▪ စက်ရုံမှ အလုပ်သမားများအတွက် တစ် ကိုယ်ရေသုံး ကာကွယ်ရေး ပစ္စည်းများ ဝတ်ဆင်ပြီးမှသာ လုပ်ငန်းလုပ်ဆောင်စေခြင်း၊ စက်ရုံအား အလုပ်သမား အရေးအတွက်၊ စက်ပစ္စည်းအရေအတွက်နှင့် ကိုက်ညီမှုရှိအောင် တည်ဆောက်ထားခြင်း၊ ▪ စက်ရုံရှိ အလုပ်သမားများအတွက် အလုပ်ချိန်(၈)နာရီအတွင်း သင့်တော်သော ဆူညံသံထွက်ရှိမှု ပမာဏမှာ ၇၀ dB(A) ဖြစ်ပါသည်။ စက်ရုံမှ ဆူညံသံ ထွက်ရှိမှုများသော စက်ကိရိယာများနှင့် လုပ်ငန်း လုပ်ဆောင်ရသော အလုပ်သမားများအား နားကြပ်များ၊ ဆူညံသံ ကာကွယ်ရေးပစ္စည်းများ ထားရှိပေးခြင်း
လူမှုစီးပွားအခြေ အနေ	▪ ဒေသခံပြည်သူများအတွက် အလုပ်အကိုင် အခွင့်အလမ်းများ ရရှိစေခြင်း	ကောင်းမွန်သော သက်ရောက်မှု	
စွန့်ပစ်အမှိုက်	▪ ထုတ်လုပ်ရေးလုပ်ငန်းမှ ထွက်ရှိ သော စတီးဖြတ်စများ၊ ▪ ဆေးသုတ်ခြင်းအပိုင်းမှ သုတ် ဆေးဗူးအခွံများ၊ ▪ စားသောက်ဆောင်၊ နားနေ ဆောင်နှင့် ရုံးခန်းမှ အမှိုက်များ	၃၂ (အသင့်အတင့်)	▪ လုပ်ငန်းစဉ်တစ်ခုချင်းစီတွင် အမှိုက်ပုံး များ ထားရှိပေးခြင်း၊ ▪ အမှိုက်များအား အမျိုးအစားခွဲခြား၍ ယာယီသိမ်းဆည်းခြင်း၊ စွန့်ပစ်ခြင်း၊ ▪ ရန်ကုန်စည်ပင်သာယာရေးကော်မတီနှင့် ချိတ်ဆက်၍ အမှိုက် စွန့်ပစ်ခြင်း၊
စွန့်ပစ်အရည်	▪ နေအိမ်၊ စားသောက်ဆောင် တို့မှ စွန့်ထုတ်ရေ၊ ▪ မိလ္လာကန်စနစ်	၁၈ (အနည်းငယ်)	▪ ပုံမှန်စစ်ဆေးခြင်း၊ သန့်ရှင်းရေး ပြုလုပ်ခြင်း၊ သိုလှောင်ရုံနှင့် စွန့်ပစ်ပစ္စည်းများအတွက် လုံလောက် သော ဖုံးအုပ်မှုများ ထားရှိစေခြင်း၊

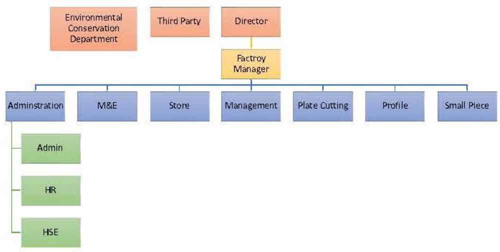
သက်ရောက်မှု	စီမံကိန်းဆောင်ရွက်ချက်	သက်ရောက်ချက်	လျှော့နည်းစေရန်အရေးယူဆောင်ရွက်မှု
စီမံကိန်းပိတ်သိမ်းချိန်			
လေထုညစ်ညမ်းမှု	• အဆောက်အဦများ ဖြိုဖျက်မှုများ၊ • ဖြိုချပစ္စည်းများ သယ်ယူမှုများ	၂၀ (အနည်းငယ်)	• ဖုန်ထွက်ရှိမှု လျော့နည်းစေရန် တစ်နေ့ နှစ်ကြိမ် ရေဖြန်းပေးခြင်း၊ • ဖြိုချပစ္စည်းများအား စနစ်တကျ ဖုံးအုပ် ထားခြင်း၊ • ပိတ်သိမ်းမှုဧရိယာအတွင်း ခြံစည်းရိုး များ အပေါ်တွင် အမြင့် ၂ မီတာရှိ အရံပိတ် ပိုက်များ တပ်ဆင်ထားခြင်း၊ • ဖြိုချပစ္စည်းများ သယ်ယူရာတွင် စနစ် တကျ ဖုံးအုပ်၍ သယ်ဆောင်ခြင်း၊
မြေဆီလွှာညစ်ညမ်းမှု	• အဆောက်အဦနှင့် ဆက်စပ် ပစ္စည်းများ • ဖြိုချပစ္စည်းများ သယ်ယူမှုများ	၁၅ (အနည်းငယ်)	• စွန့်ထုတ်ရေ၊ မိလ္လာများ၊ စက်ဆီ၊ ဒီဇယ် ဆီများ ယိုဖိတ်မှု မရှိအောင် စီမံ ဆောင် ရွက်ခြင်း၊
ရေထုညစ်ညမ်းမှု	• ဖျက်သိမ်းရေး အလုပ်သမားများမှ အထွေထွေ စွန့်ထုတ်ရေများ၊ မိလ္လာစနစ်၊	၁၅ (အနည်းငယ်)	• စွန့်ထုတ်ရေရောယင်ကန်များနှင့် မိလ္လာ စနစ်များ ဖျက်သိမ်းရာတွင် အစီအစဉ် တကျ ဖျက်သိမ်းဆောင်ရွက်ခြင်း၊ • ရန်ကုန်စည်ပင်သာယာနှင့် ချိတ်ဆက်၍ စနစ်တကျ စွန့်ပစ်ခြင်း၊
ဆူညံသံနှင့် တုန်ခါမှု	• ဖြိုချဖျက်သိမ်းခြင်း လုပ်ငန်းများ၊ • ဖြိုချပစ္စည်းများအား သယ်ယူ ပို့ဆောင်ခြင်း	၁၅ (အနည်းငယ်)	• ဖြိုချဖျက်သိမ်းခြင်းလုပ်ငန်းများအား နေ့အချိန်တွင်သာ ဆောင်ရွက်စေခြင်း၊ • ဆူညံသံထွက်ရှိမှု လျော့နည်းစေရန် စက်ပစ္စည်းများနှင့် ယာဉ်ယန္တရားများ အား ပုံမှန်စစ်ဆေး ထိန်းသိမ်းခြင်း, • အလုပ်သမားများအား နားကြပ်များ၊ တစ်ကိုယ်ရေသုံးကာကွယ်ရေး ပစ္စည်း များ တပ်ဆင်ဆောင်ရွက်စေခြင်း၊
အမှိုက်စွန့်ပစ်မှု	• ဖြိုချပစ္စည်းများဖြစ်သော ခုတ် အကျိုးအပဲ့များ၊ ကွန်ကရစ် အစိတ်အပိုင်းများ၊	၁၂ (အလွန်နည်း)	• ပြန်လည်အသုံးပြု၍ရသော ပစ္စည်းများ နှင့် ခွဲခြားစွန့်ပစ်ရမည့် ပစ္စည်းများ ဟူ၍ ခွဲခြားစွန့်ပစ်ဆောင်ရွက်ခြင်း၊
လုပ်ငန်းခွင် ကျန်းမာရေး နှင့် ဘေးအန္တရာယ် ကင်းရှင်းရေး	• ဖျက်သိမ်းရေးလုပ်ငန်းစဉ်များ • ဖြိုချပစ္စည်းများသယ်ယူခြင်း	၁၈ (အနည်းငယ်)	• အကာအကွယ်စည်းရိုးများ၊ သတိပေး ဆိုင်းဘုတ်များ၊ လုံခြုံရေး ဆိုင်းဘုတ်များ ချိတ်ဆွဲထားခြင်း၊ • ဖြိုချ စွန့်ပစ်ပစ္စည်းများအား သန့်ရှင်း ရေး ပုံမှန်ပြုလုပ်ခြင်း, • တတိယအဖွဲ့အစည်းမှ ကျွမ်းကျင်သူ အား ငှားရမ်း၍ အန္တရာယ်ရှိ စွန့်ပစ်ပစ္စည်းများနှင့် ဖြိုချပစ္စည်းများ ရှင်းလင်းရာတွင် အန္တရာယ် ကင်းရှင်းမှု ရှိစေရေး ကြီးကြပ်စေခြင်း၊

ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်

ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းလုပ်ငန်းစဉ်



စီမံကိန်း၏ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်အတွက် ဖွဲ့စည်းထားရှိမှု



❖ **လေထုညစ်ညမ်းမှုနှင့် ဖုန်မှုန့်ဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်**
- စက်ရုံတွင် ကာဗွန်နှင့် လေထုညစ်ညမ်းမှုလျှော့ချနိုင်ရန် သစ်ပင်ပန်းပင်များစိုက်ပျိုးထားခြင်း
- စက်ရုံအတွင်း မည်သည့် စွန့်ပစ်အမှိုက်များကိုမဆို မီးရှို့ဖျက်စီးခြင်းအား မပြုလုပ်စေခြင်း
- အမှုန်များသော နေရာများတွင် လုပ်ငန်းလုပ်ဆောင်ရမည့် လုပ်သားများကို မျက်နှာအုပ် (Mask) များ တပ်ဆင်စေခြင်း

❖ **ရေအသုံးပြုမှုဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်**
- ရေအသုံးပြုမှုအတွက် ရေအသုံးပြုမှု ထိန်းချုပ်သည့် ပစ္စည်းများ တပ်ဆင်ထားရှိစေခြင်း
- ရေအသုံးပြုသည့်နေရာများ၊ အိမ်သာများတွင် ရေကို သင့်လျော်သော နည်းလမ်းနှင့် အသုံးပြုခြင်းနှင့် ထိန်းသိမ်း စောင့်ရှောက်ခြင်း ဆိုင်ရာ နည်းလမ်းများ သိရှိစေခြင်းနှင့် သင်တန်းပို့ချခြင်း၊

❖ **ရေဆိုးစွန့်ပစ်မှု စီမံခန့်ခွဲမှုအစီအစဉ်**
- ဆီယိုဖိတ်မှုမရှိစေရေးအတားအဆီးများ၊ မိလ္လာကန်နှင့် အခြားစွန့်ပစ်ရည်ထွက်ရှိသည့်နေရာများအား ပုံမှန် စစ်ဆေးကြည့်ရှုခြင်းနှင့် သန့်ရှင်းရေးပြုလုပ်ခြင်း

❖ **ဆူညံမှုထိန်းချုပ်ခြင်းဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်**
- မီးစက်အသုံးပြုမှုအတွက် အသံလုံခန်းများဆောက်လုပ်ထားရှိခြင်း
- လုပ်ငန်းသုံးသည့်ယာဉ်များကို သတ်မှတ်အရှိန်ထက် ကျော်လွန်၍ မမောင်းနှင်စေခြင်း
- လုပ်ငန်းခွင်အတွင်း လုပ်သားများအတွက် တစ်ကိုယ်ရေသုံးကာကွယ်ရေးပစ္စည်း (PPE)များ လုံလောက်စွာ ထားရှိပေးခြင်း
- လုပ်သားများကို PPE အသုံးပြုမှုနှင့်ပတ်သက်၍ သင်တန်းများ ပို့ချပေးခြင်းနှင့် ဆူညံသံများ သော နေရာတွင် အလုပ်လုပ်စဉ် PPE များကို သေချာစွာ အသုံးပြုစေခြင်း

❖ **အစိုင်အခဲစွန့်ပစ်ပစ္စည်းဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်**
- စက်ရုံလုပ်ငန်းခွင်တစ်ခုချင်းစီအလိုက် လုံလောက်သော အမှိုက်ပုံးများ ထားရှိပေးခြင်း
- အစိုင်အခဲစွန့်ပစ်ပစ္စည်းများအား ခွဲခြားထားရှိပြီး ယာယီအမှိုက်စွန့်ပစ်သည့်နေရာတွင် ထားရှိ၍ YCDC နှင့် ချိတ်ဆက်၍ စွန့်ပစ်ခြင်း

❖ **မီးဘေးအန္တရာယ် စီမံခန့်ခွဲမှုအစီအစဉ်**
- စက်ရုံအတွင်း မီးသတ်ဆေးဘူး၊ မီးသတ်စနစ်နှင့် မီးသတ်ရေများအား အဆင်သင့်ထားရှိစေခြင်း
- အရေးပေါ်ထွက်ပေါက်များနှင့် စုရပ်များအား သတ်မှတ်ထားရှိခြင်းနှင့် အရေးပေါ်ထွက်ပေါက် များတွင် ပစ္စည်းများ ပိတ်ဆို့နေခြင်း မရှိအောင် ဆောင်ရွက်ထားရှိခြင်း
- မီးသတ်ဆေးဘူးများ၊ မီးသတ်ရေကန်များအား ပုံမှန်စစ်ဆေးကြည့်ရှုခြင်း
- စက်ရုံအတွင်း မီးဘေးအချက်ပေးစနစ်များ တပ်ဆင်ထားရှိခြင်း

❖ **လုပ်ငန်းခွင်ဘေးကင်းလုံခြုံရေးနှင့် ကျန်းမာရေး စီမံခန့်ခွဲမှုအစီအစဉ်**
- ဝန်ထမ်းများအား အရေးပေါ်ကုသရေးသင်တန်းများ၊ လုံခြုံရေးသင်တန်းများနှင့် စက်ပစ္စည်း ကိုင်တွယ် အသုံးပြုခြင်း သင်တန်းများ ပေးခြင်း
- စက်ရုံအတွင်း လုံလောက်သော အလင်းရောင်ရရှိစေရန် ဆောင်ရွက်ထားရှိခြင်း
- လုပ်ငန်းခွင်တစ်ခုချင်းစီအလိုက် တစ်ကိုယ်ရေသုံးကာကွယ်ရေးပစ္စည်းများထားရှိပေးခြင်း
- လျှပ်စစ်အန္တရာယ်မဖြစ်ပေါ်စေရေး ပုံမှန်စစ်ဆေးစောင့်ကြည့်ခြင်း
- စက်ရုံရှိရေမြောင်းများအား ရေစီးရေလာကောင်းမွန်စေရေး စီမံထားရှိခြင်း

❖ **စွမ်းအင်အသုံးပြုမှုဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်**

- လုပ်ငန်းခွင်အတွင်း အပူအအေးမျှတစေရန် တိုင်းတာနိုင်သည့် စက်ပစ္စည်းများ ထားရှိခြင်း
- လုပ်ငန်းခွင်အတွင်း အလင်းရောင်ရရှိစေရန် မီးချောင်းများအသုံးပြုရာတွင် စွမ်းအင်ချွေတာရေး မီးချောင်း၊ မီးသီးများ တပ်ဆင်အသုံးပြုခြင်း၊
- စက်ပစ္စည်းများနှင့် အခြားလျှပ်စစ်စွမ်းအင်သုံးပစ္စည်းများအား အသုံးမပြုပါက ပိတ်ထားရမည့် အလေ့အကျင့်ကောင်းများ ဝန်ထမ်းများသို့ သင်ကြားပေးခြင်း

❖ **အရေးပေါ်တုံ့ပြန်ရေးနှင့် သဘာဝဘေးဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်**

- သဘာဝဘေးအန္တရာယ်များဖြစ်ပေါ်လာပါက ကိုင်တွယ်ဖြေရှင်းနိုင်မည့် အစီအစဉ်များ ထားရှိ ခြင်း
- လုပ်ငန်းခွင်တစ်ခုချင်းစီအလိုက် မီးသတ်ပစ္စည်းများအား ထားရှိစေ၍ ပုံမှန်စစ်ဆေး ကြည့်ရှု ခြင်း
- ဝန်ထမ်းများအား သဘာဝဘေးအန္တရာယ်၊ မီးဘေးလုံခြုံရေးနှင့် လုပ်ငန်းခွင်ကျန်းမာရေးတို့နှင့် ပတ်သက်သည့် သင်တန်းများ ပို့ချထားရှိခြင်း

ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုမှု အစီအစဉ်နှင့် ခန့်မှန်းကုန်ကျစရိတ်

ကဏ္ဍ	အမျိုးအစား	အကြိမ်ရေ	နေရာ
စီမံကိန်းလည်ပတ်ချိန်			
လေထု	PM 2.5, PM 10, SO2, NO2, O3, CO, VOC တို့အား တိုင်းတာသွားပါမည်	တစ်နှစ် ၂ ကြိမ်	စက်ရုံအတွင်းအပြင် (16°55'35.17"N, 96° 4'59.90"E) (16°55'38.18"N, 96° 5'0.35"E)
အလင်းရောင်ရရှိမှု	Illuminance	လစဉ်	ထုတ်လုပ်မှု ဧရိယာအတွင်း (16°55'39.06"N, 96° 5'1.91"E)
ဆူညံသံ	ဆူညံသံ ပမာဏ (dBA)	တစ်နှစ် ၂ ကြိမ်	ထုတ်လုပ်မှု ဧရိယာအတွင်း (16°55'37.51"N, 96° 4'59.21"E) (16°55'39.06"N, 96° 5'1.91"E)
အမှိုက်စွန့်ပစ်မှု	လုပ်ငန်းလည်ပတ်ခြင်းမှ ထွက်ရှိသော steel ဖြတ်စများ၊ ရုံးခန်းနှင့် စားသောက်ဆောင်မှ ထွက်ရှိသော အမှိုက်များ၊ သုတ်ဆေးပုံးများ၊	အပတ်စဉ်	စက်ရုံအတွင်းရှိ ယာယီအမှိုက်စွန့်ပစ်သည့် နေရာ၊ (16°55'36.83"N, 96° 5'2.83"E)
မီးဘေးအန္တရာယ်	မီးသတ်ဆေးဘူးများ၊ အရေးပေါ်ထွက်ပေါက်များနှင့် အရေးပေါ် ဆက်သွယ်ရန် ဖုန်းနံပါတ်များ	လစဉ်	စက်ရုံဧရိယာအတွင်း (16°55'38.15"N, 96° 5'0.54"E)

ကဏ္ဍ	အမျိုးအစား	အကြိမ်ရေ	နေရာ
စီမံကိန်းဖျက်သိမ်းခြင်းကာလ			
လေထု	PM2.5, PM10 , SO_2 , NO_2 , O_3 , CO, VOC	ဖျက်သိမ်းမှုကာလ အတွင်း (၁) ကြိမ်	ဖျက်သိမ်းမှု ဧရိယာ (16°55'38.15"N, 96° 5'0.54"E)
ဆူညံသံ	ဆူညံသံ ပမာဏ	ဖျက်သိမ်းမှုကာလ အတွင်း (၁) ကြိမ်	ဖျက်သိမ်းမှု ဧရိယာ (16°55'38.15"N, 96° 5'0.54"E)
လုပ်ငန်းခွင်ကျန်းမာရေးနှင့် ဘေးကင်းလုံခြုံရေး	-	ဖျက်သိမ်းမှုကာလ အတွင်း (၁) ကြိမ်	ဖျက်သိမ်းမှု ဧရိယာ (16°55'38.15"N, 96° 5'0.54"E)
စွန့်ပစ်ရေ	pH, Turbidity, Conductivity, Iron, Sulphate, TSS, TDS, Manganese, COD, BOD, Cyanide, Copper, Zinc, Carbonate	ဖျက်သိမ်းမှုကာလ အတွင်း (၁) ကြိမ်	ဖျက်သိမ်းမှု ဧရိယာ (16°55'38.15"N, 96° 5'0.54"E)
မီးဘေးအန္တရာယ်	-	ဖျက်သိမ်းမှုကာလ အတွင်း (၁) ကြိမ်	ဖျက်သိမ်းမှု ဧရိယာ (16°55'38.15"N, 96° 5'0.54"E)
အရေးပေါ်တုံ့ပြန်ရေး	-	ဖျက်သိမ်းမှုကာလ အတွင်း (၁) ကြိမ်	ဖျက်သိမ်းမှု ဧရိယာ (16°55'38.15"N, 96° 5'0.54"E)
ပြန်လည်မွမ်းမံခြင်း	သစ်ပင်များပြန်လည်စိုက်ပျိုးပေးခြင်း	ဖျက်သိမ်းမှုကာလ အတွင်း (၁) ကြိမ်	ဖျက်သိမ်းမည့် ဧရိယာအားလုံး(16°55'38.15"N, 96° 5'0.54"E)

ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုမှု ခန့်မှန်းကုန်ကျစရိတ်

စဉ်	အကြောင်းအရာ	အကြိမ်အရေအတွက်	ကုန်ကျစရိတ် (ကျပ်)
လျှော့ချခြင်းအစီအစဉ်			
၁.	စက်ရုံအတွင်း လေဝင်လေထွက်ကောင်းမွန်ရေး အစီအစဉ်	၁ နှစ် ၁ ကြိမ်	(၁)နှစ် ၁,၂၀၀,၀၀၀
၂.	စက်ရုံဧရိယာအတွင်း သစ်ပင်များ စိုက်ပျိုးခြင်း	၃ လ ၁ ကြိမ်	(၃)လလျှင် ၂၀၀,၀၀၀
၃.	အစိုင်အခဲ အမှိုက်ပစ်ခြင်း	လစဉ်	(၁)လလျှင် ၂၀၀,၀၀၀
၄.	တစ်ကိုယ်ရေသုံး ကာကွယ်ရေးပစ္စည်းများ ဝယ်ယူခြင်း	၆လ ၁ ကြိမ်	(၁)လလျှင် ၂၀၀,၀၀၀
၅.	ဆေးပစ္စည်းများနှင့် ကျန်းမာရေးစစ်ဆေးခြင်း	၁ နှစ် ၁ ကြိမ်	(၁)နှစ် ၁,၀၀၀,၀၀၀
အရေးပေါ်အစီအစဉ်			
၁.	မီးသတ်ဆေးဘူး	၁ လ ၁ ကြိမ်	(၁)လ ၅၀၀,၀၀၀
၂.	မီးသတ်အချက်ပြခေါင်းလောင်း	၁ လ ၁ ကြိမ်	
၃.	ရှေးဦးသူနာပြုပစ္စည်းများ	၁ လ ၁ ကြိမ်	
စောင့်ကြပ်ကြည့်ရှုရေးအစီအစဉ်			
၁.	လေအရည်အသွေး	၂ ကြိမ်	(၁)နှစ် ၈၀၀,၀၀၀
၂.	ရေဆိုးရေညစ်	၂ ကြိမ်	(၁)နှစ် ၈၀၀,၀၀၀
၃.	ဆူညံသံ	၂ ကြိမ်	(၁)နှစ် ၁၀၀,၀၀၀
၄.	အမှိုက်စွန့်ပစ်မှု (အစိုင်အခဲ၊ စွန့်ထုတ်ရေ နှင့် အန္တရာယ်ရှိ စွန့်ပစ်ပစ္စည်း	အပတ်စဉ်	(၁)နှစ် ၁,၀၀၀,၀၀၀
၅.	လုပ်ငန်းခွင် ကျန်းမာရေးနှင့် ဘေးကင်းလုံခြုံရေး	လစဉ်	(၁)နှစ် ၅၀၀,၀၀၀
၆.	စောင့်ကြပ်ကြည့်ရှုမှု အစီရင်ခံစာ	၁ ကြိမ်	၆၀၀,၀၀၀

လူထုအကျိုးတူပူးပေါင်းပါဝင်မှု

Min Dhama Steel Structures Company Limited သည် လူထုအကျိုးပြုဖွံ့ဖြိုးတိုးတက်ရေး လုပ်ငန်းများအတွက် အမြတ်ငွေ၏ ၂% ကို **ဒေသအတွင်း ဖွံ့ဖြိုးတိုးတက်ရေးအတွက် အထောက်အပံ့များ ကူညီဆောင်ရွက်ခြင်း** နှင့် **ဝန်ထမ်းများနှင့် ၎င်းတို့၏ မိသားစုများအတွက် ကျန်းမာရေးကူညီစောင့်ရှောက်မှု ထားရှိပေးခြင်း** စသည့် ကိစ္စရပ်များတွင် အသုံးပြုသွားမည် ဖြစ်ပါသည်။

စီမံကိန်း၏ လူမှုအကျိုးပြုလုပ်ငန်းများဆောင်ရွက်ထားရှိမှု

စက်ရုံမှ ဆောင်ရွက်ထားရှိမှုများ

Thank You for Your Patient Attention!

APPENDIX F

Attendant List of Public Consultation Meeting

Min Dhama Steel Structures Company Limited

လူထုတွေ့ဆုံဆွေးနွေးပွဲသို့ တက်ရောက်အကြံပြုဆွေးနွေးသူများစာရင်း

ရက်စွဲ။ ၂၀၂၃ ခုနှစ်၊ ဧပြီလ၊ (၂၇) ရက်

စဉ်	အမည်	ရာထူး	ဌာန/အဖွဲ့အစည်း	ဖုန်းနံပါတ်	လက်မှတ်
၁	[illegible]	Sr. Manager.	Mottama Holdings Ltd.	09.880805707.	
၂	ဦးမိုးကျော်သူ	Sr. Manager	Min Dhama Company Limited	09 253525161	
၃	[illegible]	HR Manager	Min Dhama Company Limited	09.420009939	
၄	[illegible]	[illegible]	[illegible]	09430809 96	
၅	[illegible]	[illegible]	[illegible]	09 943051594	
၆	[illegible]	[illegible]	"	09766360171	
၇	[illegible]	[illegible]	ECD	09-974717678	
၈	ဒေါ်သင်းသင်းနု	[illegible]	ECD	09-450063187	
၉	[illegible]	Manager	PD.1 (MDS-88)	09.783587060	
၁၀	ဦးတင့်ထက်လင်း	HSE Officer	MDS-88	09-965485000	

Min Dhama Steel Structures Company Limited

လူထုတွေ့ဆုံဆွေးနွေးပွဲသို့ တက်ရောက်အကြံပြုဆွေးနွေးသူများစာရင်း

ရက်စွဲ။ ၂၀၂၃ ခုနှစ်၊ ဖေဖြေလ၊ (၂၇) ရက်

စဉ်	အမည်	ရာထူး	ဌာန/အဖွဲ့အစည်း	ဖုန်းနံပါတ်	လက်မှတ်
၁၁	Su Myat Hlaing	Environmental Engineer	Myanwei Environmental Solutions Co., Ltd	09-763135084	
၁၂	Lynn Than Theung	Environmental Specialist	Myanwei Environmental Solutions Co., Ltd.	09-766074688	
၁၃	Saw Ton Naung	Environmental Specialist	Myanwei Environmental Solutions Co., Ltd	09-688831113	
၁၄	Htun Lin Kyaw	Environmental Specialist	Myanwei Environmental Solutions Co., Ltd	09-448841090	
၁၅					
၁၆					
၁၇					
၁၈					
၁၉					
၂၀					

APPENDIX G

CSR Movement of Min Dhama Steel Structures Company Limited

မေတ္တာပရဟိတဂေဟာ

အလှူတော်ငွေမော်ကွန်းမှတ်တမ်း

ရန်ကုန်တိုင်းဒေသကြီး၊ လှည်းကူးမြို့နယ်၊ မရမ်းချောင်းကျေးရွာရှိ မေတ္တာပရဟိတဂေဟာနေ မသန်စွမ်း အနာကြီးရောဂါသည်များအတွက် ကျန်းမာရေး အာဟာရနှင့်လိုအပ်သည်များကို အသုံးပြုနိုင်ရန် ကာယကံမေတ္တာဖြင့် လှူဒါန်းသော

အလှူရှင်/အဖွဲ့အစည်း - Mottama Foundation ... ကို လက်ခံရရှိပါသည်။

“မြင့်မြတ်၍ အကြင်နာတရားပါရှိသော လှူဒါန်းမှုအတွက် ကျေးဇူးအထူးတင်ရှိပါကြောင်း မှတ်တမ်းတင်ဂုဏ်ပြုပါသည်။”

ရက်စွဲ။ ၁၈.၂.၂၀၁၇

လေးစားစွာဖြင့်

ဂေဟာမှူး

ငွေလက်ခံသူ

ပရဟိတကျေးမွေးစောင့်ရှောက်ရေးကော်မတီ

APPENDIX H
Welfare Plan for Employees

Min Dhama
Steel Structures Co., Ltd.

Min Dhama Steel Structures Co., Ltd.
No.
Date

To

The Chairman
Yangon Region Investment Committee

Date : : 9 , November, 2022.

Subject : : Submission of Welfare Plan for Employees

We " MIN DHAMA STEEL STRUCTURES COMPANY LIMITED " hereby submit that we have made all necessary arrangements for employees as follows:-

(1) Transportation for Office Staffs

The Company will provide the transportation services for the employees in various locations where necessary.

(2) Providing Awards in Punctually of Work

Overtime fees is counted in twice to one hour for employees of factory. In order to need of work there provides additional fees for them working till night. The employees who are hard working and no absence of work will get the bonuses of yearly in plan.

(3) Opening Canteen for Employees Welfare

Canteen will be opened at Factory for employees welfare.There will be a shop to serve tea, sancks and rice / curry.

(4) A Plan for Injury

We will provide first aid kits sufficiently and a resting room for sickness persons. If employee gets injury we plan to send in curing to Social Welfare Hospital. For those social welfares employee must also put their subscribe fees.

With Respect-

Daw Cherry
Director
Min Dhama Steel Structures Co.,Ltd

No.(74,75,76,77,78,91), Kanaung Min Thar Gyi Street,
Industrial Zone(4), Shwe Pyi Thar Township,Yangon, Myanmar.
Tel: +95 1-618876 ~ 80, 618134, 618398
Fax +95 1 618876
www.mottamaholdings.com

APPENDIX I
Health Plan for Employees

Min Dhama
Steel Structures Co., Ltd.

Min Dhama Steel Structures Co., Ltd.
No.
Date.

Plan for Health

We "MIN DHAMA STEEL STRUCTURES COMPANY LIMITED" intends to Manufacturing and Marketing of Construction Materials (High Rise Building, Warehouse and Bridges) on CMP Basis factory and as for workers of our factory we provide for the followig health programs.

(a) Medicine and first aids are placed at factory as emergency matters happen.

(b) In factory there are first aids Kits and a resting room for sickness people as a plan.

(c) One who gets injury shall be sent to Social Welfare Hospital as a care.

(d) We will provide employees to learn in training concern with health care for one time in three months. It aims first aids for injured person in emergency case. The factory will pay the costs of hospital to employees who are working in long term at factory as a plan for health.

(e) We will supply the cost of medicine according to requirement for healthy of employees who are working long time.

With Respect-

Daw Cherry
Director
Min Dhama Steel Structures Co., Ltd.

No.(74,75,76,77,78,91), Kanaung Min Thar Gyi Street,
Industrial Zone(4), Shwe Pyi Thar Township, Yangon, Myanmar.
Tel: +95 1-618876 ~ 80, 618134, 618398
Fax: +95 1 618876
www.mottamaholdings.com

APPENDIX J
Company's Plan for Preventing Environment

Min Dhama
Steel Structures Co., Ltd.

Min Dhama Steel Structures Co., Ltd.
No.
Date

To

The Chairman

Yangon Region Investment Committee

Date : : 9 , November, 2022. .

Subject : : Plan for preventing of Environment

1. We submit that it " MIN DHAMA STEEL STRUCTURES COMPANY LIMITED " intends to Manufacturing and Marketing of Construction Materials (High Rise Building, Warehouse and Bridges) on CMP Basis factory in total land area (5.519) Acres (240,407 Sqft) at the place so called as Plot No.(88), Myay Taing Block No. (65/Industry), Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region, Myanmar.

2. As a company for conservation of environment, we plan for the following matters. Put to methods that facts of plan are fully mentioned at least damage while generating and producing in step by step. We will follow in accordance with Law, Regulation, Procedure and Directives Prescribed for environmental control.

3. We hereby undertake that all business activities will be carried out in accordance with comments from the Environmental Impact Assessment (EIA) procedures and Environmental Management Plan (EMP).

With Respect-

Daw Cherry
Director
Min Dhama Steel Structures Co.,Ltd

No.(74,75,76,77,78,91), Kanaung Min Thar Gyi Street,
Industrial Zone(4), Shwe Pyi Thar Township, Yangon, Myanmar.
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Fax: +95 1 618876

www.mottamaholdings.com

APPENDIX K
Company's Fire Precaution Plan

Min Dhama
Steel Structures Co., Ltd.

Min Dhama Steel Structures Co., Ltd
No.
Dat

" FIRE PRECAUTION PLAN "

1. We submit that it " MIN DHAMA STEEL STRUCTURES COMPANY LIMITED " intends to Manufacturing and Marketing of Construction Materials (High Rise Building, Warehouse and Bridges) on CMP Basis factory in total land area (5.519) Acres (240,407 Sqft) at the place so called as Plot No.(88), Myay Taing Block No. (65/Industry), Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region, Myanmar.

2. Our company, as for fire precaution in doing Construction Materials factory business, will construct (15,000) gallon water tank. Building of factory is constructed with steel structure to prevent from fire and water bucket, hook, sand bag & fire extinguisher are in ready condition. Fire extinguishers will be hung on the walls of factory too. Prevention scheme will be instructed to all employees to follow the scheme exactly. The employees will also be trained extinguishing technique to prevent from fire. Smoking is strictly prohibited within and around the factory in accordance with laws provided and had been also planned not to occur electricity dangerous in factory compound. Fire alarm will also be installed inside and outside of the Factory.

3. We shall implement a standard protocol on fire prevention to ensure the Health and Safety of our employees.

With Respect-

Daw Cherry
Director
Min Dhama Steel Structures Co.,Ltd

No.(74,75,76,77,78,91), Kanaung Min Thar Gyi Street,
Industrial Zone(4), Shwe Pyi Thar Township,Yangon, Myanmar.
Tel: +95 1-618876 ~ 80, 618134, 618398
Fax: +95 1 618876

www.mottamaholdings.com

APPENDIX L
Company's Corporate Social Responsibility (CSR)

Min Dhama
Steel Structures Co., Ltd.

Min Dhama Steel Structures Co., Ltd.
No.....
Date.....

To

The Chairman
Yangon Region Investment Committee

Date : : 9 , November, 2022.

Subject : : " MIN DHAMA STEEL STRUCTURES COMPANY LIMITED "
Corporate Social Responsibility (CSR) Plan

We submit that it " MIN DHAMA STEEL STRUCTURES COMPANY LIMITED " intends to Manufacturing and Marketing of Construction Materials (High Rise Building, Warehouse and Bridges) on CMP Basis factory in total land area (5.519) Acres (240,407 Sqft) at the place so called as Plot No.(88), Myay Taing Block No. (65/Industry), Industrial Zone Part (4), Shwe Pyi Thar Township, Yangon Region, Myanmar.

In such proposed Project " MIN DHAMA STEEL STRUCTURES COMPANY LIMITED " will subscribe (2%) from the net profit for CSR. The contributions are made as follows:

1. 25% for supporting to the all-round development of rural area.
2. 25% for basic health care of the employees by opening medical clinics in the factory compound, emergency healthcare program and providing allowances when any of the employee families suffer from illness.
3. The Company will follow the social security rules and regulations as per the Social Security Law.

With Respect-

Daw Cherry
Director
Min Dhama Steel Structures Co.,Ltd
www.mottamaholdings.com

No (74,75,76,77,78,91), Kanaung Min Thar Gyi Street,
Industrial Zone(4), Shwe Pyi Thar Township, Yangon, Myanmar.
Tel: +95 1-618876 ~ 80, 618134, 618398
Fax: +95 1 618876

APPENDIX M
Pressure Testing Report

Air Pressure

	QEM Company Limited	Form No. QEM/QAC/PTR/001 (Rev.00)
	Pressure Testing Report	Page. 1 of 2

Report No : QEM/MDS/QAC/08-21/PTR-003	**Date of Report :** 23.Aug.2021
Client : Min DhaMa Steel Structures Co., Ltd.	**Reference Code :** ASME B31.3 - Process Piping
Project Title : Process Piping System Pressure Testing	**P&ID / Drawing No :** Refer to attached drawing
Location : Min Dhama Factory @ MyaWaDi Min Gyi Road	**Piping System :** Compressed Air (CA)

NOTE : If a section is NOT relevant enter N/A

System to Test :	Compressed Air (CA)	**Type of Test :**		Pneumatic Pressure Test
Date of Test :	21.Aug.2021 to 22.Aug.2021	**Test Medium :**		Oxygen (O2)
Test Gauge No :	QEM/PG/003	**Test Temperature :**	**Start:**	Ambient
			Finish:	Ambient
Test Gauge Range :	0 to 20 Kg/cm^2			
		Test Pressure :	**Start:**	10.0 Bar
Test Gauge calibrated On :	19.Aug.2021		**Finish:**	10.0 Bar
Test Result :	**Passed**	**Duration of Test :**	**Start:**	21.Aug.2021 (05:45 Pm)
			Finish:	22.Aug.2021 (02:10 Pm)

ISO Number	Sheet	Revision No	Drawing Title
N/A	N/A	N/A	N/A

Remarks:

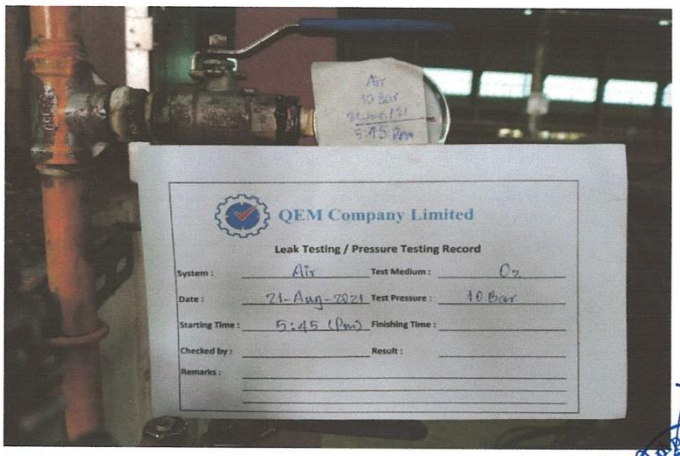
No leakage was found during testing and Satisfactory. Refer to attached photo of the testing record.

	Test Conducted By	Witnessed & Approved By	Client's Representative
Signature.			
Name.	Myat Soe Htat	Kyaw Swar Tun	
Designation.	Testing Technician	QA/QC Manager	
Date.	23.Aug.2021	23.Aug.2021	

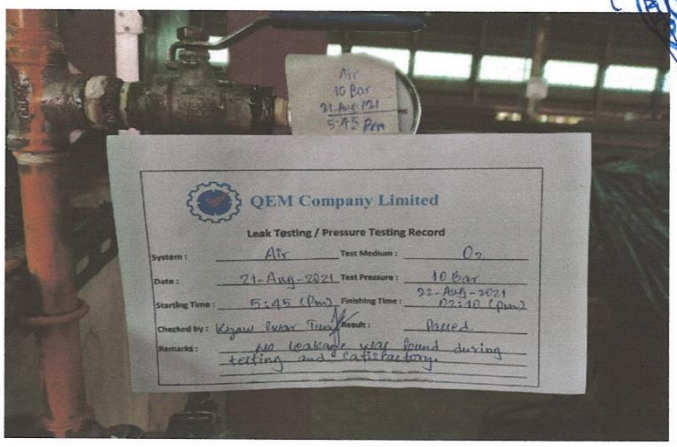
	QEM Company Limited	Form No. QEM/QAC/PTR/001 (Rev.00)
	Pressure Testing Report	Page. 2 of 2

Report No : QEM/MDS/QAC/08-21/PTR-003	**Date of Report :** 23.Aug.2021
Client : Min DhaMa Steel Structures Co., Ltd.	**Reference Code :** ASME B31.3 - Process Piping
Project Title : Process Piping System Pressure Testing	**P&ID / Drawing No :** Refer to attached drawing
Location : Min Dhama Factory @ MyaWaDi Min Gyi Road	**Piping System :** Compressed Air (CA)

PHOTO

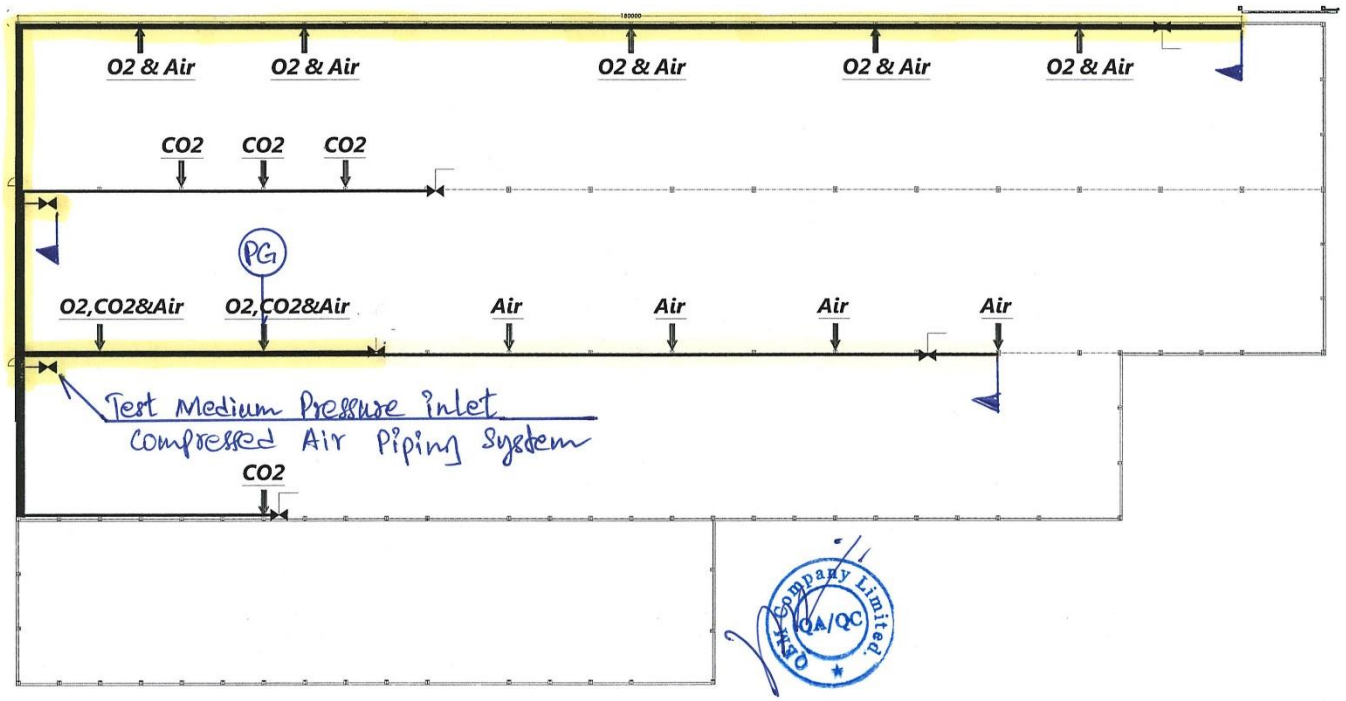


Starting of Test



Finishing of Test

MDS-88 Factory
CO2,O2 & Air Compressor Pipe Line



	QEM Company Limited	Form No. QEM/QAC/PTR/001 (Rev.00)
	Pressure Testing Report	Page. 1 of 2

Report No : QEM/MDS/QAC/08-21/PTR-001	**Date of Report :** 23.Aug.2021
Client : Min DhaMa Steel Structures Co., Ltd.	**Reference Code :** ASME B31.3 - Process Piping
Project Title : Process Piping System Pressure Testing	**P&ID / Drawing No :** Refer to attached drawing
Location : Min Dhama Factory @ MyaWaDi Min Gyi Road	**Piping System :** Carbondioxide (CO2)

NOTE : If a section is NOT relevant enter N/A

System to Test :	Carbondioxide (CO2)	**Type of Test :**		Pneumatic Pressure Test
Date of Test :	21.Aug.2021 to 22.Aug.2021	**Test Medium :**		Oxygen (O2)
Test Gauge No :	QEM/PG/001	**Test Temperature :**	**Start:**	Ambient
			Finish:	Ambient
Test Gauge Range :	0 to 20 Kg/cm^2			
		Test Pressure :	**Start:**	10.0 Bar
Test Gauge calibrated On :	19.Aug.2021		**Finish:**	10.0 Bar
Test Result :	**Passed**	**Duration of Test :**	**Start:**	21.Aug.2021 (05:45 Pm)
			Finish:	22.Aug.2021 (09:35 Am)

ISO Number	Sheet	Revision No	Drawing Title
N/A	N/A	N/A	N/A

Remarks:

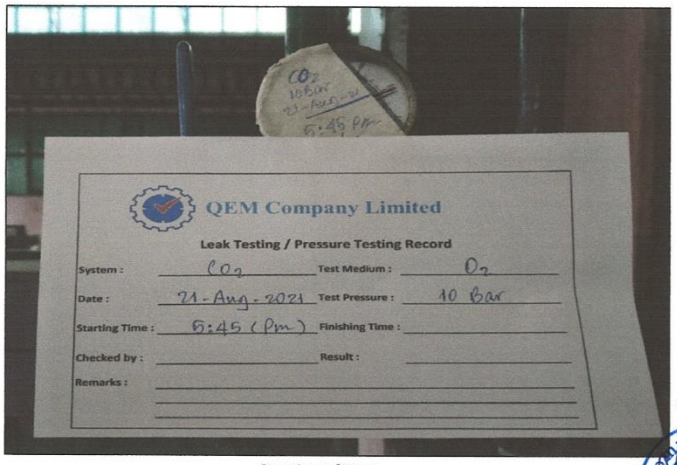
No leakage was found during testing and Satisfactory. Refer to attached photo of the testing record.

	Test Conducted By	Witnessed & Approved By	Client's Representative
Signature.	QEM Company Limited QA/QC		
Name.	Myat Soe Htat	Kyaw Swar Tun	
Designation.	Testing Technician	QA/QC Manager	
Date.	23.Aug.2021	23.Aug.2021	

	QEM Company Limited	Form No. QEM/QAC/PTR/001 (Rev.00)
	Pressure Testing Report	Page. 2 of 2

Report No : QEM/MDS/QAC/08-21/PTR-001	**Date of Report :** 23.Aug.2021
Client : Min DhaMa Steel Structures Co., Ltd.	**Reference Code :** ASME B31.3 - Process Piping
Project Title : Process Piping System Pressure Testing	**P&ID / Drawing No :** Refer to attached drawing
Location : Min Dhama Factory @ MyaWaDi Min Gyi Road	**Piping System :** Carbondioxide (CO2)

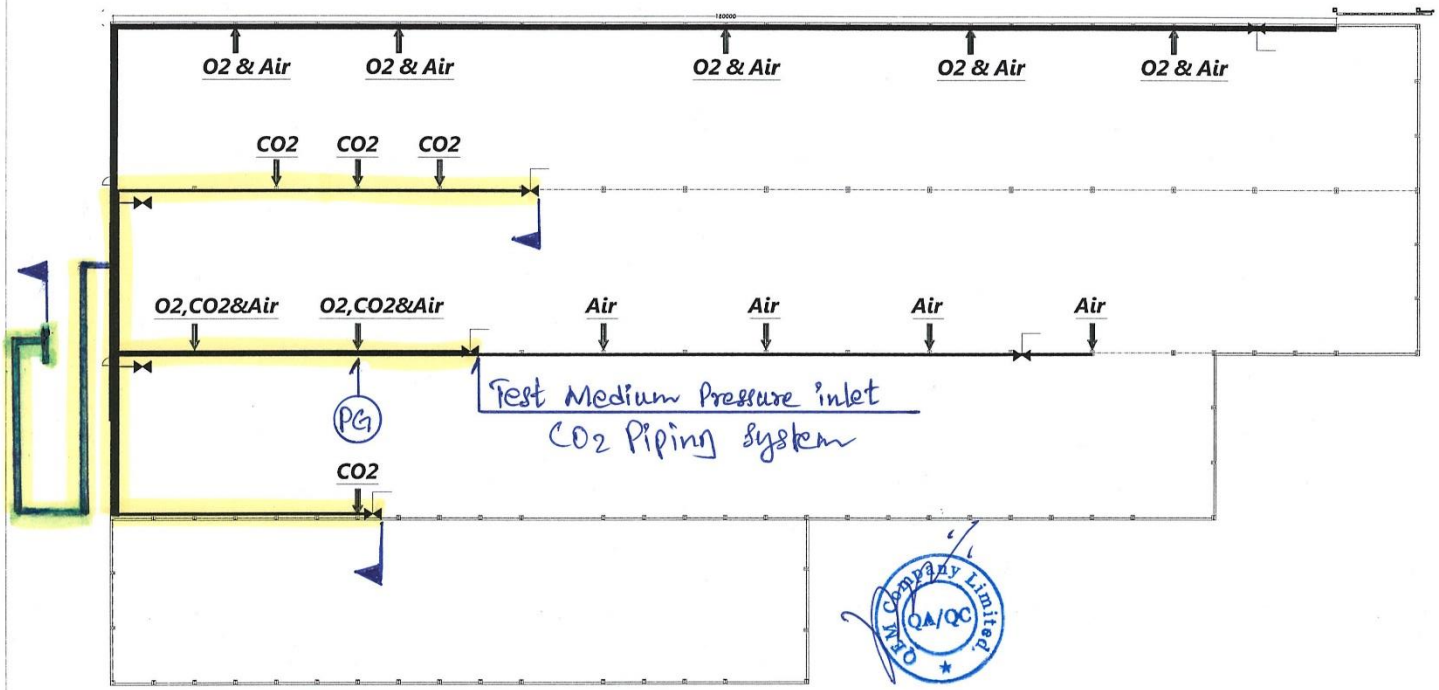
PHOTO



Starting of Test

Finishing of Test

MDS-88 Factory
CO2,O2 & Air Compressor Pipe Line



	QEM Company Limited	Form No. QEM/QAC/PTR/001 (Rev.00)
	Pressure Testing Report	Page. 1 of 2

Report No : QEM/MDS/QAC/08-21/PTR-002	**Date of Report :** 23.Aug.2021
Client : Min DhaMa Steel Structures Co., Ltd.	**Reference Code :** ASME B31.3 - Process Piping
Project Title : Process Piping System Pressure Testing	**P&ID / Drawing No :** Refer to attached drawing
Location : Min Dhama Factory @ MyaWaDi Min Gyi Road	**Piping System :** Oxygen (O2)

NOTE : If a section is NOT relevant enter N/A

System to Test :	Oxygen (O2)	**Type of Test :**		Pneumatic Pressure Test
Date of Test :	21.Aug.2021 to 22.Aug.2021	**Test Medium :**		Oxygen (O2)
Test Gauge No :	QEM/PG/002	**Test Temperature :**	**Start:**	Ambient
			Finish:	Ambient
Test Gauge Range :	0 to 20 Kg/cm^2			
		Test Pressure :	**Start:**	10.2 Bar
Test Gauge calibrated On :	19.Aug.2021		**Finish:**	10.2 Bar
Test Result :	**Passed**	**Duration of Test :**	**Start:**	21.Aug.2021 (05:45 Pm)
			Finish:	22.Aug.2021 (09:40 Am)

ISO Number	Sheet	Revision No	Drawing Title
N/A	N/A	N/A	N/A

Remarks:

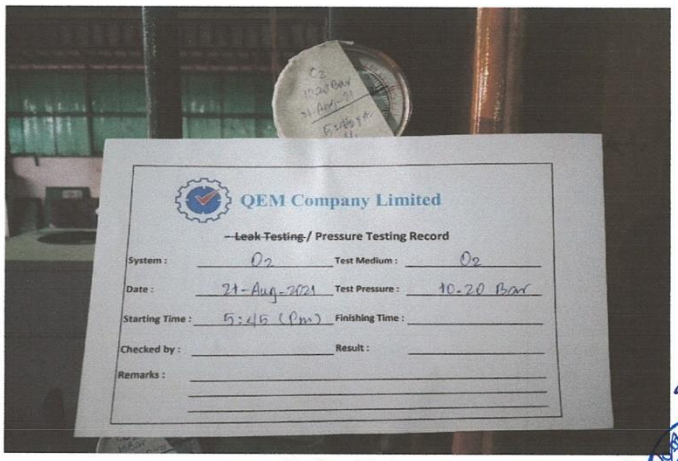
No leakage was found during testing and Satisfactory. Refer to attached photo of the testing record.

	Test Conducted By	Witnessed & Approved By	Client's Representative
Signature.			
Name.	Myat Soe Htat	Kyaw Swar Tun	
Designation.	Testing Technician	QA/QC Manager	
Date.	23.Aug.2021	23.Aug.2021	

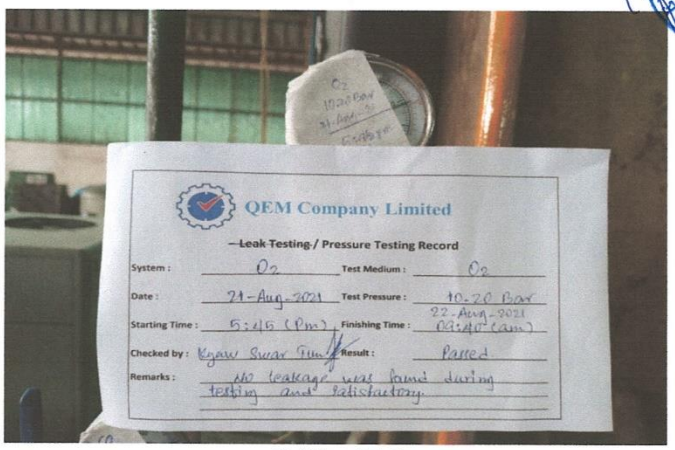
	QEM Company Limited	Form No. QEM/QAC/PTR/001 (Rev.00)
	Pressure Testing Report	Page. 2 of 2

Report No : QEM/MDS/QAC/08-21/PTR-002	**Date of Report :** 23.Aug.2021
Client : Min DhaMa Steel Structures Co., Ltd.	**Reference Code :** ASME B31.3 - Process Piping
Project Title : Process Piping System Pressure Testing	**P&ID / Drawing No :** Refer to attached drawing
Location : Min Dhama Factory @ MyaWaDi Min Gyi Road	**Piping System :** Oxygen (O2)

PHOTO

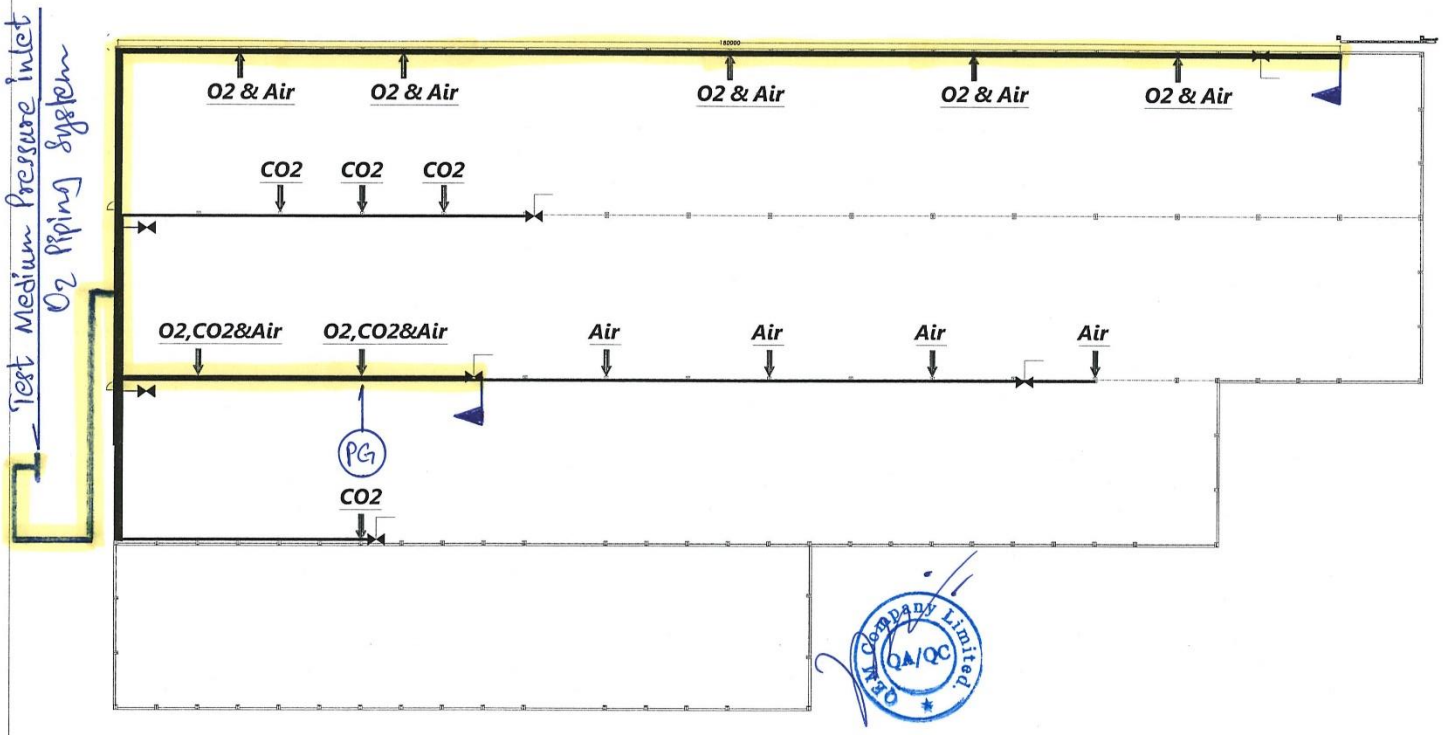


Starting of Test



Finishing of Test

MDS-88 Factory
CO2,O2 & Air Compressor Pipe Line



APPENDIX N
List of Commitments

Min Dhama Steel Structures Company Limited ၏ လုပ်ငန်းလည်ပတ်ဆောင်ရွက်ခြင်းကြောင့် ဖြစ်ပေါ်လာနိုင်သော သဘာဝပတ်ဝန်းကျင်၊ လူမှုဘဝ နှင့် ကျန်းမာရေး ထိခိုက်မှုများရှိခဲ့ပါက လျော့ချရေး၊ စီမံခန့်ခွဲရေးနှင့် တားဆီးရေး အစီအစဉ်များကို ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (Environmental Management Plan – EMP) တွင် ပါဝင်ရမည့် အချက်များကို အကောင်အထည်ဖော် စီမံဆောင်ရွက်သွားမည် ဖြစ်ကြောင်း။ အောက်ဖော်ပြပါ ဇယားဖြင့် အကျဉ်းချုပ် စာရင်းပြုစု ဖော်ပြထားပါသည်။

ကတိကဝတ်၏ အတိုချုပ်အမည်	**အမှတ်စဉ်**	**ကတိကဝတ်အားရှင်းလင်းဖော်ပြချက်**	**အစီရင်ခံစာပါရည်ညွှန်းချက်အခန်း**
နိဒါန်း	၁	➢ စီမံကိန်းအဆိုပြုသူ၏ ကိုယ်ရေးအချက်အလက် ➢ ဒါရိုက်တာစာရင်း ➢ ရင်းနှီးမြှုပ်နှံမှု အချက်အလက်များ ➢ အစီရင်ခံစာရေးဆွဲသည့် တတိယအဖွဲ့အစည်း၏ အချက်အလက်များ	အခန်း (၁)
မူဝါဒ၊ဥပဒေနှင့်အဖွဲ့အစည်းဆိုင်ရာ မူဘောင်များ	၂	➢ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ (၂၀၁၂) ➢ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနည်းဥပဒေ (၂၀၁၄) ➢ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ထုံးလုပ်နည်း(၂၀၁၅) ➢ မြန်မာနိုင်ငံမှ ချမှတ်ထားသောစက်ရုံနှင့်သက်ဆိုင်သည့် တခြားလိုက်နာဆောင်ရွက်ရမည့်လုပ်ထုံးလုပ်နည်းဥပဒေ၊ နည်းဥပဒေနှင့်မူဝါဒများ	အခန်း(၂)

ကတိကဝတ်၏ အတိုချုပ်အမည်	အမှတ်စဉ်	ကတိကဝတ်အားရှင်းလင်းဖော်ပြချက်	အစီရင်ခံစာပါရည်ညွှန်းချက်အခန်း
		➢ အမျိုးသားပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက် (၂၀၁၅) နှင့် နိုင်ငံတကာပတ်ဝန်းကျင်ဆိုင်ရာ စံသတ်မှတ်ချက်များနှင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုဆိုင်ရာ လမ်းညွှန်ချက်များ	
စီမံကိန်းအကြောင်းအရာ ဖော်ပြချက်	၃	➢ စီမံကိန်း၏ တည်နေရာ၊ တည်နေရာပြမြေပုံများ၊ စီမံကိန်းလုပ်ငန်းဆောင်ရွက်ပုံအဆင့်ဆင့်၊ စက်ရုံတွင် အသုံးပြုသည့် အရင်းအမြစ်များ၊ စီမံကိန်းမှ ထွက်ရှိသည့် စွန့်ပစ်ပစ္စည်းများအား အသေးစိတ် ဖော်ပြထားရှိပါသည်။	အခန်း(၃)
ပတ်ဝန်းကျင်အရည်အသွေး တိုင်းတာမှု	၄	➢ အမျိုးသား ပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက် (၂၀၁၅) နှင့် နိုင်ငံတကာ ပတ်ဝန်းကျင်ဆိုင်ရာ စံသက်မှတ်ချက်များနှင့် ပတ်ဝန်ကျင် စီမံခန့်ခွဲမှုဆိုင်ရာ လမ်းညွှန်ချက်များကို အခြေခံ၍ လေ့လာတိုင်းတာထားပါသည်။	အခန်း(၄)
အပူချိန်နှင့် စိုထိုင်းဆ	၄.၁	➢ စက်ရုံအတွင်းရှိ အပူချိန်နှင့် စိုထိုင်းဆအား တိုင်းတာထားရှိပါသည်။	အပိုဒ်ခွဲ (၄-၂-၁)
လေအရည်အသွေး	၄.၂	➢ အမျိုးသား ပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက် (၂၀၁၅) ၏ ထုတ်လွှတ်အခိုးအငွေ့ (Air emissions) လမ်းညွှန်သတ်မှတ်ချက်ဖြင့် နှိုင်းယှဉ် ဖော်ပြထားပါသည်။	အပိုဒ်ခွဲ(၄-၂-၂)
စက်ရုံအလင်းရောင်ရရှိမှု	၄.၃	➢ Illumination and Limiting Glare Index based on IES Code, 1968 ဖြင့် နှိုင်းယှဉ် ဖော်ပြထားပါသည်။	အပိုဒ်ခွဲ(၄-၂-၃)

ကတိကဝတ်၏ အတိုချုပ်အမည်	**အမှတ်စဉ်**	**ကတိကဝတ်အားရှင်းလင်းဖော်ပြချက်**	**အစီရင်ခံစာပါရည်ညွှန်းချက်အခန်း**
ဆူညံသံ	၄.၄	➢ အမျိုးသား ပတ်ဝန်းကျင်ဆိုင်ရာ အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်ချက် (၂၀၁၅) ၏ အမြင့်ဆုံးလက်ခံနိုင်သည့် ဆူညံသံအဆင့် (Noise level) လမ်းညွှန်သက်မှတ်ချက် စက်မှုဇုန် ဧရိယာတွင် (70 One-hour LAeq (dBA)) ဖြင့် နှိုင်းယှဉ် ဖော်ပြထားပါသည်။	အပိုဒ်ခွဲ(၄-၂-၄)
ဘေးအန္တရာယ်ရှိမှုဆန်းစစ်ခြင်းနှင့် လျော့နည်းစေရေး အစီအစဉ်	၅	➢ စီမံကိန်းကြောင့် ပတ်ဝန်းကျင်နှင့်လူမှုစီးပွားအပေါ် ဖြစ်ပေါ်နိုင်သော အကျိုးသက်ရောက်မှုများကို လေ့လာဆန်းစစ်၍ လျော့နည်းစေရေး အစီအစဉ်များကို လုပ်သွားမည် ဖြစ်ပါသည်။	အခန်း (၅)
အကျိုးသက်ရောက်မှုများအား အမျိုးအစားခွဲခြားခြင်း	၅.၁	➢ ကောင်းမွန်သော သက်ရောက်မှုများနှင့် ဆိုးကျိုးများအား ဖော်ထုတ်ခြင်း။	အပိုဒ် (၅.၁)
ဂေဟဗေဒအရင်းအမြစ်များအပေါ် သက်ရောက်မှုများ	၅.၂	➢ ဂေဟဗေဒအရင်းအမြစ်များအပေါ် စီမံကိန်းကြောင့် သက်ရောက်နိုင်မှုများအား ဖော်ထုတ်ခြင်း။	အပိုဒ် (၅.၄)
လူသားတို့အပေါ် သက်ရောက်မှုများ	၅.၃	➢ လူမှုစီးပွား၊ လုပ်ငန်းခွင် ကျန်းမာရေးနှင့် လုံခြုံရေး၊ အမှိုက်စွန့်ပစ်မှုတို့နှင့် ပတ်သက်၍ ဖြစ်ပေါ်နိုင်သော သက်ရောက်မှုများအား ဖော်ထုတ်ခြင်း။	အပိုဒ် (၅.၅)
စီမံကိန်း၏ လုပ်ဆောင်မှုများနှင့် ၎င်း၏ အကျိုးသက်ရောက်မှုများ	၅.၄	➢ စီမံကိန်း၏ လုပ်ငန်းစဉ်အဆင့်၊ ဖျက်သိမ်းခြင်းအဆင့် တို့တွင် ဖြစ်ပေါ်နိုင်သော စီမံကိန်း၏ ပတ်ဝန်းကျင်၊ ဂေဟဗေဒနှင့် လူသားတို့အပေါ် အကျိုးသက်ရောက်မှုများအား အဆင့်အလိုက်ခွဲခြား ဖော်ပြထားခြင်း။	အပိုဒ် (၅.၆)

ကတိကဝတ်၏ အတိုချုပ်အမည်	**အမှတ်စဉ်**	**ကတိကဝတ်အားရှင်းလင်းဖော်ပြချက်**	**အစီရင်ခံစာပါရည်ညွှန်းချက်အခန်း**
ပတ်ဝန်းကျင်အရင်းအမြစ်များအပေါ် သက်ရောက်မှုများအား လျော့နည်းစေရေး နည်းလမ်းများ	၅.၄	➢ စီမံကိန်းကြောင့် ပတ်ဝန်းကျင် (လေ၊ ရေ၊ မြေ၊ အသံ) သက်ရောက်မှုနှင့် ပတ်သက်၍ လျော့နည်းစေရေး နည်းလမ်းများကို ဖော်ပြထားပါသည်။	အပိုဒ် (၅.၇)
လူသားတို့အပေါ် သက်ရောက်မှုများအား လျော့နည်းစေရေး နည်းလမ်းများ	၅.၅	➢ မီးဘေးအန္တရာယ်၊ လုပ်ငန်းခွင် ကျန်းမာရေးနှင့် ဘေးကင်းလုံခြုံရေး၊ စွန့်ပစ်ပစ္စည်းထွက်ရှိမှုနှင့် ပတ်သက်၍ လျော့နည်းစေရေး နည်းလမ်းများအား ဖော်ပြထားပါသည်။	အပိုဒ် (၅.၈)
ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု	၆	➢ Min Dhama Steel Structures COMPANY LIMITEDသည် စက်ရုံအခြေအနေ၊ အလုပ်သမား၊ ဒေသခံလူထုအမြင်၊ အစုရှယ်ယာဝင်များနှင့် ညှိနှိုင်းဆွေးနွေးခြင်း အပါအဝင် ပတ်ဝန်းကျင်ဆိုင်ရာစောင့်ကြပ်ကြည့်ရှုခြင်းများကို ဆောင်ရွက်သွားမည် ဖြစ်ပါသည်။	အခန်း(၆)
လေထုညစ်ညမ်းမှုနှင့်ဖုန်မှုန့်	၆.၁	➢ လေထုညစ်ညမ်းခြင်းကိုကာကွယ်ရန်နှင့် ကာဗွန်ထုတ်လုပ်မှုကို လျော့ချပေးရန် အတွက်စက်ရုံဝင်းအတွင်းအပင်များစိုက်ပျိုးခြင်း ➢ မီးစက်များကိုပြုပြင်ထိန်းသိမ်းခြင်း ➢ အမှိုက်များမီးရှို့ခြင်းကိုတားမြစ်ခြင်း ➢ ဖုန်ထူထပ်သောနေရာများတွင်တာဝန်ထမ်းဆောင်သောဝန်ထမ်းများအတွက် နာခေါင်းစည်းများဝတ်ဆင်ခြင်း	အပိုဒ်(၆-၁)

ကတိကဝတ်၏ အတိုချုပ်အမည်	အမှတ်စဉ်	ကတိကဝတ်အာဏာရှင်းလင်းဖော်ပြချက်	အစီရင်ခံစာပါရည်ညွှန်းချက်အခန်း
ရေအသုံးချမှု	၆.၂	➢ ရေသုံးစွဲမှုကို ထိန်းချုပ်ရန်အတွက် ရေမီတာတပ်ဆင်ထားခြင်း ➢ ဝန်ထမ်းများအတွက် အိမ်သာနှင့် အခြားရေသုံးစွဲသည့် လုပ်ငန်းစဉ်များတွင် ရေသုံးစွဲမှုနှင့် ပတ်သက်၍ သတိပေးဆိုင်းဘုတ်များထားရှိခြင်း၊ အလေ့အကျင့်ကောင်းများ သင်ကြားပေးခြင်း ပြုလုပ်ခြင်း ➢ ရေညစ်ညမ်းမှုကို ရှောင်ရှားနိုင်ရန်အတွက် စက်များနှင့် မော်တော်ယာဉ်များတွင် အသုံးပြုသည့် လောင်စာဆီများကို သင့်တော်ကောင်းမွန်အောင် စီမံဆောင်ရွက်ခြင်း ➢ စက်ရုံပတ်ဝန်းကျင်တွင် သစ်ပင်များ စိုက်ပျိုးထားရှိခြင်း	အပိုဒ်(၆-၂)
စွန့်ပစ်အရည်	၆.၃	➢ ရေနုတ်မြောင်းလိုင်းကို သင့်တော်သော အကျယ်၊ အနက်ရှိစေပြီး မိလ္လာစနစ်သည် ရေလုံပြီး စနစ်တကျ သိုလှောင်နိုင်ခြင်း ➢ မိလ္လာပိုက်လိုင်းကို အမြဲစစ်ဆေးခြင်းနှင့် ထိန်းသိမ်းခြင်း ➢ ရေနုတ်မြောင်းကို အနှံ့အသက်များ ကင်းစေရန် အမှိုက်များ ပိတ်ဆို့စေခြင်း မရှိအောင် ဆောင်ရွက်ခြင်း	အပိုဒ်(၆-၃)
ဆူညံသံထွက်ရှိမှု	၆.၄	➢ အသံလုံအခန်းများတည်ဆောက်ပြီး စက်ပစ္စည်းများကို သေချာစွာ ပြုပြင်ထိန်းသိမ်းစေခြင်း ➢ သယ်ယူပို့ဆောင်ရေးလမ်းကြောင်းတွင် ယာဉ်များ၏ အမြန်နှုန်းကို ကန့်သတ်ခြင်း ➢ လုံလောက်သော တစ်ကိုယ်ရည်သုံး အကာအကွယ်ပစ္စည်းများ ထားရှိပေးခြင်း	အပိုဒ်(၆-၄)

ကတိကဝတ်၏ အတိုချုပ်အမည်	အမှတ်စဉ်	ကတိကဝတ်အားရှင်းလင်းဖော်ပြချက်	အစီရင်ခံစာပါရည်ညွှန်းချက်အခန်း
		➢ သက်ဆိုင်ရာ ဝန်ထမ်းများအားလုံးကို သင့်လျော်သော သင်တန်းများ ပို့ချခြင်းနှင့် ဆူညံသော နေရာတွင် အလုပ်လုပ်စဉ် တစ်ကိုယ်ရည်သုံး အကာအကွယ်များ တပ်ဆင်စေခြင်း	
အမှိုက်စွန့်ပစ်မှု	၆.၅	➢ စီမံကိန်းမှ ထွက်ရှိသော စွန့်ပစ်အမှိုက်များကို စက်ရုံဝင်းအတွင်း (သို့မဟုတ်) ဒေသရှိ အင်းအိုင်၊ ချောင်း၊ မြောင်း၊ မြစ် စသည်တို့ထဲသို့ စွန့်ပစ်ခြင်း မပြုလုပ်ပါ။ ➢ စွန့်ပစ်အမှိုက်များကို တစ်နေရာတည်းတွင် စနစ်တကျ ခွဲ၍ စုဆောင်းရန်လိုအပ်ပြီး အထည်အလိပ် စွန့်ပစ်အမှိုက်များကို သီးခြားသိုလှောင်သိမ်းဆည်းခြင်း၊ အန္တရာယ်ရှိသော စွန့်ပစ်ပစ္စည်းများနှင့် တခြားသော သတ္တုပစ္စည်းများကို သီးခြား သိုလှောင်သိမ်းဆည်းခြင်း ➢ စွန့်ပစ်အမှိုက်များကို စနစ်တကျ ထားသို၍ စွန့်ပစ်ခြင်း ➢ နေ့စဉ်ထွက်ရှိသော အမှိုက်များကို ရန်ကုန်မြို့တော်စည်ပင်ယာရေးကော်မတီနှင့် ချိတ်ဆက်စွန့်ပစ်ခြင်း	အပိုဒ်(၆-၅)
မီးဘေးအန္တရာယ်	၆.၆	➢ အရေးပေါ်အခြေအနေများအတွက် စက်ရုံနံရံများတွင် မီးသတ်ဆေးဘူးများ၊ မီးသတ်ပိုက်ဘီးများနှင့် မီးသတ်ရေပိုက်များ ထားရှိခြင်း ➢ အရေးပေါ်ထွက်ပေါက်ပြ မြေပုံများနှင့် စုဝေးရပ်ညွှန်ပြရာ သင်္ကေတများ ထားရှိခြင်း	အပိုဒ်(၆-၆)

ကတိကဝတ်၏ အတိုချုပ်အမည်	အမှတ်စဉ်	ကတိကဝတ်အားရှင်းလင်းဖော်ပြချက်	အစီရင်ခံစာပါရည်ညွှန်းချက်အခန်း
		➢ မီးသတ်ပစ္စည်းများကို ပုံမှန်စစ်ဆေးခြင်းနှင့် မီးသတ်ရေကန်ကို အရေးပေါ်အခြေအနေအတွက် ပြင်ဆင်ခြင်း ➢ အလုပ်သမားများအား သတိပေးရန် မီးဘေးအချက်ပြခေါင်းလောင်းများ တပ်ဆင်ထားခြင်း ➢ အဓိက ဝင်ပေါက်ထွက်ပေါက်များကို ပိတ်ဆို့ထားခြင်း မပြုလုပ်စေခြင်း	
လုပ်ငန်းခွင်ထိခိုက်မှုနှင့်ကျန်းမာရေး	၆.၇	➢ ရှေးဦးသူနာပြုသင်တန်း၊ ဘေးအန္တရာယ်ကင်းရှင်းရေးသင်တန်း၊ မီးဘေးအန္တရာယ်ကာကွယ်ရေး သင်တန်း၊ စက်ယန္တယားများ ကိုင်တွယ်ခြင်း သင်တန်းများ ပို့ချခြင်း ➢ လေ့လာတွေ့ရှိထားသော အလင်းတိုင်းတာချက်များအရ၊ အလုပ်သမားများ ဘေးကင်းလုံခြုံစွာ လုပ်ကိုင်နိုင်စေရန် လုံလောက်သောအလင်းရောင် ရရှိစေရန် ဆောင်ရွက်ခြင်း ➢ တစ်ကိုယ်ရည်သုံး ကာကွယ်ရေးကိရိယာများ (ဥပမာ- နားကြပ်၊ လက်အိတ်၊ ခေါင်ဆောင်း၊ မျက်မှန်) များကို ဌာနအလိုက် ပေးအပ်ခြင်း ➢ ဓာတ်လိုက်ခြင်း အန္တရာယ်မှ ကာကွယ်ရန်အတွက် လျှပ်စစ်ထိန်းသိမ်းစောင့်ရှောက်ရေး ဝန်ထမ်းအား ပုံမှန်စစ်ဆေးခြင်းနှင့် ကြိုတင်ကာကွယ်မှုပြုလုပ်ရန် တာဝန်ပေးခန့်အပ်ခြင်း	အပိုဒ်(၆-၇)

ကတိကဝတ်၏ အတိုချုပ်အမည်	အမှတ်စဉ်	ကတိကဝတ်အားရှင်းလင်းဖော်ပြချက်	အစီရင်ခံစာပါရည်ညွှန်းချက်အခန်း
		➢ ရေနုတ်မြောင်းများ ရေစီးရေလာကောင်းအောင် ဆောင်ရွက်ခြင်းဖြင့် အလုပ်သမားများ၏ ကျန်းမာရေး ဘေးအန္တရာယ် ကာကွယ်ခြင်း ➢ အလုပ်သမားများအတွက် အများဆုံးခွင့်ပြုနိုင်သော ဆူညံသံအဆင့် 90dB(A) သည် တစ်ရက်လျှင် ၈နာရီသာ ဖြစ်သည်။ ထို့ကြောင့် ဆူညံသော နေရာများတွင် လုပ်ကိုင်ပါက နားကြပ်ကိရိယာ တပ်ဆင်ခြင်းရမည်။	
စွမ်းအင်	၆.၈	➢ အပူအအေးအလိုအလျောက်ညွှန်ပြရာ ကိရိယာနှင့် အချိန်အတိုင်းကိရိယာများ တပ်ဆင်ခြင်း ➢ စက်ရုံ၏နေရာအမျိုးမျိုးတွင် စွမ်းအင်ချွေတာသော လျှပ်စစ်မီးများ တပ်ဆင်ခြင်း ➢ စွမ်းအင်ချွေတာသော စက်ပစ္စည်းများကို တပ်ဆင်ရမည်	အပိုဒ်(၆-၈)
အရေးပေါ်အခြေအနေ	၆.၉	➢ စက်ရုံအနေဖြင့် အရေးပေါ်ဖြစ်ပေါ်လာနိုင်သော မီးဘေးအန္တရာယ်၊ ငလျင်၊ ရေကြီးခြင်းနှင့် မုန်တိုင်းများအတွက် စီမံထားရှိခြင်း ➢ မီးသတ်ပစ္စည်းကိရိယာများနှင့် မီးသတ်ဆေးဘူးများကို နေရာတိုင်းတွင် တပ်ဆင်ထားခြင်းနှင့် စစ်ဆေးခြင်း ➢ အသေးစိတ်အခြေအနေပြ ရုပ်ပုံ (အရေးပေါ်ထွက်ပေါက်တံခါး စသည်) ကို အလုပ်သမားများ သိရှိစေရန် ဆောင်ရွက်ထားခြင်း	အပိုဒ်(၆-၉)

ကတိကဝတ်၏ အတိုချုပ်အမည်	အမှတ်စဉ်	ကတိကဝတ်အားရှင်းလင်းဖော်ပြချက်	အစီရင်ခံစာပါရည်ညွှန်းချက်အခန်း
		➢ ရေပိုက်ခေါင်း၊ မီးသတ်ဘူး စသည်တို့ကို ထားရှိခြင်း၊ စစ်ဆေးခြင်းနှင့် ဓာတ်လိုက်ခြင်းမှ ကာကွယ်ရန် လျှပ်စစ်အန္တရာယ် အသိပေး သင်တန်းများ ပို့ချခြင်း ➢ အလုပ်သမားများအား ငလျင်လှုပ်သောအခါ စားပွဲအောက်ကဲ့သို့သော ဘေးကင်းသော နေရာများတွင် နေထိုင်ရန်၊ အပြင်သို့ မရွှေ့ရန်၊ အပြင်တွင်ရှိနေသော အလုပ်သမားများအနေဖြင့် အဆောက်အဦးအောက်၊ သစ်ပင်အောက်၊ တိုင်များအောက်တွင် နေထိုင်ခြင်းမပြုဘဲ ကွင်းပြင်တွင်သာ နေထိုင်ရန်၊ တခြားသော သက်ဆိုင်ရာ ဘေးကင်းလုံခြုံရေး လမ်းညွှန်ချက်များကို အသိပညာပေးခြင်း ➢ ရေလွှမ်းမိုးမှု (မုန်တိုင်းအပျက်အစီးများ၊ ရေမြောင်းများ ပွင့်နေခြင်း၊ မြေတိုက်စားမှု) နှင့် ရွှေ့ပြောင်းတွားသွားသတ္တဝါများ (မြွေ သို့မဟုတ် တခြားတိရိစ္ဆာန်များ) ၏ အန္တရာယ်များကို သတိပြုစေခြင်း ➢ အရေးပေါ်ဆေးအဖွဲ့များနှင့် ဆေးပစ္စည်းများ ထားရှိခြင်း ➢ အရေးပေါ်ဆက်သွယ်နိုင်သည့် မီးသတ်ဌာန၊ ရဲတပ်ဖွဲ့၊ ဆေးရုံ စသည့် တယ်လီဖုန်းနံပါတ်များကို မြင်သာနိုင်သည့်နေရာတွင် ကပ်ထားခြင်း ➢ မီးငြိမ်းသတ်ရေးအဖွဲ့၊ ကယ်ဆယ်ရေးအဖွဲ့တို့ဖြင့် ဘေးကင်းရေးကော်မတီတစ်ရပ် တည်ဆောက်ခြင်းနှင့် ကော်မတီအနေဖြင့် ဘေးအန္တရာယ်ကင်းရှင်းရေးဆိုင်ရာ စီမံခန့်ခွဲမှုနှင့် ပတ်သတ်၍ လစဉ်အစည်းအဝေး ကျင်းပခြင်း	

ကတိကဝတ်၏ အတိုချုပ်အမည်	အမှတ်စဉ်	ကတိကဝတ်အားရှင်းလင်းဖော်ပြချက်	အစီရင်ခံစာပါရည်ညွှန်းချက်အခန်း
		➢ သဘာဝဘေးအန္တရာယ်စီမံခန့်ခွဲရေး၊ မီးဘေးအန္တရာယ်နှင့် လုပ်ငန်းခွင်ထိခိုက်မှုနှင့် ကျန်းမာရေး ကာကွယ်ရေးအတွက် သင့်လျော်သော သင်တန်းများပို့ချခြင်း	
စောင့်ကြပ်ကြည့်ရှုမှု	၇	➢ အဆိုပြုစီမံကိန်းသည် စောင့်ကြပ်ကြည့်ရှုမှု အစီရင်ခံစာကို ဝန်ကြီးဌာနသို့ (၆)လ တစ်ကြိမ် တင်ပြဆောင်ရွက်မည်။	အပိုဒ်(၆-၁၀)
ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုမှု အချိန်ဇယားနှင့် အစီရင်ခံတင်ပြမည့်အစီအစဉ်	၇.၁	➢ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ပါ အစီအစဉ်များအတိုင်း စောင့်ကြပ်ကြည့်ရှုသွားမည့် နေရာများ၊ GPS Location Point များ၊ ကုန်ကျစရိတ်များ၊ တာဝန်ယူဆောင်ရွက်သွားမည့် အဖွဲ့အစည်းအား ဖော်ပြထားရှိပါသည်။	ဇယား (၆.၁)
ပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုနှင့် စောင့်ကြပ်ကြည့်ရှုမှုအတွက် ကုန်ကျစရိတ်	၇.၂	➢ ပတ်ဝန်းကျင်ဆိုင်ရာစီမံခန့်ခွဲမှုနှင့် စောင့်ကြပ်ကြည့်ရှုမှုအတွက် ခန့်မှန်းကုန်ကျစရိတ်များအား ဖော်ပြထားရှိပါသည်။	ဇယား (၆.၂)
စွမ်းဆောင်ရည်မြှင့်တင်ခြင်းနှင့် သင်တန်းပို့ချခြင်း အစီအစဉ်	၈	➢ ဝန်ထမ်းများအား အရေးပေါ်အခြေအနေ၊ ကျန်းမာရေးအခြေအနေ၊ မီးဘေးအန္တရာယ်များ ဖြစ်ပေါ်လာပါက ထိန်းချုပ်ဖြေရှင်းနိုင်ရန် လိုအပ်သည့် သင်တန်းများ ပို့ချထားရှိခြင်း	အပိုဒ် (၆.၁၁)
မကျေနပ်မှုများဆိုင်ရာ ဖြေရှင်းမှုနည်းလမ်း	၉	➢ ဒေသခံပြည်သူများ၏ စီမံကိန်းနှင့် ပတ်သက်၍ မကျေနပ်မှုများ၊ ပြဿနာများအား ဖြေရှင်းရန်အတွက် စက်ရုံ၏ ကော်မတီ၊ အစိုးရဌာန၊ စက်မှုဇုန် တာဝန်ရှိသူများနှင့် ပူးပေါင်းဖြေရှင်းသွားပါမည်။	အပိုဒ် (၆.၁၂)

ကတိကဝတ်၏ အတိုချုပ်အမည်	အမှတ်စဉ်	ကတိကဝတ်အားရှင်းလင်းဖော်ပြချက်	အစီရင်ခံစာပါရည်ညွှန်းချက်အခန်း
လူမှုရေးဆိုင်ရာ တာဝန်ယူဆောင်ရွက်မှု	၁၀	➢ လူထုအကျိုးပြုဆောင်ရွက်ချက်များကို လူနေမှုအဆင့်အတန်း မြင့်မားစေရန်နှင့် စီမံကိန်းဧရိယာရှိ လူနေမှုအသိုင်းအဝိုင်းများ အားလုံးနှင့် အဆင်ပြေစေရန် ရည်ရွယ်ပါသည်။ Min Dhama Steel Structures Company Limited ၏ လူထုအကျိုးပြု ဆောင်ရွက်ချက်များအနေဖြင့် ဒေသအတွင်း ဖွံ့ဖြိုးတိုးတက်ရေးအတွက် အထောက်အပံ့များ ကူညီဆောင်ရွက်ခြင်းနှင့် ဝန်ထမ်းများနှင့် ၎င်းတို့၏ မိသားစုများအတွက် ကျန်းမာရေးကူညီစောင့်ရှောက်မှုထားရှိပေးခြင်းများ ဆောင်ရွက်သွားမည်ဖြစ်ပါသည်။	အပိုဒ် (၆.၁၃)
အများပြည်သူနှင့် တွေ့ဆုံ ဆွေးနွေးခြင်း	၁၁	➢ သက်ဆိုင်သူများနှင့် တွေ့ဆုံဆွေးနွေးခြင်း အစီအစဉ်တွင် Min Dhama Steel Structures Company Limitedစက်ရုံ၏ EMP အစီရင်ခံစာ အကြောင်းကို ရှင်းလင်း တင်ပြခြင်းဖြစ်သည်။ စီမံကိန်း၏ သက်ဆိုင်သူများနှင့် တွေ့ဆုံညှိနှိုင်းအဖြေရှာခြင်း အစီအစဉ်သည် စီမံကိန်းအကြောင်းအရာနှင့် ပတ်သက်သော အချက်များကို အလွယ်တကူရရှိရန် အကောင်းဆုံးနည်းလမ်း ဖြစ်ပါသည်။ ၂၀၂၃ ခုနှစ် ဧပြီလ ၂၇ ရက်နေ့တွင် ရွှေပြည်သာမြို့နယ်၊ ရွှေပြည်သာ စက်မှုဇုန် (၄)၊ Min Dhama Steel Structures Company Limited ၏ အစည်းအဝေးခန်းမတွင် လူထုတွေ့ဆုံဆွေးနွေးပွဲ ကျင်းပခဲ့ပြီး ဆွေးနွေးတင်ပြလာသည့် အကြံပြုချက်များအတိုင်း လိုက်နာဆောင်ရွက်သွားမည် ဖြစ်ပါသည်။	အခန်း (၇)

ကတိကဝတ်၏ အတိုချုပ်အမည်	အမှတ်စဉ်	ကတိကဝတ်အားရှင်းလင်းဖော်ပြချက်	အစီရင်ခံစာပါရည်ညွှန်းချက်အခန်း
နိဂုံးနှင့် အကြံပြုချက်	၁၂	➢ Min Dhama Steel Structures Company Limitedသည် အမျိုးမျိုးသော steel structures များအား CMP စနစ်ဖြင့် ထုတ်လုပ် ရောင်းချခြင်း ဖြစ်ပါသည်။ စီမံကိန်းမှရရှိသော အကျိုးအမြတ်၏ ၂% ကို CSR အစီအစဉ် ဖြင့် ဒေသအကျိုးပြုလုပ်ငန်းများနှင့် ဝန်ထမ်းများ၏ ကျန်းမာရေးဆိုင်ရာ ကူညီထောက်ပံ့ခြင်းများတွင် အသုံးပြုသွားမည် ဖြစ်ပါသည်။ စီမံကိန်း လည်ပတ်နေစဉ် နှင့် ပိတ်သိမ်းမည့်ကာလအတွက် နေ့စဉ်၊ လစဉ်၊ နှစ်စဉ် ရေးဆွဲမည့် အစီအစဉ်များအား ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုဆိုင်ရာ စည်းမျဉ်း၊ စည်းကမ်းများ၊ လုပ်ထုံးလုပ်နည်းများနှင့်အညီ ရေးဆွဲသွားမည်ဖြစ်ပါသည်။	အခန်း(၈)

Min Dhama Steel Structures Co., Ltd.
No.....
Date.....

Daw Cherry
Director
Min Dhama Steel Structures Co.,Ltd