MJTD

Thilawa Special Economic Zone (Zone B) Development

Environmental Monitoring Report Phase-4 (Pre- Construction Phase)

Myanmar Japan Thilawa Development Limited.

March 2020

Executive Summary

The environmental inspection and compliance monitoring program will be implemented under the direction of Ministry of Natural Resources and Environmental Conservation (MONREC) with oversight by Thilawa SEZ Management Committee.

This Environmental Monitoring Plan is submitted in conformity with the provision of Chapter 10.2 Content of an EIA Report of Thilawa SEZ Development Project (Zone-B).

Monitoring Reports

a) **Documentation of compliance with all Conditions;**
Attached herewith the Notification letter reference TSEZ-EIA-009 from the Ministry of Natural Resources and Environmental Conservation regarding the Environmental Impact Assessment Report for Thilawa SEZ the Industrial Area, Zone-B from Thilawa SEZ Management Committee.

b) **Progress made to date on the implementation of EMP against the submitted implementation schedule;**
This EMP is submitted for the Pre-Construction Phase and will be further submitted on quarterly basis in Construction Phase and on bi-annually base in Operation Phase of TSEZ Zone-B Development Project.

c) **Difficulties encountered in implementing of the EMP and recommendations for remedying those difficulties and steps proposed to prevent or avoid similar future difficulties;**
Not applicable for Pre-Construction Phase.

d) **Number and type of non-compliance with the EMP and proposed remedial measures and timelines for completion of remediation;**
Not applicable for Pre-Construction Phase

e) **Accidents or incidents relating to the occupational and community health and safety, and the environment:**
Neither accidents nor incidents happened at Pre-Construction Phase.

f) **Monitoring data on environmental parameters and conditions as committed in the EMP or otherwise required.**
Attached here with the Environmental Monitoring Form for Construction Phase.

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
ပြည်ထောင်စုဝန်ကြီးရုံး

စဉ်စာအမှတ်	၀၅၁
ရက်စွဲ	၂၀၁၆ ခုနှစ်၊ ဒီဇင်ဘာလ ၁၄ ရက်
အမြန်	
ပေးပို့သည့်နည်း	စာတိုက်မှတဆင့်

စာအမှတ် (သစ်တော) ၃/၁၆(ဃ)(၂၇၇၂ /၂၀၁၆)
ရက်စွဲ ၂၀၁၆ ခုနှစ်၊ ဒီဇင်ဘာလ ၁၄ ရက်

သို့

သီလဝါအထူးစီးပွားရေးဇုန်စီမံခန့်ခွဲမှုကော်မတီ

အကြောင်းအရာ။ သီလဝါအထူးစီးပွားရေးဇုန် (အပိုင်း ခ)၊ စက်မှုဇုန်ဧရိယာ၏ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (EIA) အစီရင်ခံစာနှင့်ပတ်သက်၍ အတည်ပြုကြောင်းပြန်ကြားခြင်းကိစ္စ

ရည်ညွှန်းချက်။ (၁) Myanmar Japan Thilawa Development Co., Ltd. ၏ ၂၂-၃-၂၀၁၆ ရက်စွဲပါစာအမှတ်၊ MJTD/O/16-03-297

(၂) သီလဝါအထူးစီးပွားရေးဇုန်စီမံခန့်ခွဲမှုကော်မတီ၏ ခဂ-၅-၂၀၁၆ ရက်စွဲပါစာအမှတ်၊ TSEZ-EIA-005

(၃) Myanmar Japan Thilawa Development Co., Ltd. ၏ ၂၇-၅-၂၀၁၆ ရက်စွဲပါစာအမှတ်၊ MJTD/O/16-05-318

(၄) သီလဝါအထူးစီးပွားရေးဇုန်စီမံခန့်ခွဲမှုကော်မတီ၏ ၁၀-၆-၂၀၁၆ ရက်စွဲပါစာအမှတ်၊ TSEZ-EIA-007

၁။ အကြောင်းအရာပါကိစ္စနှင့်ပတ်သက်၍ သီလဝါအထူးစီးပွားရေးဇုန် (အပိုင်း-ခ) ၏ စက်မှုဇုန်ဧရိယာများအတွက် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာ(မူကြမ်း)ကို သီလဝါအထူးစီးပွားရေးဇုန် (အပိုင်း-ခ) ကို အကောင်အထည်ဖော်ဆောင်ရွက်မည့် Myanmar Japan Thilawa Development Co., Ltd. မှ သီလဝါအထူးစီးပွားရေးဇုန်စီမံခန့်ခွဲမှုကော်မတီ (Thilawa Special Economic Zone Management Committee -TSMC) သို့ ရည်ညွှန်း (၁) ပါစာဖြင့် ပေးပို့ခဲ့ခြင်း အဖေါ် Mobile Review Team မှစိစစ်သုံးသပ်၍ ရည်ညွှန်း (၂) ပါစာဖြင့် သဘောထားမှတ်ချက်ပြန်ကြားခဲ့ပါသည်။

၂။ Myanmar Japan Thilawa Development Co., Ltd. မှ ရည်ညွှန်း (၃) ပါစာဖြင့် ပြန်လည်ပြင်ဆင်တင်ပြလာသည့် အပြီးသတ်အစီရင်ခံစာကို သီလဝါအထူးစီးပွားရေးဇုန်စီမံခန့်ခွဲမှု

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

ကော်မတီမှ ရည်ညွှန်း(၄)ပါစာဖြင့် Approval of Commencement of Business Development ကိုထုတ်ပေးခဲ့ပြီးဖြစ်ပါသည်။

၃။ ရည်ညွှန်း (၃)ပါစာဖြင့် ပြင်ဆင်ပေးပို့တင်ပြလာသည့် စက်မှုဇုန်ဧရိယာအတွက် EIA အစီရင်ခံစာသည် Mobile Review Team ၏ သဘောထားမှတ်ချက်များနှင့်အညီ ပြင်ဆင်ဖြည့်စွက်ထားကြောင်း စိစစ်တွေ့ရှိရပါသည်။

၄။ သို့ဖြစ်ပါ၍ Myanmar Japan Thilawa Development Co., Ltd. မှ သီလဝါအထူးစီးပွားရေးဇုန် (အဝိုင်း ခ)၊ စက်မှုဇုန်ဧရိယာအတွက် ပြန်လည်ပြင်ဆင်တင်ပြလာသည့် EIA အစီရင်ခံစာနှင့်ပတ်သက်၍ အတည်ပြုပါကြောင်းနှင့် အစီရင်ခံစာတွင်ပါရှိသည့် ကတိကဝတ်များအား အကောင်အထည်ဖော်ရန်နှင့် အောက်ဖော်ပြပါ အချက်များအား အလေးထားလိုက်နာဆောင်ရွက်ရန် လိုအပ်ကြောင်း သဘောထားပြန်ကြားအပ်ပါသည်-

(က) စီမံကိန်းကြောင့် ထိခိုက်နိုင်သည့်ဒေသခံများ (Project Affected Households - PAHs)အတွက် ဝင်ငွေပြန်လည်ထူထောင်ပေးရေးစီမံချက် (Income Restoration Programme - IRP) ပါဝင်သည့် ပြန်လည်နေရာချထားရေး လုပ်ငန်းစီမံချက် (Resettlement Work Plan - RWP)ကို မြန်မာအစိုးရကိုယ်စား သီလဝါအထူးစီးပွားရေးဇုန်စီမံခန့်ခွဲမှုကော်မတီ (TSMC) မှ အကောင်အထည်ဖော် ဆောင်ရွက်သွားရမည်ဖြစ်ပြီး ထိုသို့ဆောင်ရွက်ရာတွင် စီမံကိန်းအကောင်အထည်ဖော် ဆောင်ရွက်မည့်သူသည် မြေယာငှားရမ်းခြင်းသဘောတူညီချက် (Land Lease Agreement) ကိုလက်မှတ်ရေးထိုးပြီးပါက PAHs များအတွက် ဝင်ငွေပြန်လည်ထူထောင်ရေး အထောက်အပံ့များကို TSMC မှတစ်ဆင့် ကူညီထောက်ပံ့သွားရမည်ဖြစ်ကြောင်း စိစစ်တွေ့ရှိရပါသည်။ သို့ဖြစ်ပါ၍ စီမံကိန်းအကောင်အထည်ဖော်ဆောင်ရွက်မည့်သူသည် PAHs နှင့် မြန်မာအစိုးရအကြား မြေယာလျော်ကြေးနှင့် ဝင်ငွေဆုံးရှုံးရခြင်းအတွက် အထောက်အပံ့ပေးခြင်းဆိုင်ရာ သဘောတူညီချက်အရ ပြန်လည်နေရာချထားရေးလုပ်ငန်းများနှင့် PAHs များအသုံးပြုလျက်ရှိသည့် ရေကန်နှင့် သစ်ချုံးများ ရွှေ့ပြောင်းခြင်းလုပ်ငန်းများပြီးစီးအောင် ဆောင်ရွက်ပြီးနောက် အပြီးသတ်အစီရင်ခံစာတွင် ဖော်ပြထားသည့် ဧရိယာအတွင်း တည်ဆောက်ရေးလုပ်ငန်းများကိုဆောင်ရွက်ရန်။

(ခ) Final EIA Report တွင် စီမံကိန်းအကောင်အထည်ဖော်ဆောင်ရွက်မည့် Time Schedule ကို အသေးစိတ် ရေးဆွဲဖော်ပြထားခြင်း၊ Land Reclamation နှင့်ပတ်သက်၍ ဖို့မည့်မြေအမျိုးအစား၊ ပမာဏ၊ ဆောင်ရွက်မည့်အစီအစဉ်၊ Mitigation Measures စသည်တို့ကို အသေးစိတ်ဖော်ပြထားခြင်း မရှိသေးကြောင်း စိစစ်တွေ့ရှိရပါသည်။ သို့ဖြစ်ပါ၍ တည်ဆောက်ရေးအတွက် ကန်ထရိုက်တာ ငှားရမ်းပြီးပါက

MYANMAR JAPAN THILAWA DEVELOPMENT MJTD

စီမံကိန်းအကောင်အထည်ဖော်ဆောင်ရွက်မည့် Time Schedule နှင့် Land Reclamation Plan တို့ကို အသေးစိတ် ပြန်လည်ရေးဆွဲတင်ပြရန်။

(ဂ) စီမံကိန်းကိုအကောင်အထည်ဖော်ဆောင်ရွက်မည့် Myanmar Japan Thilawa Development Co., Ltd. အောက်တွင် သီလဝါအထူးစီးပွားရေးဇုန် အပိုင်း (က) နှင့် အပိုင်း (ခ) ၏ စက်မှုဇုန်ဧရိယာအတွင်း ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာကိစ္စရပ်များ ဆောင်ရွက်ရန်အတွက် Environmental and Safety Health Section ဖွဲ့စည်းထားရှိသော်လည်း ယင်းဌာနနှင့် ဌာနရှိဝန်ထမ်းများ၏ အခန်းကဏ္ဍနှင့် တာဝန်ဝတ္တရားများကို ရှင်းလင်းစွာဖော်ပြထားခြင်းမရှိကြောင်း စိစစ်တွေ့ရှိရပါသည်။ သို့ဖြစ်ပါ၍ စီမံကိန်းအကောင်အထည်ဖော်ဆောင်ရွက်မည့်သူသည် အဆိုပါ ဌာနနှင့် ဌာနရှိဝန်ထမ်းများ၏ Role and Responsibilities ကို တည့်ဆောက်ရေးကာလ မစတင်မီ ရေးဆွဲတင်ပြသွားရန်။

(ဃ) ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ် (Environmental Management Plan - EMP) သည် သီလဝါအထူးစီးပွားရေးဇုန်အပိုင်း (ခ) ၏ စက်မှုဇုန်ဧရိယာတွင် လာရောက် ရင်းနှီးမြှုပ်နှံမည့် လုပ်ငန်းအမျိုးအစားနှင့်ပမာဏတို့ကို လက်ရှိအချိန်တွင် တိတိကျကျ မသိရှိနိုင်မှုကြောင့် အခြေခံအဆောက်အဦများအပေါ်တွင်သာ အခြေခံ၍ ထည့်သွင်းစဉ်းစားထားကြောင်း စိစစ်တွေ့ရှိရပြီး ရင်းနှီးမြှုပ်နှံမည့် လုပ်ငန်းအမျိုးအစားအလိုက် ပတ်ဝန်းကျင်နှင့် လူမှုရေးထိခိုက်နိုင်မှုအခြေအနေ ပြောင်းလဲနိုင်သဖြင့် ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ကို လုပ်ငန်းအဆင့်တိုင်းတွင် လိုအပ်သကဲ့သို့ ပြန်လည်ပြင်ဆင်ရေးဆွဲ၍ သီလဝါအထူးစီးပွားရေးဇုန် စီမံခန့်ခွဲမှုကော်မတီနှင့် ဌာနသို့ တင်ပြသွားရန်။

(င) သီလဝါအထူးစီးပွားရေးဇုန်အပိုင်း (ခ) ၏ စက်မှုဇုန်ဧရိယာတွင် လာရောက် ရင်းနှီးမြှုပ်နှံမည့် လုပ်ငန်းတစ်ခုချင်းစီအလိုက် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းနှင့်အညီ EIA သို့မဟုတ် IEE သို့မဟုတ် EMP ကိုရေးဆွဲ၍ သီလဝါအထူးစီးပွားရေးဇုန်စီမံခန့်ခွဲမှုကော်မတီနှင့် ဌာနသို့ တင်ပြသွားရန်။

(စ) Final EIA Report တွင် သီလဝါအထူးစီးပွားရေးဇုန်အပိုင်း (ခ) အတွင်း စက်မှုလုပ်ငန်းများမှ ထွက်ရှိမည့် စွန့်ပစ်ပစ္စည်းစီမံခန့်ခွဲမှုကိုသာ ဖော်ပြထားပြီး ရုံး/စားသောက်ဆိုင် စသည်တို့မှထွက်ရှိမည့် စွန့်ပစ်အမှိုက် (Domestic wastes) စီမံခန့်ခွဲမှုစနစ်နှင့် တရားမဝင်အမှိုက်စွန့်ပစ်မှုများရှိလာပါက ဆောင်ရွက်မည့် စီမံခန့်ခွဲမှုစနစ်တို့ကို ရှင်းလင်းစွာဖော်ပြထားခြင်းမရှိကြောင်း၊ စီမံကိန်းအဆိုပြုသူအနေဖြင့် တိကျသည့် စောင့်ကြပ်ကြည့်ရှုစနစ်ဖော်ပြထားခြင်းမရှိကြောင်း စိစစ်တွေ့ရှိရပါသည်။ သို့ဖြစ်ပါ၍ စီမံကိန်းအကောင်အထည်ဖော် ဆောင်ရွက်မည့်သူသည် Domestic

wastes နှင့် တရားမဝင်အမှိုက်စွန့်ပစ်မှုများကို ထိန်းချုပ်နိုင်ရန်အတွက် စီမံချက်ကို EMP တွင်ထည့်သွင်းရေးဆွဲ၍ စီမံခန့်ခွဲမှုအစီအစဉ်ကို ထည့်သွင်း ဖော်ပြသွားရန်နှင့် ရင်းနှီးမြှုပ်နှံမည့်လုပ်ငန်းရှင်များနှင့် တည်ဆောက်ရေးတာဝန်ယူမည့် ကန်ထရိုက်တာများအား လုံး သိရှိလိုက်နာစေရန် နှစ်စဉ် အသိပေးကြေငြာခြင်း၊ သဘောတူညီမှုရယူခြင်း၊ သတိပေးခြင်းတို့ကို သီလဝါအထူးစီးပွားရေးဇုန်စီမံခန့်ခွဲမှုကော်မတီ၏ လမ်းညွှန်ချက်များနှင့်အညီ ဆောင်ရွက်သွားရန်။

(ဆ) Final EIA Report တွင် မီးဘေးလုံခြုံရေး၊ ဓါတုဗေဒပစ္စည်းများအန္တရာယ်မှ လုံခြုံရေး၊ ရေကြီးခြင်း၊ ဒလျင်လှုပ်ခြင်း စသည့် သဘာဝဘေးအန္တရာယ်များကျရောက်ပါက အရေးပေါ်တုန့်ပြန်မည့် အစီအစဉ်များနှင့်ပတ်သက်၍ အသေးစိတ်ရေးဆွဲ ဖော်ပြထားခြင်းမရှိသည့်အတွက် အဆိုပါကိစ္စရပ်များ မတော်တဆဖြစ်ပေါ်လာပါက ဖြေရှင်းနိုင်ရေးအတွက် Emergency Response Plan ကို စီမံကိန်းလုပ်ငန်းများ စတင်လည်ပတ်ခြင်းမပြုမီ ပြန်လည်ရေးဆွဲပြင်ဆင်ရန်နှင့် သီလဝါအထူးစီးပွားရေးဇုန်စီမံခန့်ခွဲမှုကော်မတီနှင့် ဤဝန်ကြီးဌာနသို့ တင်ပြသွားရန်။

(ဇ) အပြီးသတ်အစီရင်ခံစာတွင် Community Support Programme နှင့်ပတ်သက်၍ ရည်ရွယ်ချက်၊ အကောင်အထည်ဖော် ဆောင်ရွက်ချက်များကို အသေးစိတ် ဖော်ပြထားခြင်းမရှိကြောင်း စိစစ်တွေ့ရှိရပါသည်။ သို့ဖြစ်ပါ၍ စီမံကိန်းအကောင်အထည် ဖော်ဆောင်ရွက်မည့်သူသည် ပြည်သူ့ကျန်းမာရေးစောင့်ရှောက်မှု၊ ဒေသခံများအတွက် လမ်း၊ လျှပ်စစ်မီး၊ ရေရရှိမှု စသည့်အခြေခံအဆောက်အဦ လိုအပ်ချက်များနှင့် ဘေးအန္တရာယ်ကင်းရှင်းရေး ဆောင်ရွက်ချက်စသည့် Community Support Programme များ အကောင်အထည်ဖော်ဆောင်ရွက်မှု၏ ရလဒ်များကို စောင့်ကြပ်ကြည့်ရှုခြင်းအစီရင်ခံစာ (Monitoring Report)တွင် ထည့်သွင်းဖော်ပြ၍ စီမံကိန်းတည်ဆောက်သည့်ကာလ၊ လုပ်ဝန်းလည်ပတ်သည့်ကာလနှင့် ပိတ်သိမ်းမည့်ကာလတို့အတွင်း သီလဝါအထူးစီးပွားရေးဇုန်စီမံခန့်ခွဲမှုကော်မတီနှင့် ဤဝန်ကြီးဌာနသို့ တင်ပြသွားရန်။

(စျ) လူထုတွေ့ဆုံပွဲများတွင် ဒေသခံများ တောင်းဆိုထားသည့် အချက်များအတွက် မည်သို့ဆောင်ရွက်မည်ကို ရှင်းလင်းစွာဖော်ပြထားခြင်းမရှိကြောင်း စိစစ်တွေ့ရှိရပါသည်။ သို့ဖြစ်ပါ၍ သီလဝါအထူးစီးပွားရေးဇုန် အပိုင်း (ခ) ၏ စက်မှုဇုန်ဧရိယာအတွင်း ပတ်ဝန်းကျင်နှင့် လူမှုရေးအခြေအနေ တိုးတက်ကောင်းမွန်ရေးအတွက် ထိန်းသိမ်းစောင့်ရှောက်ခြင်းနှင့်ပတ်သက်၍ လူထုနှင့်စဉ်ဆက်မပြတ် ဆွေးနွေးညှိနှိုင်းမှုများ ဆောင်ရွက်ခြင်း၊ ဆွေးနွေးညှိနှိုင်းမှုများအပေါ် အစီအမံများရေးဆွဲရန်နှင့် အကောင်အထည်ဖော်ဆောင်ရွက်မှုမှ ရရှိသည့်အကျိုးရလဒ်များကို Monitoring

Report တွင် ထည့်သွင်းဖော်ပြ၍ သီလဝါအထူးစီးပွားရေးဇုန်စီမံခန့်ခွဲမှုကော်မတီနှင့် ဤဝန်ကြီးဌာနသို့ တင်ပြသွားရန်။

(ည) စီမံကိန်းအကောင်အထည်ဖော် ဆောင်ရွက်မည့်သူသည် စီမံကိန်း၏ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ချက်အစီရင်ခံစာတွင်ပါဝင်သည့် လိုက်နာရန် ကတိကဝတ်များအတိုင်း လိုက်နာဆောင်ရွက်သွားရမည့်အပြင် အကြိုတည်ဆောက်ရေးကာလ၊ တည်ဆောက်ရေးကာလ၊ လုပ်ငန်းလည်ပတ်စဉ်ကာလနှင့် လုပ်ငန်းပိတ်သိမ်းမည့်ကာလများအတွင်း ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့်လူမှုရေးထိခိုက်နိုင်မှုအခြေအနေများကို စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်း၊ သက်ဆိုင်ရာဌာနများသို့ အစီရင်ခံတင်ပြခြင်းတို့ကို မပျက်မကွက်ဆောင်ရွက်သွားရမည့်အပြင် စီမံကိန်းအကောင်အထည်ဖော်ဆောင်ရွက်သူနှင့် ပြည်သူလူထုအကြား ပွင့်လင်းမြင်သာမှုရှိစေရေးအတွက် ပတ်ဝန်းကျင်နှင့် လူမှုရေးဆိုင်ရာကိစ္စရပ်များ ဆောင်ရွက်ရာတွင် စဉ်ဆက်မပြတ်ဆွေးနွေးညှိနှိုင်းမှုများ ဆောင်ရွက်ရန်နှင့် ဆောင်ရွက်မှုရလဒ်များကို စောင့်ကြပ်ကြည့်ရှုသည့်အစီရင်ခံစာတွင် ထည့်သွင်း၍ သီလဝါအထူးစီးပွားရေးဇုန်စီမံခန့်ခွဲမှုကော်မတီနှင့် ဤဝန်ကြီးဌာနသို့ တင်ပြသွားရန်။

(ဋ္ဌ) စီမံကိန်းအကောင်အထည်ဖော် ဆောင်ရွက်သူသည် ဤဝန်ကြီးဌာနမှ ထုတ်ပြန်ထားသည့် အညွှန်းပတ်ဝန်းကျင်တိန်းသိမ်းရေးဥပဒေ၊ နည်းဥပဒေနှင့် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ချက်ဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများကိုလည်းကောင်း၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့်ဆက်နွယ်သည့် တည်ဆဲဥပဒေ၊ နည်းဥပဒေများကိုလည်းကောင်း၊ သီလဝါအထူးစီးပွားရေးဇုန်စီမံခန့်ခွဲမှုကော်မတီ၏ ညွှန်ကြားချက်များ/ စည်းမျဉ်းစည်းကမ်းများနှင့် ဆက်လက်ထုတ်ပြန်မည့် သက်ဆိုင်ရာ လုပ်ထုံးလုပ်နည်းများကို လိုက်နာဆောင်ရွက်သွားရမည်ဖြစ်သည်။

ပြည်ထောင်စုဝန်ကြီး (ကိုယ်စား)
(ခင်မောင်ရီ၊ အမြဲတမ်းအတွင်းဝန်)

မိတ္တူကို

ညွှန်ကြားရေးမှူးချုပ်
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန

Republic of the Union of Myanmar
Ministry of Natural Resources and Environmental Conservation
Union Minister Office

Ref No. (Thit Taw) 3/16 (Ga Gyi) (2772/2016)

Date: 29th December 2016

To : Thilawa Special Economic Zone Management Committee

Subject : Approved letter for Environmental Impact Assessment (EIA) Report of Industrial Area, Thilawa Special Economic Zone (Zone-B)

Reference Letter-

i. Myanmar Japan Thilawa Development Co.,Ltd – Date: 22-3-2016, MJTD/O/16-03-297
ii. Thilawa Special Economic Zone Management Committee – Date: 17-5-2016, TSEZ-EIA-005
iii. Myanmar Japan Thilawa Development Co.,Ltd – Date: 27-5-2016, MJTD/O/16-05-318
iv. Thilawa Special Economic Zone Management Committee – Date: 10-6-2016, TSEZ-EIA-007

1. Mobile Review Team remarked and replied with ref letter (ii) to Thilawa Special Economic Zone Management Committee (TSMC) for Myanmar Japan Thilawa Development Co., Ltd (MJTD)submission of Environmental Impact Assessment (EIA) Draft Report for Industrial Area of Zone-B) as per reference letter (i).

2. Approval of Commencement of Business Development has been issued from TSMC with ref letter (iv) for the resubmission of Final EIA report by MJTD with ref letter(iii).

3. According to ref letter (iii), Environmental Impact Assessment (EIA) Final Draft report was amended as per Mobile Review Team remarks.

4. Therefore, resubmitted final Environmental Impact Assessment (EIA) for Industrial Area of Zone-B by MJTD was approved and to carry out according to the report and we would like to remark to consider and carry out the following instructions:
   a.) TSMC is represented as the Myanmar Government to establish the Resettlement Work Plan-(RWP) which included the Income Restoration Programmed (IRP) for Project Affected Households(PAHS). For those programs, the developer will provide the income restoration support to PAHs through TSMC after signing on the land lease agreement. Therefore, the developer can commerce the construction work according to the agreement of income restoration support between PAHs and Myanmar Government.
   b.) In Final EIA report the following items are do not describe;
      - detail project time schedule
      - Type of land, volume and work plan for the Land Reclamation
      - detail mitigation measures

      Therefore, after contractor award, to submit the above requirements.

   c.) Although the developer formed Environmental and Safety Health section to implement the environmental conservation in the industrial area of Thilawa Special Economic Zone (A and B), there is no mention role and responsibilities of the team member. Therefore, the

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

developer should submit the above requirement for Environmental and Safety Health section in detail before construction phase.

d.) Currently, type of business and capacity of investor, who will invest in the TSEZ cannot know yet and Environmental Management Plan (EMP) only consider based on the basic infrastructure and EMP should update and resubmit to TSMC and Ministry of Natural Resources and Environmental Conversation (MONREC) because EIA can impact upon on the type of business.

e.) Each of the investor who invest in Thilawa SEZ Zone (B) should submit the Environmental Impact Assessment (EIA) or Initial Environmental Examination (IEE) or EMP depend on each type of business to TSMC and MONREC.

f.) In the final EIA report of Thilawa Special Economic Zone (B), describe the industrial waste management system only and there is no describe the Domestic waste management system. Therefore, the developer need to describe in EMP for action plan and management to control domestic waste and illegal waste disposal and annually to announce, remind and to comply the investors and respective represented contractors imply with TSMC instructions.

g.) In the final EIA Report, there is no describe the detail program for fire safety, chemical safety, flooding and earthquake as natural disaster and Emergency Response Plan need to submit before start of construction to TSMC and MONREC to solved if the said cases happened.

h.) In the final EIA Report, there is no describe the purpose and implementation of community support programme. Therefore, the developer need to submit monitoring report for the result of the implementation progress of community support programme (including public health care program, electricity and water supporting to the community and community safety) on construction periods, operation periods and project closing period to TSMC and MONREC.

i.) There is not clearly describe how to provide for the villagers requested in the Public Consultation Meeting. Therefore, to submit the report for the improvement and maintain the environmental and social relation in the Thilawa Special Economic Zone (Zone-B) area, continuous meeting and consult with the public and negotiation with the public of planning and implementation result to TSMC and MONREC.

j.) The developer need to disclosed in EMP according to the instructions mention in the EIA and also environmental and social issues to monitor and report to respected departments in Pre-constriction stage, construction stage operations stage and closing stage. And report in EMP for continuous negotiation and monitoring the negotiation result relating with the environmental and social issues between the developer and community for the transparency of both side.

k.) The developer shall follow and comply the Environmental Conservation Law, Environmental Policy, procedure of environmental impact assessment and related environmental conservation law, policy and instructions, rules and regulations of the TSMC from MONREC.

Union Minister (Represent)
permanent secretary

CC to:
Director
Department of Environment and Conversation

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED ★ MJTD

Thilawa Special Economic Zone (Zone B)

Development Project –Phase 4

Environment Monitoring Plan

10.2 Environmental Monitoring Plan

The environmental monitoring plan including monitoring items, location, frequency, and responsible organization at the pre-construction phase, construction phase, and operation phase are shown in Table 10.2-1 to Table 10.2-3. Responsible organizations shall review the monitoring plan in accordance with the progress of the Project and status of the situation before monitoring, if necessary, and implement monitoring activities and preparation of monitoring report on its results. The project proponent will submit the monitoring report at three stages to TSMC. The proposed monitoring form is shown in Annex 10-2.

Table 10.2-1 Monitoring Plan (Pre-construction Phase)

Category	Item	Location	Frequency	Responsible Organizations
Common	- Checking and revising the Environmental Mitigation (as shown in Table 10.1-1, 10.1-2, and 10.1-3)and Management Plan by reviewing the final detailed design of the Project - Checking the Environmental Monitoring Plan during Construction prepared by Contractor	Project Site	Once	Contractor
Social Environment - Involuntary Resettlement, - Living and Livelihood - Vulnerable Group, - Cultural Heritage/ Asset	- Monitoring of the implementation status of Resettlement works such as provision of assistance package for project affected persons, and common assets	Project Site and Relocation Site	Once	TSMC
	- Monitoring of the implementation status for CSR activities such as community support program	Around Project Site	Once /year	TSMC
Existing social infra-structures and services	- Securing of community accessibility	Around Project Site	Once	Contractor

Source: EIA Study Team

Table 10.2-2 Monitoring Plan (Construction Phase)

Category	Item	Location	Frequency	Responsible Organizations
Common	- Monitoring of mitigation measures (as shown in Table 10.1-2)	Each location	Once/month	Contractor
Air Quality	- NO_2, SO_2, CO, $PM_{2.5}$, PM_{10}	Construction site (1 point)*	1 week/3 months	Contractor
Water Quality	- Water temperature, pH, SS, DO, BOD_5, COD, coliforms, oil and grease, chromium	- Outflow of construction site to the creek (at least 3 sampling points/mixing point: i) discharge water, ii) upstream water, and iii) downstream water) ** - Well near the construction site (1 point)	Once/2 months	Contractor
Waste	- Amount and kind of solid waste	Construction site	Once/3 months	Contractor
Noise and Vibration	- Noise and vibration level - Traffic count	Preservation area such as residence around the proposed construction site (at least 1 point	Once (24 hours)/3 months	Contractor
		Preservation site such as residence along the route for on-site vehicles (1point for noise and vibration and 2 points for traffic count)	Once (24 hours)/3 months	Contractor
Hydrology	- Groundwater level - Ground elevation level - Consumption of groundwater amount	Well near the construction site	Once/ months	Contractor

Category	Item	Location	Frequency	Responsible Organizations
Living and Livelihood/ Vulnerable Group/ Misdistribution of Benefit and Damage/ Children's Right	- The implementation status for CSR activities such as community support program	Around Project Site	Once /year	Project Proponent
Risks for Infectious Disease such as AIDS/HIV	- Awareness of infectious diseases	Construction site	Once/month	Contractor
Occupational Health and Safety	- Record of accidents and infectious diseases	Construction site	Once/month	Contractor
Community Health and Safety	- Record of accidents and infectious diseases related to the community	Around construction site	Once/month	Contractor
	- The implementation status for CSR activities such as community support program	Around Project Site	Once /year	Project Proponent

Source: EIA Study Team

Note: *Air quality monitoring site in the construction area should be selected in consideration of keeping the same location during construction phase.

** Water quality monitoring location should be selected at least three points for one discharge point to confirm the impact of the effluent water from the project site to the existing canal.

Thilawa Special Economic Zone (Zone B)

Development Project –Phase 4

Environment Monitoring Form

Environment Monitoring Form

The latest results of the below monitoring items shall be submitted to Authorities on once at Pre-Construction Phase and on quarterly basis at Construction Phase, and on bi-annually base at Operation Phase. The items, standards to be applied, measurement points, and frequency for each monitoring parameter are established based on the EIA Report for Thilawa Special Economic Zone Development Project (Industrial Area of Zone B). Should there be any changes to the original plan, such change shall be reviewed and evaluated by environmental expert.

(1) General

1) Phase of the Project

- Please mark the current phase.

☑ Pre-Construction Phase ☐ Construction Phase ☐ Operation Phase

2) Obtainment of Environmental Permits

Name of permits	Expected issuance date	Actual issuance date	Concerned authority	Remarks (Conditions, etc.)
Approved letter for Environmental Impact Assessment (EIA) Report of Industrial Area, Thilawa Special Economic Zone (Zone-B)		29th December 2016	Thilawa SEZ Management Committee	
Attached approval letter: Approved letter for Environmental Impact Assessment (EIA) Report of Industrial Area, Thilawa Special Economic Zone (Zone-B)				

3) Response/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring Item	Monitoring Results during Report Period	Duration of Report Period	Frequency
Number and contents of formal comments made by the public			Upon receipt of comments/ complaints
Number and contents of responses from Government agencies			

(2) Monitoring Results

1) Ambient Air Quality

NO_2, SO_2, CO, $PM_{2.5}$, PM_{10}

Location	Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standard	Target value to be applied	Referred International Standard	Frequency	Method	Note (Reason of excess of the standard)
Residential Area	NO_2	ppm			0.2 mg/m³ (1 Hour)	0.2 mg/m³ (1 Hour)	-			
	SO_2	ppm			0.02 mg/m³ (24 Hours)	0.02 mg/m³ (24 Hours)	-			
	CO	ppm			-	10.26 mg/m³ (24 Hours)	Thailand			
	$PM_{2.5}$	ppm			0.025 mg/m³ (24 Hours)	0.025 mg/m³ (24 Hours)	-			
	PM_{10}	ppm			0.05 mg/m³ (24 Hours)	0.05 mg/m³ (24 Hours)	-			

Complaints from Residents

- Are there any complaints from residents regarding air quality in this monitoring period? ☐ Yes ☑ No

If yes, please describe the contents of complains and its countermeasures to fill in below the table.

Contents of Complaints from Residents	Countermeasures

2) Water Quality

Measurement Point: Effluent of Wastewater

- Are there any effluents to water body in this monitoring period? ☐ Yes, ☑ No

If yes, please attach "Analysis Record" and fill in the items not to comply with Refereed International Standard

Location	Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standard	Target value to be applied	Frequency	Method	Note (Reason of excess of the standard)
					National Emission Quality Guidelines	Refer the section 2.4 in EIA main report			

3) Soil Contamination (only operation phase)

Situations environmental report from tenants

- Are there any serious issues regarding soil contamination in this monitoring period? ☐ Yes, ☑ No

If yes please describe the contents of complains and its countermeasures to fill in below the table.

Contents of Issues on Soil Contamination	Countermeasures

4) Noise

Noise Level

Location	Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standard	Target value to be applied	Referred International Standard	Frequency	Method	Note (Reason of excess of the standard)
Residential Area	Leq (day)	dB(A)					Refer the section 2.4 in EIA main report			
	Leq (evening)	dB(A)								
	Leq(night)	dB(A)								
Along the road	Leq (day)	dB(A)								
	Leq (evening)	dB(A)								
	Leq(night)	dB(A)								

Complaints from Residents

- Are there any complaints from residents regarding noise in this monitoring period? ☐ Yes, ☑ No

If yes, please describe the contents of complains and its countermeasures to fill in below the table.

Contents of Complaints from Residents	Countermeasures

5) Solid Waste

Measurement Point: Construction Site (Construction Phase), Storage for Sludge (Operation Phase)

- Are there any wastes if sludge in this monitoring period? ☐ Yes, ☑ No

If yes, please report the amount of sludge and fill in the results of solid waste management activities.

Item	Generated from	Unit	Value	Solid Waste Management Activities
Amount of sludge				
Amount of sludge				
Amount of sludge				

6) Ground Subsidence Hydrology

Duration (Week)	Water Consumption		Ground Level		Note
	Quantity	Unit	Quantity	Unit	
		m^3/ week		m	
		m^3/ week		m	
		m^3/ week		m	
		m^3/ week		m	

7) Offensive Odor (only operation phase)

Complaints from Residents

- Are there any complaints from residents regarding offensive odor in this monitoring period? ☐ Yes, ☑ No
  If yes, please describe the contents of complains and its countermeasures to fill in below the table.

Contents of Complaints from Residents	Countermeasures

Situations environmental report from tenants

- Are there any serious issues regarding offensive odor in this monitoring period? ☐ Yes, ☑ No
  If yes, please describe the contents of complains and its countermeasures to fill in below the table.

Contents of Issues on Soil Contamination	Countermeasures

8) Infectious disease, Working Environment, Accident

Information from contractor (construction phase) or tenants (operation phase)

- Are there any incidents regarding infectious disease, Working Environment, Accident in this monitoring period? ☐ Yes, ☑ No
  If yes, please describe the contents of complains and its countermeasures to fill in below the table.

Contents of Incidents	Countermeasures

Note: If emergency incidents are occurred, the information shall be reported to the relevant organizations and authorities immediately.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

9) Resettlement Works for Project Affected Persons (PAPs) and Common Assets

Information from TSMC

- Please describe the progress and remarkable issues (if any) to fill in below the table.

Resentment Works		Progress in Narrative	Remarkable Issues
Projected Affected Persons	Land Acquisition and Relocation	1) The number of PAH who received land compensation, crop compensation and relocated is one. 2) The number of PAH who received land compensation is twelve. 3) The number of PAH who received crop compensation and relocated is three. 4) The number of PAH who received only crop compensation is two. 5) The number of PAH who relocated is twenty-five.	
	Income Restoration Program	1) Supporting rice and cooking oil to PAPs for Valuable People Program in Zone B (Phase1&2, 3 and 4) for every month 2) Providing electricity charges for streetlight and trash cleaning charges for Zone B PAPs every month 3) Supporting to get NRC card for PAPs from Phase 3&4 (Zone B) 4) Providing Mask to PAPs from Zone A & Zone B (Phase1&2) relocation site. 5) Providing the basin and detergent soap for hand washing at Zone B (Phase 1&2) relocation site Cash assistance to one PAP who	

		was delivered a baby from Zone B (Phase 1&2) relocation site	
Common Assets	Relocation		

- **Are there any grievances submitted, solved and pending regarding resettlement works?** ☐ Yes, ☑ No
  If yes, please describe the contents of grievances to fill in below the table.

Contents of Grievance	Response/ Countermeasures
There was 2 grievance concerning with Zone B, Phase 4 construction project. These complains are about "Compensation" and "Environment" issue.	Both of them have been resolved.

10) CSR activities such as Community Support Program

- **Are there any CSR activities implemented in this monitoring period?** ☑ Yes, ☐ No

If yes, please describe the outline of CSR activities implemented to fill in below the table.

Date	Activities	Description (Location, Participant etc)
February	Monthly Scholarship Support	15 high school students in Kyauk Tan and Thanlyin Township
	Educational Supportive Class for state school student	Aye Mya Thida School
	Factory visit program for university students (Thanlyin Technology Univeristy)	Visited to MJTD-WPP, STP, Alidac Healthcare, Kubota, Suzuki Thilawa Myanmar, Yakult and total number of students visited are 326. (302 students and 24 teachers)

March	Monthly Scholarship Support	Including 15 students from neighboring community
	Fencing at Thilawa Kone Tan	BEPS No.1 Thilawa Kone Tan, Shwe Pyi tar Yar Village

End of Document

Thilawa Special Economic Zone (Zone B)

Development Project –Phase 4

Land Used Plan Map of Zone-B Phase-4

TOTAL DEVELOPMENT AREA

ZONE.B (PHASE-4) = 48 ha

CONSTRUCTION DRAWING

REV	DATE	DESCRIPTION

DEVELOPER:
MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED

MJTD

DESIGN COMPANY:

MAINCONTRACTOR :

PROJECT TITLE :

THILAWA SEZ ZONE B
DEVELOPMENT PHASE-4

DRAWING TITLE :

LAND USE PLAN

CATEGORY :

GENERAL

DRAWN BY : HWH	SCALE : 1:270
CHECKED BY : NOE NOE	REV NO : REV-0
CHECKED BY : U MOE KYAW	APPROVED BY: KAWANABE
DATE : 13-MAY-2020	
DRAWING NO : ZBP4-GEN-01	

Thilawa Special Economic Zone (Zone B)

Development Project –Phase 4

Environmental Management Plan and

Monitoring plan from Contractor

PROJECT HEALTH, SAFETY AND ENVIROMENTAL (HSE) MANAGEMENT PLAN

CONTENTS Page No.

1. Introduction 2

2. Purpose 2

3. Scope 3

Element (1) HSE Policy & HSE Organisation ..... 3 – 6
Element (2) Safe Work Practices ..... 6 – 35
Element (3) HSE Training ..... 35 – 36
Element (4) Group Meetings ..... 36 – 37
Element (5) Incident Investigation and Analysis ..... 37 – 38
Element (6) In-House HSE Rules and Regulations ..... 38 – 39
Element (7) HSE Promotion 39
Element (8) Evaluation, Selection & Control of Subcontractors 40
Element (9) HSE Inspection 41
Element (10) Maintenance Regime For All Machinery And Equipment ..... 41 – 42
Element (11) Risk Assessment ..... 42 – 43
Element (12) The Control Of Movement And Use Of Hazardous Substances And Chemicals 44
Element (13) Emergency Preparedness ..... 44 – 46
Element (14) Occupational Health Programs ..... 47 – 49
Element (15) Site Environmental Control ..... 49 – 51
Element (16) Site Security Control 52
Element (17) System Verification and Review 52

ANNEXES No. of Page(s)

ANNEX 1 : HSE Policy Statement 1
ANNEX 2 : HSE Organisation Chart 1
ANNEX 3 : Health, Safety & Environmental Programme 1
ANNEX 4 : Activity-Based Risk Assessment Form 6
ANNEX 5 : Project Risk Assessment 6
ANNEX 6 : Fire Emergency Schematic Diagram 1
ANNEX 7 : Site Environmental Control Programme 1
ANNEX 8 : Site Environmental Control Report (Blank Form) 6

1. INTRODUCTION

Penta-Ocean Construction Co., Ltd. (POC) has undertaken to implement a sound and effective Health, Safety & Environmental (HSE) Management System.

1.1 The HSE Management System for this project will take into consideration the Client's HSE Specifications. It shall also comply with all applicable regulations of the Myanmar Japan Thilawa Development (MJTD) and Thilawa SEZ Industrial Zone Regulations respectively on health, safety and environment in the execution of the works.

1.2 POC shall observe these Requirements with respect to logistics, health, safety and environmental issues for this project.

1.3 To ensure the successful implementation of the HSE Management System, adequate resources will be appointed to ensure the safe conduct of work by all on site.

2. PURPOSE

The purpose of this Site HSE Management System or HSE Plan is to provide a framework of POC's HSE Management System that will be implemented during the work operations throughout this project.

2.1 It is the intention of POC to manage health, safety and environment of the project with minimum risk, and to prevent injury and impairment of health to all persons and minimize significant impact to the environment affected by the operations.

2.2 POC shall comply with all applicable regulations of MJTD, Thilawa SEZ Class A Industrial Zone and the requirements of the client respectively on health, safety and environment in the execution of the works and any amendments or re-enactments thereto and other new regulations which may be enforced during the contract period.

2.3 This Site HSE Management System or HSE Plan provides guidelines and instructions on a wide range of health, safety and environmental related procedures which shall be implemented throughout the work operations.

2.4 Implementation of the procedures contained within this Site HSE Management System or HSE Plan shall be in accordance with the principles of reasonable practicability.

2.5 POC shall be responsible for ensuring that Subcontractors and all persons entitled to be on the job site comply with all relevant HSE requirements.

3. SCOPE

3.1 This Site HSE Management System is prepared for this Project in accordance with the relevant Penta-Ocean's HSE Management Systems practiced globally, in line with international standards OHSAS 18001 : 2007 for Occupational Health and Safety Management System and ISO 14001 : 2004 for Environmental Management System.

3.2 The formula of the HSE Management System for this project will consist of health, safety, security and environmental Elements as follows:

(1) HSE Policy & HSE Organisation.
(2) Safe Work Practices.
(3) HSE Training.
(4) Group Meetings.
(5) Incident Investigation and Analysis.
(6) In-House HSE Rules and Regulations.
(7) HSE Promotion.
(8) Evaluation, Selection & Control of Subcontractors.
(9) HSE Inspection.
(10) Maintenance Regime for All Machinery and Equipment.
(11) Risk Assessment.
(12) The Control of Movement and Use Of Hazardous Substances And Chemicals.
(13) Emergency Preparedness.
(14) Occupational Health Programmes.
(15) Site Environmental Control.
(16) Site Security Control.
(17) Systems Verification and Review.

Element (1): HSE POLICY & HSE ORGANISATION

(1.1) A written HSE Policy is in place and endorsed by the General Manager (Myanmar Branch) to reflect the management approach and commitment to health, safety and environment. – See attached ANNEX 1.

(1.2) The HSE Policy will be communicated by posting at site and issued to contractors at the HSE meeting.

(1.3) POC shall be responsible for the safety of all operations in connection with this Contract and shall take all necessary actions to ensure the safety of all persons who may be in, on or adjacent to the Site.

(1.4) The responsibility for HSE of the following individual personnel from management to site area shall be defined and documented clearly under the Responsibility for HSE in the established HSE Management System manual.

1) Project Manager
2) All Engineers
5) Contractor PM and Safety personnel
6) Workers
7) Lifting Team
8) Machinery Operators

(1.5) The HSE Organisation is established which includes members from POC's Senior Management and site level. – See attached ANNEX 2

(1.6) Safety Resources

Designation	HSE Role and Responsibility
Project Manager	• Overall responsible for the Health, Safety and Environmental implementation on site. • Chairman ofthe Project's HSE Committee and heads the Monthly Safety Meeting and Safety Patrol. • Ensures the safety and health of the persons employed on the Project is not compromised. • Ensures environmental pollution control is implemented and effective on site. • Investigates Incidents / Accidents / Near Misses / Dangerous Occurrences and implement Corrective and effective Preventive Measures • Maintain HSE Records and Incident/Accident Statistics.
All Engineers	• Assists the Project Manager to supervise and promote HSE implementation on site. • Inspect and rectify any unsafe place of work on site.

	• Correct any unsafe work practices on site. • Ensures all HSE regulations are being complied on site.
Contractor PM and Safety Personnel	• Oversees the HSE issues representing their respective trade / scope of work. • Ensures that their respective workers engaged the work in compliance with HSE regulations and Safe Work Practices.
Workers	• Abide with POC's HSE regulations and carries out work safely according to Safe Work Practices. • Reports to their immediate supervisor when unsafe conditions are found on site.
Crane Operator	• POC shall maintain a list of crane operators with their names, identification card or passport numbers, qualifications and years of experience before the lifting operations commences. The list shall be updated and kept on the Site at all times.
Authorized Operators For Machinery And Vehicles	• POC shall ensure only trained operators are allowed to operate the machinery to be used on Site. The operators for machinery shall be trained and competent to operate the machinery. • In the case of vehicles, which are to be operated within the contract boundary, the authorized operators shall possess a valid Myanmar driving license.

(1.7) Health, Safety and Environment Programme for this project consists of 11 activities have been prepared. – See attached ANNEX 3

(1.8) POC shall carry out monthly HSE review of the measures contained within the HSE programs to demonstrate that the required level of HSE are being achieved and reports maintained. The POC General Manager will review the said program from time to time and will advise the HSE Committee of any matter which he is not satisfied and the HSE Committee shall take such steps

as are necessary to satisfy the POC GM. The POC GM will carry out such HSE audits, as he considers necessary.

(1.9) POC shall ensure that the requirements of the MJTD and Thilawa SEZ Class A Industrial Zone Internal Regulations and the requirements specified in client's HSE Specifications are strictly complied with at all times. Any amendment to the regulations by the authority or client, shall take precedence over the contract.

Element (2): SAFE WORK PRACTICES

(2.1) POC shall establish and maintain procedures for safe execution of works. These procedures shall be documented as work procedures, method statements or permit-to-work system.

(2.2) The safe work practices are established to ensure that the various construction works are carried out in a safe manner.

(2.3) Permit-to-work (PTW) system established shall be implemented for high-risk construction work where the risk factor on safety & health can cause bodily injury such as:-

a) Excavation and Trenching Work > 1.5m Depth;
b) Work at Height (> 2m);
c) Piling Work;
d) Work in Confined Space;
e) Lifting Operation by Tower, Crawler and Mobile Crane; &
f) Hot Work.

(2.4) Persons on site will be regularly checked on the use of Personal Protective Equipment (PPE) and other safety devices with records maintained.

(2.5) Every person in the construction site is to be provided with the following, who must wear them at all times.

a) Safety shoes;

b) Safety helmets with chin strap according to the following colour code.

Personnel	Colour of Safety Helmet
POC's staff including engineers	White
Subcontractors' supervisory staff	White
Subcontractors' Safety Personnel	Blue
All other workers	Yellow

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

c) High-visibility vest/clothing.

(2.6) Other PPE includes:

a) Goggles - protection against eye injury;
b) Gloves - protection against hand injury;
c) Respirators/Dust Masks - for activities generating dust or fume;
d) Ear Protectors - protection against hearing loss; and
e) Safety Harness - protection against falling from height.
f) Face shields compatible with safety helmets.
g) Sufficient portable screens for Arc welding, etc.

(2.7) All site personnel and subcontractors are to comply with the procedures and ensure that all related Safe Work Practices are implemented accordingly.

(2.8) Following list of Safety Work Practices are established:

(2.8.1) Machinery and Mechanical Equipment
(2.8.2) Earth Moving Plant
(2.8.3) Metal Access Scaffold and Working Platforms
(2.8.4) Scaffoldings
(2.8.5) Lock-out / Tag-out Procedures
(2.8.6) Ladders and Step-Ladders
(2.8.7) Falling Hazards
(2.8.8) Confined / Enclosed Space
(2.8.9) Excavation
(2.8.10) Piling Work
(2.8.11) Concreting Work
(2.8.12) Hot Work and Prevention of Fire
(2.8.13) Storage License for Petroleum and Flammable Materials
(2.8.14) Crane and Lifting Equipment
(2.8.15) Manual Lifting
(2.8.16) Hand and Portable Power Tools
(2.8.17) Explosive Powered Tools
(2.8.18) Electrical Requirements
(2.8.19) Traffic Management
(2.8.20) Lightning Protection System
(2.8.21) Loading In Excess of Design Load
(2.8.22) Forklift Operations
(2.8.23) Other (Building Indicators)

(2.8.1) **Machinery and Mechanical Equipment**

(i) Start up of any machinery or operation of any mechanical equipment must be carried out by trained personnel.

(ii) Ensure that no one is in danger before starting and operating any machinery.

(iii) Contractors to ensure that machinery / vehicle operators have sufficient training and are competent to operate the machinery / vehicle.

(iv) Machinery and tool guards are provided for protection against rotating or reciprocating parts. These guards are to be in place before the machine or tool is used and not removed or tampered with.

(2.8.2) **Earth Moving Plant**

(i) All earth moving plant shall be properly maintained to ensure a safe and efficient working condition.

(ii) Only properly trained and competent persons shall be allowed to operate earth moving plant on the Project Site.

(iii) All reasonable precautions shall be taken to prevent such plant from tipping over.

(iv) When necessary, signalman/banksman shall be employed to assist and direct the plant operator during the execution of the earthworks operations.

(v) No employee is allowed to sit or rest under, in front of or behind any earth moving plant.

(vi) All raised hydraulic shall be securely blocked, while repair work is being accomplished, to prevent their release and subsequent fall.

(2.8.3) **Metal Access Scaffold and Working Platforms**

(i) The metal access scaffold and any components therein shall be of approved type and designed by POC or Contractor's Engineer. The Engineer's drawings and calculations shall be reviewed and approved by the Project Manager or Chief Engineer before the erection of the scaffold.

(ii) The platform shall be complete with at least 75 mm high toe boards and metal guardrails at least 1.1 m above the work platform. The scaffold shall be effectively tied to the building structure by means of tie-backs.

(iii) Guardrails shall have sufficient strength and rigidity to withstand, without permanent deformation or failure.

(iv) The work platform and its supports shall be designed to withstand the required working and dead load. Supports for platform shall be spaced at not more than 1.8m centre to centre unless approved by the Project Manager.

(vi) Overhead shelters shall be provided for access to, along and egress from the entry/exit points of the building.

(vii) The access to, along and egress from the entry/exit points shall be kept free from obstructions and accumulation of oil, grease, water and other substances that may cause slipping and tripping.

(viii) Overhead shelters shall also be provided for person(s) exposed to falling objects if platform is facing to public.

(2.8.4) **Scaffolding**

(i) Both POC and the sub-contractor(s) shall be responsible for the overall operation of scaffolding works and ensure that the erection team has been instructed to carry out their respective work in accordance with the manufacturer's procedure.

(ii) POC shall ensure that no scaffold is constructed, erected, installed, re-positioned, altered, maintained, repaired or dismantled in the worksite except under the immediate supervision of a competent supervisor/engineer.

(iii) POC shall ensure in which a scaffold is, or is being, constructed, erected or installed at site to ensure that the requirements of following paragraphs are complied with. (*Please refer to Attachment B*)

- No scaffold or part thereof which is partially constructed, erected, installed or dismantled shall be allowed to be used unless it is made safe.

- Where any scaffold referred to in paragraph above is unsafe for use, a prominent warning notice or signs in a form readily understood by all persons indicating that the scaffold or part thereof is not to be used shall be affixed near any point at which the scaffold or part, as the case may be, is liable to be approached for the purpose of use.

- Every scaffold shall be properly maintained and every part thereof shall be fixed, secured or placed in position so as to prevent, so far as is reasonably practicable, any accidental displacement.

- Any scaffold, and any member or component thereof that has been damaged or weakened shall be repaired as soon as is reasonably practicable.

- No person shall be permitted on a scaffold that is damaged or weakened except a scaffold erector who is carrying out the repair of the scaffold.

- All reasonably practicable measures shall be taken to ensure the safety of the persons carrying out the repairs referred to in paragraph above.

- Where ties of a scaffold to a permanent structure have to be removed, the portion of the scaffold from which the ties are removed shall not be dismantled unless adequate measures are taken to ensure the stability of the scaffold.

(iv) Engineer's design calculation and drawings shall be kept available for inspection at worksite.

(a) The Engineer is to examine construction and installation of scaffold to ensure that it is in accordance to his / her design drawing.

(b) The Engineer to issue certificate for safe use.

(c) The Engineer to examine once every month to ensure that it is safe for use.

(d) The Engineer to inform scaffold erectors of defects if any, to take action to rectify defects before being used.

(e) The Engineer's design is required for work platform and any of its support.

(i) to provide footing for more than 2 persons in each bay; or
(ii) to support tools or materials exceeding 25 kgf in each bay.

(f) The Engineer's design is required for metal scaffold used to support 4 People in any bay.

(v) The maximum loading for persons and materials or any work platform in any bay of a scaffold shall be -

(a) in the case of a timber scaffold, 75 kgf per square metre;

(b) in any other case, 220 kgf per square metre.

(c) in the case of a timber scaffold, not more than 2 persons shall work on a work platform in any bay.

(d) in the case of a metal scaffold, not more than 4 persons shall work on a work platform in any bay.

(vi) Number of personnel allowed in each bay

(a) in the case of a timber scaffold, not more than 4 persons shall be allowed in any bay;

(b) in the case of a metal scaffold, not more than 8 persons shall be allowed in any bay.

(vii) Signboards stating the maximum permissible weight of tools and materials and the maximum number of persons permissible on each bay shall be prominently displayed at suitable locations on the work platforms.

(viii) Every scaffold shall have at least one designated access point from which a person may gain access onto the scaffold and all designated access points shall be -

(a) clearly marked with a sign or label (**scaffold tag system**); and

(b) made safe for use by any person.

(ix) Overlay of **screening nets** shall be encouraged to use to envelope any timber or metal scaffold which is erected on the outside of a building except for tower scaffold.

(x) Work Platforms

(a) Work platforms shall be provided -

(i) at any place or work which does not afford a proper and secure foothold; and

(ii) in the case of a building under construction, around the edge of the building at every uppermost permanent floor which is under construction.

(b) Work platforms shall be provided at intervals of not less than every alternate lift of any scaffold, except a tower scaffold or a trestle scaffold.

(c) The vertical distance between any 2 work platforms shall not exceed 4 meter.

(d) Every work platform provided shall cover the lift of a scaffold throughout its entire length.

(e) Every work platform provided shall be -

(i) closely boarded, planked or decked; and

(ii) if it is used to provide footing for not more than 3 persons and support tools and materials not exceeding 25 kgf per bay of a scaffold, at least 500 millimetres wide.

(xi) Boards, Planks And Decking

(a) All boards, planks or decking used in the construction of work platforms shall -

(i) be of uniform thickness;

(ii) be capable of supporting a load of 670 kgf per square metres with due regard to the spacing of the supports; and

(iii) be flushed along their lengths and secured.

(b) Any metal decking which forms part of a work platform shall be provided with non-skid surfaces.

(c) Any board or plank which forms part of a work platform shall project beyond its end support to a distance of not less than 50 millimetres and not more than 4 times the thickness of the board or plank unless it is effectively secured to prevent tipping or uplift.

(xii) Opening Only For Access

There shall be no opening in any work platform except to allow access to that work platform.

(xiii) Stairs And Ladders

(a) Stairs or ladders shall be provided to enable persons to gain access from one level of any scaffold to another.

(b) Stairs or ladders provided shall as far as practicable, be installed within the scaffold.

(xiv) Toeboards And Guardrails

(a) Every side of a work platform or workplace from which a person is liable to fall more than 2 metres shall be provided with toeboards and 2 or more guardrails.

(b) The toeboards and guardrails provided shall:

(i) be of good construction, sound material and adequate strength to withstand the impact during the course of work;

(ii) be placed on the inside of the uprights and secured so as to prevent accidental displacement; and

(iii) be placed so as to prevent the fall of any person or material.

(c) The uppermost guardrail shall be least 1.0 metre above the work platform or workplace for which the guardrail is provided.

(d) The height of toeboards shall not be less than 75 millimetres.

(e) The vertical distance between -

(i) any 2 adjacent guardrails; or

(ii) any work platform or workplace and the guardrail immediately above it, shall not exceed 600 millimetres.

(xv) All practicable measures shall be taken to protect any person working on a scaffold from electric shock by electrical wires or equipment.

(xvi) No scaffold or part thereof which is partly erected or dismantled shall be allowed to remain in such a condition that it is capable of being used unless a prominent warning notice in languages or signs understood by all persons indicating that the scaffold or part thereof is not to be used is affixed near any point at which the scaffold or part, as the case may be approached for the purpose of use.

(xvii) Where ties of a scaffold to a permanent structure have to be removed, the portion from which the ties are removed shall not be dismantled unless adequate measures are taken to ensure the stability of the scaffold.

(xviii) Every alternate lift and every uppermost lift of an independent tied metal scaffold shall be effectively tied to the building or structure by means of ties.

(xix) A timber scaffold shall be dismantled within a period of 9 months after erection.

(xx) Tower Scaffold

(a) The height of a tower scaffold, other than a tower scaffold referred to shall not exceed 8 times the lesser of the base dimensions of the scaffold.

(b) Where the height of a tower scaffold, excluding the handrails and their supports at the uppermost lift of the scaffold, exceeds 3 times the lesser of the base dimensions of the scaffold, the scaffold shall be effectively tied to the building or a rigid structure so as to prevent toppling.

(c) No more than 2 work platforms shall be used on a tower scaffold at any time.

(d) Any tower scaffold which can be moved on casters shall be -

(i) constructed with due regard to its stability and, if necessary, adequately weighted at the base;

(ii) used only on a firm and even surface; and

(iii) provided with casters having a positive locking device to hold the scaffold in position.

(e) No tower scaffold shall be moved except by applying force at or near the base.

(f) No person shall remain on a tower scaffold when it is being moved.

(xxi) Scaffold And Work Platform Erected On A Cantilever Or Jib Support

(a) No cantilever or jib support shall be used unless -

(i) the scaffold inadequately supported, fixed and anchored on the support to prevent displacement; and

(ii) the cantilever or jib support:-

- has outriggers of adequate length and cross section; and
- is constructed in accordance with the design and drawings of the engineer.

(b) No work platform resting on bearers let into a wall at one end and which does not have other support shall be used unless the bearers pass through the wall and are of adequate strength and securely fastened on the other side of the wall.

(xxii) Hanging Scaffold

(a) A hanging scaffold shall be -

(i) erected before being hung into position;
(ii) securely anchored to prevent lateral movement or sway;
(iii) constructed so that the work platform is in a horizontal plane;
(iv) provided with safe means of access to and egress from its platform by measure of stairs and ladders and placed in such a manner as to prevent any person from falling, and shall not rise to a vertical distance of more than 3 metres between landings.

(b) A hanging scaffold from which a person may fall more than 2 metres shall be constructed and installed in accordance with the design and drawings of the engineer.

(c) A person working on a hanging scaffold shall be provided with -

(i) a safety harness; and

(ii) sufficient and secured anchorage by life line or other means.

(xxiii) Trestle Scaffold

(a) Trestle scaffold constructed with more than 3 tiers or used if it has a work platform more than 4.5 metres above the ground or floor or other surfaces upon which the scaffold is erected shall be in accordance with the design and drawings of the engineer.

(b) No trestle scaffold shall be erected on a scaffold platform unless -

(i) the width of the platform is such as to leave sufficient clear space for the transport of materials; and

(ii) the trestles or uprights are firmly attached to the platform and adequately braced to prevent displacement.

(c) No trestle scaffold shall be erected on a suspended scaffold.

(2.8.5) **Lock-out / Tag-out Procedures**

(i) Identify all sources of hazardous energy, movement, or toxic substances. Also locate all isolation points and disconnects which deactivate the equipment or system.

(ii) Physically, isolate, disconnect, or eliminate all hazards by tagging / lockout of circuit breakers, motor control switches, and removal of fuses, closing and locking of valves, installation of blinds, etc.

(iii) Immobilise and lockout all isolation points and disconnects and then try the system to ensure the system is properly disconnected. Locks shall not be common key type.

(iv) Tag all isolation points and identify persons installing the tag.

(v) Reactivate the system only through a set, published procedure, which prevents injury or equipment damage when performed properly. This includes removal of all personnel and equipment from the danger zone, the assurance that the equipment is in operating condition, the removal of all locks and tags only by those who placed them, and the penalty, dismissal, for those deviating from the procedure without approval of the engineer in charge of the works.

(vi) Every person carrying out work that require lock-out procedures shall be fully instructed on the procedures for that work before commencing that work.

(2.8.6) **Ladders And Step-Ladders**

(i) Only ladders and step-ladders constructed in accordance with approved design are to be used. Portable aluminium ladders are allowed for access and low level work of short duration only.

(ii) Ladders are to be placed at a safe angle, level and firm footing and secured to prevent displacement. If the ladders cannot be securely fixed, then shall be firmly held by a person stationed at the foot of the ladder.

(iii) The top of any ladder which provides access to work area or platform is to extend at least 60cm above the work area/platform level.

(iv) The opening in the floor of a landing place where a ladder passes through shall be as small as it is reasonably practicable.

(v) Ladders with missing or defective rung, or rungs which are solely supported on nails, spikes or other similar fixing shall not be used.

(vi) Ladder inspection record prior to use requiring a ladder marked displaying company name, ladder number, inspection frequency and inspection status.

(2.8.7) **Falling Hazards**

POC shall barricade all lift openings, internal voids, open sides of buildings and excavations where a person is liable to fall. The barricade shall be at least 1.1m high with mid rail & guard rail and shall have sufficient strength and rigidity. (*Please refer to attachment A for different types of barricade*)

(2.8.7.1) Floor Openings And Holes

(i) All floor openings to within the building that are big enough to step right through and small enough to cause trip and fall hazards need to be fully covered or guarded with guard rail and toe board.

(ii) If covers are used, they shall be secured to prevent accidental displacement and no load shall be allowed to be placed on the covers unless they are designated to support the loads to be placed upon them.

(iii) Only authorized personnel shall be permitted to remove hole covers.

(iv) All floor opening covers shall be stenciled or painted with "Danger, Do Not Remove".

(2.8.7.2) Open Sides

(i) Every open side through which a person is liable to fall more than 2 meters shall be covered or guarded by effective guard-rails, barriers or other equally effective means to prevent fall.

(ii) Edges of the open sides are to be barricaded with effective barriers to prevent workers from falling.

(iii) Exposed areas where there is danger of falling objects are to be barricaded off and warning signs "Danger, Do Not Enter" displayed for barriers and barricades erected.

(iv) Where traffic flow is to be maintained over temporary road opening or crossing, suitable designed chequered steel cover / decking shall be placed over it. The Engineer shall design and submit the cover / decking proposal to the PM for acceptance prior to commencement of the excavation.

(2.8.7.3) Safety Belts/Harnesses, Life Lines And Anchorage Point

(i) Safety belts/harnesses, life lines and all devices for the attachment of life lines shall be of adequate strength.

(ii) A person shall use the safety belt/harness that is given to him in the performance of his work.

(iii) Adequate and suitable means of anchorage for the anchoring of the safety belt/harness shall be provided for a person's safety. Life lines securely attached to sufficient anchorage shall be provided if direct anchorage is impracticable.

(iv) At all times during use, the safety belt/harness shall be attached to an anchorage or to a lifeline securely attached to one or more points of an anchorage.

(v) The life line shall not be longer than is required to permit a worker to perform his work and the points of anchorage of the life line shall not be lower than the level of his working position.

(vi) Every employee who is provided with a safety belt/harness shall be instructed in the proper method of wearing, using it and attaching it to the life line or anchorage.

(vii) A competent POC Staff shall be appointed to inspect every safety belt/harness and life line and record his/her findings.

(2.8.7.4) Safety Nets

(i) Safety nets shall be used in conjunction with other fall protection methods or when other falls protection methods are impracticable.

(ii) Safety net or combination of safety nets shall be of sufficient size and strength to catch a person for whose protection it is used and it shall be located as to cover the area of possible fall.

(iii) Safety nets shall be attached to sufficient anchorages or supports outside and beyond the area of possible fall and supported at a height sufficient to prevent sagging to any surface or object beneath when cushioning the fall of a person.

(iv) A sample test on the safety net system, comprising the net and its supporting structures, shall be carried out before it is installed. Subsequent tests shall be carried out when directed by the Project Manager.

(2.8.8) **Confined / Enclosed Space**

(i) Confined or enclosed space shall include storage tanks, tank cars, holds of vessels, process vessels with limited access, deep tanks, pits, vaults, bin, silos, tunnels, shafts, or other confined spaces including manholes, enclosed formwork, culvert drains, excavations more than 4 meters deep, partially enclosed excavations with only one side open to the air and ventilation or exhaust ducts, sewers, underground utility tunnels or pipe lines with limited ventilation.

(ii) Hazards to be considered shall include flammable materials and vapors, asphyxiating gases, corrosive or radioactive materials, and lack of oxygen.

(iii) Prior to the start of work, risk assessment shall be carried out to review the necessity of workers to enter the confined spaces and if it is confirmed, a plan for safe entry shall be developed.

(iv) The safe entry plan shall include safe conditions when working in confined spaces. A Tag system for entry into confined space shall be introduced.

(v) Local exhaust ventilation shall be provided to eliminate contaminants generated by welding and other operations within confined or enclosed spaces.

(vi) Only gas-proof lighting shall be used in confined or enclosed spaces unless the atmosphere has been proven to be non-flammable.

(vii) Only approved types of breathing apparatus as specified in the relevant statutory regulations shall be used.

(viii) A trained confined space Supervisor shall ensure persons working in confined or enclosed spaces are trained to perform assigned duties where the atmosphere has oxygen deficiency or contamination sufficient to require respiratory protection. The workers shall be required to use safety harness and life line and shall be continuously attended whilst working in such spaces. The Supervisor shall regularly check, maintain continuous communication and monitor the condition of the workers in such spaces and shall not be assigned any other duties.

(ix) Workers' exposure to airborne contaminations in any tunnel or shaft should not exceed the Permissible Exposure Limits (PEL) of the contaminations. The HSE Committee shall identify the type of toxic substances at the work site and set Permissible Exposure Limits of these toxic substances.

(x) Testing for airborne contaminations should be conducted before the commencement of any work for the day and thereafter at least once in 8 hours. If workers' exposure levels exceed the PEL, they should be removed from the work area and effective measures to reduce the contaminations should be taken.

(xi) Provide a man-riding cage capable of taking a stretcher and two persons, together with an identified crane equipped with rescue equipment, on standby at all times whilst work is carried out in the confined space. Where this is not reasonably practicable a stretcher which is capable of being brought manually out of the confined space shall be located at a convenient point.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

(2.8.9) **Excavation**

(i) Excavation and trenches of 1.5 metres or more in depth are to be properly shored or stepped in an approved manner.

(ii) Safe access must be provided into all excavations which exceed 1.2 metres by means of ladders, stairs or ramps.

(iii) Ladders must be spaced so that workers lateral travel does not exceed 7.5 metres. Such ladders must extend at least 1 metre above grade level.

(iv) Excavated or other materials are to be stored at least 1 metre away from the edge of the excavation.

(v) Loose rocks and other materials shall be removed from the bank.

(vi) Sufficient number of banksman to coordinate excavation activities at the pit and the haulage activities from the pit to the bank. The banksman shall be appointed in writing and should have been trained as a Signalman. The banksman shall be properly identified on site, stationed at-grade level and have overall control of the excavation works.

(vii) Excavations and trenches are to be inspected daily or after every rain storm or other hazard-increasing occurrence by a competent person. If there is any evidence of cave-ins or slides, work is to cease until necessary precautions have been taken.

(viii) Shore protection for trenches exceeding 4 metres in depth are to be designed by a competent Engineer.

(ix) Open sides of excavations where a person may fall from a height of more than 2 metres are to be guarded by adequate barricades and suitable warning signs placed where they can be readily seen.

(x) POC shall provide and maintain guards, fences or barriers around excavations lift pits or other similar potential places of danger to prevent accidents. The guards, fences and barriers shall be of sound material, good construction and possess adequate strength.

(xi) During the hours of darkness, any excavation opening or obstruction near or on roadway or walkway must be indicated by a sufficient number of warning lights.

(xii) Deep Excavations (> 4 meters in depth)

a) Appoint at least one banksman within 30 meters length of excavation. If deemed necessary by PM, additional banksman shall be appointed. For excavation 10 meters in depth, one banksman should be appointed for every one long-arm or telescopic excavator at the bank.

b) Proper means of communication in the form of walkie-talkie sets shall be established between the banksman and the excavator operators. No one shall be within any excavator's swing radius.

c) An alternative source of power and emergency lighting system shall be provided to allow emergency securing operations and evacuation safely in the event of primary power failure. An adequate number of lamps shall be located at key points underground.

d) Instrumentation Plan has to be established to analyze instrumentation, monitor readings and implement necessary preventive measures to safeguard persons working in the deep excavation area.

e) At least two escape routes shall be provided for smooth evacuation of persons from the deep excavation during outbreak of an emergency situation such as fire or collapsed of deep excavation shoring system.

(2.8.10) **Sheet Piling Work**

(i) Sheet pile driving equipment shall be inspected daily by a designated person before the start of work and every defect shall be immediately corrected before pile driving commences. Every piling frame and its attachments shall be thoroughly examined by an authorized examiner at least once in every period of 12 months.

(ii) The operator of every pile driver shall be protected from falling objects, steam, cinders and water by a substantial covering.

(iii) Each member of the pile driving crew shall be properly instructed in the work he has to do and the operation shall be in the charge of a designated person, who shall personally direct the work and give the operating signals.

(iv) The preparation of the piles shall be done at a safe distance from the driving operation. During the hoisting of piles, all persons not actually engaged in operating the equipment and handling the piles shall be kept out of the area.

(v) When the pile driver is not in use the hammer shall be choked or blocked in the leads or lowered to the ground.

(vi) The crane operator shall remain at his controls at all times while a load is still suspended.

(vii) Tag lines shall be used to control all loads, where necessary.

(viii) Any worker climbing the pile ladder shall be issued with and shall properly use and secure a safety belt or suitable harness.

(ix) Barricades, warning signs or other practicable measures shall be adopted to warn and prevent other persons from entering the test pile area.

(x) Ground condition shall be checked before placing or advancing a pile driver. After placing or advancing a pile driver, inspection and correction of the footing shall be made periodically to maintain stability.

(xi) Permit-to-work for piling work shall be implemented.

(2.8.11) **Concreting Work**

(i) Formwork and shoring shall be structurally safe and shall be properly braced or tied together so as to maintain position and shape.

(ii) Where the formwork structure is of two or more tiers, it shall have sufficient cat-walks and other secure access for inspection purposes.

(iii) In-charge Engineer or supervisor shall supervise the erection of the formwork including the shores, braces and other supports.

(iv) Upon the erection of the formwork, the Engineer in –charge or supervisor shall make a thorough inspection to ensure that the formwork is safe.

(v) The Engineer in-charge or supervisor shall regularly inspect the formwork, shores, braces and other supports during the placing of concrete.

(vi) Any unsafe condition discovered during the inspections mentioned in paragraphs iv) and v) shall be remedied immediately.

(vii) Horizontal and diagonal bracing shall be provided in both longitudinal and transverse directions, as may be necessary to provide structural stability. Shores shall be properly seated top and bottom and shall be secured in place.

(viii) Where shores rest upon the ground, base plates shall be provided.

(ix) Where the formwork structure is designed by a competent engineer, he shall be responsible for the supervision of the construction and the stability of the structure.

(x) Stripping shall not commence until the concrete is fully set.

(xi) Stripped forms shall be removed or stock-piled promptly after stripping in all areas in which persons are required to work or pass.

(xii) Protruding nails, wire ties and other form of accessories not necessary to subsequent work shall be pulled, cut or otherwise made safe.

(2.8.12) **Hot Work And Prevention Of Fire**

(i) No hot work is to be attempted near any pit, manhole, vent pipe, trench or any enclosed space where inflammable vapours may be present, UNLESS atest has been made with an approved oxygen and hydrocarbon vapour detector and such test indicates that the area is safe for hot work.

(ii) At locations similar to the ones above where toxic matter may be present, similar test with an approved toxic gas detector is to be made.

(iii) No work is to be performed UNLESS such test indicates that toxic gas concentrations are lower than the maximum permissible for that gas or until approved protective measures have been taken.

(iv) Oxygen or acetylene cylinders taken underground shall be transported back above ground at the end of each working shift and stored in the designated storage area.

(v) If transported by crane or hoist, gas cylinders are to be secured in a suitable cradle, net or skip-box, and not by wire, fibre rope, web or chain sling. Gas cylinders are not to be dragged.

(vi) Oxygen cylinders are not to be stored near highly combustible materials, such as oil and grease or near fuel gas cylinders.

(vii) Gas cylinders shall be stored vertically in well-ventilated cages at ground level, with oxygen cylinders being kept separately from acetylene cylinders. When cylinders are used from a pallet, then a safety distance of 6 meters shall be maintained between pallets.

(viii) Caps are to be placed on cylinders that are empty and such cylinders marked "Empty". Empty cylinders shall be treated for storage purposes as if they were full of gases.

(ix) A "No Smoking and Naked Flames" notice is to be placed at the storage location with appropriate numbers & type of charged fire extinguishers kept on standby at the location.

(x) All gas cylinders are to be fitted with the correct pressure reducing regulators and approved flashback arrestors and non-return valve at the regulators and cutting torch respectively.

(xi) Any gas cylinders with obvious pitting or other corrosion, including corrosion to the valve stems shall not be accepted on site.

(xii) All 'Hot Work' equipment for welding or burning including the acetylene gas hoses are to be checked before it is allowed at the work site. "Jubilee" clip shall not be used as a clamping device for the hose.

(xiii) Soap solution must be available to check for leakage regularly.

(xiv) Only spark gun is to be used for lighting the cutting torch.

(xv) At least two approved type of extinguishers (in good working condition) and a pail of water must be available at the Hot Work location within 3 metres.

(xvi) No torch is to be left burning unattended.

(xvii) Liquid petroleum gas (LPG) shall not be used below ground under any circumstances.

(xviii) Combustible materials such as oil, paper, wood, etc. are to be kept away from the range of the resulting Hot Work sparks.

(xix) Where necessary, proper fire resistant materials such as fire retardant blankets shall be provided to shield off / contain the sparks from electrical cables / other combustible materials. Also always ensure that no hazard is posed to passers-by / fellow workers.

(xx) Fire watchers are to be deployed at the hot work location.

(xxi) The location where the Hot Work was carried out is to be inspected to see that there are no traces of an incipient fire. (To check after Hot Work had stopped temporary or completely).

(xxii) Flexible hoses must never lie over sharp edges or hot-piping.

(xxiii) All valves of the cylinders shall be properly closed after work, or during lunch and tea break.

(xxiv) All gas cylinders / hot work equipment used at the site must be properly labelled with the company's identification.

(xxv) Oil, greasy rags and greasy hands are not to come in contact with the valves of oxygen or acetylene cylinders as an explosion of fire may result.

(xxvi) Use red hose for Acetylene and other combustible gases, and blue for oxygen, and be careful to see that they are never interchanged.

(xxvii) Inspect rubber hose periodically to see that it is free from cuts, cracks, burns and worn-out places and arrange it in such means that it cannot be cut by contact with sharp edges or corners, falling metals, sparks or the blowpipe flame.

(xxviii) Keep equipment clean and in good condition so that it is safe to use, leaks of gas are dangerous. Check all connections regularly. Faulty or defective equipment should be replaced/repaired without delay.

(xxix) DO NOT use welding equipment unless you have been trained to use it. Workers carrying out welding shall be provided with face shields compatible with safety helmets so that both can be worn at the same time.

(xxx) Combustion (diesel/petrol) engine driven generator shall not be refueled while running.

(xxxi) Cables, connectors, electrode holders and clamps shall be of an approved type. Cables shall be of adequate current capacity for the work performed.

(xxxii) Cables shall not be placed where they create a tripping hazard, or where they can be damaged by vehicle movement. Cables shall be kept out of water.

(xxxiii) Good housekeeping shall be maintained at all times. Used welding rod stubs shall be placed in suitable containers.

(xxxiv) Welding earth leads to be directly attached to the work piece when applicable. Otherwise, they shall be attached as near to the welding point as possible.

(xxxv) 'AC' powered welding equipment is to be fitted with "low voltage shock preventer" and the equipment earthed.

(xxxvi) Hot work permit is required for gas cutting, welding and grinding work carried out on site.

(2.8.13) **Storage of Petroleum And Flammable Materials**

(i) Site may store petrol up to a maximum volume of 20 litres provided that it is kept in a suitably constructed store.

(ii) All diesel stored on site shall be kept in drums or in bulk tanks which in either case shall be located at a designated place away from any sources of ignition or open drain which does not lead to an interceptor, and shall be properly labeled. A "No Smoking and Naked Flames" sign shall be displayed at the storage location and charged fire extinguisher of correct type kept on standby.

(iii) All bulk diesel tanks shall be properly supported in an elevated position to facilitate gravity discharge. They shall stand within a bund constructed to contain a volume of 110% of the volume of the tank.

(iv) There shall be no breaches in the bund wall, no material shall be stored within the bund and rain water collecting in the bund shall be regularly removed to prevent build-up. The inner face of the bund wall shall be coated with a chemical resistant material. A chemical resistant valve, which shall be closed at all times, except for releasing rainwater into a storm water drain via an oil intercepting system, shall be installed at the outlet situated outside the bund.

(v) All drums of diesel on site shall be in good condition and shall be kept closed with a lid/cap when not being used. They shall be stored on end with the lid/cap uppermost and kept within a tray of sufficient volume to contain the contents of the largest drum in the case of accidental rupture, taking in account the presence of other drums within the tray.

(vi) Drums of diesel shall not be rolled along the ground. They shall be transported vertically chained on a trolley; or by a forklift fitted with a drum handling device and not standing unsupported on the forks or on a pallet; or by crane using a safe slinging technique.

(vii) Diesel shall be transferred from the storage drum to another container, or to the tank of plant/machinery using a hand pump wherever practicable and at all times a drip pan must be provided. Where the diesel container is light enough to be lifted by one person it can be poured out by hand, using a funnel to guide the liquid.

(viii) Any spillages of diesel shall straight away be absorbed using sand or other absorbent materials, which shall be disposed of as contaminated waste. On no occasion should diesel be allowed to enter the site drainage system unless this is connected to an interceptor prior to the site waste being discharged into the public sewer system.

(2.8.14) Crane And Lifting Equipment

(2.8.14.1) Crane Operations

(i) No crane is to be used or operated unless it is inspected by Engineer or Safety Personnel.

(ii) Every crane is to be provided with safe working load indicator visible to the operator showing the safe working load corresponding to the radius of operation. Every crane is to have a device warning overloading of the crane capacity.

(iii) Cranes are to be operated / driven by only trained operators. All crane lifting operations are to be supervised by a Trained Supervisor.

(iv) Crane operators must check all safety features and complete the crane operator checklist before use every day. They must report immediately if any unsafe condition is discovered and the machine must not be used until the problem has been rectified.

(v) No part of any crane is to be operated within 3 metres of any overhead power line.

(vi) Outriggers are to be used at all times except when traveling. Outriggers are to be fully extended and ensure that the wheels are off the ground. Level the crane to make sure that it is horizontal. Turn the slewing table 360° as a final check of soil stability.

(vii) Hand signals to crane and hoist operator and rigger are to be given by a trained signalman.

(viii) Only approved lifting shackle with stamped "Safe Work Load" thereon is to be used.

(ix) Crane shall not travel with a suspended load except upon a safe runway.

(x) No tandem lift is allowed until it is approved by POC. A method statement must be submitted to POC that includes a sketch of the tandem lift, rigging study, and risk assessment report.

(xi) Only approved crane contractor is to install, repair, alter or dismantle a crane on site.

(xii) All contractors who need a crane for his nature of work MUST submit a set of lifting procedures with lifting plan for any lifting operation by a crane.

(xiii) For heavy lifts such as for heavy equipment, risk assessment shall be carried out.

(2.8.14.2) Lifting Appliances And Gears

(i) Lifting appliances and gears shall be properly marked with an identification number and the safe working load.

(ii) Lifting appliance includes a pulley block, gin wheel, chain block or set of chain blocks.

(iii) Lifting gear includes any chain, rope, chain sling, rope sling, ring, hook, shackle, swivel, eyebolt and any cage or work platform used for carrying persons while it is suspended from the load line of a crane.

(iv) All lifting gears must be in good condition, free of rust, kinks, frayed broken wire and stretched links and hooks.

(v) Padding shall be used when lifting sharp edged materials.

(2.8.14.3) Access For The Use Of Mobile Crane And Piling Machines Next To Built-Up Area

(i) Where POC uses mobile cranes and piling machines on the Site that is next to existing buildings or public roads, the access for the mobile cranes and piling machines shall be of steel plates or reinforced concrete or bituminous pavement. All such access shall be provided over adequate compacted hardcore base.

(ii) POC shall provide full access for the movement of the cranes and piling machines, and for their lifting or pile driving operations. The access shall be

able to distribute the load so as not to exceed the bearing capacity of the underlying materials.

(iii) The drawings and calculations endorsed by an Engineer shall be submitted to the PM before the construction of the access. The access shall be constructed according to the approved Drawings and maintained in a good condition at all times until the substantial Completion date. The access shall be inspected by POC's Engineer prior to its use and weekly checks shall be carried out.

(2.8.15) **Lifting (Manual)**

(i) During manual lifting place hands firmly on the load away from sharp edges.

(ii) When lifting, get down close to the load.

(iii) Keep back straight and lift using the legs. Avoid back strain.

(iv) Seek help to lift heavy or awkward loads, or use an approved lifting device.

(v) Suitable gloves shall be used where there is a potential for contact with splinters, thermal hazards (hot or cold), rough or sharp edges, abrasive and corrosives

(2.8.16) **Hand And Portable Power Tools**

(i) Hand tools are to be used only for their intended purpose. Unauthorised attachments are not allowed to be used.

(ii) All tools issued to and used by employees in their work are to be inspected monthly to ensure that they are in a safe condition. Any tool which does not meet this standard is to be repaired or replaced.

(iii) Electrical tools and equipment are to be earthed at all times.

(iv) Electrical tools are only to be used via an approved Residual Current Circuit Breaker.

(v) All repairs are to be carried out by trained personnel. (Report damaged cables or damaged fittings and any defective tools immediately to the Engineer.)

(vi) Keep all tools properly stored when not in use so that they will not fall or be tripped over.

(vii) Air (pneumatic) hose connections are to be secured to prevent accidental separation.

(viii) Grinding wheel speed is to conform to manufacturer's recommended speeds.

(ix) Safety goggles are to be worn during grinding operations.

(x) Power tools shall be hoisted or lowered by a hand line, never by the cord or hose.

(2.8.17) **Explosive Powered Tools**

(i) All explosive powered tools must be accompanied by the manufacturer's specification and instructions for use.

(ii) No explosive powered tools shall be used unless it has been inspected and tested by a recognized testing body at least once in every 3 years.

(iii) Only authorized and trained employees are allowed to use explosive powered tools. All such tools are to be used in accordance with manufacturer's instructions.

(iv) Explosive cartridges and nails are to be removed from tools when not in use.

(v) The operator of the explosive powered tools and his assistant must wear safety helmets and safety goggles and hearing protectors while operating the tools.

(vi) No loaded or empty tool is to be pointed at any person at any time.

(vii) In the event of a misfire, the tool must not be removed from the work surface for at least 10 seconds. If the charge does not explode within that time, the user shall unload the tool or place it in such a position so as to eliminate the possibility of a person being injured in the event of the charge subsequently exploding.

(viii) Tools shall not be used in an explosive or flammable atmosphere. Tools must not be used in the vicinity of hazardous materials.

(ix) A register of explosive powered tools and authorized operators is to be kept on site.

(2.8.18) **Electrical Requirements**

(i) Electrical equipment means any machine, appliance, apparatus or lighting fitting which consumes or utilises electricity in its operation or use and includes any cable, wire and other device necessary to enable it to be connected to a source of electricity supply.

(ii) Electrical installation means any cable, wire, fitting, accessory, apparatus or other device used for or for purposes incidental to the conveyance, control or use of electricity.

(iii) All electrical power outlets are to be connected with an approved Residual Current Circuit Breaker.

(iv) All temporary electrical installations shall be installed and checked in the presence of a Qualified Electrician.

(v) Temporary electrical installation is to be provided with ELCB breaker of 30mA tripping sensitivity and cables elevated and supported, or mechanically protected.

(vi) Only approved electrical fittings such as socket outlets and plug tops are allowed at the site.

(vii) POC Appointed Electrician shall carry out monthly checks and after any repairs of each temporary installation. A copy of the inspection report shall be kept available at site. The results of inspection will be brought to the attention of the Project Manager and M&E Engineer in charge. The Appointed Electrician shall provide a sticker on the equipment and tools indicating the date of inspection and is safe for use.

(viii) Connections for temporary lighting and power are to be terminated in approved type plug tops and connected to the designated temporary distribution board outlet points provided for such purposes. A current photograph of the Appointed Electrician(s) and the contact number(s) shall be displayed on the outside of all boxes containing electrical DBs for ease of contact.

(ix) POC shall provide, install and maintain the socket-outlet assembly – Socket Outlet Assembly (SOA) for all temporary electrical installations. It shall be designed for wall mounting or fitted with castors so that it can be moved around on the site. Every electrical equipment used on site shall be plugged directly into the industrial SOA.

(x) All electrical plugs / sockets and in-line extension lead connectors forming part of the temporary supply on site shall be of the industrial type.

(xi) All wiring shall be supported on proper insulators and not looped over nails, brackets or any other metal objects.

(xii) All electrical hand tools to have earthing protection or double insulated. A cut or frayed electrical cord is to be replaced immediately.

(xiii) All generators and welding sets in use on site are to be adequately and effectively earthed at all times during operation.

(xiv) Damaged electrical tools or accessories are to be replaced immediately.

(xv) All electrical work, including the removal of a service, alteration and equipment installation, shall be performed by an authorised electrician.

(xvi) All practical steps are to be taken to prevent danger from live electrical cables or apparatus. Compliance to this safe work procedure for electrical requirements on site should be strictly adhered.

(2.8.19) **Traffic Management**

(i) Traffic Controllers shall be provided for on-site traffic management and vehicles entering and leaving the site.

(ii) All drivers of motor vehicles or heavy equipment shall be in possession of the appropriate Myanmar license for the class of vehicle and shall be required to keep such license on him while driving or operating on the site.

(iii) All operators of construction equipment (forklift, skid loader etc.) are to be appointed in writing by the contractor's site management after they have determined that the operator has the necessary knowledge and experience (competent). In addition, whenever it becomes necessary, signalman / banksman shall be employed to assist and direct the operator during the execution of earth works.

(iv) All vehicles brought into the site must be roadworthy and conform to all legal requirements.

(v) The parking brake must be set whenever the vehicle is parked. Equipment parked on an incline must have the wheels "choked".

(vi) The alarm is to be audible above the surrounding noise. The alarm must be actuated though either the equipment's lighting circuit or through the vehicle transmission mechanism. Any other type of reversing alarm, actuated by any other means, requires approval from POC.

(vii) All windows of vehicles and mobile equipment are to have unrestricted view. Pasted newspapers on windows or curtains are not allowed. The driver or operator is also responsible for ensuring that windows are kept clean.

(viii) No mobile vehicle or equipment is to be left running and unattended at any time. The operator must turn off the ignition and secure the vehicle / equipment before leaving the cabin.

(ix) POC shall provide traffic controllers and all necessary traffic and directional signs, barriers, warning lamps, rubber cones and the like to guide and inform the public that the working area is closed or partially closed to all traffic (vehicular as well as pedestrians) during the Contract Period.

(2.8.20) **Lightning Protection System**

(i) POC shall provide an efficient temporary lightning protection system for the structure during construction and for all the hoists and cranes. The lightning protection system must be one which conveys any lightning discharge safely to the ground without danger to the building, machinery or occupants.

(ii) All temporary lightning protection system must be removed from the Site upon Completion and all works disturbed by such removal shall be made good by POC.

(2.8.21) **Loading In Excess Of Design Load**

(i) POC will be responsible for the stability and structural integrity of the Works, plant, equipment, cranes, scaffolding, props and the like during construction and shall provide such support as necessary and in particular, to avoid over-loading.

(ii) No loading in excess of the design loading shall be placed on any portion of the structure without the written permission of the PM. If such permission is granted, structure to be subject to overloading shall be strengthened and supported to the satisfaction of the PM. All additional expenditure, including making good any damage caused to the permanent structure shall be borne by the proposer.

(2.8.22) **Forklift Operation**

(i) Only authorized personnel are allowed to operate forklift.

(ii) Do not carry passengers on the forklift.

(iii) Park forklift at designated places when not in use with handbrakes 'ON' and forks fully lowered.

(iv) Do not overload your forklift. Always ensure that you can see ahead of you.

(v) Keep the forks in the lowest position when the forklift is travelling.

(vi) Do not raise the load with forklift mast tilted forward.

(vii) Do not tilt elevated load forward during unloading until it is positioned over the loading place.

(viii) Drive forklift in reverse when carrying load down a slope.

(ix) Give warnings when approaching blind corners.

(x) Ensure revolving light and reverse warning alarm are working.

(2.8.23) **Other (Building Indicators)**

For building projects more than 5-storeys, POC shall provide and maintain storey number indicator of size 400mm x 400mm at every staircase area and Storey number indicator of size 900mm x 900mm at the metal scaffold enclosing passenger cum material hoist. The indicators shall be displayed at alternate storey starting from the second storey.

Element (3): HSE TRAINING

(3.1) POC establishes procedures to identify training needs and provide adequate safety training including refresher training to management, supervisors, workers and site personnel in order to provide them with comprehensive training of the rules and regulations, MJTD / Thilawa SEZ requirements, procedures and inspections relevant to their particular duties.

(3.2) POC shall familiarise with the relevant training requirements and ensure all personnel have relevant training qualifications in performing their respective work.

(3.3) In-house HSE Induction Training will be provided for all persons entitled to be working on site prior to issue a site pass. New employees and workers for their initial thirty (30) days on site shall be clearly identified and assigned with a more experienced buddy worker.

(3.4) POC shall ensure qualified operators are employed for all the machinery to be used on site even if it is not required by Myanmar's legislation. POC shall implement an identification system on site to clearly identify all qualified personnel and operators.

(3.5) POC will document and maintain a HSE training record on site.

(3.6) Persons who oversee or supervise any work (including any process) in the worksite shall receive adequate HSE training to ensure that the work which he oversees or supervises can be carried out safely with minimal effect to health and environment.

(3.7) Persons carrying out manual work in the worksite shall receive adequate HSE training for the purpose of familiarizing the person with the hazards associated with such work and the precautions to be observed.

Element (4): GROUP MEETINGS

(4.1) Various forms of group meetings will be conducted at each hierarchy of the organization to provide revenue for information to be transferred:

(a) Top Down (Disseminate)
(b) Bottom-Up (Feedback)
(c) Lateral (Sharing)

This inevitably helps to promote health, safety and environmental issues, integrate participation at all levels and promote group cohesiveness and commitment.

(4.2) Following group meetings will be conducted on site:

Site HSE Management Review Meeting	(Once every six months)	GM, PM, CM, HSE
Monthly HSE Committee Meeting	(Once a month)	HSE Committee members including Sub-cons' PM
Weekly Clean Day & Safety Patrol	(Once a week)	POC HSE Committee & Representatives of Subcontractors

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

Tool Box Meeting	(Daily before start of work)	Engineers, Site Supervisors & all workers
Job Safety Instruction (Trade)	(Daily before start of work)	Work Supervisors & workers
Daily Coordination Meeting (HSE issues raise-up by site personnel)	(Daily 13:00)	Engineers & Sub-contractor Supervisors

Element (5): INCIDENT INVESTIGATION AND ANALYSIS

(5.1) POC will investigate and analyse all accidents, dangerous occurrence, near misses and other incidents with the objective of identifying the root causes and formulate specific corrective actions to prevent recurrence.

(5.2) Incident refers to any event, which occurs in the premises of the worksite and which results in:

- death
- disabling injury
- first aid treatments
- the loss or damage of property
- a potential to cause death, injury, damage or loss
- dangerous occurrence
- occupational diseases
- fire incidents

(5.3) In the case of an accident or a dangerous occurrence, the Area-In-Charge Engineer shall notify the Project Manager in person or by telephone within one hour of such accident or dangerous occurrence.

(5.4) Upon receipt of information of an accident or dangerous occurrence, the Project Manager shall at its discretion make a preliminary investigation of the circumstances and record it's finding upon such investigation.

(5.5) The Area-In-Charge Engineer and the Subcontractor Involved shall together carry out a more detailed investigation, prepare the investigation report and submit it to the Project Manager within 7 working days of the accident or dangerous occurrence.

(5.6) The Subcontractor Involved shall arrange for the injured workman, witnesses and an interpreter, if necessary, to report to the Project Manager to furnish evidence relating to the accident or dangerous occurrence.

(5.7) If the Subcontractor Involved fails to give any detailed investigation report or fails to furnish evidence of the accident or dangerous occurrence, the Project Manager may at his absolute discretion exercise his rights to impose charges against the Subcontractor.

(5.8) Incident investigation would be carried out and data analysed to identify and address critical areas for enhancing safe conduct of work. Accident Statistics Record shall be updated and kept available at site.

(5.9) The Subcontractor Involved shall propose remedial measures to prevent recurrence of the accidents to the satisfaction of the Project Manager.

(5.10) Photos, sketches and evidences related to the incident or accident in soft copy and hard copies as deemed necessary by the Project Manager shall be maintained.

Element (6): IN-HOUSE HSE RULES AND REGULATIONS

(6.1) Procedures shall be established before commencement of each work to ensure in-house HSE rules and regulations are implemented and enforced diligently at worksite.

(6.2) In-house HSE rules and regulations in English and translated to Burmese shall be communicated to all levels of the organisation through HSE meeting, HSE promotion, training or other means.

(6.3) A Register shall be maintained for violation of HSE rules which will be analysed, so the critical areas or sub-standard conditions at site can be identified and addressed.

(6.4) POC will establish safety signs and colour coding to draw attention and provide information on potential hazards.

(6.5) Disorderly Conduct

1. POC shall at all times take all reasonable precautions to prevent any unlawful or disorderly conduct by or amongst his workmen and preserve the peace in the Site and all other areas where work is carried out by POC for the Project.

2. POC shall be responsible for restricting his workmen only to the site of the Works and shall prevent trespassing into adjoining properties. All workmen shall carry security passes on them at all times.

(6.6) Suspension of Work

The Project Manager may suspend the progress of works or any part of them if necessary for the safety of the works or if he is of the opinion that the working environment or procedure is unsafe for the works to continue.

Element (7): HSE PROMOTION

(7.1) POC shall develop a Health, Safety & Environment (HSE) promotional programme to demonstrate our commitment to advancing the HSE culture at the worksite and reinforcing the concept that HSE and construction are inseparable. The programme shall enhance personal HSE awareness and influence all attitudes and behaviour of all personnel on HSE matters.

(7.2) The programme shall consist of general promotional activities which are carried out as part of a day-to-day activity and high impact promotion activities which are carried out as a campaign to reinforce a particular HSE point at the site. The HSE promotional programme shall be revised and updated at least once a year.

(7.3) POC shall ensure that all personnel participate in the HSE promotional activities. POC will organize at least two HSE campaigns per year to reinforce a particular HSE point at site.

(7.4) Various signs & posters, pamphlets, dos & don'ts HSE literatures in English and Burmese understood by all workers will be made available at the site to enhance safety & health.

(7.5) POC shall erect and maintain a HSE Information Signboard and Assembly Stage. The signboard shall be 6.0m x 3.0m, made of timber plywood and fixed at a steel frame. The signboard shall consist of HSE posters, pictures, news, photos of good HSE measures. The HSE posters, news and photos shall be protected from weather.

(7.6) The stage shall be constructed in front of the signboard and made of steel and/or concrete. The stage shall consist of a raised platform with at least one step.

Element (8): EVALUATION, SELECTION & CONTROL OF SUBCONTRACTORS

(8.1) A system will be set up to evaluate the HSE performance of prospective subcontractors who intend to undertake the works. Only competent subcontractors who meet the HSE requirements and expectations shall be selected for the works.

(8.2) Subcontractors will be provided with a full understanding of all HSE requirements and expectations at all times.

(8.3) POC has an effective on-going program to evaluate HSE performance of subcontractors with a register updated regularly.

(8.4) The evaluation of subcontractors HSE performance shall include the following:

(a) Company's HSE policy and HSE management system;
(b) HSE plan, safe work procedures and method statements;
(c) Listing of construction plant, machinery and equipment;
(d) HSE track records; and
(e) Training records of managers, supervisors and workers.

(8.5) POC shall ensure that the HSE requirements in the contract agreement are implemented effectively on site during the works operations.

(8.6) Use Of Common And Surrounding Areas by Contractors

(i) POC shall confine his works including his Sub-contractors within the designated contract boundary. No trespassing is allowed on surrounding property.

(ii) POC shall ensure that the workpeople (defined in Item above) take their meals and rest within the approved rest area and that they do not make use of the existing buildings/structures, open spaces or other areas whether within or outside the contract boundary as rest areas or for any other use at any time for the duration of the Project and during defects liability and maintenance period.

(iii) Building materials shall only be stored in POC pre-approved areas.

Element (9): HSE INSPECTION

(9.1) Documented procedures for HSE inspections and suitable checklists will be established to ensure that unsafe conditions and practices at the worksite are identified and corrective measures are implemented promptly and effectively.

(9.2) HSE inspections are carried out by the Project's HSE committee. Procedure will be established to carry out internal HSE inspections at least once per shift.

(9.3) A written record shall be kept for the daily inspection findings and the results of inspections shall be brought to the Area Manager having responsibility in the area concerned, together with the necessary remedial action and due date of completion. Any corrective action shall be immediately implemented by the Area Manager, and followed up by the HSE personnel. POC shall maintain records of inspection report on site.

(9.4) Inspection of shoring of formwork, side supports of excavations and trenches, cranes and scaffolds should be carried out after any episode of inclement weather which may affect their stability / integrity.

(9.5) Daily checking of lifting equipment will be carried out and shortcomings rectified before work begins.

(9.6) Regular checking of critical parts of machineries, such as safety devices, hoisting cables, braking system for hoist will be carried out on weekly basis by approved crane contractor's mechanic.

(9.7) POC's Senior Management (Myanmar HQ or overseas) may visit the Site to conduct inspections and examinations for the purpose of ensuring compliance with POC's HSE standard requirements.

(9.8) The frequency of abovementioned HSE inspection shall depend on the nature of the construction activities, the hazards present, internal and external feedback received and the performance of POC.

Element (10): MAINTENANCE REGIME FOR ALL MACHINERY & EQUIPMENT

(10.1) Maintenance program will be established to ensure safe and efficient operation of all hand tools, plant, machinery and equipment used at worksite owned by all subcontractors and suppliers.

(10.2) Maintenance program shall include:
- listing of hand tools, plant, machinery and equipment;
- schedule of inspection and maintenance;
- procedure for breakdown and repair; and
- record of inspection and maintenance.

(10.3) Lock-out procedures would be established for the inspection, cleaning, repair or maintenance of plant, machinery, equipment or electrical installation on site.

(10.4) POC shall document and maintain records of all inspections, maintenance, breakdowns and repairs carried out by the trained and competent maintenance personnel.

(10.5) Modified tools of any kind shall not be used on site.

(10.6) All equipment, tools, gadgets, devices and the like shall be certified fit for use and shall be regularly inspected and maintained. If in POC's Inspection Personnel opinion that the item in question has been subject to wear and tear, damage or compromised utility, he shall have the authority to order the removal of the same from use and be replaced.

Element (11): RISK ASSESSMENT

(11.1) The objective of this element is to reduce risks at source by taking all reasonably practicable measures to ensure that the worksite is safe and without risks to every person within its premises.

(11.2) GENERAL

(11.2.1) Risk Management Entails

(a) Risk assessment of any work activity or trade;
(b) Control and monitoring of such risks and
(c) Communicating these risks to all persons involved.

(11.2.2) Risk Assessment Is An Integral Part Of Risk Management

It is the process of:
(a) Identifying and analyzing safety and health hazards associated with the specific work;
(b) Assessing the risks involved; and
(c) Prioritizing measures to control the hazards and reduce the risks.

(11.3) Risk Assessment Plan

POC shall establish a risk management plan which shall include the following:

(i) Formation of Risk Management Committee;
(ii) Formation of Risk Assessment Team by Contractors;
(iii) Risk Assessment Method;
(iv) Risk Assessment Procedure;
(v) Implementation and monitoring of control measures.

(11.4) POC shall conduct a risk assessment in relation to the safety and health risks posed to any person who may be affected by his undertaking prior to the commencement of work in accordance to the format in **ANNEX 4.**

Such assessments shall: -

(i) identify the hazards and the groups of people at risk from the identified hazards;

(ii) evaluate the risks in terms of determining the existing control measures, the severity and likelihood of occurrence of the hazards identified and assessing the risk level based on its severity and likelihood; and

(iii) identify and determine the appropriate options for controlling and reducing the risks to an acceptable level.

(11.5) POC shall ensure that all his sub-contractors and suppliers, work with the risk assessment team to identify the hazards, evaluate and control the risks at the worksite. This includes rendering all assistance and participating in any risk assessments conducted by the Employer.

(11.6) POC shall engage designate and appoint a competent person as the team leader to lead the team of persons conducting the risk assessments.

(11.7) POC shall incorporate the time frame required for risk assessment to be developed into the master/monthly work program and shall ensure that his employees are informed of the nature of the risk involved, the measures implemented to control the risk and applicable safe work procedures prior to commencement of work.

(11.8) POC shall carry out reviews of the risk assessment every month or earlier whenever new information on the risks is known, the work area changes or following any accident or serious incident.

(11.9) POC has established a Project Risk Assessment for this Contract – see attached ANNEX 5.

Element (12): THE CONTROL OF MOVEMENT AND USE OF HAZARDOUS SUBSTANCES AND CHEMICALS

(12.1) Procedure shall be established for proper management of all hazardous substances and chemicals which shall include flammable, toxic or corrosive substances such as oxy-acetylene used for gas cutting.

(12.2) The procedure shall include the control of receipt, storage, distribution, use and final disposal of such substances.

(12.3) A register of hazardous materials compiled from Safety Data Sheets (SDS) will be maintained and updated regularly. Assess the SDS of all the hazardous substances and chemicals prior to its entry to site for its suitability in terms of health, safety & environmental hazards and consider safer alternatives.

(12.4) SDS information will be disseminated to the users with inventory log-book introduced.

(12.5) POC shall ensure that all hazardous substance and chemical containers are labeled.

(12.6) Storage of Materials

(i) In addition to specific provisions elsewhere in the Contract, all materials shall be stored on Site in a neat and orderly manner. Flammable materials shall not be stored in the building under construction. POC shall provide suitable storage facilities for such flammable items and materials.

(ii) All storage areas shall be cleaned thoroughly and regularly and especially during any spillage, contamination, leaks or the like. Upon demobilisation, these areas shall be cleaned thoroughly.

Element (13): EMERGENCY PREPAREDNESS

(13.1) POC shall establish an emergency preparedness plan to response effectively to emergency situations on site and ensure that it is implemented, communicated and complied. The plans shall be reviewed or tested regularly to ensure its effectiveness and suitability.

(13.2) In-house emergency exercise and drills shall be conducted on a quarterly basis. The timing for evacuation of workers and personnel from their work areas shall not be more than 20 minutes.

(13.3) The emergency situations shall include:
- Fire;
- Explosion; and
- Incidents resulting in mass loss

(13.4) POC shall establish an effective first-aid programme to provide first aid and emergency treatment to victims of an accident. This includes adequate first aid facilities and trained first aiders.

(13.5) Fire Safety Plan

(a) POC shall establish a Fire Safety Plan consisting:
- the role and responsibility of every individual in the worksite on fire safety;
- general site precautions, fire detection and warning alarm system;
- fire fighting equipment including types of fire extinguishers;
- fire safety measures for site accommodation;
- fire escape and communication;
- fire brigade access, facilities and co-ordination;
- fire drills and training including the use of site fire fighting apparatus;
- material storage including flammable liquid and gas, and waste control regime;
- fire safety measures for construction plant and equipment; and
- fire safety measures for electrical supply.

(b) POC shall ensure that all procedures, precautionary measures and safety standards stipulated in the Fire Safety Plan are implemented, communicated and complied with by all workers including sub-contractors.

(c) POC shall review and ensure the adequacy of the Fire Safety Plan as the works progress.

(d) POC shall carry out monthly checks of fire fighting equipment and test all alarms and detection devices installed on site. Tags/stickers shall be provided to indicate the monthly checks.

(e) POC shall conduct weekly inspections of escape routes, fire brigade access, fire fighting facilities and work areas to ensure that the requirements stipulated in the Fire Safety Plan are complied with.

(13.6) Fire Emergency Schematic Diagram – See attached ANNEX 6

(13.7) Fire Safety on Site

(i) POC shall maintain a high standard of housekeeping and ensure fire safety on Site. POC shall keep the Works and the Site including all the externals and adjoining areas as clean, neat and safe as possible.

(ii) All materials that are combustible must be properly stored. Fire extinguishers and appropriate fire preventive measures shall be provided and implemented by POC, for all temporary buildings and at strategic points on the Site.

(iii) All rubbish, debris and the like shall be cleared away from time to time and POC shall not allow a build-up of such rubbish and debris. In particular, POC shall, at all times keep all accesses free of rubbish, debris, excavated materials and all other obstructions, which could pose safety and fire hazards.

(13.8) Site Fire Prevention And Fire Fighting Facilities

(i) POC shall implement fire safety measures for fire prevention, fire-fighting and escape routes and facilities on the Site, which shall comply with the requirements of the relevant authorities.

POC shall:-

a) keep entrances, gangways, staircases, hydrants or other water supply points clear and ensure that access to upper floors does not become impeded by stacked materials;

b) provide separate metal containers for each form of flammable waste and organize regular collection and disposal;

c) make daily fire inspection, once in the morning and the other just as work is completed for the day, to ensure stores are locked, windows are closed, no lighted cigarette ends are left about in any of the temporary buildings and all gas cylinders and flammable liquid are returned to store;

d) install a suitable form of fire alarm system where necessary.

(ii) All fire protection, fire equipment and installations shall remain the property of POC on Site and shall be removed upon Substantial Completion or as and when instructed by the Client subject to all permanent fire protection, fire-fighting equipment and installations and services being in place, fully operational and functional.

Element (14): OCCUPATIONAL HEALTH PROGRAMMES

(14.1) Occupational health programs on hearing conservations, respiratory protection and compressed air related disease prevention shall be planned and implemented.

(14.2) POC shall provide education and training to all workers on the relevant health hazards, safe work practices and proper use of personal protective equipment (PPE) and enforce on the usage of PPE.

(14.3) Toilet Facilities

(i) POC's workmen and workpeople generally, are not permitted to use all existing toilets located within the neighbouring buildings. A fine will be administered if any of POC's workers or workpeople are caught using the toilets.

(ii) Portable toilets shall be provided at suitable locations and maintained by POC to an acceptable standard.

(14.4) Cleaning and Maintenance of Roads and Drains

(i) POC shall maintain the cleanliness of public roads and drains used by vehicles for the Works for the duration of the Contract.

(ii) The Contractor shall :-

a) construct a washing bay for the cleaning of earth-laden vehicles before they leave the Site;

b) clean-up all deposits left by the vehicles on the road and employ sufficient workers for this operation every day. Earth droppings shall not be allowed to remain overnight either on the carriageways, pavements or in the drains. Where it is not feasible to remove deposits during normal working hours, carry out the cleaning operation during the hours between midnight and 6.00 a.m.;

c) ensure that the flow of traffic on the roads and access is maintained at all times during the duration of the Contract;

d) provide such flagmen, approved signs and signal equipment as may be necessary day and night to control the traffic to the satisfaction of the appropriate authority;

e) co-operate closely with the appropriate authority in the planning and execution of any Temporary or Permanent Works which may affect the traffic flow and/or access to the Site or other properties; and

f) whenever required, remove with due compliance, Construction Equipment, machinery, staging and other materials which may interfere with traffic and the use of roads, footpaths or open spaces on the Site or adjacent thereto.

(iii) POC shall take every practical precaution to avoid interference with the flow of storm water through the drain, canal, culverts and other side drains etc. Any spoil, rubble, timber, rubbish or other materials which may fall into or brought into the drain, canal, culvert and other side drains etc. by the storm water shall be removed forthwith.

(iv) All necessary water tight flumes, cofferdams, chutes and/or other approved methods of controlling the flow of water shall be adequate for this purpose. Such works shall be constructed in a rigid, workmanlike manner, sufficient to withstand water pressure at its highest level.

(v) If the PM considers that any temporary structure erected is obstructing the flow to an extent more than necessary, making it liable to cause flooding in the event of a rain storm, he may employ other labour and Construction Equipment to demolish such structures.

(vi) POC shall be liable for any noncompliance of maintenance of roads and drains, flooding, slips, subsidence or other failures resulting from non-compliance by POC with respect to the above.

(vii) POC shall be responsible for paying any fines imposed by any of the relevant authorities.

(14.5) Cleaning Up and Reinstatement of Works on Completion

(i) POC shall leave all parts of the Works in a clean condition, free from flaws, cracks and settlement whatsoever upon completion of Works.

(ii) On completion, all temporary structures shall be removed and the area occupied by these structures shall be cleaned, reinstated to its original state to the satisfaction of the Client.

(iii) All turf that is disturbed or destroyed by excavation, by the movement of machinery, the building of temporary structures, construction works and the like, shall be reinstated upon completion to the satisfaction of the Client.

(14.6) Housekeeping Programme

(i) POC shall establish a detailed housekeeping programme that includes, but not limited to, the following:-

(a) clearing of site debris;

(b) maintenance of site vegetation and existing trees such as grass cutting, trees pruning, etc.

(c) maintenance of temporary drainage, wash bay, temporary road access, etc.

(ii) The Client may disapprove the programme and make changes, if the programme is deemed inadequate and ineffective.

Element (15): SITE ENVIRONMENTAL CONTROL

(15.1) The appointed personnel shall prepare the Site Environmental Control Programme before work commence on site.

(15.2) The **Site Environmental Control Programme** contains recommendations on measures to prevent poor refuse management, noise and dust pollution, control of vectors and requires layout plans on drainage works, designated areas for storage of organic and construction wastes and all temporary site structures, such as canteens, toilet facilities and workers quarters. – see attached ANNEX 7

(15.3) The appointed person will submit a Site Environmental Control Report to Project Manager once every fortnight. Project Manager shall take action to implement the recommendations made by the appointed person- see attached ANNEX 8

(15.4) Liability of Nuisance

POC shall be solely responsible during the progress of the Works for any damages, accident, annoyance or disturbance that may arise to existing premises, owners or occupiers of adjoining properties by any of the operations arising from the carrying out to the Works under this Contract.

(15.5) Noise Pollution

The maximum noise level shall not exceed and shall comply with the maximum allowable noise standards or the latest noise regulations imposed by the relevant authorities.

Noise level readings shall be taken as stipulated in the specifications. POC shall endeavour to achieve noise levels lower than the above limits.

(15.6) Noise Control Details

a) All mechanical plant and equipment used for the purpose of the Works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order.

d) All machines in intermittent use shall be shut down or throttled down to a minimum in the intervening periods between works. Noise emitting equipment that is required to run continuously shall be housed in a suitable acoustic enclosure.

e) Construction plants shall be maintained in good working condition so that extreme noises from mechanical vibration and creaking are reduced to a minimum.

g) The use of barriers (acoustic sheds or sound proof partition) to deflect noise away from neighbouring areas shall be employed wherever possible.

h) Care shall be taken to reduce noise when loading or unloading any plant, equipment, dismantling scaffolding or moving materials.

(15.7) Dust And Air Pollution

a) POC shall prepare a method statement demonstrating how he intends to minimize dust generated by the work.

b) Mechanical plant, equipment and the like which emit excessive smoke, fumes or other obnoxious gases shall not be allowed to be used on Site.

c) The PM shall have absolute discretion to require contractors to take necessary precautions, maintain or repair such plant and equipment or order the removal of the same from the Site.

d) POC is to provide all necessary dust sheets, barriers, signs, notices and other temporary protection.

(15.8) Vector Control

POC shall implement an effective vector control programme for the Site to include all necessary measures to prevent breeding and harbouring of mosquitoes and other types of vector.

Vector control work shall incorporate and comprise the following:-

a) MOSQUITO PREVENTION

i) Weekly checks for mosquito breeding and fortnightly thermal fogging;

ii) All excavation and portions of Site where water stagnates or accumulates must be kept dry by pumping, bailing or other methods;

iii) POC shall do all that is reasonable and practicable to prevent breeding of mosquitoes and refrain from dumping or depositing rubbish, spoil, unused materials, empty bottles, cans and other containers capable of collecting liquids. POC shall prevent any mosquito nuisance at the Site and surroundings and comply with any measures to eradicate or eliminate mosquito breeding; and

b) PEST CONTROL

i) POC shall undertake fortnightly vector control of other bugs which shall include but not limited to rodents and cockroaches checks as well as weekly larviciding of stagnant water with insecticides.

ii) POC is also required to prepare a detailed pest control and surveillance programme. The PM may disapprove and/or make changes to the programme should it deemed to be inadequate and ineffective.

iii) POC shall maintain all pest control inspection and treatment records.

iv) Any health nuisances caused by the lack of pest control to the Works and the adjoining properties shall be dealt with to the satisfaction of the authorities, at POC's own expense.

Element (16): SITE SECURITY CONTROL

(16.1) While the working hours are generally considered to be from 8.00 am to 8.00pm (allowing for overtime works) Monday through Saturday, POC shall ensure that security guards are provided on a 24-hour basis, 7-days a week.

(16.2) The main access to the Site shall have a proper security post. All traffic to the Site must be properly controlled and the access locked when not in use.

(16.3) POC shall implement a security control system for all workmen and personnel (whether or not employed by POC), deliverymen and drivers, invitees and visitors entering and exiting from the Construction Site. All such persons will be required to be registered upon entering the Construction Gates. The security guards engaged by POC shall be responsible for controlling the issue of all security passes.

(16.4) POC shall have a detailed crisis management plan to guide the security guards in the event of emergencies such as disruption of services, encounter or detect any security problems, etc.

Element (17): SYSTEM VERIFICATION & REVIEW

(17.1) An annual review of the sites will be carried out by POC Myanmar headquarters. The review will take into consideration:

a) HSE Audit Reports
b) Accidents Records
c) Investigation Reports

(17.2) Minutes of meeting of such review will be kept. Based on the decision made during the review, the management will proceed to amend the HSE Management System to ensure the revised system is implemented successfully.

(17.3) If deemed necessary, the Client shall be entitled to engage an independent external auditor to audit POC's HSE Management System and POC shall provide all necessary attendance and information to the auditor.

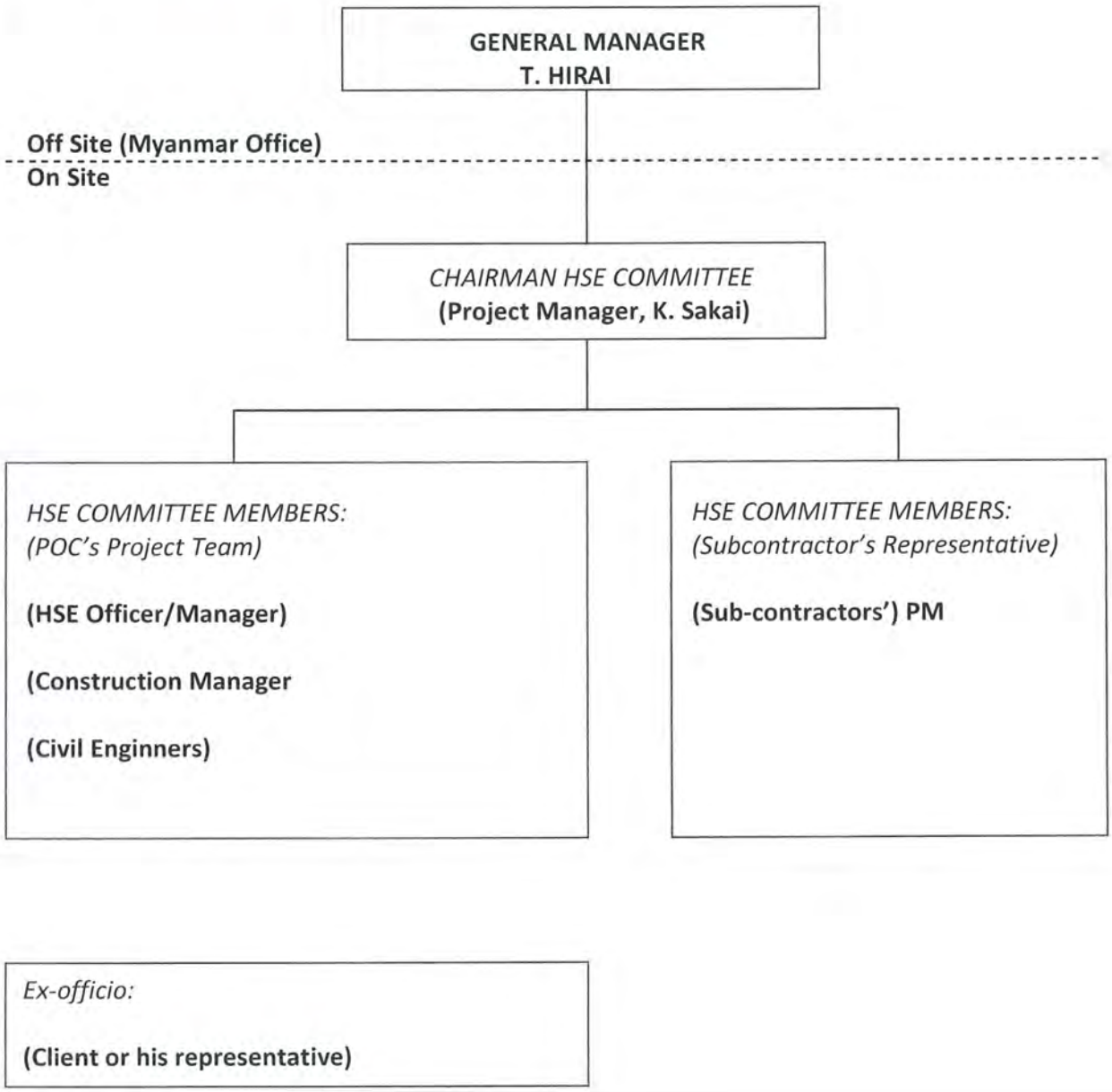
(17.4) POC shall periodically review and evaluate the efficiency of the HSE Management System in place.

(17.5) The audit and possible corrective actions shall be carried out in accordance with the documented procedures.

(17.6) The results of audit and corrective actions shall be submitted to the PM and brought to the attention of all sub-contractors.

ANNEXES

ANNEX 2: *HSE ORGANISATION CHART*



MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED
MJTD

ANNEX 3: *HEALTH, SAFETY AND ENVIRONMENTAL PROGRAMME*

Activities	Persons Involved	Period
1. Display Site HSE Policy Statement.	PM	Prior to work
2. Establish site HSE Plan.	PM	Prior to work
3. Conduct Risk Assessment with Work Method Statement Produced.	Engineer/ Subcons' Engineer	Prior to related work
4. Formation of HSE Committee.	PM	Prior to work
5. HSE Committee Inspection & Meeting.	HSE Committee	Monthly
6. Clean day and Safety Patrol	HSE Committee	Weekly
7. Accident Investigation Meeting.	PM/Engineer/Subcon	(*If occurs*)
8. Tool Box Meeting.	Contractor PM/Workers	Daily
9. Site HSE Inspections.	Engineers/Subcons	Daily
10. Oiling to stagnant water	POC Oiling Team	every 3 days
11. Emergency Drill	All	3 months once

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED ★ MJTD

Activity-Based Risk Assessment Form

1. Assessment of **Severity** – with the existing risk controls in consideration, each Risk Assessment Team (RAT) member is to rate the most likely severity outcome of the possible injury or ill-health identified: see Table 1 below.

Table 1

Severity (S)	Description
(5) Catastrophic	Fatality, fatal diseases or multiple major injuries.
(4) Major	Serious injuries or life-threatening occupational disease (includes amputations, major fractures, multiple injuries, occupational cancer, acute poisoning).
(3) Moderate	Injury requiring medical treatment or ill-health leading to disability (includes lacerations, burns, sprains, minor fractures, dermatitis, deafness, work-related upper limb disorders).
(2) Minor	Injury or ill-health requiring first-aid only (includes minor cuts and bruises, irritation, ill-health with temporary discomfort).
(1) Negligible	Not likely to cause injury or ill-health

2. Assessment of **Likelihood** – with the existing risk controls in consideration, each Risk Assessment Team (RAT) member is to rate the likelihood hazard that may cause the possible injury or ill-health: see Table 2 below.

Table 2

Likelihood (L)	Description
(1) Rare	Not expected to occur but still possible.
(2) Remote	Not likely to occur under normal circumstances.
(3) Occasional	Possible or known to occur.

(4) Frequent	Common occurrence.
(5) Almost Certain	Continual or repeating experience.

3. **Risk Matrix** provides the useful framework to classify risks identified: see Table 3 below.

Table 3

Likelihood (L) / Severity (S)	(1) Rare	(2) Remote	(3) Occasional	(4) Frequent	(5) Almost Certain
(5) Catastrophic	(5) Medium	(10) Medium	(15) High	(20) High	(25) High
(4) Major	(4) Medium	(8) Medium	(12) Medium	(16) High	(20) High
(3) Moderate	(3) Low	(6) Medium	(9) Medium	(12) Medium	(15) High
(2) Minor	(2)Low	(4) Medium	(6) Medium	(8) Medium	(10) Medium
(1) Negligible	(1) Low	(2) Low	(3) Low	(4) Medium	(5) Medium
[Risk Level: H = High Risk (15 ~ 25) M = Medium Risk (4 ~ 14) L = Low Risk (1 ~ 3)]					

4. Action for **Risk Level** – the following actions are to be implemented based on the current Risk Level, as shown in Table 4 below.

Table 4

Risk Level	Risk Acceptability	Recommended Actions
Low Risk	Acceptable	- No additional risk control measures may be needed. - Frequent review and monitoring of hazards are required to ensure that the risk level assigned is accurate and does not increase over time.
Medium Risk	Tolerable	- A careful evaluation of the hazards should be carried out to ensure that the risk level is reduced to as low as reasonably practicable (ALARP) within a defined time period.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

		- Interim risk control measures, such as administrative controls or PPE, may be implemented while longer term measures are being established. - Management attention is required.
High Risk	Not acceptable	- High Risk level must be reduced to at least Medium Risk before work commences. - There should not be any interim risk control measures. Risk control measures should not be overly dependent on PPE or appliances. - If practicable, the hazard should be eliminated before work commences. - Management review is required before work commences.

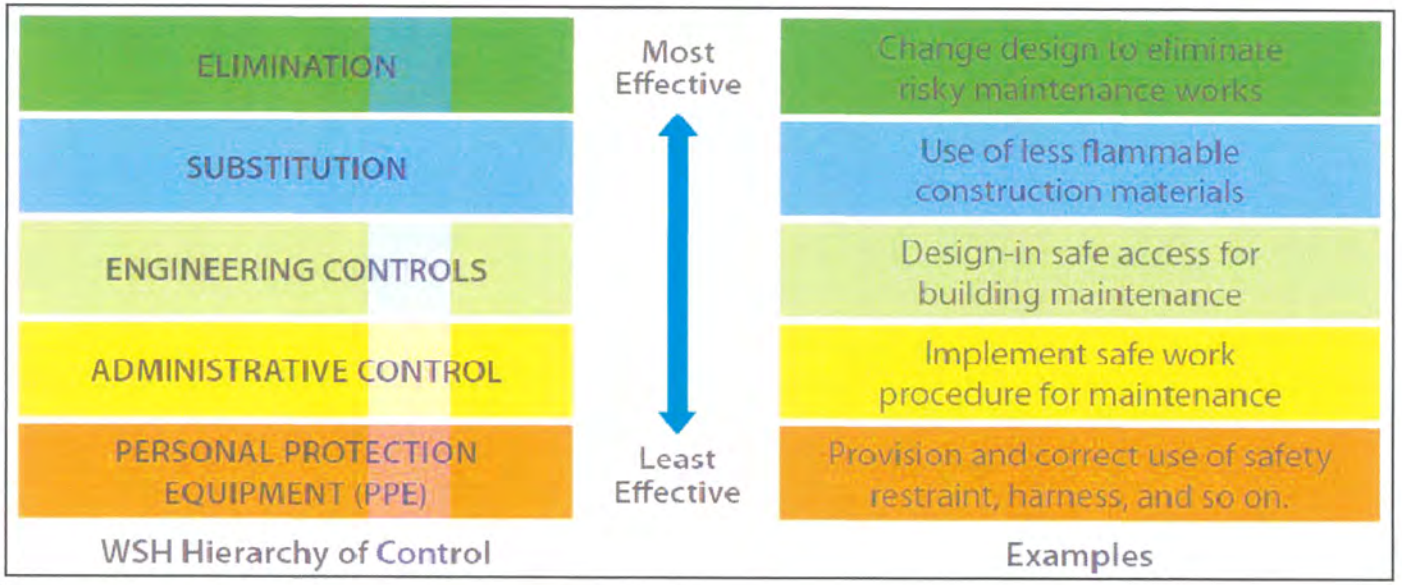
Risk Control

Hierarchy of Control

The control of hazards and reduction of risks can be accomplished by following the WSH Hierarchy of Control (see Figure 1). These control measures are not usually mutually exclusive. Generally, it may be more effective to use multiple control measures, for example, engineering controls work better with administrative controls like training and Safe Work Procedures.

Activity-Based Risk Assessment Form

Figure 1



Activity-Based Risk Assessment Form

Inventory of Work Activities and Hazard Identification for the _____

S/No.	Process / Location:	Work Activities
1		
2		
3		
4		
5		
6		
7		
8		

Risk Assessment for the (work activity) _____

Company:		**Risk Assessment Team**	Name	Designation	Date	Approved by:	
Process:		1) RAT Leader				Signature:	
Activity Location:		2) RAT Member					
Original Assessment Date:		3) RAT Member				Name:	
Last Review Date:		4) RAT Member				Designation:	
Next Review Date:		5) RAT Member				Date:	

Hazard Identification				Risk Evaluation				Risk Control		
No	**Work Activity**	**Hazard**	**Possible Accident / Ill Health & Persons-at-Risk**	**Existing Risk Control**	**S**	**L**	**Risk Level**	**Additional Risk Control**	**Implementation Person, Designation (Follow up date)**	**Residual Risk Level**
1										
1.1										
1.2										
2										
2.1										
3										
3.1										
3.2										
3.3										

Risk Level: H = High Risk (15 ~ 25) M = Medium Risk (4 ~ 14) L = Low Risk (1 ~ 3)

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

Risk Assessment for the (work activity) _____

4										
4.1										
4.2										
4.3										

PENTA-OCEAN CONSTRUCTION CO., LTD.

THILAWA SPECIAL ECONOMIC ZONE B DEVELOPMENT PROJECT

PROJECT RISK ASSESSMENT - ANNEX 5

S/No	Description of Work Activity	Hazard Identified	Proposed Control Measures	Inital Risk Index			Further Control Measures	Residual risk index		
				S	L	R		S	L	R
1)	**General Work Activities:** includes hazards associated with normal construction work activities.	Cuts and bruises suffered by workers.	- Ensure correct PPE is worn at all times. - All workers shall be briefed on the potential hazards prior to any new work carried out during tool box meeting. - Safety supervisor shall be on site full time to conduct safety supervision and promote safe conduct of work within the site.	Mo	Oc	M	Risk Management Committee (RMC) shall be formed by POC person-in-charge, safety personnel and subcontractor to review the risk assessment conducted for all general work activities prior to commence work. Safe work procedures shall be introduced with compliance safety checklist implemented to manage the risk. Implement permit-to-work system for: i) piling; ii) excavation > 1.5m; iii) hot-work; iv) lifting operation by crane; v) work at height > 2m; and vi) confined space entry.	Mo	Re	L
		Spillage of materials during movement; storage and maintenance e.g. oil and chemicals and the potential for discharge into the public drainage system.	- Ensure that all containers are securely sealed before moving - Ensure that correct handling equipment is used if material cannot be carried by hand. - Only qualfied personnel to operate equipment i.e. forklift truck. - Provide designated maintenance area with proper spillage containment trays where practicable. - Diesel storage area to be provided with proper containment bunds. - Remove any spillage and replace the area with new soil. - Contaminated soil to be dsiposed off as per SDS of hazardous substance. - Educate the workers and supervisors on the correct method of disposal using Safety Data Sheet (SDS)	Mi	Oc	L		Mi	Oc	L
		Damage to existing utilities during piling and excavation.	- Engage a Licensed Service Detector (LSD) to carry out detection and reports to identify location and orientation of all services and utilities within the areas where piling and excavation is due to take place. - Trial pits to be carried out toconfirm location of services prior to any excavation and piling being commenced. - The design of any support systems required to be carried out by a PE. - No excavation to be carried out prior to the confirmation of the LSD that all services have been located, identified, surveyed and marked. - Services to be protected by an approved method. - Ensure regular monitoring of the exposed and protected services is carried out.	Ma	Oc	H		Ma	Re	M
		Damage to adjacent structures.	- Ensure that a pre-condition survey is carried out on all structures within the zone of influence of the	Ma	Oc	H		Ma	Re	M

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

			construction activities before any construction activities begin. ~ Ensure that the structure and ground is monitored for any movement and prompt action taken based on any adverse observation. ~ Any structures at risk from any anticipated ground settlement/movement to be strengthened/supported by systems designed by a PE. ~ Prepare and assess a Construction Impact Report and identify the extent of any anticipated ground movement and the possible effects on adjacent structures.								

Note: S - Severity (Table 1) L - Likelihood (Table 2) R- Risk Level (Table 3) (Refer to Risk Matrix - Table 4 for Definition of Risk Level)

PROJECT RISK ASSESSMENT - ANNEX 5

S/No	Description of Work Activity	Hazard Identified	Proposed Control Measures	Initial Risk Index			Further Control Measures	Residual risk index		
				S	L	R		S	L	R
1)	**General Work Activities:** includes hazards associated with normal construction work activities. (Continue)	Incidents involving flammable materials.	~ Ensure flammable materials are stored separately. ~ Ensure that all materials are clearly labelled. ~ Proper signage to be provided to warn the workforce. ~ Smoking prohibited on site. ~ Workforce to be made aware of the dangers during Tool Box Meetings. ~ Ensure correct types of fire extinguishers in sufficient numbers are provided close by in case of fire.	Mo	Re	L	Risk Management Committee (RMC) shall be formed by POC perosn-in-charge, safety personnel and subcontractor to review the risk assessment conducted for all general work activities prior to commence work. Safe work procedures shall be introduced with compliance safety checklist implemented to manage the risk.	Mo	Re	L
		Injuries sustained due to mishandling of machinery and equipment.	~ Ensure that only trained personnel are appointed to operate the machinery on site. ~ General workers to be briefed on the dangers of working in close proximity of machinery during TBM's.	Mo	Oc	M	Implement permit-to-work system for: i) piling; ii) excavation > 1.5m; iii) hot-work; iv) lifting operation by crane; v) work at height > 2m; and vi) confined space entry.	Mo	Re	L
		Tripping hazard from tools and equipment.	~ Ensure that house keeping is carried out on a daily basis and that all tools and equipment are stored properly.	Mi	Oc	L		Mi	Oc	L
		Sand and dust particles spewed up from ground surface as a result of site traffic.	~ Spray water onto the driveways and access on the site on a regular basis to control dust	Mi	Fr	M	Implement an effective Site Environmental Control Programme.	Mi	Oc	L
		Water ponding at various locations around the site leading to possible mosquito breeding.	~ Engaged a pest control operator to spray Anti-Malaria oil and carry out fogging on a weekly basis. ~ Ensure preventive measures are in place such as providing proper surface water drainage system and maintaining them to ensure that they do not become clogged.	Mo	Oc	M	Engaged qualified and competent persons such as ECO to inspect and monitor site environmental issues.	Mo	Re	L
		Silted water discharged into public drainage system.	~ Develop an Earth Control Measures (ECM) Plan and monitor the ECM plan. ~ Provide effective silt traps at the end location of the perimeter drains to collect silt discharging into the public drains ~ Ensure regular de-silting of the silt traps is carried out.	Mo	Oc	M		Mo	Re	L

		Noise from construction activities.	~ Restrict noisy activities as much as possible to between 8am to 7pm. ~ Choose work methods and machinery that generate less noise. ~ Install noise meters and monitor the noise 24 hours a day and take corrective action if necessary.	Mi	Oc	L		Mi	Oc	L
		Excessive discharge of exhaust fumes into the atmosphere by construction machinery and vehicles.	~ Ensure all machinery and vehicles are serviced on a regular basis. ~ Hired machinery with excessive exhaust fumes to be removed from site immediately.	Mi	Oc	L		Mi	Oc	L
Note: S - Severity (Table 1) L - Likelihood (Table 2) R- Risk Level (Table 3) (Refer to Risk Matrix - Table 4 for Definition of Risk Level)										

PROJECT RISK ASSESSMENT - ANNEX 5

S/No	Description of Work Activity	Hazard Identified	Proposed Control Measures	Initial Risk Index			Further Control Measures	Residual risk index		
				S	L	R		S	L	R
1)	**General Work Activities:** Includes hazards associated with normal construction work activities. (Continue)	Food and other such waste not collected properly or washed into perimeter/open drains.	– Provide proper containers with covers for food/ organic waste collection. – Educate workers and other parties involved on the correct method of disposal. – Engage licensed waste collector to collect and dispose of such waste. Food/organic waste to be cleared daily. – Carry out daily and weekly housekeeping.	Mo	Oc	M	Implement an effective Site Environmental Control Programme. Engaged qualified and competent persons such as ECO to inspect and monitor site environmental issues.	Mo	Re	L
		Construction waste and food waste being left on site.	– Initiate and continue daily, weekly housekeeping. – Provide adequate number of waste containers and place them at appropriate locations. – Conduct weekly inspections to ensure that the housekeeping is effective and take action where necessary.	Mi	Oc	L		Mi	Oc	L
2)	**Lifting Operations** (Involving the use of Mobile and/or Tower Cranes)	Failure of crane during lifting operations.	– Ensure that crane is not more than 15 years old. – Ensure crane has been inspected and tested by an Authorised Examiner (AE) and LM certificate issued. Validity of LM certificate not exceeding 12 months. – Ensure crane is of sufficient capacity for the expected load and working radius. – Ensure crane operator is registered. – Ensure that the crane operator carries out daily checklist inspections. – Ensure that weekly/monthly inspections are carried out by authorised persons.	Ma	Re	M	Risk Management Committee (RMC) shall be formed by POC person-in-charge, safety personnel and subcontractor to review the risk assessment conducted for all general work activities involves the use of crane prior to commence work. Safe work procedures shall be introduced with compliance safety checklist implemented to manage the risk. Implement permit-to-work system for lifting operation by crane.	Ma	Re	M
		Failure of lifting gear during lifting operations.	– Ensure that all lifting gears have been inspected by an Authorised Examiner (AE). – Valid for 12 months. – Ensure all lifting gear is in good condition and of adequate capacity for expected loads. – Ensure that the lifting gear is inspected weekly/monthly by Lifting Supervisor.	Mo	Oc	M		Mo	Re	L
		Damage / Injuries from slewing loads loads.	– Uninvolved personnel to keep clear of working area. – All lifting operations to be carried out under the	Ma	Re	M		Ma	Re	M

			control of a qualified Lifitng Supervisor. ~ Use a tag line to control load during slewing.								
		Danger from falling objects.	~ Lifting Supervisor to oversee the arrangement of the load and ensure that all items to be lifted are secured. ~ Ensure all rigging operations are carried out by trained rigger. ~ Ensure that no person is beneath the suspended load.	Ma	Re	M		Ma	Re	M
		Incidents caused by unstable ground conditions.	~ Ensure compacted ground for access and unloading areas. ~ Carry out ground improvement or lay steel plates where necessary. ~ Crane access to be checked daily to ensure ground conditions are safe for crane movement/operations.	Ma	Re	M		Ma	Re	M
Note: S - Severity (Table 1) L - Likelihood (Table 2) R- Risk Level (Table 3) (Refer to Risk Matrix - Table 4 for Definition of Risk Level)											

PROJECT RISK ASSESSMENT - ANNEX 5

S/No	Description of Work Activity	Hazard Identified	Proposed Control Measures	Initial Risk Index			Further Control Measures	Residual risk index		
				S	L	R		S	L	R
3)	**Works Interface with General Public**	Injuries to members of the public as a result of the execution of the works.	- Provide barricades and hoarding and maintain them in good condition throughout the period of the contract. - Provide overhead protection where there is possibility of falling objects. - Ensure that there is clear signage installed to properly direct pedestrian traffic along temporary thoroughfares. - Ensure that temporary thoroughfares remain free of obstruction and are well lit at night. - Ensure all exits/entrances to site are secured from unauthorised persons or members of the public can enter the site. - Ensure gates are shut and locked when not in use. - Ensure that traffic diversions are properly laid out and comply with the requirements of the Road Department and Traffic Police. - Install flashing blinkers at temporary traffic diversions and that traffic lights and pedestrian crossings are well maintained at all times.	Ma	Re	M	Risk Management Committee (RMC) shall be formed by POC person-in-charge, safety personnel and subcontractors to review the risk assessment conducted for all general work activities prior to commence work. Safe work procedures shall be introduced with compliance safety checklist implemented to manage the risk.	Ma	Re	M
4)	**Piling** (Involving Sheet Piling and King Post Installation)	Trapping/pinching injuries sustained by workers during handling and installation of piles.	- Workers to be properly briefed on potential hazards. - Supervisor to be present at all times to co-ordinate the work.	Mo	Oc	M	Risk Management Committee (RMC) shall be formed by POC person-in-charge, safety personnel and subcontractors to review the risk assessment conducted for all general work activities prior to commence work. Safe work procedures shall be introduced with compliance safety checklist implemented to manage the risk. Implement permit-to-work system for piling operation.	Mo	Re	L
		Burns sustained during welding.	- Correct PPE to be worn. - Qualified welder to carry out welding work.	Mo	Oc	M		Mo	Re	L
		Piles going out of vertical alignment and striking under-ground services.	- Location of underground services to be clearly marked on site. - Operator to be made aware of the potential hazards during the toolbox meeting. - Only qualified personnel to operate the equipment.	Ma	Re	M		Ma	Re	M

Note. S - Severity (Table 1) L - Likelihood (Table 2) R- Risk Level (Table 3) (Refer to Risk Matrix - Table 4 for Definition of Risk Level)

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

PROJECT RISK ASSESSMENT - ANNEX 5

S/No	Description of Work Activity	Hazard Identified	Proposed Control Measures	Initial Risk Index			Further Control Measures	Residual risk index		
				S	L	R		S	L	R
5)	**Excavation**	Damage or injuries by excavation equipment striking other objects or people.	~ Warning light to be used when excavator swings round. ~ Swings zone of excavtor barricaded to prevent unauthorised entry. ~ Banksman provide to look out for unauthorised entry and watch out for permanent structure. ~ Only qualified operator allowed to operate the excavator.	Ma	Re	M	Risk Management Committee (RMC) shall be formed by POC person-in-charge, safety personnel and subcontractors to review the risk assessment conducted for all general work activities prior to commence work. Safe work procedures shall be introduced with compliance safety checklist	Ma	Re	M
		Failure of support system causing collapse of side supports and excavation.	~ The temporary support system to be designed by a Professional Engineer (PE). ~ Once erected, the support system to be inspected by the PE. ~ Regular inspections to be carried out to check the support system for any damage or defect and after inclement weather.	Ma	Re	M	implemented to manage the risk. Implement permit-to-work system for excavtion.	Ma	Re	M
		Danger from falling spoil.	~ Banksman to be present during excavation. ~ Area beneath load to be cleared of workers. ~ Ensure that skip/bucket is not over loaded. ~ Ensure the skip/bucket is maintained in good working order.	Mo	Oc	M		Mo	Re	L
		Falling from height.	~ Ensure barricades are installed around the open sides of the excavation and are maintained in good condition. ~ Access to bottom of excavation is to be by designated route. ~ Access system to be well maintained and inspected on a regular basis for damage or defects and after inclement weather.	Ma	Re	M		Ma	Re	M
		Danger from the transportation of excavated material from site.	~ Banksman to supervise loading operation. ~ Ensure the lorries are not over loaded. ~ Ensure that only suitably qualified personnel operate the lorries.	Ma	Re	M		Ma	Re	M
		Public roads getting muddy when lorries moving out from the worksite.	~ Ensure all vehicles leaving the site have their wheels washed at the washing bay. ~ Ensure loads are covered prior to leave site.	Mo	Oc	M		Mo	Re	L

Note: S - Severity (Table 1) L - Likelihood (Table 2) R- Risk Level (Table 3) (Refer to Risk Matrix - Table 4 for Definition of Risk Level)

PROJECT RISK ASSESSMENT - ANNEX 5

S/No	Description of Work Activity	Hazard Identified	Proposed Control Measures	Initial Risk Index			Further Control Measures	Residual risk index		
				S	L	R		S	L	R
6)	**Concreting**	Collapse of formwork structure.	~ Formwork to be designed by suitable qualified person. ~ Formwork to be inspected by formwork supervisor against appropriate checklist before any concreting work is carried out.	**Ma**	**Re**	**M**	Risk Management Committee (RMC) shall be formed by POC person-in-charge, safety personnel and subcontractors to review the risk assessment conducted for all general work activities prior to commence work.	**Ma**	**Re**	**M**
		Skin and eye irritation due to contact with the concrete.	~ Workers to be briefed on potential hazards of working with concrete. ~ Workers to wear appropriate PPE for work being carried out.	**Mo**	**Oc**	**M**	Safe work procedures shall be introduced with compliance safety checklist implemented to manage the risk.	**Mo**	**Re**	**L**
		Danger from falling concrete.	~ Lifting supervisor to be present during lifting operations. ~ Work area to be cleared of personnel not involved with the concreting operations. ~ Concrete skip to be mantained in good working order and inspected for damage and defects on a regular basis.	**Ma**	**Re**	**M**		**Ma**	**Re**	**M**
		Scaffold collapse.	~ Scaffold supervisor to supervise erection, modification and dismantling of scaffolding. ~ Scaffold supervisor will inspect on a weekly basis and maintain a scaffold register.	**Ma**	**Re**	**M**		**Ma**	**Re**	**M**

Note: S - Severity (Table 1) L - Likelihood (Table 2) R- Risk Level (Table 3) (Refer to Risk Matrix - Table 4 for Definition of Risk Level)

PENTA-OCEAN CONSTRUCTION CO., LTD.

THILAWA SPECIAL ECONOMIC ZONE B DEVELOPMENT PROJECT

RISK MATRIX

Table 1: **Severity**

Severity		Description
Major	Ma	Fatal, serious injury or life-threatening occupational disease (includes amputations, major fractures, multiple injuries, occupational cancer, acute poisoning and fatal diseases)
Moderate	Mo	Injury requiring medical treatment or ill-health leading to disability (includes lacerations, burns, sprains, minor fractures, dermatitis, deafness, work-related upper limb disorders)
Minor	Mi	No injury, injury or ill-health requiring first aid treatment only (includes minor cuts and bruises, irritation, ill-health with temporary discomfort)

Table 2: **Likelihood**

Likelihood		Description
Remote	Re	Not likely to occur
Occasional	Oc	Possible or known to occur
Frequent	Fr	Common or repeating occurrence

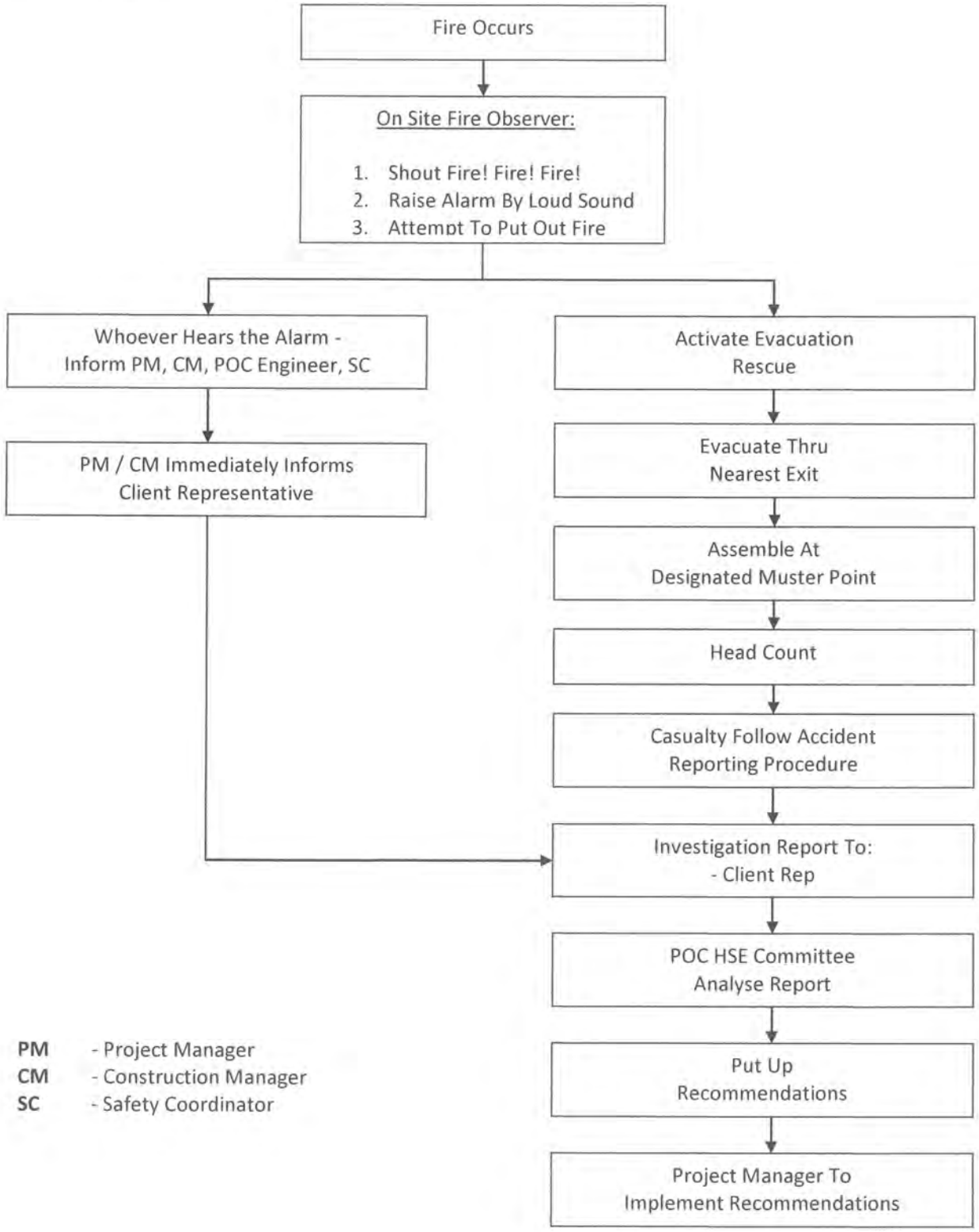
Table 3: **Risk Level**

Severity \ Likelihood	Remote (Re)	Occasional (Oc)	Frequent (Fr)
Major (Ma)	**(M) Medium Risk**	**(H) High Risk**	**(H) High Risk**
Moderate (Mo)	**(L) Low Risk**	**(M) Medium Risk**	**(H) High Risk**
Minor (Mi)	**(L) Low Risk**	**(L) Low Risk**	**(M) Medium Risk**

Table 4: **Definition of Risk Level**

Risk Level	Acceptability of risk	Recommended actions
High Risk	Not acceptable	High Risk level must be reduced to at least Medium Risk before work commences. There should not be any interim risk control measures and risk control measures should not be overly dependent on personal protective equipment or appliances. If need be, the hazard should be eliminated before work commences. **Immediate management intervention is required before work commences.**
Medium Risk	Moderately acceptable	A careful evaluation of the hazards should be carried out to ensure that the risk level is reduced to as low as is practicable within a defined time period. Interim risk control measures, such as administrative controls, may be implemented. **Management attention is required.**
Low Risk	Acceptable	**No additional risk control measures may be needed.** However, frequent review may be needed to ensure that the risk level assigned is accurate and does not increase over time.

ANNEX 6: *FIRE EMERGENCY SCHEMATIC DIAGRAM*



PM - Project Manager
CM - Construction Manager
SC - Safety Coordinator

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

ANNEX 7: *SITE ENVIRONMENTAL CONTROL PROGRAMME*

Following measures will be carried out on site during the construction stage:

1 Proper Waste Management

1.1 Approved Waste collector shall be engaged for collection and disposal of solid and liquid wastes.
1.2 Waste collection points shall be sited at a place easily accessible to waste collection vehicles.
1.3 Sufficient number of skips shall be provided for storage of construction debris and wheeled bins for storage of organic and general wastes.
1.4 Plastic bags shall be kept available for containing organic and general wastes.
1.5 A system shall be put in place to monitor the generation and disposal of construction waste debris.

2 Noise Control Measures

2.1 Arrangements shall be made for setting up of noise monitoring stations.
2.2 All machineries and equipment (including generators) used on site shall be placed as far away as possible from neighboring buildings or shielded from noise using appropriate noise barriers.

3 Dust Abatement Measures

3.1 Paved wash bay shall be provided for washing of vehicles before they leave the worksite.
3.2 Main access roads in the worksite shall be adequately paved to prevent dust nuisance.

4 Site Vector Control Measures

4.1 POC shall carry out regular fogging and spraying of insecticide.
4.2 Rodent-proof rooms or cabinets shall be provided to store food provisions.
4.3 Worksite shall be cleared of overgrown vegetation / water bearing receptacles.
4.4 Ground depressions / unleveled grounds shall be evened out.
4.5 Open drains shall be constructed at the worksite.

5 Earth Control Measures (ECM)

5.1 POC shall ensure that the activities carried out at the construction site do not cause muddy water pollution to be discharge to public drains at all times.
5.2 Engage a Qualified Erosion Control Expert to design and implement erosion control measures (ECM)
5.3 During work, adopt best practices for ECM.
5.4 Monitor site and comply with allowable discharge standards at all time.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

ANNEX 8: *SITE ENVIRONMENTAL CONTROL REPORT (Blank Form)*

SITE ENVIRONMENTAL CONTROL REPORT

Date: _____

To: _____**(Name of Occupier and Name of Project)**

Attention:_____
Project Manager

SITE ENVIRONMENTAL CONTROL REPORT

1. I submit the Site Environmental Control Report on the above construction site from to _____.

2. The areas of inspection and recommendations described in this report includes (please see the reports that are attached):

- ☐ Environmental health hazards and irregularities observed on the construction site.
- ☐ Recommendations on actions to be taken by the occupier to rectify the irregularities.
- ☐ Vector borne or infectious disease outbreaks which took place.
- ☐ Investigation conducted on vector borne or infectious disease outbreaks which took place.
- ☐ Campaigns, competition, training course held or to be held on the construction site.
- ☐ Suggestions on co-operation necessary between the management of the construction site and any persons involved.

Yours faithfully,

_____	_____	_____
Name	**Signature**	**Date**

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED ★ MJTD

(I) Environmental Health Hazards and irregularities observed on construction site/ recommendations to maintain healthy working conditions on the construction site

The following irregularities were observed on the construction site:
(Please **X** in ☐ to indicate the irregularity)

A	**Solid Waste Management**		Recommendations on work to be carried out
i)	Overloading or spillage of construction wastes from skips?	☐	
ii)	Skips placed along public roads?	☐	
iii)	Amount of construction waste taken out from site is different from amount disposed of?	☐	
iv)	Organic food wastes stored together with construction wastes and not removed daily?	☐	
v)	Insufficient refuse bins lined with plastic bags around the bangsals?	☐	
vi)	Refuse bins not properly covered?	☐	
B	**Vector Control Measures** **Mosquito Breeding**		
i)	Potential mosquito breeding grounds observed, e.g. water bearing receptacles, ground depressions, uneven grounds, etc.?	☐	
ii)	Construction site and / or yard littered?	☐	
iii)	Sand granular insecticide not applied into perforated bricks?	☐	
iv)	Anti-mosquito oil and insecticides not applied into stagnant water?	☐	
v)	Thermal fogging not carried out on the construction site at least once a week?	☐	

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

	Rodent and Fly Infestation		**Recommendations on work to be carried out**
i)	Food left in open and not stored in rodent-proof rooms or cabinets?	☐	
ii)	Rat burrows observed?	☐	
iii)	Potential fly breeding grounds observed?	☐	
C	**Infectious disease**		
i)	Foreign workers not screened for history of malaria?	☐	
ii)	Food handler(s) not inoculated against Typhoid?	☐	
iii)	Food handler(s) above 45 years old not screened for tuberculosis?	☐	
D	**Noise Control Measures**		
i)	Noise recorded at monitoring stations exceeds the maximum permissible level?	☐	
ii)	Generators and machineries sited close to neighboring buildings?	☐	
iii)	Noisy activities, e.g. piling, concreting carried out during night time?	☐	
iv)	Equipment and machinery cause excessive noise emission due to irregular maintenance?	☐	
E	**Air Pollution Control & Dust Abatement**		
i)	Lorries and vehicles carrying construction materials not properly and inadequately covered?	☐	

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED ★ MJTD

			Recommendations on work to be carried out
ii)	Vehicles not washed at the paved wash bay before they leave the worksite?	☐	
iii)	Emission of dark smoke from construction equipment and machinery?	☐	
iv)	Evidence of open burning of construction waste carried out?	☐	
v)	Dust preventive measures not taken, e.g. water sprinklers / spray, shielding, netting, covers / hoarding for aggregate/ sand stores not provided / maintained?	☐	
vi)	No debris chutes to transfer debris from higher floors to ground floor?	☐	
F	**Food Hygiene**		
i)	Displayed food not covered or properly protected?	☐	
ii)	Food handlers using bare hands and not wearing gloves or using tongs or other suitable implements when handling ready-to-eat or cooked food?	☐	
iii)	Poor personal hygiene practices observed, e.g. smoking, dirty attire, etc.?	☐	
iv)	Dirty equipment and cooking utensils observed?	☐	
v)	Preparing food outside kitchen area?	☐	
G	**Silt Control**		
i)	Perimeter cut-off drains unlined/ silted?	☐	
ii)	Silt traps installed?	☐	
iii)	Silt fences damaged or choked?	☐	

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

			Recommendations on work to be carried out
iv)	Silt fences and supporting posts not firmly embedded in the ground?	☐	
v)	Silt traps interceptors not cleared?	☐	
vi)	Inadequate silt control facilities provided?	☐	
vii)	Drains in vicinity of worksite silted or obstructed due to the construction works?	☐	
viii)	Water run-off from the worksite is not channelled through the silt fences into silt traps?	☐	
ix)	Discharge of water directly into public drains?	☐	
x)	Earth surfaces or slopes adjacent to any drain not closed, turfed, paved or covered?	☐	
xi)	Inadequate measures taken to prevent any earth, sand, top-soil, cement, concrete, debris or any other material to fall or be washed into the drains from any stockpile?	☐	
H	**Others**		
i)	Indiscriminate discharge of wastewater into watercourses, e.g. workers bathing and washing outside approved areas, defective sanitary / sewer pipes, overflow from holding tank, overloading of septic tank, etc.?	☐	
ii)	Septic tank(s)/ holding tank(s) and / or chemical / portable toilet(s) overflowing or not maintained?	☐	
iii)	Servicing and repair of vehicles / equipment carried out without facilities to contain the waste oil?	☐	

			Recommendations on work to be carried out
iv)	Waste / used oil not properly collected and sent to a licensed toxic waste collector?	☐	
v)	Soil treatment was not carried out by pest control operator in compliance with the water pollution control requirements?	☐	
vi)	Drums / carboys / containers with oil / chemicals found outside bunded/ permitted areas?	☐	
vii)	Oil spillages outside bunded / controlled area?	☐	

(II) Vector borne / food borne / infectious disease outbreak(s) which took place

*** To be completed if any vector borne / food borne / infectious disease outbreak(s) took place**

S/N	Type of Vector Borne/ Food Borne / Infectious Disease	No. of people affected	Cause of outbreak	Follow-up action	Type of treatment (Indicate number of people for each type of treatment[#])			Remarks
					A	B	C	

[#] A - Self-medication

B - Clinical Treatment

C - Hospitalisation

(III) Public Education

*** To be completed if any public education activity/ activities carried out**

S/N	Type of activity (Exhibition, Video show, brochures, pamphlets, etc.)	Purpose of activity	Where it is held	Duration of activity	Does it involve all employees (Yes / No) If no, indicate number of employees involved

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED ★ MJTD

Thilawa Special Economic Zone (Zone B)

Development Project –Phase 4

Standard of Working Condition

Standard of Working Condition for Safety, Health and Hygiene

1. Safety Induction Course

   Safety Induction Course shall be conducted to any person who enters into the project site to carry out any works.

   Safety Induction Course shall address at least the following issues ;-

   i. Orientation and Explanation to the Project including site layout (location of entrance, toilet, access, PPE & Non PPE zone, rest shed, smoking areas etc..), working hours and existence of nearby monastery & residences.
   ii. In house safety rules such as vehicles speed limits etc...
   iii. Interview for the health and body condition of attendee.
   iv. Attendee's particulars such as name, age, gender, NRIC, address, employer's information, family structure and contact numbers shall be filled-in to the entry form (filled entry form shall be kept and treated as confidential).
   v. Requirements of wearing PPE.
   vi. Emergency response plan.
   vii. Necessity of Sanitation, Tidiness and Clearness.
   viii. Safety Campaign(s)
   ix. Any other necessary safety issues.

2. Morning Safety Gathering

   Morning Safety Gathering (MSG) shall be arranged every working day at 8:00am at suitable flat ground location near the site office. All the workers, supervisors, engineers working on site shall attend the MSG. MSG will be conducted in accordance with the following order;-

   i. Exercises
   ii. Project Manager's short speech.
   iii. Construction Manager's short speech.
   iv. Safety Officer's short speech.
   v. Activity and Topics of the day.
   vi. Safety Promotion (if any).
   vii. Call of "Safety First".

3. Tool Box Meeting

   Before commencing any works the Tool Box Meeting (TBM) shall be conducted

Standard of Working Condition for Safety, Health and Hygiene

after the MSG, TBM shall be conducted by each work trade/team lead by Engineer/Supervisor to explain about the detail activity of the day and KYK (safety precautional measures to be taken) associated with the activities.

4. Personal Protection Equipment

The following Personal Protective Equipments (PPE) are standardized to wear in the Project.

- Helmet (except operators working inside cabin)
- Safety Shoes/Boots
- Working Pants (Long length)
- Gloves (especially for Carpenters, Concreter and Re-bar Fixers)
- Goggles (where working in dusty area)
- Masks (where working in dusty area)
- Special Glove, Goggles and Shirts for Welding Work
- Reflectable Vest (for workers at ground especially after dark)
- Safety Belt (where working at height)

5. Safety Notice Board & Signage

Safety Notice Board shall be erected near the temporary site office to post the following items;-

- Safety Slogan
- Safety Posters
- Safety Notice to workers
- Safety Statistics (Total Men-hour worked without accident, Loss Men-hours due to accident, if any)

Safety Signage/posters/banners shall be posted at the following location.

- Temporary Site Office Compound
- Near Site Entrances/Exits
- Temporary Rest Sheds

6. Security

Designated Security Guards shall be full-time stationed at all the site entrances /exits. Security crossing Gates made of up-down bamboo bar shall be provided and opening of the bar shall be done by the security guard.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

Standard of Working Condition for Safety, Health and Hygiene

Entrance Gates shall be closed and locked properly when the Security Guard is absent.
Security Guards shall be controlled by Safety Officer.
Guard houses with communication devices (i.e. walkie-talkie) shall be provided at each entrance/exit.
Any unauthorized person / vehicle shall be stopped at gates by the security guard. Checking whether the person / vehicle is authorized or not shall be done by communication with Manager or Engineer via walkie-talkie.

7. Safe Access, Vehicles Speed Limit and Rules

Safe Vehicle Access shall be designed with flat compacted ground from time to time to suit the site working situations and indicated by flags. All the construction Vehicles are restricted to use the safe access only.
Vehicle Speed for the use of Safety Access is limited to maximum 25km/h with extreme care to the nearby workers/staffs at ground.

The following In House Safety Rules shall be made. The rule shall be reviewed from time to time and revised when necessary.

- Smoking during work is prohibited
- Smoking is allowed only at the designated smoking areas.
- Suitable PPE shall be worn on site.
- Defecate and Urinate shall be at temporary/portable toilet.
- To attend/conduct MSG and TBM.
- No fighting allowed on site.
- No motor bike / bicycle allowed on site except the person authorized by the Project Manager.
- No unauthorized vehicle is allowed to enter into the Site.

8. Barriers

Temporary Barriers / Fencing / Handrails shall be erected effectively to safeguard the workers/staffs against accidents. The potential area of barriers / Fencing / Handrail to be erected shall be as follows;-

- Edge of deep excavation for foundations, trenches, canals, ponds etc.. to prevent workers accidentally falling into the excavation.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

Standard of Working Condition for Safety, Health and Hygiene

- Working Site near the Vehicle Access to separate the working area from the access to prevent traffic accident.
- Edge of Structures at Height such as top slab of the Box Culverts, Pump Station, Main Gate, etc.. to prevent workers falling from Height.

9. Machineries

Stop Idling & Intensive Machinery Operation Campaign shall be conducted for whole duration of the project (see attached Campaign Poster).

In order to reduce the down time due to breakdown of Machineries, weekly(basically on Sunday) checking of Machineries shall be carried out by the Operator and Mechanic using Machineries check list recommended by the supplier.

10. Temporary Drainage System

Retention Canal and Retention Pond shall be utilized as Temporary De-silting Pond to reduce silt contents before discharging to public drain(s).
Refer to attached Temporary Drainage Plan which illustrates overall temporary drainage system with drain flow directions.
Temporary Drainage trenches with sand bags shall be provided to prevent water ponding and soil erosion due to rain water.

11. Recycling of Construction Material

Construction material arisen from the project shall be recycled as much as possible.

- Surplus soil generated from soil grading work shall be either used as embankment or stockpiled for future project in accordance with the direction by the Client.
- Concrete debris generated from demolishing works , if any, shall be recycled as hard core to utilize for temporary access roads.
- Any material which is not suitable for recycling shall be disposed off-site in accordance with the Client's direction/instruction.
- Any recycling and disposal of construction material shall be recorded

Standard of Working Condition for Safety, Health and Hygiene

and reported to the Client.

12. First Aid

First Aid Room shall be situated at temporary site office compound.
First Aid Room shall be equipped with first aid kit and stretcher, managed by the competent first aider. First aid room shall be kept clean, sanitized and free from bacterium all the time throughout the Contract period.
Emergency procedure/contact list shall be set up so as to respond to any injured person immediately.

13. Tidiness and Clearness

All the site area shall be kept tidy and clean including but not limited to the offices, toilets, In-situ RC construction area such as box-culvert, concrete paving and foundations, pre-casting yard, machineries work shop, rest sheds, smoking area etc..

14. Sanitation Training

Sanitation Training shall be conducted to all the workers and staffs to encourage them to stay healthy.
Hand washing facilities such as suitable size of basin, water taps with soaps shall be provided at office compound for hand washing, eyes and face washing and gargling/mouth washing.
Toilet facilities shall be kept clean and free from dirtiness.

15. Biofilter

Biofilter shall be installed to treat the sewage from office toilets before discharging to the natural creek.
Biofilter shall be maintained in accordance with manufacturer's recommendation. (see attched information on biofilter)

16. Garbage Bins

Garbage Bins shall be located at office compound, rest sheds, and any other necessary working areas.
Disposal / clearances of garbage bins shall be carried out periodically.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

ATTACHMENT-1 : Campaign Poster of

"Stop Idling & Intensive Machineries Operation"

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED ★ MJTD

Stop Idling & Intensive Machineries Operation Campaign

To keep Healthy and Environmental Friendly Working Condition, the "Stop Idling & Intensive Machineries Operation Campaign" is Conducted with immediate effect till Completion of the Project

1. Stop Idling While No Operation

Engine should be Turned Off when Stopping Machineries.

2. Stop Intensive Machineries Operation

Do Not Race Engine unnecessarily.

Gentle Driving always.

3. This Campaign applies to All the Machineries on site including but not limited to Backhoes, Bull Dozers, Dump Trucks, Motor Graders, Water Trucks, Rollers, Concrete Cars, Cranes, Generators, Air Compressors, Welding Machines etc...

TEMPORARY SITE OFFICE LAYOUT


MJTD
MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED
N
Discharge to natural creek
Temporary ditch along boundary
Water Flow
0
250M

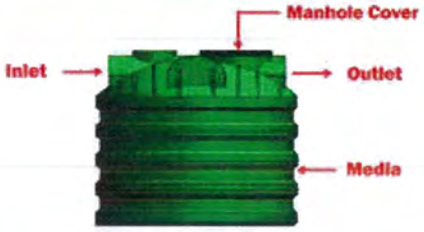
ATTACHMENT : BIOFILTER INFORMATION

PENTA-OCEAN CONSTRUCTION CO.,LTD. 五洋建設

SUNTAC ENGINEERING & CONSTRUCTION

AUTHENTIC

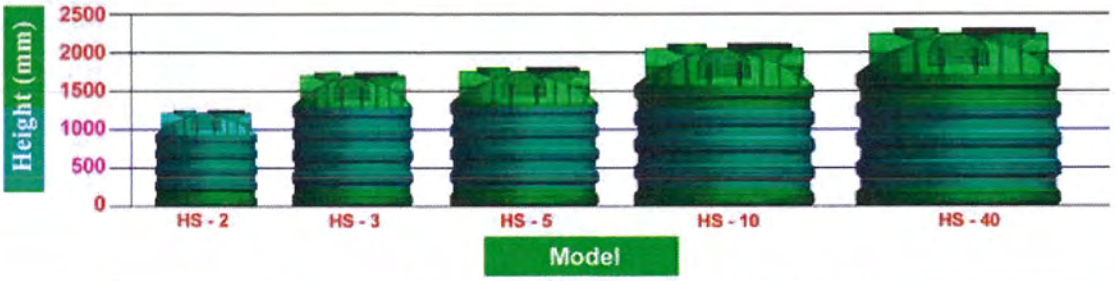
HI-Q



Designed according to
CANADIAN STANDARD
Loaded Test & Vaccum Test

Model	Capacity		Population			
			Resident		Office, Factory, School	
	m³	Liters	All Waste	Toilet Only	All Waste	Toilet Only
HS - 2	1	1000	5	10	10	15
HS - 3	2	2000	10	20	20	33
HS - 5	4	4000	20	40	40	60
HS - 10	6	6000	35	70	70	100
HS - 40	9	9000	50	100	100	150

Model	Capacity		Diameter			Height		
	m³	Liters	mm	Feet	inches	mm	Feet	inches
HS - 2	1	1000	1200	4'-0	48	1260	4'-2"	50
HS - 3	2	2000	1460	4'-10"	58	1720	5'-10"	70
HS - 5	4	4000	1860	6'-3"	75	1760	5'-10"	70
HS - 10	6	6000	2175	7'-4"	88	2060	6'-10"	82
HS - 40	9	9000	2400	8'-0	96	2270	7'-7"	91



AUTHENTIC PRODUCTION COMPANY LIMITED

Head Office - Room No. (304), Condo (D), Kabaraye Villa, Kabaraye Pagoda Road, Mayangone Tsp., Yangon, Myanmar. Tel : 95-1-652650, 652674, Fax : 95-1-652674

Show Room - Bldg (14), Room (1,2,3), Corner of 7th Street & Ruby Road, Saw Bwar Gyi Gone, Insein Tsp, Yangon, Myanmar. Tel : 95-1-646763, 646764, Fax : 95-1-646763

Factory - 21(C), Bo Chan Street, Pyinmapin Quarter, Mingalardon Tsp., Yangon, Myanmar. Tel : 95-1-637695, Fax : 95-1-637695

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED ★ MJTD

PENTA-OCEAN CONSTRUCTION CO.,LTD. 五洋建設

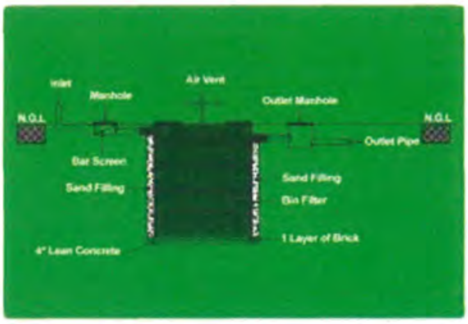
SUNTAC ENGINEERING & CONSTRUCTION

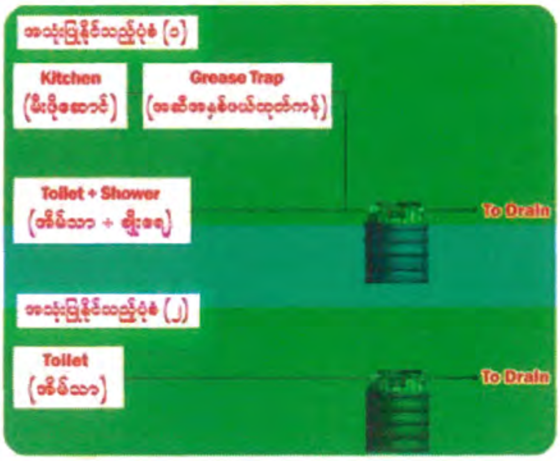
AUTHENTIC

HI-Q

HI - Q Biofilter ၏ကောင်းကျိုးများ

- နည်းစဉ် (၂) ခု ဖြင့် သန့်စင်ခြင်း (Septic & Anaerobic System)
- အညစ်အကြေးများအား သန့်စင်မှု စွမ်းရည်မြင့်မားခြင်း (BOD < 150 mg/l)
- အိမ်များ၊ ရုံးများ၊ ဆိုင်ခန်းများ၊ အများသုံးအိမ်သာများ၊ ကွန်ဒိုတိုက်ခန်းများစသည့် နေရာအသီးသီးတွင် အကျိုးရှိစွာအသုံးပြုနိုင်ခြင်း၊
- တပ်ဆင်ရလွယ်ကူ၍ အချိန်ကုန်သက်သာခြင်း၊
- အသုံးပြုရန်မလိုအပ်တော့ပါက အခြားနေရာများသို့ အလွယ်တကူရွှေ့ပြောင်း၍ ပြန်လည်အသုံးပြုနိုင်ခြင်း၊
- ပစ္စည်းဈေးနှုန်းသက်သာခြင်းအပြင် တည်ဆောက်ချိန်မလိုအပ်သည့်အတွက် ကုန်ကျစရိတ်ပိုမိုသက်သာခြင်း၊





Installation Guide Line
Biofilter တပ်ဆင်ရာတွင် လုပ်ဆောင်ရမည့်အချက်များ

(i) Biofilter တပ်ဆင်ရာ၌ Biofilter အဝင်နှင့်အထွက်တွင် Manhole (2 Nos) လိုအပ်ပါသည်၊
- Manhole (2 Nos) သည် 2' x 2' x 2' အနည်းဆုံးလိုအပ်ပါသည်၊
- အဝင် Manhole တွင် အမှိုက်စစ်ကောတပ်ဆင်ပေးရပါမည်၊
- အထွက် Manhole သည် Biofilter အထွက်ပိုက်အောက် (1') ခန့်နိမ့်၍ Bed Level အား ပြုလုပ်ပေးရပါမည်၊

(ii) Biofilter အား မြေကြီးတူး၍ မြှုပ်ပေးရပါမည်၊
- မြေကြီးတူးရာတွင် Biofilter ၏ Diameter ထက် (1') အကျယ်ပို၍ တူးပေးရပါမည်၊
- မြေကြီးတူးရာတွင် Biofilter ၏ Manhole Cover အောက် (6") ချန်၍ အောက်ခြေအထိ တူးရပါမည်၊

(iii) Biofilter ခံမည့် အောက်ကြမ်းခင်းအား Lean ကွန်ကရစ်လောင်းပေးရပါမည်၊
- Lean အား (4") အထူ ဦးစွာလောင်းပေးပါ၊
- ထို့နောက် Lean အပေါ်မှ Level အညီဖြင့် အုတ်တစ်လွှာ ခင်းပေးရပါမည်၊

(iv) Level အညီပြုလုပ်ထားသည့် အုတ်တစ်လွှာအပေါ်၌ Biofilter အား ဘေးနံရံနှင့် (6") အကွာ (အလယ်တည့်တည့်တွင်) ထားပေးရပါမည်၊

(v) Biofilter အား နေရာမှန်ကန်စွာ ချထားပြီးပါက Biofilter အတွင်း ရေအပြည့် ထည့်ပေးထားရပါမည်၊

(vi) ထို့နောက် Biofilter ၏ ဘေးပတ်ပတ်လည်အား သဲဖြည့်ပေးရပါမည်၊ မြေကြီးမဖြည့်ရပါ၊

Toilet ထဲသို့ မစွန့်ပစ်ရမည့်ပစ္စည်းများ

- ကလေး Diaper များ၊ Wet Tissue၊ Sanitary ပစ္စည်းများ၊ သွားကြားထိုးတံ၊ စီးကရက်များစသည့် ရေတွင် မပျော်နိုင်သောပစ္စည်းများ၊
- အဆီအနှစ်များ၊ အိမ်သုတ်ဆေးများ၊ Thinner နှင့် ပိုးသတ်ဆေးများ၊ ဓါတ်ဆီနှင့် မီးလောင်တတ်သော အရည်များ၊

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED
MJTD

PENTA-OCEAN CONSTRUCTION CO.,LTD. 五洋建設

SUNTAC ENGINEERING & CONSTRUCTION

Information on Biofilter Tank and Temporary Sewage Disposing

- Currently, we have installed Biofilter tank, model HS-10 to be used temporary site office compound. (Please refer to attached document for more information of the biofilter tank.)
- According to its capacity of 6000 liters, the tank can be used for 100nos of office population for 3 months before treating the waste.
- The tank is using for toilet purpose only at the temporary site office compound for 70 nos of staffs and workers currently.
- If the population increases and exceeds the limited population, the treatment should be carried out more often according to the increased population.
- Temporary toilets have been installed at the material and container yard for the site staffs and workers.
- Monthly disposal of sludge and wastewater from this site temporary toilet is carried out by the Township Municipal.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED ★ MJTD

Thilawa Special Economic Zone (Zone B)

Development Project –Phase 4

Safety Accident Prevention Plan

Safety Accident Prevention Plan

Safety Accident Prevention Plan is established hereunder in order to prevent any accident associated with the Thilawa SEZ Zone B Development Project (Phase 2). Safety Accident Prevention Plan focuses on the effective and practical measures to prevent the work site from any accident. It should not be just documentation and statement only but to actually practice on site with responsible manner.

1. Prevention of Heavy Equipment Accident

   Heavy Equipment Accident is the strongest likelihood among all the type of accident in this project due to heavy usage of the Heavy Equipment such as Backhoes, Dump Trucks, Bull Dozers, Rollers, Graders and Water Tank Trucks etc... during Earthwork, Drainage work, Road work and Trenching works. Therefore the following preventive measures shall be taken place;-

   i. Workers/staffs on the ground shall wear the yellow (or orange) colored reflect-able jackets to highlight against operators of moving heavy equipment.
   ii. Speed Limit of the Access shall be at maximum 25km/hr. The speed limit shall be indicated on site effectively and kept by dump trucks/vehicles. The dump trucks/vehicles speed shall be lower down and extreme care shall be taken where passing any person near the vehicle access.
   iii. Access shall be designated and indicated on site. Any vehicle/truck shall not run outside designated accesses unless authorized by the Construction Manager or Civil Engineer.
   iv. Watchman shall be stationed when more than two heavy equipments are working closely.
   v. Operator shall be trained so as to check around his equipment whenever he operates the equipment.
   vi. Supervisors shall be equipped with Whistle to alert any dangerous situation on site.
   vii. Heavy Equipment shall be kept maintained in good condition. Weekly checking of Machineries shall be carried out by the mechanic.
   viii. Head Lights, Tail Lights, Brake Lights and Hazard Lights are in working conditions, especially working with low visibility.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

Safety Accident Prevention Plan

2. Prevention of Third Party Accident

Third Party in this project shall include but not limited to the followings;-

- Monastery
- Vehicles Passengers and Pedestrians at nearby public road.
- Guests visiting the site.
- Nearby Residences (if any)
- Other Construction Sites within project boundary.

Third Party Accident shall be avoided by the following preventive measures;-

i. Permanent wall shall be erected around the existing Monastery so as to protect the property of Monastery against accident.

ii. Any construction vehicles enter/exit to/from site, such vehicles shall pay attention to the vehicles/pedestrians on the public road. The vehicles shall slower down the speed when enter the site (or) go out from the site. The vehicles shall stop once before exit from site to the public road.

iii. Provide suitable PPE to the Guests visiting the Site when visitors enter into the construction area.

iv. Attendance who is familiar with site situation shall always be with the visitors when visitors enter into the construction site.

v. All the activities shall be carried out and only site access to be used within the temporary fences/hoardings (except concrete vehicles from outside) to control traffic volume on the public areas.

vi. Speed limit shall be the same as in project boundary which is 25km/hr on public roads as well.

vii. Coordination shall be done via periodical coordination meeting with other parties who construct the other structures or residence nearby. Any activities near the public area or Monastery shall be well informed in advance to both parties through the coordination.

viii. "Heavy Vehicle Crossing" Signage shall be provided facing to the coming traffic on the side of public road 50 feet before the entrance/ exit gate.

3. Prevention of Falling from Height

The following activities will associate with the works at height and/or falling from height hazard;-

MYANMAR-JAPAN THILAWA DEVELOPMENT LIMITED MJTD

Safety Accident Prevention Plan

- Temporary Offices Roof.
- Edge of the Excavation for Retention Pond/Canal, sewage/drainage/ water pipe laying work.
- Edge of Formed Dike.
- Cabin of heavy machineries/equipments.
- On the Box Culvert top Slab

Falling from Height Accident shall be avoided by the following preventive measures;-

i. Any worker working at height shall wear the safety belt (except near the excavation edge).
ii. Life line(s) shall be provided along the working platform at height before works at height commences so as to hook the safety belt on it (except near the excavation edge).
iii. Fence / Handrail / Barricade shall be erected rigidly along the edge of the height.
iv. Working platform (Bamboo or Metal) shall be thoroughly checked before in use.
v. The use of ladder and scaffold shall be supervised and guided by competent supervisor or engineer.

4. Prevention of Traffic Accident

Due to the nature of the project, long distance access road(s) need to be provided and maintained from time to time in whole duration. Prevention of traffic accident should be one of the key issue in order to realize "zero accident in whole project".

The following measures shall be taken to prevent the traffic accident.

- Obey the vehicle speed limit rule of 25km/hr.
- Erect barricade where the access runs close to working area.
- Maintain the vehicles in good condition by periodical mechanical inspection.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

- Maintain the access in good condition by the use of graders, rollers and spraying water.
- Watchman shall be provided when two or more vehicles/machineries working at the same area.
- Obey the public traffic rules when the vehicles are on the public road.

5. Prevention of Accident caused by Hand Held Tools/small equipment and Manual work

Accident caused by Hand Held Tools/small equipment and Manual work often happen by carelessness of the workers and/or bad condition of the equipment/ tools used. Such accident can be avoided by the following preventive measures ;-

i. Wear suitable PPE such as gloves, goggles, etc...
ii. Keep maintain the tools/equipment in good condition by periodical checking and checking before use.
iii. Protection cover of the tools, e.g. electric saw blade protection cover etc., should not be removed.
iv. Proper posture for manual lifting of heavy material.
v. Confirm ground condition around your steps before commence activities.
vi. No Manual work/ material stockpile is allowed within 1.0m from the excavation edges.

6. Prevention of Accident due to Interface with Other Contractor

Other Contractor will commence work after handing over of the completed lot(s) for the tenant owner(s) to build his Warehouses, Factories etc...
Close coordination shall be made with the Other Contractor for the Activities to be carried out at Interface Area to avoid any Accident as well as for smooth progress.
Matters of Coordination shall include but not limited to the followings;-

- Activity Schedule
- Location of Entrances / Exits
- Location of Hoarding
- Any activities to be carried out outside his Hoarding
- Activities which may cause hazard to other party such as Crane Lifting

activity near the interface.

- Material/Equipment Delivery Schedule

7. Prevention of Accident during Lifting Activities

Lifting activities may be required in the project. Use of crane or any other lifting equipment) shall require extreme attention to the followings in order to prevent the Accident during Lifting activities.

i. Crane (or any other lifting equipment) shall be maintained in good condition. Responsible Mechanic shall thoroughly check the lifting equipment before use.
ii. All Outriggers shall be fully extended while lifting.
iii. Steel Plates or equivalent material shall be placed under the outriggers.
iv. Operator shall have valid license to operate the lifting equipment.
v. Signal-man shall be designated for the lifting activities. Crane operator shall follow only the designated signal-man's signal.
vi. Signal-man and Rigger man shall equipped with whistle all the time and use whenever necessary to alert other people while lifting.
vii. Supervisor in charge shall be full time on site to look after the lifting activities.
viii. Rigger men shall be well trained so as to lift the material properly without dropping while lifting.
ix. No person shall be allowed to stay under the lifted material.
x. Lifting gear such as lifting wires, lifting hooks, shackles etc... shall be checked by competent person before use. Competent person means supervisor, engineer and safety officer.
xi. Any damaged lifting gear shall be disposed off site in order not to mistakenly use it.
xii. Weight of material to be lifted shall be checked against the lifting capacity of the lifting equipment.
xiii. Crane shall be equipped with the over-loading limit switch/indicator to avoid lifting with over loading which may lead to the toppling of the crane.
xiv. Crane shall be equipped with the over-winding limit switch to safeguard the miss-operation during lifting.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

Safety Accident Prevention Plan

8. Electrical Accident Prevention

Accidents involving electricity are common-place and can be somewhat easily prevented. There is one way to prevent accidents from any causes of electrical accident and that's protection from the electrical hazard. Protection can be found in four different methods:

1. Eliminate ground fault electric shock hazards:
This is usually done by either Ground Fault Circuit Interrupters (GFCIs) or an assured equipment grounding conductor program. Devices that protect circuits are fuses, circuit breakers or GFCIs. They function by limiting or cutting off the flow of electricity when a short circuit, overload or ground fault occurs in a wiring system. They also help to prevent accidents by protecting conductors and equipment by preventing overheating of equipment and wiring.

2. Proper Insulation.
Insulation that can prevent electrical accidents can come in several forms and employees should check each day that it's in good working order. This is as simple as checking for exposed wires or scuffed or cut insulation on the cords or equipment and extension cords. Employees can be further protected by wearing non-conducting, insulated shoes and gloves, as well as using hand tools that have handles with nonconductive coatings.

3. Guarding.
To help prevent accidental shocks, any live electrical components operating at 50 or more volts must be guarded with covers or other permanent barriers. These are in place to prevent contact by workers and their tools. Signs forbidding entry of unqualified employees must be place at the entrance of any area with live electrical parts.

4. Grounding.
It's required to ensure your employees are protected from electric shock, minimize the likelihood of fire and protect against damage to electrical

equipment. Grounding can be done in two ways:

i. System or Service Ground- this is used to protect machines, tools and insulation. There's one wire, the neutral ground, which is grounded.

ii. Equipment Ground- this is used to protect the operator. This type provides a path for current from a piece of equipment (tool or machine) to the ground.

9. Electrical Accident Prevention

Housekeeping

- Combustibles shall be kept to a minimum.
- Combustible trash shall be removed on regular schedule.
- Oily rags shall be kept in metal containers with lids.

Smoking

- Smoking areas shall be free of combustibles.
- Adequate cigarette disposal shall be provided in smoking areas.

Electrical

- Extension cords shall not be used in place of permanent wiring.
- Electrical lights shall be clear of combustible materials.
- Circuits shall not being overloaded with multiple appliances.
- Combustibles shall not be stored in front of electrical panels.

Heating

- Heating units shall have ample clearance for combustibles.

Fire Protection

- Fire hydrant access shall be clear and unobstructed.
- Fire extinguishers accessible and visible, access shall not be blocked and location marked.
- Fire extinguishers shall be checked monthly.
- Fire alarm pull stations shall be visible.

Exits

- All emergency exits shall be clear.
- Fire exits shall be adequately marked.
- Fire drills shall performed.
- Evacuation plan and staging area shall be posted.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

A. Roles & Responsibilities during emergency

1 OBSERVER

- Shout "Fire, Fire, Fire"
- Evacuate other people in the area
- Extinguish fire, if practical (incipient stage fire)
- Notify Supervisor / Safety Officer
- Proceed to muster area

2 SAFETY OFFICER (ERTL)

- Announce fire emergency on microphone
- If fire is not under control notify Fire force by telephone (191)
- Evacuate other people in the area
- Extinguish fire, if practical (incipient stage fire)
- Proceed to muster Area
- Take control of coordination of fire fighting operations
- Send Fire Fighting team to location to assess situation
- Co-ordinate with fire fighting team leader and first aid team leader

3 ALL PERSONNEL

- Upon hearing the Announcement, stop working.
- Proceed to muster Area

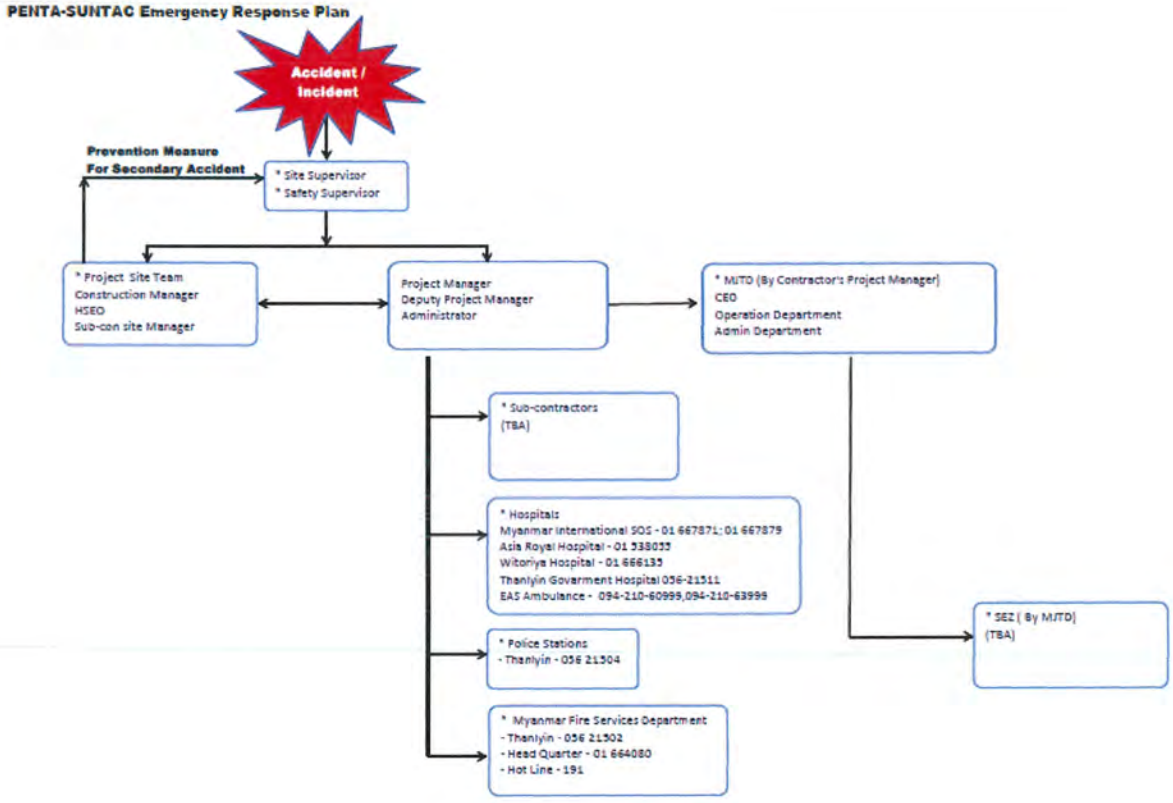
4 FIRE TEAM LEADER

- Muster at Office Front Area
- Manage and direct fire fighting team members
- Report to ERTL about the situation regularly and follow his instructions
- Report to ERTL when fire is under control/extinguished

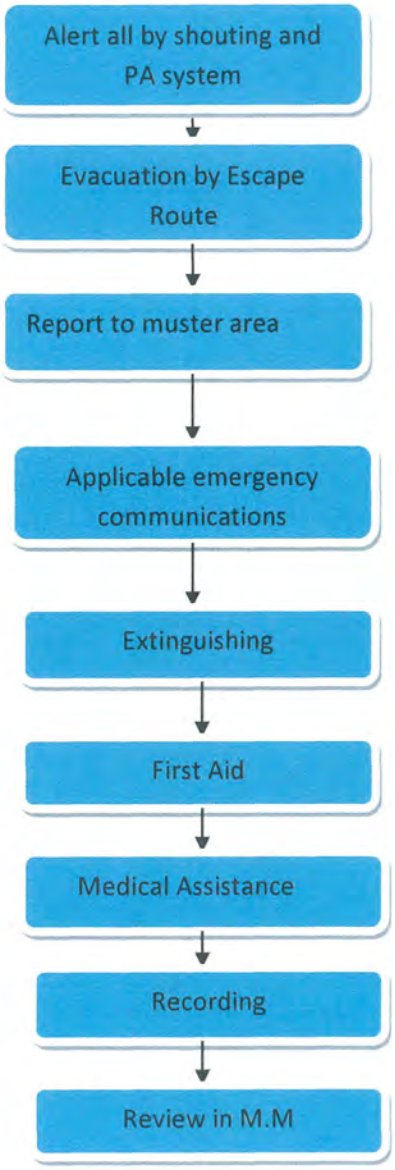
5 FIRST AID TEAM LEADER

- Muster at Office Front Area
- Manage and direct the first aid team members
- Report to ERTL about the situation and follow his instructions

B. Emergency Responsibility Chart



C. Activity Flow Chart



D. Site Lay Out Plan

E. PPE and Fire Prevention& Extinguishing data

1. Personnel Protective Equipment (PPE):

There are several types of personal protective equipments, which must be worn by personnel as and when required. Absence or improper use of personal protective equipment may place an individual's life in danger.

a) Safety Helmets/Hard hats :

All the personnel must wear a safety helmet/hard hat for protection of their head against any falling object or striking against, while they are outside their living quarters. These safety helmets should not have any stickers on any side. A florescent tape should be affixed on the backside of the helmet. A strap should be there attached to the safety helmet to protect it from falling when person is working at height.

b) Reflective vest/ Attire

All personnel must wear reflective vest while they are outside of the working area and can be recognized easily from away. Proper working attire must be worn for protection of overall body against any dust, dirt or any striking objects.

c) Safety Shoes :

Every person outside the working area to ensure his foot safely against any falling object or any striking against must wear safety shoes.

d) Safety glass/Goggle:

All personnel, while working as mentioned below, must wear safety goggles. Welders should wear a welding helmet for protection of their eyes against the radiations produced during the welding and also for protecting their face against any flying object, which may produce carrying out his job.

Gas Cutter should wear a safety goggle having black glasses only to protect his eyes against the hot flame while carrying out a gas cutting job.

Grinders should wear a plain safety goggle with a mesh at both ends to protect his eyes against the flying sparks/objects while doing grinding work.

e) **Safety Hand Gloves**:

All personnel engaged in jobs like rigging, material handling, any type of hot work etc., should wear a proper type of hand gloves for protecting their handed (palm area) against any injury. There are various types of the same and vary according to the nature of work. Persons involved in material handling, rigging etc., work must wear cotton hand gloves. Persons engaged in hot jobs like grinding, gas cutting, welding etc., should wear a pair of leather hand gloves for the safety of their hands.

f) **Safety Masks:**

Like hand gloves, there are several types of safety masks also which must be worn according to the nature of work. Ordinary cotton nose masks should be worn by grinders, housekeepers etc., to avoid entry of any fire in particles or dust in their nose. Special type of anti gas masks, SCUBA set must be worn by the personnel carrying out their work in a gas leakage area Confined space (for go inside vessels) personnel involved in operations like painting etc., should also wear a proper type of mask.

In case of confined space entry, a SCABA set must be worn by personnel entering inside. The same should be done only after checking the percentage of oxygen inside a confined space vessel.

g) **Earplugs / Ear muffs:**

Earplugs or earmuffs must be worn by all personnel working in a high noise area. No person should be employed against a noise level of 90 decibel for a period of more than 8 hrs.

h) Safety harness:

Every personnel working at a height more than 2 mtrs must wear a safety harness. A safety harness, after wearing must be tightened to a fixed structure, which should bear the weight of a person in case of collapse, if any. An individual must wear a safety harness where there is a requirement of working on scaffolding or staging.

2. Fire Prevention & Extinguishing data:

A FIRE is an exothermic chemical reaction between fuel (burning material) and oxygen in presence of heat energy.

To extinguish a fire, one has to cut anyone Parameter from the mentioned above i.e. fuel (burning material)/Oxygen or heat.

Following ways can do the same.

- Cooling i.e. removal of heat.
- Smothering i.e. removal of oxygen supply.
- Starvation i.e. removal of fuel supply.
- Breaking of chain reaction

2.1 Classes of FIRE & respective extinguishing media:

Class `A'	Cloth, Paper Fires	Water
Class `B'	Oil, Diesel, Petrol Fires	M.Foam, DCP
Class `C'	Gaseous Fires	DCP, CO2
Class `0'	Metal Fires	Special Dry Powder

Note: Electrical Fires can be fought by using DCP or CO2 fire fighting media.

Thilawa Special Economic Zone (Zone B)

Development Project –Phase 4

Dust Emission Prevention Plan

Dust Emission Prevention Plan

Dust and Emission Control / Prevention are crucial in the Project in order to safeguard the health of workers/staffs working on site as well as third parties against disease caused by air pollution. It is also important in order to protect the Earth from global warming.

As the project involves earthwork with large quantity (1Mil m3) in large area (66.44ha), transportation of earth with dump trucks are unavoidable. Movement of Dump Trucks would create a cloud of Dust on site without effective prevention plan. Movement of heavy equipment such as backhoes, dump trucks, rollers, bull dozers and graders would have potential impact to the air pollution.

As such, the following Dust Emission Preventive Measures shall be implemented throughout the project duration.

i. Water Spraying to the Vehicle Access

Water shall be sprayed on the site vehicle accesses effectively, especially where dump trucks uses. Sufficient numbers of Water Tank Truck with spraying devices shall be deployed fulltime on site to spray water on the accesses. Dump Trucks shall drive over the water-sprayed accesses as much as practical so as to minimize the dust creation.

ii. Speed Limit at Site Access

Speed of vehicle access shall be limited to 25km/hr so as to avoid excessive dust creation as well as to minimize the air pollution by the exhaust fumes.

iii. Stop Idling and Intensive Machineries Operation Campaign

In order to keep Healthy and Environmental Friendly Working Condition, the "Stop Idling & Intensive Machineries Operation Campaign" shall be conducted throughout the Project duration.

A) Stop Idling While No Operation

- Engine should be Turned Off when Stopping Machineries.

B) Stop Intensive Machineries Operation

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

Dust Emission Prevention Plan

- Do Not Race Engine unnecessarily. Gentle Driving always.

This Campaign applies to All the Machineries on site including but not limited to Backhoes, Bull Dozers, Dump Trucks, Motor Graders, Water Trucks, Rollers, Concrete Cars, Cranes, Generators, Air Compressors, Welding Machines etc...

iv. PPE against Dust & Emission

Proper Personal Protective Equipment (PPE) shall be worn any works which is subject to exposure to the Dust. PPE against dust & emission shall mean goggles and masks.

Eyes and mouth washing after work shall be encouraged to the workers.

v. Maintenance of Heavy Equipment

Heavy equipment such as backhoes, dump trucks, rollers, bull dozers and graders shall be maintained in good condition. Periodical checking of machineries/equipment shall be carried out by mechanic.

Any vehicle with black colored exhaust gas should stop working then mechanical checking/ repairing should be carried out as soon as possible.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED ★ MJTD

Thilawa Special Economic Zone (Zone B)

Development Project –Phase 4

Noise and Vibration Control Plan

Noise and Vibration Control Plan

As the project involves earthwork with large quantity (0.65 Mil m3) in large area (66.44ha), transportation of earth with dump trucks are unavoidable. Movement of Dump Trucks would create quite amount of noise on site without effective prevention plan.

Besides movement of machineries, most of the RC structure construction works also create noise. Therefore control of noise and vibration is crucial in the project for the wellfare of public as well as all the employees.

As such, the following Dust Emission Preventive Measures shall be implemented throughout the project duration.

i. Working Hours

Any work activities near Monastery and residential area that are beyond normal working hours shall be notice or inform in advance. Work with potentil to be audible to sensitive receivers require prior notice even withing working hour.

ii. Speed Limit at Site Access

Speed of vehicle access shall be limited to 25km/hr so as to avoid excessive dust creation as well as to minimize the noise that is produced by vehicles' engines.

iii. Maintenance of Heavy Equipment/ vehicle

Heavy equipment such as backhoes, dump trucks, rollers, bull dozers, graders as well as other vehicles such as motorbikes and cars shall be maintained in good condition. Periodical checking of machineries/equipment shall be carried out by mechanic.

Thilawa Special Economic Zone (Zone B)

Development Project –Phase 4

Campaign Plan of Stop Idling and Intensive Machineries Operation

Campaign Plan of Stop Idling & Intensive Machineries Operation

Dust and Emission Control / Prevention are crucial in the Project in order to safeguard the health of workers/staffs working on site as well as third parties against disease caused by air pollution.

In order to keep Healthy and Environmental Friendly Working Condition, the "Stop Idling & Intensive Machineries Operation Campaign" shall be conducted throughout the Project duration.

A) Stop Idling While No Operation
- Engine should be Turned Off when Stopping Machineries.

B) Stop Intensive Machineries Operation
- Do Not Race Engine unnecessarily. Gentle Driving always.

This Campaign applies to All the Machineries on site including but not limited to Backhoes, Bull Dozers, Dump Trucks, Motor Graders, Water Trucks, Rollers, Concrete Cars, Cranes, Generators, Air Compressors, Welding Machines etc...

The Campaign shall take effect immediately till end of the Machineries use on site.

During Campaign period, the campaign poster enclosed under Appendix-1 shall be posted at office compound, rest sheds, smoking areas etc...
The campaign shall be notified from time to time to all the staffs and workers especially the machineries operators through the Morning Safety Gathering, Tool Box Meeting.

Any act infringing the above campaign spirits shall be ceased immediately and the person who breaches the campaign spirits shall be reeducated by the PSP Management Staff.

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED ★ MJTD

APPENDIX-1 : Campaign Poster of "Stop Idling & Intensive Machineries Operation"

Stop Idling & Intensive Machineries Operation Campaign

To keep Healthy and Environmental Friendly Working Condition, the "Stop Idling & Intensive Machineries Operation Campaign" is Conducted with immediate effect till Completion of the Project

1. **Stop Idling While No Operation**

   Engine should be Turned Off when Stopping Machineries.

2. **Stop Intensive Machineries Operation**

   Do Not Race Engine unnecessarily.

   Gentle Driving always.

3. This Campaign applies to All the Machineries on site including but not limited to Backhoes, Bull Dozers, Dump Trucks, Motor Graders, Water Trucks, Rollers, Concrete Cars, Cranes, Generators, Air Compressors, Welding Machines etc...

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

Thilawa Special Economic Zone (Zone B)

Development Project –Phase 4

Management of AIDS/HIV, Tuberculosis and Cholera for Health and Safety

Management of AIDS/HIV for Health and Safety

1

What is AIDS/HIV?

1. **HIV**
- Human Immunodeficiency Virus
- Breaks the Immune System
- HIV causes people to become sick with infections that normally would not affect them.

2. **AIDS**
- Acquired Immune Deficiency Syndrome
- Caused by HIV
- Advanced stage of HIV

2

PENTA-OCEAN CONSTRUCTION CO.,LTD. 五洋建設

SUNTAC ENGINEERING & CONSTRUCTION

What are Symptoms of AIDS/HIV?①

【HIV】

- Have symptoms as early as 2 weeks after exposure, or no symptoms at all.
- Flu like symptoms such as: headache, fever, tiredness, swollen lymph nodes, rash
- Also muscle and joint pain, sore throat, ulcers in mouth or genitals, night sweat, diarrhea etc.

3

PENTA-OCEAN CONSTRUCTION CO.,LTD. 五洋建設

SUNTAC ENGINEERING & CONSTRUCTION

What are Symptoms of AIDS/HIV②?

【AIDS】

In addition to symptoms of HIV,

- Cough and shortness of breath
- Seizures and lack of coordination
- Difficult or painful swallowing
- Mental symptoms such as confusion and forgetfulness
- Severe and persistent diarrhea
- Fever
- Vision loss
- Nausea, abdominal cramps, and vomiting
- Weight loss and extreme fatigue
- Severe headaches with neck stiffness
- Coma etc.

4

PENTA-OCEAN CONSTRUCTION CO.,LTD. 五洋建設

SUNTAC ENGINEERING & CONSTRUCTION

How to Get AIDS/HIV

- having vaginal or anal intercourse without a condom with someone who has HIV/AIDS
- sharing needles or syringes with someone who has HIV/AIDS
- being deeply punctured with a needle or surgical instrument contaminated with HIV
- getting HIV-infected blood, semen, or vaginal secretions into open wounds or sores
- Mother to Baby during giving birth or breastfeeding.

PENTA-OCEAN CONSTRUCTION CO.,LTD. 五洋建設

SUNTAC ENGINEERING & CONSTRUCTION

How to Prevent AIDS/HIV

- No Sex = Abstinence
- Have only one uninfected partner
- Use condoms etc. for protection
- Do not share needles
- Be sure to disinfect needles before use
- Do not share personal items that may have blood on them.

If you are unsure if you have AIDS/HIV or not, please get tested.

PENTA-OCEAN CONSTRUCTION CO.,LTD. 五洋建設

SUNTAC ENGINEERING & CONSTRUCTION

AIDS / HIV ၏ အဓိပ္ပါယ်

1. HIV
   - ခန္ဓာကိုယ် ကိုယ်ခံအားချို့တဲ့စေသောပိုး
   - ခန္ဓာကိုယ် ခုခံအားစနစ်ကိုချိုးဖျက်မှု
   - HIV ကူးစက်ခံရလျှင် သာမန်အားဖြင့် သက်ရောက်မှုမရှိနိုင်သော ရောဂါများ ကူးစက်ခံရပြီး ၎င်းရောဂါများကြောင့် နေထိုင်မကောင်းမှုများ ဖြစ်စေသည်။
2. AIDS
   - ကိုယ်ခံအားလျော့နည်းကျဆင်းသောရောဂါ
   - HIV ပိုးကြောင့်ဖြစ်စေသည်။
   - HIV ရောဂါ၏ နောက်တဆင့် အခြေအနေ ဖြစ်သည်။

7

PENTA-OCEAN CONSTRUCTION CO.,LTD. 五洋建設

SUNTAC ENGINEERING & CONSTRUCTION

AIDS / HIV ၏ လက္ခဏာများ

HIV

- ရောဂါလက္ခဏာများ စတင်ပေါ်ပေါက်ချိန်မှာ ရောဂါကူးစက်ပြီး (၂)ပတ်ကြာလျှင်တွေ့ရှိနိုင်ပြီး (သို့မဟုတ်) ရောဂါလက္ခဏာ ပြသခြင်းမရှိသည့် အခြေအနေလည်း ဖြစ်နိုင်သည်။
- တုပ်ကွေးရောဂါလက္ခဏာကဲ့သို့သော ခေါင်းကိုက်ခြင်း၊ ဖျားနာခြင်း၊ မောပန်းနွမ်းနယ်ခြင်း၊ အာသီးရောင် အကြိတ်ရောင်ခြင်း၊ ခန္ဓာကိုယ်အဖုအပိန့်ထွက်ခြင်း၊ ဆောက်တည်ရာမရဖြစ်ခြင်း၊
- အကြောအဆစ်နာကျင်ကိုက်ခဲခြင်း၊ လည်ချောင်းနာ၊ ပါးစပ်နှင့် လိင်အင်္ဂါများတွင် ပြည်တည်နာများပေါက်ခြင်း၊ ညအိပ်လျှင်ချွေးထွက်များခြင်း၊ ဝမ်းလျှောဝမ်းပျက်ဖြစ်ခြင်း။

8

- ချောင်းဆိုးခြင်း၊ အသက်ရှူကျပ်ခြင်း၊
- ဝက်ရူးပြန်ခြင်း၊ တက်ခြင်းနှင့် ဆောက်တည်ရာမရဖြစ်ခြင်း၊
- အစားအစာမျိုချစားသုံးရာတွင် ခက်ခဲခြင်း၊ နာကျင်ခြင်း၊
- စိတ်ပိုင်းဆိုင်ရာ ရှုတ်ထွေးခြင်း၊ မေ့လျော့ခြင်း၊
- ဆိုးရွားပြီးတာရှည်သော ဝမ်းပျက်ခြင်း၊ ဝမ်းလျှောခြင်း၊
- ဖျားနာခြင်း၊ အမြင်ကွယ်ခြင်း၊
- ပျို့ခြင်း၊ မအီမသာဖြစ်ခြင်း၊ ဝမ်းဗိုက်အောင့်ခြင်း၊ အော့အန်ခြင်း၊
- ခန္ဓာကိုယ်အလေးချိန်ကျခြင်း၊ လွန်စွာမောပန်းနွမ်းနယ်ခြင်း၊
- ဆိုးရွားစွာ ခေါင်းကိုက်၍ လည်ပင်းတောင့်တင်းခြင်း၊
- သတိလစ်မေ့မြောခြင်းများ ဖြစ်နိုင်သည်။

9

AIDS / HIV ကူးစက်ပုံ

- HIV / AIDS ရှိသူနှင့် ကွန်ဒုံး (CONDOM) မသုံးပဲ ဖိုမ (သို့) လိင်တူဆက်ဆံခြင်း၊
- HIV / AIDS ရှိသူနှင့် ဆေးထိုးအပ် ဝေမျှသုံးစွဲခြင်း၊
- HIV ပိုးရှိသော၊ ထိတွေ့ထားသော အပ် (သို့) ခွဲစိတ်ခန်းသုံး ပစ္စည်းများဖြင့် ထိုးမိ ထိခိုက်မိပေါက်ပြဲမိခြင်း၊
- HIV ပိုးရှိသော သွေး၊ သုတ်ရည် (သို့) အမျိုးသမီးအင်္ဂါမှ စိမ့်ထွင်ရည်များ၊ ဒဏ်ရာများ (သို့) အရေပြား၊ အသားတို့နှင့်ထိတွေ့မိခြင်း၊
- မိခင်မှ သားသမီးသို့ မွေးဖွားခြင်း (သို့) နို့တိုက်ခြင်းဖြင့် ကူးစက်ခြင်း၊

10

PENTA-OCEAN CONSTRUCTION CO.,LTD. 五洋建設

SUNTAC ENGINEERING & CONSTRUCTION

AIDS / HIV ကာကွယ်တားဆီးပုံ

- လိင်ဆက်ဆံမှု မပြုခြင်း၊ ရှောင်ရှားခြင်း၊
- လိင်ဆက်ဆံမှုပြုပါက ရောဂါပိုးမရှိသော မိမိ၏ အဖော်တစ်ဦးတည်းနှင့်သာ ဆက်ဆံသင့်သည်။
- ကာကွယ်ရန် ကွန်ဒုံး (CONDOM) etc., အသုံးပြုရမည်။
- ဆေးထိုးအပ်များ ဝေငှမသုံးရ၊
- ပိုးသတ်ထားသော ပိုးကင်းသောတခါသုံးအပ် များကိုသာသုံးရမည်။
- ခန္ဓာကိုယ်မှ သွေးထိတွေ့နေသော (သို့) ထိတွေ့ထားသော ပစ္စည်းများကို ဝေငှ၊ ငှားရမ်းမသုံးရ၊

သင်ကိုယ်တိုင် AIDS / HIV ပိုးရှိ၊ မရှိ မသေချာပါက စစ်ဆေးမှုများကို ပြုလုပ်ဆောင်ရွက်ပါ။

Thilawa SEZ Zone B Development Project

11

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

Management of Tuberculosis and Cholera for Heath and Safety

1

What is Tuberculosis?

- It is an infectious disease that usually affects the lungs.
- Compared with other diseases caused by single infectious agent, it is the second biggest killer, globally.
- TB germs are mostly found in the lungs and when you have TB disease of the lungs, you can spread it to other people.

2

How are the germs spread?

- TB germs are passed through the air when a person with TB disease coughs, speaks or sneezes.
- To become infected with TB germs, a person usually needs to share air space with someone sick with TB disease. (e.g., live, work, or play together).
- In most cases, your body is able to fight off the germs.

Thilawa SEZ Zone B Development Project 3

3

What are the Symptoms?

- Cough (2-3 weeks or more)
- Coughing up blood
- Chills
- Fatigue
- Fever
- Loss of weight
- Loss of appetite
- Night Sweats

Thilawa SEZ Zone B Development Project 4

4

How to Prevent?

- Regular health screening (e.g., chest X-ray)
- Do not interact with a person who is suspected with TB.
- Always maintain good ventilation if you are staying in a room with many people.
- Maintain good immune system by eating and living healthy.

5

What is Cholera?

- Cholera is an infectious diseases that causes severe watery diarrhea.
- Is can lead to dehydration and even death if untreated.
- It is cause by eating food or drinking water contaminated with *Vibrio Cholerae* bacterium.
- The disease is most common in places with poor sanitation.

6

What are the causes?

- Poor sanitation and hygiene.
- Eating raw or not completely cooked food.
- Contaminated water source.
- In situations where sanitation is severly challenged such as in refugee camps or communities with highly limited water resources.

7

What are the Symptoms?

- Large volumes of watery diarrhea
- Vomiting
- Leg cramps
- Sever dehydration caused by losing of losing of fluids.

8

How to prevent?

- Make sure water is bottled or boiled and safe to use.
- Ensure food is thoroughly cooked
- Avoid eating raw or street food that can carry cholera and other diseases.

9

လုပ်ငန်းခွင် ဘေးအန္တရာယ် ကင်းရှင်းကျန်းမာရေးအတွက်
တီဘီရောဂါနှင့် ကာလဝမ်းရောဂါ စီမံ ခန့်ခွဲမှု

10

တီဘီရောဂါဆိုသည်မှာ?

- တီဘီရောဂါသည် ပုံမှန်အားဖြင့် အဆုတ်ကို ထိခိုက်စေသော ကူးစက် ရောဂါဖြစ်သည်။
- တစ်ခုတည်း ကူးစက်မှုကြောင့်ဖြစ်ရသော ရောဂါများနှင့် နှိုင်းယှဉ်လျှင် တီဘီရောဂါသည် တစ်ကမ္ဘာလုံးတွင် ဒုတိယအကြီးဆုံး လူသတ်သမားဖြစ်သည်။
- တီဘီပိုးမွှားများကို အဆုတ်ထဲတွင် အများအားဖြင့် တွေ့ရှိရပြီး အဆုတ်တွင် တီဘီရောဂါရှိပါက အခြားသူများသို့ ကူးစက်ပျံနှံနိုင်သည်။

11

တီဘီရောဂါ ပိုးမွှားများ ဘယ်လို ကူးစက်ပျံ့ နှံ့ သလဲ?

- တီဘီရောဂါရှိသူတစ်ဦး ချောင်းဆိုးသောအခါ စကားပြောသောအခါ (သို့) နာချေသောအခါတွင် တီဘီပိုးမွှားများ လေထဲသို့ ရောက်ရှိ ပျံနှံ့သွားကြသည်။
- တီဘီရောဂါပိုးရှိသူနှင့်အတူ လေထုတစ်ခုတည်းတွင်ရှိပါက တီဘီရောဂါပိုး ကူးစက်နိုင်သည်။ (ဥပမာ - အတူနေထိုင်ခြင်း၊ အတူအလုပ်လုပ်ခြင်း (သို့) ဆော့ကစားခြင်း)
- အများအားဖြင့် သင့်ခန္ဓာကိုယ်သည် တီဘီပိုးမွှားများကို တိုက်ထုတ်နိုင်စွမ်းရှိသည်။

12

တီဘီရောဂါ လက္ခဏာများ

- ချောင်းဆိုးခြင်း (၂-၃ ပတ်ထက်ကြာမြင့်ခြင်း)
- ချောင်းဆိုးလျှင် သွေးပါခြင်း
- ချမ်းတုန်ခြင်း
- မောပန်းခြင်း
- အဖျားတက်ခြင်း
- ခန္ဓာကိုယ် အလေးချိန် လျော့နည်းလာခြင်း
- အစာစားချင်စိတ်မရှိခြင်း
- ညဘက်တွင် ချွေစေးများထွက်ခြင်း

13

ဘယ်လို ကာကွယ်မလဲ ?

- ပုံမှန် ကျန်းမာရေး စစ်ဆေးခြင်း (ဥပမာ- ဓာတ်မှန်ရိုက်ခြင်း)
- တီဘီရောဂါ ရှိသူဟု ယူဆရသောသူနှင့် နီးကပ်စွာ ပေါင်းသင်း ဆက်ဆံခြင်း မပြုလုပ်ရန်။
- လူအများနှင့် အခန်းတစ်ခန်းတည်းတွင် နေထိုင်ရလျှင် လေဝင်လေထွက် ကောင်းရန် ပြုလုပ်ရမည်။
- ကျန်းမာရေးနှင့် ညီညွတ်စွာ နေထိုင်စားသောက်ခြင်းဖြင့် ကောင်းမွန်သော ကိုယ်ခံစွမ်းအားစနစ်ကို ထိန်းသိမ်းရမည်။

14

ကာလဝမ်းရောဂါဆိုသည်မှာ?

- ကာလဝမ်းရောဂ်ဆိုသည်မှာ ပြင်းထန်စွာ ဝမ်းလျှောမှုဖြစ်သော ကူးစက်ရောဂါတစ်ခု ဖြစ်သည်။
- ကောင်းမွန်သော ကုသမှု မရှိပါက ရေဓာတ်ဆုံးရှုံးခြင်းနှင့် သေဆုံးမှု အထိပါ ဖြစ်စေနိုင်သော ရောဂါဖြစ်သည်။
- ကာလဝမ်းရောဂါသည် Vibrio Cholerae ဘက်တီးရီးယား ပါဝင်သော အစားအသောက် (သို့) ရေ တို့ အား စားသုံးခြင်းမှ ဖြစ်ပွားနိုင်သည်။
- ရောဂါကို မိလ္လာစနစ်သန့်ရှင်းမှု မရှိသော နေရာများတွင် အများဆုံးတွေ့ရသည်။

15

ရောဂါဖြစ်ပွားစေသော အရာများ

- မိလ္လာစနစ်နှင့် တစ်ကိုယ်ရည်သန့်ရှင်းမှု မရှိခြင်း။
- အစိမ်း (သို့) ကောင်းစွာ ချက်ပြုတ်မထားသော အစားအသောက်များကို စားသုံးခြင်း။
- ရောဂါပိုးပါဝင်သော ရေအရင်းအမြစ်ကို အသုံးပြုခြင်း။
- ဒုက္ခသည်စခန်း (သို့) ရေအရင်းအမြစ် လုံလောက်စွာမရှိသော လူမှုအသိုင်းအဝိုင်းကဲ့သို့သော မိလ္လာစနစ် ကောင်းစွာမပြုလုပ်နိုင်သော နေရာများ

16

ကာလပမ်းရောဂါ လက္ခဏာများ

- ရေကြီ ပမ်းလျောမှု ဆက်တိုက်ဖြစ်ပွားခြင်း။
- အော့အန်ခြင်း။
- ကြွက်တက်ခြင်း။
- အရည်များ ဆုံးရှုံးမှုကြောင့် ပြင်းထန်သော ရေဓာတ်ဆုံးရှုံးမှုဖြစ်ခြင်း။

17

ဘယ်လို ကာကွယ်မလဲ?

- သောက်သုံးရေများသည် သန့်စင်ပြီးသော (သို့) ကြိုချက်ထားသော (သို့) သောက်သုံးရန် စိတ်ချရသောရေ ဖြစ်ရန် လိုအပ်သည်။
- အစားအသောက်များကို ကျက်အောင် ကောင်းမွန်စွာ ချက်ပြုတ်ရန် လိုအပ်သည်။
- ကာလပမ်းရောဂါနှင့် အခြားရောဂါများ ပါဝင်နိုင်သော အစားအစာများကို အစိမ်းစားခြင်း (သို့) လမ်းဘေး ယင်နားစာများစားခြင်းကို ရှောင်ကြဉ်ရမည်။

18

PENTA-OCEAN CONSTRUCTION CO.,LTD. 五洋建設

SUNTAC ENGINEERING & CONSTRUCTION

Health Management Plan by the Contractor

- Promote health education by conducting infectious disease awareness talk to all the employees with demonstration.
- Provide signage or handouts on the information and preventive measures of infectious diseases.
- Provide medical staff on-site as surveillance for the health of staffs and workers.
- Provide treatment services such as onsite clinic with basic medication for all the employees as well as nearby residences.
- Provide clean and fresh water supply on-site to all the employees.
- Provide pest control service around site office and storage area to eliminate larval and adult propagation.
- Promote immunization by conducting talks on importance of sanitation.

Thilawa SEZ Zone B Development Project 19

19

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED MJTD

End of Document