



SMARTCITY MALTA - MAINTENANCE REGIME OF ON-SITE MACHINERY, EQUIPMENT AND APPARATUS

1. Case metadata

▪ **Country of origin:**

Malta

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▪ **Sector:**

NACE 2 - F41.20 - Construction of residential and non-residential buildings

▪ **Keywords:**

24401C Case studies; 24361C Good practice; 21361C Machinery; 21401C Maintenance; 59891C Construction work; 00081C Contracting; 20161D Safety planning.

2. Organisations involved

Bovis Lend Lease

3. Description of the case

3.1. Introduction

In 2007 work started to transform the Ricasoli Industrial Estate in Malta into a 358,000 square metre state-of-the-art ICT and Media business community, which in addition to offices, would include residential areas, hospitals, hotels, education facilities, commercial and retail shopping outlets, and specially designed areas for entertainment and recreation, such as landscaped green areas, health clubs and cinemas. The project, named SmartCity Malta (SCM), is expected to attract an investment of over €200 million and it is estimated that by 2014 it will be making an annual contribution of €534 million to Malta's GDP, the single greatest contributor ever to have been secured through foreign investment.

A project of this scale necessitated detailed planning before any construction work could commence, and it was during this stage that provisions were put in place to help ensure the health and safety of workers involved in the construction project. The tender specifications included requirements for all selected contractors to establish extensive health and safety procedures, which exceeded the minimum legal requirements. These procedures included preventive maintenance, inspection and certification of work equipment, which ranged from heavy plant machinery, such as excavators and bulldozers, to small hand tools and other ancillary equipment.

3.2. Aims

The aim was to establish a positive health and safety culture amongst all the organisations involved in the construction of SCM and to oversee that all contractors and/or any other persons carrying out work on the project, kept work equipment in a good, safe condition and preserved it from failure, breakdown and decline.

3.3. What was done, and how?

Long before construction work began, actions were taken to ensure that all contractors working on the project had suitable and sufficient provisions in place to help protect workers from harm. Tender specifications stipulated that before a contractor could be commissioned to work on the project, they had to undergo a vetting process in which their health and safety accreditation and performance was assessed, as shown in Figure 1.

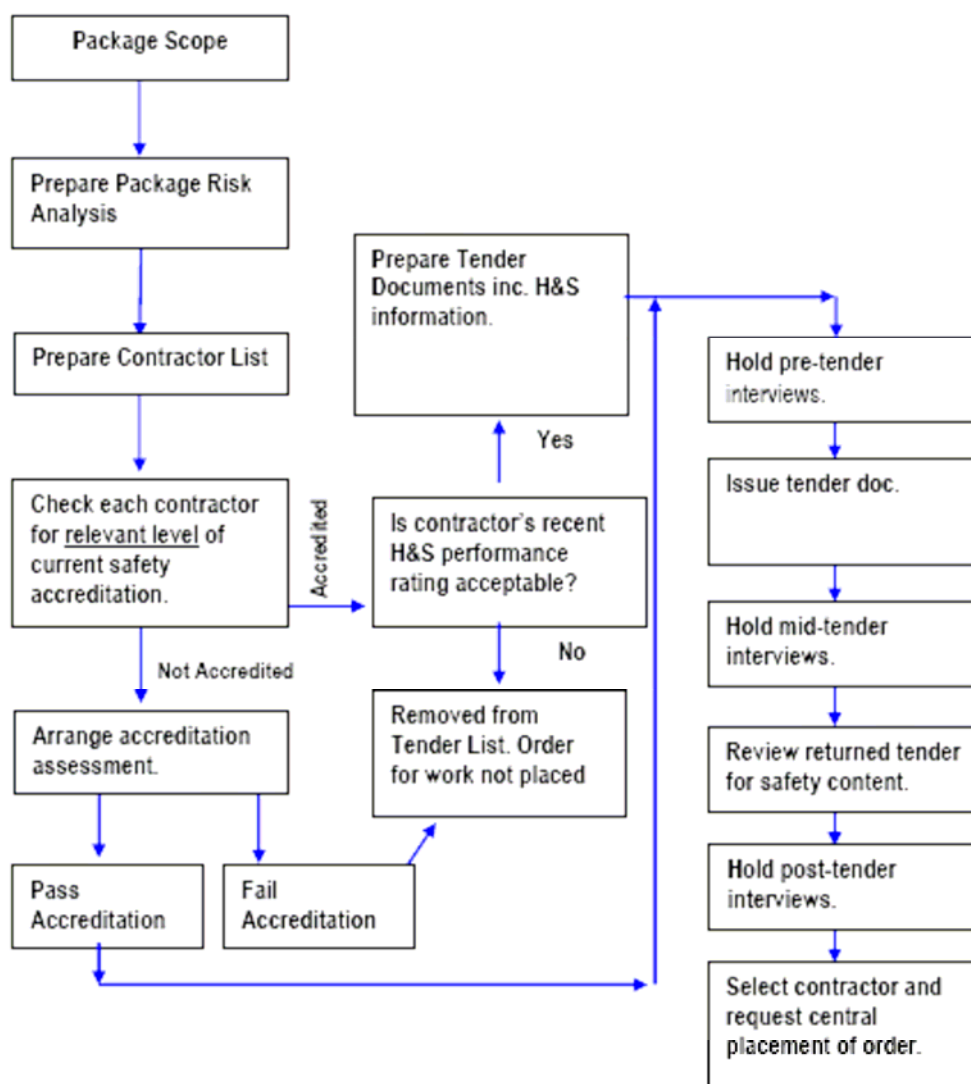


Figure 1: Contractor assessment process

CASE STUDIES

In addition to passing this initial assessment, contractors needed to develop their own project specific Construction Health & Safety Plan, which needed to include or reference the contractors' Safe Work Method Statements and other relevant documents. This plan also needed to contain the following specific risk management elements:

- Fall Prevention Plan
- Logistics Plan
- Lifting Plan
- Temporary Power and Lighting Plan
- Site Emergency Plan
- Incident reporting and management
- Specific emergency risks relevant to the project
- Emergency services contacts and rescue procedures
- Permit to Work procedures
- Specific Maintenance documents and Procedures

These measures created a firm foundation upon which a positive health and safety culture and an effective maintenance regime could be based.

To reduce, and where possible eliminate mechanical and electrical hazards, all contractors and sub-contractors were asked to submit preventive maintenance schedules and documentation for their equipment in advance of any work being carried out. Furthermore, pro-active and scheduled maintenance records were requested on a programmed basis, (daily, weekly and monthly). Contractors and/or subcontractors needed to also provide relevant OH&S documentation for any machinery and equipment within one week from commencement of works. This documentation included:

- A copy of the operator's manual (which explains the maintenance requirements and instruction to use it)
- Documentary evidence of maintenance regime
- Certification of lifting/hoisting machinery/equipment
- Certificate of competence for the operator

A Machinery register was created to monitor the machinery on site and their status in terms of documentation and service history (see Figure 2).

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REF.	CONTRACTOR	DESCRIPTION	BRAND	MODEL	PHOTO	NUMBER PLATE	MAXIMUM LOAD	1 LAST MAINTENANCE	DATE INSPECTION REQUIRED BY LAW	2 STATUS	3 MANUAL Leak Test Pass/Fail	4 PERMIT TO ACCESS ON SITE
011	B&V - Bailut	Truck with Crane	EFFER	2400BL - 2S	-	DAF 380	10 m 1000 kg	08/10/2009	10/09/2010	OK	Y	
012	B&V - Bailut	Truck with Crane	EFFER	2400BL - 2S	-	EAF 176	10 m 1200 kg	02/11/2009	24/09/2010	OK	Y	
013	B&V - Bailut	Truck with Crane	ATLAS	AK 5200	-	EAF 174	10.6 m 1200 kg	09/11/2009	24/09/2010	OK	Y	
014	B&V - Bailut	Truck with Crane	EFFER	1811Hfe471/1S	-	KAF 303	12 m 1000 kg	05/14/2009	14/01/2010	TSO	N	
015	B&V - Bailut	Truck with Crane	EFFER	23000		KBP 937	7 m 1750 kg	17/11/2009	20/01/2011	OK	Y	21.10.09
016	B&V - Bailut	Concrete Pump	Schwing	P2020-120/80RMSS		ABI 703	-	03/12/2009	25/03/2010	OK	Y	21.10.09
017	B&V - Bailut	Concrete Pump	Iveco	M32-125		DAA 964	-	30/11/2009	14/06/2010	OK	Y	21.10.09
018	B&V - Bailut	Mobile Crane	GROVE	AT865	-	LOB 358	10.7 m 13t	28/10/2009	05/09/2010	OK	Y	
019	B&V - Bailut	Truck with Crane	HAP	10599	-	BBF 423	5m 1000kg	17/09/2009	03/09/2010	OK	N	
020	B&V - Bailut	Mobile Crane	Colas	12 ton	-	CAF 574	9 m 2270 kg	10/09/2009	03/06/2010	OK	N	
021	B&V - Bailut	Mobile Crane	GROVE	AT735S	-	CAG587	12.2 m 4500 kg	27/11/2009	29/12/2010	OK	Y	
022	B&V - Bonnici	Truck with Hiab	Mercedes	3235K Actros		KBH705	6 m 2 600 kg 8.5 m 1 800 kg	29/08/2009	03/05/2010	OK		
023	B&V - Bailut	Truck with Hiab	Furukawa	URA 235	-	KBH709	2 m 420 kg	15/10/2009	05/05/2010	OK	N	
024	B&V - Bailut	Hydraulic Telescopic Ladder	TADANO	AT-137 TE	-	LCL779	2 m 250 kg	11/05/2009	05/11/2009	TSO	N	
025	B&V - Bailut	Lifting cage to be used with crane	Frame Grip Ltd	FG PLP 001		-	300 kg	10/01/2010	10/07/2010	OK	-	
026	B&V - Bailut - Y&P	Mobile Crane	DEMAg	AC365		YPM 004	3 m 111.7 t 14 m 8 t 24 m 4 t 54 m 0.7 t	24/05/2009	05/10/2010	OK	Y	

Figure 2: Extract from machinery register

3.4. What was achieved?

A positive and robust health and safety culture was established amongst all the organisations involved in the construction project and a consistent and systematic approach was adopted to help ensure that work equipment was fit for purpose, suitably maintained, safe to use and reliable.

Long term results can easily be seen, as the number of accidents and near-misses were relatively low. Lack of major mechanical breakdown is also evident, which reduces both costs and the potential for accidents.

3.5. Success factors

This case study demonstrates how taking appropriate action at an early stage, particularly during procurement, can have a positive influence on occupational safety and health.

Despite there being a number of different organisations involved in the construction of SCM, the health and safety culture created on site ensured that they all took responsibility for the safety and health of workers, and adopted a consistent and robust approach to equipment maintenance.

The time spent on the preparation of the maintenance archive and other related documents is considered trivial when compared to the costs of sudden breakdown and mechanical failure, which would probably have been more prevalent had these actions not been taken.



3.6. Further information

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3.7. Transferability

Specifying health and safety criteria at the procurement stage and assessing/auditing supplier's provisions for health and safety prior to awarding contracts can be beneficial to most large organisations/projects. The actions described in this case study are particularly suited to projects involving more than one organisation. However, a structured maintenance plan similar to the one described would be beneficial to most organisations.

4. References, resources:

- <http://www.smartcity.ae/press-centre/news-and-press-releases/malta-government-and-smartcity-sign-final-agreements-for-smartcity-malta/> - date accessed: 01 August 2011