

**MARITIME SECURITY IDENTIFICATION CARDS  
AT PORTS & PORT FACILITIES  
IN WESTERN AUSTRALIA**

**PROPOSED INTRODUCTION OF A  
SINGLE CARD SYSTEM**

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Taskforce

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## EXECUTIVE SUMMARY

This report has been prepared by Engineering Technology Consultants (ETC) at the request of Western Australian Port Operations Taskforce and relates to the introduction of the Maritime Security Identification Card (MSIC), and how or whether this could be integrated into a single combined identification and access control card. The access control would preferably be common to all Western Australian port facilities.

The main motivator for this review is the concerns expressed by the Minister for Planning & Infrastructure, together with various industry sectors, about the potential for additional access cards to be required under a new national security arrangement.

A review of the individual port authorities in Western Australia, has identified the various different types of card access control systems currently in place. Refer Appendix A.

Whilst a large range of different systems have been introduced at Western Australian port facilities, technology has advanced to a stage where a new single access control card could be used across all the ports. This would require reprogramming of the existing systems and replacement of hardware (card readers) to ports such as Geraldton, Bunbury, Albany and Esperance.

The MSIC could also be printed onto the new card by a licensed printing authority, complying with the requirements of Department of Transport and Regional Services (DoTARS).

The following recommendations are proposed to achieve the requirements of a combined access control and Maritime Security Identification Card.

To enable the production of a MSIC the application must apply for the MSIC in writing and supply a photograph and supporting documents as defined by the Maritime Transport Security Amendment Regulations 2005. The applicant must fulfil the 100 point check and comply with the right to work requirement by Department of Immigration and Multicultural and Indigenous Affairs (DIMIA) by presenting either an Australian passport or an appropriate visa stamp in a foreign passport. For the process to work effectively a MSIC 'Issuing Body' will need to be created within each regional centre.

For example the 'Issuing Body' could be the local DPI Licensing centre or the Port Authority. The Issuing Body would be responsible for obtaining the MSIC for individual applicants and control card issuing. The preferred option would be to register each port as the Issuing Body so that MSIC approvals, local access control programming, and site access being granted and controlled through one authority.

Printing of the MSIC element of the combined card should be carried out by a single printing authority to avoid the unnecessary duplication of such facilities, and achieve economics due to the scale of the project. The printing authority would accept electronic requests for an MSIC only from an Issuing Body and distribute cards to the Issuing Body for local issue to the individual applicant. The printing authority would be required to operate within strict guidelines, and suitably staffed to ensure that cards could be issued within a three day period.



It has been established that a single combined card can be achieved for the Maritime Security Zone (MSZ) areas operated by the port authority.

The Maritime Security Zone being those areas of a Port Security Zone, within regulated ports and ship Security Zones around security and regulated ships, whilst in port, under Section 102 and 106 of the Maritime Transport Security Act 2003.

Separate access cards may still be required within the port authority system for instances noted below:

- (i) MSZ directly controlled by a Port Authority. Where a tenant opts to retain their own card system with integral MSIC component, a separate port authority card would be required if automatic access into the port controlled area by the tenant were to be maintained. The preference would be to encourage tenants to opt to use the same card system.
- (ii) For whole of site tenants such as Alcoa and BP, who both operate a very limited MSZ area the number of persons requiring a MSIC will be limited. These will be arranged by the operator. For both of these particular operators, access to their non MSZ areas will be continued to be controlled using their site specific identification card.
- (iii) Individuals requiring access to the general port secure area facilities (not MSZ), may still need to carry a local identification card. This would be achieved using the new corporate port card, locally printed and programmed. The number of these instances is believed to be limited.

Whilst it is expected that major tenants will opt to use their own card access system, they can be offered the facility to join the ports single card system if so preferred. Each port authority should encourage the use of a single card system by individual tenants to improve the overall effectiveness of site security and operational costs.

An ISO format (Slimline) proximity access control card is recommended for this project. This type of card offers greater durability over other card types and also allows both direct and transfer printing methods.

The use of 'SMART' card technology has been considered, although it is not required as part of the MSIC or access control component of the project. Unless a specific use can be identified, its use is not recommended.

An estimated order of cost to implement the combined access control and MSIC system is identified within this report.



## **1. INTRODUCTION**

### **1.1 General**

This report has been produced by Engineering Technology Consultants (ETC) at the request of Western Australia Port Operations Taskforce. This report relates to the requirement under Commonwealth legislation (commencing 1 October 2005 and will run through to 31 December 2006) for all maritime participants to hold a Maritime Security Identification Card (MSIC) to access all Ports and Port facilities.

Due to the introduction of this legislation a concern exists that port users will be required to carry additional identification cards generating a proliferation of access cards.

The focus of this report is limited to Western Australian facilities only (not privately operated or leased from the port).

The purpose of this report is to:

1. Investigate and report on available technologies that would allow a single card system throughout the site.
2. Identify and report on existing access control measures currently in place.
3. Identify and report on appropriate technologies that could enable integration of existing systems.
4. Investigate and report on the advantages and disadvantages of a single or multiple card issuing authority.
5. Identify order of costs for the adoption of the proposed card system.

### **1.2 Port & Port Facilities**

The ports are grouped into separate port structures and management arrangements as detailed below.

#### Port Operating Authorities

These ports are operated as Government of Western Australia Port Authorities:-

1. Esperance
2. Albany
3. Bunbury
4. Fremantle
5. Geraldton
6. Dampier
7. Port Hedland
8. Broome

#### Management Arrangements

These Government ports, whilst owned by the DPI, are operated by private contractors, often the predominant exporter through the port:-

1. Useless Loop
2. Cape Cuvier



3. Onslow
4. Barrow Island
5. Varanus Island
6. Port Walcott
7. Derby
8. Cockatoo Island (Yampi Sound)
9. Wyndham

### **1.3 Limitations**

This report has been produced with the assistance of the local port authorities and DPI, and on site inspections and interviews.

All information provided, whether verbal or written, has been taken at face value.

The ports included within this report are listed within Clause 1.2 (Port Operating Authorities) above. All other ports or facilities (ref Management Arrangements) are excluded.

### **1.4 Order of Cost Estimates**

The order of cost estimates detailed within this report are declared exclusive of GST, professional fees and presume the tendering of any recommended works by September 2005.

For works tendered after September 2005, allowances would need to be included within the order of cost estimates for cost inflation due to time.



## **2. EXISTING SYSTEMS**

To develop an understanding of impact caused by the introduction of a combined access control card and MSIC the individual Port Authorities were requested to complete a questionnaire. A comparison schedule of system types is included within Appendix A.

The following is a summary of our findings, which should be read in conjunction with Appendix A – Summary of Existing Systems.

### **2.1 Esperance**

The port facility has been installed with a TECOM Challenger system, complete with ISO cards with magnetic strip and magnetic swipe card readers. There are approximately twenty card readers in issue, with a preference to expand the system to include main stores and additional perimeter gates.

The system primarily controls access to the port main gate and specific security control areas such as Berths 1, 2, and 3, tug boat jetty and port workshop.

The use of magnetic type card readers is problematic with readers failing due to the environmental conditions. The magnetic strip to the access control cards also wear at a high rate when compared to proximity type readers which use contactless reading technology. Some cards have failed after only 12 months use.

The front side of the card is printed as an identification card, colour coded to identify levels of access. Trade cards are typically left with access to the main gate only; access to remaining secure areas are provided on an as required basis, this ensures maintenance staff making regular but limited annual visits do not maintain unlimited access during periods when away from the facility.

### **2.2 Albany**

The port has been installed with a system distributed in Western Australia by the local Bollinger agent. The system is currently maintained by ABA Security.

Access control to the security zone is achieved by using a fenced area with three vehicle motorised gate entries, each with card access control and pedestrian gate operated via a local electronic keypad.

The system utilises Indala 26 bit proximity cards and Motorola reader units.

Two separate cards are in use; one for photo identification and a separate access control card.

At present the gate controllers are not networked, and programming of cards requires the assistance of the maintenance contractor.

This system will require replacement as part of the proposed works. Due to the age of the system, technology used and lack of interlinking of controllers, the system will need to be replaced as part of the proposed works.



## 2.3 Bunbury

The port has been equipped with a system distributed within Western Australia, by the local Bollinger agent. The system utilises ISO type proximity access cards and readers to control access gates only. Presently 2000 cards are in use.

The port has three separate Maritime Security Zones (Harbour Areas) designated as Old, Inner and Outer Harbour respectively. The three areas are separated by public land which has complicated the ability to interlink the control systems.

Each harbour has a motorised vehicle and pedestrian gate arrangement operated by the access control system. Due to the distances between the harbours the system controllers are not interlinked, which limits the flexibility and alarm features of the system.

The port is equipped with a suitable card printer and photo identification package, which could be retained and used with the introduction of the new combined card system. General hardware upgrades and the interlinking of the controllers will be required as part of the proposed works.

## 2.4 Fremantle & Kwinana

The port uses a combined card identification and access system as manufactured by Siemens. The system is used to restrict access to areas of the site under direct control of the Port Authority.

The system utilises a HID ISO proximity type card with HID card readers. Access cards are initially direct printed, although can be recycled for alternative users by applying self adhesive labels.

Major tenants, such as P & O have their own access gates and dedicated security systems not controlled by the Port Authority.

The system will require reprogramming and some hardware upgrades to accommodate a single card system.

## 2.5 Geraldton

Similar to Bunbury, this site also utilises a system labelled and distributed by Bollinger, although is a more current version. The system controls a number of pedestrian doors and vehicle gates, with approximately 1442 cards being issued.

The access control cards are also utilised for identification and are issued to all individuals requiring access to the port facilities.

The port is currently assessing its security zone and is likely to implement two distinct areas being the Boat/Wharf interface requiring MSIC to access, with a second zone encompassing the remainder of the Port (excluding fishing boat harbour) which will require the use of a port specific identification card.



The system will require software upgrades to accommodate the new single card system.

## **2.6 Dampier**

At the time of preparing this report, the port had just appointed a contractor to install an access control system. The system is to be installed shortly and will comprise of a Concept 4000 control system utilising HID manufactured proximity cards and card readers. The system is to be supplied with a WebCam camera unit and colour printer. 1500 cards are to be provided as part of the system.

The system will require software upgrades to accommodate the new single card system. It is also recommended that the Webcam be replaced with a digital camera to produce passport quality photographs.

## **2.7 Port Hedland**

The port facility has not been installed with any automated access control. A manually operated boom gate staffed by Port security agents is used to control access to the port operated areas. Identification cards have been issued for use on site, which are checked at the boom gate prior to access being granted.

The port authority intends to install an automatic pedestrian and vehicle control system to the main gate, once the MSIC guidelines are confirmed, to avoid any abortive works.

In addition to the Port Authority controlled area, major tenants such as BHP Billiton occupy a separated lease area and have their own access control system, which operated totally independent from the Port Authority.

## **2.8 Broome**

The port has recently installed a Siemens Advantage Lite access control system, which utilises a HID proximity card and reader. Approximately 800 cards have been issued, although only 400 are used for access control. The remainder are solely for identification.

Access control card readers are located at the start of the jetty to restrict access and also to access the Port Administration building.

The whole jetty area is designated as the Maritime Security Zone. This will cause specific problems once the MSIC requirements are implemented, given the high percentage of casual users.

The port does not have major tenants leasing areas within the Maritime Security Zone.

The system will require software upgrades to accommodate the new single card system.



## **2.9 Major Tenants**

To obtain a general understanding of major tenant requirements, meetings were held with Alcoa, BP, P & O and Patricks.

The whole of site tenants such as Alcoa and BP have very limited interport traffic and would therefore not significantly benefit from a single card system.

Freight handling organisations such as P & O and Patricks would obtain advantages in a single card system as staff are regularly required to access port controlled areas. This would also apply to other stakeholders using their facilities including ship's agents, truck haulage operators, customs brokers etc.



### **3. MISC CARD APPROVALS**

The issuing of a MSIC will be by Issuing Bodies. Port authorities, port facilities or service providers can put in place a MSIC Issuing Body plan and Department of Transport and Regional Services (DoTARS) will be issuing guidelines for the Issuing Bodies.

MSIC card issuing, printing and requirements to obtain a MSIC are subject to guidelines to be issued by DoTARS and are not reviewed by this report.

An application for a MSIC will be where an operational need is defined as whether his or her occupation or business interest requires him or her unmonitored access to a maritime security zone at least once a year. The categories of application could be summarised as;

- (i) An individual requiring access to a port or port facility could make an application for an MSIC, direct to the Issuing Body.
- (ii) A company could make application to the Issuing Body authority for and on behalf of it's employees.
- (iii) Forming part of an individual or company's request to access a partial port or port facility, the port could apply for an MSIC on behalf of the individual or company.
- (iv) Port employees would make the application through their port Issuing Body

Both options (i) and (ii) enable an applicant to request an MSIC without requiring input from a particular port, and in advance of requiring access.

This is likely to be of benefit to the port as new individuals requiring access could obtain the MSIC and then attend the port for safety inductions. All costs associated with obtaining the

MSIC would be paid direct to the Issuing Body, by the individual or company without involving the port.

For cases such as large tenants, ie P & O, Patricks, Shell etc, Option (i) or (ii) is understood to be the preferred method.

If the "Issuing Body" is not part of the port authority, the MSIC once approved can be issued direct to the applicant. The port would then provide port access by programming the card to the particular site access control system, once the applicant has satisfied any local port access requirements.

#### **3.1 Issuing Body**

In accordance with DoTARS requirements an application for an MSIC will need to be processed through an Issuing Body. After the Issuing Body has received the application the processing of a MSIC is performed by a combination of bodies, namely AFP, ASIO and DoTARS.

The role of 'Issuing Body' could be undertaken by existing organisations such as the port authority or even the local DPI licensing centre. The preference would be for the port authority to provide the facility.



Obtaining approvals from AFP and ASIO can be achieved within a two week period. Following discussions with Airport Authority a typical period of between 4 and 6 weeks is advised to individual applicants to allow for fluctuations in approval periods. During extreme peak periods this has extended to 14 weeks.



#### **4. SINGLE CARD APPLICATION**

The application of a single card type that could be utilised for both MSIC and access control of all ports has been investigated.

At present the Ports utilise different systems that are not directly compatible across all sites, although Fremantle and Broome use compatible systems (a summary of the various systems is contained in Appendix A).

Whilst the ports have utilised different system manufacturers, the majority use an access control card as manufactured by HID Corporation. With some reprogramming, and card reader replacement, to remove non compatible card readers (ie, Esperance, Geraldton, Albany and Bunbury) a new single ISO type card could be supplied by HID Corporation that could be programmed at each site.

The process would involve each site programming the new cards to the specific site as the card was introduced; this would have the benefit of ensuring the programming of cards and therefore the authority to be on site remains under local control.

HID promote a card grouping method called "Corporate 1000"; this enables a customer such as WA Port Authority to reserve a card numbering sequence. Typically up to a million card numbers are allocated per Corporate 1000 customer that cannot be used by any other user. As each port orders new cards they are sourced direct from HID, using the WA Port Authority, Corporate 1000 reserved numbering sequence.

With the introduction of the single card, one side could be used for MSIC with the other side left blank. MSIC card layout would be in accordance with DoTARS requirements, a sample of which is contained in Appendix C.

If an individual solely required access to a particular port facility such as Esperance, the blank side could be printed locally with site specific information, such as emergency procedures and emergency contact numbers.

The disadvantage of printing local information to the reverse of the MSIC, would be if the individual requires to at sometime to visit an alternative port facility, either temporarily or under a permanent basis, the local information would need to be updated; this would be achieved by using a self adhesive label.

Where individuals require general access, not within the security zone, the existing port identification provisions could be retained.

The single card system can also be expanded to include the individual tenants of the facility. This would furthermore improve the effectiveness of the system and reduce the need to carry additional identification cards. Other benefits include the improved operational procedures to gain automatic access, whilst reducing the need for staffed security points.



## 4.1 Combined MSIC Benefits

The following identifies the advantages and disadvantages of a single combined access control and MSIC card.

### 4.1.1 Advantages

The major benefits of a single card are:

- (i) The card holders may access multiple sites, with the correct level of authority without the need for multiple cards;
- (ii) Costs can be minimised by using one card not multiple;
- (iii) Reduced risk of card loss, as the card is continually required;
- (iv) Improved operator traffic monitoring to determine who is on site.

### 4.1.2 Disadvantages

The disadvantages of a single card are:

- (i) With an individual or company applying for an MSIC the card could simply be an identification card (similar to a driving licence) delivered to the individual. Access control to a site would then remain unchanged, reducing initial capital costs.
- (ii) If the MSIC is combined with the access control card, any loss or damage would need to involve the port in the card reissuing process (ie, as a minimum programming of new card for access control).

It should be noted that ports that elect to operate general security zones, in addition to Maritime Security Zones, will still require a separate card for persons accessing the non MSIC areas if they do not hold an MSIC. An example of this would be a grounds attendant who would operate inside the port boundaries but not in the Maritime Security Zone.

It should also be noted that organisations such as the major tenant (BHP, BP, P&O) will still have separate cards to access their tenancy areas if they select not to enter the single card system.

## 4.2 Single Card System – Example

When utilising the single card system, multiple authorised end users can still obtain access control cards from the manufacturer for use as an MSIC access control card.

To affectively manage a single card system, each port facility would be required to become an 'Issuing Body' for the MSIC and comply with DoTARS regulations, which are yet to be published. The local Issuing Body, after obtaining the relevant AFP and ASIO clearances for card issuing, would request the printing of a new card from a central printing agency.

For the purposes of this example, a central body is considered as the printing agency. The central body would retain a stock of new corporate (unprogrammed) access control cards obtained through the corporate purchasing system. These could then be printed as an MSIC card and issued to the 'Issuing Body' which requested the cards.



Local programming of the card for access control would be completed at the port authority once all local access requirements are met; ie site safety inductions.

With the corporate card facility, if a port authority required access control cards for non-MSIC areas, they would be authorised to obtain these direct from the card manufacturer. The card manufacturer would be responsible to ensure no duplication of cards occurred.

The above process would simplify cost control. The cost of obtaining and printing the MSIC card, can be monitored and assessed by the printing agency, and any costs for non-MSIC cards would be controlled by the local port facility.



## 5. CARD TYPES

The type of card construction and available technologies has been investigated as part of this review.

### 5.1 Card Construction

DoTARS have stipulated the identification card size and printing requirements, which necessitates the use of minimum 54mm wide by 89mm high card profile. This requirement restricts the card type to two formats;

- (i) Slimline 'ISO' type similar to a credit card and currently used by most port facilities.
- (ii) 'Clamshell' type cards currently in use at Albany Port Authority.

Whilst both card construction types suit the requirements of DoTARS, only the Slimline ISO card will enable direct printing and is therefore the preferred card construction.

### 5.2 Card Technology

#### 5.2.1 Typical Card Files

The standard type of access control card can be grouped into two construction types; contactless and contact. The contactless type would be a proximity card, whilst a contact type would be a magnetic swipe card.

##### **Proximity Type**

Proximity type access control cards operated by carrying a microchip, which when presented to a card reader transmits a card specific binary code to the reader for access verification.

Various levels of security can be achieved by varying the binary code size (ie, 26, 32 or 132 bit) and also the card transmission frequency (ie, 125 kHz or 13.56 MHz).

The encoded chip solely contains the binary code (series of numbers), it does not retain any user details such as card holder names. Information regarding the card holder is maintained by the access control operating system which links the card holder to the card, not by the binary code, but a separate and specific card reference number.

##### **Contact Type**

In place of the encoded chip a magnetic strip can be used, although this relies on contact with the reader, which for port type environments is not recommended due to high failure and wear rates.

The magnetic strip similar to the embedded chip holds binary code relating only to the cards level of access.



### **5.2.2 Smart Cards**

In recent years 'Smart Card' technologies have become commercially available. The smart card has an additional microchip embedded in the access control card. The smart card chip is not used for access control and can be utilised to store any user specific information required.

Examples of smart card use have included:-

- (i) credit facilities for the purchase of goods; this eliminates the need for individual to carry money whilst on site;
- (ii) Access to operate photocopies or other equipment, which in turn can enable tracking of equipment use to relevant individuals and a working group; ability to in house charge for corporate services.

### **5.3 Card Selection**

To limit card failure rates, contactless type cards should be adopted which discounts the use of magnetic strip cards. The MSIC process will necessitate the direct printing of identification and security measures onto the card which therefore requires the use

of an 'ISO' Slimline format. These are widely available from a range of manufacturers such as HID, and Indala.

The use of smart card technology has been considered, although is not required as part of either the MSIC or access control component of the project. Unless a specified use can be identified, its use is not recommended.



## **6. MSIC PRINTING**

### **6.1 General**

Card printing types and methods have been investigated as part of this review. The following options have been identified as suitable methods applicable for the MSIC.

#### **Option N° 1 – Direct Printing With Hot Stamp Hologram**

The type and method currently being used by the Perth Airport Authority can be applied to this project.

Blank ISO type access control cards are direct printed using a dye - sublimation printer (Fargo DTC 525) which also contains the ability to apply a laminated outer finish to the card.

Once the MSIC text and images are printed onto the card, a hot press security foil is added, and then the card is re-fed through the printer to apply the laminate finish, which protects the security foil.

#### **Option N° 2 – Direct Printing With Embedded Hologram**

Card manufacturers, such as Fargo and HID, are now able to supply access control cards that are manufactured with the security foil or hologram embedded in the card.

Utilising this type of card removes the need for laminating the card or applying the security foil after printing.

As with Option N° 1, the embedded security card can be used in the same dye sublimation printer.

DoTARS requirements for card security were not available at the time of publication of this report. It is anticipated that Option N° 1, as currently utilised for the ASIC, would be acceptable.

Option N° 2 has significant benefits by reducing the number of processes and further controlling the card security to a single manufacturer. Prior to applying Option N° 2 confirmation from DoTARS would need to be obtained.

For the purposes cost estimates within this report Option N° 1 has been utilised.

### **6.2 Printing Agency**

The procurement and maintaining a card printing facility, together with security restrictions is a time consuming and costly exercise.

To minimise costs, whilst ensuring the timely availability of MSIC's a single printing authority within Western Australia such as a central body should be established.



The printing authority would accept instructions via electronic transfer, from an Issuing Body to print an MSIC, which would be applied to one of the 'Corporate' Western Australian access control cards.

From the time period of the Issuing Body requested an MSIC, the printing agency would be expected to deliver the card within three working days (Monday – Friday) or better.



## **7. CONCLUSIONS**

The following items summarise the findings of this report:

- (i) A single combined MSIC and port authority access control card is feasible utilising a card system similar to the HID Corporation 'Corporate 1000' solution.
- (ii) Existing port authority controlled access systems could be upgraded to enable the use of a single card system.
- (iii) Each port authority could be registered as the local MSIC 'Issuing Body' in accordance with DoTARS guidelines.
- (iv) A central Western Australian printing agency location is established to managed and produce the MSIC, with distribution to the 'Issuing Body'.



## 8. ORDER OF COST

The following order of cost estimates are provided for general guidance only, and indicate the probable order of costs; they are not intended to be used as a fixed price cost. The estimates are based on current market costs, exclusive of GST, professional services fees, and are valid for works completed prior to December 2005.

The estimates are based on the replacement of 1,000 Port Authority access control cards, utilising the HID 35 bit Corporate Card system or an equivalent with hot stamp type hologram. Costs associated with additional cards for separate contractors or tenants are excluded, as these can be recouped as part of an operational charge.

Costs for the printer arrangement include for software, camera, printer and security foil embossing unit. It is also presumed that cards will be purchased direct from HID.

The costs exclude any labour and office accommodation requirements.

### Single Access Control Card

(i)	Purchase of Corporate Cards (1,000)	\$ 7,150
(ii)	Upgrading of Port Control Equipment (refer 8.1 below)	\$ 255,000
	Subtotal	<u>\$ 262,150</u>

### MSIC Card Application

(i)	Printing of 11,000 cards with MSIC printing equipment	\$ 110,000
	Subtotal	<u>\$ 110,000</u>
	<b>TOTAL</b>	<b><u>\$ 372,150</u></b>

Printing of non-MSIC information and on site local programming is excluded.

### 8.1 Site Upgrades

The following works are required to enable use of a single card system across the various Port Authorities.

It should be noted that during the reviewing process it has been identified that some port facilities such as Albany, Esperance and Bunbury would benefit from system upgrades whether or not the single card systems were instigated. Costs to upgrade these systems to an appropriate level forms an integral part of the single card system and have been included within the estimates noted below.

#### **Esperance** **\$40,000**

- Replace existing card readers
- Upgrade existing hardware to accept new single card system
- Replace existing photo identification hardware including camera



<b>Albany</b>	<b>\$65,000</b>
<ul style="list-style-type: none"><li>• Upgrade existing access control system including card readers</li><li>• Install new gate controllers</li><li>• Network controller to central administration terminal</li><li>• Install new photo ID system, including printer and software</li></ul>	
<b>Broome</b>	<b>\$30,000</b>
<ul style="list-style-type: none"><li>• Modify existing software to accept new single card system</li></ul>	
<b>Bunbury</b>	<b>\$70,000</b>
<ul style="list-style-type: none"><li>• Modify existing software to accept new single card system</li><li>• Interlink existing gate controllers</li></ul>	
<b>Fremantle</b>	<b>\$20,000</b>
<ul style="list-style-type: none"><li>• Modify existing software and door controllers to accept new single card system</li></ul>	
<b>Geraldton</b>	<b>\$10,000</b>
<ul style="list-style-type: none"><li>• Modify existing software to accept new single card system</li></ul>	
<b>Dampier</b>	<b>\$10,000</b>
<ul style="list-style-type: none"><li>• Modify existing software to accept new single card system</li><li>• Install new photograph identification camera</li></ul>	
<b>Port Hedland</b>	
<ul style="list-style-type: none"><li>• System to be installed. Design of system should be such as to accept the MSIC.</li></ul>	



## **APPENDIX A** **SUMMARY OF EXISTING SYSTEMS**



## SCHEDULE OF EXISTING ACCESS CONTROL SYSTEMS

	Esperance	Albany	Bunbury	Fremantle	Geraldton	Dampier	Port Hedland	Broome
<b>Manufacturer</b>	Tecom	Neatrol Systems	Bollinger	Siemens	Bollinger	Inner Range	N/A	Siemens
<b>Software</b>	V1.05	NS2000 V1.2	BS2000	NT 2002-119 Version 2	Senetor V1.0.12	Accept Net 5.6	N/A	Advantage Lite 4.0
<b>Access Card</b>	Magnetic Strip	Proximity	Bollinger	HID ISO Prox	Bollinger 125k Prox	HID I Class	N/A	Proximity
<b>Quantity of Cards</b>	1000	700	2000	3000	1442	1500	800	800
<b>Card Reader</b>	Tecom TS 0861	Motorola	Proximity	HID Fineline	125KH	HID Mini Prox	N/A	Proximity
<b>No. of Doors</b>	5	Nil	Nil	31	2	3*	N/A	2
<b>No. of Gates</b>	10	3	8	7	4	4*	N/A	1
<b>No. of Roller Doors</b>	Nil	Nil	Nil	2	Nil	1*	N/A	Nil
<b>Printer</b>	Fargo	* 1	Datocard SP35	Fargo C11	Eltron P310	Fargo C25	ELTRON P310	Zebra P310i
<b>Direct Printing or Label</b>	Direct	* 2	Direct & Self Adhesive	Direct & Self Adhesive	Direct	Direct	Direct	Self Adhesive Transfer

\* Denotes system to be installed.

\*1 Inkjet used to print onto paper card

\*2 Separate laminated identification card not part of access control



## **APPENDIX B** **CARD TECHNOLOGY GUIDE**

# Multi-Technology Card Guide



**ISOProx II (1386)**  
1. 125 KHz Proximity

**DuoProx II (1336)**  
1. 125 KHz Proximity with Magnetic Stripe

**Smart ISOProx II (1397)**  
1. 125 KHz Proximity  
2. Contact Smart Chip (optional)

**Smart DuoProx II (1398)**  
1. 125 KHz Proximity with Magnetic Stripe  
2. Contact Smart Chip (optional)

**Proximity Card**  
Works with existing HID proximity readers. Add new applications to your proximity card with a contact smart chip module.



**iCLASS Card (2000, 2001, 2002)**  
1. 13.56 MHz iCLASS contactless smart chip and antenna

**iCLASS Card (2000, 2001, 2002)**  
1. 13.56 MHz iCLASS contactless smart chip and antenna  
2. Magnetic Stripe (optional)

**iCLASS embeddable (2010, 2011, 2012)**  
1. 13.56 MHz iCLASS contactless smart chip and antenna  
2. Contact Smart Chip (optional)

**iCLASS embeddable (2010, 2011, 2012)**  
1. 13.56 MHz iCLASS contactless smart chip and antenna  
2. Magnetic Stripe (optional)  
3. Contact Smart Chip (optional)

**iCLASS by HID**  
Features 13.56 MHz iCLASS read/write contactless smart card technology in various combinations with magnetic stripe and contact smart chip module.



**iCLASS Prox (2020, 2021, 2022)**  
1. 13.56 MHz iCLASS contactless smart chip and antenna  
2. 125 KHz Proximity

**iCLASS Prox (2020, 2021, 2022)**  
1. 13.56 MHz iCLASS contactless smart chip and antenna  
2. 125 KHz Proximity  
3. Magnetic Stripe (optional)

**iCLASS Prox embeddable (2030, 2031, 2032)**  
1. 13.56 MHz iCLASS contactless smart chip and antenna  
2. 125 KHz Proximity  
3. Contact Smart Chip (optional)

**iCLASS Prox embeddable (2030, 2031, 2032)**  
1. 13.56 MHz iCLASS contactless smart chip and antenna  
2. 125 KHz Proximity  
3. Magnetic Stripe (optional)  
4. Contact Smart Chip (optional)

**Multi-Technology Cards**  
Seamlessly upgrade from existing magnetic stripe, HID proximity and/or Wiegand readers and cards to a contactless smart card system. Implement multiple applications requiring diverse technologies with a single credential.



**iCLASS Wiegand\* (2040, 2041, 2042)**  
1. 13.56 MHz iCLASS contactless smart chip and antenna  
2. Wiegand Strip

**iCLASS Wiegand\* (2040, 2041, 2042)**  
1. 13.56 MHz iCLASS contactless smart chip and antenna  
2. Wiegand Strip  
3. Magnetic Stripe (optional)

**Technology Card Components**

- SE** Durable thin card with optional vertical slot punch and high quality printing surface for photo, ID, anti-counterfeiting opticons, and bar code.
- IC** 13.56 MHz iCLASS Smart Chip and Antenna
- MS** 125 KHz Proximity Chip and Antenna
- STR** 13.56 MHz Density Chip and Antenna
- WIEG** Wiegand Strip
- MC** Magnetic Stripe

\*iCLASS Wiegand card nominal thickness: 0.76mm

www.hidcorp.com

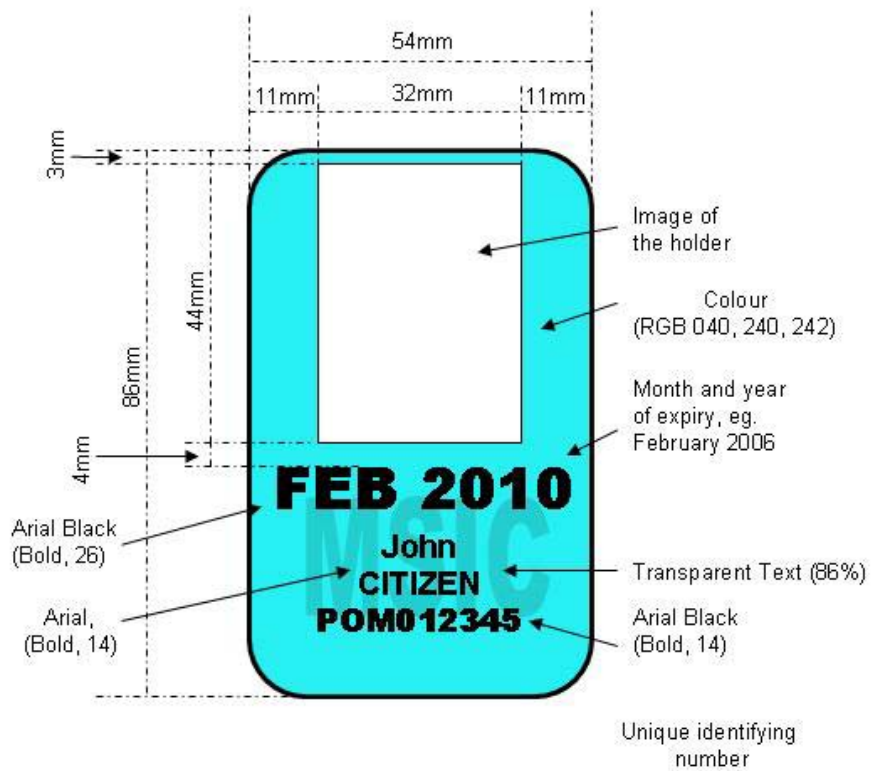
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**APPENDIX C**  
**MSIC CARD LAYOUT**





## **APPENDIX D** **MSIC PRINTER**



**FARGO**

## **Fargo DTC500 Limited Edition Card Printer/Encoder**

*The most versatile and compact solution for printing and encoding plastic cards.*



### **The new standard in card printing and encoding.**

Loaded with advanced features, Fargo's DTC500-LE is expertly engineered – yet surprisingly simple. Whether you print membership cards, employee access cards, student IDs or loyalty cards, you'll be impressed with the rugged reliability, ease-of use and quiet performance of this versatile and compact printer/encoder.

### **Quality printing that takes you to the edge.**

Designed to make you and your cards look their best, the DTC500-LE features the finest quality and most versatile Direct-to-Card (DTC®) printing available. Each DTC500 prints edge-to-edge on standard CR-80 cards from 10 mil to 50 mil thick, and consistently produces crisp, full-color or monochrome cards.

### **Automatic card cleaning makes printer low-maintenance.**

The DTC500-LE comes with an automatic, in-line card cleaning cartridge. The replaceable cartridge slides easily in and out, and cleans up to 3000 cards. Maintenance is simple and constant, ensuring clean card stock and print quality that is second to none.

### **From setup to printing, nothing is faster.**

Everything about the compact DTC500-LE is user-friendly, including setup and maintenance. The DTC500-LE features plug-and-print setup and simple, straightforward operation. Installation is easy, and if you need assistance, a "Help" button on the LCD and an online user's guide make it easy to get answers anytime. With its powerful print engine and 4 MB of RAM, the DTC500-LE can breeze through 133 color cards, or over 500 monochrome cards, per hour!

**If you need a card printer/encoder that's versatile, reliable and easy-to-operate, the Fargo DTC500-LE is for you.**

**FARGO**<sup>®</sup>  
Card Identity Solutions



## **APPENDIX E** **MSIC ISSUING PROCESS**

