



**Airport Perimeter Protection**  
**FOD (Foreign Object Debris) Protection**

# About Land Sea Air Security (LSA)



What We Do: Developing, manufacturing, sourcing, integrating and marketing the world's most advanced and complete line of perimeter intrusion detection and other specialty systems.

Who We Are: Our team of functional experts average 30 years of experience in their respective field.

How We Do It:

- Proprietary Products: We supply stand-alone products and integrated systems for the integrator.
- Developing and customizing: We design products and systems according to the customers needs and specifications.
- We provide Turn-key projects: We can source what we do not manufacture and organize installation.



# Where We Have Done Business



**Austria**



**Kazakhstan**



**Nigeria**



**Israel**



**Romania**



**Colombia**



**England**



**Turkey**



**United States Of America**



**Cyprus**



**China**



**Czech Republic**



**Greece**



**Hungary**



**India**



**Italy**



**Republic Of South Africa**





# Our Solutions Are Deployed in a Variety of Industries



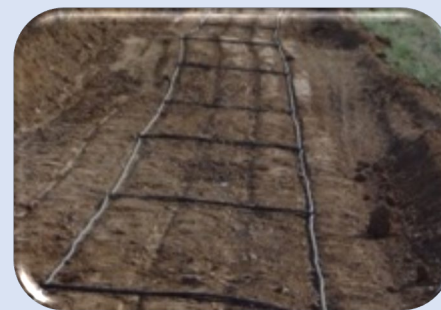
**Power Stations &  
Nuclear Plants**



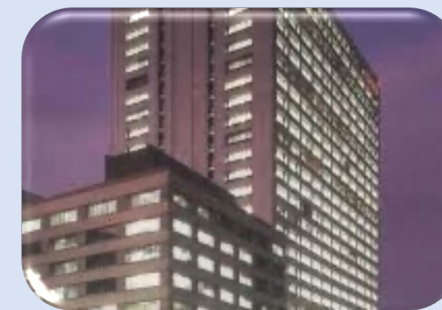
**Prisons**



**Oil Refineries**



**International Borders**



**Government Facilities**



**Airports**



**Ports**



**Pipelines**



**Shoreline & Marine**



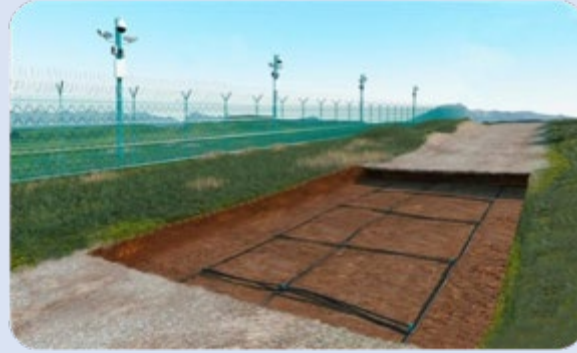
**Many other Civil and  
Military Facilities**

# Critical Asset Perimeter Security Solutions



## Fence Technologies

1. Sensor cable
2. Vibration sensor
3. Wall climbing detection
4. Wall break detection



## Underground Technologies

1. Pressure
2. Magnetic
3. Seismic



## Underwater Technologies

1. Magnetic
2. Nets (Underwater Fence)
3. Sonar
4. Acoustic Shocker



**Integrated Command & Control Centers**



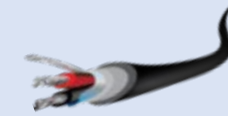
**CCTV Systems**

# Perimeter Protection

- Multiple Layer Approach:
  - Visible Perimeter Fence Protection:
    - Passive and Visible Super Sensor Cable
    - Passive and Visible Vibration Device
  - Hidden Perimeter Protection:
    - Passive and Hidden Metal Detection
    - Passive and Hidden Pressure Detection
  - Underwater Perimeter Protection
- Integrates and with other protection technologies/capabilities and command centers
  - CCTV
  - Motion, Door/Window Contact
  - Access control
- Very Low False Alarm Rate (FAR)
- LSA will assess the installation and develop a package of solutions to increase protection of critical assets

# Visible Fence Solutions: Super Sensor Cable

- Our unique smart perimeter detection system has these benefits:
  - Extremely low false alarm rate (FAR)
  - Easy to install on any barbed wire, concertina or mesh fence and walls or underground
  - Simple to maintain and very cost effective
- The system indicates any attempt to breach by climbing over a fence, cutting the fence, or digging under the fence.
- The Sensor Cable attached to the fence by long life span metal clips.



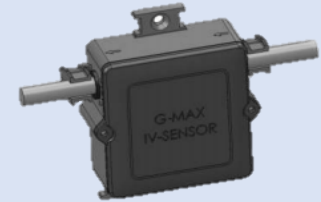
**Super Sensor Cable**





# Visible Fence Solutions: Inertia Vibration System

- Based on multiple sensing transducers to create a Perimeter Intrusion Detection System (PIDS).
- Can be easily added on to any fence or wall
- Detection resolution of ~3m
- Adjustable sensitivity per sensor
- Very low False Alarm Rate (FAR)
- Adjustable sensor sensitivity
- High reliability and very low maintenance expense
- Easily integrates with Super Sensor Cable



**Inertia Vibration Sensor**





# Hidden Perimeter Protection: Metal Detection

- Underground Passive Magnetic Detection System (UPDS) is a concealed, passive buried cable that is designed to detect and locate intruders moving over unseen boundary lines and perimeters.
- The UPDS is a detector of movement of iron or steel that:
- Is a concealed sensor based on magnetic technology that creates a virtual fence up to 8 meters above and 8 meters below its cables
- Is not impacted by animals or growth of vegetation, rain or snow but alerts when intruders with weapons or tools attempt to cross
- Works on any types of ground, including roads, runways, concrete, asphalt, grass or even on top of walls

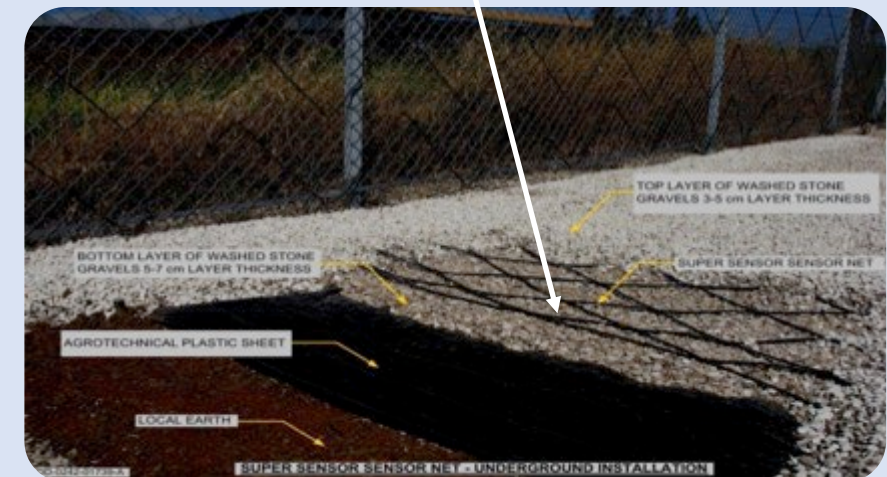
UPDS Net



# Hidden Perimeter Protection: Pressure Detection

- The system detects pressure changes on the system's surface that created by a walking/running/ crawling intruder and can detect digging under
- It provides a unique underground passive, invisible perimeter detection that can be installed under grass or gravel and alerts when the perimeter is breached.
- The system based on a unique sensor net made from a Sensor Cable.
- Is not disturbed by any external interference such as electromagnetic waves, loud noises from speakers, or vibration.
- Very low False Alarm Rate (FAR)

Pressure Detection Net



# Hidden Perimeter Protection: Seismic Detection

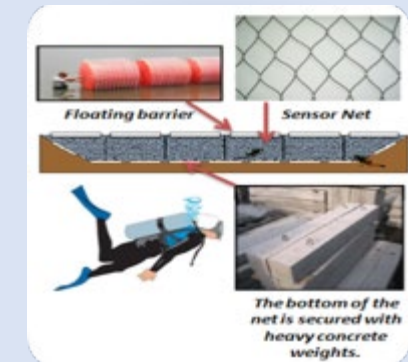
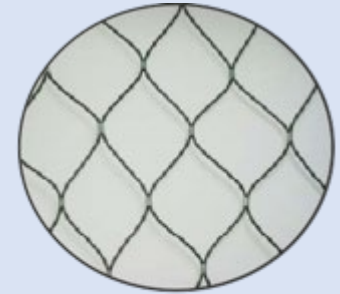
- An advanced underground seismic intrusion detection system which offers a reliable, cost-effective solution to intrusion detection needs for different terrains
- Ability to detect and precisely locate (via addressable geophone sensors) walking, running or crawling intruders along the facility's perimeter.
- It provides a unique underground passive, invisible perimeter detection that can be installed under grass or gravel and alerts when the perimeter is breached.
- The intruders are unaware of the presence or exact location of the invisible detection system, which contributes to the avoidance of any attempt to tamper with or defeat the system
- Very low False Alarm Rate (FAR)

Seismic Detection Device



# Underwater Perimeter Protection: Marine Net

- The Marine Sensor Net is an underwater fence detection system, based on a unique sensor cable that is woven into a Net configuration using special stainless-steel clips. Any attempt to cut, climb over, or pass through the Marine Sensor-Net will trigger an alarm
- The Sensor Net can be installed “freestanding” or attached to any new or existing barrier
- A predefined level of Mechanical Stress on the sensor cable will be converted into electronic signals which are then processed by digital and analogical analyzers within the Sensor Net controller
- The combination of “cutting through” detection and/or mechanical stress detection gives the Marine Sensor Net the ability to secure medium up to high-security risk installations
- The Marine Sensor Net delivers the most reliable and effective front-line intrusion detection
- Very low False Alarm Rate (FAR)





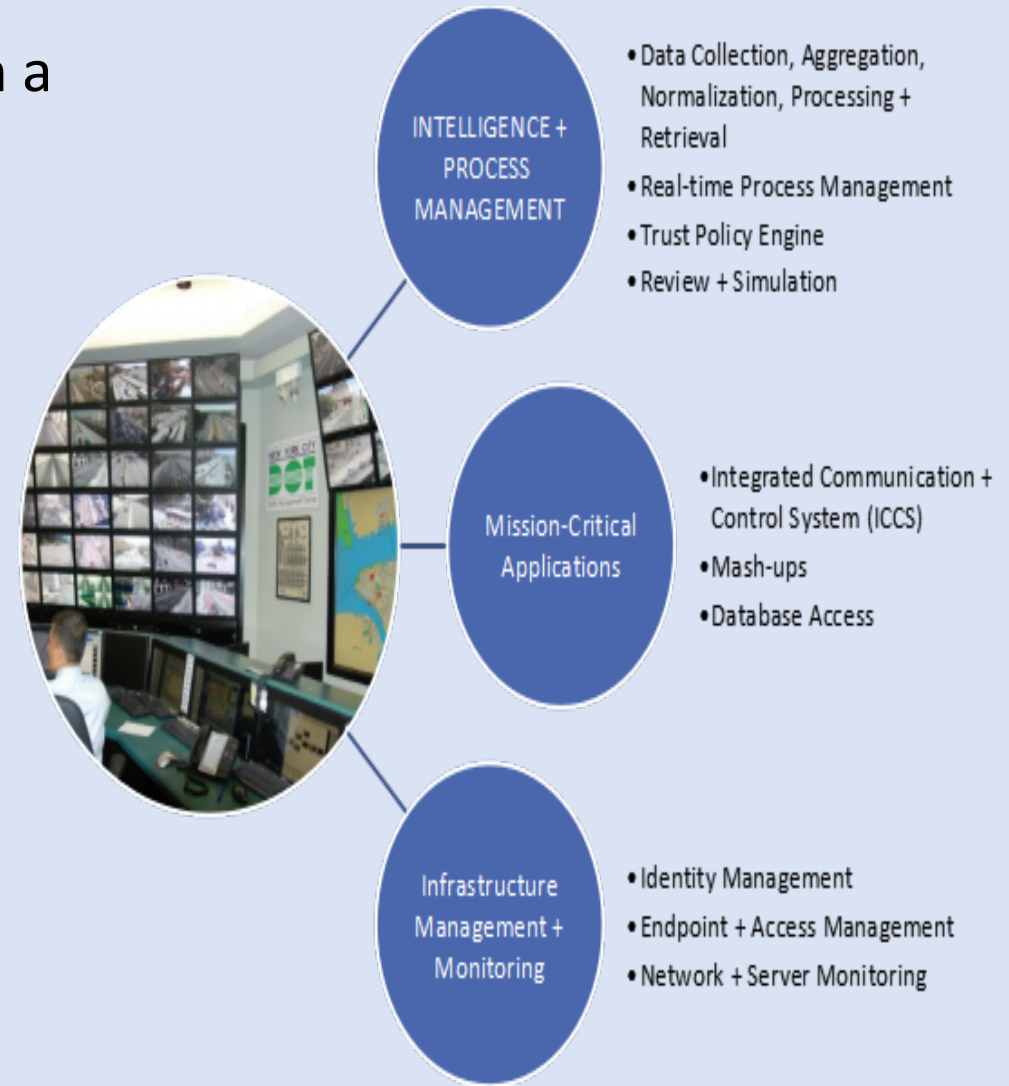
# Underwater Perimeter Protection: Marine Magnetic

- The Marine UPDS underwater system is based on the UPDS magnetic system, the system detects divers in shallow water & near the canal wall - something naval radar and sonar have difficulty doing successfully
- The system is based on the principle of Magnetic Anomaly Detection (MAD), its detection is concealed and completely passive
- The detection system can be effectively operated under any surface (soil, concrete, water, ice) and is not influenced by fish and other aquatic animals
- Global or local disturbances are filtered out by the advanced adaptive algorithms in the Field Control
- Very low False Alarm Rate (FAR)

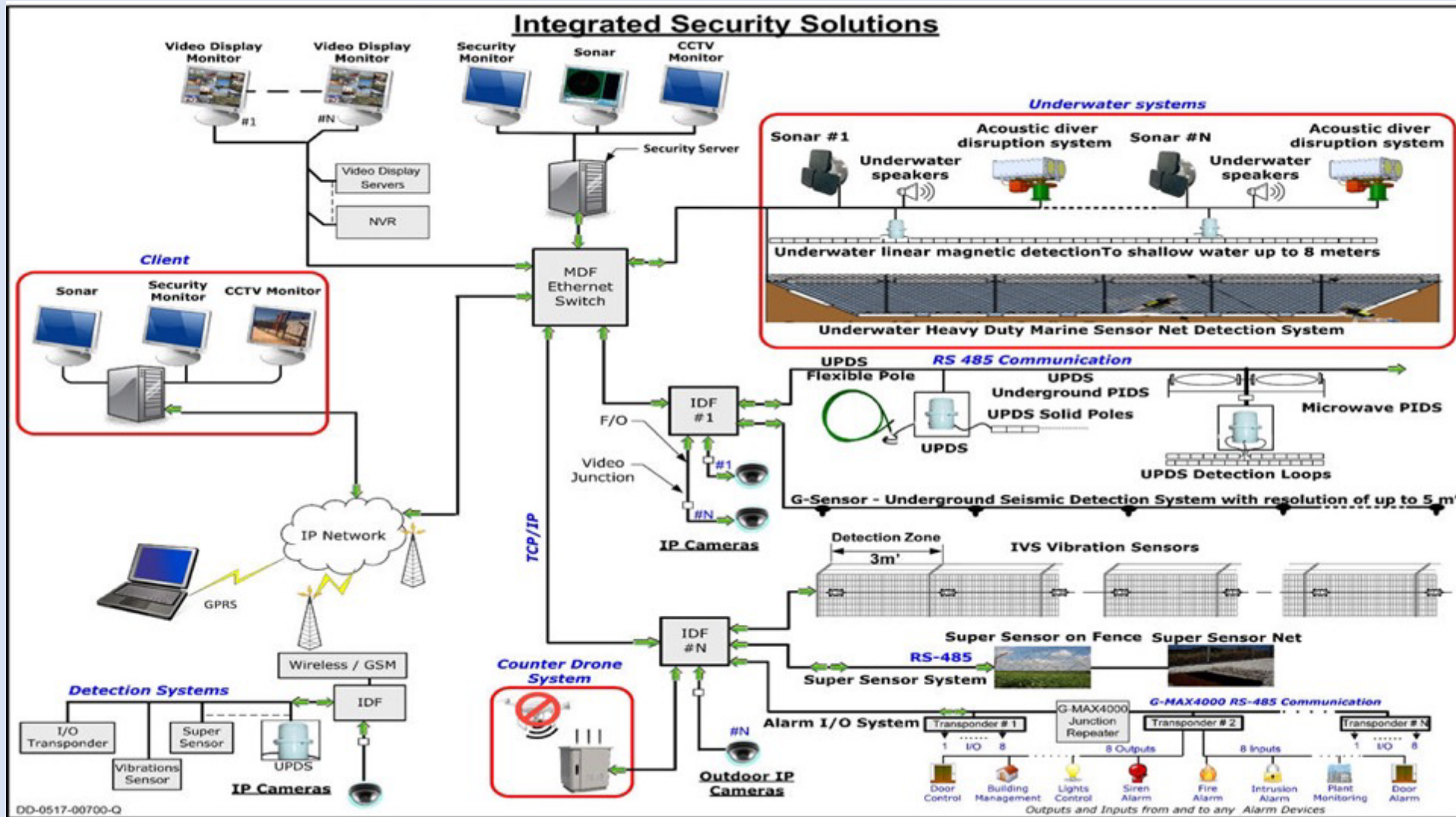


# Integrated Command Center

- Computerized command and control center with a high operating flexibility, suitable for large and small systems
- The system controls and makes integration of various systems such as security events, video, access control, in a high cost
- Benefits:
  - A high flexible solution: the customer can make changes in the system configurations
  - Allows integration with external systems
  - Simple operation
  - A high cost-effective system



# Integrated Command Center Schematic



## INTRODUCING: FOD Barrier™ by Airvrix

- FOD Barrier™ is the only solution that is proven to **prevent 80%** of FOD before reaching the runway\*
- The FOD Barrier™ significantly decreases the amount of foreign objects that enter the runway.
- The blocking mechanism is placed onto the runway shoulders creating a barrier between the paved track and the unpaved areas of the runway.



80%

Decrease in the number of FOD damages



23%

Increase in aircraft availability





# FOD Sources



Boeing's FOD presentation explains  
the jet blast FOD movement

Most FOD starts in a non-threatening position. The danger is that once debris is in place,  
it is free to move around. the biggest movement comes from jet blast  
– Insight FOD Report

# Engine Suction Sources



**Once FOD penetrates the sterile area, jet engines can easily lift it from the ground by the engine suction power.**

# FOD Damage



**Wheels  
Damage and  
Replacements**



**Engines  
Damage**



**Fuselage  
Hit**

# FOD Barrier™ Features

- Collapsible
- Comply with Aviation Standards
- All Weather Resistant
- Integrated Drainage
- Jet - Blast resistance
- 300 mm height

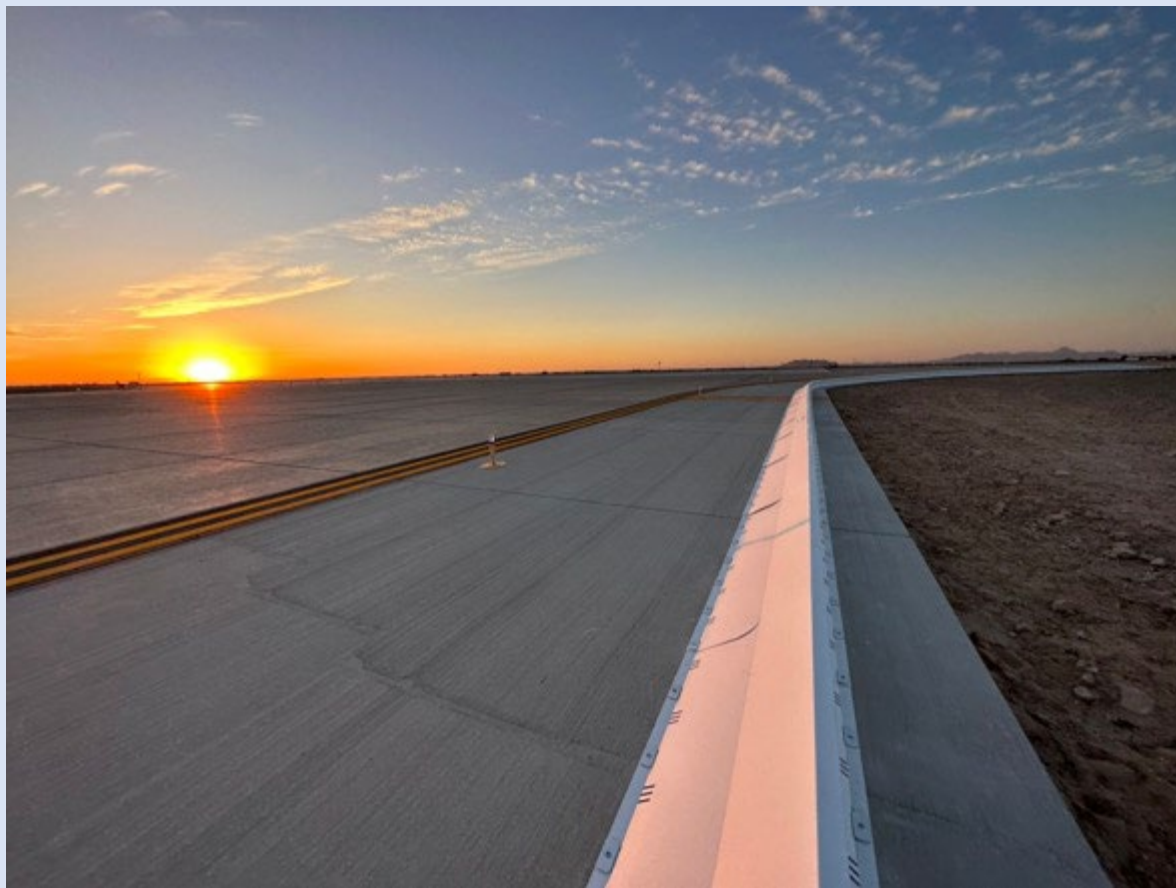




# FOD Barrier™ Installations



# FOD Barrier™ Installations





# FOD Barrier™ Installations



# FOD Barrier™ Installations





# FOD Barrier™ Installation Process





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