



Integrated Solutions For Global Impact

MAA GROUP

Geotechnical Engineering

- Foundation and Deep Excavation
- Slope Protection and Earth Retaining Works
- Slope Development
- Groundwater Modeling
- Ground Improvement
- Embankment
- Dam Safety
- Tunnels
- Geo-Environmental Engineering
- Soil and Water Conservation Design
- Geo-Information Technology
- In-situ and Laboratory Test
- Underground Construction Risk Management – Geotechnical Engineering Specialty Consultancy (GESC)
- Seismic Risk



MAA Sustainable Engineering Action



Founded in 1975, MAA is a leading engineering and consulting service provider in the East and Southeast Asian region with a broad range of focus areas including infrastructure, land resources, environment, buildings, and information technology.

To meet the global needs of both public and private clients, MAA has developed sustainable engineering solutions - ranging from conceptual planning, general consultancy, engineering design to project management.

MAA employs 1200 professional individuals with offices in the Greater China Region (Beijing, Hong Kong, Shanghai, Taiwan), Mekong Region (Bangkok), and Southeast Asian Region (Singapore), creating a strong professional network in East/Southeast Asia.

MAA's business philosophy is to provide professional services that will become an asset to our clients with long lasting benefits in this rapidly changing social-economic environment. ASSET represents five key components that underline MAA's principles of professional services:

- A**dvanced technology
- project **S**afety
- client's **S**atisfaction
- E**conomical solution
- T**imely completion



MAA Sustainable Eng. Concepts

Geotechnical Engineering



- Railways
- Airports
- Roads and Highways
- Buildings
- Hazard and Risk Management
- Geo-Environment
- Bridges
- Ports
- Tunnels
- New Towns
- Energy
- Dam Safety
- Laboratory Test

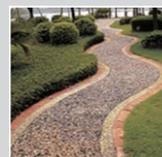
Create a Green Environment



Adoption of Green Engineering Methods



Selection of Green Building Materials



Adoption of Green Energy



What We Can Do

Slope Protection



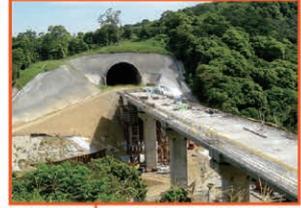
Deep Excavation of Highrise Facilities



Dam Safety Evaluation



High Speed Railway Tunnel



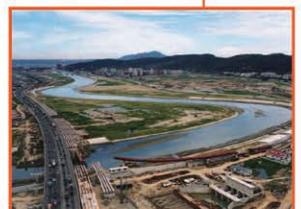
Highway Tunnels



Piperoof Excavation



Flood Protection Dikes



Land Reclamation



Common Utility Duct Tunneling



TBM



MRT Station

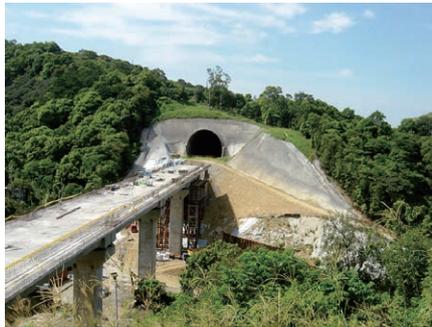


Vibration Mitigation

Railways

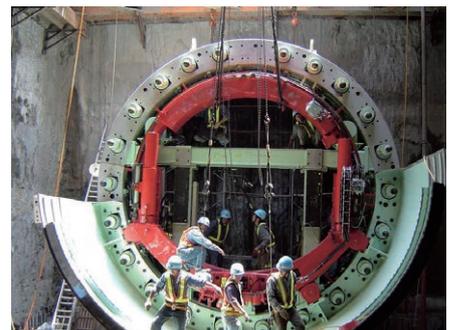
- Embankment design
- Bridge, viaduct and abutment foundation design
- Rock tunnel/cut-and-cover tunnel/shield tunnel design
- Retaining wall and deep excavation temporary work design
- Slope protection
- Risk management
- Existing buildings protection
- Geotechnical construction consultancy

Taiwan High Speed Rail



Tunnelling 9 m below existing freeway

Mass Rapid Transit Systems (Taipei, Kaohsiung, Taichung, Bangkok)



MRT blue line extension in Bangkok



Largest circular excavation with diameter of 140 m in Taiwan



First Double O-Tube (DOT) tunnelling in Taiwan

Airports

- Ground improvement design
- Runway and taxiway pavement design

Taiwan Taoyuan International Airport Rehabilitation Project



Suvarnabhumi International Airport, Thailand



Installation of 40,000,000 m PVD with depth of 35 m

Roads and Highways

- Slope protection
- Mined tunnel design

- Embankment design
- Bridge/viaduct and abutment foundation design

Xinyi Expressway, Taiwan



Braddel Road Flyover, Singapore



Nguyen Van Linh Parkway, Vietnam



Buildings

- Excavation safety evaluation
- Geotechnical construction consultancy
- Retaining wall and temporary work design

- Risk management
- Existing buildings protection
- Instrumentation supervision and interpretation

Taipei 101, Taiwan



The tallest building in the world when finished 2004 with the height of 508m and 101 stories

Core Pacific City Shopping Mall, Taiwan



Excavation depth up to 32 m in soft ground - the deepest excavation for building facilities in Taipei

Kaohsiung Exhibition and Convention Center, Taiwan



Marina Square/Pontiac Marina, Singapore



The Gateway, Singapore



Bugis Junction Redevelopment, Singapore



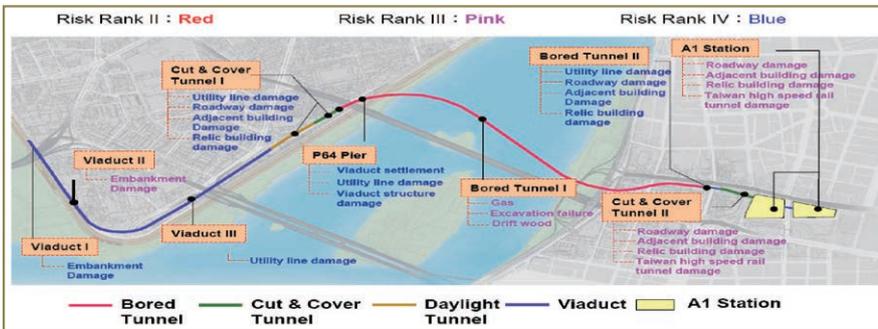
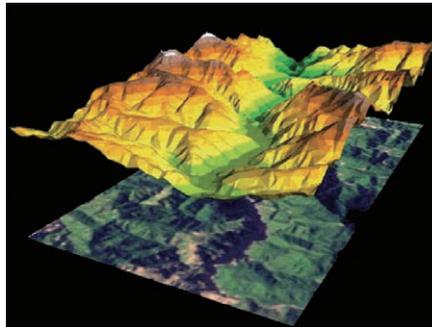
The Coasta Rhu, Singapore



Hazard and Risk Management

- Risk management
- Geotechnical/geological hazard analysis
- Establishment and integration of geo-information

Ground Subsidence Investigation and Geological Maps & Land Use Sensitivity Analysis, Taiwan

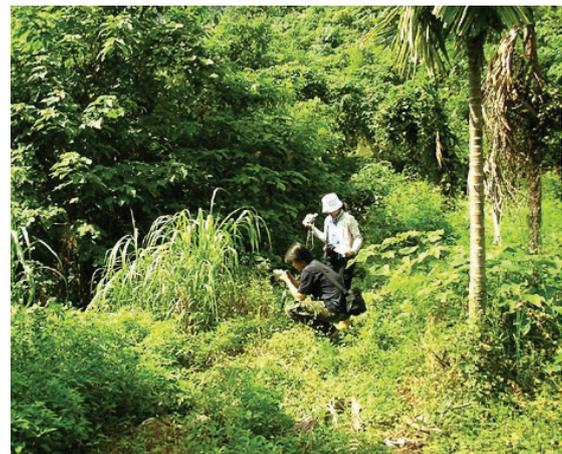


Risk identification and management profile of airport link MRT

Geo-Environment

- Landfill design
- Remediation evaluation and design
- Groundwater protection policy and regulation study
- Soil and groundwater contamination investigation and monitoring

Geo-Environment Investigation



Bridges

- Bridge and abutment foundation design
- Slope protection

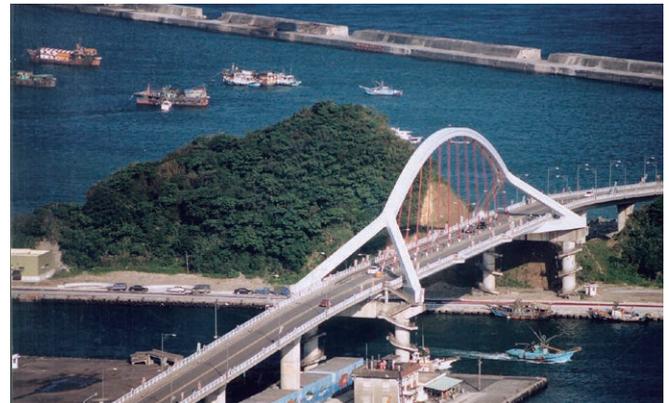
Shinwei Butterfly Bridge, Taiwan



Lofu Bridge, Taiwan



Nanfang Au Bridge, Taiwan



Ports

- Slope protection
- Wharf foundations design
- Land reclamation analysis and design

Matsu Interior Commercial Harbor Project in LienChiang County, Taiwan



Tunnels

- Slope protection
- Tunnel portal design
- Temporary and permanent structure design
- Grouting treatment design
- Pipe-roof excavation design
- Geotechnical construction consultancy

Hsinyi Expressway, Taiwan



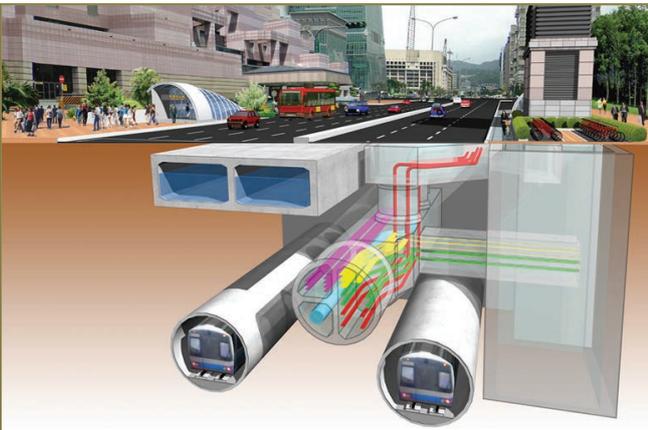
Cut and cover tunnel

Fuhsing North Road Underpass through Taipei Song Shan International Airport, Taiwan



Combining pipe-roofing and segmental pull-pushing (ESA) is applied in soft ground to meet the strict requirement on settlement control

Common Utility Duct, Taiwan



Construction of tunnels in close proximity to existing structures / facilities

New Towns and New Communities

- Slope protection
- Land reclamation design
- Pipelines and facilities excavation design
- Ground improvement assessment design

Tamhah New Town, Taiwan



Shezhindao Development, Taiwan



Great Taipei New Town on Slopeland, Taiwan



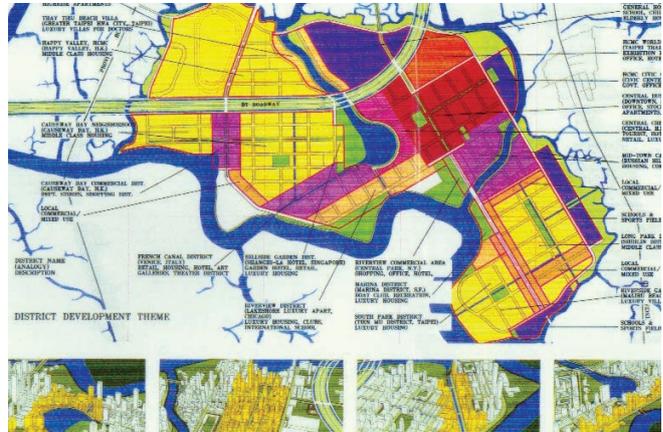
Sentosa Cove Parcel C9, Singapore



Cheh-Jiung New Village Development, China



Saigon South New Town Development, Vietnam



Energy

- Ground improvement design
- Vibration effect assessment
- Seismic and earthquake effect assessment and analysis

Dam Safety

- Slope protection
- Safety assessment and planning of emergency action

Taichung Thermal Power Plants, Taiwan



Chipan Reservoir, Taiwan



Laboratory Testing

As part of the mission of MAA to provide leading design services to both private and public clients, MAA has continued to ensure the quality of testing results carried out by MAA Laboratories. The MAA Laboratory in Taiwan, founded in 1975, has been operated under ISO9001 in 2000 and has received the approval of Taiwan Accreditation Foundation (TAF) in 2002. Over the past 38 years, MAA Laboratory has expanded its scale gradually, comprising of ISO17025 certified engineers and technicians and high-tech equipments. ISO17025 “specifies the general requirements for the competence to carry out tests and/or calibrations, including sampling. It covers testing and calibration performed using standard methods, non-standard methods, and laboratory-developed methods.”

MAA Laboratory is equipped to provide simulation of soil behavior tests such as :

- **Constant Rate of Strain Test (CRS)**
- **Earth Pressure at Rest Consolidation (undrained, triaxial compression/extension) Test**
- **General Identification Test**
- **Compaction Test**
- **California Bearing Ratio (CBR) Test**
- **Unconfined Compression Test**
- **Direct Shear Test**
- **Triaxial Compression and Extension Test**
- **One-dimensional Consolidation Test**
- **Triaxial Permeability Test**



Awards

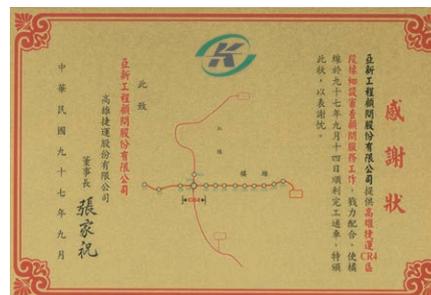
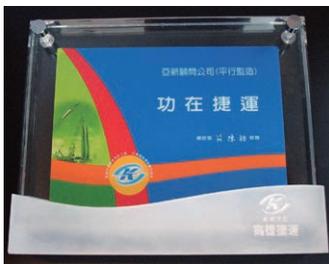
Taiwan High Speed Rail Corporation Appreciation Award

“CR4 Line, Kaohsiung MRT” detailed Design project – Kaohsiung Rapid Transit Corporation Appreciation Award

“Neihu Line, Taipei MRT” Project – Chinese Institute of Engineers Best Project of the Year Award

“Fushing North Road Underpass through Taipei Song Shan International Airport” Project

- Taiwan Geotechnical Society Best Group Performance of the Year Award
- Taipei City Government Appreciation Award
- Public Works Department of Taipei City Government Best Construction Project of the Year Award
- Public Works Commission Award of the Year



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