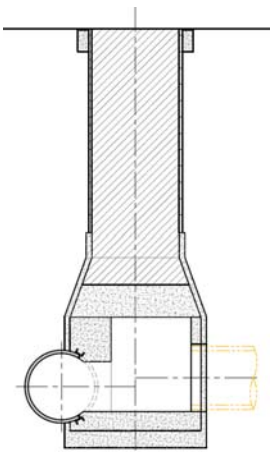
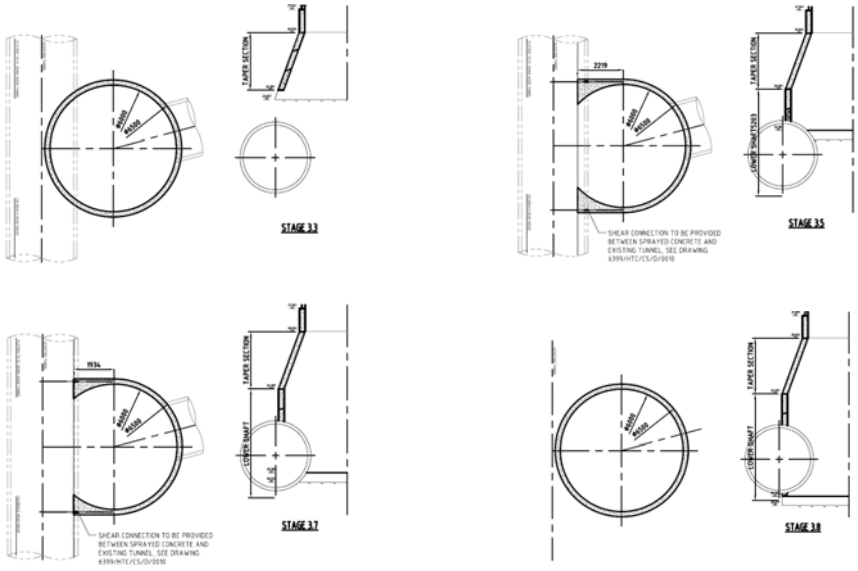
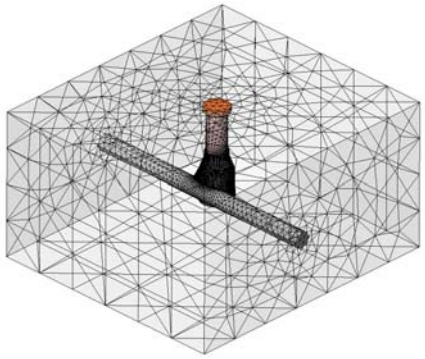
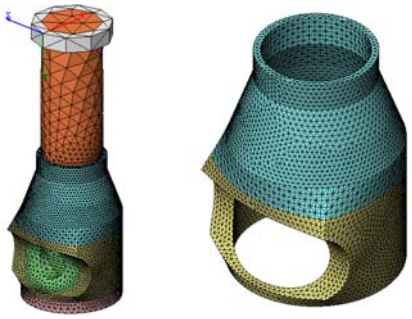
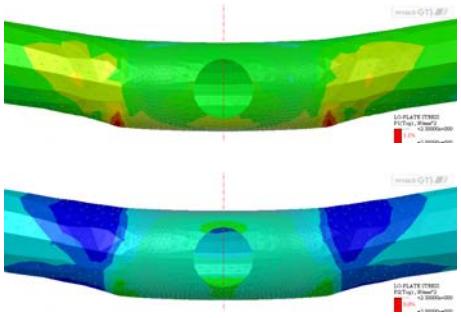
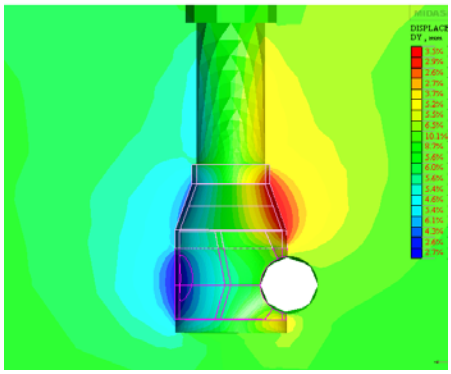
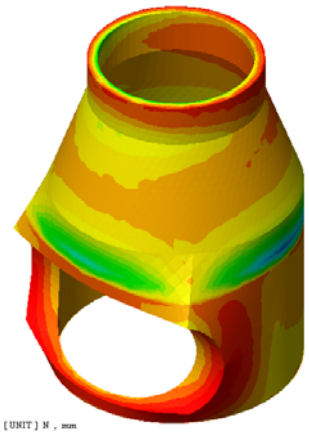
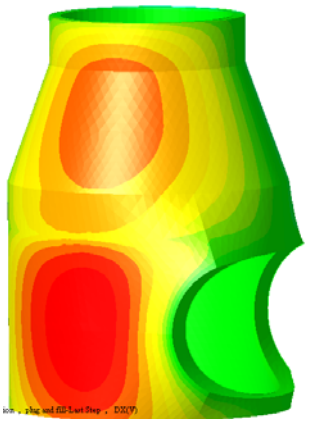
MIDAS/GTS Program Application [1]

Engineer	morgan=est **Consultancy for Morgan=Est, UK**

Project Overview		**Project Image**
Title	**Segmental and sprayed concrete shaft construction**	
Project	**Design for construction**	
Scope	**Assessment of the effects of the shaft construction on the existing tunnel and design of shaft lining:** - **Construction stage analysis** - **Check displacements and lining forces in the existing tunnel** - **Check forces in the sprayed concrete lining of the shaft**	
Overview	The section of the existing tunnel where the shaft intersects is first strengthened with block work. The cylindrical section of the shaft is built with segmental lining. Then the tapered section of the shaft is built in 1 m deep stages and lined with sprayed concrete. After sprayed concrete strengthening, the connection is achieved and the block work is removed.	

Typical sections

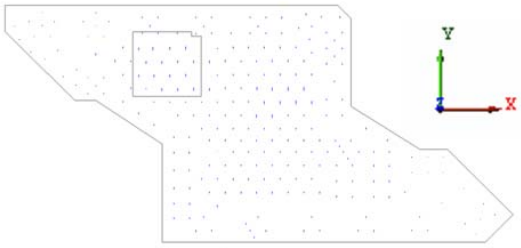


MIDAS/GTS Modelling	
Pre-processing	
Global model overview	**Details of the shaft mesh**
	
Post-processing	
Principal stresses in tunnel lining	**Ground horizontal displacements**
	
Principal stresses in spayed concrete section of the shaft	**Displacements in sprayed concrete**
	

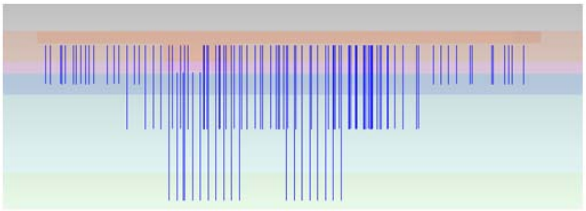
MIDAS/GTS Program Application [2]

Engineer	Hyder Consulting Ltd, UK	
Project Overview		**Project Image**
Title	**Dubai Tower, Doha, Qatar**	
Project	**Piled-raft foundation design**	
Scope	**Analysis results for design:** - **Settlements** - **Raft forces and bending moments** - **Pile forces and bending moments**	
Overview	The proposed development for the Dubai Tower project comprises the construction of an approximately eighty floor high rise tower with mezzanine, ground floor and five basement levels and will be the tallest structure in Qatar when it is complete. The tower is founded on a piled raft. In order to fully understand the behaviour of the foundation, a 3D finite element model is required.	

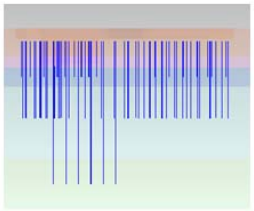
Pile scheme



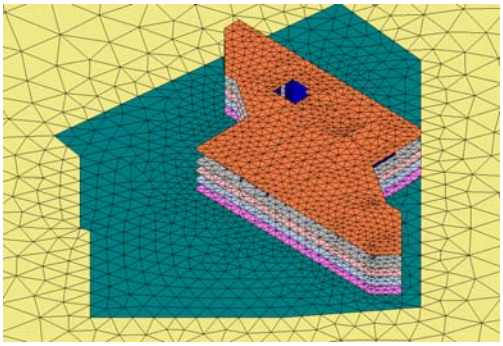
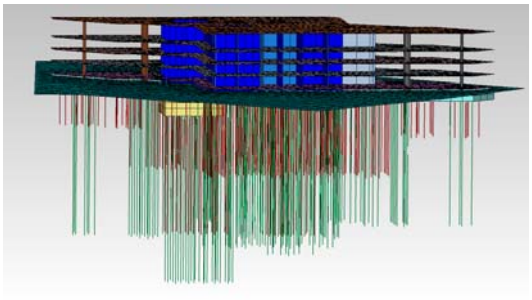
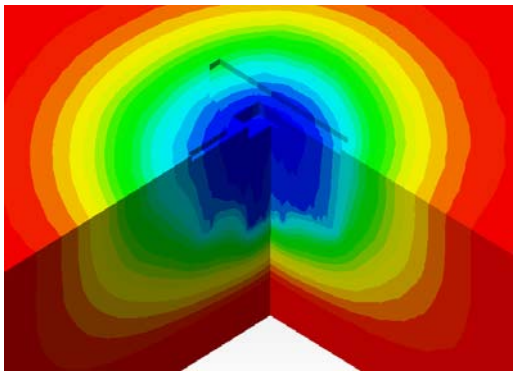
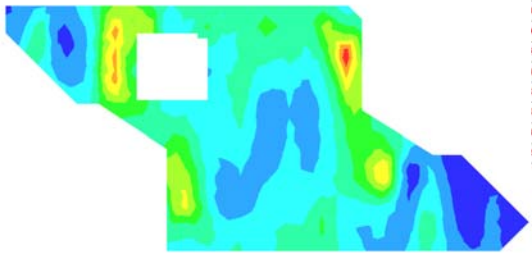
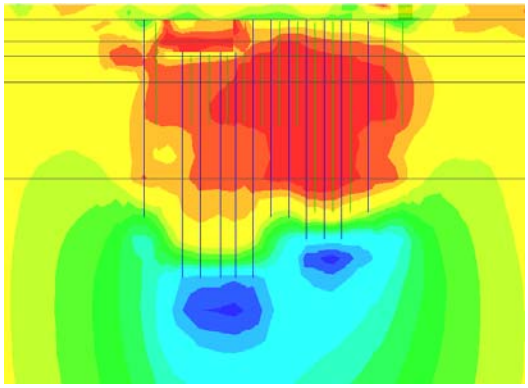
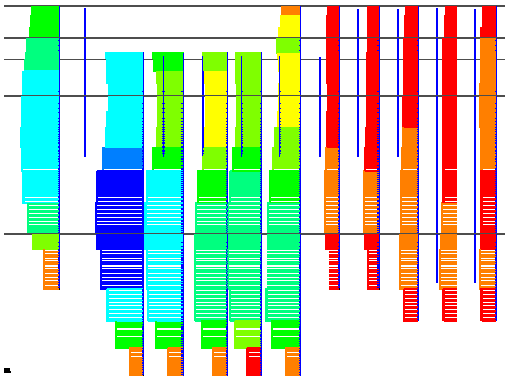
Top view



Side view along Y



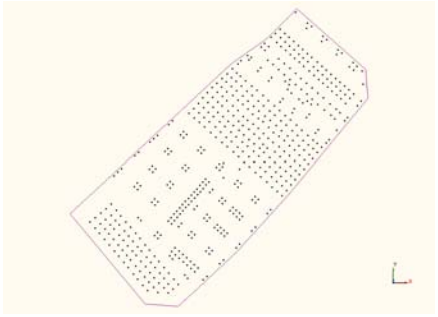
Side view along X

MIDAS/GTS Modelling	
Pre-processing	
Podium and basement levels	**Side view, Piles and Basement**
	
Post-processing	
Quarter cut on settlement results	**Bending moments in the raft**
	
Vertical stress in the rock layers	**Pile axial forces**
	

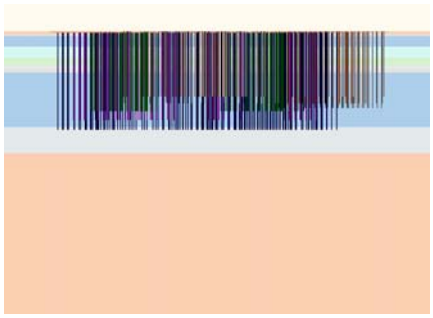
MIDAS/GTS Program Application [3]

Engineer	Hyder Consulting Ltd, UK	
Project Overview		**Project Image**
Title	**Abu Dhabi Tower, Al Reem Island**	
Project	**Piled-raft foundation design**	
Scope	**Analysis results for design:** - **Raft settlements** - **Pile lateral deflections** - **Raft forces and bending moments** - **Pile forces and bending moments** - **Soil stress and strain levels**	
Overview	The Shams Development is located on Al Reem Island off the northeast shore of Abu Dhabi. The First Abu Dhabi (FAD) Complex forms part of the overall Shams Development. The proposed development for Towers B and C of the FAD development comprises the construction of two approximately 50 storey high-rise towers and an accompanying podium and adjacent building. It is proposed that the towers will be founded on a piled raft and in order to fully understand the behaviour of the foundation a 3D linear finite element analysis is required.	

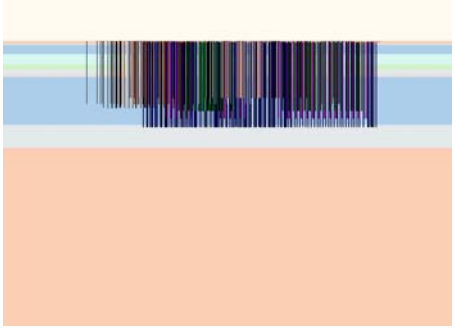
Pile scheme



Top view



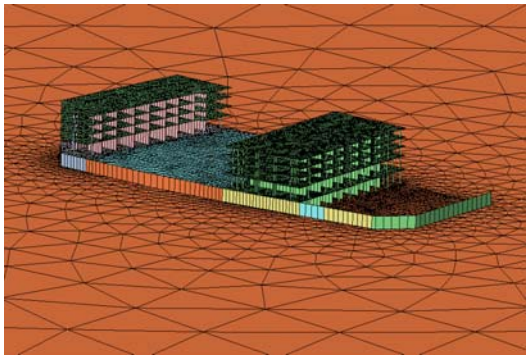
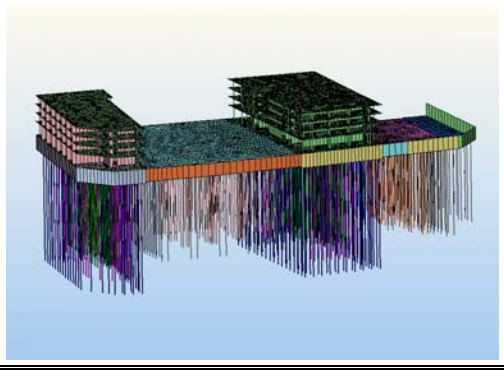
Side view looking north

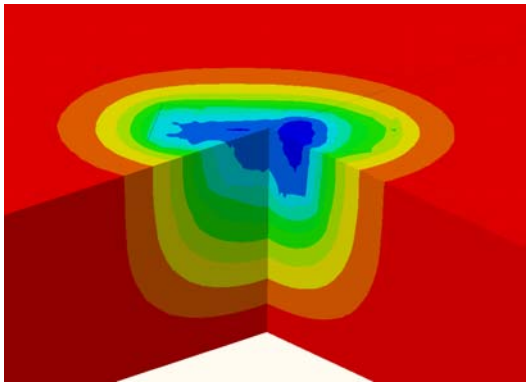
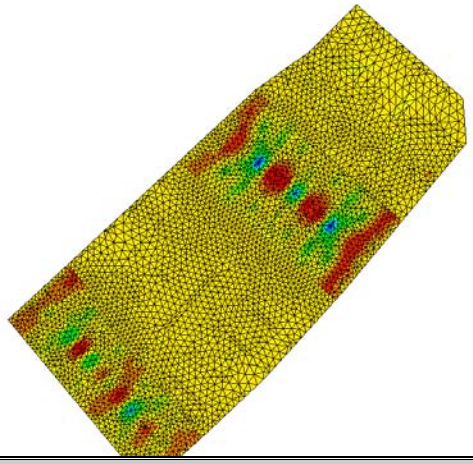
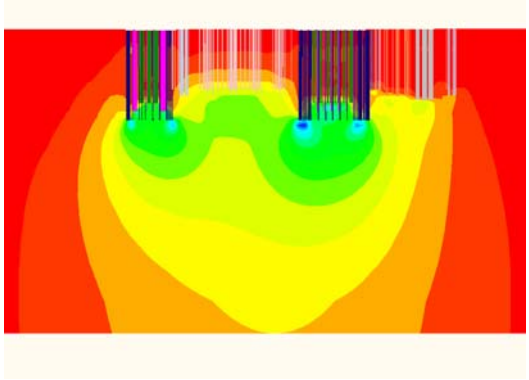
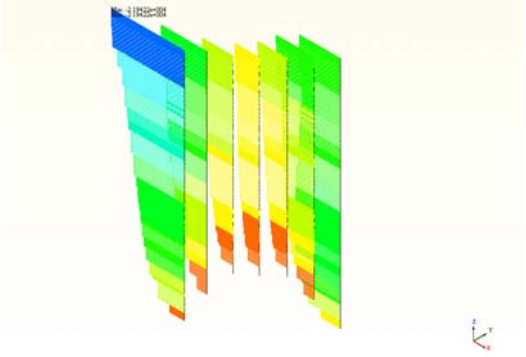


Side view looking east

MIDAS/GTS Modelling

Pre-processing

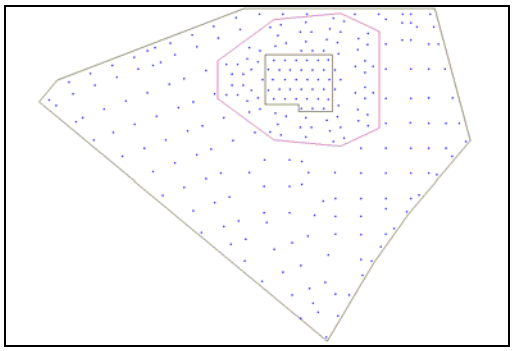
Podium and basement levels	Side view, Piles and Basement
	

Post-processing	
Quarter cut on settlement results	**Bending moments in the raft**
	
Vertical stress in the rock layers	**Pile axial forces**
	

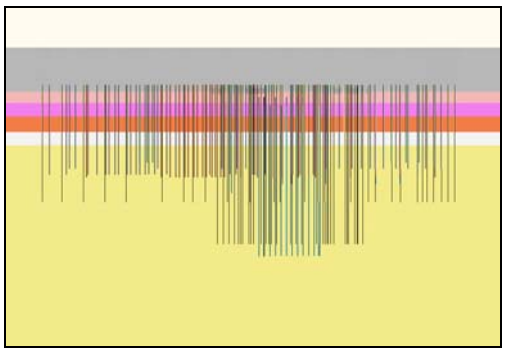
MIDAS/GTS Program Application [4]

Engineer	Hyder Consulting Ltd, UK	
Project Overview		**Project Image**
Title	**Palazzo Versace and D1 Tower, Dubai**	
Project	**Piled-raft foundation design**	
Scope	**Analysis results for design:** - **Raft settlements** - **Pile lateral deflections** - **Raft forces and bending moments** - **Pile forces and bending moments** - **Soil stress and strain levels**	
Overview	The Palazzo Versace and D1 tower are located on the west side of the creek in Dubai. The development comprises the construction of the D1 tower, a hotel and condominiums of 88, 9 and 8 storeys respectively. The tower will be interlinked by a low level podium structure, which will house 3 basement levels. The D1 Tower will be founded on a piled raft and in order to understand the behaviour of the foundation a 3D linear finite element analysis is required.	

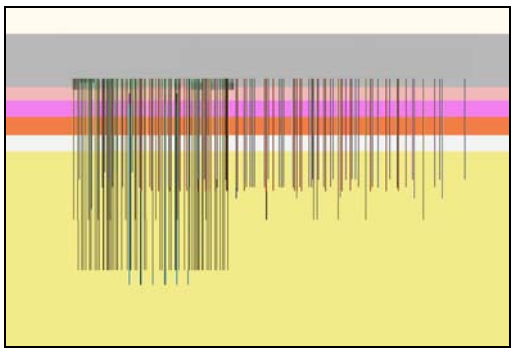
Pile scheme



Top view



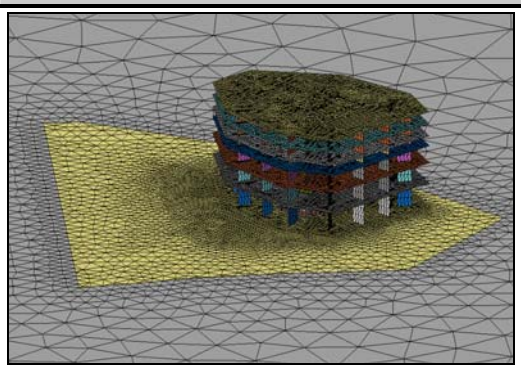
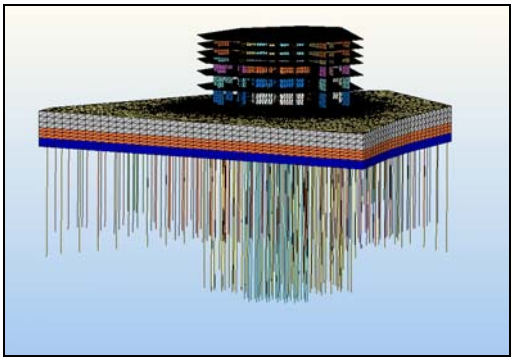
Side view looking north

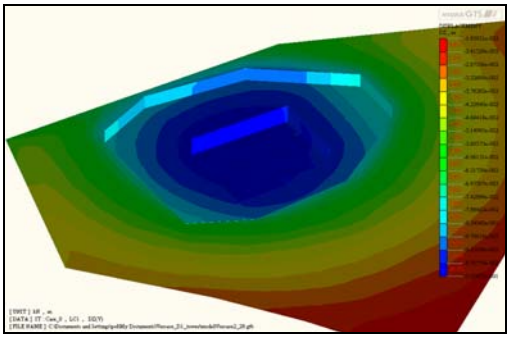
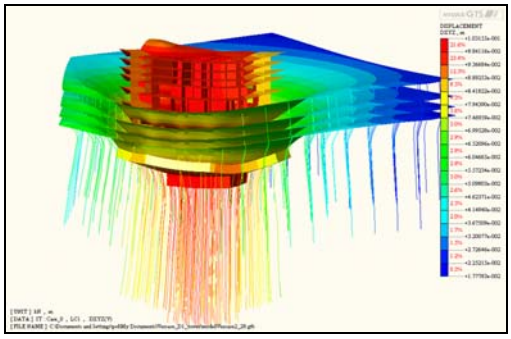


Side view looking east

MIDAS/GTS Modelling

Pre-processing

Podium and basement levels	Side view, Piles and Basement
	

Post-processing	
Podium and raft settlement viewed from below	**Deformed superstructure**
	
Bending moments in the raft	**Vertical stress in the rock layers**