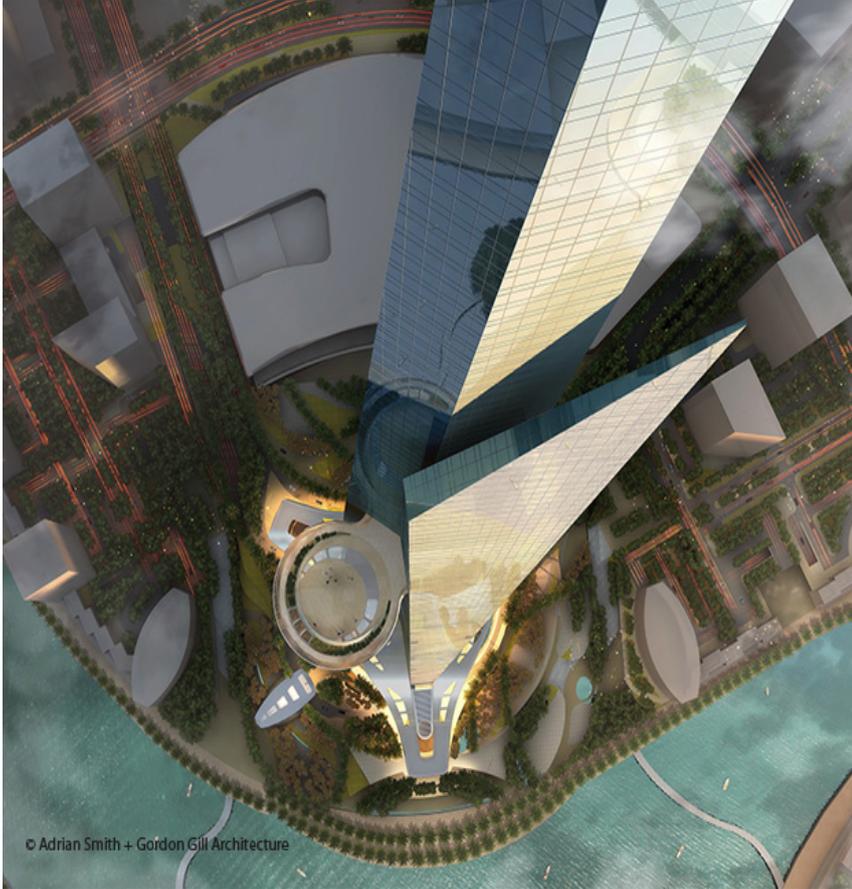


LANGAN INTERNATIONAL - GENERAL



Technical Excellence Practical Experience Client Responsiveness

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WASHINGTON CALIFORNIA ATHENS CALGARY DUBAI LONDON PANAMA

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AL MARYAH CENTRAL

Location: Abu Dhabi, United Arab Emirates
Client: Gulf Related
Services: Geotechnical, Environmental, Traditional Surveying, Terrestrial Scanning/BIM

OVERVIEW

This new development on Al Maryah Island will encompass nearly 16 hectares of premier shopping and world class dining. It will seamlessly link to luxury hotels, The Galleria mall, and residential and commercial towers. Langan was retained to carry out full-scale geotechnical and environmental investigations. Langan provided geotechnical recommendations for foundation design, an environmental site investigation, an environmental impact assessment, and a construction environmental management plan. Based on the extensive physical survey data collected at the site and surrounding areas, Langan also developed a 3D Revit survey model.

Technical Excellence Practical Experience Client Responsiveness



JEDDAH TOWER

Location: Jeddah, Kingdom of Saudi Arabia
Client: Jeddah Economic Company
Architect: Adrian Smith + Gordon Gill Architecture
Partner: Thornton Tomasetti, RWDI
Services: Geotechnical, Site/Civil, Traffic & Transportation

OVERVIEW

Rising 1,000 meters (3,280 feet) into the Arabian sky, the tower will eclipse the reigning tallest building by 173 meters (568 feet). The first phase of the Kingdom City comprises the Tower, a 65,000-square-meter retail mall, and a 3,000+ car underground garage. Langan's role has included the development and oversight of the site subsurface investigation, final design of the piles in collaboration with the design team, stormwater management and integration of the circulation and volume demands of the Tower and retail building into the traffic master plan for Jeddah's Kingdom City.

Technical Excellence Practical Experience Client Responsiveness



KING ABDULLAH FINANCIAL DISTRICT - AHLAMANA

Location: Riyadh, Kingdom of Saudi Arabia
Client: Riyadh Investment Company
Architect: Adrian Smith + Gordon Gill Architecture
Partner: Saudi Binladin Group, Thornton Tomasetti
Services: Geotechnical

OVERVIEW

Langan provided geotechnical engineering services for a mixed-use residential, office, and retail building located within the southern portion of the King Abdullah Financial District. Ahlamana consists of two structures, a 26-story (105 meter) residential tower and a 15-story (78 meter) office tower. Four basement levels are planned for about two-thirds of the parcel and a fifth basement level for the remainder of the parcel. The total footprint for the location is approximately 5,700 square meters. Langan's subsurface investigation observed significant rock fracturing during drilling. Additional services included calculations and recommendations for permanent control of groundwater, a seismic evaluation, backfill and compaction, and a site-specific investigation to better understand conditions at the site.

Technical Excellence Practical Experience Client Responsiveness



DUBAI CREEK HARBOUR - CREEK GATE TOWERS

Location: Dubai, UAE
Client: Emaar Properties
Architect: NORR
Services: Geotechnical

OVERVIEW

The goal of the new Dubai Creek Harbour development is to integrate a smart, green city, while building on cultural heritage. The 113-million-SF project will contain 9 different districts and is expected to take 30 years to build. The mixed-use development will include waterfront eco-resorts, a marina and yacht club, commercial and retail spaces, luxury residences, and educational amenities. Creek Gate Towers, two of the project's most anticipated residential buildings, will each rise 30-stories, house over 400 luxury apartments, and offer spectacular views of Dubai Creek Tower, a magnificent gravity-defying structure unparalleled in weight and strength. Langan reviewed previous geotechnical reports and developed a 3D geotechnical Finite Element Method (FEM) model of the towers' foundations, podiums and the surrounding soil and rock. Langan prepared a final report to summarize findings and results, which included interpretation of subsurface conditions, derivation of soil, rock and interface properties, description and assumptions of the FEM model, analysis results and calculated pile springs, recommendations for transient load analysis, and lateral load analysis results.

Technical Excellence Practical Experience Client Responsiveness



SIGNATURE JAKARTA TOWER

Location: Jakarta, Indonesia
Client: PT Grahamas Adisentosa
Architect: Smallwood, Reynolds, Stewart, Stewart & Associates, PT
Pandega Desain Weharima/PDW Architects
Partner: Thornton Tomasetti, PT Gistama Intisemesta
Services: Geotechnical

OVERVIEW

Langan was appointed as the geotechnical engineer for the Signature Tower Jakarta, which promises to be an Indonesian icon for the 21st century. Situated in the Sudirman Central Business District, the 111-story tower will rise 638 meters above six below-grade parking levels. The development will include a six-star luxury hotel, observatory, office space, a convention center, and luxury retail mall.

Technical Excellence Practical Experience Client Responsiveness



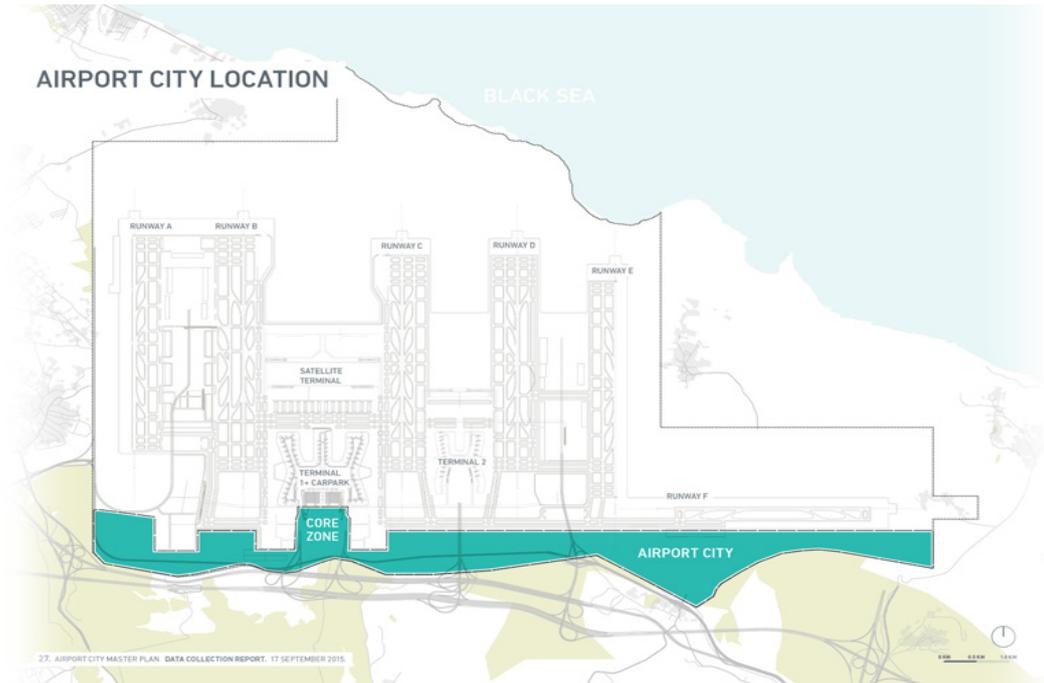
NINE ELMS SQUARE - LONDON, UK

Location: London, UK
Client: R&F Properties, CC Land Holdings
Architect: Skidmore, Owings & Merrill LLP
Services: Geotechnical, Site/Civil, Environmental

OVERVIEW

Just south of the River Thames, the 10-acre former New Covent Garden Flower Market site is being redeveloped as a mixed-use development featuring 12 residential buildings and a linear park that will run from Vauxhall Bridge to the Battersea Power Station. The luxury residential towers will rise up to 55 floors above a deep, single level basement containing servicing and parking. Other facilities will include restaurants, bars, retail outlets, and commercial space. Langan supported the ambitious design and construction program from the outset, assisting in the execution of a £1m (\$1.3m) geotechnical and geo-environmental site investigation and a preliminary pile testing program. Working closely with the project architect, SOM, we completed complex Finite Element analyses to optimize pile group arrangements, seeking to facilitate rapid construction methods whilst ensuring associated settlements were within acceptable tolerances between adjacent buildings and the site-wide basement.

Technical Excellence Practical Experience Client Responsiveness



ISTANBUL GRAND AIRPORT CITY DEVELOPMENT

Location: Istanbul, Turkey
Client: Istanbul Grand Airport
Architect: Perkins + Will
Services: Site/Civil, Geotechnical, Traffic & Transportation

OVERVIEW

Langan was retained to provide multi-disciplinary engineering services for the Airport City mixed-use development as part of the new Istanbul Grand Airport Development; the largest airport development currently being undertaken in the world. Airport City is located on approximately 7,650 hectares near the Black Sea northwest of central Istanbul. Our services include site/civil, infrastructure, and geotechnical engineering support along with traffic design peer review services with the consultant team.

Technical Excellence Practical Experience Client Responsiveness



SANTA MARIA GOLF & COUNTRY CLUB

Location: Panama City, Panama
Client: Santa Maria Golf & Country Club
Architect: EDSA
Services: Site/Civil, Geotechnical, Traffic & Transportation

OVERVIEW

Santa Maria Golf & Country Club is a high-end, 700-acre mixed-use development located along the Corredur Sur. It includes retail and restaurant space, residences, and a Jack Nicklaus golf course. Langan provided complete site/civil and traffic design for the on-site roads, drainage, and utility infrastructure from the conceptual phase through construction documents. One of the greatest site-specific challenges was the design of over 30 acres of on-site, man-made lakes to act as stormwater management and high-quality site amenities, which will be constructed in fill materials.

Technical Excellence Practical Experience Client Responsiveness



SERENA DEL MAR

Location: Cartagena, Colombia
Client: Novus Civitas
Architect: SB Architects, Moshe-Safdie Architects
Partner: EDSA
Services: Site/Civil, Geotechnical, Environmental, Traffic & Transportation

OVERVIEW

The project is located on a 1,000 hectare site along the coastal highway immediately north of the city of Cartagena, Colombia. The phased development will include about 10,000 residential units ranging from social housing to luxury resort homes, a US-branded community hospital, several hotels, a branded championship golf course, office and retail shopping centers and a regional mall.

Technical Excellence Practical Experience Client Responsiveness

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RIYADH RESIDENTIAL DEVELOPMENT

Location: Riyadh, Kingdom of Saudi Arabia (KSA)
Client: Confidential
Architect: Munoz+Albin Architecture and Planning
Services: Site/Civil, Geotechnical, Traffic & Transportation

OVERVIEW

Langan specifically provided a multi-disciplinary team to assist in the development of the sustainable master plan for the 130,000 sq m site. The centerpiece of the development will be a large central amenity building at the end of a heavily landscaped wide-well pedestrian path. The central amenity building and path will be surrounded by several large swimming pools and varying densities of residential housing. The entire site combines high-level security with a resort quality ambiance. Given the project's high standard for sustainability Langan's LEED accredited professionals coordinated grey and black water treatment systems with the irrigation water system to provide the most efficient use of water possible.

Technical Excellence Practical Experience Client Responsiveness



OFFICE OF THE FUTURE

Location: Dubai, United Arab Emirates
Client: Syska Hennessy Group, Inc.
Services: Site/Civil

OVERVIEW

Launched in April 2016, Dubai's 3D Printing Strategy aims to have 30 percent of the city's buildings 3D printed by 2030. Langan provided site/civil engineering services for the world's first †3D printed office† in Dubai, which opened over Summer 2016. The building houses the offices of the Dubai Future Foundation and took 17 days to build by a 3D printer with a robotic arm. The 3D printed building is a model for sustainability due to the lower costs and faster delivery.

Technical Excellence Practical Experience Client Responsiveness



FOUR SEASONS BAHRAIN

Location: Bahrain Bay, Manama, Kingdom of Bahrain
Client: Signature Hotels Management Company S.P.C.
Architect: Skidmore, Owings & Merrill LLP
Services: Site/Civil, Geotechnical, Traffic & Transportation

OVERVIEW

Langan is providing site/civil engineering, transportation/parking services, and geotechnical peer review for the fast-tracked design of the iconic Four Seasons Hotel. The project consists of a 50-story, approximately 218-meter hotel tower with associated guest amenities, surface and basement level parking and outdoor facilities on a self-contained and reclaimed island in Bahrain Bay. The hotel is projected to be the tallest tower in the Kingdom of Bahrain.

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SKYVIEW 456

Location: Dubai, United Arab Emirates
Architect: Skidmore, Owings & Merrill, LLP
Services: Geotechnical

OVERVIEW

The proposed development consists of two 240-meter-plus towers, linked together via a two-story boat-shaped bridge near the top. The towers will house serviced apartments and a hotel. The towers will be surrounded by a common multi-level podium structure and will also share common basement levels for MEP and parking. Langan was hired to assist the structural engineer in obtaining the Dubai Municipality approval for the foundation design of the development within a very short time frame.

Technical Excellence Practical Experience Client Responsiveness



OBEROI SKYZ

Location: Worli, Mumbai, India
Client: I-Ven Realty Limited
Partner: Leslie E. Robertson Associates
Services: Geotechnical

OVERVIEW

This mixed-use residential project consists of twin 60-story, 755 FT (230 meter) towers with a five-story podium and two basement levels. Langan provided geotechnical engineering services that included the review of existing boring and foundation reports and published information on the engineering properties of the various geologic formations within the site. We reviewed the seismic risk assessments made in the reports and the performed a supplementary subsurface investigation once the tower had been sited on the development parcel. Langan developed design parameters for a shallow mat foundation in-lieu of more conventional and expensive bored piles.

Technical Excellence Practical Experience Client Responsiveness



BATISEHIR

Location: Istanbul, Turkey
Partner: Dilara Insaat Mühendislik
Services: Site/Civil, Geotechnical, Traffic & Transportation

OVERVIEW

Langan International is providing land development engineering services for this 800,000-square-meter mixed-use development with a five-star hotel, residential, retail, high school, 'Class A' office buildings, and associated parking facilities. The site is located within the industrial zones of the 'European' side of Istanbul.

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TRILOGY LIMASSOL SEAFRONT

Location: Limassol, Cyprus
Client: Cybarco Development
Architect: J&A Philippou Architects Engineers, WKK
Partner: Thornton Tomasetti, A.J. Pericleous LLC, Evripidou Engineers,
Yfantis Engineering, Elemec Engineering Consultants
Services: Geotechnical

OVERVIEW

Located in the heart of Limassol's waterfront district, Trilogy features a 'family of three towers' with a sea view from every window and an inner plaza consisting of restaurants, bars, and shops. The towers are 37 to 39 stories tall and include 317 luxury residences, 52 state-of-the-art office spaces, underground parking, and gym/spa facilities. Langan provided geotechnical and foundation engineering services for the project.

Technical Excellence Practical Experience Client Responsiveness