Newsletter of G&P Professionals Group

G&P DIGEST

Issue 3 : June - December 2011

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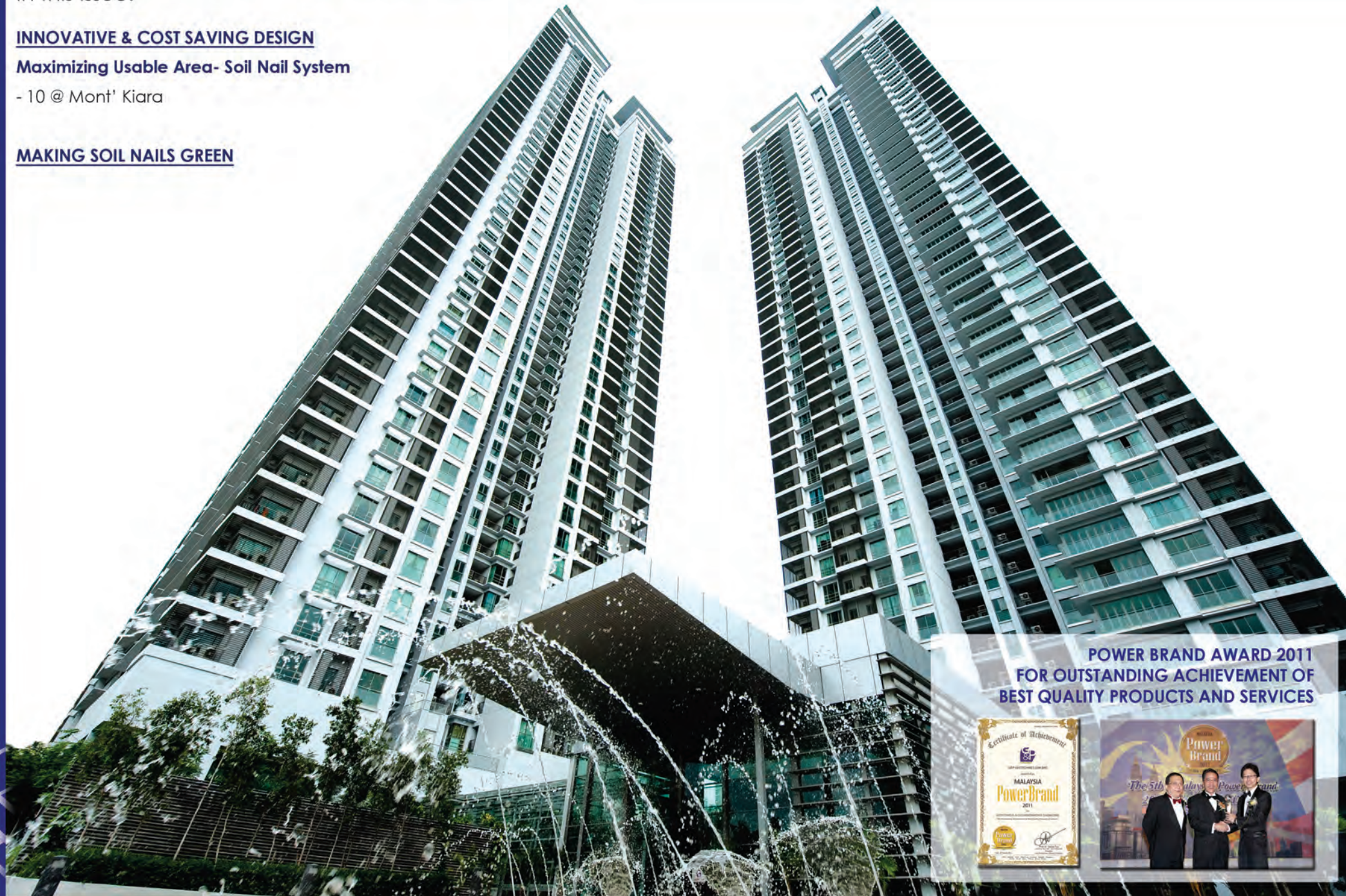


POWER BRAND AWARD 2011
FOR OUTSTANDING ACHIEVEMENT OF
BEST QUALITY PRODUCTS AND SERVICES

10 @ Mont' Kiara (MK10)

Sunrise Berhad has always been well-known for high rise property developments, especially in the vicinity of Mont' Kiara. G&P was appointed to provide geotechnical consultancy service in the design of foundation and retaining systems for 10 @ Mont' Kiara (better known as MK 10), an award-winning high rise development from Sunrise Berhad. This issue of G&P Digest will highlight on the innovative and cost saving design in this development- **Close Proximity Soil Nailed Slope Design.**

INTRODUCTION

Designed by Akitek Habitas, MK 10 is a 6-star residential development project by Sunrise Berhad at Mont' Kiara, Kuala Lumpur. Due to the steep existing ground profile, the condominium towers were built with close proximity to a 20m high soil nailed wall. G&P's solution was able to maximize usable area while effectively reducing the cost of construction.

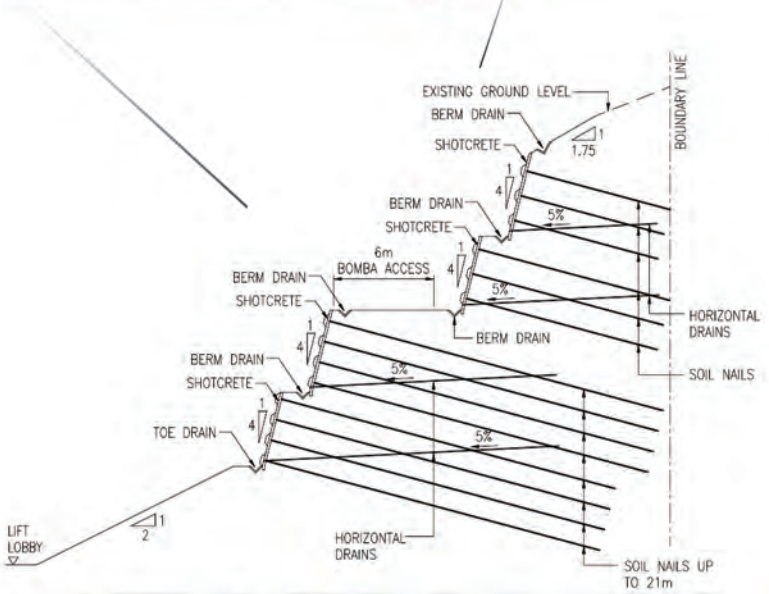
"G&P's solution was able to maximize usable area while effectively reducing the cost of construction."

No. Blocks / Levels	Description
2 Blocks	43- storey condominium towers
5 Blocks	5-storey car parks

2. Slope Strengthening - Soil Nailing

As the location of site is on hilly terrain, slope strengthening works become crucial due to the complexity and sensitivity involved. In order for any design to be viable, it is important to provide economical design without compromising on safety.

One of the retaining systems designed for this project is a **20m high soil nailed wall at the boundary of the site** where excavation is required for the construction of car park blocks. This soil nailed wall has been adopted to replace the initially proposed; more costly, contiguous bored pile wall.



3. Value Added Design

To maximize usable space, a larger berm was provided on the slope which also serves as a road reserve for bomba access. This has replaced the need for a deck or bridge for the access road which results in **significant cost savings.**

Other advantages in the adopted soil nailed slope in comparison with contiguous bored pile wall include the following:

(i) Relatively **Cheaper** and **Easier to Construct**
(ii) **Fast-track** Construction
(iii) Reduction in Usage of Concrete- **More Sustainable**
(iv) Relatively **Cleaner Site**

4. The Challenges

Several revisions were made to the architectural layout as well as the building footprint to suit the space required for the soil nailed wall. Therefore sincere cooperation and coordination were required from all parties especially among architects and structural engineers.

In fact, this development is recognized for its creative landscape design. This proves that **with some creativity, soil nailed slope can blend well with its surroundings.** Read on to find out more on ways to make soil nailed slopes greener.

5. Recognition Awards

Sunrise Berhad's MK10 development has obtained numerous global awards including the 2009 CNBC Arabia TV's Asia Pacific Property Awards for Best High Rise Architecture and also Honour Award for excelling in landscape architecture under the Property Developer Category in Malaysia Landscape Awards 2009.

Permanent Ground Anchors- Testing & Monitoring Every 6 months- BS8081:1989

6. Additional Information

As a passive reinforcement system, soil nail does not require high maintenance in comparison to the active reinforcement system by using permanent ground anchor.

Due to creep/relaxation and corrosion:

Based on BS8081:1989, testing and monitoring for permanent ground anchors is required at every 6 months interval for the first 3 years and not more than 5 years interval throughout the entire service life.

Information on the current estimated costs of soil nail system are listed in the table below.

Length of Soil Nail (m)	Type of Facing	Estimated Cost (RM/m²)
T32- 21.0	Shotcrete	2100.00*
T32- 12.0	Shotcrete	1200.00*

* Based on other general soil nailing works in 2011, at an average spacing of 1.5m x 1.5m, not including drilling in rock/ boulders.

CONCLUSION

This development has been successfully designed and constructed using soil nail system with close proximity to the structure which has proven to be a very efficient alternative to conventional retaining wall system.

Through G&P's value engineering services, significant cost savings were made by maximizing the functional area of the development. Construction duration were able to be reduced as the system itself is simple to construct.

In short, G&P provides value added engineering where "Quality Service- Our Commitment".

MAKING SOIL NAILED SLOPES GREENER

The first thing that comes to mind when people talk about soil nailed slope is the rough, grey shotcrete facing upon completion which is seemingly impossible to blend with the surroundings. Certainly by itself it would not be aesthetically pleasing to say the least, but there are ways to make soil nailed slopes look greener. With a little help from all parties, it is possible to combine architectural art, landscaping and cost efficient engineering to make soil nails an attractive slope strengthening solution.

INTRODUCTION

To begin, it is important to differentiate between the slope strengthening system and facings. Soil nails are *passive* soil reinforcement system where it relies on closely spaced steel bars grouted in the slope to prevent slope from slipping, whereas ground anchors are *actively* preventing the slope failure even before it moves with the help of prestressed steel tendons.

Facings on the other hand, are the various types of façade available to distribute loads from soil nails and to prevent surfacial failure. Depending on the site condition and gradient of the soil nailed slope, it can be of shotcrete, grid beam or pad facing.

Types of Facings and General Rules of Thumb:

(i) Shotcrete Facings
- Gradient ≥ 45°
- Used when the soil is susceptible to surfacial failures on very steep slopes

(ii) Grid Beam Facings
- Gradient ≤ 45°
- Better load transfer and distribution is possible on even ground profile

(iii) Pad Facings
- Gradient ≤ 35° or uneven ground profile
- Generally used in obstructed natural terrain with gentle gradient

GREEN SOLUTION
- Plant creepers or closed turfing on slope surface.
- Apply hydroseeding with erosion control blanket.

Figure 1: Typical Shotcrete Facing (Before Planting of Creepers)

Figure 2: Typical Shotcrete Facing (After Planting of Creepers)

Figure 3: Grid Beam Facing Upon Completion (With spot turfing)

Figure 4: Grid Beam Facing (With fully grown spot turfing)

Figure 5: Pad Facing During Construction (Before Closed Turfing)

Figure 6: Green Pad Facing (After Closed Turfing)

G&P ISO RETREAT 2011- LUMUT

A WORD FROM OUR CEO -

Ir. Dr. Gue See Sew:

The ISO Retreat in Lumut has given us an opportunity to get together for better understanding the needs of everyone.

As part of G&P's tradition and mission for continuous improvement, I would like to take this opportunity to thank everyone for contributing constructive feedbacks during the brainstorming session.

I sincerely thank all G&P partners, directors and staff for your continuous commitment and untiring support. With your dedicated value adding service, I am certain that G&P will soar to greater heights.

THANK YOU.

~ Island Getaway~

THE MATTE - *Jalan Talalla*

This proposed commercial development is located at Jalan Talalla beside the arterial road of Jalan Maharajalela, within the vicinity of Kuala Lumpur town centre. The total area of the site is approximately 1.271 acres. The development consists of two 42-storey tower blocks of service apartment (534 Units) with multi storey car park facility and retail shop units at ground floor.

Due to site constraints and the nature of this development (small built-up area for apartments), conventional structural system with reinforced concrete beam, suspended slab, column and stump were proposed. After close discussion with other consultants especially with the project architect during the conceptual design stage, this structural system is accepted with **no transfer beams** and had achieved the architect's design intent while **maximizing the car park area**.

Client:
Star Effort Sdn. Bhd.

Design Architect:
Redd Design Office Sdn. Bhd.

Estimated Cost of Project:
RM 200,000,000

Chenderoh Catchment Assessment - *Perak*

Chenderoh Hydroelectric Scheme is the oldest hydropower development in Malaysia. It has been operated for more than 80 years since its commissioning in 1930. Chenderoh Lake which is created by the construction of Chenderoh Dam across Sg Perak, is located about 200 km from the Sg Perak river mouth. Chenderoh Dam commands a large catchment area of 6,688 sq km with a lake area of about 1,550 ha.

A detailed study on catchment characteristic, land use changes is being carried out to identify sediment source, quantify the erosion rate and sediment transport and deposition in the lake. Impact of the sediment deposition in the lake on hydropower generation and structural integrity of the dam were assessed. The study aims to **formulate mitigation measures to minimize land erosion, sedimentation** and its impact on Chenderoh Hydroelectric Scheme.

Client:
TNB Research Sdn. Bhd.

11 Mont' Kiara- *Kuala Lumpur*

Located next to MK10, MK11 consists of 3 condominium tower blocks of up to 43 storeys high. Completed in July 2011, Sunrise Berhad received the Singapore's Green Mark Certification; a first for residential development in Malaysia. It was also awarded as Asia Pacific's Best Highrise Development 2009 by CNBC Arabia.

As the site is underlain with intermittent hard layers/ boulders, the conventional foundation design would have been based on bored pile system. However, G&P's has adopted an alternative of **jack-in prestressed spun pile system with some preboring through hard layers**. Not only did **this system prove to be more economical, it has low noise pollution while ensuring clean site operation and efficient foundation system completed within a shorter construction period.**

Client:
Sunrise Innovations Sdn. Bhd.

Design Architect:
Liu & Wo Architects Pte. Ltd.

Estimated Cost of Project:
RM 485,000,000

Jesselton Hill - *Kota Kinabalu*

The proposed Jesselton Hill mixed development consists of landed, low to medium rise apartments and commercial shop offices/lots on approximately 640 acres of land for both western and eastern parcels. Fully developed, Jesselton Hill will have approximately 2350 residential and commercial units, ranging from 2 to 18 storeys. Basement levels are also constructed for these low-to-medium rise apartments which varies from 2 (6m) to 3 (10m) levels.

G&P Professionals are involved in the planning, design and supervision of hill site earthwork, infrastructures and geotechnical works. As this development is on steep hilly terrain, **optimum earthwork design and slope strengthening measures** are critical to increase the efficiency in both construction time and cost.

Client:
Hap Seng Land Development (Jesselton Hill) Sdn. Bhd.

Planner:
AJC Planning Consultant Sdn. Bhd.

LIST OF SOME RECENT PROJECTS

Project Title	Client
KVMRT (Blueline from Sungai Buloh - Kajang Line)	MMC Gamuda KVMRT (PDP) Sdn. Bhd.
Engineering Consultancy Service for 25,000MT Load Out Facility Phase 1 (Skid Track)	Malaysian Marine and Heavy Engineering Sdn. Bhd.
Independent Assessment of APEC Fisheries Working Group for Asia-Pacific Economic Cooperation Secretariat, Singapore	SOM Steering Committee on ECOTECH (SCE)
Engineering Consultancy Service for Ulu Terengganu Hydroelectric	SNC- Lavalin Power (Malaysia) Sdn. Bhd.
Traffic Impact Assessment for Proposed Residential Development on Lot 30351, Mukim Setapak, Kuala Lumpur	Beneton Properties Sdn. Bhd.
Detailed Design of Flood Mitigation Measures for Jambuk Estate, Kalimantan	TSH Resources Berhad
Hydraulic Modelling Study for the Proposed 1x1000 MW Coal Fired Power Plant Project, Mukim Jimah, Port Dickson	Chemsain Konsultant Sdn. Bhd.
HDPE Submarine Pipe Crossing at Batang Paloh, Bahagian Mukah, Sarawak	PPES Works (Sarawak) Sdn. Bhd.

G&P'S AWARDS & RECOGNITION

POWER BRAND AWARD 2011

For Outstanding Achievement of Best Quality Products and Services in Geotechnical and Geoenvironmental Engineering

G&P Geotechnics Sdn. Bhd. was awarded as a Power Brand in the category of Geotechnical and Geoenvironmental Engineering for outstanding achievement of best quality products and services by Asia Entrepeneur Alliance (AEA). The award was received by the founder and managing director of G&P Geotechnics, Ir. Prof. Dr. Gue See Sew in March 2011 at Palace of Golden Horses.

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