SPS SCHEMATIC PRECAST SYSTEM

SCHEMATIC PRECAST SYSTEM

SISTEM PANEL SPS SERBA GUNA

www.sps-patent.com

The Systematic and Multipurpose Precast Concrete Panel For Different Types of Construction Projects

SPS:

- A SYSTEMATIC SOLUTION FOR A MEDIUM UNTIL LARGE CONSTRUCTION WORK AND / OR CONSTRUCTION WORK WITH A HIGH NATURE DIFFICULTIES LEVEL
- IN THE LAST 2 YEARS REQUESTED TO DEVISE SOME FUTURE STRATEGIC PROJECTS IN SEVERAL COUNTRIES LIKE ENGLAND, AUSTRALIA, FIJI, MALAYSIA AND UAE
- SPS IS PURE THE FINDINGS RESULT FROM INDONESIAN WITH 70% DOMESTICS STATE LEVEL
- HAS BEEN REGISTERED COPYRIGHTS, PATENT RIGHTS, INTELLECTUAL PROPERTY RIGHTS (HKI), AND INTELLECTUAL PROPERTY RIGHTS FROM KEMENKUMHAM RI
- HAVE INTERNATIONAL LICENSING AGREEMENT FOR **USA, CANADA, CARIBBEAN ISLANDS, MEXICO, CENTRAL AMERICA, SOUTH AMERICA, AUSTRALIA, NEW ZEALAND** AND **OCEANIA REGION (FIJI, PAPUA NEW GUINEA, SOLOMON ISLANDS ETC.**)
- REGISTERED PATENT HOLDER :

I Nym Gede Anggara M

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SPS Panel Standards

PT WIJAYA KARYA BETON Tbk
WIJAYA PENJUALAN IV

Nomor : TP. 51.09/WB-1D.ST1/2017
Lampiran : 1 (satu) set Sertifikat ISO
Perihal : **Pernyataan Sertifikasi Produk Penggunaan Tanda SNI**

Saya yang bertandatangan di bawah ini :

- Nama : FX. PANGGIH WIJANARKO, ST
- Jabatan : Manajer
- Nama Perusahaan : PT. WIJAYA KARYA BETON Tbk Wilayah Penjualan IV
- Alamat Perusahaan : Jl. Teuku Umar No. 21 Semarang
- Lokasi Pabrik : Mojosongo, Boyolali, Jawa Tengah
- Komodti : Concrete Product For Construction Pupcoses
- Tipe / Jenis : Precast Concrete

Dengan ini menyatakan bahwa produk pracetak yang kami produksi, yaitu **SPS Panel Beton Pracetak beserta komponen – komponen SPS Pracetak** sebagai berikut :

1. SPS Precast Panel
2. SPS Steel Strand Set
3. SPS Load-Bearing Bar

Sudah memenuhi standar Sertifikasi Produk Penggunaan Tanda SNI

- No. SNI & Judul SNI Produk : 03-2847-2002
- Sistem Manajemen Mutu yang diacu : ISO – 9001 : 2008 No. Reg : JKT 0945634

Dan telah mendapat Sertifikat dari LLOYD'S REGISTER – LRQA :

ISO 9001 : 2008

Demikian surat pernyataan ini kami buat sebenar-benarnya untuk dapat dipergunakan sebagaimana mestinya.

Semarang, 30 Mei 2017

PT. WIJAYA KARYA BETON Tbk
Wilayah Penjualan IV

FX. PANGGIH WIJANARKO, ST
Manajer

ADI JAYA BETON

Nomor : 158/AJB/V /2017
Lampiran : -
Perihal : Pernyataan Sertifikasi Produk Penggunanaan Tanda SNI

Saya yang bertanda tangan dibawah ini :

Nama : I KETUT WIDIARCA, ST
Jabatan : Direktur
Nama Perusahaa : PT ADI JAYA BETON
Alamat Perusahaan : Jl Bay Pas Ngurah Rai 52 XX Sanur Denpasar Bali
Lokasi pabrik : Jl Bay Pass Ngurah Rai Daerah suwung
Komodite : Concrete Product
Type / Jenis : Precast Concrete

Dengan ini menyatakan bahwa produk pracetak yang kami produksi yaitu **SPS Panel Beton Pracetak beserta komponen – komponen SPS Pracetak** sebagai berikut

1. SPS Precast Panel
2. SPS Precast Cover Panel (Panel Penutup)
3. SPS Load-Bearing bar (Batang Tekan)

Sudah memenuhi standar Sertifikasi Produk Penggunaan Tanda SNI

. No SNI dan Judul SNI Produk : G.01 – ID0080 – XI - 2016

. Sistem Managemen Mutu yang diacu : ISO 9001 : 2008.

Kami telah mendapatkan Sertifikat dari G Certi

SNI ISO 9001 : 2008

Demikian surat pernyataan ini kami buat sebenar – benarnya untuk dapat dipergunakan sebagaimana mestinya.

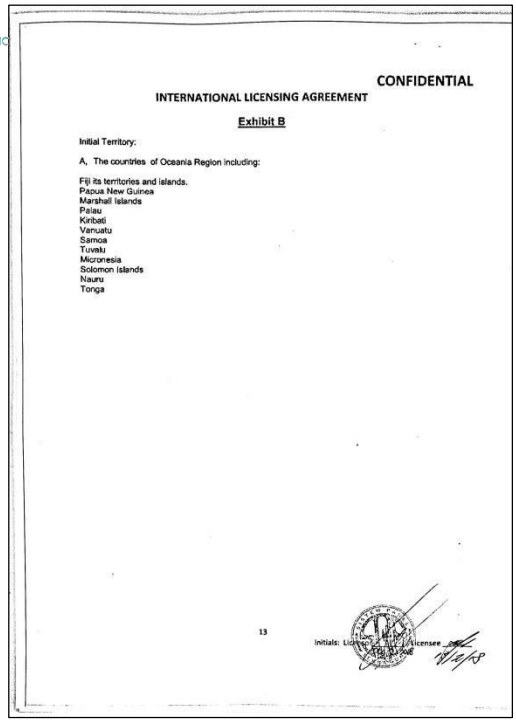
Denpasar, 31 Mei 2017
PT ADI JAYA BETON

I KETUT WIDIARCA, ST
Direktur

IAF ACCREDIA G-CERT

Alamat: Jl. By Pass Ngurah Rai Suwung(Seberang Lotte Mart),081237102424 Email: ptadijayabeton@gmail.com

International Licenses



CONFIDENTIAL

INTERNATIONAL LICENSING AGREEMENT

Exhibit B

Initial Territory:

A, The countries of Oceania Region including:

Fiji its territories and islands.
Papua New Guinea
Marshall Islands
Palau
Kiribati
Vanuatu
Samoa
Tuvalu
Micronesia
Solomon Islands
Nauru
Tonga

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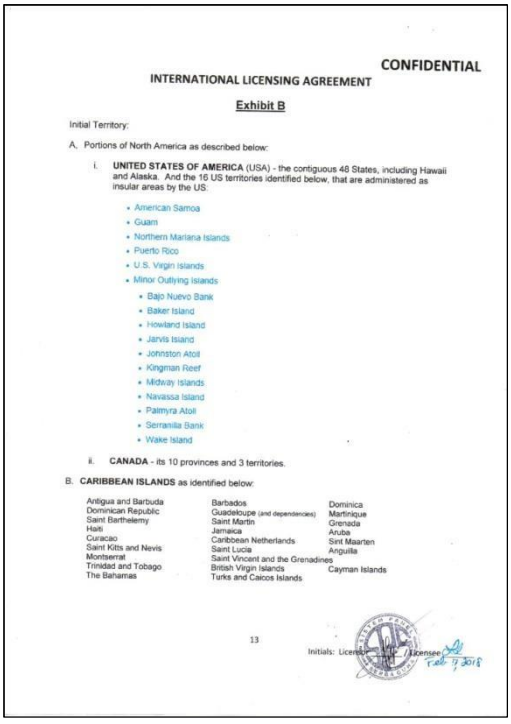
Initials: Licensor _____ / Licensee _____



CONFIDENTIAL

INTERNATIONAL LICENSING AGREEMENT

Exhibit B

Initial Territory:

A. Portions of North America as described below:

i. **UNITED STATES OF AMERICA** (USA) - the contiguous 48 States, including Hawaii and Alaska. And the 16 US territories identified below, that are administered as insular areas by the US.

- American Samoa
- Guam
- Northern Mariana Islands
- Puerto Rico
- U.S. Virgin Islands
- Minor Outlying Islands
  - Bajo Nuevo Bank
  - Baker Island
  - Howland Island
  - Jarvis Island
  - Johnston Atoll
  - Kingman Reef
  - Midway Islands
  - Navassa Island
  - Palmyra Atoll
  - Serranilla Bank
  - Wake Island

ii. **CANADA** - its 10 provinces and 3 territories.

B. **CARIBBEAN ISLANDS** as identified below:

Antigua and Barbuda
Dominican Republic
Saint Barthelemy
Haiti
Curacao
Saint Kitts and Nevis
Montserrat
Trinidad and Tobago
The Bahamas
Barbados
Guadeloupe (and dependencies)
Saint Martin
Jamaica
Caribbean Netherlands
Saint Lucia
Saint Vincent and the Grenadines
British Virgin Islands
Turks and Caicos Islands
Dominica
Martinique
Grenada
Aruba
Sint Maarten
Anguilla
Cayman Islands

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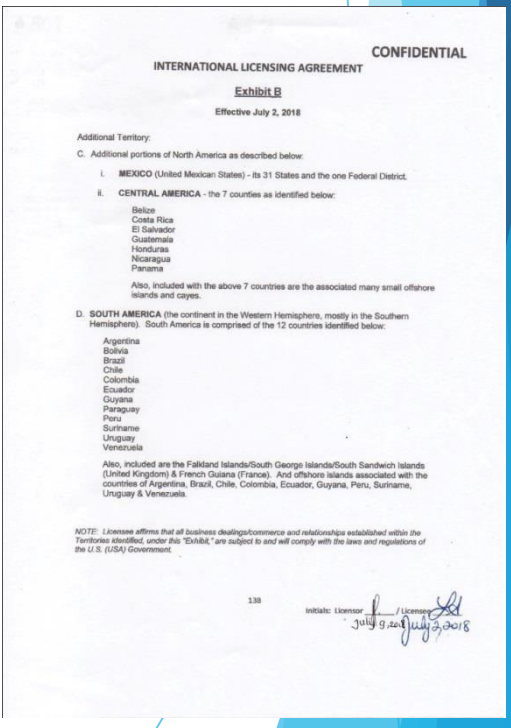
Initials: Licensor _____ / Licensee _____ Feb 7 2018



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INTERNATIONAL LICENSING AGREEMENT

Exhibit B

Effective July 2, 2018

Additional Territory:

C. Additional portions of North America as described below:

i. **MEXICO** (United Mexican States) - its 31 States and the one Federal District.

ii. **CENTRAL AMERICA** - the 7 counties as identified below:

Belize
Costa Rica
El Salvador
Guatemala
Honduras
Nicaragua
Panama

Also, included with the above 7 countries are the associated many small offshore islands and cayes.

D. **SOUTH AMERICA** (the continent in the Western Hemisphere, mostly in the Southern Hemisphere). South America is comprised of the 12 countries identified below:

Argentina
Bolivia
Brazil
Chile
Colombia
Ecuador
Guyana
Paraguay
Peru
Suriname
Uruguay
Venezuela

Also, included are the Falkland Islands/South George Islands/South Sandwich Islands (United Kingdom) & French Guiana (France). And offshore islands associated with the countries of Argentina, Brazil, Chile, Colombia, Ecuador, Guyana, Peru, Suriname, Uruguay & Venezuela.

NOTE: Licensee affirms that all business dealings/commerce and relationships established within the Territories identified, under this "Exhibit," are subject to and will comply with the laws and regulations of the U.S. (USA) Government.

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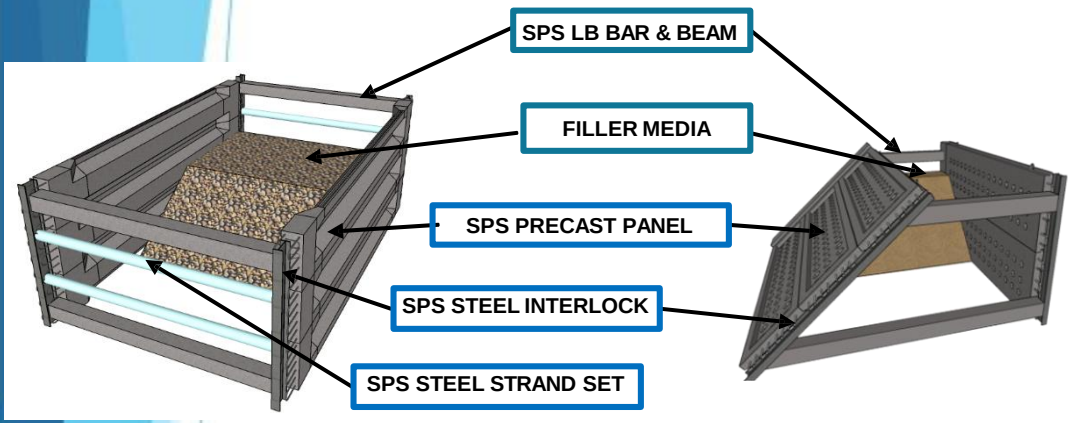
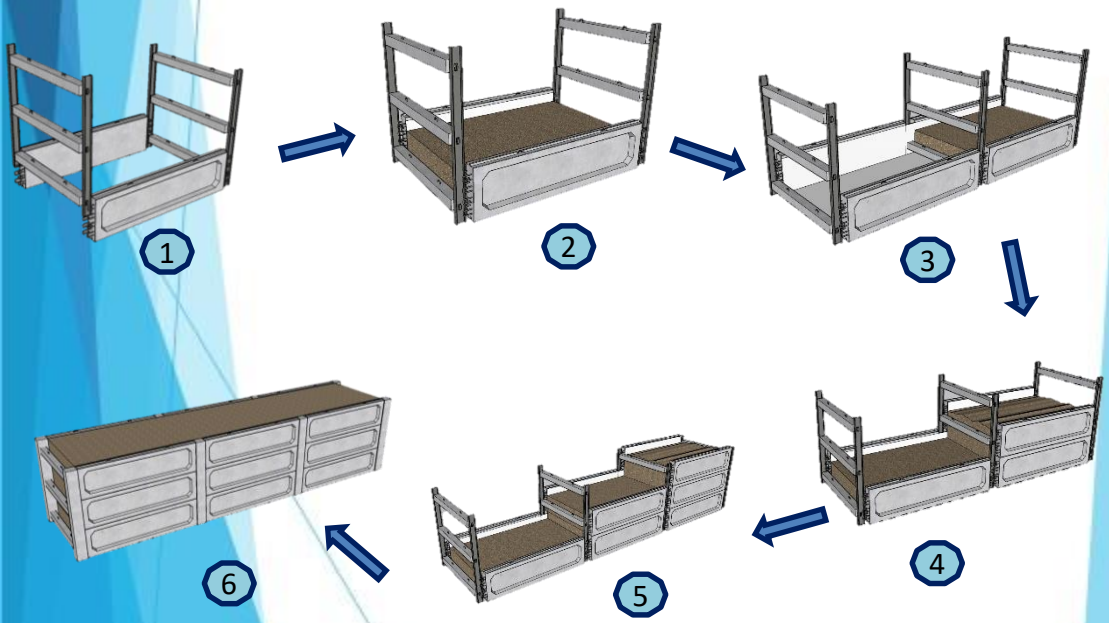
MAIN COMPONENTS



SPS DESIGN (3D CONSTRUCTION SEQUENCE)



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SPS CONSTRUCTION & INSTALLATION

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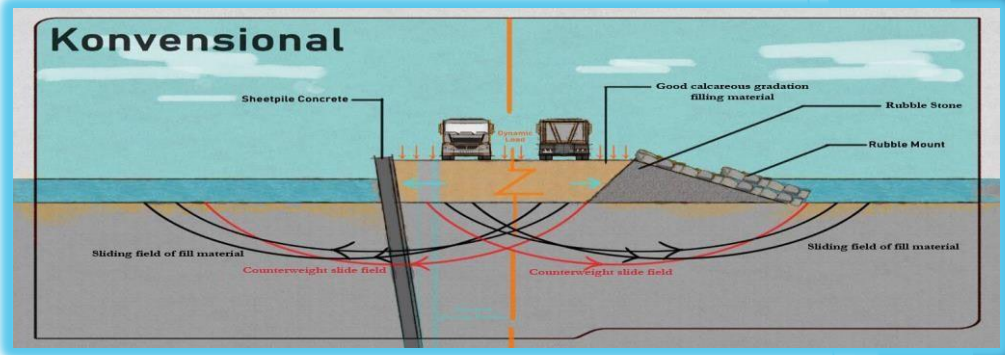
SPS Technical Excellences

- SPS does not need any piles
- SPS is manufactured according to quality standards
- SPS is easy to construct, vertical or horizontal
- SPS can be filled with a mixture of local materials, sand or stone
- SPS Serves as a counterweight
- SPS is monolith (Large strength to weight ratio)
- SPS is dynamic load resistant, has denser stuffing, controlled geometry and structural alignment- if there is a decrease it will be evenly distributed
- SPS can accept the flow of water beyond the height of the structure (overtopping)
- SPS is more effective and efficient in land use and demand
- SPS has high aesthetics and appearance can be customized as needed
- SPS has a long life span - minimum maintenance cost
- SPS is multifunctional for various types of construction works

CONCEPT ILUSTRATION:
FIELD OF SHEAR AND LATERALMOVEMENT

CONVENTIONAL STRUCTURE



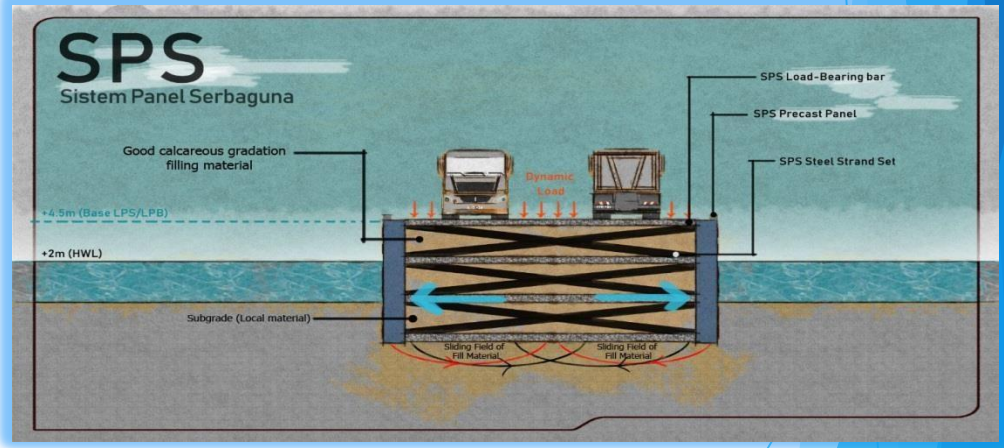
Dynamic Load effect:

→ The Density of Filling Soil Reduced

→ The Density of Counterweight Reduced

→ Unbound makes it vulnerable to movement

SPS SYSTEM



Dynamic Load Effect:

→ The density of Filling Soil remains

→ The density of Counterweight remains

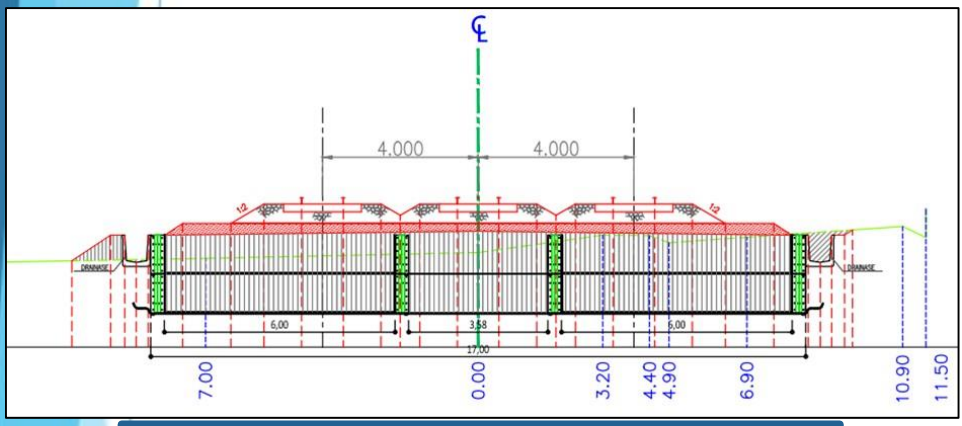
→ Confined effect on SPS: fill material is densely held

DSTRENGTH CALCULATION OF SPS METHOD OF FINITE ELEMENT 2D MODELING

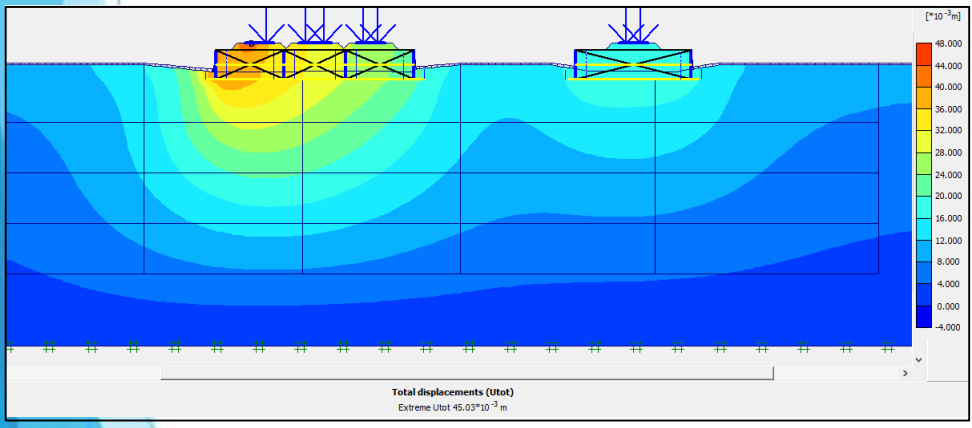
➢CASE STUDY: Elevation of The Railway Track

Scope of Work:

- Safety Factor Analysis (SF) Excavation Field
- Analysis of forces received by the soil around the installation



Single Track and Multiple Track Final Modeling



Modeling Conclusions

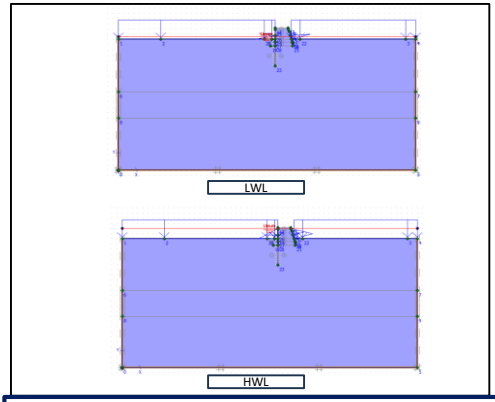
- Acquisition of Safety Factor (SF) for each stage of SPS construction work (acquisition of SF Purpose => 1.7 ~ 2)
- Acquisition of the displacement magnitude (vertical and horizontal) as well as the estimated settlement / total displacement due to static load and dynamic load applied on the surface of the SPS System.
- Obtaining Safety and Earthquake Resistance in Construction

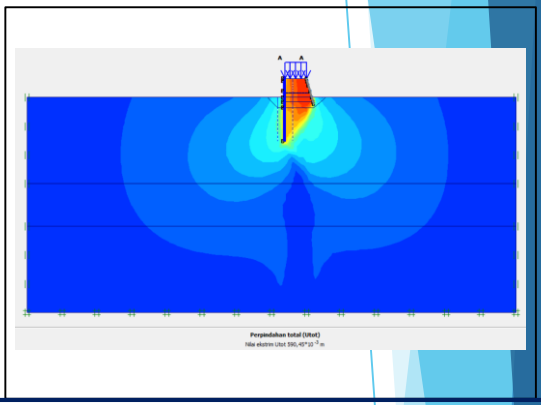
COMPARATIVE CALCULATION STRENGTH OF CORRUGATED CONCRETE SHEETPILE (CCSP) AND SPS STRUCTURES 2D FINITE ELEMENT MODELLING METHOD

➢CASE STUDY: Construction North Coast of Java's Sea Wall

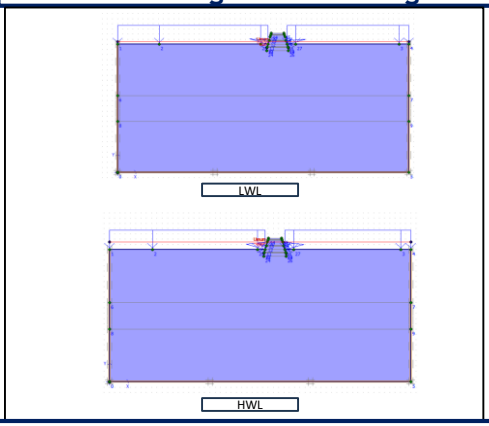
Scope of Work:

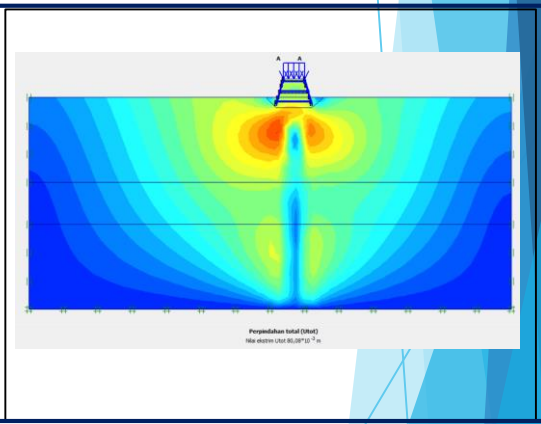
- Analysis of Safety Factor (SF) and Deformation of Excavated and Construction Fields in LWL and HWL conditions





Final Modeling of CCSP Design Construction: Deformation 590 mm SF= 1.329





Final Modeling of SPS Design Construction: Deformation 80.1 mm SF= 1.863

Modeling Conclusions

- **The obtained Safety Factor (SF) for each stage of SPS construction work (obtained SF Goal=> 1.8~2) this value is greater than the Safety Factor (SF) for CCSP construction (obtained SF Goal=> 1.3~1.5).**
- **Obtain displacement quantities (vertical and horizontal) as well as estimates of settlement/total displacement due to static load (self-load) and dynamic load that apply on the surface of the SPS and CCSP systems.**
- **The following is a video link for the sea wall concept with SPS : https://youtu.be/K2XuuQ3D5Cs**

SPS SCHEMATIC PRECAST SYSTEM

ASSESMENT RESULTS OF THE RETAINING WALL SOLUTION SPS vs CONVENTIONAL RETAINING WALL

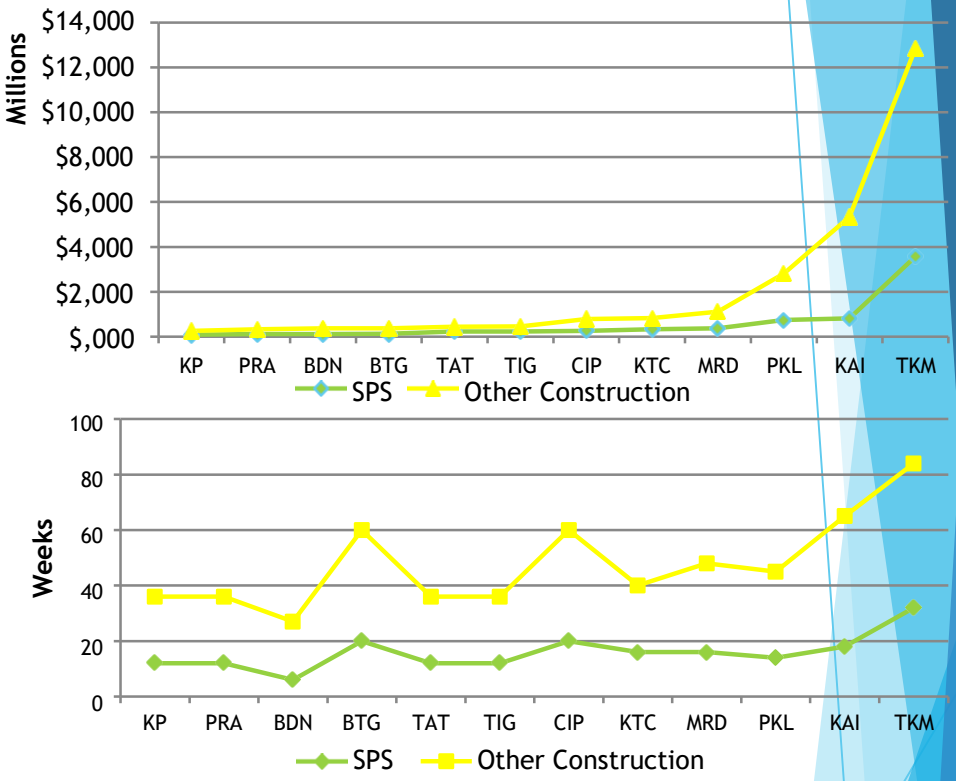
No.	Construction Type	Construction Cost	Execution Time	Workability	Soil Bearing Capacity	Quality and Geometry	Construction Power & Capability	Land Area Required	Use of Tools	Energy Absorption	Material Content	Social Impact	SCORE TOTAL
1	***SPS***	5	5	4	5	5	5	4	3	3	4	5	48
2	*Concrete Sheet Pile*	1	3	4	3	5	4	4	2	3	5	4	38
3	*Retaining Wall*	2	2	3	2	4	4	4	3	3	5	4	36
4	*River Stone Pair*	4	2	3	1	3	2	3	4	4	4	3	33
5	*Gabion Pair*	4	3	4	2	2	1	3	3	4	4	1	31
6	*Barrow*	5	5	5	4	1	1	2	2	2	1	2	30

ASSESSMENT IS DONE BY: CONSTRUCTION MANAGEMENT TEAM UNIV. UDAYANA BALI (2014)

** Scoring point
1. Very bad
2. Bad
3. Enough
4. Good
5. Very Good

*** Note: The above assessment results are an assessment of small-scale work, so when taken into account on a larger scale / long term (eg 25 years or more) covering time and costs (impact of routine, reworking, social and environmental maintenance), the utilization of SPS will be much better and very profitable**

Comparison of Financing Values & Project Construction Time
SPS vs Other Construction System



Note :

1. **The table is based on real data from projects that have been done using SPS construction.**
2. **Preparation of data is made in such a way from the project with the smallest financing value to the largest.**
3. **Comparative construction is the conventional construction with the lowest financing value.**

Conclusion:

1. **Application of SPS construction will be highly efficient when applied to large projects / projects with large financing value, both time and cost efficiency.**
2. **The efficiency obtained will be smaller, if the SPS construction is applied to a small project, it is not impossible that SPS will not be efficient if the sps is applied to a very small scale project.**

SPS (SCHEMATIC PRECAST SYSTEM)




Cost of Construction	Execution Time	Ease of Implementation	Soil Bearing Capacity Required	Quality and Geometry
Worth	Fast	Quite easy	Able to be constructed on low-high soil bearing capacity ground	Very good, Because it is completely fabricated

Strength and Capability of Construction	Area Coverage Required for Construction	Equipments Required for Construction	Labor Force	Fill Material	Social Impact
Very good strength and capability, no need for dewatering, the top of structure is able for utilization (e.g. mobilization track) after the structure is perfectly constructed.	Small coverage area (efficient)	Not many	Rather Few Employment	Fill material needed based by design, utilization of fill material are efficient.	Very low

CONCRETE SHEET PILES

Cost of Construction	Execution Time	Ease of Implementation	Soil Bearing Capacity Required	Quality and Geometry
Expensive	Rather fast execution time	Quite easy, the work needed to be done carefully for good result.	Able to be constructed on low- high soil bearing capacity ground (for low bearing capacity ground needed additional anchor pile structure)	Very good, strong and stable structure.

Strength and Capability of Construction	Area Coverage Required for Construction	Equipments Required for Construction	Labor Force	Fill Material	Social Impact
Good strength and capability, no need for dewatering, but top of structure cannot be used for activity (needed additional construction to stabilize sheet piles if planned to build road)	Small coverage area (efficient)	Quite many	Rather huge employ-ment	-	Low

SPS SCHEMATIC PRECAST SYSTEM

CONCRETE RETAINING WALL

Cost of Construction	Execution Time	Ease of Implementation	Soil Bearing Capacity Required	Quality and Geometry
Expensive	Need a Long time	Quite Easy	Need good soil bearing capacity	Stable and sturdy construction, small seepage

Strength and Capability of Construction	Area Coverage Required for Construction	Equipments Required for Construction	Labor Force	Fill Material	Social Impact
Construction on swamp areas is difficult (need dewatering), the top of the construction can not be used directly for the activity.	Small area	Quite little	Pretty much	No Need	Low

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DIVERSE APPLICATIONS OF SPS

Soil Improvement

Retaining Wall

Dam

Retaining The River Wall

Road Infrastructure

The base of the railway

Coastal Protection

Jetty & Harbour

DIVERSE APPLICATIONS OF SPS

The base of the bridge

Dams / Reservoirs

Coastal Reclamation

DIVERSE APPLICATIONS OF SPS

Irrigation Channels

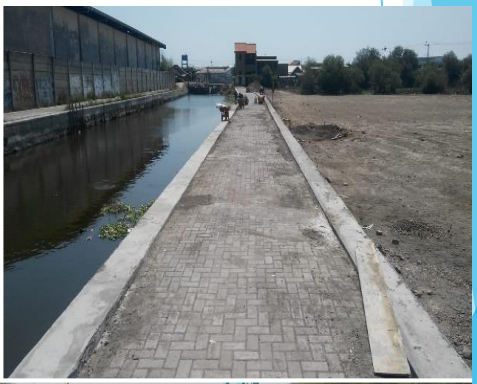
CEKDAM RIVER – TUKAD AYA TIMUR, JEMBRANA, BALI

SPS ATTACHED PERFECTLY

SPS SCHEMATIC PRECAST SYSTEM

CEKDAM 6 WANGGU RIVER PROJECT KENDARI , SOUTHEAST SULAWESI

FLOOD AND TIDAL FLOOD CONTROL PROJECT – SERINGIN RIVER, SEMARANG



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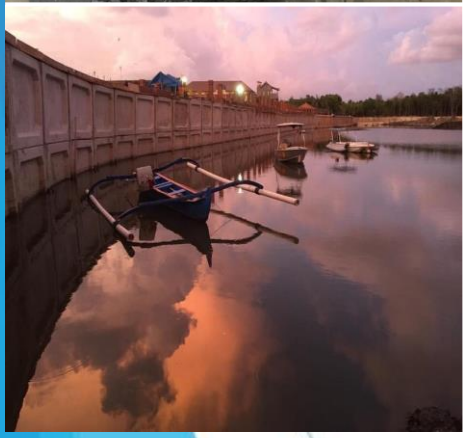
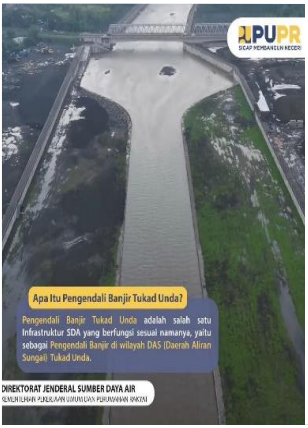
FLOOD CONTROL AND RIVER NORMALIZATION - TUKAD MATI DENPASAR, BALI

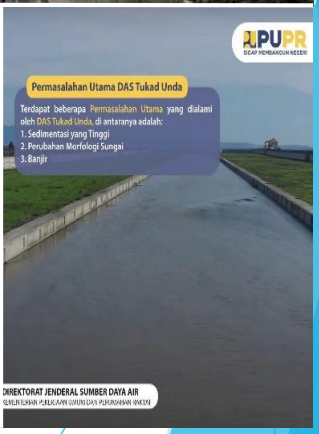





FLOOD CONTROL TUKAD UNDA KLUNGKUNG, BALI





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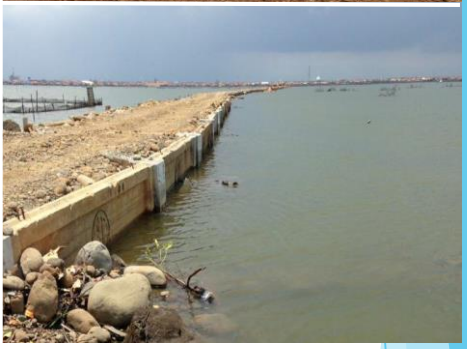
REHABILITATION PENCENG RIVER DEMAK, CENTRAL JAVA

REHABILITATION MENYONG RIVER DEMAK, CENTRAL JAVA

SPS SCHEMATIC PRECAST SYSTEM

TIDAL FLOOD COUNTERMEASURES BANDENGAN, PEKALONGAN, CENTRAL JAVA



BEDONO – SURODADI ROAD CONSTRUCTION AND ALSO AS THE COASTAL BELT AT ONCE BEDONO, DEMAK, CENTRAL JAVA


SCHEMATIC PRECAST SYSTEM

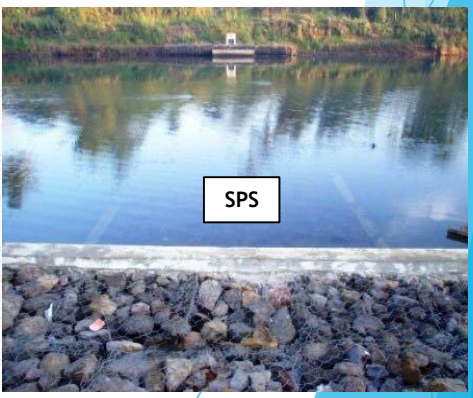
RECLAMATION AND REVETMENT BITUNG, NORTH SULAWESI

SPS CONSTRUCTION COASTAL RECLAMATION AND JETTY MARUNDA, JAKARTA

SPS SCHEMATIC PRECAST SYSTEM

INSPECTION ROAD CONSTRUCTION, HANDLING CONSTRUCTION, AND RIVER RAILWAYING CIPATUNJANG, KARAWANG, WEST JAVA

SPS GROUNDSILL CONSTRUCTION GLAGAH RIVER, CENTRAL JAVA



SPS SCHEMATIC PRECAST SYSTEM

SPS STRUCTURE RETAINING WALL (WITH JOGGING TRACK) AND RIVER RAILWAYING AT TUKAD IJO GADING, NEGARA

RETAINING WALL AND SOLID STYLING MULTI-TRAP SPS METHOD SINGARAJA, BALI

RETAINING WALL PURA TUNGGUL BESI KARANGASEM, BALI

SPS SCHEMATIC PRECAST SYSTEM

BANDUNGSARI – SALEM ROAD REHABILITATION POST-LANDSLIDE HANDLING BREBES, CENTRAL JAVA






SPS SCHEMATIC PRECAST SYSTEM

THE CONSTRUCTION OF THE PURWOSARI MOSQUE EXIT TO SAYUNG HIGHWAY, DEMAK, CENTRAL JAVA


REACTIVITY OF THE RAILWAY ROAD TAWANG STATION – TANJUNG MAS PORT SEMARANG, CENTRAL JAVA


SPS SCHEMATIC PRECAST SYSTEM

FLOOD CONTROL SEPAKU RIVER NEW CAPITAL CITY OF INDONESIA

RESERVOIR MARUNDA PART 1 & 2
NORTH JAKARTA, DKI JAKARTA

SPS Construction Video Link in Youtube

- SPS Construction System Review https://youtu.be/F7pM9EpqxUE
- SPS Tidal Flood Countermeasures https://youtu.be/E688rrdOJQk
- SPS Land Reclamation and Jetty https://youtu.be/T3DJtOE6-24
- SPS Coastal Erosion Protection https://youtu.be/K2XuuQ3D5Cs
- SPS Beach Nourishment https://youtu.be/FbsWZFKDJmE
- SPS Tukad Mati Indonesia https://youtu.be/pHPnv3wa_cs
- SPS Riverdam Construction https://youtu.be/AzfynwsQXy4
- SPS Toll Road and Train Rail https://youtu.be/ZBRpLe3jw0M
- SPS Landslide Protection https://youtu.be/urVDfPe8-RM
- SPS Soil Improvement for Railways https://youtu.be/dVbLtTYmjMc
- SPS Marine and Breakwater https://youtu.be/yN4nM9VH1hw
- SPS Cekdam Tukad Aya Timur https://youtu.be/8fi0rpkhCH0
- SPS Embung Kemirigede https://youtu.be/tkNoMHiOvy4

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SPS SCHEMATIC PRECAST SYSTEM

5
MAIN ADVANTAGES

STRONGER

MORE EFFICIENT

FASTER BUILDS

MORE ENVIRONMENTALLY FRIENDLY

MORE DURABLE

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