



SPECIAL PROJECTS

BRIDGES &
SPECIAL STRUCTURES



Bridge Design & Engineering Services

WIECON



SPECIAL PROJECTS

BRIDGES & SPECIAL STRUCTURES

Wiecon Introduction

About Us

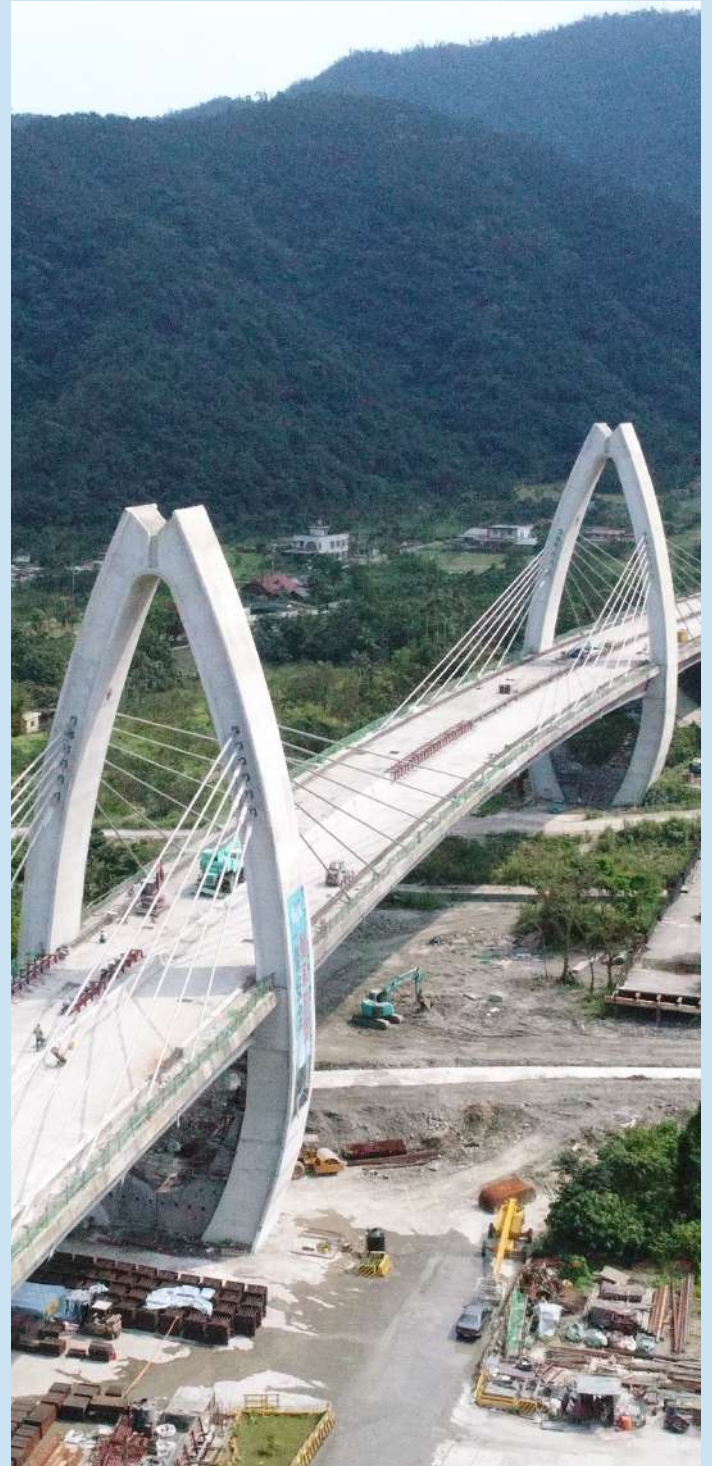
We don't just design bridges; we create engineering benchmarks that stand as testaments to innovation, precision, and excellence. With a legacy spanning three decades, we have emerged as leaders in the field of bridge engineering, driven by an unwavering commitment to pushing boundaries and exceeding expectations.

Our Approach

Our passion for bridge structures is matched only by our dedication to integrating cutting-edge designs and the latest technologies with our vast reservoir of experience and expertise. We provide comprehensive multi-disciplinary engineering consultancy services that encompass every facet of bridge engineering, construction processes, and project management.

30 Years of Excellence

With a rich portfolio spanning over 30 years, WIECON has been at the forefront of bridge engineering projects. Our in-house team of experts offers a diverse range of design services, including precast segmental, full-span erection, balanced cantilever, advanced shoring, incrementally launched, cable stay, suspension, and other specialized bridges. We handle projects from the initial preliminary studies and detailed design stages to the design of bridge construction equipment, major temporary works, and the supervision of the final erection stages.



Design & Engineering Services



Balang Arch Bridge, Republic of Indonesia

Client:

DSI, Indonesia

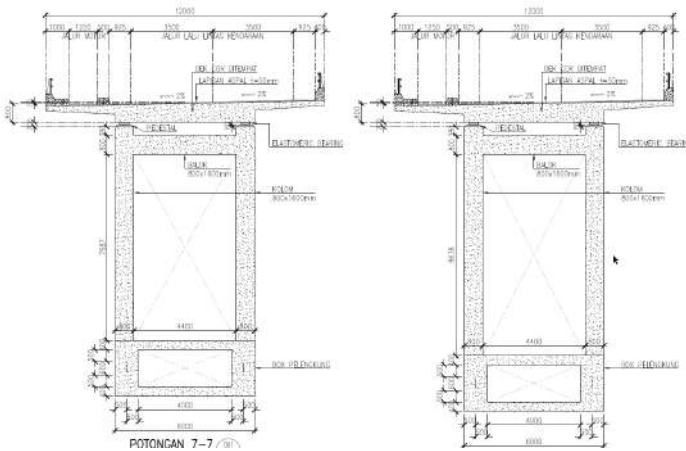
Services:

- Construction Engineering
- Contractors Consultant

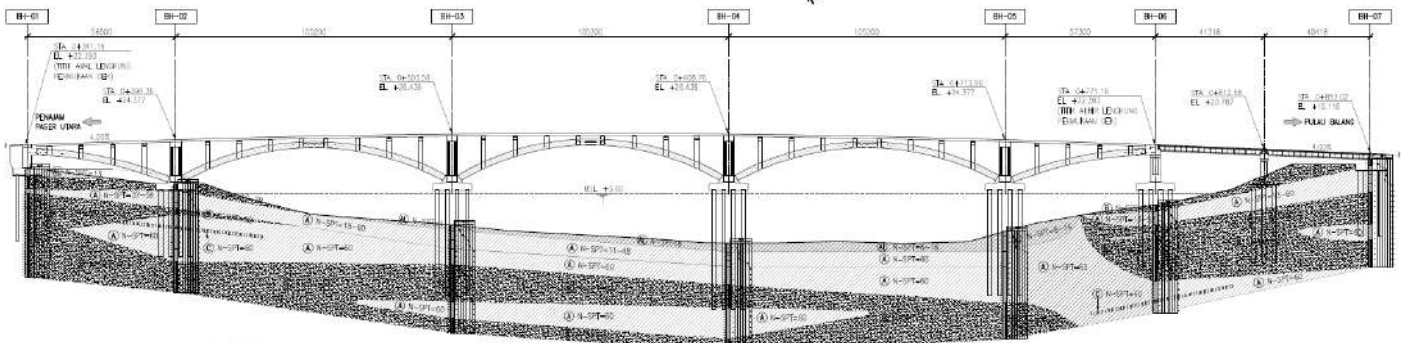
Specifications:

- Total Bridge Length: 431.4m
- Span Configuration: 56.5 m + 105.2 m + 105.2 m + 57.3 m
- Deck Width: 12m

Project Duration: 2022-2024



Typical Section of Main Arch



Bridge Elevation

42M Precast I Beam Segment Lifter, Kerala, Republic of India

Client:

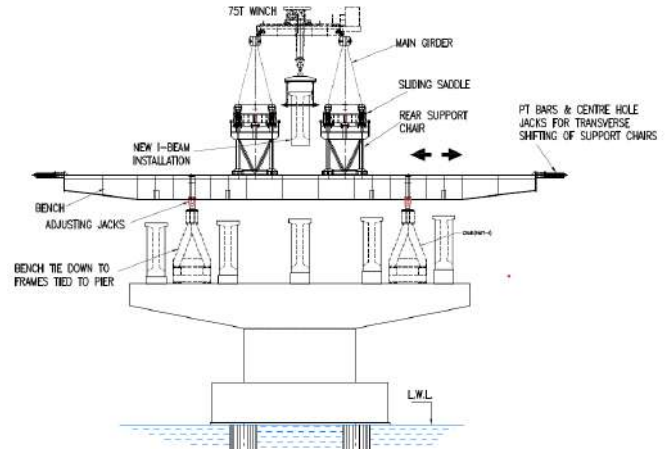
Tech 9 Engineering Solutions

Services:

- Launching Gantry Detail Design
- Launching Gantry Shop Drawings
- Contractors Engineer

Specifications:

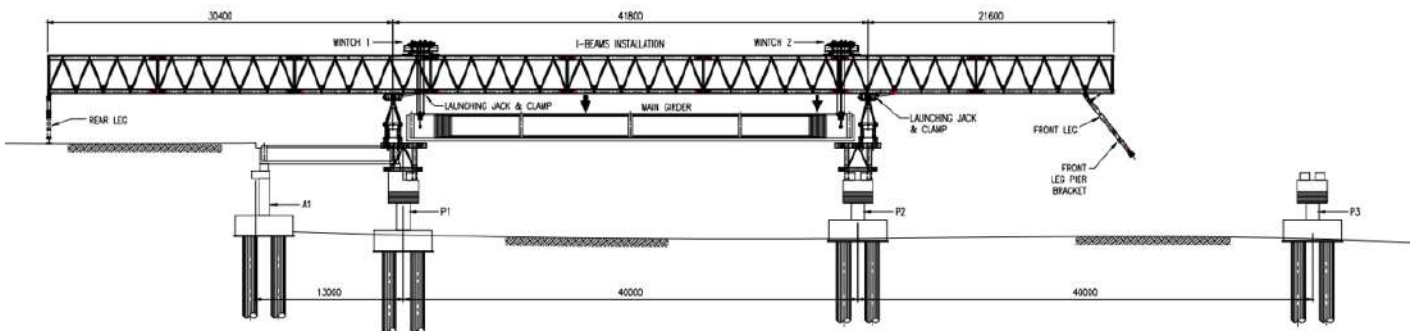
- **Precast I Beam Girders**
- **Mogral Bridge:**
- Total Bridge Length: 215m
- Span: 3*40 m + 2*27.5 m +40 m
- **Shriya Bridge:**
- Total Bridge Length: 329.6m
- Spans: 8*41.2 m = 329.6m
- **Upla Bridge:**
- Total Bridge Length: 146m
- Spans: 13 m + 3*40 m + 13 m
- **Kumpala Bridge:**
- Total Bridge Length: 266m
- Spans: 7* 38m
- Total Project Length: 957m
- Launching Gantry Length: 93.8m
- Maximum Lifting Capacity: 120t



Section of Launching Gantry



Project Duration: 2022-2023



Elevation of Launching Gantry

Aircraft Field Radar Test Facility, Republic of Turkey

Client:

Nurol Construction

Services:

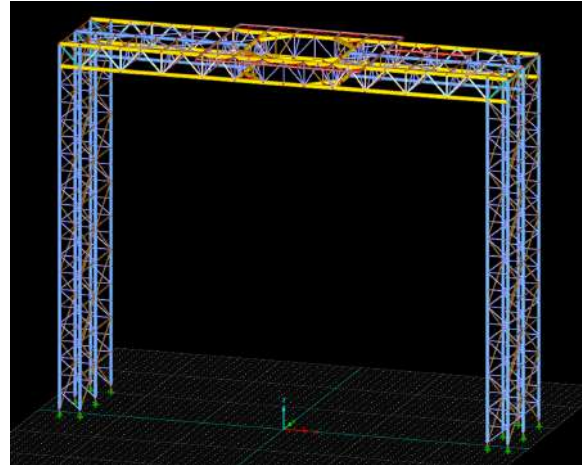
- (IPC) Independent Check Engineering

Specifications:

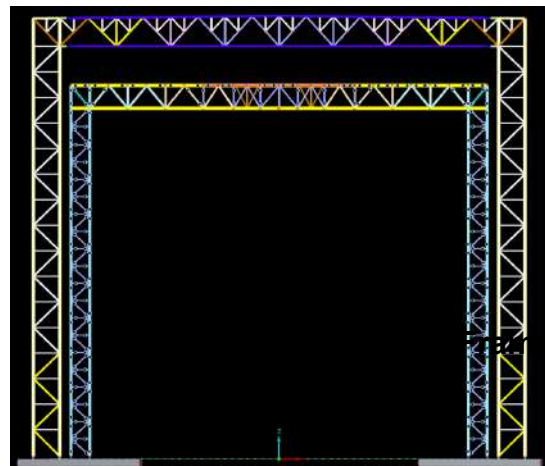
- Aircraft Heavy Lifting Design Check
- Outer Main Frame Design Check
- Inner Frame Design Check
- Entire Structure Design Check

Project Duration:

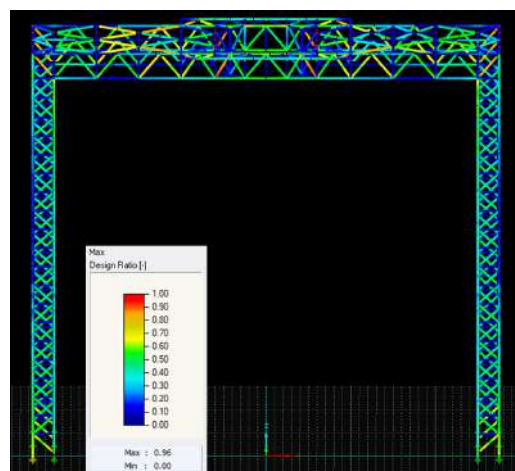
2022



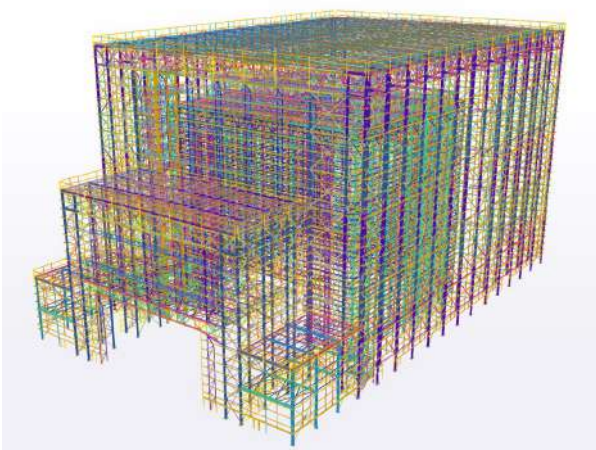
Aircraft Hanging Structure



Outer / Inner Structure



Design Model



Entire Structure

Freeway No.2 Dayuan, Taoyuan County, Taiwan ROC

Client:

Hwang Chang Construction

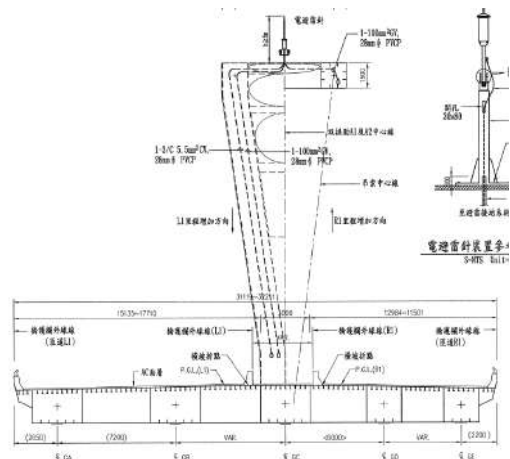
Services:

- Construction Engineering
- Shop Drawings
- Contractors Engineer

Specifications:

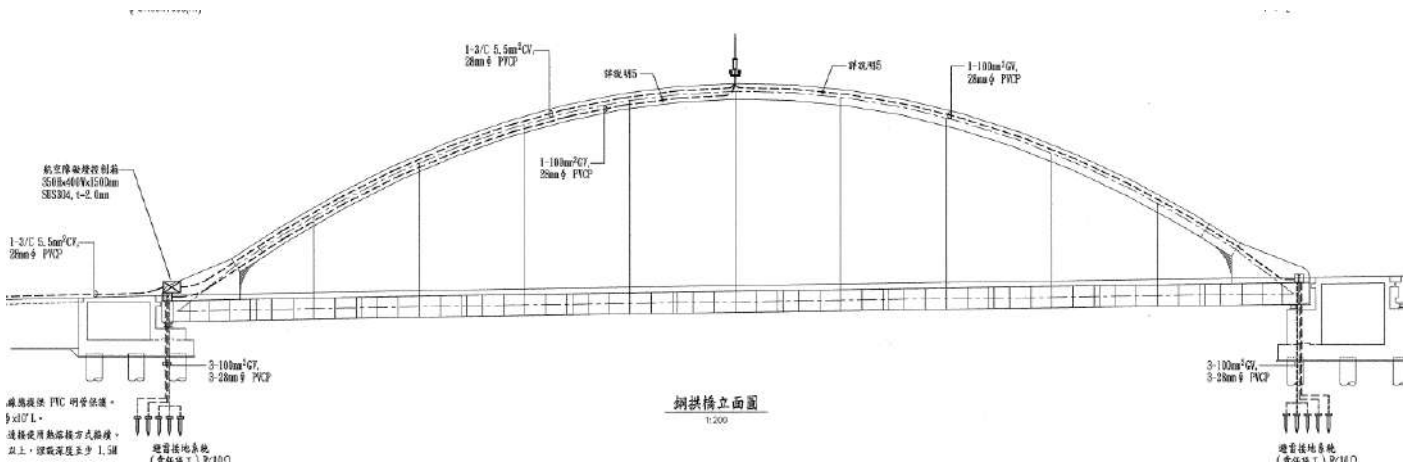
- Construction Engineering Services for 13 Bridges consisting of a main arch bridge, cast in place (CIP) and free cantilever bridges (FCC).
- Span Configuration & Total Bridge Length are given in the table.
- Main Arch Bridge Deck Width: 32.2m
- FCC+CIP Deck Widths Vary: 12.4m~24.5m
- Total Project Length: 2.205km

Unit	Bridge Type	Qty	Spans (m) + Total Length (m)
EBU01	CIP	2	37+40+40=117
EBU02	FCC	2	45+75+45=165
EBU03	CIP	2	4*42.5=170
EBU04	CIP	2	4*42.5=170
EBU06	CIP	1	4*40=160
EBU07	FCC	1	56+75+48+40+39.44=258.4
WBU01	FCC+CIP	1	52.63+75+50+40+441=258.63
WBU02	CIP	1	3*40=120
T15R U01	Arch Bridge	1	110
T15R U02	CIP	1	2*28.5=57
T15R U03	FCC	1	40+2*70+52.06=232.06
T15L U01	FCC	1	64.9+90+80+42=276.9
T15L U02	CIP	1	2*40+29.57=109.57



Section of Main Arch Bridge Deck

Project Duration: 2019-2024



Elevation of Main Arch Bridge

Freeway No.3, Dashi Interchange, Taoyuan County, Taiwan

Client:

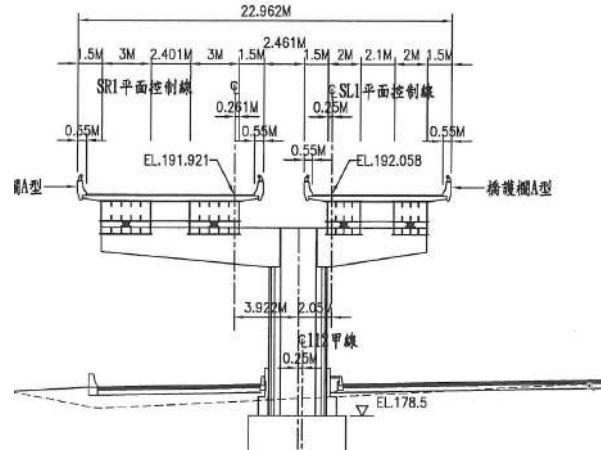
Hwang Chang Construction

Services:

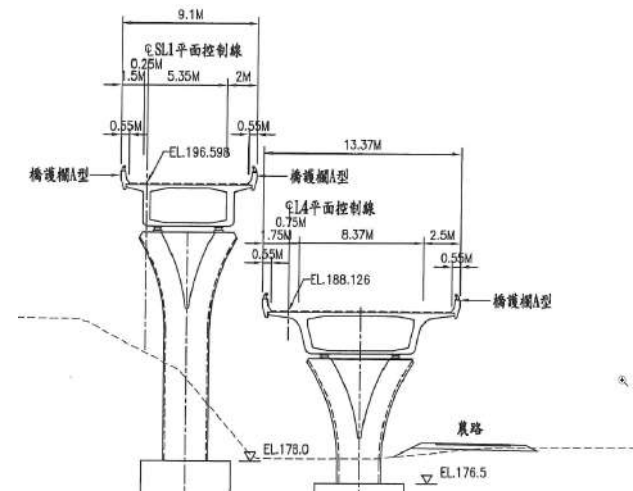
- Construction Engineering
- PT Shop Drawings
- Contractors Engineer
- Technical Services

Specifications:

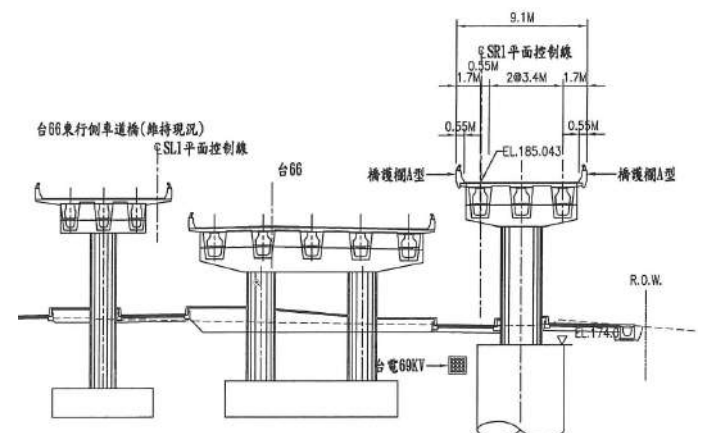
- CES Services for 8 Steel
- CES Services for 8 Cast In Place Bridges (CIP)
- Steel Deck Width: 8.6m~22.9m
- CIP Deck Width: 10m~13.7m



Steel Deck Section



CIP Deck Section



Section of Main Highway & Side Ramps

Values in (m)							
STEEL	Unit	Span 1	Span 2	Span 3	Span 4	Span 5	Total Length
1	SL1B02	42.5	42.5				85
2	SL1B03	45	45	45			135
3	SL1B08	41	41	41	41		164
4	L4B01	41	41	41	41	40.817	204.817
5	SR1B01	48	48	48	48		192
6	SR1B02	45	45	45	45		180
7	SR1B03	45	45	45			135
8	SR1B08	43	43	40			126

Values in (m)							
CIP	Unit	Span 1	Span 2	Span 3	Span 4	Span 5	Total Length
1	SL1B04	55	50	50	50		205
2	SL1B05	45	50	45	45		185
3	SL1B06	40	40	45	40		165
4	SL1B07	73	115	71			259
5	SR1B04	50	50	44.5			144.502
6	SR1B05	44.67	44.66	49.63	44.664		183.62
7	SR1B06	49.63	49.64	49.92	43.7		192.878
8	SR1B07	50	80	85	50		265
TOTAL PROJECT LENGTH							2821.817
							2.83 Km

Project Duration:

2019-2024

Kuwait Intl Airport, Roof Segment Heavy Lifting, Republic of Kuwait

Client:

Limak Construction

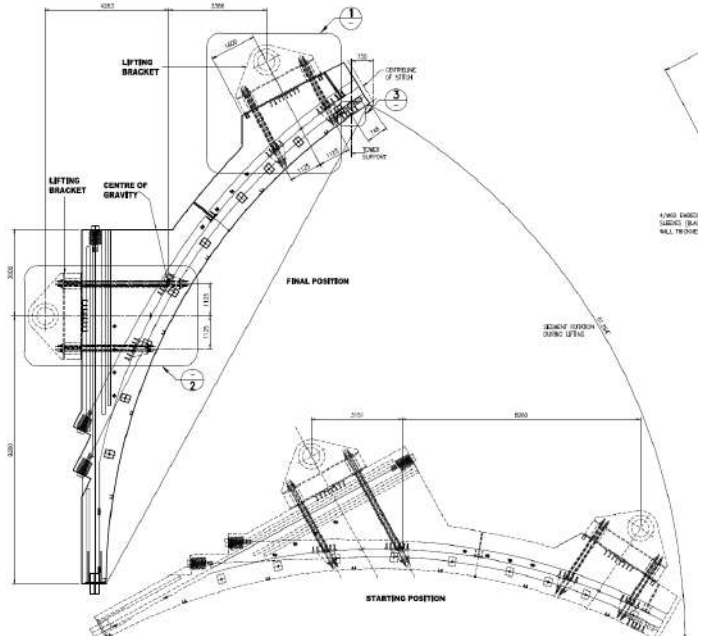
Services:

- Construction Engineering
- Roof Segment Heavy Lifting Design
- Contractors Engineer
- Major Temporary Works Design

Specifications:

- Max Weight of an Arch Segment: 350t

Project Duration: 2018-2020



Typical Roof Arch Segment



Tainan Expo Center, Roof Truss Segment Heavy Lifting, Taiwan

Client:

DSI Taiwan

Services:

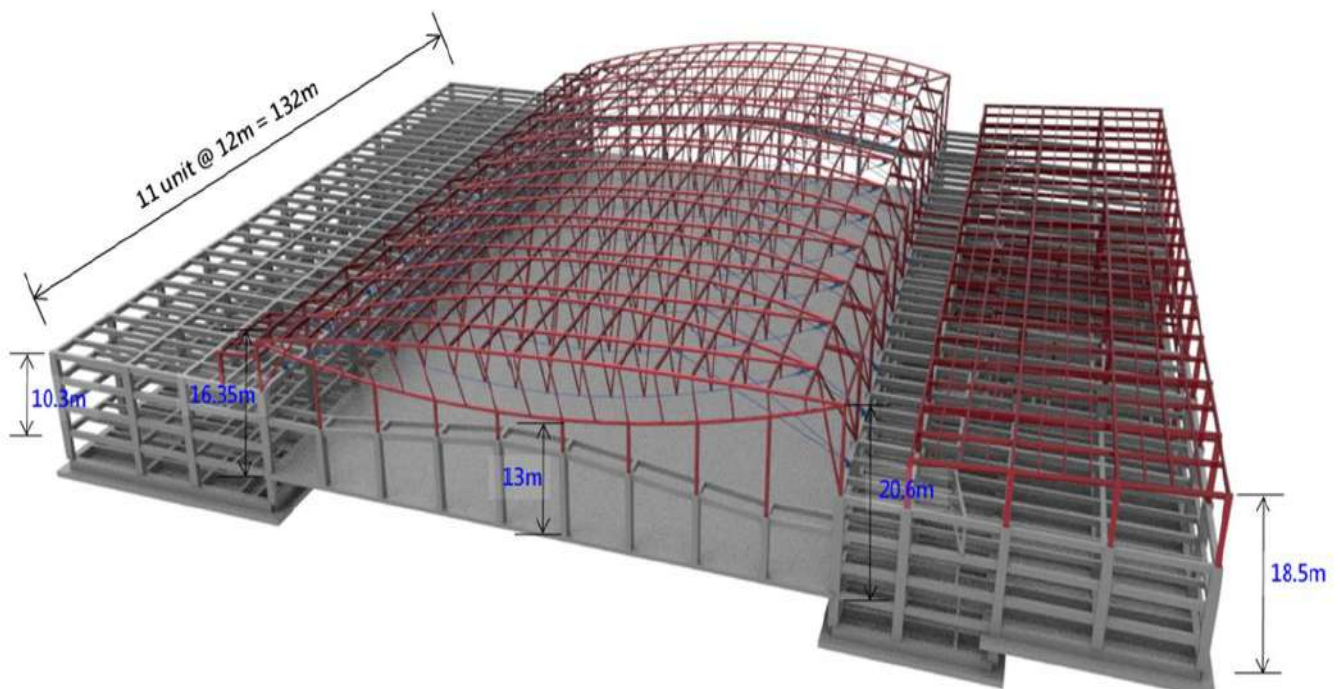
- Construction Engineering
- Roof Segment Heavy Lifting Design
- Contractors Engineer
- Major Temporary Works Design

Specifications:

- Max Lifting Design Weight: 1500t
- 11 Units @ 12m Spacing
- Total Length: 132m

Project Duration:

2018-2020



Quirino Bridge Upgrade, Cotabato, Republic of the Philippines

Client:

Department of Public Works

Services:

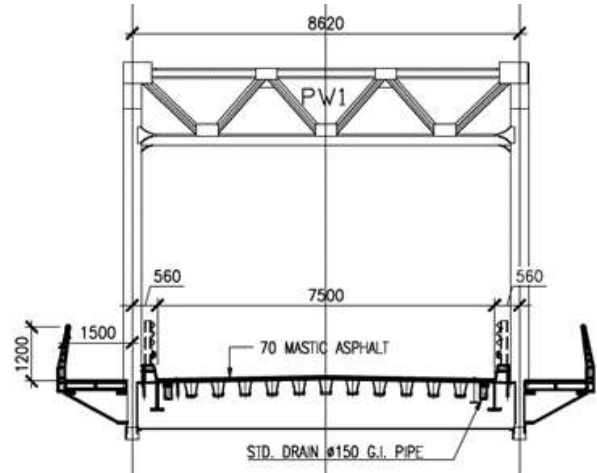
- Construction Engineering
- Detail Design
- Shop Drawings
- Contractors Engineer
- Major Temporary Works Design

Specifications:

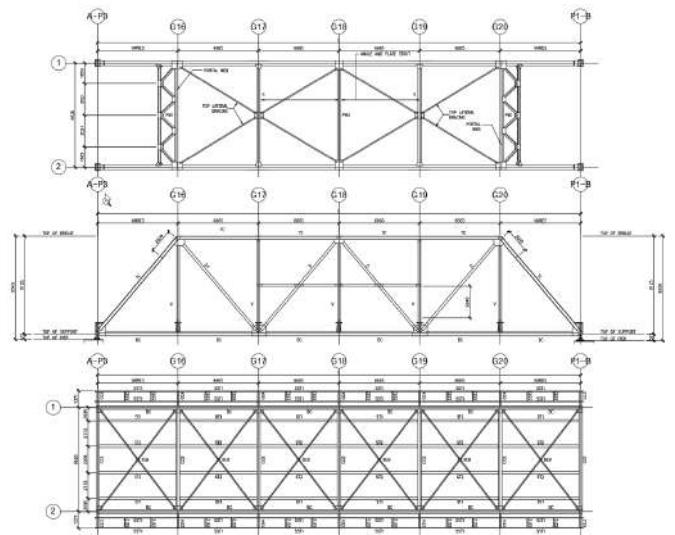
- Warren Steel Truss Bridge
- Total Bridge Length: 161m
- Span Configuration: 40.25m*4
- Deck Width: 8.620m

Project Duration:

2018-2020



Typical Deck Section



Typical Bridge Segment 40.25m



High Speed Rail Line Project, Republic of Turkey

Client:

Kolin Construction

Services:

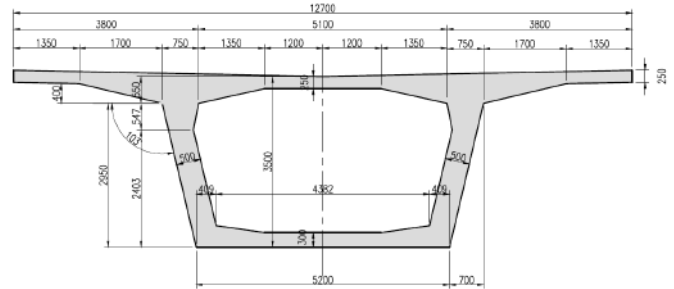
- Detail Design
- Contractors Engineer

Specifications:

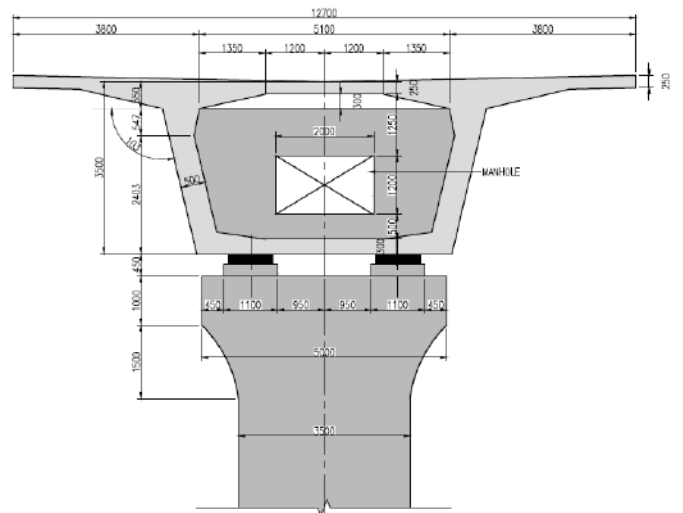
- **Viaduct 5**
- Total Bridge Length: 960m
- Span Configuration: 40m*24
- Deck Width: 12.7m
- **Viaduct 6**
- Total Bridge Length: 840m
- Span Configuration: 40m*21
- Deck Width: 12.7m
- Total Contract Length: 1.8km

Project Duration:

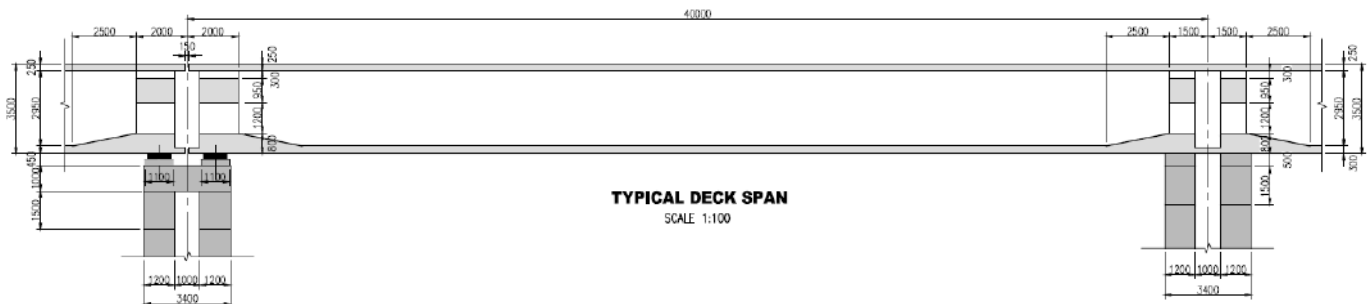
2013



Typical Deck Section



Typical Deck Section at Pier



TYPICAL DECK SPAN
SCALE 1:100

Elevation of Typical Span

Prai Swing Bridge, Ipoh & Padang Besar, Republic of Malaysia

Client:

MMC Gamuda JV

Services:

- Construction Engineering
- Contractors Engineer

Specifications:

- Double Track Railway Swing Bridge
- Total Project Length: 328km
- Total Bridge Length: 80m
- Span Configuration: 40m+40m
- Deck width: 12m

Project Duration:

2013



King Khaled / King Abdulla Intersection Road, Riyadh, Saudi Arabia

Client:

Bernard Consulting Engineers

Services:

- Preliminary Design
- Detail Design

Specifications:

- **Overpass B1:**
- Total Bridge Length: 198.4m
- Span Configuration: 49.2m+100m+49.2m
- Deck Width: 10.5m
- **Overpass B2:**
- Total Bridge Length: 423.615m
- Span Configuration: 30m+35m+45.586m+45.586m+30m+30m+61m+30m+30m+30m+30m+36.443m
- Average Deck Width: 13.5m
- **Flyover F1:**
- Total Bridge Length: 270m
- Span Configuration: 30m+37.5m+37.5m+24.5m+35.5m+35m+35m+35m
- Deck Width: 13m
- **Flyover F2:**
- Total Bridge Length: 476.285m
- Span Configuration: 30m+40m+40m+40m+30m+30m+30m+40m+40m+35m+45.581+45.586+30.118m
- Deck Width: 11.2m
- **Existing Overpass Extension:**
- Total Bridge Length: 46.129m
- Span Configuration: 23.065m+23.065m
- Bridge Width: extended from 26.6m wide to 104.7m wide.

Project Duration:

2014



C903 Freeway No.1 North and South Extension, Taipei, Taiwan

Client:

Evergreen Steel construction

Services:

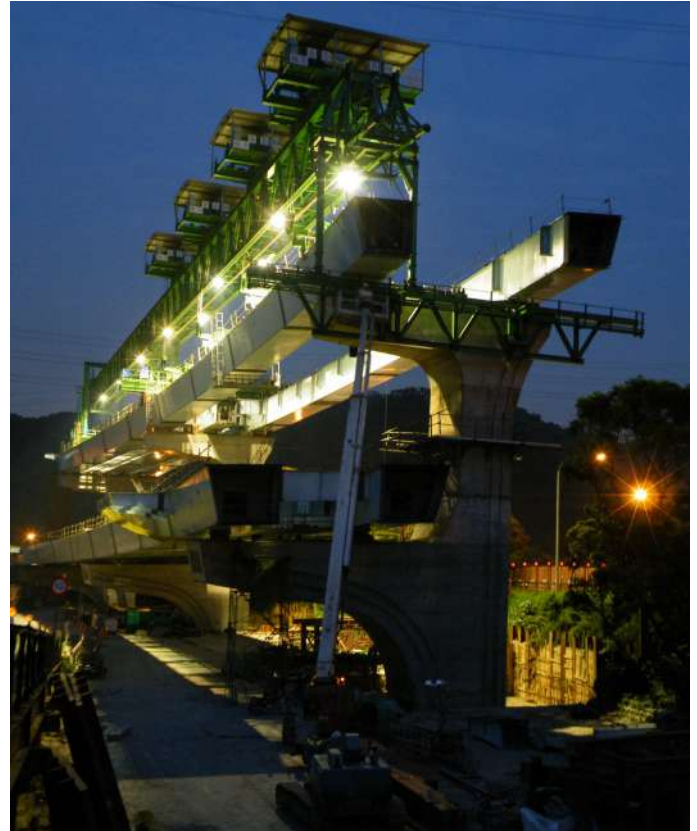
- Construction Engineering
- Steel Deck Erection Girder Design
- Contractors Engineer
- Major Temporary Works Design

Specifications:

- Length of Main Lifting Gantry: 117m
- Deck Segment Span Lengths: 55m
- Deck Width: 18m

Project Duration:

2013



Linkou Power Plant, Renewal Project, New Taipei City, Taiwan

Client:

Kung Shin Construction

Services:

- Construction Engineering
- Steel Roof Lifting Equipment Design
- Climbing Formwork System Design
- Contractors Engineer

Specifications:

- Total of 10 Coal Storage Silos
- Each Silo Diameter: 46m
- Silo Concrete Wall Thickness: 0.6m at the base ~1.6m at the top
- Each Silo Height: 72m from the Ground

Project Duration: 2012-2014



M3, Steel Arch Bridge, Astana, Republic of Kazakhstan

Client:

Samko International Ltd.

Services:

- Construction Engineering
- Contractors Engineer
- Major Temporary Works Design
- Site Supervision

Specifications:

- Total Bridge Length: 151.6m
- Deck Width: 55m

Project Duration:

2008-2009



Ramstore Arch Bridge, Astana, Republic of Kazakhstan

Client:

Samko International Ltd.

Services:

- Construction Engineering
- Contractors Engineer
- Major Temporary Works Design
- Site Supervision

Specifications:

- Total Arch Span: 180m
- Height of Arch: 60m
- Total Weight of Arch: 600t
- Total Road Span: 120m
- Deck Width: 50m

Project Duration: 2008-2009



King Abdul Aziz Arch Bridge, Riyadh, Saudi Arabia

Client:

Arriyadh Development Authority

Services:

- Preliminary Design
- Detail Design
- Contractors Engineer

Specifications:

- Total Arch Bridge Length: 95m
- Approach Bridges Length: 140m+140m
- Deck Width: 26.2m
- Total Project Length: 375m

Project Duration:

2008-2009



Exit 11, Flyover, East Ring Road, Riyadh, Saudi Arabia

Client:

Arriyadh Development Authority

Services:

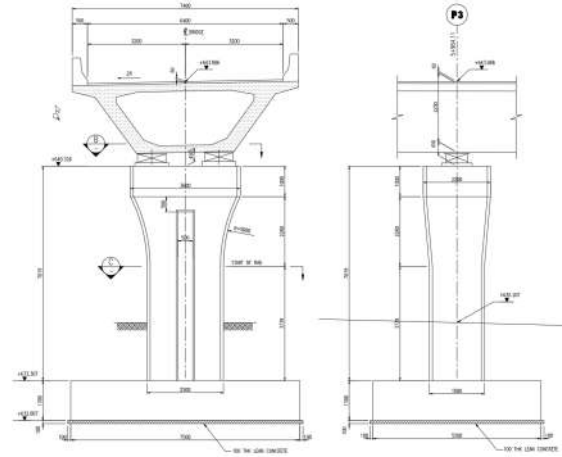
- Preliminary Design
- Detail Design
- Contractors Engineer

Specifications:

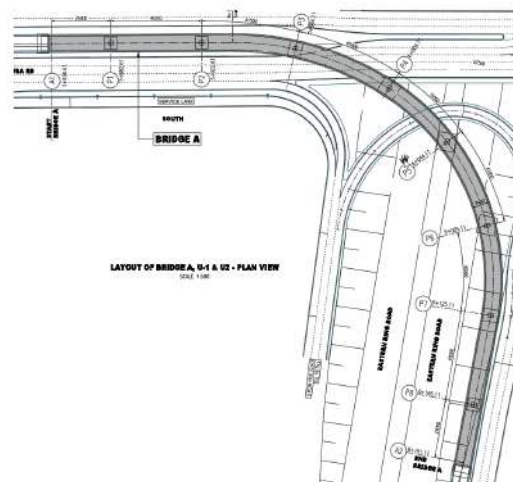
- Total Bridge Length: 334.5m
- Span Configuration:
26m+40m+41.5m+45m+35m+41m+40m+40m+26m
- Deck Width: 7.4m

Project Duration:

2010-2011



Typical Deck Section



Flyover Plan View



Miaoli Second Road Arch Bridge, Miaoli County, Taiwan

Client:

Gen Yeh Engineering

Services:

- Construction Engineering
- Preliminary Design
- Detail Design
- Contractors Engineer
- Site Supervision

Specifications:

- Total Bridge Length: 314.5m
- Span Configuration: 45m+60m+170m
26m+40m+41.5m+45m+35m+41m+40
m+40m+26m
- Deck Width: 23m

Project Duration:

2004-2006



Chenab River Arch Bridge, Baramulla Link, Republic of India

Client:

Indian Railways

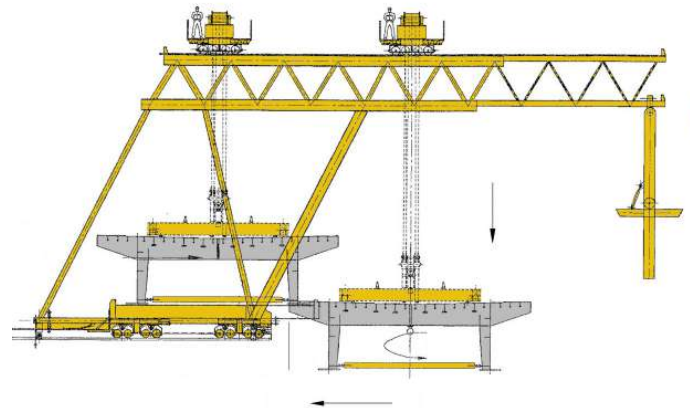
Services:

- Construction Engineering
- Deck Segment Erection Traveler Detail Design
- Contractors Engineer
- Major Temporary Works Design

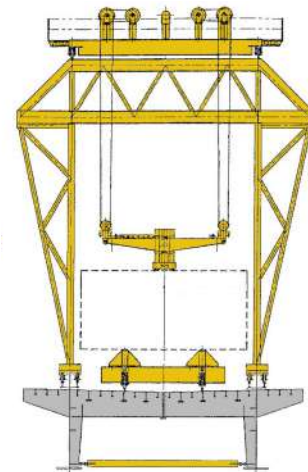
Specifications:

- Total Project Length: 260km
- Total Bridge Length: 1.315km
- Height Above River: 359m
- Designed to Wind Velocities of 220km/hr. & Seismic Zone 5 Earthquake
- Arch Span: 480m
- Typical Deck Spans: 48m
- Deck width: 17m

Project Duration: 2004-2006



Elevation of Erection Traveler



Front View of Traveler



Taiwan High Speed Rail Project C250, DU 11.01, Taiwan

Client:

HBP Joint Venture

Services:

- Construction Engineering
- Preliminary Design
- Detailed Design
- Contractors Engineer
- Major Temporary Works Design

Specifications:

- Total Project Length: 345km
- Total Bridge Length: 260m
- Skew Alignment Across Major Highway
- Span Configuration:
40.6m*3+34.550m*3
- Deck Width: 13m

Project Duration:

2001-2003





SPECIAL PROJECTS

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Taiwan High Speed Rail Project, Warren Truss Bridges, Taiwan

Client:

THSRC

Services:

- Consulting
- BOT Contractors Engineer
- Site Engineering Services

Specifications:

- Total Project Length: 345km
- Warren Steel Truss Bridges Along the High Speed Rail Route
- Average Width: 13m
- Average Height: 9m

Project Duration:

1999-2007



Taiwan High Speed Rail Project, DU 08 C210, Taiwan

Client:
Obayashi Futsu Joint Venture

Services:

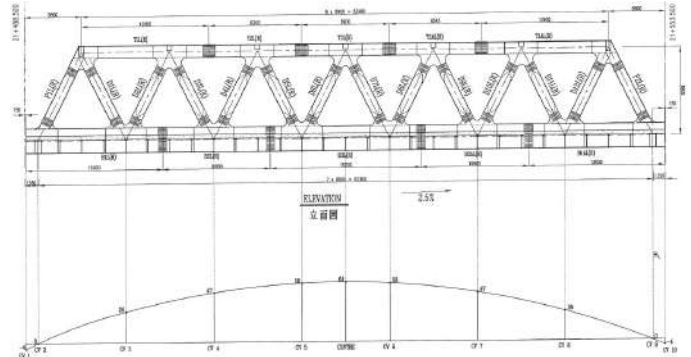
- Construction Engineering
- Preliminary Design
- Detail Design
- BOT Contractors Engineer
- Major Temporary Works Design

Specifications:

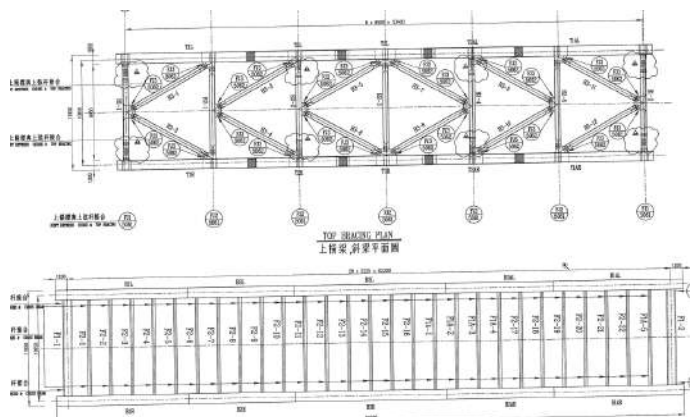
- Total Project Length: 345km
- Total Bridge Length: 65m
- Deck Width: 11.95m
- Total Weight of Bridge: 1800t

Project Duration:

2001-2003



Deck Elevation / Camber Profile



Plan View Top & Bottom



Taiwan High Speed Rail Project, DU 12.03 C250, Taiwan

Client:

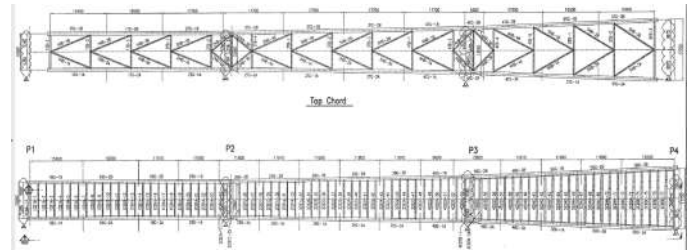
HBP Joint Venture

Services:

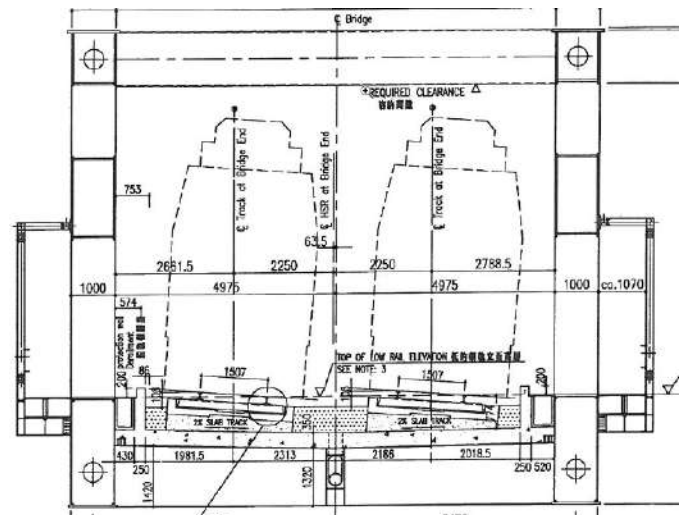
- Construction Engineering
- Preliminary Design
- Detail Design
- BOT Contractors Engineer
- Major Temporary Works Design

Specifications:

- Total Project Length: 345km
- Total Bridge Length: 190m
- Span Configuration:
60.1m+70.8m+60.1m
- Deck Width: 10.560m~17.750m
- Total Weight of Bridge: 1800t



Plan View Top & Bottom



Typical Section

Project Duration: 2001-2003

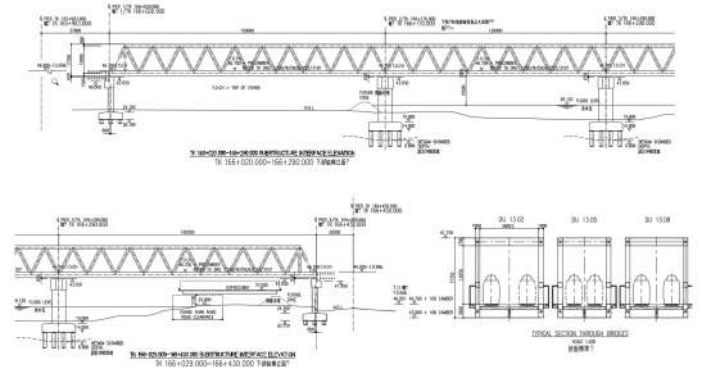


Taiwan High Speed Rail Project, C250 Truss Bridges, Taiwan

Client:
HBP Joint Venture

Services:

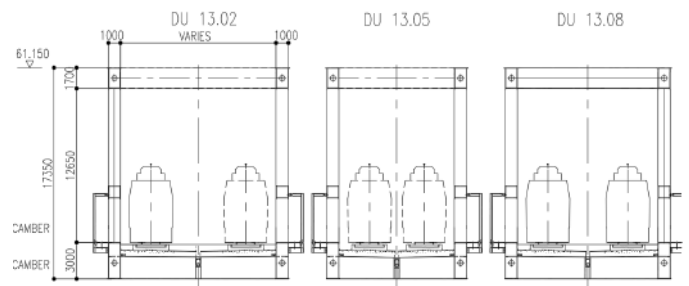
- Construction Engineering
- Preliminary Design
- Detail Design
- BOT Contractors Engineer
- Major Temporary Works Design



Deck Elevation

Specifications:

- Total Project Length: 345km
- DU, 1302, 1305, 1308 Bridges
- Total Bridge Length: 410m (All 3 Bridges)
- Span Configuration: 150m+120m+140m (All 3 Bridges)
- Deck Width: 11.5m~16.9m
- Total Weight of All 3 Bridges: 24,000t



Section Through 3 Truss Bridges

Project Duration: 2001-2003



Client:

HBP Joint Venture

Services:

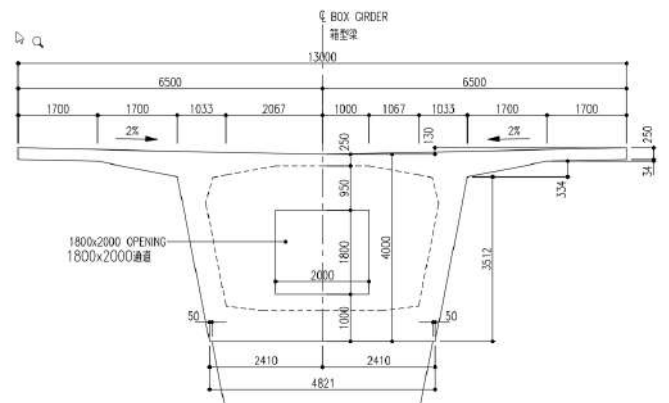
- Construction Engineering
- Preliminary Design
- Detail Design
- BOT Contractors Engineer
- Major Temporary Works Design

Specifications:

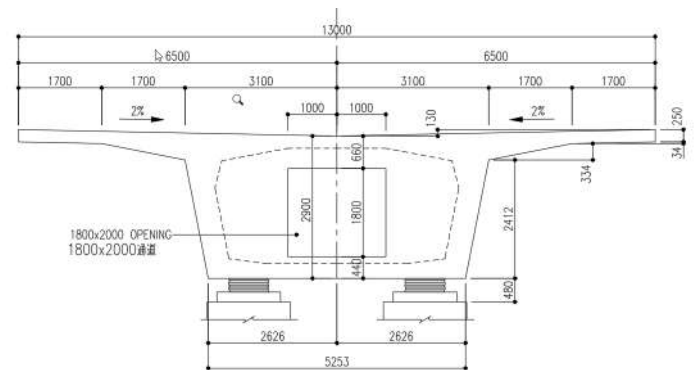
- Total Bridge Project Length: 345km
- Total Bridge Length: 120m
- Span Configuration: 35m+50m+35m
- Deck Width: 130m

Project Duration:

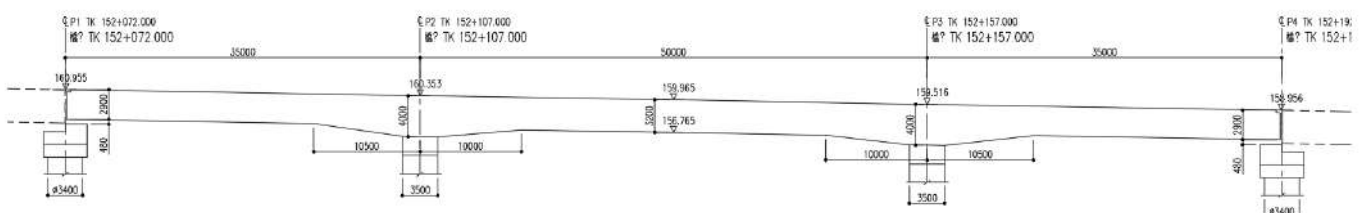
2001-2003



Deck Section at Piers



Deck Section at Midspan



Bridge Elevation

Nanfang Au Steel Arch Bridge, Suao, Taiwan

Client:

MAA Engineering Consultants

Services:

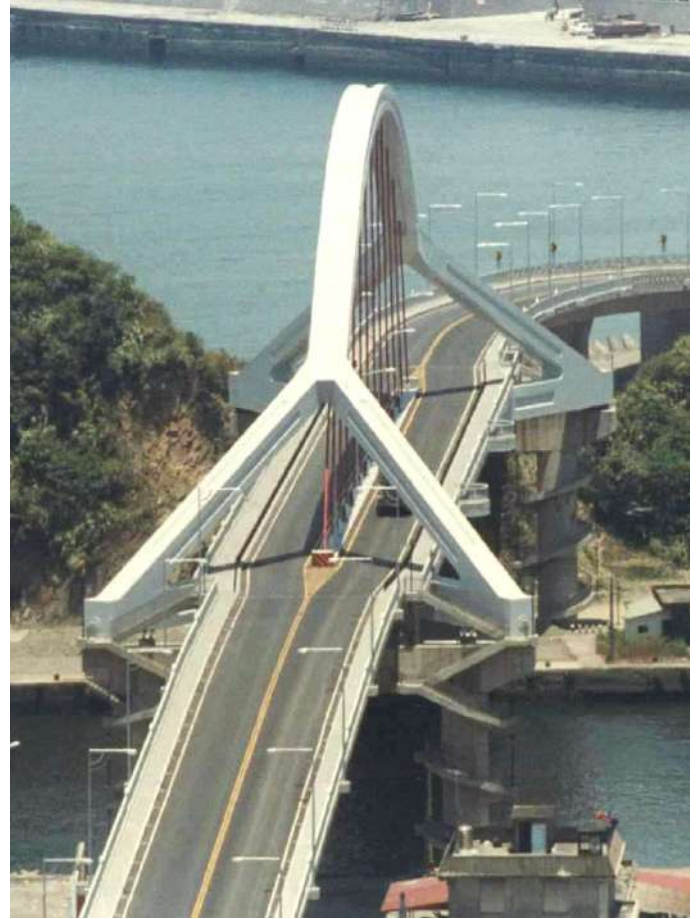
- Construction Engineering
- Contractors Consultant
- Major Temporary Works Design

Specifications:

- Total Bridge Length: 140m (One Span)
- Deck Width: 15m
- Arch Height: 27m

Project Duration:

1995-1998



Cho Shei Shi Pipe Support Bridge, Yunlin, Taiwan

Client:

China Petroleum Company

Services:

- Aesthetic Evaluation
- Preliminary Design
- Detail Design
- Construction Engineering
- Contractors Engineer

Specifications:

- Total Bridge Length: 2.2km
- All Spans: 70m

Project Duration:

1995-1996



Taipei Ilan Expressway No.5, Taiwan

Client:

Sinotech Consulting Engineering

Services:

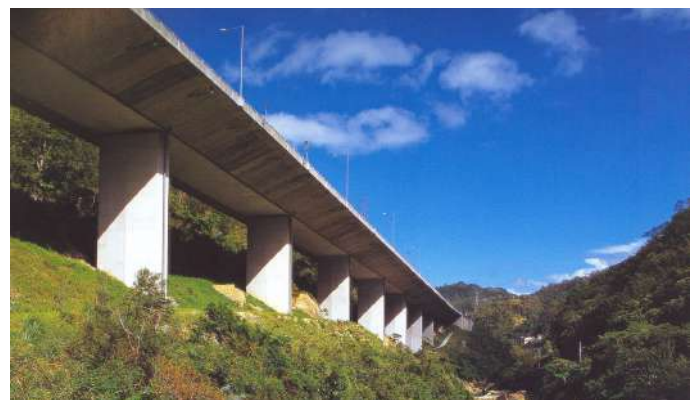
- Construction Engineering
- Detail Design
- Contractors Engineer

Specifications:

- Total Contract Length: 30.8km
- Total Project Length: 7.113km
- Total of 30 Bridges Consisting of:
 - FCC Bridges
 - ILM Bridges
 - MSS Bridges
 - Prestressed Arch Bridge
 - CIP Bridges
 - Full Support Method (PingLing Interchange)
 - **Main Bridges:**

• Shihding Interchange	66 m
• Shihding Viaduct	809 m
• Tanbian Bridge	480 m
• Wutu Hsi Bridge	564 m
• Pengshan Viaduct East	394 m
• Pengshan Viaduct West	615 m
• Pengshan East Bridge	131 m
• Pengshan West Bridge	280 m
• Pengshan Viaduct 2	231 m
• Pinglin Viaduct East 1	538 m
• Pinglin Viaduct West 1	290 m
• Pinglin Viaduct East 2	650 m
• Pinglin Viaduct West 2	628 m
• Toucheng Viaduct East	721 m
• Toucheng Viaduct West	716 m

Project Duration: 1990-1993





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