VSL NEWS

ISSUE TWO 1998

Hung Hom Bypass, Hong Kong

Creating Solutions Together

EDITORIAL

HIGHLIGHTS

The Asian crisis: a springboard for innovations

Periods of crisis often nurture innovations and creative behaviours that lead to opportunities. Although the slump in the Asian market has seriously hit the volume of work in the construction industry, VSL has the right organisation to use this recession as a springboard to introduce new developments for the future.

Given our technical and marketing expertise in Asia, we have the keys to ensure that our core business activities remain competitive and profitable. A vital trump card is our willingness to provide customers with all our skills and know-how to create solutions for their needs.

Each of our offices in Asia is backed up by VSL's unique world-wide network. This gives our subsidiaries access to numerous marketing sources and a wide array of information to help them attract new businesses.

Our goals are therefore to stay closer to our customers, listen to their needs, provide them with ever-greater services, and make full use of our network to promote new activities.

Our commitment as a specialist sub-contractor to Asia is as strong as ever.

Alain Le Pivert
CEO and Chairman of the Board

SPECIAL
HEAVY LIFTING

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- KOREA -
SANG DAE III BRIDGE

Located in Hoengsung County, the Sang Dae III bridge will cross over steep mountain valleys to widen the existing dual lane Yongdong Expressway into a double dual lane expressway serving the eastern coastal city of Kangreung.
To cross the deep valley and improve the existing winding road, the superstructure is being built using the free cantilever method over the high level piers, the tallest of which rise up to a height of 92 m.
Total length is 705 m (65 m + 5 x 115 m +65m and each segment of this 7- span continious precast concrete box bridge is 4.75 m long. Segments are cast in-situ and supported by lightweight formtravellers, which only weigh 52 t.
VSL's scope of works covers post-tensioning, re-bar, concreting, supply and operation of form travellers for the superstructure and stress bars for the piers. This represents 960 t of strands (6-4, 6-7, 6-17, 6-19, 6-20, 6-22) and 730 t of ø 38-mm VSL stress bars.
Currently 8 of the 14 key segments have been completed, and the remaining closures will be finished by April 1999. ■

J.K Lee
VSL Korea

- SWITZERLAND -
VIADUCS DES VAUX

These two parallel bridges are part of the N1 motorway near Yverdon in Western Switzerland, the last major, yet uncompleted link in the Swiss motorway network.
Each bridge is 950 m long and consists of 2 steel beams or a steel box girder, and a prestressed concrete deck cast in 30-m sections using a formwork traveller. The eastern part of the bridge, which crosses a deep valley, comprises two 130-m spans and is being constructed by incrementally launching the steel boxes downwards (slope 2,1%) from the eastern abutment.

VSL's involvement comprises:
• prestressing the concrete deck with 6-7 coupled cables and 6-4 transverse cables in flat PT-Plus ducts;
• prestressing the connection girders between the 100-m high main piers using 5-19 cables;
• temporary 5-7 stay cables for stabilising a number of piers during launching operation, including a system to measure the forces in these stays;
• a combined propulsion and retaining system based on SMU-type strand equipment with a 700 kN thrust and a 1,200 kN retaining capacity.

VSL will complete its works on this project before the end of 1998. ■

Erich Möschler
and Fabrice Vouilloz
VSL Switzerland

- SPAIN -
Oresund Link

The decks of the viaduct approaches for the Oresund Link are being constructed in the DOSA offshore plant, located in Southern Spain.
A total of 49-composite spans, each 150 m long and 30 m wide, will be precast and delivered to the site.

VSL is in charge of the transversal post-tensioning for the concrete slab. A 4/0.6" tendon is installed and stressed every 0.80 m, using a 4/0.6" flat anchor in the live end and a VSL H-type anchorage in the dead end.
The flat duct is manufactured in CTT Stronghold's factory in Barcelona and shipped in 11-m pieces. The two parts of the flat duct are connected in the yard by means of a steel coupler and a thermofuse element.
12-m long by 30-m wide rebars & tendons assemblies are re-lifted and placed in position on top of the steel frames. Once a complete span is pre-assembled and installed, the concrete is poured and then stressed using VSL twin jacks.
A total of 12,500 live and dead anchorages, 250,000 m of flat duct and 1,100 t of strands will be installed.
The job started in spring 1997 and will be completed by the end of spring 1999. ■

Enrique Alonso
CTT Stronghold

Constructing the viaduct approaches for the Oresund link

- SWITZERLAND -
Repairing the Teufelsbrücke

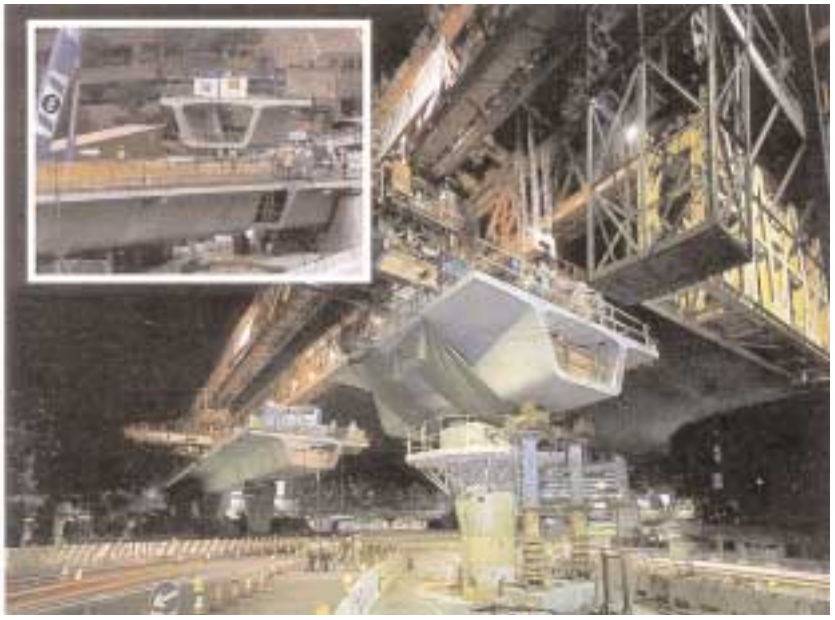
This 40-year-old arch bridge is part of the access to the Gotthard pass in Central Switzerland. While the elegant main arch is still in good condition, the actual bridge deck has suffered from the progressive influence of salt corrosion. It was therefore decided to replace it. This was done in two stages so that one lane would remain constantly open to traffic.

The new deck is constructed from precast concrete elements weighing up to 40 t and measuring 10.40 m by 4.40 m. Since no heavy duty crane could be installed at this location, VSL designed and provided a special travelling gantry. This latter is equipped with VSL's hydraulic equipment to move the concrete elements into their final position. Suspended from the gantry, the elements were transported up to 90 m from the upper bridge end to their place of installation. Hydraulic jacks were used to precisely position the elements before lowering. This operation was immediately followed by longitudinal post-tensioning using one-strand cables.
The custom-made equipment worked remarkably well. The elements were successfully placed and stressed within a very tight programme and to the client's full satisfaction. ■

René Ruprecht
VSL Switzerland

- HONG KONG -

HUNG HOM BYPASS: ERECTION OF THE LAST SEGMENT



On the 26 November 1998, in the presence of the Hong Kong Secretary of Works and the Main Contractor (Maeda/Chun Wo Joint Venture) executives, VSL erected the last segment for the Hung Hom Interchange.

This event marks the substantial completion of the erection works, part of an overall VSL package that included precast geometry control, formwork design, bearings, expansion joints and post tensioning (1,200 t).

The erection of the 1643 segments was carried out in one of the most heavily congested areas of Hong Kong and utilised a launching girder and heavy capacity cranes. Due to the fact that the works often cross busy roads and rail corridors, much of the erection work was carried out under severe time restrictions (a few hours per night).■

Jean-Yves Mondon
VSL Hong Kong

- FRANCE -

VAL DE RENNES, STAY CABLE BRIDGE

In order to cope with the increasing traffic of the city of Rennes (Western France), a master plan introduced to create a new people mover railway line. With an overall length of 9,400 m, the Val de Rennes project consists of 15 stations, over 7,500 m of underground tunnels and trenches and 1,025 m of viaducts. Among these, a 460-m long double deck viaduct and a cable-stayed bridge (the VAL) will be completed by the end of 1998.

Lifting of the stays by a special cableway

The Main Contractor -a joint venture between Quille (leader) and GTB- chose VSL to supply and install the longitudinal post-tensioning (120 t of VSL E 6-12 system) for the double deck viaduct and the stays (10 t of 200 SSI system) for the cable-stayed bridge.
The VAL viaduct stay cables have a high degree of corrosion protection. Each strand is galvanised, waxed and tightly PE sheathed. In addition, the entire strand bundle is protected by a thick walled HDPE pipe
Due to the fact that works had to be carried out without interrupting traffic underneath the bridge, the stay cables were pre-assembled and lifted to their final position by a special cableway. The pre-assembling includes the fabrication of the free length of the stay, formed by the stand bundle and the HDPE, and

Cables anchored above the deck

connecting the free length to both the deck and the pylon anchor. The stays consist of 4-, 12-, and 19-0,6" strands. The design of the 200 SSI system gave the flexibility to prefabricate the stay anchors in a workshop and deliver them as a single component on site.
For aesthetic reasons the cables were anchored above rather than below the deck. To allow for the narrow space for stressing the cables in the anchorage zones, a special reducing coupler was designed to permit the use of smaller jacks.
Thanks to these innovations both in the technical design and the installation method, the VAL should become a new French reference in cable-stayed bridges.■

Bertrand Roth
VSL France

- AUSTRALIA -

SYDNEY SUPERDOME

The Sydney SuperDome, when completed in September 1999, will be Australia's largest indoor venue, with a seating capacity over 20,000 and a total floor area of 61,000 m^2.

During the 2000 Games it will host basketball and gymnastics and provide Sydney with the country's best and most versatile indoor entertainment and sporting facility.

Designed and build by Millennium, a subsidiary of Abigroup Limited in conjunction with Obayashi Corporation. The designers are Cox Richardson Architects in association with Devine de Flon Yaeger, a US based sports architecture firm, and the consulting structural engineers are Taylor Thomson Whitting.

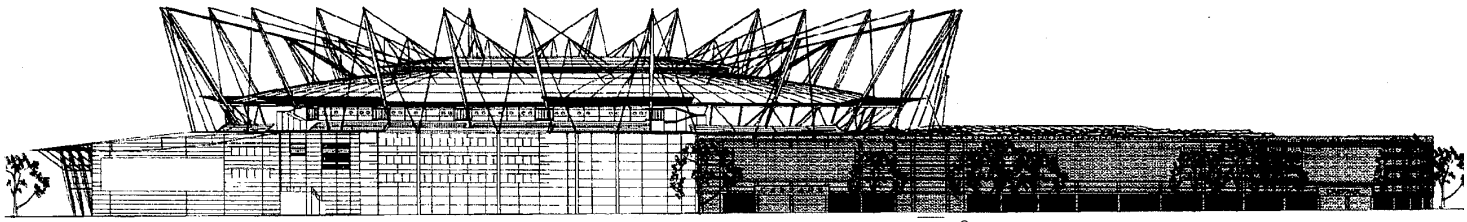
One of the unique features of the Sydney SuperDome is that it has one of the largest rooftop solar power stations in the world, providing 70 kW.

Post-tensioning of Australia's largest venue

Millennium is also responsible for the construction of the on-site carpark located adjacent to the Sydney SuperDome which, with a capacity of approximately 3,500 cars, will become the biggest multi-level carpark in Australia.

VSL provided the post-tensioning services for both the Sydney SuperDome and multi-level carpark to the structures contractor, De Martin and Gasparini. A total over 500 t of the VSL 12.7-mm Slab system were installed. VSL completed its involvement at the SuperDome during August 1998 and finished its works on the carpark at the end of October 1998. VSL's scope of works covered approximately 90,000 m2 of slab & band beams for the carpark and the stressing of the radial bands on the four Concourse levels for the Sydney SuperDome. ■

Ross Loakim
VSL Australia



CARPARK NOT INCLUDED IN THIS DEVELOPMENT APPLICATION

- SPAIN -

EL TRIANGULO DE ORO

El “Triangulo de Oro” is a 6-storey building located in one of the most important commercial areas in Barcelona. The solution adopted by the consultant for most of the floors was PT slabs using unbonded monostrand tendons - a method very seldom used in Spain.

The tendons were cut, prefabricated and labelled in CTT Stronghold’s factory, and then delivered to site. VSL was in charge of the technical assistance on site and carried out the tendon stressing using single monostrand jacks. ■

Enrique Alonso
CTT Stronghold

- KOREA -

LIFTING THE CHONG RO BUILDING TOP STRUCTURE

VSL Switzerland and VSL Korea successfully joined their skills to clinch the contract with Samsung Corporation for lifting this unusual structure.

The upper structure which houses a restaurant and exhibition galleries is formed by a triangular-shaped steel truss with curved 60-m long legs which weighs over 3,400 t. The upper structure was erected on top of the Chong Ro Insurance Building and then lifted through 30 m by means of 16 SLU-330 strand units, mounted on the three circular building cores.
To comply with stringent tolerances requirements, the lifting was controlled using a laser system.

The main lift took place at the end of June 1998. The structure was then fixed at its final level. The 30-m free gap between the building and the upper structure adds an unusual touch to Seoul's skyline■

Walter Althaus
VSL Switzerland

SPECIAL
RETAINED EARTH

VSL has continued to develop a broad range of innovative construction systems. VSL Retained Earth, a mechanically stabilised earth (MSE) system, is one of these innovative solutions. This composite soil reinforcing system uses welded wire mesh to improve the shear and compressive strength of an earth backfill. Over two million square meters of VSL Retained Earth walls are currently in service world-wide for highway projects, bridge abutments, material storage facilities and other grade separation structures. From the United States to Europe, VSL's Retained Earth system has proven its performance and economy in hundreds of successful projects. A number of these references are developed in this magazine.

A highly effective soil stabilisation system

The system is technically proven and highly reliable. It uses galvanised steel mesh to reinforce the soil mass. Alternating layers of reinforcing mesh and backfill are built up over the height of the structure, creating a particulary stable composite material with excellent load-bearing characteristics.
The major advantages presented by the VSL reinforcement panel were confirmed by testing prior to being patented. Its use of crossbars, mobilising the soil thrust, provides the whole panel with an adherence that is far greater than that offered by competing frictional systems.
As a result, it provides:
• reduced requirements for the quality and execution of the backfill;
• a constant and reliable seismic resistance as, unlike the friction system, the soil bearing capacity restores itself;
• reduced reinforcement depth and thus smaller quantities of often costly backfill.

VSL Retained Earth System is extremely economical to design and construct. The system simply consists of three components -reinforcing mesh, precast facing panels and backfill material- and this simplicity allows construction to proceed easily and rapidly.

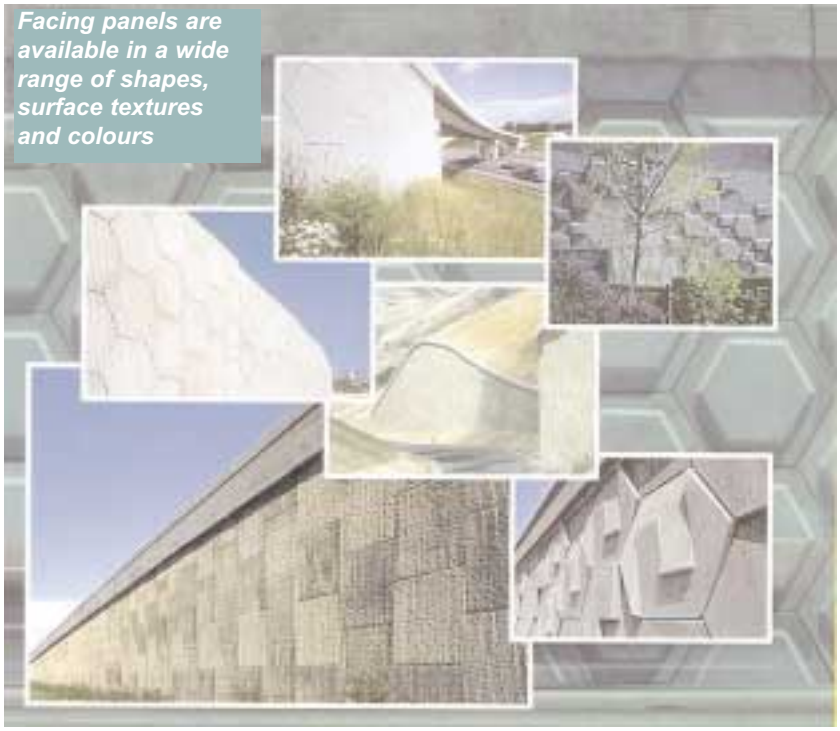
A full-services approach

VSL's approach to a Retained Earth project is tailored to meet the client's specific needs. Services range from the supply of all Retained Earth components and technical support to the design and construction of a complete turnkey project.

An exceptional range of architectural finishes

VSL Retained Earth is designed to provide unlimited possibilities for architectural finishes that fully take environmental issues into considerations. VSL provides an extensive variety of panel sizes, textures, shapes, relief effects and colours able to meet all aesthetic requirements. For example, local materials are used in the production of the precast facing panels to blend with the surrounding environment.

Of all existing MSE systems, VSL's mesh reinforcement principle provides the greatest soil-to-reinforcement interaction and pull-out resistance, ensuring a high level of stability, precise alignment and reliable performance.



Facing panels are available in a wide range of shapes, surface textures and colours

A rapid and easy construction system
The construction of a Retained Earth Structure is extremely straightforward:

1 • Precasting the panels on site or in a precast yard

2 • Placing the panels using a standard crane

3 • Installing the panels one-by-one

4 • Placing the reinforcing mesh

4 • Connecting the mesh with the loop clevis thanks to a dowel bar

5 • Placing and compacting the backfill

- CHILE -
EJE PRAT ROAD WALLS IN CONCEPCIÓN

The Eje Prat wall completed

VSL's first Retained Earth Walls in Chile

The Chilean contractor Brotec awarded VSL a contract for the construction of 6,200 m^2 of mechanically stabilised walls - the first Retained Earth Walls ever built in Chile - as part of a roadconstruction programme in Concepción, a town located 60 km south of Santiago.

The Eje Prat Road project includes the access ramp and an embankment between two new bridges for which eight walls were needed - the longest being 210-m, and 10-m high.

VSL designed the walls, manufactured the hexagonal panels and supervised their installation on-site.

Because of the project's location in a level 3 seismic area, the walls were required to sustain a seismic acceleration of 0.4 g.
To enhance the aesthetics of the walls, a third of the panels featured a raised-relief design while others incorporated a curved terrace layout which allowed the structure to harmoniously blend into the landscape.

Apart from their attractive aesthetics, hexagonal panels were chosen to simplify the construction of walls with different layout curves.
Special angle panels were used for particularly tight curves.

In addition to the savings generated and its attractive appearance, the use of the VSL Retained Earth system proved to be fully adapted to the bad soil condition that existed on site. ■

Andrès Avendaño
VSL Especiales de Construcción S.A.

- AUSTRALIA -

BROWNS PLAINS ROAD
MT. LINDSAY HIGHWAY INTERCHANGE

The Queensland Government has recently awarded to Bielby Holdings the construction works for the Browns Plains Road/Mt. Lindsay Highway Interchange. The project is located just 20 km south of Brisbane in a high-density suburban area with major retail developments adjacent to the site. Once completed, the project will form a series of grade separated intersections, with seven VSL Retained Earth Walls for a total area of 5,900 m^2.

VSL was awarded the contact to design and supply the Retained Earth Walls based on a 2-m x 1-m panel module with in-line horizontal and vertical joints. The conforming arrangement presented difficulties for wall installation. Therefore, VSL's successful alternative using a 2-m x 2-m panel with a false joint provided a workable solution and consistency with the architectural requirements.

Additional architectural features include up to three individual bands from top of wall consisting of off form finish (1% peach colour in off-white cement), light sand blast (1% peach colour in off-white cement) and light sand blast (2% peach colour in off-white cement).

Thanks to the larger panels and simpler erection method, VSL have provided the contractor with reduced installation times for each wall. ■

Bary STORY
VSL Australia

- AUSTRALIA -

PACIFIC MOTORWAY
PROJECT PACKAGE 6

The Pacific Motorway Project, when completed, will upgrade the existing highway between Beenleigh and Nerang to an 8-lane motorway. John Holland Construction was awarded the road and bridge works to the southern-most section at Nerang, some 70 km south of Brisbane. VSL was chosen by the main contractor to design and supply Retained Earth Walls to the motorway and a major intersection at Cayuga Street.

The Cayuga Street walls were supplied to the conforming architectural requirements of a 1.5-m x 1.5-m panel with a stepped rib pattern finish and represented nearly 70% of the total area of wall. All remaining walls were supplied in a smooth hexagonal finish. The total wall area was over 3,000 m^2 with a maximum wall height of 6.5 m. ■

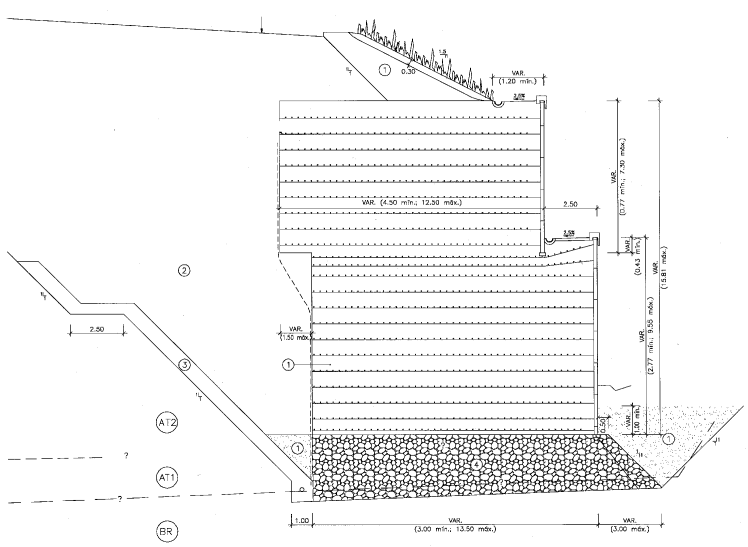
Bary Story
VSL Australia

- PORTUGAL -

LISBON FOOD SUPPLY MARKET

M.A.R.L will be Lisbon's most important food market supplying all Portugal's supermarket chains.

The site is a very large embankment with a significant soil volume: 5,000,000 m^3 for the platforms used by the complex and 800,000 m^3 of working soil and support structures. Consequently, the site required great heights of soil embankments (up to 20-m height) which had to be contained within RE walls.
VSL proposed, with the support of its consultant Prof. Mateus de Brito, an alternative solution to the initial project using plastic mesh.
This alternative solution consisted of two superimposed walls supporting the entire specialised soil project.



As it was necessary to redefine the entire project, VSL designed the wall and launched a study on the soil foundation's global capacity that led to the replacing of an important part of the foundations. VSL was also in charge of the drainage system project (particularly complex due to the wall length and height), the selection of the backfill material and all the site co-ordination.

VSL completed its works mid-October 1998 and delivered a 4,700-m^2 Retained Earth Wall with smooth and raised hexagonal panels to the owner, M.A.R.L. Besides supplying all RE materials, VSL's scope of works included the technical supervision/assistance and all the assembly work.

Zenobia Quadros-Martins
VSL Sistemas Portugal

Construction of MARL's Retained Earth wall, measuring up to 20-m height.

- CHILE -

CHUQUICAMATA MINE CRUSHING PLANT

Chuquicamata RE walls designed to last 15 years in a 0.3 g seismic zone

VSL Retained Earth Walls for the world's largest copper mine

In order to reduce wall thickness and simplify the construction process, Ferrostal AG (Man Takraft Group) selected VSL to design and supply the materials as well as supervise the construction of three mechanically stabilised walls: a 12-m high central wall and two 18-m high side walls.

This project is part of the construction of a new crushing plant for the world's largest copper mine, Chuquicamata. This mine is located in a seismic zone at 3,000 m above sea level in a desert area.

The VSL proposal provided the Owner (Codelco), the main Contractor (Ferrostal), and the Civil Works Contractor (Delta) with significant cost and time savings as well as a more aesthetic solution.

Designed to last 15 years in a 0,3 g seismic zone, the walls also have to resist the circulation of the heavily loaded mine trucks driving as close as one meter from the panels.

Given the height of the walls and the need to deal with heavy loads, special reinforced panels and heavy mesh were necessary. System components were supplied from United States, and the galvanised mesh as well as the panels were manufactured locally. To reduce costs, the backfill material came from one of the crushing plants, and was compacted under strict supervision. In addition, given the short service life of the structure and the dry environment (desert), the system was tailored-design and was subject to less stringent corrosion specifications.

The design was flexible enough to allow last minute modifications to the dimensions of the walls. Manufacturing the panels close to the job site provided additional flexibility and reactivity to all required modifications ■

Andrès Avendaño
VSL Especiales de Construcción S.A.

- FRANCE -

VALENTIN AND PONTCHARRA WALLS

These two projects were carried out with " VSoL", the name used for VSL's soil reinforcement technique in France.

Valentin walls

Located at Valentin, North of Besançon (Eastern France), two interchanges have been constructed, to ease traffic movement through this main access and transit road.

Six retaining walls, originally intended to be in reinforced concrete on deep-seated foundations, were alternately erected using VSoL by the successful tenderer G.T.F.C., a Bouygues subsidiary operating in this region.

These walls, topping at 6 m for a surface area of 1,800 m^2, were designed so that their facings exactly matched the pattern chosen by the architect. No less than 80 different types of precast concrete panels were required to satisfy this demand.

Thanks to VSoL's shorter reinforcements, the reinforced soil embankment, allowed for a 15% cost reduction for the backfill when compared with competing reinforced soil systems.

On completion, the saving totalled as much as 40% of the original project budget.

Pontcharra walls

In order to divert the traffic crossing the town of Pontcharra (Southern France), a bypass is currently under construction between two roads.

Two retaining walls are to be built by the main contractor D.T.P. Terrassements, a Bouygues subsidiary, to meet the needs of the narrow space available for the junction of the two roads.

These 3-m high walls are alternately cast in-situ using VSoL concrete and cover a surface area of 900 m^2.

Each wall segment is a single panel with a partial raised relief and sansdblasted finish that perfectly follows the line of the road profile. The works started in November 1998 and will be completed in Spring 1999. ■

Raphaël Lu
VSL France

- VSL IN AUSTRALIA -
A PT GROUND SLABS SPECIALIST

VSL has over the last two and a half years carried out the design and installation of the VSL mono strand system in almost 300,000 m² of slab on ground in Australia.

The benefits of VSL post-tensioned slabs on ground have provided developers, users, and builders with advantages in a wide range of applications over other floor slab systems. Projects such as wineries, storage, and distribution centres, air craft hangars, water tank bases, freezer stores and transport facilities have all adopted post-tensioned ground floor slabs.

FCL Transport new facility

In Australia, VSL's approach has been to work closely with all parties in developing and installing an engineered solution tailored to particular needs of each projects.

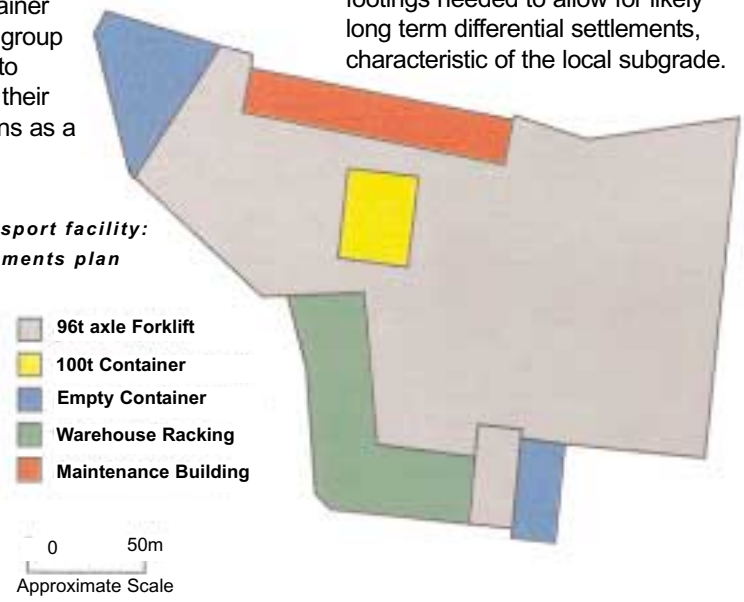
Key aspects considered by VSL include:
- minimisation of slab joints to reduce ongoing maintenance costs;
- sub-base design to optimise slab and sub-base cost for individual site conditions;
- concrete properties to maximise durability and strength while minimising the combined cost of the concrete and post -tensioning;
- pour size to provide a slab that has buildability characteristics that match local capabilities;
- design detailing to match project specific requirements such as a range of jointing treatments depending on usage and tendon positioning to suit fixed racking layouts, etc.

FCL TRANSPORT, MELBOURNE

FCL, a major, national transportation and container handling group needed to relocate their operations as a result of the Melbourne City Link Project.
Their modern purpose-built facility is now nearing completion in the Melbourne port side area of Footscray.
All floors and pavements were designed by VSL as post-tensioned to accommodate a range of loading requirements including:
- container stacking (4 boxes high, 100 t stacks)
- operating container handling forklifts (96 t axle load)
- empty container storage and maintenance building
- warehouse racking storage (6 t post loads)

Slab thicknesses ranged from 300 thick to 160 thick and were designed to suit the poor "Coode Island Silt" subgrade material present across the site.
The largest single slab pour was 2,800 m², requiring some 826 m³ of concrete. A total area of 39,000 m² of slab was required.
In addition to the slabs, all the new building foundations were designed by VSL, as post-tensioned achieving significant construction savings over conventional deep piled foundations.

The design of all pavements and footings needed to allow for likely long term differential settlements, characteristic of the local subgrade.



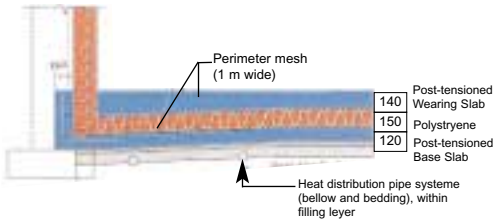
FCL Transport facility: site pavements plan

UMT coldstore

UMT COLDSTORE, TASMANIA

This prominent project at Spreyton, in Tasmania, comprises of a separate warehouse and a cool store/freezer building.
A total of 17,000 m² of post-tensioned slabs were designed and stressed by VSL.
Load efficient, high durability, high crack control post-tensioned slabs were selected by the builder Hansen & Yuncken for this "Design and Construct" project.
Of particular interest is the adoption

UMT Freezer store
Slab edge detail

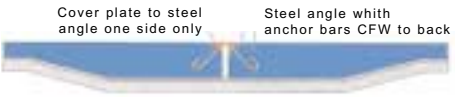


of twin layers of post-tensioned slabs to the freezer areas where the P.T. wearing slab was constructed over a thick polystyrene insulating layer over a lower post-tensioned base slab. The adoption of this floor slab arrangement is believed to be a first for Australia and was found by detailed structural analysis to have significant load capacity in addition to its thermal efficiency.

Being a food related facility, a durable, crack-free post-tensioned floor system with minimum joints provided quality and cost effectiveness that met UMT's requirements.

GMH NATIONAL SPARE PARTS WAREHOUSE, DANDENONG

The project comprises of 51,200 m² of post-tensioned slab on grade floor as an overlay over existing concrete pavements associated with former manufacturing buildings on this site. A 135-mm thick slab was proposed by VSL to fit within a 150-175 available construction depth.



Armoured expansion joint detail, typically incorporated in slab on ground projects.

26 No. 1900 m² pours are required and when completed provide a warehousing floor with joints typically 65 m apart in either direction.

General Motors Helden warehouse

VSL has gained the confidence of designers, builders and facility operators in developing slab designs and installing post-tensioning in slabs on ground throughout southern Australia. ■

Peter Bannerman & Frank Filippone
VSL Australia

Other projects carried out over the last 2 years are:

Big W, Monarto	S.A.	Warehousing	34,200 m²
Bridgestone, Salisbury	S.A. *	Warehousing	15,000 m²
Australia Post, Dandenong.	Vic. *	Letter Facility	27,100 m²
GMH, Dandenong	Vic. *	National Spare Parts	51,200 m²
QP2, Campbellfield	Vic.	Distribution	22,400 m²
BTR Foundry,	S.A. *	Manufacturing Facility	7,900 m²
FCL, Footscray.	Vic.	Transport Facility	40,000 m²
UMT	Tas. *	Cool & Freezer Store	17,000 m²
RAAF, Edinburgh	S.A.	Hangar	3,200 m²
Tubemakers, Somerton	Vic. *	Distribution Centre	7,500 m²
S.A. Water, Riverland	S.A. *	Water Tanks Bases	8,200 m²
Woolworths, Pooraka	S.A.	Distribution Centre	40,000 m²
CRT Bulk Handling, Altona	Vic. *	Transport Facility	53,500 m²
Bandiana, Albury	NSW	* Active Distribution	
22,000 m²			
Southcorp Winery	S.A.	Winery Storage	

* Design by VSL.

Your solution network

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