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PATRICK STEVEDORES' CLIENT-SIDE PROJECT MANAGEMENT AT PORT BOTANY RAMP D

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Patrick Stevedores' Port Botany Container Terminal is located 10km south of the city of Sydney, NSW, Australia. The Terminal is currently undertaking the challenging process of expansion and automation while causing minimal impact to existing operations. This $350 million project includes the automation of the container straddles. As part of the Port Botany Terminal upgrade, a new entrance over the existing rail sidings has been created called Ramp D. Ramp D had to be open to traffic by April 2014 to not delay the commencement of automated straddle operations planned to commence in July 2014. This resulted in a tight construction schedule. With a congested and shared construction site the options for accelerating the programme were limited. As the client's representative, the role was to facilitate the execution of the project. By careful scheduling, the use of extended working hours to reduce the critical path, and close cooperation by all stakeholders, the target was met.

Keywords: Container terminal upgrade, Bridge, Automation, Autostrads, Efficiency, Schedule, Cost.

1 BACKGROUND

The Contractor had been engaged by Patrick Stevedores Operations ("the Client"), in conjunction with their design consultant. Their brief was to develop the concept design of Ramp D to sufficient detail to produce a Guaranteed Maximum Price (GMP). The GMP was to have an accuracy of +/-10% as assessed by an independent quantity surveyor (QS).

The GMP was produced by May 2013 and was verified by the QS as accurate. The decision was therefore made by the Client to proceed with the Contractor as the sole vendor, and enter into contractual negotiations. A detailed Design and Construction contract was chosen, amended from Australian Standard 4902 – General Conditions of Contract – Design and Construct (AS4902 – 2000).

The Ramp D project was the critical path for the overall project. Automation was planned to commence in July 2014, which required Ramp D to be available by the end of April 2014. In order to meet the substantial completion milestone, "Open for Traffic", a bonus calculation was agreed to. The Contractor was to be awarded a bonus for completion by 23 April 2014. This amount would decrease to zero if the Contractor was more than one month late. The bonus would increase to a maximum amount of double the bonus if the Contractor was one month early.

2 DETAILS

The pre-contract period involved the Contractor producing a GMP, based upon a well-developed concept design. The accuracy of the GMP and logic of the schedule it was based on was confirmed by an independent QS. This gave Patrick confidence that the Contractor could construct Ramp D on schedule, at a reasonable cost. Valuable time was saved by thereby avoiding competitive tendering. A vigorous negotiation period followed resulting in a Design and Construction contract with an escalating bonus for early completion.

A partnering approach was applied to the project management relationship between the Client and Contractor as close cooperation was instrumental in avoiding potential delays. Part of the construction site had to be shared with other contractors and the Client, which could have resulted in extensive delays.

Any possible cause for delay was eliminated in advance by effective liaison with all stakeholders by tailoring communications to suit the receiver. This was essential to minimize disruptions to ongoing Terminal Operations and to not adversely affect the construction schedule.

What differentiates client-side project management from other forms of project management?

- The Client-side Project Manager (CPM) may report to supervisors and managers where construction is not their core business and training.
- There may be a lack of understanding between the CPM, as the provider of necessary infrastructure, and the Client. The Client has a passion for their core business. They may lack an understanding of the requirements to build and maintain the infrastructure that is required for operations.
- There is a low tolerance for the disturbance that the construction of necessary infrastructure causes. The business generates profits from their core activities, not the construction of infrastructure.
- The logical processes common to the engineering world and engineering based firms sometimes do not apply. The CPM may be asked to carry out seemingly illogical alternatives or construct higher cost options to avoid some unperceived disturbance to operations.

The Ramp D project required all the skills of an attentive CPM.

- Patrick Corporation Port Botany is an operational stevedoring terminal that must achieve a prescribed Earnings Before Interest and Tax (EBIT) goal even though the operations are disturbed by the upgrade and automation project.
- The completion date was difficult to achieve even though the budget was adequate.
- The site had functioning buildings and operational equipment that had to be removed to construct Ramp D.
- The site was congested and had to be shared with other contractors and Operations.

3 MANAGEMENT APPROACH

The following guidelines to Client side Project Management were adopted:

3.1 Schedule

A thorough knowledge of the project schedule was maintained by the CPM throughout all stages of the project. A schedule was created upon commencement of the project. This enabled the known and unknown activities to be determined. Emphasis was given to resolving the unknown and developing the known activities. For example, construction of Ramp D could not commence until a three-story building on the site was demolished. The building occupants first had to be relocated, requiring alternative accommodation be provided.

3.2 Design

A thorough knowledge of the project design allowed the CPM to understand the difficulties that were encountered by the designers and constructors (Figure 1). Ramp D consists of two components: a bridge from an existing elevated turning circle, over rail sidings, to a ramp down into Port Botany Terminal. The bridge does not depend on load transfer from the elevated structure, and therefore is supported by a row of piles close to the edge of the turning circle.

There are three bridge spans: two of 25m and one of 18m ending at the ramp abutment. The thirty 1050mm-diameter reinforced concrete piles support pile caps, piers and 1500mm deep Super T beams. Reinforced concrete slabs were poured over the top of the beams. The ramp consists of reinforced concrete L shaped retaining walls backfilled with compacted soil and road base.

The design of the ramp walls was changed by the Contractor from retained earth to reinforced concrete, in order to reduce construction time. The forming up of the reinforced concrete walls could continue at night reducing the overall critical path.

3.3 Budget

This project was time critical. As mentioned above, the contract allowed for a bonus payment for meeting the target, and an increasing bonus for finishing early (capped at a maximum for completing one month early). The CPM kept track of the budget, assessing monthly claims and updating cash flow forecasts. The Ramp D project budget was adequate although restricted to the Contractor's scope for the Detailed Design and Construction of Ramp D.

The client-side PM was responsible for completing all works that had the potential of delaying the construction of the Ramp. Activities that were not part of the Contractor's scope (and required closer monitoring) included the following:

- New Rail Operations building construction and fit out;
- Old Rail Operations building demolition;
- Temporary refueling station construction;
- Existing fuel farm demolition;
- Maintenance car park for straddles; and
- Maintenance personnel car park.

Figure 1. Ramp D Construction Photos (photos by author).

Figure 2. The Completed Ramp D (photo by author).

3.4 Supervision

The CPM can impact the potential success of the project by their supervision of the Contractor. Although the CPM represents the Client, they should work closely with the

Contractor. This statement is not contradictory. The best opportunity to circumvent likely causes of delay is to maintain a close association with the Contracting team. By having a desk in the Contractor's office, the CPM will receive information immediately and first-hand, providing an early opportunity to circumvent action by the Contractor that may have a negative impact on the Client. This will provide the earliest opportunity to take preventative action. This may avoid a Notice of Delay (NOD) which may turn into an Extension of Time (EOT) claim with costs associated with it. Ramp D did not have any NODs or EOTs submitted by the Contractor.

3.5 Stakeholders

Identification of all stakeholders and their specific needs is important. The CPM should attend all available stakeholder meetings before construction commences to develop relationships, and establish trust and mutual respect. It is important to determine the preferred means of communication for each individual as rapid communication will affect the critical path.

At the Client's operations meeting, which was held at 8.30am from Monday to Friday, the requirements for uninterrupted operations were discussed in daily detail. The approaches of the various individuals representing the key stakeholder, the Client's Port Botany Terminal, were on display.

The next most important stakeholder is New South Wales Ports Corporation. NSW Ports are the managers of Port Botany as well as the approval authority. Work was stopped once when the Contractor carried out works not approved by NSW Ports. Construction in that area was delayed for four days although the overall project was not affected. The Client controlled communication between NSW Ports and the Contractor which generally avoids these situations. On this occasion, the contractor had proceeded with an unapproved work method. Discussions, emails and site meetings followed for the Client to reestablish the trust of NSW Ports.

4 CONCLUSIONS

The project was substantially completed on Friday 21 March 2014, over one month earlier than the target date. The Contractor was therefore entitled to the maximum bonus. This milestone was achieved on budget and with no serious accidents or environmental incidents (see Figure 2).

The selection of the right Contractor was the most important factor in regards to the success of this project. The Ramp D Contractor and their design consultant exceeded all expectations. The Contractor's project manager was instrumental in calmly leading the management team, cohesively driving all involved during the entire construction period.

The Client-side project management was an essential component of the Ramp D project. The application of a collaborative, team approach based on clear and transparent communication aided in the project's success.