Civil Construction Risk Engineering: An Insurance View

- CAR Insurance Civil Construction
- Risk Focus
- Risk Engineering Assessment
- Industry Response
Civil Construction Risk Engineering: An Insurance View

• Health Warning:
The following presentation focuses upon the CAR Civil Construction insurance program as defined within LIU. Other First Party Underwriters may approach this subject differently.
CAR Insurance Civil Construction

• CAR – Construction All Risks
  Policy Wording, Exclusions, Limits and Deductibles

• First Party Cover
  OCIP or CCIP

• Third Party
  Not always included
  Location, project requirements, separate policy
CAR Insurance – Civil Construction

• Civil Construction in LIU is:
  Highway and pavements infrastructure
  Rail Infrastructure; heavy rail, transit
  Tunnel
  Bridges
  Dams
  Ports and harbours
  Pipelines
  Associated earthworks, structures and systems

• LIU Insurance Appetite is:
  “Heavy” civil works
  US$150m – US$1.5bn construction value
  3-5 year construction program
  World-wide spread – but not everywhere!
Risk Focus – Civil Construction “Facts”

• Generally linear, often without “work-around”
• A key risk is water – in all its forms
• Subsurface conditions can vary significantly
• Subsurface conditions influence means, methods and cost
• Contractors do not accept risk, they price risk
• Owners want lowest construction cost
• Contracts that anticipate risk result in lower cost and fewer claims
Risk Focus - Critical Success Factors

**External Factors**
- Political stability of location
- Legal and regulatory constraints
- Environmental and social factors
- Economic conditions
- Relationships

**Design Factors**
- Design cycle
- Quality issue and constraints
- Common understanding of project goals
- Common understanding of project specifications
- Involvement and commitment by all stakeholders

**Organisation and Management**
- Organisational structure
- Resources
- Logistics
- Budget
- Schedule
- Risk management
- Project team and project manager
- Knowledge sharing
- Prior experience

**Environmental Inputs**
- Civil Construction Success Factors

**Documentation and Reporting**
- Contracts
- Project specification
- Project plan
- Scheme of work (WBS, SOW & CMD)
- Performance milestones

**Operational Inputs**
Risk Engineering Assessment: 4 Pillars

1. Organisation and Structure – *who*
2. Technical – *what*
3. Natural Perils – *where*
4. Program & Budget – *how*
Risk Engineering Assessment: 4 Pillars

1. **Organisation and Structure – who**

Client
Project Team – Contractor, Designer, PM, etc.
Procurement – of project services, transparency
Contract Form – relationship and risk allocation
Pro-active Risk Management, JCoP
Processes – PMP, QMS, HSSE

*Behaviours, People, Processes, Communication*
Why Focus on the Management of the Project?

Top 4 Non-Technical Contributors
Percentage of Claims Affected

Source: Competitor RMI Conference, Steve Bates 2009
Project Team Capabilities Issues

- Unqualified design staff assigned to project, 45%
- Unqualified on-site staff assigned to project, 4%
- Territory of project outside of firm's normal territory, 4%
- Inexperienced project manager, 34%
- Other, 9%
- Insufficient number of staff, 4%
Risk Engineering Assessment: 4 Pillars

2. Technical – *what*

- Project Brief
- Prototypical designs
- Innovative methods or materials
- Design Standards and norms
- Base Data, site investigations, GBR
- Fitness for Purpose
Risk Engineering Assessment: 4 Pillars

3. Natural Perils – *where*

Topography
Water – rain, groundwater, flood, etc.
Geology
Earthquake
Storm
Hazardous materials
Dust, Fire, Hailstorm, etc.
Risk Engineering Assessment: 4 Pillars

4. Program & Budget – *How*

An independent assessment of Time and Cost
Project Master Program (Level 2)
Phasing, critical path & milestones
On and Off-Site logistics
Project Budget, Spend Rate
Breakdown of Values (WBS)
Industry Response

• Who is the industry?

Owners, Project Sponsors
Project Delivery Team (Designers, PM, Contractors, Suppliers)
Financiers, Lenders
Insurers

All have an alignment of interest in achieving a successful project outcome.
<table>
<thead>
<tr>
<th>Industry Response</th>
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<tbody>
<tr>
<td><strong>• Tunnel Works</strong></td>
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<td>1990-2000s, major tunnel losses and insurance claims</td>
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<td>Insurers reduced their exposure – a lack of cover</td>
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<td>Response: Joint Code of Practice (JCoP) – Ref. ITIG</td>
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<td>Risk Registers</td>
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<td>Reference Conditions (GBR)</td>
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<td>Increased risk awareness and allocation</td>
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<td>Improved risk selection, involvement by insurers post-binding</td>
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<td>Price adequacy</td>
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Risk Assessment in Civil Construction

Selecting projects constructed by.....

.....the right people
.........doing the right thing
............in the right place
...............in the right way
Thank you
Any
Questions?