Delivering together while apart

Making progress across COVID-19 alert levels
Rupert Hodson (MC)
Northern Region Manager
Rupert has over 20 years of experience in statutory, environmental and urban planning, and environmental monitoring. He has an extensive track record in leading large consenting and consultation strategies for major urban infrastructure projects.

Stuart Tucker
Business Director, Major Projects & Partners (Speaker)
Stuart has been involved in the delivery of significant transport and infrastructure projects for nearly 30 years and has an outstanding track record as one of New Zealand’s leading large project design managers.

Sue Bradley
GM, Industrial Digital (Speaker)
A leader in Beca’s Digital team, Sue has over twenty years of experience in operations management, project management and consulting roles, with extensive experience in major multidiscipline projects.

Clive Rundle
Group Director, Utilities (Virtual panel member)
Clive leads Beca’s Water and Power teams and is one of New Zealand’s most knowledgeable water supply engineers, leading in the introduction of innovative approaches to water treatment and supply.

Chloe Stewart-Tyson
Group Manager, H&S (Virtual panel member)
Chloe has nearly 20 years of experience in health and safety, specialising in organisational culture change. She is responsible for Health and Safety throughout the Beca Group, looking after the safety and wellbeing of Beca employees and clients.
New Zealand COVID-19
Construction Protocols

These protocols and attachments are to be read in conjunction with the COVID-19 – Standard for New Zealand Construction Operations and reflect how the requirements in the standard may be achieved. Individual businesses and operations may need to adapt the protocols to their specific circumstances but the overall intent of the standard should still be applied in all cases. These protocols are expected to develop and evolve as requirements change from government and industry experience and are to be treated as working documents.
The Five Step Guide for returning to work - Alert Level 3

Before arriving on site

- Each contractor must have a plan detailing the steps they will take to mitigate risks, including those presented by COVID-19. The details of the plan must be communicated to workers before they start work.
- Where possible, conduct a remote induction before arrival on site. This can be done via video conferencing or by phone. If an in-person induction is required, the Physical distancing and hygiene protocol must be followed.
- All workers should follow the Personal health flowchart to confirm they are safe to be on site.
- Employers must have an understanding of how workers will travel to and from site and will communicate the Site transportation protocol to all.
- Ensure all workers understand when additional PPE may be required due to COVID-19 and that workers have access to the correct PPE as per the Ministry of Health PPE Safety and Worksite guidelines. When necessary, use face masks or visors please follow these processes.

Site entry

- Only relevant personnel to the workplace are to access the site. All office employees supporting a project will work remotely, where possible.
- A daily register of workers entering and leaving site must be compiled along with a health declaration. If electronic sign-in machines are used, these must be cleaned and sanitised after each use. Use the existing log to register the exception sign in register.
- Signage reminding workers of the COVID-19 site rules and hygiene protocol will be posted at the site entrance and in common areas where appropriate.

Site operations

- All work in progress to undertake is such a way as to reduce any possible contact between workers and to promote physical distancing where possible, as per the Physical distancing and hygiene protocol.
- In-vehicle sites, such as necessary delivery workers, will be restricted to one person whenever possible. These workers must follow the Site transportation protocols.
- All offices and workplaces must maintain cleaning measures in line with the Cleaning guide.
- All tools, equipment, plant and vehicles must be used in alignment with the Cleaning guide.
- Toolbox talks should be held with physical distancing in place or use the Physical distancing and hygiene protocol. A COVID-19 level 2 Toolbox Talk is available for use to assist with your Toolbox Talks.
- Additional sanitisation measures are to be implemented on site to prevent the spread of COVID-19 e.g., hand washing stations, provision of additional hand sanitiser, provision of disinfectant wiping products, as per the Physical distancing and hygiene protocol.
- Snacks must follow the Physical distancing and hygiene protocols.
- A COVID-19 Response plan must be available and accessible on site.

Leaving site

- Workers must use the Sign-in register to sign-out.
- When returning home, workers will need to follow the necessary hygiene measures.
- Each site must be cleaned and sanitised at the end of the working day or end of each shift, as per the Cleaning guide.
- All waste and disposable PPE must be removed from site and securely disposed of as per the Cleaning guide.

Management Protocols

- Follow the COVID-19 Manager’s Checklist.
- Communicate the site expectations and prevention measures to all workers and contractors.
- You must have a COVID-19 Response plan in place to identify processes for dealing with suspected and confirmed COVID-19 cases.
- Stay in contact with all workers including those who may be in isolation or working remotely. Conduct Toolbox Talks regularly and keep track where and when workers are on site for contact tracing purposes and ensure they have the correct PPE.
- Don’t forget your normal health and safety obligations still apply. These Protocols are in addition to your usual health and safety controls.

Healthline
- Call 0800 080 002
- www.health.govt.nz

Unite Against COVID-19
- unione@gmail.com
- www.unite.govt.nz

National Telehealth Services
- 0800 358 527
- www.health.govt.nz

Mental Health Foundation
- www.mentalhealth.org.nz

Beca Connect | CLIENT WEBINARS 2020
1. Develop a framework
2. Plan for Alert Levels
3. Drive best practice
4. Cultural/people, process and technology
<table>
<thead>
<tr>
<th>L1 PREPARE</th>
<th>Design &amp; Engineering</th>
<th>Procurement</th>
<th>Construction</th>
<th>Comission &amp; Handover</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2 REDUCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L3 RESTRICT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L4 ELIMINATE</td>
<td>Essential</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>businesses only</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Issues mapped to project stage**

<table>
<thead>
<tr>
<th>Cumulative issues (lower level issues apply)</th>
<th>Design &amp; Engineering</th>
<th>Procurement</th>
<th>Construction</th>
<th>Commission &amp; Handover</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>L1 PREPARE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Cost estimate contingencies may now need to be revised to account for additional risks of this and higher levels.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Meetings need to be at 2m spacing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>L2 REDUCE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Restricted face-to-face comms including; Meetings, Design reviews etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Site inspections restricted (2m spacing).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>L3 RESTRICT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Site access only possible for essential small groups (&lt;3 people).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. The health and movements of site personal must be tracked and recorded.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>L4 ELIMINATE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essential businesses only</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Site inspection not possible.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. All work must be done from home.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**L1 PREPARE**

1. Assess cost implications and hold contingencies for (all) alert levels (e.g. lower productivity, restricted)

**L2 REDUCE**

1. Restricted face-to-face comms including; Meetings, Design reviews etc.
2. Site inspections restricted (2m spacing).

**L3 RESTRICT**

1. Contractors modified for Covid19 effects (e.g. force majeure, extension of time and cost, payment terms etc.)
2. Alternative contracting methodologies to be considered.
3. Constrained face-to-face comms including: Commissioning planning meetings, site inductions, safety briefings etc.
4. Challenges for works that require close physical contact. E.g. Operations & Maintenance training.
5. Very challenging / impossible for international vendors / specialists to visit site.
6. Challenges for non-operationally critical commissioning to be deferred.
7. The health and movements of site personal must be tracked and recorded.
8. Site workers to be arranged into small working 'bubbles' who work together for the duration of lockdown period.
9. How to perform site supervision?
10. Site workers to be arranged into small working 'bubbles' who work together for the duration of lockdown.
11. How to perform site supervision?
12. Site workers to be arranged into small working 'bubbles' who work together for the duration of lockdown period.
13. How to perform site supervision?
14. Site workers to be arranged into small working 'bubbles' who work together for the duration of lockdown.
<table>
<thead>
<tr>
<th>Cumulative issues (lower level issues apply)</th>
<th>L1 PREPARE</th>
<th>L2 REDUCE</th>
<th>L3 RESTRICT</th>
<th>L4 ELIMINATE</th>
<th>Essential businesses only</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design &amp; Engineering</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Cost estimate contingencies may now need to be revised to account for additional risks of this and higher levels.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Meetings need to be at 2m spacing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Procurement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Contracts modified for Covid19 effects (eg. force majeure, extension of time and cost, payment terms etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Alternative contracting methodologies to be considered.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Construction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Assess cost implications and hold contingencies for (all) alert levels (eg. lower productivity, restricted material availability, delays, mob / demob costs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Comission &amp; Handover</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. International specialists traveling will be required to self-isolate when entering the country (time and cost effect).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. **Issues mapped to project stage**

<table>
<thead>
<tr>
<th><strong>L1 PREPARE</strong></th>
<th><strong>L2 REDUCE</strong></th>
<th><strong>L3 RESTRICT</strong></th>
<th><strong>L4 ELIMINATE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Essential businesses only</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Issues mapped to project stage

#### Design & Engineering

<table>
<thead>
<tr>
<th>Level</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 PREPARE</td>
<td>1. Cost estimate contingencies may need to be revised to account for additional risks.</td>
</tr>
<tr>
<td></td>
<td>2. Meetings need to be at 2m spacing.</td>
</tr>
</tbody>
</table>

#### Procurement

<table>
<thead>
<tr>
<th>Level</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 PREPARE</td>
<td>1. Contracts modified for Covid-19 effects (e.g., force majeure, extension of time, cost, payment terms)</td>
</tr>
</tbody>
</table>

#### Construction

<table>
<thead>
<tr>
<th>Level</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 PREPARE</td>
<td>1. Assess cost implications and hold contingencies for all alert levels (e.g., lower productivity, restricted material availability, delays, mob / demob costs)</td>
</tr>
<tr>
<td></td>
<td>2. Additional hygiene requirements.</td>
</tr>
<tr>
<td></td>
<td>3. JSAs to communicate new risks and controls.</td>
</tr>
</tbody>
</table>

#### Commission & Handover

<table>
<thead>
<tr>
<th>Level</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 PREPARE</td>
<td>1. International specialists traveling will be required to self-isolate when entering the country (time and cost effect).</td>
</tr>
</tbody>
</table>

#### Cumulative issues (lower level issues apply)

<table>
<thead>
<tr>
<th>Level</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>L3 RESTRICT</td>
<td>1. Site access only possible for essential small groups.</td>
</tr>
<tr>
<td></td>
<td>2. The health and movements of site personal must be tracked and recorded.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>L4 ELIMINATE</td>
<td>1. Site inspection not possible.</td>
</tr>
<tr>
<td></td>
<td>2. All work must be done from home.</td>
</tr>
</tbody>
</table>

#### Essential businesses only

<table>
<thead>
<tr>
<th>Level</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>L3 RESTRICT</td>
<td>1. Contractor site walks are deferred, unless for operationally critical projects.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>L4 ELIMINATE</td>
<td>1. Non-essential capital works suspended, unless risk is very low.</td>
</tr>
<tr>
<td></td>
<td>2. Site workers to be arranged into small working ‘bubbles’ who work together for the duration of lockdown.</td>
</tr>
<tr>
<td></td>
<td>3. How to perform site supervision?</td>
</tr>
</tbody>
</table>
### Issues mapped to project stage

#### L1 PREPARE

**1. Assess cost implications and hold contingencies for:****
- Lower productivity
- Restricted material availability
- Delays
- Mob / demob costs

**2. Additional hygiene requirements.**

**3. JSAs to communicate new risks and controls.**

#### L2 REDUCE

**1. International specialists traveling will be required to self-isolate when entering the country (time and cost effect).**

**2. Challenges for works that require close physical contact. E.g. Operations & Maintenance training.**

**3. Very challenging / impossible for international vendors / specialists to visit site.**

#### L3 RESTRICT

**1. Non-operationally critical commissioning to be deferred.**

**2. The health and movements of site personal must be tracked and recorded.**

**3. Site workers to be arranged into small working ‘bubbles’ who work together for the duration of lockdown period.**

**2. Handover meetings will now need to be done remotely.**

#### L4 ELIMINATE

**Essential businesses only**

**1. Site inspection not possible.**

**2. All work must be done from home.**

**1. Contractor site walks are deferred, unless for operationally critical projects.**

**1. Non-essential capital works suspended, unless risk is very low.**

**2. Site workers to be arranged into small working ‘bubbles’ who work together for the duration of lockdown period.**

**3. How to perform site supervision?**

---

**Beca Connect | CLIENT WEBINARS 2020**
1. **Consider using a framework** similar to this to methodically consider additional measures needed at each phase/activity in your project lifecycle.

2. **Expect to cycle through Alert Levels** (planning drives success).

3. **Bring in specialist expertise** to drive best practice (eg risk process, procurement strategy, scheduling construction sequences).

4. **Use ALL the tools in your arsenal** – cultural, process and technology
Issues mapped to project stage

**L1 PREPARE**

**Design & Engineering**
1. Cost estimate contingencies may now need to be revised to account for additional risks of this and higher levels.
2. Meetings need to be at 2m spacing.

**Procurement**
1. Contracts modified for Covid19 effects (eg. force majeure, extension of time and cost, payment terms etc.)
2. Alternative contracting methodologies to be considered.

**Construction**
1. Assess cost implications and hold contingencies for (all) alert levels (eg. lower productivity, restricted material availability, delays, mob / demob costs)
2. Additional hygiene requirements.
3. JSAs to communicate new risks and controls.

**Comission & Handover**
1. International specialists traveling will be required to self-isolate when entering the country (time and cost effect).

**L2 REDUCE**

**Design & Engineering**
1. Restricted face-to-face comms including; Meetings, Design reviews etc.
2. Site inspections restricted (2m spacing).

**Procurement**
1. Restricted face-to-face comms including; Meetings, Scope reviews etc.
2. Scope definition site visits restricted (2m spacing).
3. Borders closed - import suppliers may be restricted.

**Construction**
1. Restricted face-to-face comms including: Construction planning meetings, Site inductions, safety briefings etc.
2. Challenges for works that require close physical contact. E.g. confined space work.
3. Very challenging / impossible for international vendors / specialists to visit site.

**Comission & Handover**
1. Restricted face-to-face comms including: Commissioning planning meetings, Site inductions, safety briefings etc.
2. Challenges for works that require close physical contact. E.g. Operations & Maintenance training.
3. Very challenging / impossible for international vendors / specialists to visit site.

**L3 RESTRICT**

**Design & Engineering**
1. Site access only possible for essential small groups (<3 people).
2. The health and movements of site personal must be tracked and recorded.

**Procurement**
1. Contractor site walks done at 2m spacing and in small groups (<3 people).
2. The health and movements of site personal must be tracked and recorded.

**Construction**
1. Challenges for non-essential multiday works (may be halted with one day’s notice).
2. Physical separation and contact register at all stages including: Meal breaks, shift changeovers etc.

**Comission & Handover**
1. Non-operationally critical commissioning to be deferred.
2. The health and movements of site personal must be tracked and recorded.

**L4 ELIMINATE**

**Design & Engineering**
1. Site inspection not possible.
2. All work must be done from home.

**Procurement**
1. Contractor site walks are deferred, unless for operationally critical projects.

**Construction**
1. Non-essential capital works suspended, unless risk is very low.
2. Site workers to be arranged into small working ‘bubbles’ who work together for the duration of lockdown.
3. How to perform site supervision?

**Comission & Handover**
1. Site workers to be arranged into small working ‘bubbles’ who work together for the duration of lockdown period.
2. Handover meetings will now need to be done remotely.

---

**Essential businesses only**

---

Beca Connect | CLIENT WEBINARS 2020
1. Cost estimate contingencies may now need to be revised to account for additional risks of this and higher levels.

2. Meetings need to be at 2m spacing.

1. Restricted face-to-face comms including; Meetings, Design reviews etc.

2. Site inspections restricted (2m spacing).

1. Site access only possible for essential small groups (<3 people).

2. The health and movements of site personal must be tracked and recorded.

1. Site inspection not possible.

2. All work must be done from home.

Engineers and project managers need to adopt a pragmatic approach to cost estimates, with comprehensive risk sessions to evaluate.

Video conferencing between project stakeholders.

Social distancing and additional hygiene practiced during all site interactions.

Survey / scan site and make this accessible for remotely located project stakeholders to collaborate around (when / if site access becomes difficult or impossible).

Scans to be done pragmatically here, in preparation for moving to L4.

Site access systems assess worker health on entry and reduce risk through workforce compartmentalisation.

Site access systems assess worker health on entry and reduce risk through workforce compartmentalisation.
1. Contracts modified for Covid-19 effects (e.g. force majeure, extension of time and cost, payment terms etc.)
2. Alternative contracting methodologies to be considered.

Engage QS and Legal teams to update contracts for COVID issues during contract works.

Make 3D data (site scans and / or design models) remotely accessible for tenderers allowing estimations to continue when / if site access becomes difficult or impossible. Hold ‘virtual’ site walks to resolve tender queries.

Video conferencing between project stakeholders.

Social distancing practiced during all site interactions.

Engage with material suppliers to assess supply risks / mitigations for all alert levels.

Site access systems assess worker health on entry and reduce risk through workforce compartmentalisation.

Survey / scan / photograph site and make this accessible for (remotely located) project stakeholders. Encourage all stakeholders to collaborate utilising the site scan whenever possible (even when site can be accessed as it prepares the team for when it cannot be).
Social distancing and additional hygiene practiced during all site interactions.

Work owners are to be well aware of the requirements set out by the government and put measures in place to reduce risk.

Video conferencing between project stakeholders.

Utilise spatial models and common data tools / processes (BIM) so remote teams can collaborate on issue identification, progress reporting, construction planning.

Utilise remote support and / or augmented reality (eg HoloLens) technologies to provide specialist input to construction.

Site access systems assess worker health on entry and reduce risk through workforce compartmentalisation.

Work in isolation or in very small teams (bubbles) to compartmentalise workforce.

CCTV camera set ups for contractor supervision.

Utilise remote support and / or augmented reality (eg HoloLens) technologies to provide remote site supervision and engineering support.
1. International specialists traveling will be required to self-isolate when entering the country.

2. Restricted face-to-face communications including commissioning planning meetings, safety briefings.

2. Challenges for works that require close physical contact, e.g., Operator and maintenance training.

3. Very challenging/impossible for international vendors/specialists to visit site.

1. Non-operationally critical commissioning to be deferred.

2. The health and movements of site personnel must be tracked and recorded.

1. Work groups of two people to work together and form a bubble for the duration of lockdown.

2. Handover meetings will now need to be done remotely.

Social distancing and additional hygiene practiced during all site interactions.

Use of remote assistance technologies (e.g., HoloLens) for specialist input, handover meetings and training during commissioning.

Site access systems assess worker health on entry and reduce risk through workforce compartmentalisation.

Utilise spatial models and common data tools/processes (BIM) so remote teams can collaborate and assist with commissioning etc.

Site access systems assess worker health on entry and reduce risk through workforce compartmentalisation.

Cultural shift required particularly important in reducing the risk of virus. People will need to be trained to maintain the 2m spacing.