

6 December 2022

Ref: 8110

ATTENTION:
Contractor's Representative

Project:
Subject:

Dear

In accordance with clause 16.2 of the Subcontract, the Subcontractor herein submits a claim in relation to an Act of Prevention, being an act or omission by Other Contractor engaged by the Contractor, the basis of which is the Delay to Overhead Powerline Removal on Thorngate Road and details of which are set-out in the Notice of Other Claim titled "Delay to Overhead Powerline Removal" submitted on iTWOcx on 16th November 2022 (Ref. P_MASC-16-02:BMD#0002).

In accordance with the Subcontract, the Subcontractor has made attempts to mitigate the impacts of the delay by varying the sequencing of the work, resulting in additional costs to the Subcontractor, the details of which are contained herein.

In support of this claim the Subcontractor details its submission in six parts:

1. Executive Summary
2. Variation Price Breakdown
3. Wet Weather Allowance
4. Change in Work Sequence - Works To-Date
5. Change in Work Sequence - Remaining Works
6. Escalation

Should you require any further information please contact the undersigned.

Yours sincerely,

BMD Urban Pty. Ltd.

A handwritten signature in black ink, appearing to read 'Kyle Carlson'.

Kyle Carlson
Subcontractor's Representative

BMD Urban Pty Ltd | ABN: 65 158 035 539

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Variation Claim Summary

A summary of the Variation Claim amounts is below:

Description	Value (excl GST)
Project Overheads: (inc. Wet Weather Allowance)	
Wet Weather Rework Allowance	
Change in Sequencing of Works - Works To-Date	
Change in Sequencing of Works - Remaining Works (Estimate)	
Escalation Allowance	
Profit & Offsite Overheads - 10%	
Total Value of this Submission	

The details of this calculation are included in this Submission. Further supporting documentation is available upon request.

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1. Executive Summary

Existing powerlines running along the Eastern verge on Thorngate Road have been scheduled to be relocated underground by Power and Water Corporation (PWC) as part of the wider project works. PWC have been engaged directly by BMD's client, Sitzler (The Contractor) to complete the Overhead Powerline Removal. The works to complete the overhead powerline removal needed to be completed by October 18th to avoid impacting BMD's programme of works however they have been delayed by Power and Water Corporation due to Industrial Action and it is not yet known exactly when the relocation works will be completed.

The re-sequencing of works and the delay to date have impacted BMD's costs and is the basis for this claim. The ongoing delay will continue to impact BMD's costs and subsequent claims may be submitted when updated information about the relocation and/or directions are received about carrying out the works.

BMD have to-date made many attempts to re-sequence works to reduce the overall impact of the delay to work progress and have also gone to great lengths to obtain PWC approvals to continue with partial scope of works near the overhead powerlines. BMD will continue to deliver works to the best of its ability and provide clear and regular communication about the impacts of this ongoing delay to the project.

2. Variation Price Breakdown



0

Variation Description:

Detailed particulars of the Variation Proposal: Refer iTWOcx correspondence P_MASC_16-02:BMD#0002, P_MASC_10-06A:BMD#0005

Effects on Construction Program:

T.B.C.

Attachments:

Item	Description	QTY	UOM	RATE	AMOUNT
0	VARIATION INPUTS				
0.1	Total Delay inc. Wet Weather Allowance	9.0	Weeks		
	<i>Delay to to the completion of construction works (Completion date LESS HOTO)</i>				
0.2	Wet Weather Programme Allowance	2.2	Weeks		
	<i>Additional Wet Weather allowance required for the extension to the programme. Refer to the Wet Weather Impact Analysis attached for details of calculations.</i>				
1	Project Overheads				
1.1	Personnell				
	Supervisor - Andrew Nakov 100%	450.0	Hrs		
	Project Manager - Kyle Carlson 100%	450.0	Hrs		
	Quality manager (Project Engineer) 50%	225.0	Hrs		
	Site Engineer - Aritra Chowdhury	450.0	Hrs		
	Area Manager - Mark Elliot 10%	90.0	Hrs		
	Construction Manager - Colin Watts 10%	45.0	Hrs		
	HSEQ Advisor - Dirk Dunser 100%	450.0	Hrs		
1.2	Site Facilities				
	Site Shed - Office 12.0mx3.0m	3.0	Months		
	Site Shed - Lunch Room 12.0mx3.0m	3.0	Months		
	Site Shed - Ablution 6.0mx3.0m inc Water tank	3.0	Months		
	10kVA Genset	9.0	Weeks		
	Diesel (Generators and Pumps)	12935.5	Litres		
	Sewer Pump-out	3.0	Ea		
	ATF Site fencing hire	3.0	Months		
	Drinking water - 15L drum	37.4	Ea		
	Ice Delivery	3.0	Months		
	Skip Bin - General Waste 3m	3.0	Ea		
	Shed fixings - Fridges, Desks, Chairs, shelves etc.	63.0	Days		
	Printer	3.0	Months		
	Modem / Mobiles / Internet	3.0	Months		
	Site Utility Vehicle 1No	9.0	Weeks		
	GPS Base Station	9.0	Weeks		
	GPS Rover	9.0	Weeks		
	Watercart fill-station	63.0	Days		

	2T Site Tipper	9.0	Weeks
2	Wet Weather Rework Allowance	30.0	Hrs
2.1	Excavator 30T	30.0	Hrs
2.2	Front End Loader 2.5m3 - 3m3	30.0	Hrs
2.3	Grader Class 130 50%	15.0	Hrs
2.4	Labourer x2	60.0	Hrs
2.5	Supervisor (Leading Hand)	30.0	Hrs
2.6	3" Pump, trash screen, suction hose & 20m layflat hose	30.0	Hrs
3	Change in Sequencing of Works - Works done to-Date		
3.1	Watermain Road Crossing - Thorngate Road		
3.1.1	Supervision		
	Supervisor - Beau Orne-Gliemann (Held on site to prepare and manage the water crossing)	50.0	Hrs
3.1.2	Traffic Control		
	Labourer: Traffic Control	58.0	Hrs
	Traffic Signals (Set of 2)	7.0	Days
	Signage & Bollard Hire	7.0	Days
	TGS & Permit Submission	1.0	Ea
3.1.3	Loss in Productivity - working around overhead services		
	Supervisor (Pipe Foreman)	10.0	Hrs
	Labourer (Pipe Layer)	10.0	Hrs
	Labourer (Pipe Layer)	10.0	Hrs
	Excavator 12t	10.0	Hrs
3.1.4	Establishment inc. erecting site fencing, overhead powerline warning devices, obtaining permits etc.		
	Supervisor (Pipe Foreman)	10.0	Hrs
	Labourer (Pipe Layer)	10.0	Hrs
	Site fencing 79m	0.5	Months
3.2	MC-02 Entryway - Thorngate Road		
3.2.1	Traffic Control		
	Labourer: Traffic Control	310.0	Hrs
	Traffic Signals (Set of 2)	37.0	Days
	Signage & Bollard Hire	37.0	Days
3.2.2	Loss in Productivity		
	Topsoil Crew	3.62	Hrs
	Supervisor - Neal Schumacher	3.62	Hrs
	Excavator 12t	3.62	Hrs
	Semi Tipper	3.62	Hrs
	Front End Loader 2.5m3 - 3m3	3.62	Hrs
	Earthworks Crew	11.81	Hrs
	Supervisor - Neal Schumacher	11.81	Hrs
	Excavator 12t	11.81	Hrs
	Semi Tipper	11.81	Hrs
	Front End Loader 2.5m3 - 3m3	11.81	Hrs
	Pavement Crew	17.65	Hrs
	Supervisor - Neal Schumacher	17.65	Hrs
	Labourer	17.65	Hrs
	Roller Multi-tyre	17.65	Hrs
	Steel drum roller 16t	17.65	Hrs
	Water Truck 15,000L	17.65	Hrs
	Front End Loader 2.5m3 - 3m3	17.65	Hrs
	2T Site Tipper	5.40	Weeks
3.2.3	Establishment inc. erecting site fencing, overhead powerline warning devices, obtaining permits etc.		
	Supervisor - Neal Schumacher	10.0	Hrs
	Labourer	10.0	Hrs
	Site fencing 79m	1.5	Months
	Mobilisation of Plant - Grader	2.0	Ea
	Mobilisation of Plant - Roller Multi-tyre	2.0	Ea

Conditions/Assumptions:

1. BMD reserve the right to re-price this variation after submission or on receipt of new information regarding the delay and it's impact to the works or on receipt of a direction with respect to completion of the Subcontracted works
2. Water supply costs are unknown at this time - the water quick-fill has been allowed for within the overheads however if this is off-hired then an alternative water source will be required for works.

Date: 06-Dec-22

3. Wet Weather Allowance

3.1 Wet Weather Programme Allowance

The delay to commencing the Thorngate Road widening works due to the overhead powerline removal being delayed has had two main affects with respect to the wet weather allowance within the programme. The first impact is that the overall duration of the scheduled construction activities has increased due to the loss of concurrency between tasks. The second impact is that the delay has meant that a greater number of tasks are now scheduled to be completed within the months of the year which over history have received seasonally higher rainfall.

According to clause 14.3 of the Scope of Works - General Requirements within Annexure 4 of the Subcontract, the Subcontract must make adequate allowance for inclement weather that may affect its Subcontract Works and clearly show this in its program.

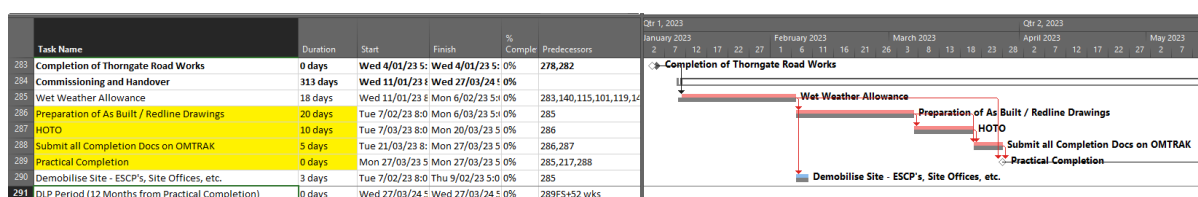
As such, the additional wet days which are likely to be encountered due to the revised programme have been calculated and added onto the revised programme as a separate wet weather allowance at Line 299 of 'RCTA Updated Programme 221124'.

To calculate the wet weather allowance, the BMD Tender Wet Weather Calculator has been used to estimate the number of working days likely to be impacted by wet weather for each month. The calculator considers several inputs including the historical rainfall data (circa 10 years) and the estimated delays for each magnitude of rainfall event based on site knowledge and the nature of the construction tasks.

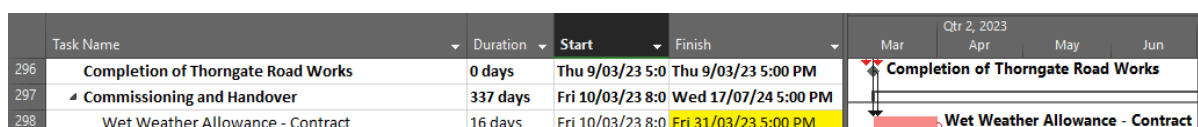
The number of additional working days used for the basis for the wet weather calculation is based on the duration of the construction works which are now scheduled to occur beyond the Date for Completion as noted in the programme update submitted on 24th Nov 2022 (post-delay). The reference point used to determine the additional working days affected by wet weather is the Date for Completion LESS the handover period as shown on the Programme Update on 13th Oct 2022 Lines 286-288 which sum to 35 working days. This provides a date of 2nd March 2023 for the completion of construction works based on the approved Completion Date. The revised date for completion of construction works is shown in Programme Update on 24th November 2022 Line 298 and is now 31st March 2023.

The input and output details of the BMD Tender Wet Weather Calculator are shown over page in section 3.1.1.

'RCTA Updated programme 221013' (Pre-delay):



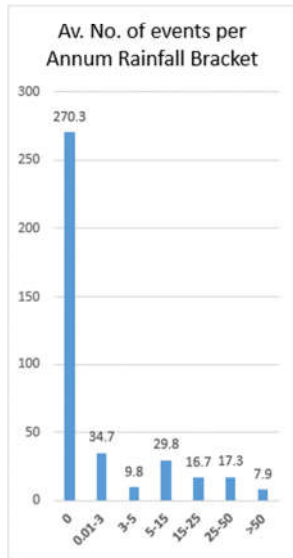
'RCTA Updated Programme 221124' (Post-delay):



3.1.1 Wet Weather Programme Calculations

8110 RCTA - Wet Weather Calculator Details - VO29 - Delay to Overhead Powerline Removal							
Milestone / Reference Point for Wet Weather Calc	Contract Allowance		Addition to Contract		Outputs		
	Scheduled Date	Program Ref. (Date/Line)	Scheduled Date	Program Ref. (Date/Line)	Additional Working Days	Wet Weather Risk Profile	Additional Wet Weather Days
Completion of construction activities (inc. original contract wet weather allowance)	2/03/2023	Completion Date (24/04/23) LESS Handover Period	31/03/2023	221124 Line 298	21	HIGH	11.18

Inputs to Wet Weather Calculator:



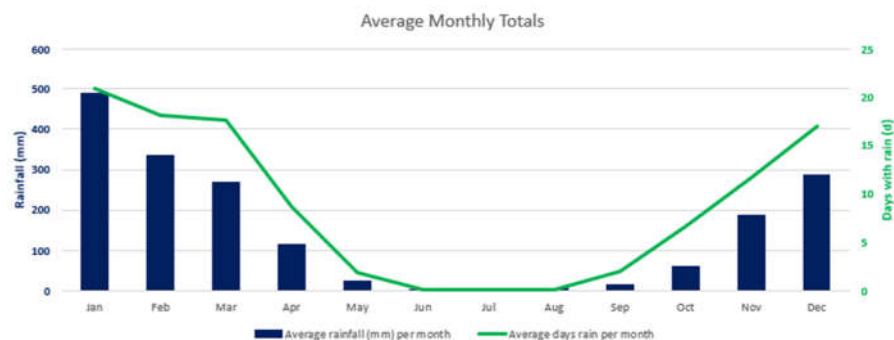
Adopted Limits for Effect	Rain (mm)	High Risk Delay (d)	Low Risk Delay (d)
0 - 3mm	0.01	0	0
3 - 5mm	3	1	1
5 - 15mm	5	1	1
15 - 25mm	15	2	2
25 - 50mm	25	3	2
> 50mm	50	4	3

Default Delay	
0	0
1	1
2	1
3	2
4	3
5	4

NOTE:
 >Maximum delay of 5 days for a single day
 >10 years should be used to ensure historical data doesn't skew results

Output from Wet Weather Calculator:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
No. of Calender days per month	31	28	31	30	31	30	31	31	30	31	30	31
No. of Working days per month (6 day Working Week)	25	24	27	21	26	25	26	27	25	27	25	17
No. of Working days per month (5 day Working Week)	21	20	23	17	22	21	22	23	20	23	21	15
STATISTICS OF LIKELY HIGH RISK IMPACT USING:												
Average No. of Effected Days from data per month	20.60	16.80	16.50	8.50	1.50	0.40	0.00	0.40	0.80	5.10	12.90	16.40
% of Month	66%	60%	53%	28%	5%	1%	0%	1%	3%	16%	43%	53%
STATISTICS OF LIKELY LOW RISK IMPACT USING:												
Standard Deviation of Effected Days from data per month	4.26	4.06	4.48	3.65	1.42	0.67	0.00	0.67	1.55	4.03	2.26	6.41
Average No. of Effected Days from data per month	19.20	15.70	15.50	7.80	1.30	0.30	0.00	0.30	0.80	4.50	11.30	15.20
% of Month	62%	56%	50%	26%	4%	1%	0%	1%	3%	15%	38%	49%
LIKELY IMPACT ON PROJECT BASED ON 5 DAY WORKING WEEK												
Likely High Risk Wet Weather Schedule Calendar	13.95	12.00	12.24	4.82	1.06	0.28	0.00	0.30	0.53	3.78	9.03	7.94
Likely Low Risk Wet Weather Schedule Calendar	13.01	11.21	11.50	4.42	0.92	0.21	0.00	0.22	0.53	3.34	7.91	7.35
												YEAR
												65.94
												60.63



Calculations for Additional Wet Weather Allowance:

Month	FEB	MAR	APR	TOTAL
Working Days - Whole Month	20		17	60
Wet Weather Days - Whole Month (Calc Output)	12		4.82	29.06
Working Days - Over and Above Contract Allowan	0		0	21
Above as Percent of Whole Month Working Day	0%		91%	0%
Wet Weather Days - Added to Programme	0	11.17565217	0	11.17565217

3.2 Wet Weather Rework Allowance

The Wet Weather Calculator described in section 3.1 has also been used to calculate the Rework Allowance for rectifying damage to uncompleted works, reinstatement of Erosion and Stability Controls and so-on because of exposure to wet weather. The calculator provides an output of estimated rework hours because of the number of individual weather events forecasted using the same input data described in section 3.1

The work crew used to build-up the re-work allowance is as follows:

Item	% Utilisation
Excavator 30T	100
Front End Loader 2.5m3 - 3m3	100
Grader Class 130	50
Labourer	100
Labourer	100
Supervisor (Leading Hand)	100
3" Pump, trash screen, suction hose & 20m lay flat hose	100

The input and output details of the BMD Tender Wet Weather Calculator are shown over page in section 3.1.2. The delay duration has been input into the calculator as the project duration to ensure that the calculation only calculates the additional rework costs extra-over to the original contract which are caused by the delay.

3.2.1 Wet Weather Rework Calculations

Wet Weather Rework

Tender Name	Robertson Barracks		
Tender Number	TBC	BOM Station #	14149

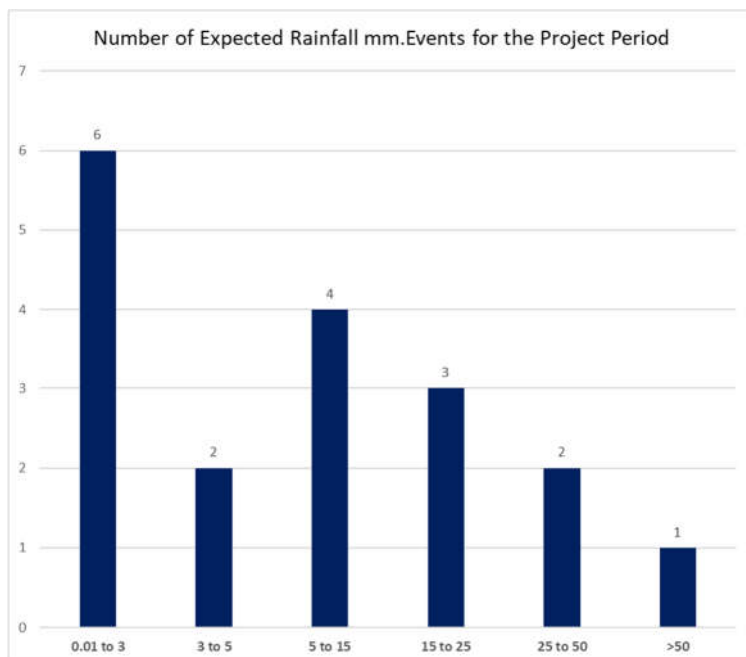
Project Period			Jan	Feb	Mar	Apr	May	Jun
Start Date	2/03/2023	dd/mm/yyyy	0	0	1	0	0	0
Finish Date	31/03/2023	dd/mm/yyyy	# Mnth Occurances for project period selected					
Average Count of Rainfall amount (millimetres)	0		10.1	10.7	13.4	21.3	29.1	29.8
	0.01 to 3		4.1	4.4	5.8	2.9	0.9	0.1
	3 to 5		0.8	1.6	2	1.1	0	0
	5 to 15		6.7	5.3	3.6	1.9	0.4	0
	15 to 25		3.3	2.5	2.9	1.5	0.4	0
	25 to 50		3.3	2.6	2.2	0.9	0.2	0.1
	50+		2.7	1.2	1.1	0.4	0	0

Enter your values into the peachy color

Estimated Re-work hours:

No. of Expected Events for the Project Period		Rework Cost Estimate		
		Min. Event Triggering Rework	Hrs per Event for Rework	Total Rework Time (hrs)
Event (mm)	# Events	15 to 25		
0	13	0		0
0.01 to 3	6	0		0
3 to 5	2	0	2	0
5 to 15	4	0	4	0
15 to 25	3	3	4	12
25 to 50	2	2	6	12
>50	1	1	6	6
		6		30

No. of expected rainfall events:



4. Change in Work Sequence - Works To-date

The Subcontractor has made every effort to mitigate the delays to the construction programme by re-sequencing works where possible. The re-sequencing of works completed to date along with the re-sequencing of future works to complete the project associated cost claim for these are detailed in this section.

4.1 Watermain Road Crossing - Thorngate Road

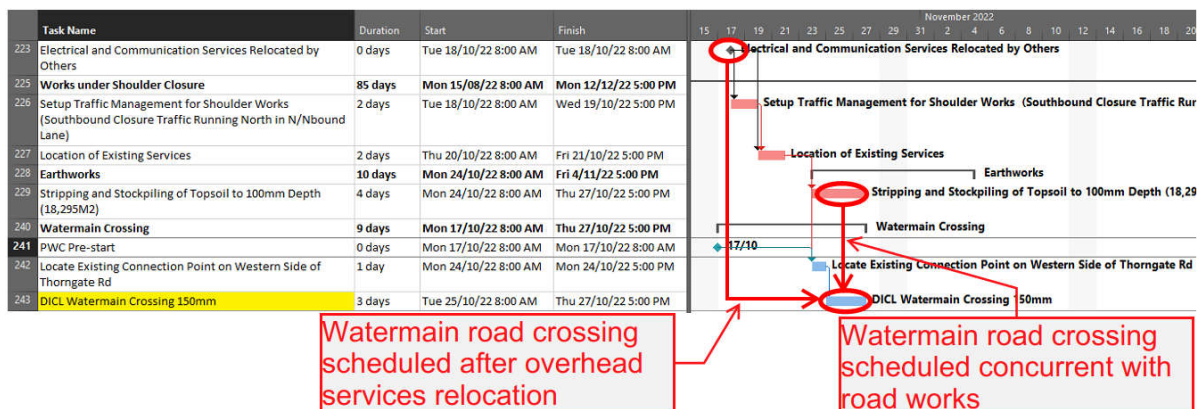
The construction of the watermain road crossing across Thorngate Road was planned to be completed concurrently with the Thorngate Road Works to utilise the same Traffic Guidance Scheme setup and to enable sharing of the traffic signals, signage hire and traffic control labour. It was also scheduled to be completed after the Overhead Powerlines were removed, by others, to enable safe and efficient installation of the watermain and minimise interaction with the Powerlines by plant/equipment.

As notified on 3rd Nov 2022 on iTWOcx (Ref Comment #4, P_MASC_10-06A:BMD#0005), BMD notified intention to proceed with installation of the watermain road crossing on Thorngate Road to mitigate the delay impacts to the overall project by enabling completion of the watermain scope. This intention was the result of requests by the Contractor within the weekly site meetings to ensure that the Subcontractor was doing everything possible to mitigate the impacts of the delay to the project. The Subcontractor made a concerted effort to successfully secure a limited Authority to Work in the Vicinity (AWV) permit from Power and Water corporation to enable working within proximity to the overhead powerlines on Thorngate Road to install the watermain crossing which crosses adjacent to the overhead powerlines.

4.1.1 Programme Comparison

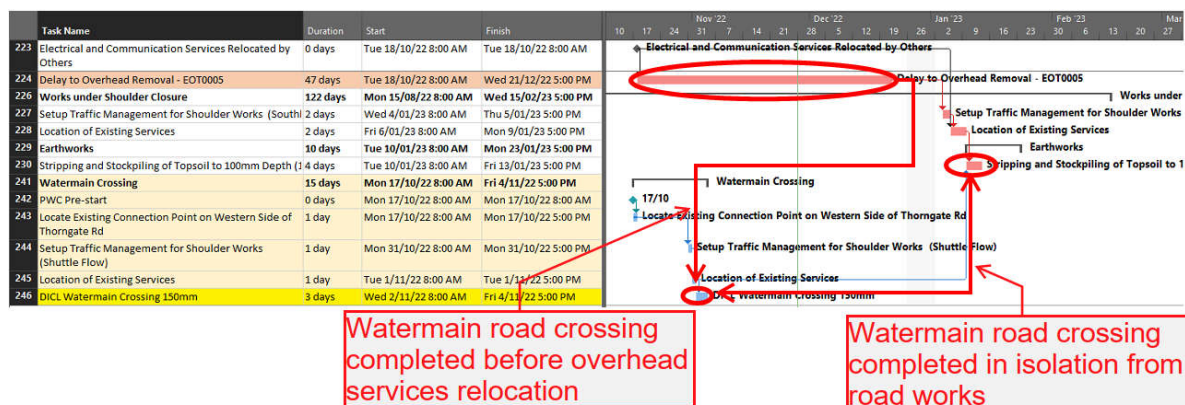
Now follows a comparison of the two programmes from 13th Oct 2022 (pre-delay) and 24th November (post-delay) which demonstrates that the watermain road crossing installation was previously scheduled for completion after the overhead relocation and concurrently with the Thorngate Rd Traffic Guidance Scheme establishment. The post-delay programme update shows that the works were re-scheduled to be completed in isolation from the rest of the roadworks.

Programme Update on 13th Oct 2022 (pre-delay) - Watermain road crossing scheduled for completion after overhead removal and concurrently with road works



- Variation Claim

Programme Update on 24th Nov 2022 (post-delay) - Watermain road crossing completed prior to overhead powerline removal and in isolation to road works



4.1.2 Cost Impacts

Below are the impacts of doing this work out of sequence which are included in this claim:

- Supervision (VO item 3.1.1) - An additional supervisor, Beau Orne-Gliemann, was on site to manage the delivery of these works out of sequence and to manage the risks of working near the overhead powerlines and was demobilised from site on completion of the watermain road crossing.
- Traffic Control (VO item 3.1.2) - Costs for the traffic control labour, permits, signage and traffic signals were incurred for completing the watermain road crossing in isolation, which represents an extra-over to the allowance made under the Subcontract to complete these works concurrently with the Thorngate Road Works. The claim is for a duration of 6 full working days and two half-days for weekend checks of TGS. This represents the time required to complete items 243-246 of the revised programme on 24th Nov 2022 in addition to the duration of lost productivity (refer below).
- Loss in Productivity (VO item 3.1.3) - The installation of the watermain road crossing was previously scheduled to be completed after the relocation of the overhead powerlines. Installing the watermain with the overhead powerlines in place caused a reduction in productivity and incurred additional costs due to:
 - Smaller than optimal excavator size had to be selected to enable clearance to the powerlines (1m clearance required as per AWW Permit)
 - Additional permit measures were required to enable working around the overhead powerlines, slowing down the work crew
 - Double-handling of spoil and backfill material due to inability to load-out and tip off materials near the powerlines

The works to complete the road crossing were originally programmed to take 3 days (excluding establishment etc.). Completion of the road crossing took an additional day due to the above impacts, for which the plant/labour costs have been included in this claim.

- Establishment (VO item 3.1.4) - Service protection measures & signage needed to be installed prior to working around the overhead powerlines - these were not required should the works be completed after removal of the overhead powerlines. Site fencing was also required for this individual work area which would have been encompassed within the Thorngate Road Widening fencing allowance, should the works have been concurrent as original scheduled.

4.2 MC-02 Entryway - Thorngate Road

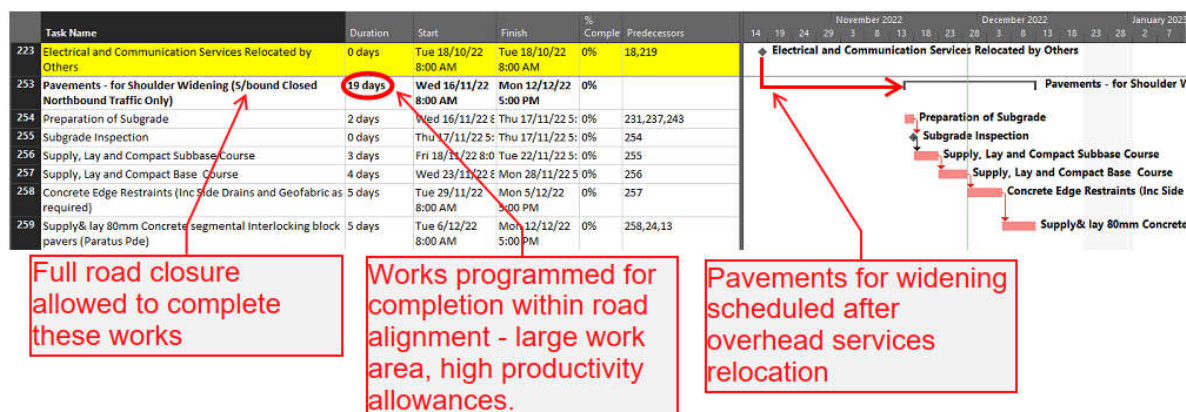
The construction of the MC-02 paved entry portion of Thorngate Road (up to project boundary) prior to the delay was scheduled to be completed under a full Southbound Lane closure. It was also scheduled to be completed after the Overhead Powerlines were removed, by others.

As notified on 3rd Nov 2022 on iTWOcx (Ref Comment #4, P_MASC_10-06A:BMD#0005), BMD notified intention to proceed with construction of the paved entry way at MC-02 on Thorngate Road to mitigate the delay impacts to the overall project by enabling completion of the pavers on Thorngate Rd and allow the opening of the Paratus Pde entry into the defence base. This intention was the result of requests by the Contractor within the weekly site meetings to ensure that the Subcontractor was doing everything possible to mitigate the impacts of the delay to the project and enable the opening of the Paratus Pde Defence Base entry driveway as soon as possible. The Subcontractor made a concerted effort to successfully secure a limited Authority to Work in the Vicinity (AWV) permit from Power and Water corporation to enable working within proximity to the overhead powerlines on Thorngate Road to enable completion of these works. The works proceeded under a traffic Permit which was valid for a shuttle flow arrangement to enable traffic to flow both ways.

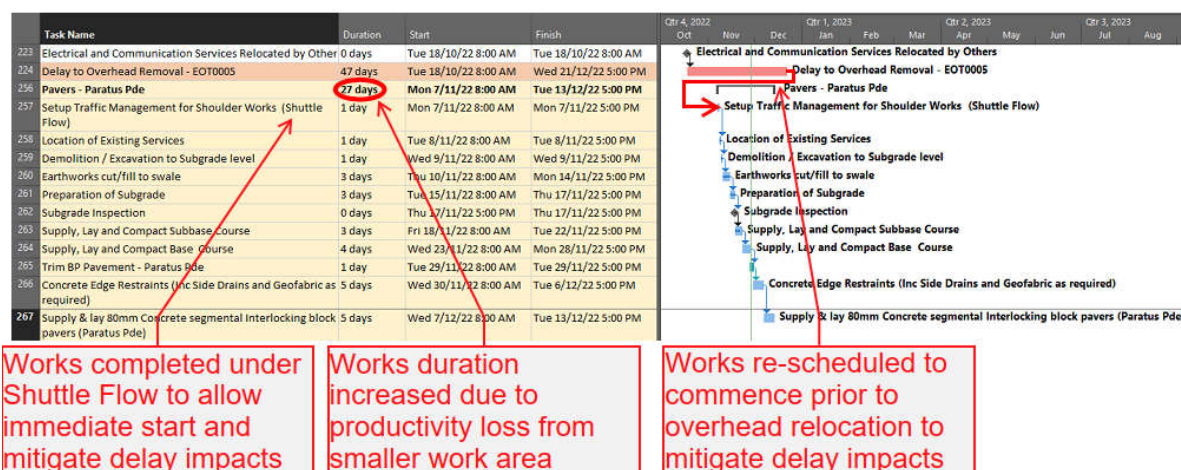
4.2.1 Programme Comparison

Now follows a comparison of the two programmes from 13th Oct 2022 (pre-delay) and 24th November (post-delay) which demonstrates that the MC-02 Entryway was previously scheduled for completion after the overhead relocation and under a full road closure on Thorngate Rd. The post-delay programme update shows that the works were re-scheduled to enable immediate commencement of works following on from the watermain road crossing installation under the TGS and Permit which was in place for a Shuttle Flow.

Programme Update on 13th Oct 2022 (pre-delay) - Pavement construction for Road Widening / MC-02 Entry Way scheduled for completion after overhead removal and under full-lane closure and long with the rest of the Thorngate Road pavement construction.



Programme Update on 24th Nov 2022 (post-delay) - Pavement construction for Road Widening / MC-02 Entry Way scheduled for completion before overhead removal and under shuttle-flow permit on its own smaller work area, isolated from the rest of Thorngate Road works.



4.2.2 Cost Impacts

Below are the impacts of doing this work out of sequence which are included in this claim:

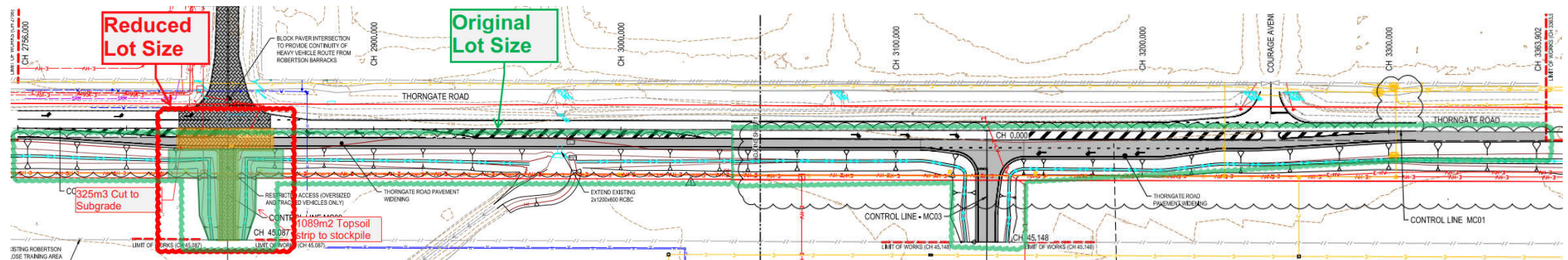
- Traffic Control (VO Item 3.2.1) - Costs for implementing a shuttle flow traffic guidance scheme including traffic control labour, permits, signage and traffic signals were incurred for completing the MC-02 entry way in isolation and to enable immediate commencement rather than continuing the delay for works. These costs represent an extra-over to the allowance made under the Subcontract to complete these works concurrently with the rest of the Thorngate Road Widening Works under a full lane closure which does not require controllers or traffic signal hire.
- Loss in Productivity (VO Item 3.2.2) - The construction of this section of roadway was previously scheduled to be completed after the relocation of the overhead powerlines and as part of a larger work area encompassing the entire length of Thorngate Road. The presence of powerlines and the reduction in work area caused a reduction in productivity and incurred additional costs due to:
 - Smaller than optimal excavator size had to be selected to enable clearance to the powerlines (1m clearance required as per AWW Permit)
 - Additional permit measures were required to enable working around the overhead powerlines, slowing down the work crew
 - Productivity allowances for this task could not be met due to the reduction in work area. The original lot size programmed for this area included MC-01, MC-02 and MC-03. Completing MC-02 on its own reduced the lot size and therefore decreased BMD's productivities for road construction tasks. The individual tasks affected by this reduction in productivity are detailed in section 4.2.3.
- Establishment (VO Item 3.2.3) - Moving the sequencing of works has caused a disruption to the continuity of works for earthmoving equipment and requires additional mobilisation costs to bring machinery to site, particularly graders and rollers. Service protection measures & signage were also needed to be installed prior to working around the overhead powerlines - these were not required should the works be completed after removal of the overhead powerlines.

4.2.3 MC-02 Entry Way - Productivity Loss Calculations

Following is a breakdown of the original productivity allowances made to complete MC-02 as part of a much larger work lot vs. allowances to complete the works as a much smaller work lot. The Additional Time column shows the extra-over time to complete these works which are included in the variation claim.

PROGRAMME: 11 May 2022		Large Work Lot Productivity Allowance				Revised Durations due to smaller Work Lot						Notes
Task No	Task Name	Duration (Days)	Total Task Qty	Unit	Productivity Target Qty / Hr	MC-02 Qty	Unit	Time allowance using Target Productivities (hrs)	Time Estimate to complete Small Lot (hrs)	Additional Time (Hrs)	Crew	
213	Stripping and Stockpiling of Topsoil to 100mm Depth (18,295M2)	4	18295	m2	457.38	1089.00	m2	2.38	6.00	3.62	Topsoil	Not able to load out directly into trucks due to overheads - need to double-handle from work face back into site to be stockpiled and then loaded out. Smaller excavator must be used.
215	Excavation to Subgrade Level - (3,052M3)	3	3052	m3	101.73	325.00	m3	3.19	15.00	11.81	Earthworks	Not able to load out directly into trucks due to overheads - need to double-handle from work face back into site to be stockpiled and then loaded out. Smaller excavator must be used.
228	Preparation of Subgrade	2	4375	m2	218.75	242	m2	1.11	10	8.89	Pavements	Smaller work area lowered grader productivity, some areas on Thorngate Rd too small for grader - excavator required. Rolling productivity reduced due to small area. Loader Required.
230	Supply, Lay and Compact Subbase Course	3	4041	m2	134.70	249	m2	1.85	5	3.15	Pavements	As above
231	Supply, Lay and Compact Base Course	4	4171	m2	104.28	249	m2	2.39	8	5.61	Pavements	As above

Plan view of the change in work lot size between that originally programmed and the smaller lot of works around MC-02 to enable completion of the pavers on Thorngate Rd and mitigate the delay impacts:



5. Change in Work Sequence - Remaining Works

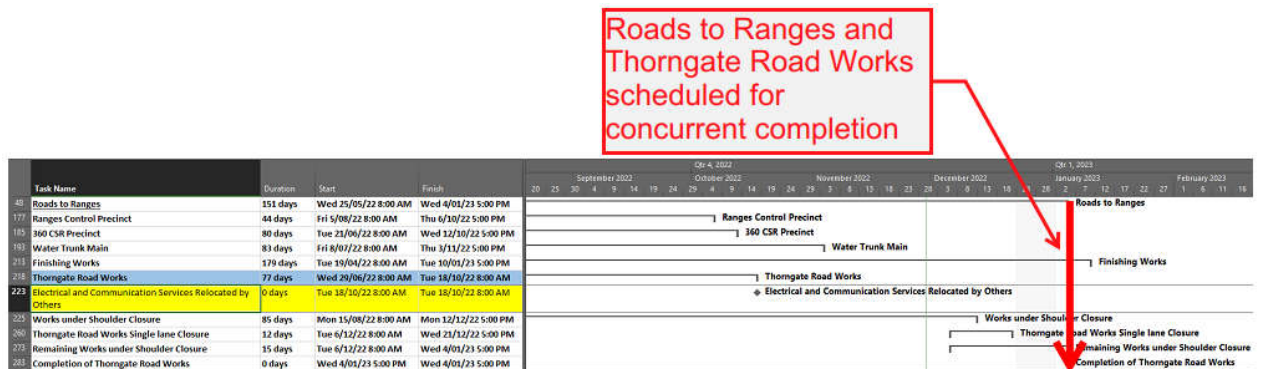
The remaining works which need to be completed after the removal of the overhead powerlines as shown on the Programme dated 24th Nov 2022 will be impacted in the following ways:

- Loss of concurrency with other tasks
- Addition traffic control costs
- Equipment which would have been held on site to complete the works have had to be demobilised and will need to be brought back to site
- Addition seed establishment for hydro-mulch

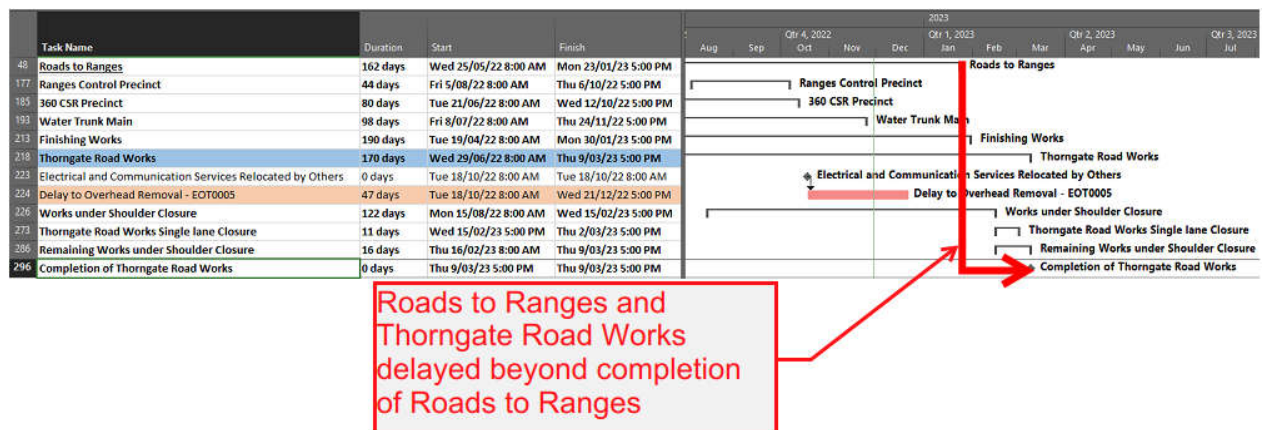
5.1.1 Programme Comparison

Now follows a comparison of the two programmes from 13th Oct 2022 (pre-delay) and 24th November (post-delay) which demonstrates the delay to the remaining works.

Programme Update on 13th Oct 2022 (pre-delay) - Two major work areas of the project were scheduled for completion concurrently - Roads to Ranges and Thorngate Road Works.



Programme Update on 24th Nov 2022 (post-delay) - Thorngate Road Works delayed by overhead powerline removal, causing a loss of concurrency with the rest of the project tasks.



5.1.2 Cost Impacts

Below are some of the estimated direct cost impacts of performing this work in a delayed sequence from the rest of the project:

- Traffic Control Wet Weather Allowance (VO Item 4.1) - A wet weather allowance has been added to the variation claim and programme based on the delayed work schedule. The remaining works to which the wet weather allowance applies will be carried out under traffic control and as such, the wet weather allowance coincides with additional traffic control costs for managing the Traffic Guidance Scheme implementation on wet days and managing the risk to public safety by ensuring the controllers are used in peak morning/afternoon times and also carrying out checks of signage and delineation on wet days when the site may not be running.
- Mobilisation of Plant (VO Item 4.2) - Standing down equipment is required to minimise the ongoing costs of holding hired equipment such as graders, rollers, etc. however this equipment will need to be brought back to site to complete the works.
- Additional Seed Establishment (VO Item 4.3) - The seeded batters within the delayed work areas will not be able to establish with the rest of the site due to the loss in concurrency with the rest of the works. Due to this, the claim includes an additional cost to establish the seed for 13 weeks.

6. Escalation

With the delay being of an ongoing nature without a defined end date at this time, it is possible that current industry market conditions may cause escalation of plant, labour, and material costs for the delayed works. It is not known what the magnitude of these costs will be at this time and therefore BMD wish to reserve the right to review the escalation impacts of this delay on the project upon completion of the works which were impacted by the delay. Some resources which have potential to be impacted by escalation include:

- Fuel (Diesel and Petrol)
- Earthmoving Machinery
- Pump Hire
- Roadbase / Gravels
- General Fill
- Asphalt / prime / Seal
- Trucking / Haulage / Delivery Fees
- Traffic Control
- Linemarking
- Asphalt Subcontractors
- Water supply

Appendix 1 – SUBMITTED PROGRAMMES

Project: RCTA Updated Program
Date: Thu 13/10/22 11:07 AM

Task Split

Milestone Summary

Project Summary Inactive Task

Inactive Milestone Inactive Summary

Manual Task Duration-only

Manual Summary Rolup Manual Summary

Start-only Finish-only

External Tasks External Milestone

Deadline Critical

Critical Split Baseline

Baseline Milestone Baseline Summary

Progress Manual Progress

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