

# The Role and Importance of the Construction Manager

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Senior Pavement Engineer  
DPTI



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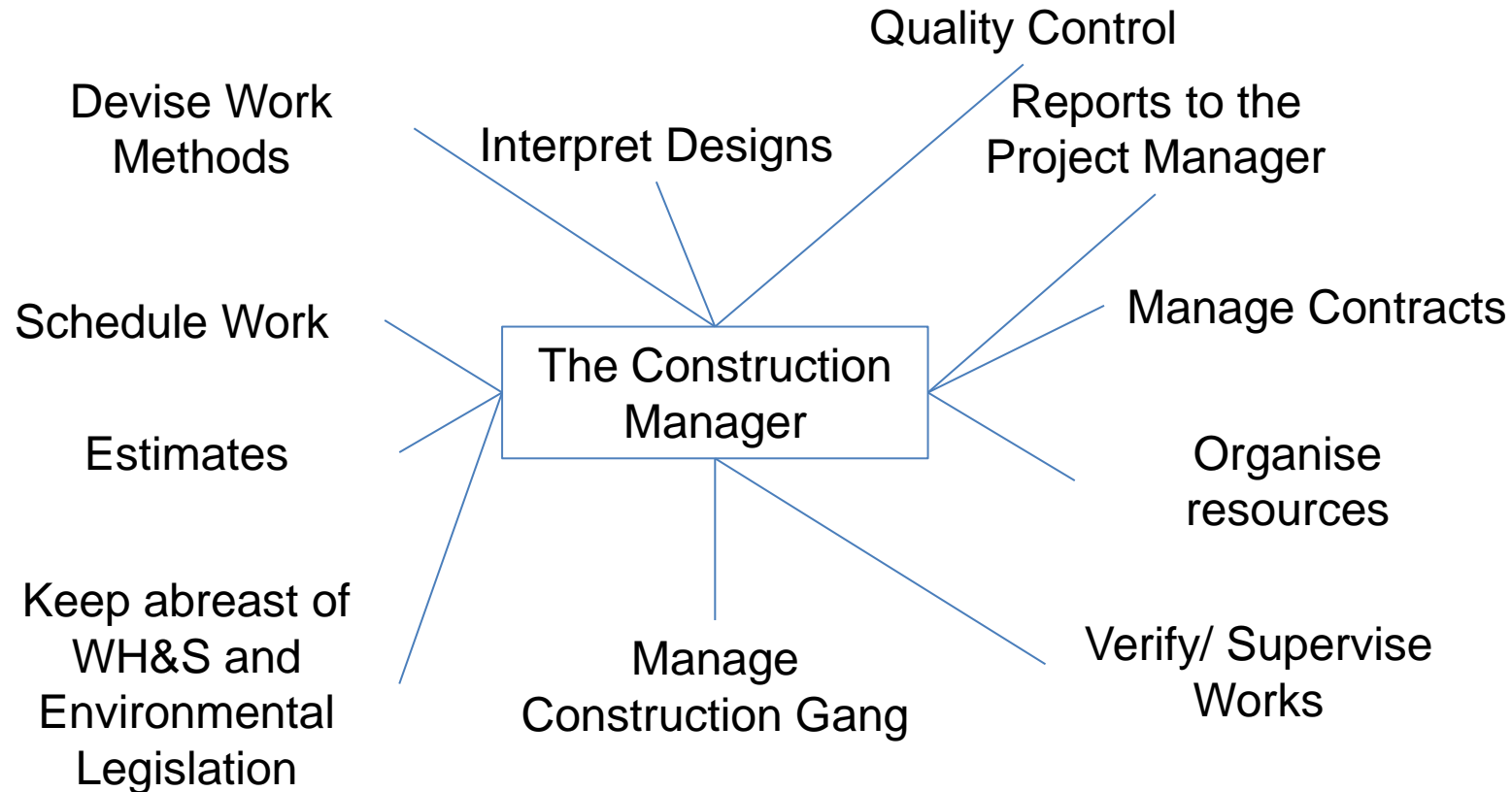
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# Introduction

The topics I will cover today are:

- Background
- Using the position as a training platform
- Challenges of the role
- Final design - review and verification

# The Role



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**Site Meeting, ideally this is where all expectations are aligned.**

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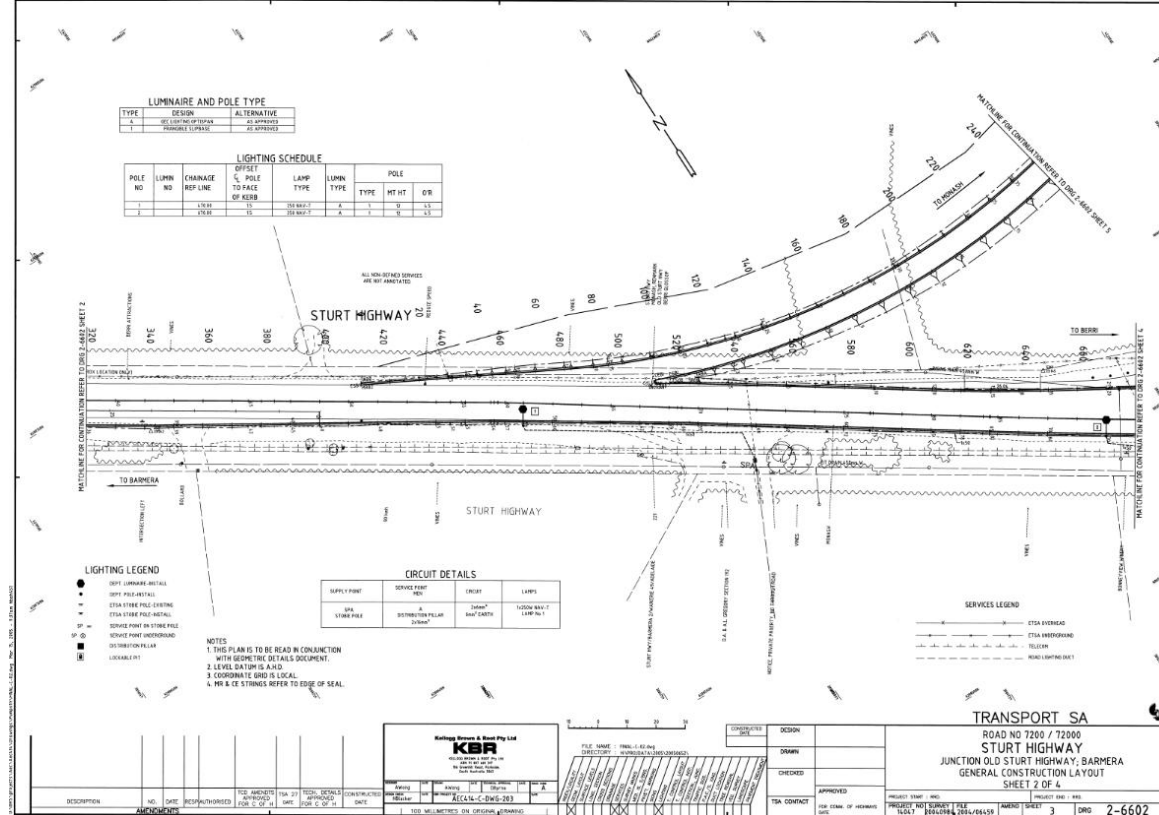
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# A Project



## Berri bypass 2005

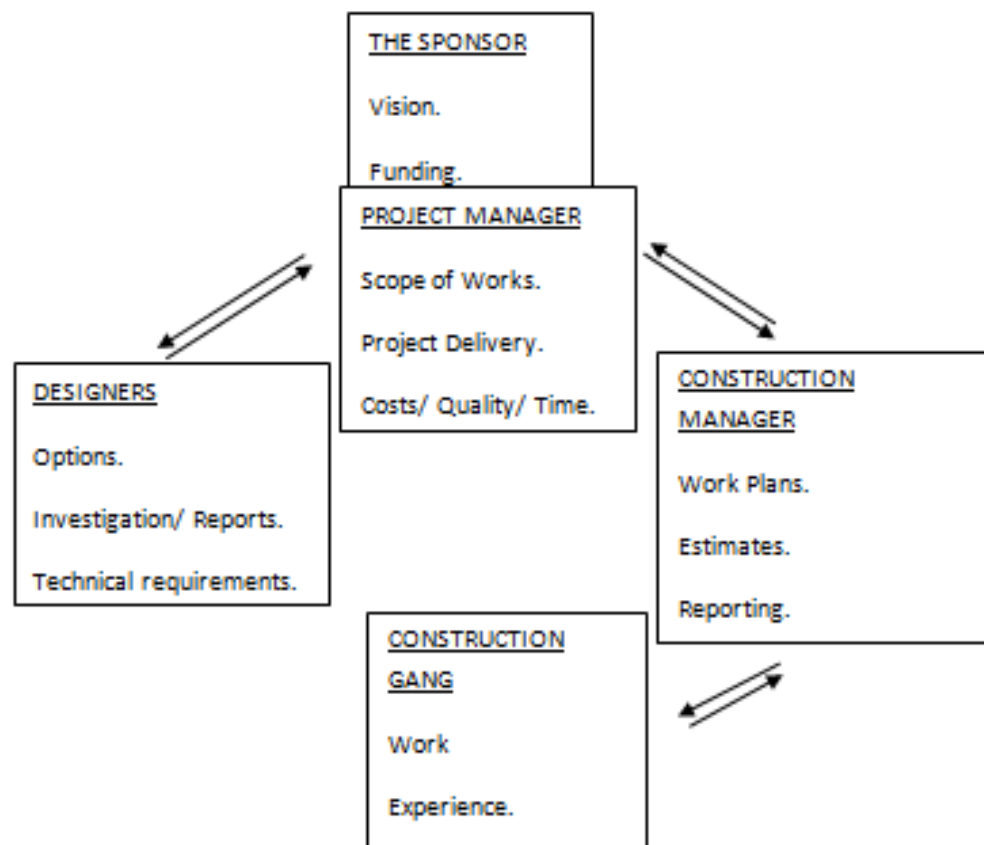
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# The Key Personnel



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# The Project Manager

- Delivers the Overall Project
- Develops the Scope of Works
- **Cost, Quality and Time**

**service agreement**

for

**construction services**

for

**the berri bypass junctions,  
sturt highway**

no. 2005/bj1

between

**client**

**service provider**

*major projects*

*field services*

Service agreement

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# The Gang



**construction at work site.**

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# The Managers



## Site Inspection

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# Times Change

## ROAD BUILDING IN THE TWENTIES

By DAVID MUDGE—Engineer, Planning Section



Early 1920s—A horse-drawn scarifier being used to rip up the old road surface in preparation for resheeting.

1917—Construction of a water-bound macadam road near Mount Morrell. (left) stone layer and (right)



the motor car first provided greater mobility for the individual it was soon realized that the new vehicle could transport merchandise as well as people and its use for this purpose increased with each succeeding year.

Between 1910 and 1914, motor transport began to have a significant effect on the community and with the advent of rubber tyred "lorries" in 1913, vehicle

1917—The



## Construction 1920s

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# Current Times



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# Standards Change



**1960 Trucks.**

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# Expectations Change



## B-Doubles

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WAY  
100

RISING MARK NOT MARKED ON GROUND  
RURUS APPROX. ON NTH EDGE OF BUTTEN

160

180

200

220

240

260

AIR STUNT PAVY  
POWERSH REPAIRS PIA

IN DIRECTIONAL HAZARD

TELSTRA LINE NOT MARK ON GROUND

N

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# Assumptions in Schedules

**Table 1 - Unbound Granular Pavement**

<u>Layer</u>	<u>Material</u>	<u>Thickness</u>
Surfacing	7mm sprayed seal (C170); binder @ 0.8L/m <sup>2</sup> (nom.), agg. @ 170 m <sup>2</sup> /m <sup>3</sup> 14mm sprayed seal (S35E); binder @ 1.0 L/m <sup>2</sup> (nom.), agg @ 100 m <sup>2</sup> /m <sup>3</sup> precoat IDF:C170:AAA (100:30:1.5) @ 4 L/m <sup>3</sup>	
Prime	Medium prime @ 1.0 L/m <sup>2</sup> (nominal)	
B/course 1	30mm crushed rock to PM1/30 (previous PM33). Compacted to a minimum 98% MDD and dried back to 70% of OMC before priming for surfacing.	125mm
B/course 2	30mm crushed rock to PM1/30. Compacted to a minimum 98% MDD and dried back to 70% of OMC before placement of the next layer of basecourse material.	150mm
Subbase 1	40mm quarry rubble to PM2/40 (previous PM25). Compacted to a minimum 96% MDD and dried back to 70% of OMC before placement of basecourse.	150mm
Total		425mm

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## Construction Management Spread Sheets – Spread Sheets and More Spread Sheets.

	TOTAL ALL TASKS			Lwr Bound			Uppr Bound		
DATE	HRS/DAY	DAYS		160.00%					
LABOUR	HRS/DAY	Lwr	Uppr	RATE \$/HR	HRS	COST	RATE	HRS	COST
LABOUR	9.5	18.0	25.0	37.00	171.0	\$ 6,327.00	37.00	238	\$ 8,787.50
LABOUR	9.5	18.0	25.0	37.00	171.0	\$ 6,327.00	37.00	238	\$ 8,787.50
LABOUR	9.5	18.0	25.0	37.00	171.0	\$ 6,327.00	37.00	238	\$ 8,787.50
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LABOUR	9.5	18.0	25.0	37.00	171.0	\$ 6,327.00	37.00	238	\$ 8,787.50
LABOUR	9.5	18.0	25.0	37.00	171.0	\$ 6,327.00	37.00	238	\$ 8,787.50
totals						\$ 56,943.00			\$ 79,087.50
add burdening				55%		\$ 31,318.65			\$ 43,498.13
PLANT ITEMS			19	\$/Day	1.0			DAYS	
LOADER	1	18.0	25.0	\$ 574.33	18.0	\$ 10,338.00	\$ 574.33	25	\$ 14,358.33
GRADER	1	18.0	25.0	\$ 659.56	18.0	\$ 11,872.00	\$ 659.56	25	\$ 16,488.89
CAT VIB	1	18.0	25.0	\$ 305.83	18.0	\$ 5,505.00	\$ 305.83	25	\$ 7,645.83
MULTI ROLLER	1	18.0	25.0	\$ 219.78	18.0	\$ 3,956.00	\$ 219.78	25	\$ 5,494.44
THREE POINT	1	18.0	25.0	\$ 122.67	18.0	\$ 2,208.00	\$ 122.67	25	\$ 3,066.67
CRANE TRUCK	1	18.0	25.0	\$ 219.94	18.0	\$ 3,959.00	\$ 219.94	25	\$ 5,498.61
SERVICE TRUCK	1	18.0	25.0	\$ 125.94	18.0	\$ 2,267.00	\$ 125.94	25	\$ 3,148.61
UTE	1	18.0	25.0	\$ -	18.0	\$ -	\$ -	25	\$ -
UTE	1	18.0	25.0	\$ -	18.0	\$ -	\$ -	25	\$ -
UTE	1	18.0	25.0	\$ -	18.0	\$ -	\$ -	25	\$ -

**Estimate Sheet**

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## Construction Management Spread Sheets – Spread Sheets and More Spread Sheets.

[illegible]

# Monthly Resource Sheet

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# Construction Management Spread Sheets – Spread Sheets and More Spread Sheets.

YANYARRIE				
				22-May-2014
PROJECT DETAIL				
Project Location	HAWKER TO ORROROO RD NORTH OF CARRINGTON, IMM58.3.			
Project Description	Field Services, Rural Construction has been engaged by Major Projects for the upgrade of the Yanyarrie Floodway. The project broadly consists of the construction and preparations for concrete works, stabilising of pavement and primer sealing. Works will be in accordance with the projects service agreement No. 2007/FRF1 and Field Services Quality Manual.			
Design/Concept Start Date	November 07	Construction Start Date	January 08	
Project Finish Date	June 08			
Project Manager Field Services	Ian Allwright Construction Engineer	Contact No.	0408 835 616	
		E-mail	<a href="mailto:ian.allwright@saugov.sa.gov.au">ian.allwright@saugov.sa.gov.au</a>	
Project Manager Projects	Geoff Koopman A/ Project Manager	Contact No.	0408 089 020	
		E-mail	<a href="mailto:geoff.koopman@saugov.sa.gov.au">geoff.koopman@saugov.sa.gov.au</a>	
PROJECT ESTIMATE	\$410,000			
General Clarifications	<p>The gang works on a continuous 18 days on, 10 day off roster with the following visits and primary objectives programed. Site meeting will be generally held on the Wednesday of each week during working periods</p> <p>Where generalised statements have been used to describe packets or work ie. Excavation as required, or earthworks. Allowance have been provided for these items, and they are considered reasonable from a pre-construction investigation of the site. However i</p>			
FINANCIAL DETAILS				
CUSTOMER	PROJECT NO.	11263653	TASK NO.	21103
FIELD SERVICES	PROJECT NO.	12464086		
CURRENT FINANCIAL STATUS				
Forward Works Detail				
	SCHEDULED COSTS INCURRED	VARIATION COSTS	SCHEDULED COSTS REMAINING	PROJECT TOTAL
Forward Works Expenditure	\$350,000	\$6,050	\$65,000	\$421,050

## Monthly Project Report

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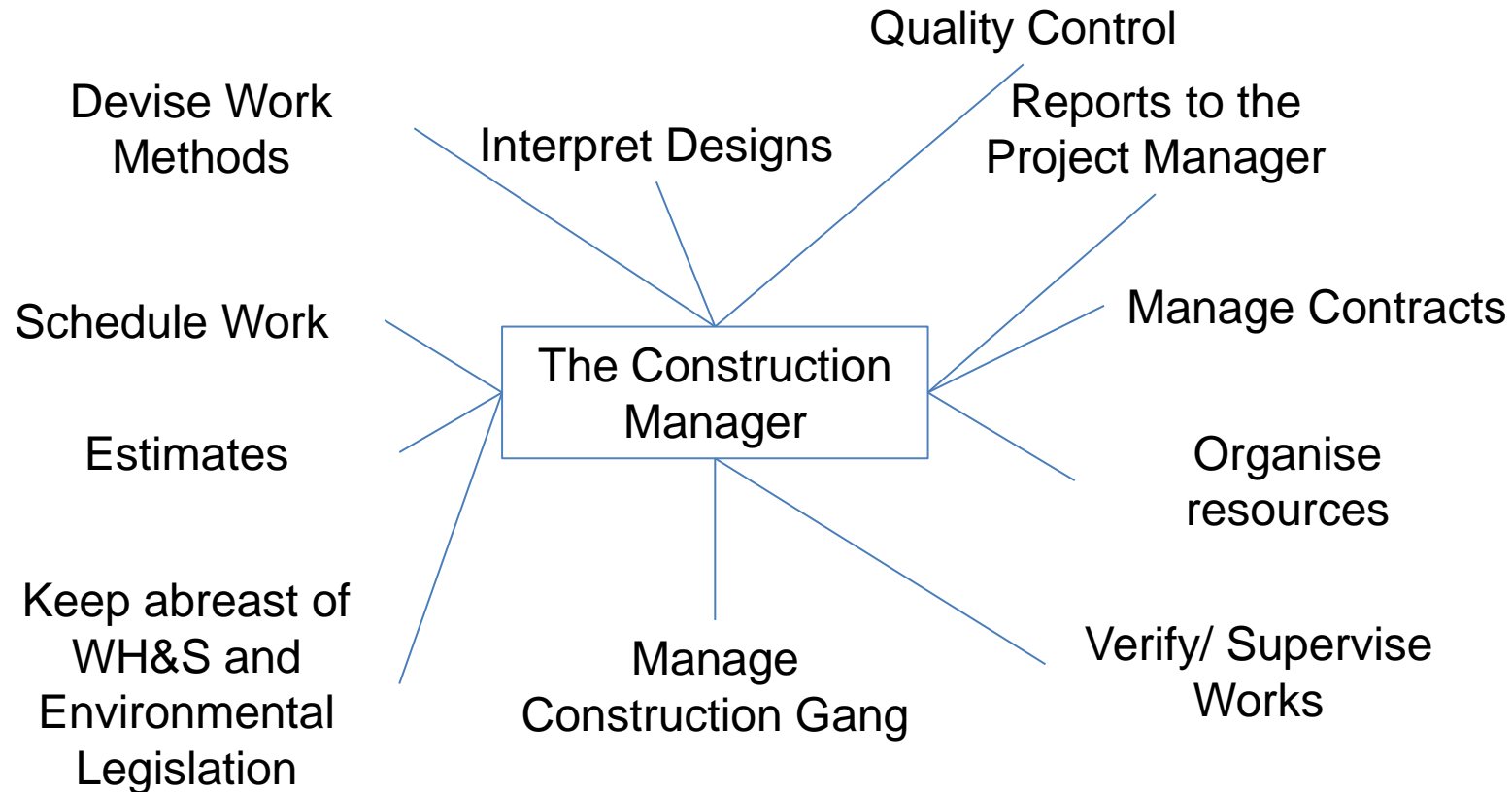
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# CHALLENGES TO THE ROLE



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# Construction- Gang Management



**Figure 15 - Is everything in the right place?**

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# Construction- Gang Management



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# Construction- Gang Management



- Poorly Constructed?
- Likely to fail.
- Actually shortfall was in the design

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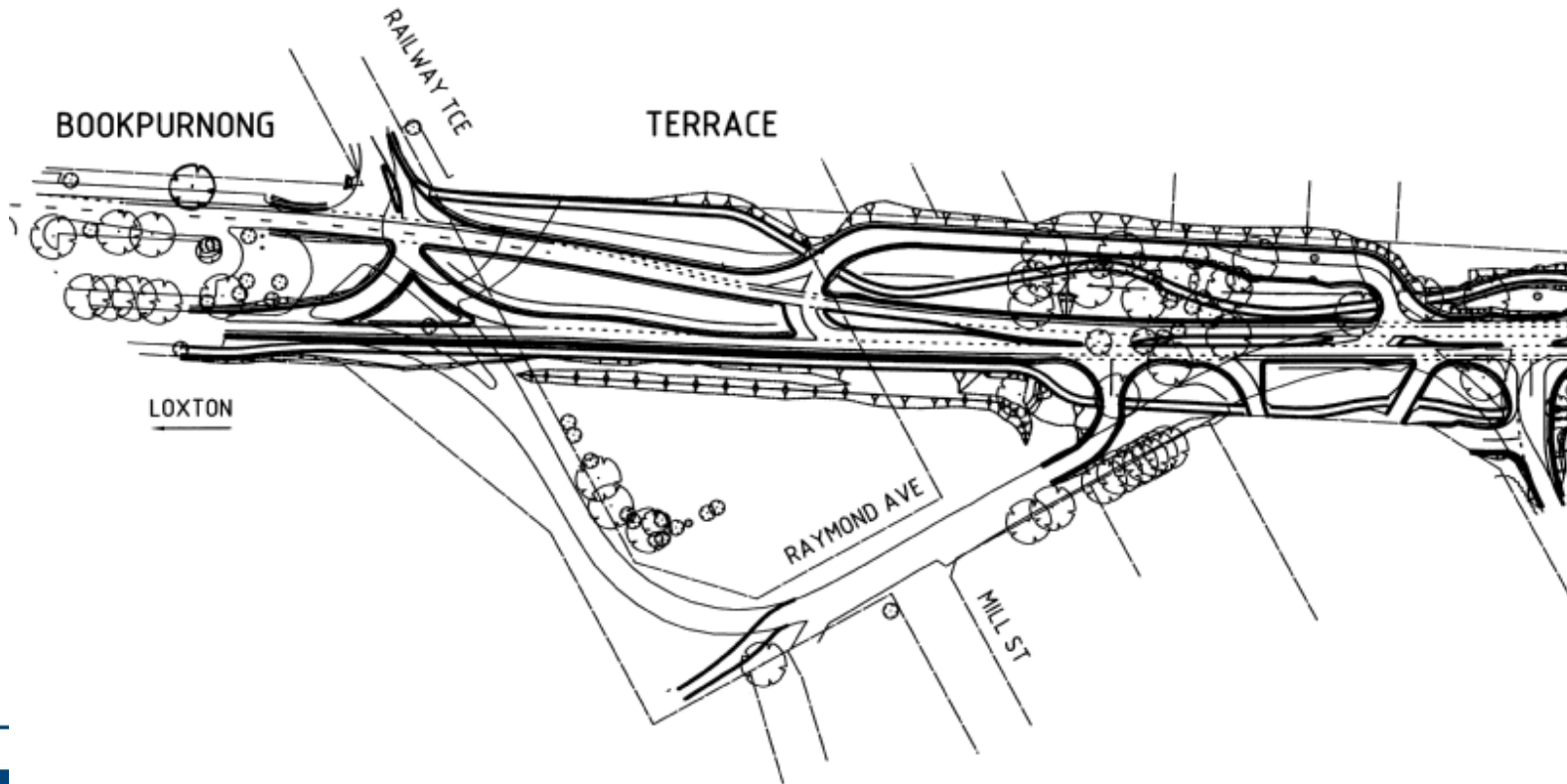


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# Construction Management

- Complex



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# Construction Management

- Remote



Figure 18 - Innamincka, Coopers Creek



Figure 19 Innamincka, Stabilisation

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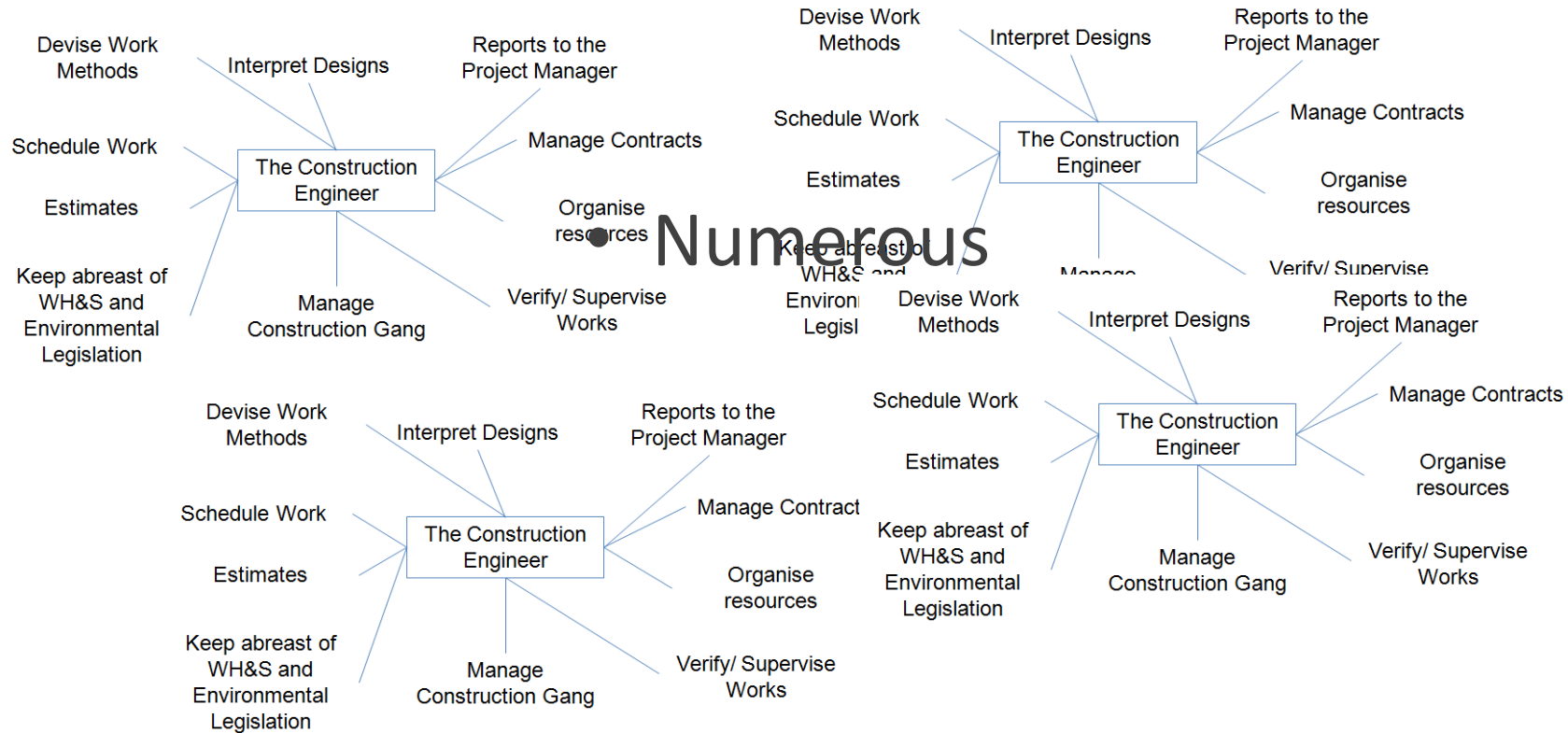
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# Construction The Final Check

- Observe



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# Construction The Final Check

- Question

**Boxed out profile.**



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# Construction The Final Check



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# Construction The Final Check

- Awkward



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# Construction The Final Check

- Obvious



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# Construction The Final Check

- Ridiculous



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# Construction The Final Check



**New Culvert Installation**

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# Summary

- If you are going to use the position of construction manager as a training platform, then you must ensure that technical support and mentoring are part of the program
- There needs to be an appreciation that this is the last chance to detect design errors before they become built in.
- Gang culture is complicated and difficult to manage.
- There needs to be a method of ensuring designers, particularly their assumptions are more integral at the construction process.

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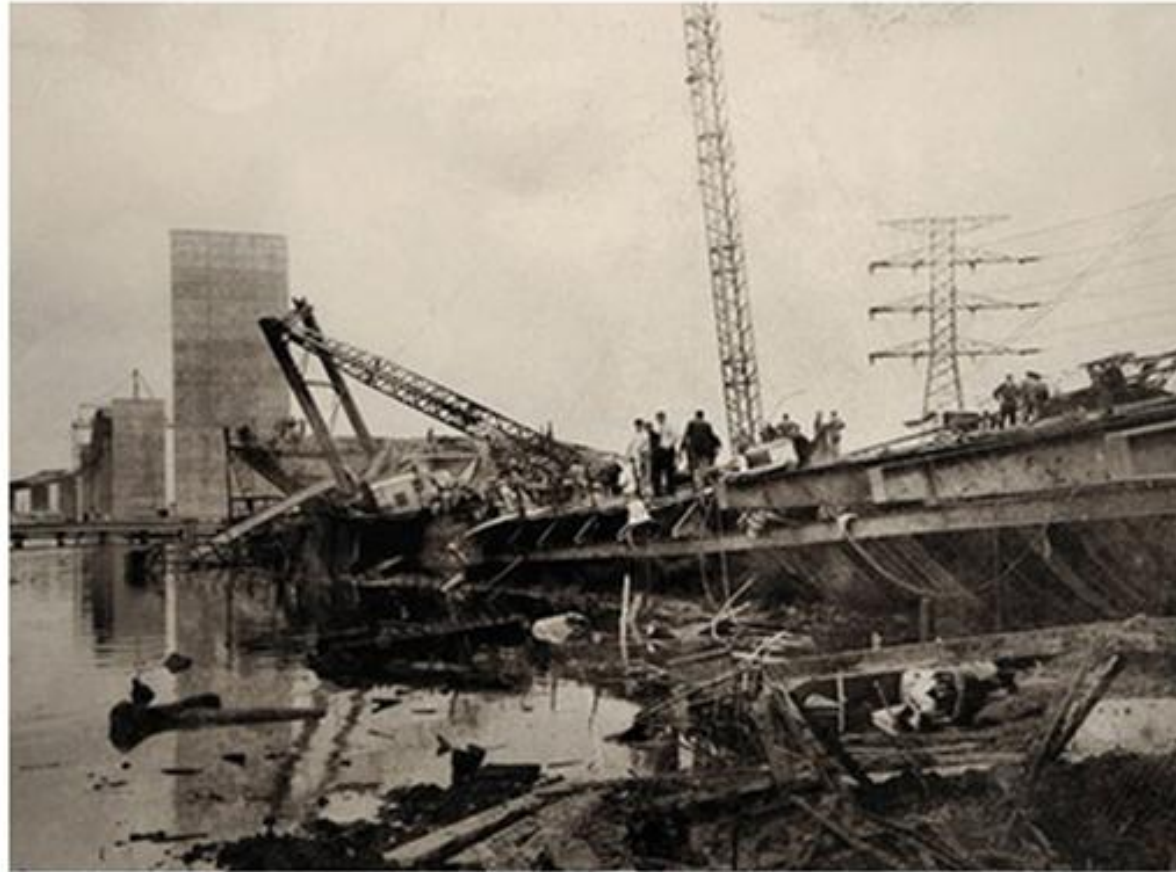


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# Conclusion

## West Coast Bridge Collapse



Frank Coates's photos capture the scale of the disaster.

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