

## Subsurface Utility Engineering & AS 5488

A paradigm shift in how industry deals with underground utilities

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# What is Subsurface Utility Engineering?

The management of risks associated with:

- Existing utility mapping at appropriate quality levels
- Existing utility condition assessment
- Design and coordination of relocation of existing utilities
- Design and coordination of proposed utilities
- Communication of utility data to stakeholders
- Costing and programming of the above



# Why is Subsurface Utility Engineering Important?

Safety

Quality

Continuity

Program

Cost

# Why is Subsurface Utility Engineering important?

US Dept. of Transport: Federal  
Highway Administration

**\$4.62** return on \$1.00 investment in SUE standards

Canada: Ontario Sewer and Water  
Contractors Association

**\$3.41** return on \$1.00 investment in SUE standards

Pennsylvania: Department of  
Transportation - 2007 Study

**\$22.21** saved for every \$1.00 spent on SUE

Texas: Transport Institute – 2013  
Study

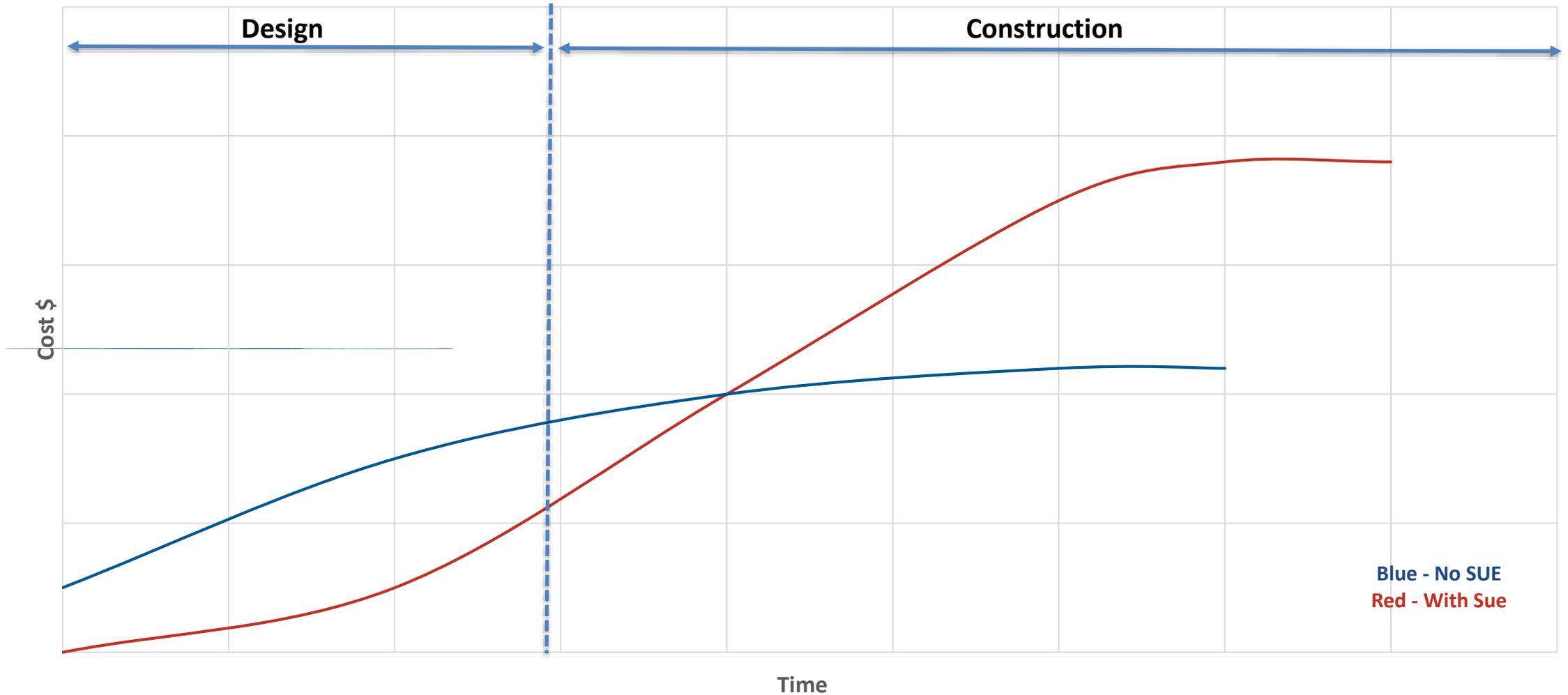
Contract variations per lane-mile - **\$160** for SUE projects vs **\$3,000** for Non-SUE  
Average % of additional days - **11%** for SUE projects vs **16%** for Non-SUE

Sydney Light Rail

Light rail Sub-contractor (Acciona) currently suing Transport for NSW for  
**\$1.206 billion** for issues associated with 'misrepresentation of utilities'.



# Why is Subsurface utility engineering important?



# What is AS 5488?

- Currently, AS 5488 is the Australian Standard for 'Classification of Subsurface Utility Information (SUI)'. This is a component of Subsurface Utility Engineering (SUE).
- Focus of AS 5488 is the survey and depiction of underground utilities. It defines 4 Quality Levels (A, B, C or D) depending on accuracy of SUI.
- Released in 2013, however origins are from 2010. A result of stakeholder pressure for a more disciplined approach to location, depiction and co-ordination of subsurface utilities due to frequency of issues arising from ad-hoc nature of industry.

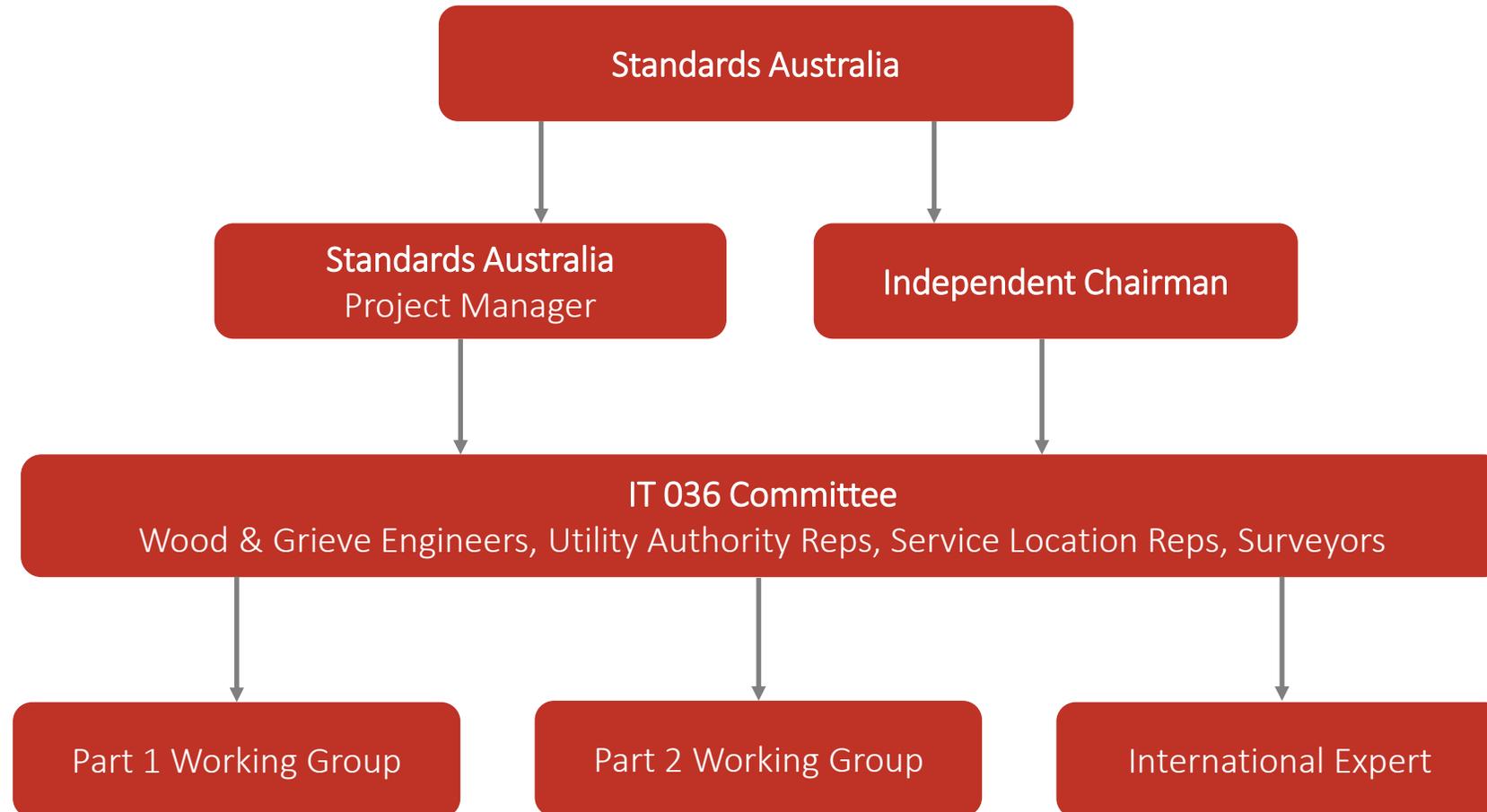


# Why is AS 5488 being upgraded?

- AS 5488 is currently being updated by Standards Australia, along with an industry panel.
- AS 5488 (2013) did not go as far as intended. Covers survey and depiction (SUI), but not management (SUE).
- Limited take-up. Only 26 copies sold by SAI Global in 5 years.
- While AS 5488 (2013) did not quite meet the original brief, it is a good base document.
- Opportunity for AS 5488 to be improved to more accurately 'meet the brief' and cover SUE, not just SUI.



# Standards Australia AS 5488 Committee



# Subsurface utility standards around the world

Standard Name	Country	Year	Key Sponsor	Status
ASCE 38-02	USA	2002	American Society of Civil Engineers	Currently being upgraded
Standard Guideline for Underground Utility Mapping	Malaysia	2006	Malaysian Engineering & Survey Institute	
CSA 250	Canada	2011	Canadian Society of Civil Engineers	
AS 5488	Australia	2013	Cardno, RMS	Currently being upgraded
British Standards Institute PAS 128	UK	2014	Institute of Civil Engineers	Begins review in 2018
Ecuadorian Institute for Standardisation NTE INEN 2873	Ecuador	2015	Ecuadorian Society of Civil Engineering	

# AS 5488 – How do we achieve our original objective?

- Our revised standard needs to:
  - Address SUE;
  - Address the geophysical aspects of utility location;
  - Provide guidance regarding Quality Levels are appropriate in which situation; and
  - Detail training and minimum skill levels for those using AS 5488.
- We need support from National Engineering Organisations (such as Engineers Australia and Austroads) that can provide:
  - National industry leadership; and
  - Continuous industry training
- We need to bring industry (e.g. Telstra, Jemena, Optus, Water Authorities, Roads Authorities etc.) along in the process so that when the revised standard is released, it is embraced by industry.
- We need to appoint a chairman that is well connected across the country, particularly with the Roads and Water Authorities. Nick Zembillas will be offered as the independent Vice Chair.

# What might an upgraded AS 5488 cover?

Without “jumping the gun”, a revised AS 5488 may well include for:

- Several chapters, including for the content currently in AS 5488 (2013), say as Part 1
- Perhaps an augmentation of Part 1 Utility Detection and Mapping
- Part 2 – Utility Model Creation and Data Management
- Part 3 – Utility Co-ordination
- Part 4 – Utility Clash Detection
- Part 5 – Utility Design
- Part 6 – Construction and Asset Handover

# AS 5488 Training

Wood & Grieve Engineers, together with Engineers Australia and Open Learning, have created an on line Subsurface Utility Engineering 101 course.

Time to complete - 8 hours

Cost - \$285

## 3. The Intersection

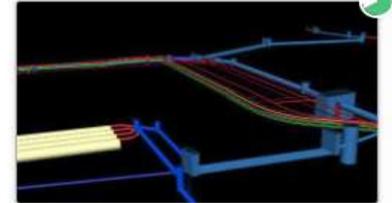
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In The Intersection...



Context



The Design Phase



DBYD Information



The Tree



Signal Loops



Gas Line



Communication Conduits



Unknown Utilities

# What is the timeline for the AS 5488 update?

2018

Ongoing roadshow presentations.  
Commence advanced SUE training  
(led by Engineers Australia)

July - October 2018

Draft upgraded AS5488 released for  
comment.  
WGE wish to nominate IPWEA reps to  
review.

January 2019

AS 5488 released.  
Encourage large road authorities to  
mandate its use.

# Questions?

