SCRATCHING THE SURFACE

The cost of digging a hole on Australian infrastructure projects



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CEO Foreword: the true cost of digging a hole in Australia

In modern Australian civil works, a simple two-metre trench is never just a two-metre trench. A single nick on an unmapped optical fibre or gas main can ultimately bankrupt a contractor.

While the public only sees an excavator moving dirt, the industry sees a complex web of identifying buried assets with high safety and legal risk, bureaucratic delays and skyrocketing overheads.

The hugely fragmented regulatory landscape, characterised by largely voluntary asset registration forces contractors to frequently rely on outdated, unverified or incomplete utility plans. They are not necessarily complaining about costs. They are asking regulators and asset owners to understand the compounding pressures on delivery, and to act.

How big is the cost to dig issue?

Over 3,400 construction and civil contracting firms enter external administration each year - representing nearly 25% of all commercial collapses across Australia[1].

This high failure rate is driven by a systemic "profitless boom", with contractors trapped in rigid, fixed price or lump sum contracts signed months or years before project start.

With little or no flexibility on pricing and project costs, even a single strike against a buried utility asset can cost them more than just the basic repair bill with incurred time delay penalties, reputational damage and stand down periods – that is just the reality.

Avoiding utility strikes is where the enormous time and cost efforts come into play with the planning and preparation to make sure it is safe to dig.

Economic modelling released by Before You Dig Australia in 2024[2] revealed just how unsustainable the cost of digging a hole can be **when utilities are damaged during excavation.**

Striking an asset, such as a high-voltage conduit or a fibre-optic main, triggers an immediate site lockdown, mandatory regulatory investigations and painstaking forensic isolation. For a business operating under a tight fixed-price contract, these sudden, weeks-long delays result in massive, liquidated damages and idle machinery costs that rapidly burn up remaining cash reserves.

If an asset owner proves a contractor failed to take "reasonable steps" such as bypassing a mandatory BYDA enquiry or ignoring a private locator's warning scan, the contractor can face massive direct liability claims.

This report explores why the not so simple act of digging has become one of the most financially fraught operations in the Australian economy. I invite your feedback on the case studies and qualitative analysis in the following pages.



Mell Greenall
CEO
Before You Dig Australia

1 ConstructionInsolvenciesFallforFirstTimein5Years|The Good Builder

2 https://www.byda.com.au/wp-content/uploads/2026/02/BYDA-Economic-Assessment-of-Utility-Strikes-in-Australia-2024.pdf



BUREAUCRATIC UNDERGROUND

Before the bucket hits the soil

The massive time sink required for pre-construction compliance is just the beginning. Contractors must factor in:

- Moving beyond standard BYDA searches to actual utility engagement.
- The variance in response times and requirements between different asset owners (e.g., Telco, Gas, Electricity, Water, LGAs).

Utility coordination across Australia varies significantly because civil engineering, asset management and spatial mapping standards are dictated by individual state legislation, local councils and fragmented market ownership structures.

In many cases, the maps and drawings provided by utility owners can be archaic, inaccurate and complicated to interpret.

While national standards such AS 5488 (Classification of Subsurface Utility Information)[3] provide an overarching baseline, how they are enforced and executed differs from state to state.

The need for potholing to physically verify services is on the rise and comes at an enormous cost.

This is because "as-built" plans are often not made available and the drawings provided are notoriously inaccurate, meaning that often the exploratory work is far more exorbitant than it ought to be.

> *Considering a variety of case studies, pre-excavation exploratory works to locate, pothole and physically verify asset locations often exceed $10,000!*

As a result, engaging skilled locators early in the process is a crucial step, helping to mitigate this risk by accurately tracing hidden infrastructure to optimise targeted potholing and reduce unnecessary dry or hydro-vacuum excavation costs.

In the design phase, engineers also struggle with imperfect geotechnical data, undocumented utilities, and water table management, which can lead to inadequate shoring selections and inaccurate project budgeting.

3 AS 5488.1:2022 - Standards Australia

As the project moves into procurement and pre-construction, the focus shifts to securing complex regulatory permits, completing mandatory adjacent building dilapidation reports, and planning the logistics of hauling vast volumes of spoil through congested urban areas.

When the bucket hits the soil

Once execution begins, teams face real-time operational risks such as striking hidden contaminants or live utility mains, mitigating environmental challenges, and implementing engineering controls to manage ground movement or cave-ins until the permanent structure is secured.

Across a project lifecycle, excavation challenges evolve from managing subsurface uncertainty during design to controlling dynamic physical hazards during execution.



Table 1 - Figures typical of required line items pre-excavation

	Description	Tasks	Time	Time (hrs)	Cost	Man hours	
	Planning	BYDA request, resources, permits, methodology, safety	3 weeks	150	**$3,000**	30	
	Physical works^^	Site set-up, traffic control, locating, sawcut, pothole (not-destructive digging), survey, backfill, reinstate, handover and demobilisation	1 day	10	**$11,000 ****	70	
	Closeout	Processing, quality control, modelling, combined utility drawing, utility report	3 days	30	**$1,000**	10	
					$15,000		

** Night shift plus 30%
** Does not include standby costs from utility authorities nor specialised tasks or equipment such as GPR, excavator, CCTV, jetting

^^Physical works can range anywhere between $8,000 and $20,000 depending on scope and environment. $11,000 is a conservative average. Further, accepting that ~80% of the work goes into the mobilisation itself, conducting multiple potholes (e.g. four-to-five) in one shift would not be expected to alter the price by much, compared to the same number of potholes across TWO shifts, which would cost double.

CASE STUDY: The cost of safe excavation on water project

One NSW water authority is investing over $30 billion through its long-term capital and operational programs to renew existing assets, boost system capacity and support rapid population growth across Greater Sydney.

Of the many projects being delivered by the authority's delivery partners, one example looks at an upgrade project involving multiple 12-metre pipe sections installed deep underground over a 10km site. With such deep excavations, the safety considerations and engineering controls for trench stability are a complex process.

This project spans across residential streetscape, major road crossings, numerous intersections and a complicated web of overhead powerlines for operators to navigate around. The utility coordination, pre-excavation exploratory works and site safety risks present an enormous challenge.

On one relatively small section of the extensive project, there were multiple differences between the information shown on Quality Level D plans provided by asset owners and where the assets were physically located:

- *A gas service shown entering a corner property from one street was connected from the opposite street.*
- *A gas main located 10 metres from the position shown on the drawing.*
- *Nine electrical conduits shown as a single bank road crossing were spread more than two metres apart.*
- *A telco road crossing shown on the plan and marked at the kerb was several metres from the physical location identified on site.*
- *A fibre optic cable servicing a data centre was shown on the plans to be on one side of the road but in reality, was more than 10 metres away on the opposite side.*



These discrepancies are not criticism of utility plans or the locating process. Rather, they demonstrate why skilled locating, potholing and verification **are essential to safe excavation**.

A conservative estimate for the cost to dig to each 12-metre section to do the upgrade quickly adds up to more than $50,000 after factoring in on-site safety requirements, planning, design, plant and machinery, labour costs, the pre-excavation works, full-time onsite utility locating, surveying, traffic control and waste disposal (other line items such as back-office functions not factored into this estimate).



Cost to dig over this 10km site:
833 sections (12m) x *$50k* =
$41.6 million

$4k per metre!

This case study highlights the challenges of large-scale utility installations and the enormous cost. It also assumes no utility assets are inadvertently impacted on the way.



LABOUR, PLANT AND THE CLOCK

In Australia's civil construction sector, project delivery is measured by the minute. The operational burn rate, which is the total ongoing expenditure required to keep a site functioning, remains elevated[4].

Balancing regulations with volatile market conditions means modern projects operate on knife edge margins. When a site stalls, the financial bleeding is instantaneous and rapidly erodes profit margins.

Understanding the primary drivers of this burn rate is essential for contractors looking to protect their bottom line and keep Australia's construction moving.

Labour remains the largest line item on any civil budget. Worker protections guarantee wages and time-off, and Australia wide shortages[5][6] of skilled and specialist operators can keep wages high.

The mechanical footprint of a standard civil site represents another massive financial commitment that drains cash during downtime. Large tonnage excavators, complex shoring systems, and non-destructive digging vacuum trucks carry exorbitant daily hire fees.

When work is halted due to delays in identifying assets, getting permits, near-misses or even striking assets, these labour costs become costly bottlenecks. For example:

- When unknown services are encountered, work stops to perform additional utility location exploratory works. While the mandatory investigation takes place, the entire crew remains on the payroll while generating zero progress.
- A civil crew can be brought to a standstill for hours waiting for a utility representative to inspect an alignment and sign off on a permit. This can range from days to weeks of waiting even for a minor task.

These heavy assets incur costs regardless of whether they are moving earth or sitting idle. Effective coordination and cooperation are needed at all levels. When compliance delays or poor scheduling halt a site, the financial impact of under-utilised plant often rivals or exceeds the wasted labour spend.

Utility damage by equipment

(%age of total available data since 2023):

Excavator	47.83%	$6.357 billion
Shovel	10.74%	$1.429 billion
Auger	3.15%	$408 million

4 Producer Price Indexes, Australia, June 2026 | Australian Bureau of Statistics

5 https://www.civilcontractors.com/infrastructure-report-sounds-the-alarm-on-skills-shortage/

6 https://www.ccfvic.com.au/wp-content/uploads/2023/09/CCF-Industry-Capacity-Constraints-Whitepaper-FINAL.pdf

Summary

This report does not claim to identify one single point-of-truth cost behind digging a hole. Naturally, there are many variables, and no two project sites are the same.

What is evident, however, is the fact that infrastructure construction in Australia is already a costly undertaking - well before any contractor drops into the trench to deliver the actual construction or maintenance works program.

Accounting for the numerous pre-excavation planning requirements – beginning with the free Before You Dig Australia referral service, permits and methodologies, site set-up, traffic control, locator services, sawcut, pothole and survey – the cost of a single pothole or cubic metre hole at one site easily reaches several thousand dollars.

All of that before the full excavation, backfill and reinstatement, involving several hundred work hours.

But if a utility service is struck – and they are struck, with great frequency – then the costs to the contractor, the utility and potentially the end client jumps significantly depending on the type of service struck and to what extent.

Add in the step of the utility recovering the cost of damage repairs from the the contractor or the end consumer (through their utility bills) and the high likelihood of the contractor claiming on their insurance, driving premiums higher, and the cost equation escalates.

It begs the question: how much longer can industry and the Australian community tolerate such out-of-control costs – and what will it take for government and regulators to step up and collaborate with industry on solutions?

The structural issues in the construction sector have been known for some time. Shifting the entire burden of unmapped utilities and volatile geologies onto the crew digging a hole is no longer a viable commercial strategy.



Call to action

To build a sustainable future, every stakeholder across the infrastructure ecosystem must accept their share of the risk:

- Utility safety expectations should be standardised nationwide through regulatory reform.
- Asset owners need to take greater responsibility for the accuracy of legacy data and look toward a digital solution and spatial technology.
- Clients must abandon the flawed "lowest cost wins" procurement mindset and transition toward collaborative alliance contracts and risk-sharing frameworks that protect the delivery team.
- The private sector can play a central role in transforming utility safety from a reactive compliance exercise into a proactive, data-driven partnership. By focusing on joint innovation and data accessability, private contractors and technology firms can significantly reduce service strikes across Australia.

By leveraging the collective effort across all stakeholders and adopting technology solutions, this work can and will be amplified improving safety and reducing risk.

What do you think?
Do you agree with the findings in this report? Or do you have evidence and case studies of your own to share?

- Give us your feedback by emailing advocacy@byda.com.au
- Share your experience or case study.
- Forward this report to a client, colleague or an industry peer!

At Before You Dig Australia, tackling the soaring numbers of underground and overhead utility service strikes and escalating costs of excavation damage are what drive the development and testing of our new *BYDA Digital Utility Portal, 'BDUP'.*

Ahead of a national rollout of BDUP in 2027, visit: https://www.byda.com.au/about/advocacy/byda-digital-utility-portal/

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Contact:

Mell Greenall
Chief Executive Officer
0407 166 706
mell.greenall@byda.com.au

Simon Mossman
Head of Insight, Research and Advocacy
0417 064 104
simon.mossman@byda.com.au

In the spirit of reconciliation BYDA acknowledges the Traditional Custodians of Country throughout Australia and their connections to land, sea and community. We pay our respect to their elders past and present and extend that respect to all Aboriginal and Torres Strait islander peoples.

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P 03 8877 6600
W byda.com.au

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