

# Water Monitoring Strategy for Coal Basins in NSW – Gunnedah Basin

Narrabri CCC - 29 November 2018

# Purpose of this presentation

- Project Update – Done so far...
- Plumb Road Update
- Project Forward Planning
- Site Selection

# Recap

- Chief Scientist and Engineer
- Community desire for government monitoring
- NSW Gas Plan
- \$22.8 million new bores by June 2020
- Data shared with the community
- Establishment of baseline – water quality and water levels

## Coal Basin Water Monitoring

**1** Clarence Moreton Basin

**2** Gunnedah Basin

**3** Western Coalfield (North)

**4** Hunter

**5** Gloucester Basin

**6** Western Coalfield (South)

**7** Newcastle Coalfield

**8** Camden/Southern Coalfield



# Project Update – Done so far...

- Construction of 3 new monitoring bores Plumb Road (Narrabri)
- Drilling and bore construction occurring Southern Coalfield
- Drilling tender Hunter awarded – drilling commencing December 2018
- Gunnedah REF complete. Tender called in December. Drilling to commence first half 2019
- Site selected Western Coalfield and Gloucester and environmental assessments commenced

# Done so far - Gunnedah Basin

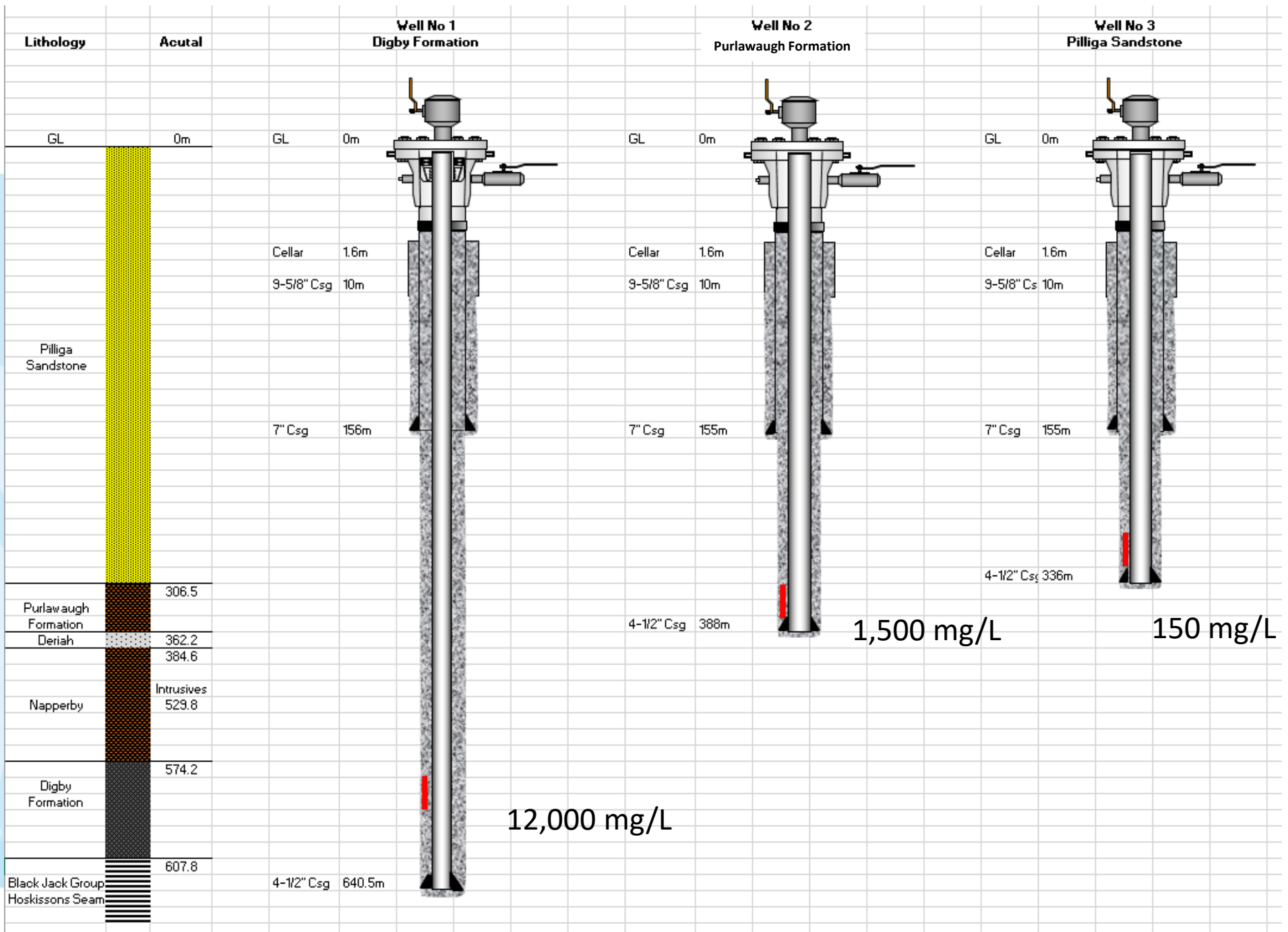
- National Partnership Agreement - 2014
  - Spring Ridge x 2
  - Mary's Mount x 2
- Controlled Allocation – 2015
  - Shell
  - Scratch Road x 2
  - Old Gunnedah Road
- BHP Caroonna –12 bores at 4 sites acquired
- Plumb Road – 2017
- Sites selected and tendering about to commence

# Plumb Road Bores










# Data Online

← → ↻ 🏠 <https://realtime.data.watersw.com.au> ☆ 🗨️ 🌐



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**State Overview**  
State Overview

**Rivers and Streams**  
favourites · search · download sites · find a site  
Real Time Data - Rivers ...

**Daily River Reports**  
Daily River Reports

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favourites · search · download sites · find a site  
Real Time Data - Major ...

**Groundwater (Telemetered data)**  
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Real Time Data - Bores

**All Groundwater Site details**  
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*Search*  
Enter keywords (site name or number)  
  
search

- All Groundwater Map
  - North Coast Region
  - Hunter Region
  - Greater Sydney Region
  - South Coast Region
  - Northwest Region
  - Central West Region
  - Southwest Region
  - Far West Region
  - Great Artesian Basin
  - Coal Basins
    - Clarence Morton Cs...
    - Gloucester Csg Basin
    - Gunnedah Csg Ba...**
    - Hunter Csg Basin
    - Murray Csg Basin
    - Oaklands Csg Basin
    - Sydney Csg Basin

**Meteorology**  
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bandwidth  high  low

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**All Groundwater Site Details » All Groundwater Map » Coal Basins** [bookmark this page](#)

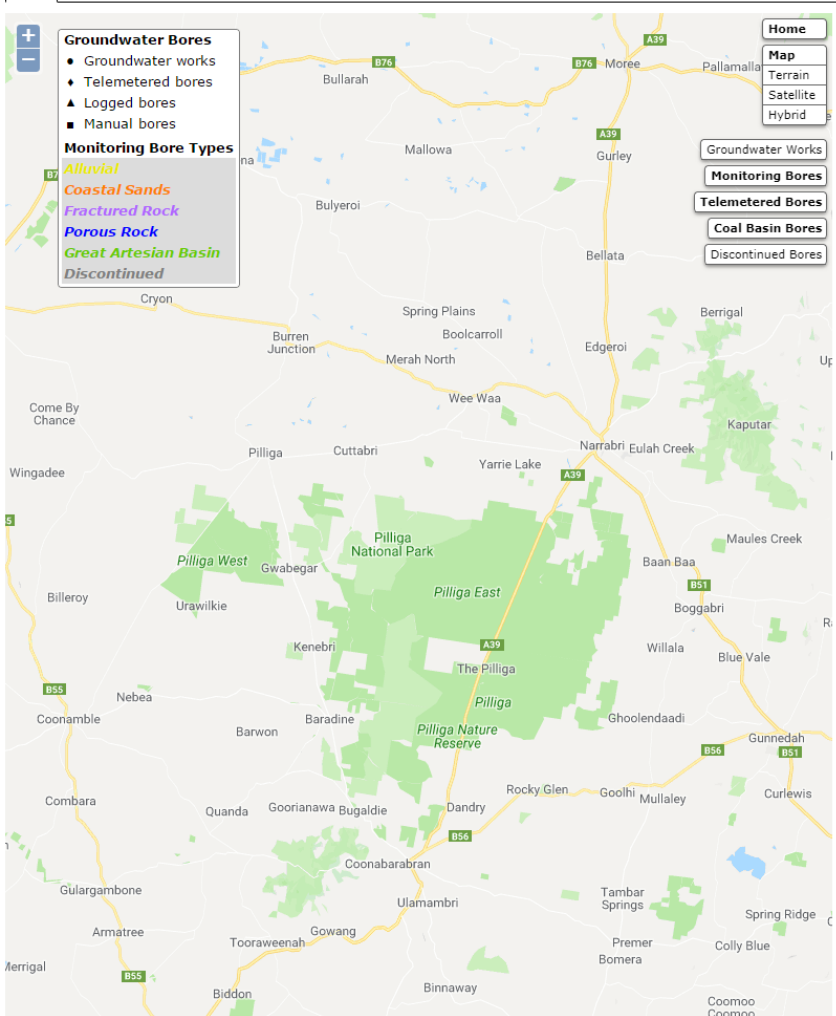
**Gunnedah Csg Basin**  
All data times are Eastern Standard Time

**Map**

- Groundwater Bores**
  - Groundwater works
  - Telemetered bores
  - Logged bores
  - Manual bores
- Monitoring Bore Types**
  - Alluvial
  - Coastal Sands
  - Fractured Rock
  - Porous Rock
  - Great Artesian Basin
  - Discontinued

**Map**  
Home  
Terrain  
Satellite  
Hybrid

Groundwater Works  
Monitoring Bores  
Telemetered Bores  
Coal Basin Bores  
Discontinued Bores



The map displays the Gunnedah Csg Basin area, including locations like Bullarah, Mallowa, Gurley, Bellata, Narrabri, and the Pilliga National Park. It shows various monitoring bores and geological features such as the Pilliga Nature Reserve and the Pilliga National Park. The map includes a legend for Groundwater Bores and Monitoring Bore Types, and a search bar for site details.

# Monitoring Purpose

To establish ***reference condition***\* water quality and quantity and to observe changes.

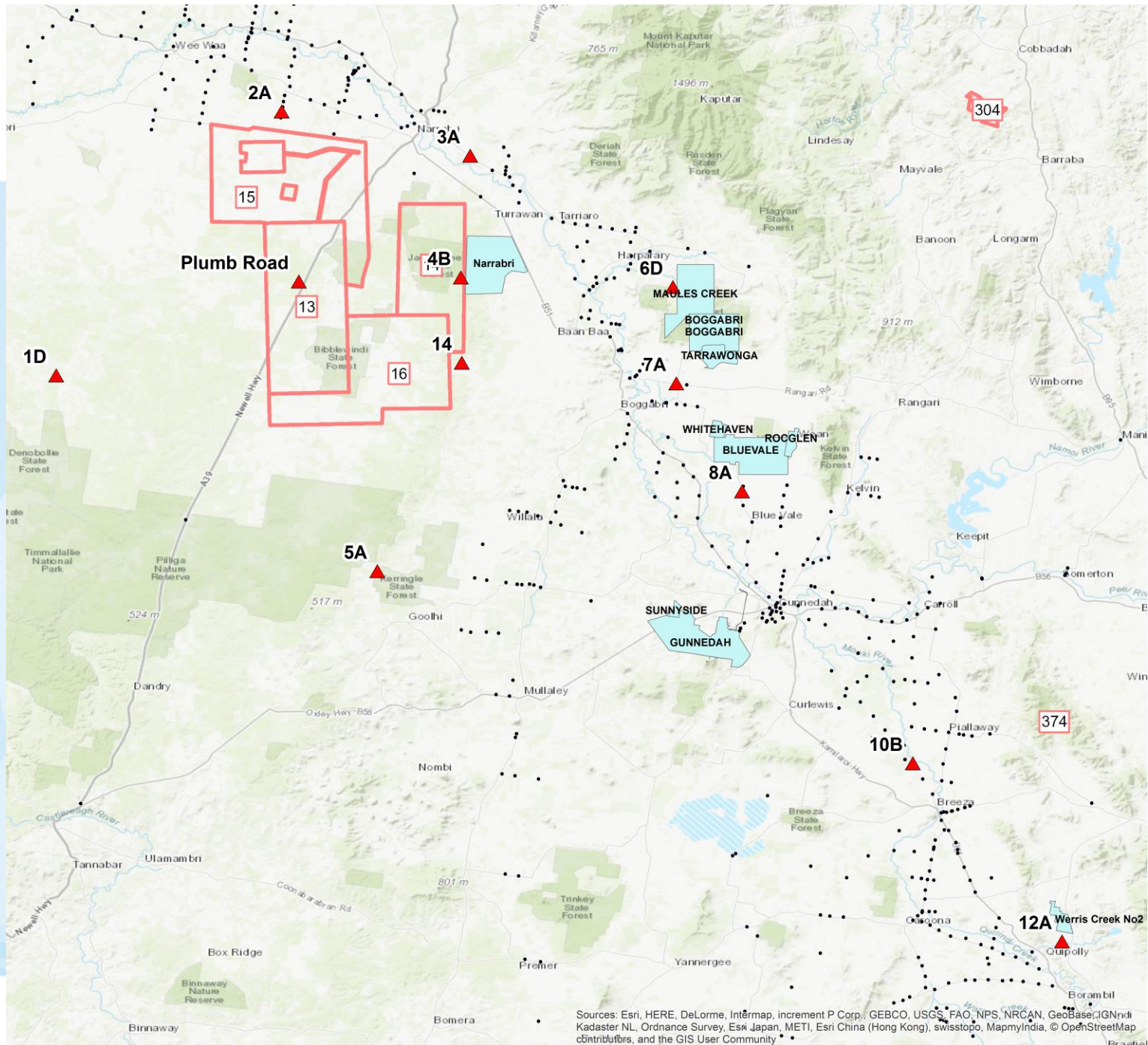
\*An alternative expression is ***baseline***. Here reference condition means the condition found upon its initial observation.

# Site Selection Criteria

- Identifies or confirms the characteristics of strata, aquifers and aquitards
- Fills data gaps
- Complements existing monitoring
- Impacts, pathways and receptors
- Control
- Numerical modelling
- Addresses stakeholder concerns
- Logistics

# Gunnedah Basin Bore Sites

Site No.	Site Name	Bore 1	Bore 2	Bore 3
1D	Pilliga West	190 m	380 m	
2A	Lower Namoi	170 m		
3A	Old Gunnedah Rd	160 m	380 m	
4B	Scratch Rd	120 m	400 m	620 m
5A	Pilliga East	120 m	430 m	540 m
6D	Maules Creek	120 m		
7A	Boggabri Mine	120 m		
8A	Blue Vale Mine	140 m		
10B	Shenhua	120 m		
12A	Werris Creek	65 m	100 m	
14	Pilliga South	90 m	360 m	495 m



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeBCase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

# Narrabri Area Site Summaries

## Pilliga West (1D)

- Monitor any impacts radiating westward from the CSG activities in the Bohena trough
- Napperby/Digby aquiclude
- Pilliga sandstone aquifer – vertical propagation of depressurisation

## Lower Namoi (2A)

- Monitor any impacts radiating northward from the CSG activities in the Bohena trough
- Pilliga Sandstone
- Lower Namoi Alluvium (existing bores)

## Old Gunnedah Road (3A)

- Impacts radiating from Bohena trough CSG activities
- Vertical connection at the northern end of Bohena trough
- Digby-Napperby (above Hoskinson's)
- Pilliga Sandstone (intake beds)
- Upper Namoi alluvium (3 x existing bores)

# Narrabri Area Site Summaries

## Scratch Road (4B)

- Pilliga Sandstone
- Digby/Napperby
- Porcupine Formation
- Vertical propagation of any deep depressurisation

## Pilliga South East (5A)

- Far south of Narrabri Gas Project
- Minimal impacts expected (background)
- Maules Creek Seam
- Hoskinsons Seam
- Pilliga Sandstone

## Pilliga East (14)

- South east corner of gas project – potential impacts
- Maules Creek Seam
- Hoskinsons Seam
- Pilliga Sandstone

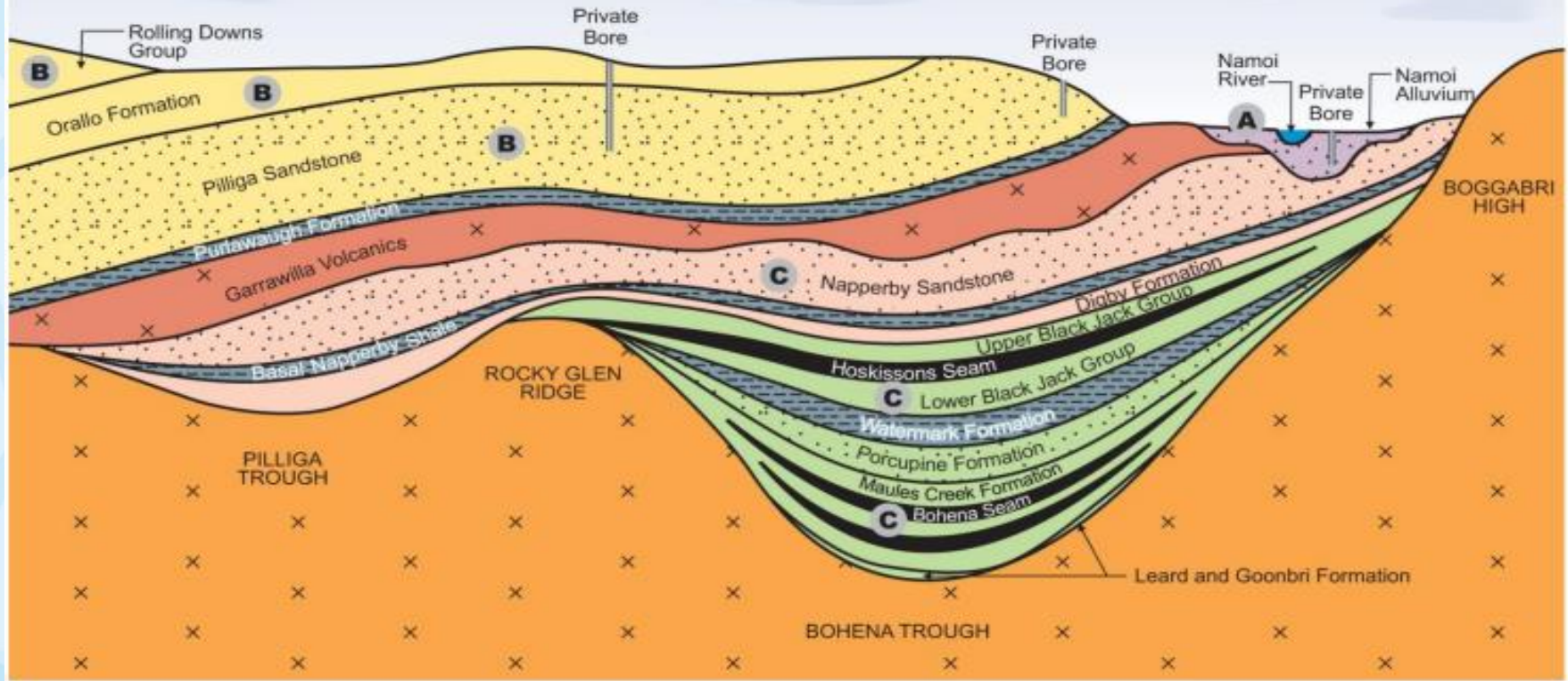


WEST

EAST

LEGEND

-  Coal Seam Targets
-  Impedance to Flow
-  Relatively Transmissive
- A** NSW Upper and Lower Namoi Groundwater Source WSP
- B** NSW GAB Groundwater Source WSP
- C** NSW Murray Darling Basin Porous Rock Groundwater Source WSP



150 kilometres (approx)

750 - 1200 metres (approx)

# Gunnedah Basin - Site Selection, General Issues

Questions?

Discussion...

