

Central-West Orana Renewable Energy Zone Transmission project

Amendment Report

Appendix H: Aboriginal Cultural Heritage Assessment Report Addendum

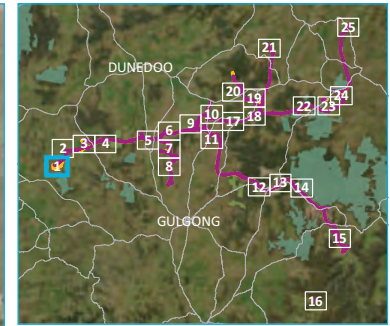
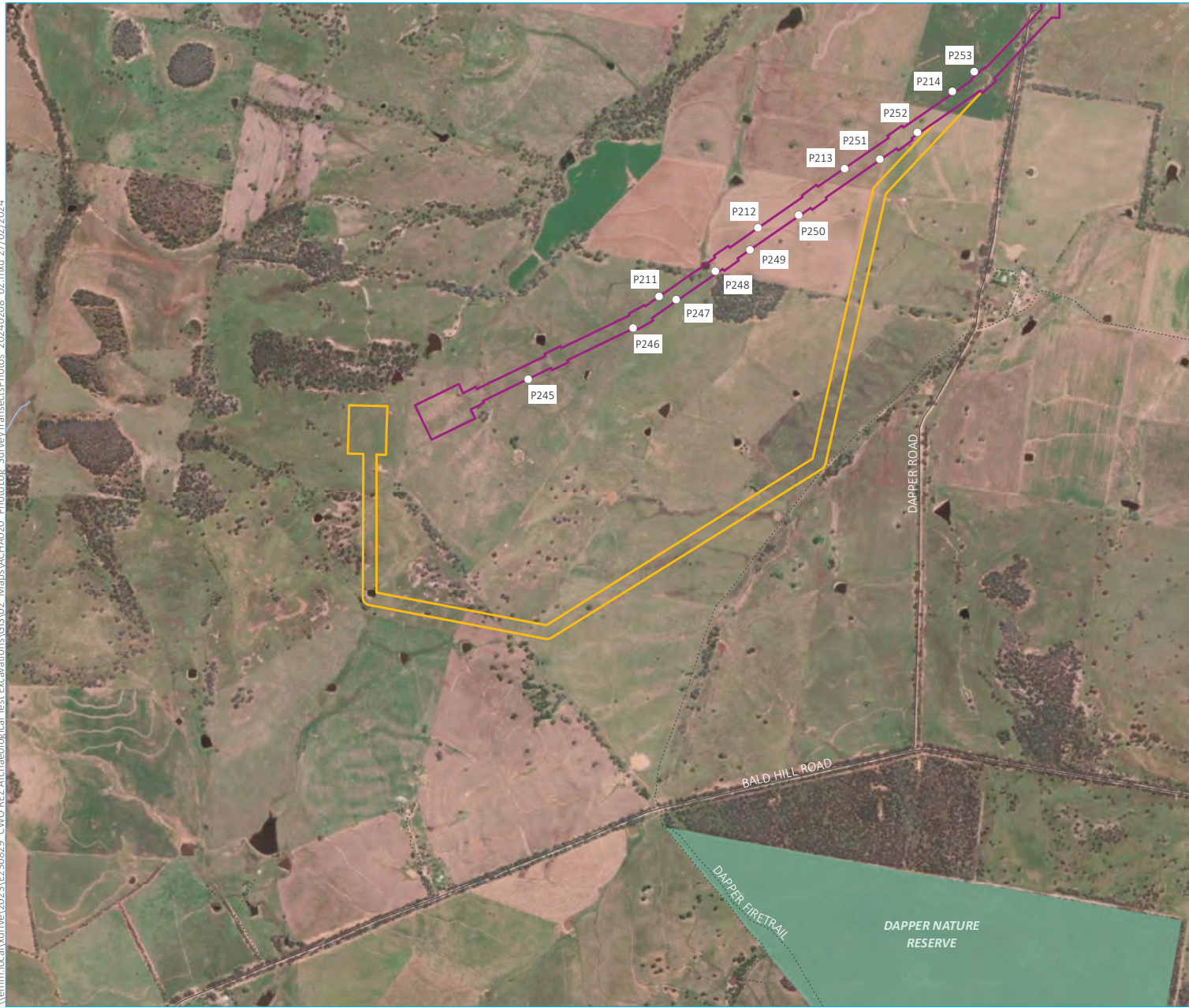
March 2024

www.energyco.nsw.gov.au



D.6 Photograph catalogue (excavation)

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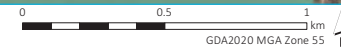
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- Amended construction area
 - Exhibited construction area
 - Survey photo
 - Existing environment
 - Minor road
 - Vehicular track
 - Named watercourse
 - NPWS reserve
- INSET KEY**
- Major road
 - NPWS reserve
 - State forest

Documentation points
Photographic log
Map 1 of 25

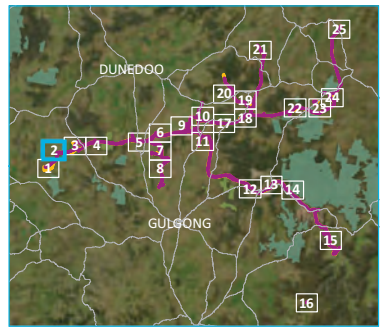
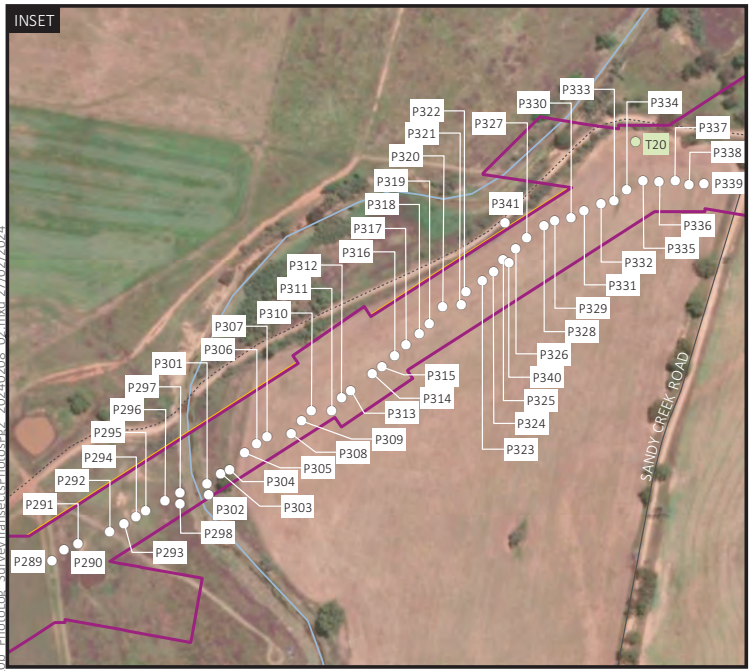
Central West Orana Renewable
Energy Zone transmission
Aboriginal Cultural Heritage Assessment addendum
Figure D.2



Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



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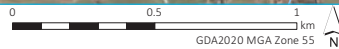


- KEY**
- Amended construction area
 - Exhibited construction area
 - Survey photo
 - Survey transect
- Existing environment**
- Minor road
 - Vehicular track
 - Named watercourse
- INSET KEY**
- Major road
 - NPWS reserve
 - State forest

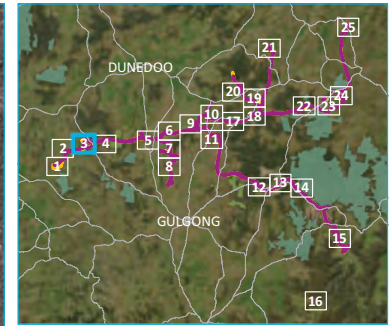
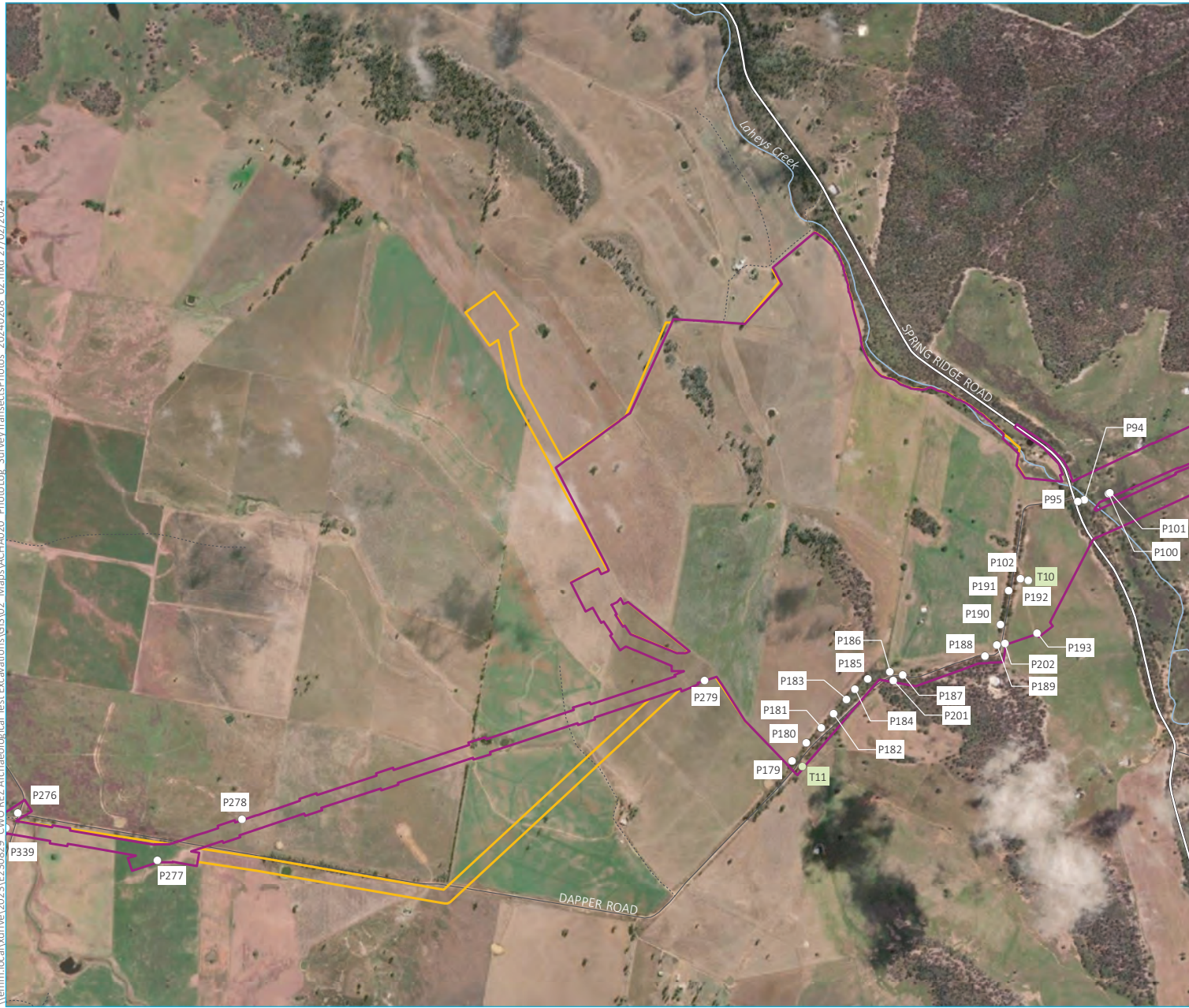
Documentation points
 Photographic log
 Map 2 of 25
 Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2



Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



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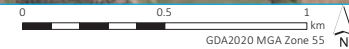


- KEY**
- Amended construction area
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 - Survey photo
 - Survey transect
- Existing environment**
- Major road
 - Minor road
 - Vehicular track
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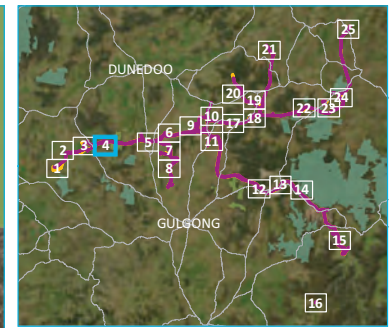
Documentation points
 Photographic log
 Map 3 of 25

Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2

Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



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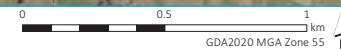
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- Amended construction area
 - Exhibited construction area
 - Survey photo
- Existing environment
- Major road
 - Minor road
 - Vehicular track
 - Named watercourse
 - State forest
- INSET KEY**
- Major road
 - NPWS reserve
 - State forest

Documentation points
Photographic log
Map 4 of 25

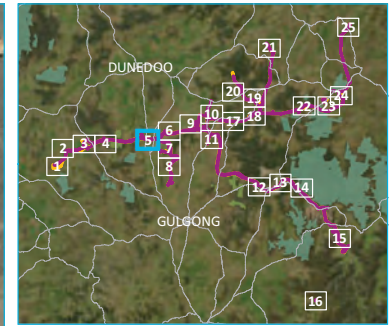
Central West Orana Renewable
Energy Zone transmission
Aboriginal Cultural Heritage Assessment addendum
Figure D.2



Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



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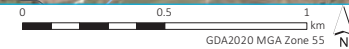
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- Major road
 - Minor road
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Documentation points
 Photographic log
 Map 5 of 25

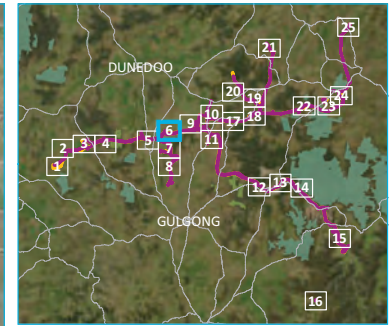
Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2



Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



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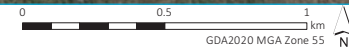


- KEY**
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 - Survey photo
- Existing environment
- Major road
 - Minor road
 - Vehicular track
 - Named watercourse
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 - State forest

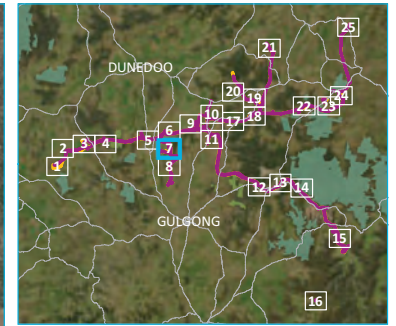
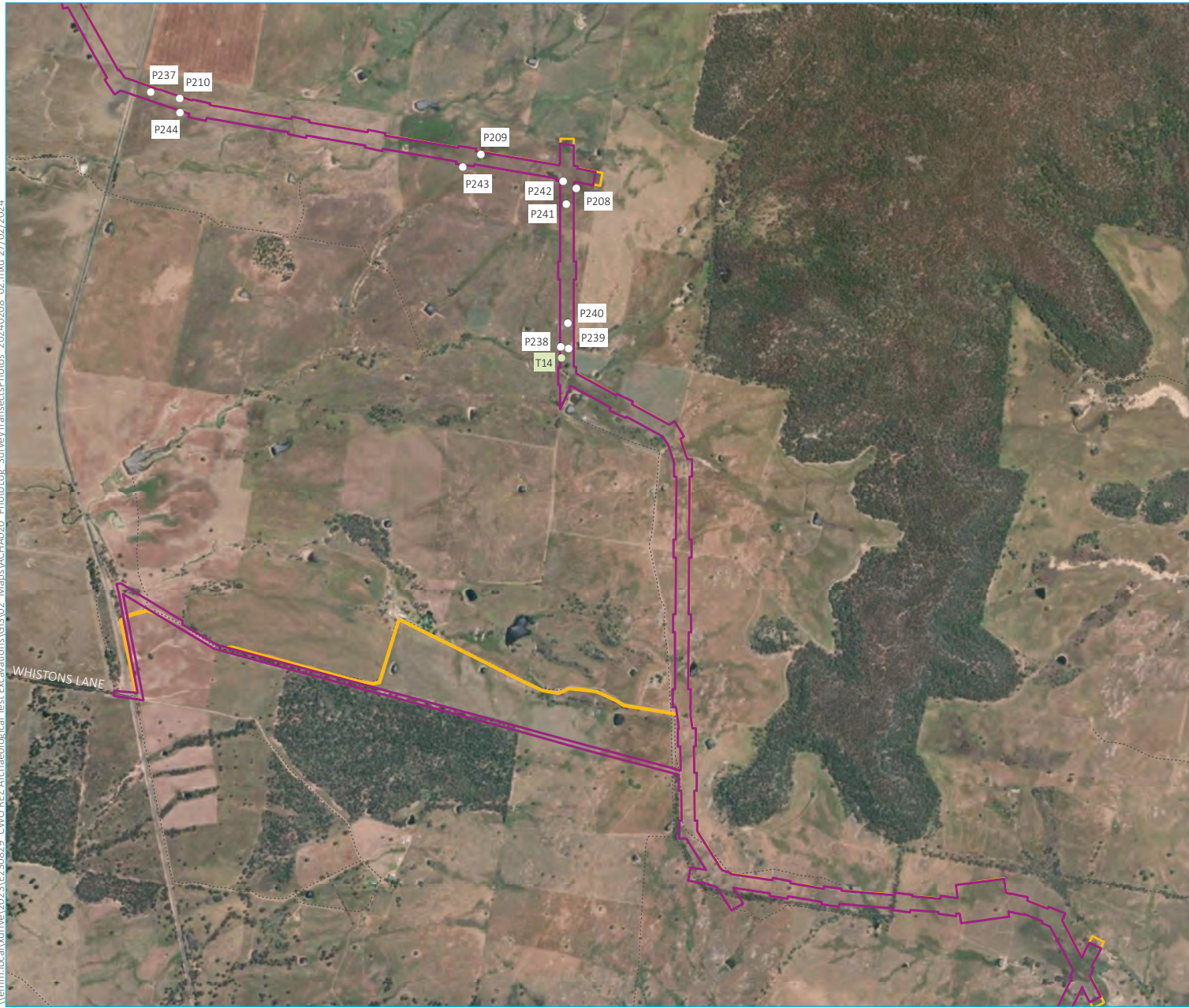
Documentation points
Photographic log
Map 6 of 25

Central West Orana Renewable
Energy Zone transmission
Aboriginal Cultural Heritage Assessment addendum
Figure D.2

Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



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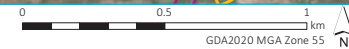
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 - Survey photo
 - Survey transect
- Existing environment
- Minor road
 - Vehicular track
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- Major road
 - NPWS reserve
 - State forest

Documentation points
Photographic log
Map 7 of 25

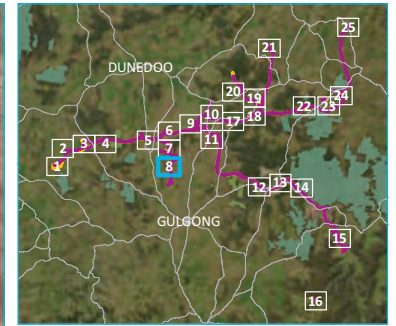
Central West Orana Renewable
Energy Zone transmission
Aboriginal Cultural Heritage Assessment addendum
Figure D.2



Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



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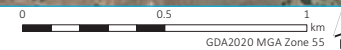
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 - Survey photo
 - Survey transect
- Existing environment**
- Vehicular track
 - Named watercourse
- INSET KEY**
- Major road
 - NPWS reserve
 - State forest

Documentation points
 Photographic log
 Map 8 of 25

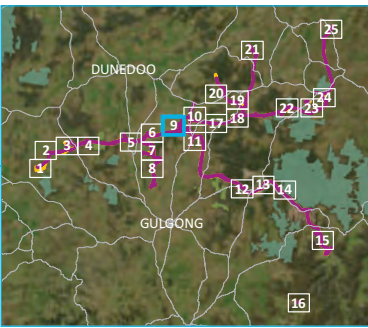
Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2



Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



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- KEY**
- Amended construction area
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Documentation points
Photographic log
Map 9 of 25

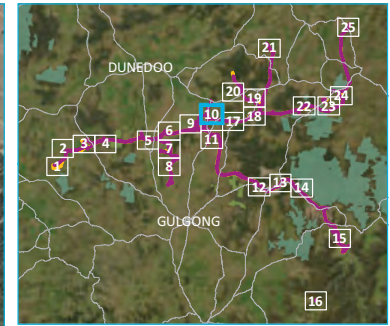
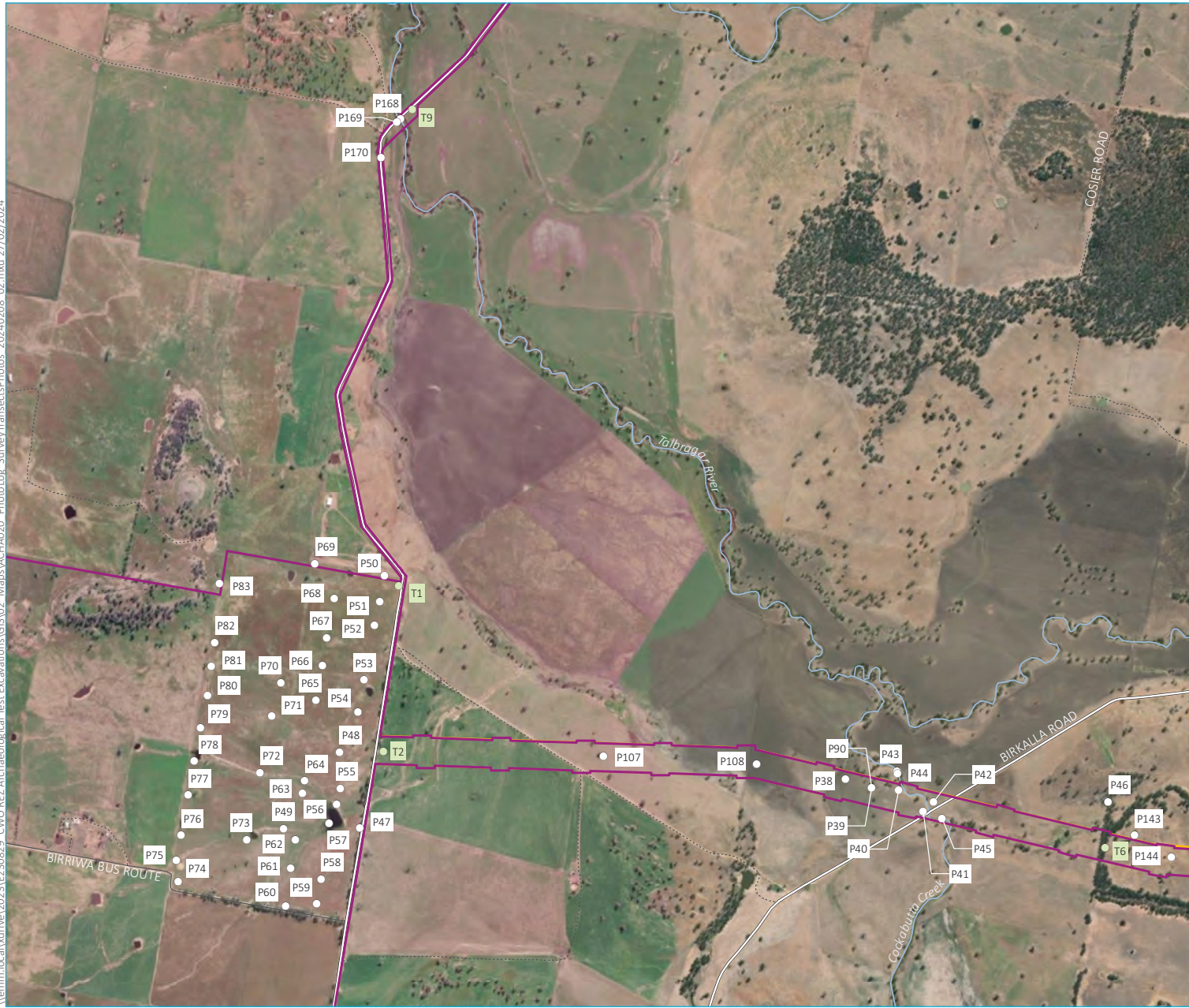
Central West Orana Renewable
Energy Zone transmission
Aboriginal Cultural Heritage Assessment addendum
Figure D.2



Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



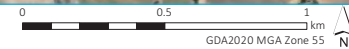
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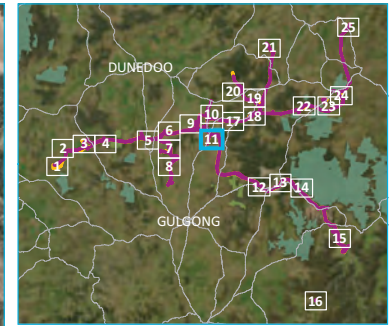
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- Major road
 - Minor road
 - Vehicular track
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Doumentation points
 Photographic log
 Map 10 of 25
 Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2

Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



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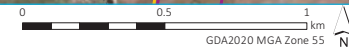
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 - Survey transect
- Existing environment**
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 - Vehicular track
 - Named watercourse
- INSET KEY**
- Major road
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 - State forest

Documentation points
 Photographic log
 Map 11 of 25

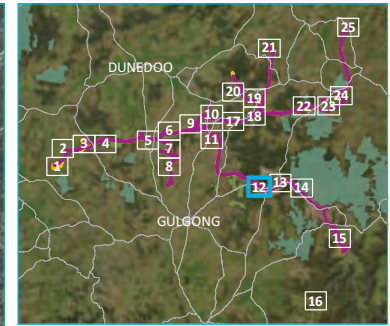
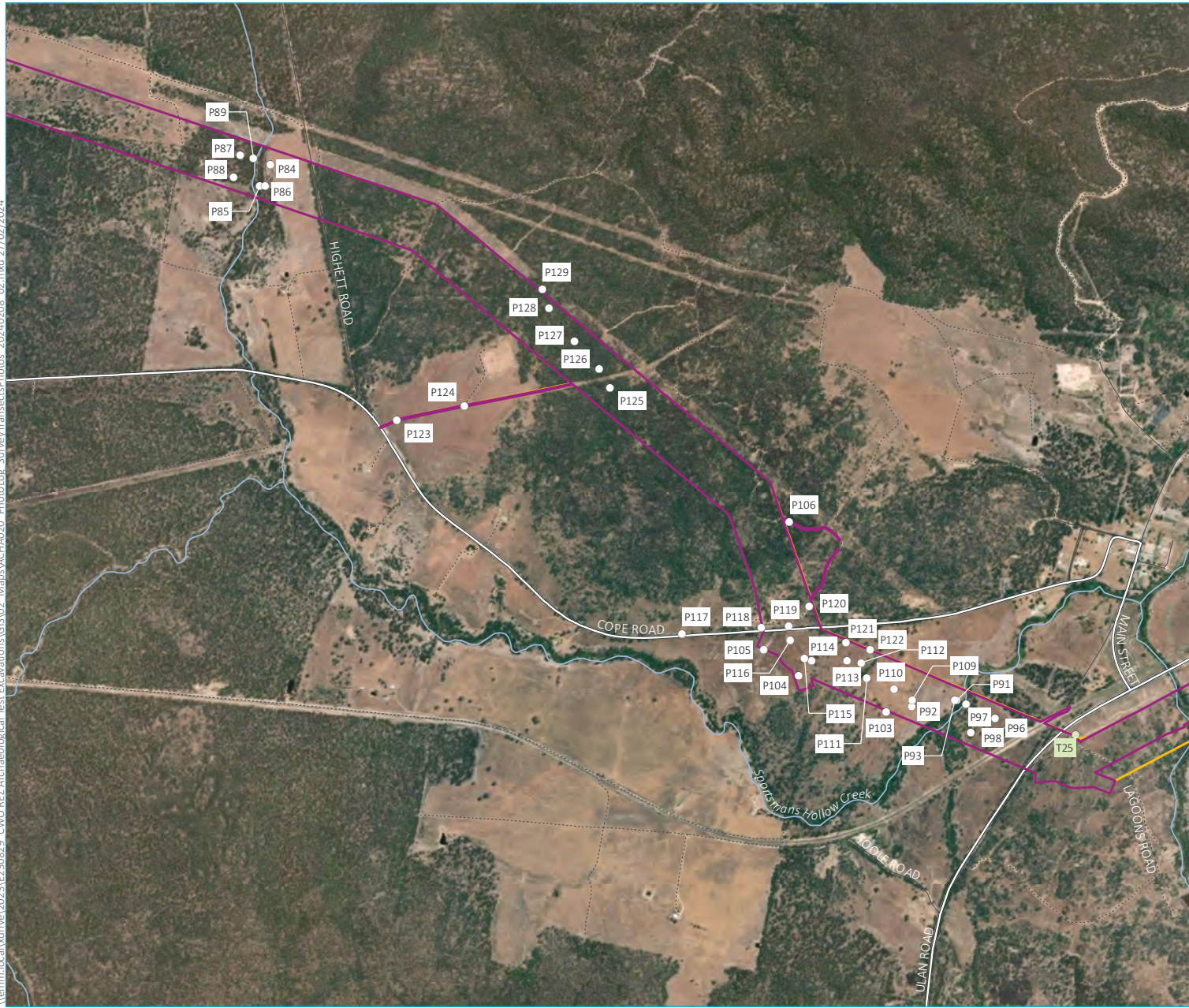
Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2



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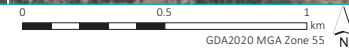
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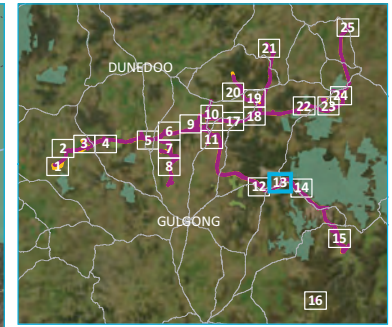
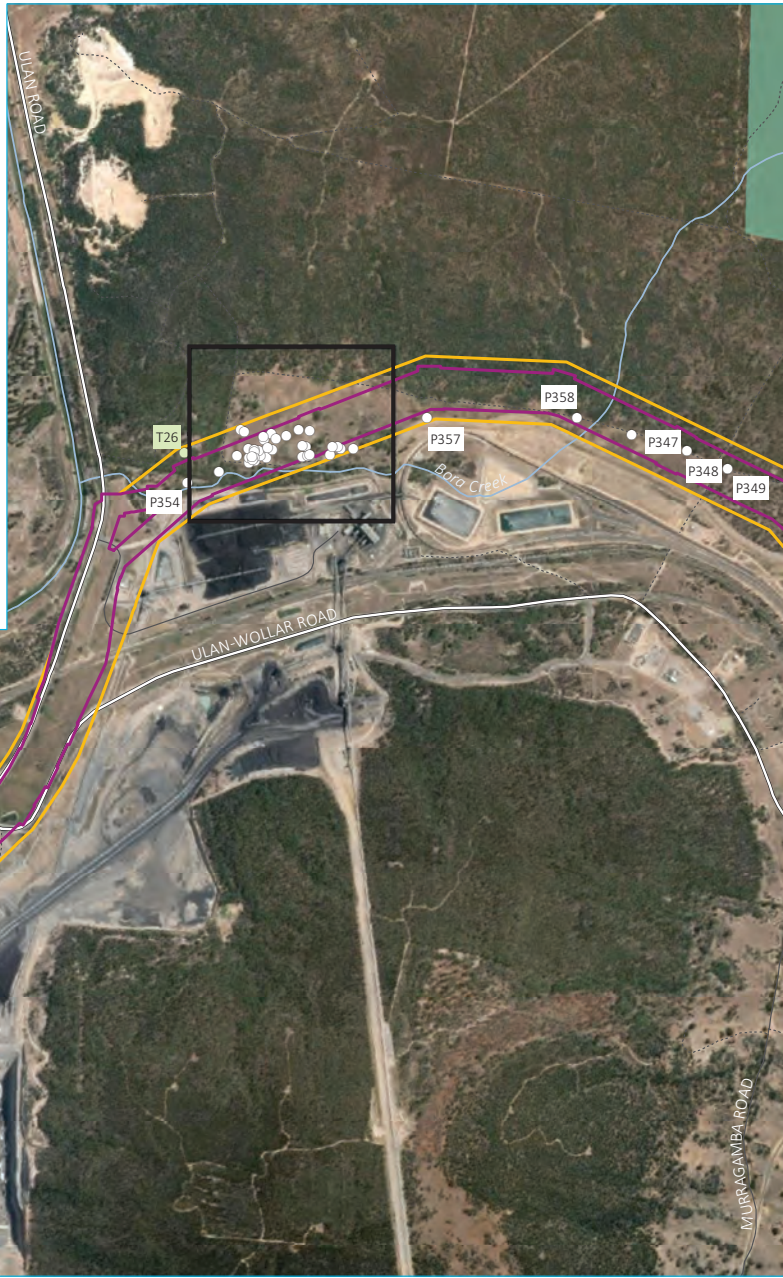
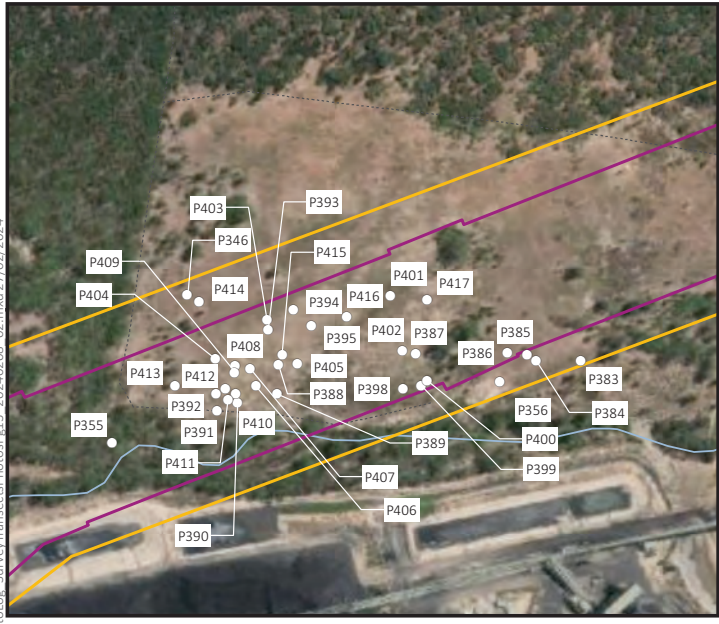
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- Major road
 - Minor road
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 - NPWS reserve
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Documentation points
 Photographic log
 Map 12 of 25
 Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2

Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



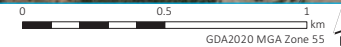
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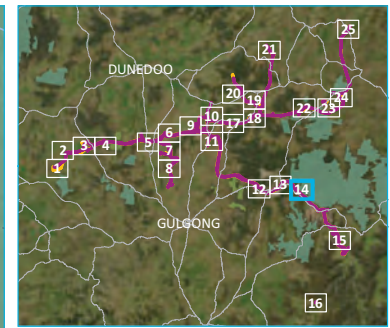
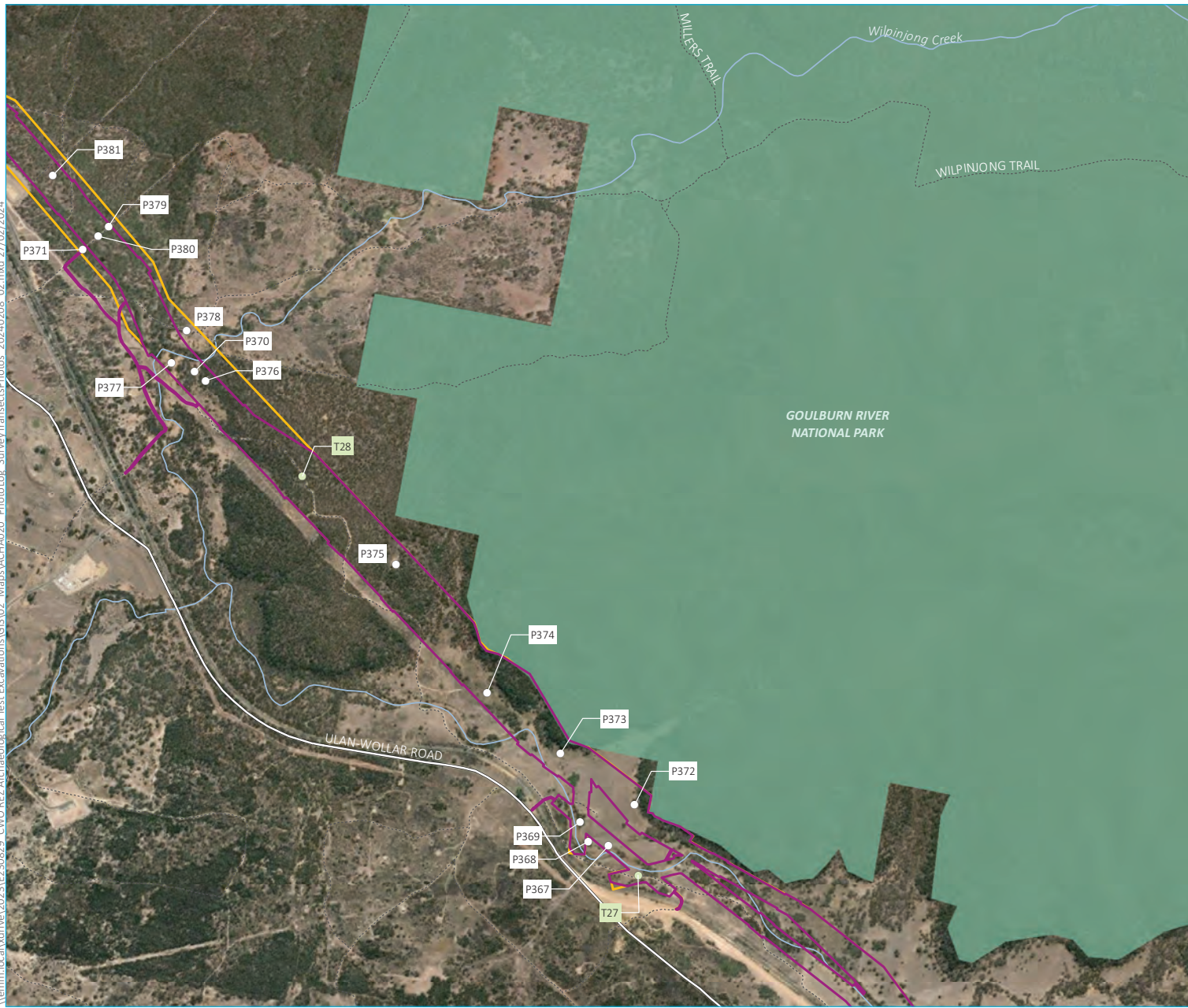
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- Existing environment**
- Major road
 - Minor road
 - Vehicular track
 - Named watercourse
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- Major road
 - NPWS reserve
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Documentation points
 Photographic log
 Map 13 of 25
 Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2

Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



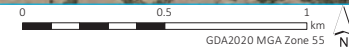
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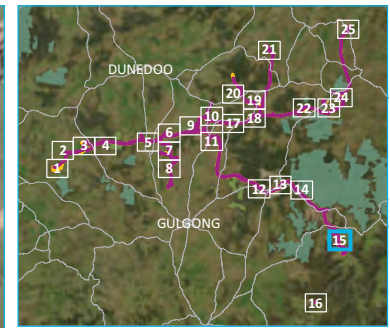
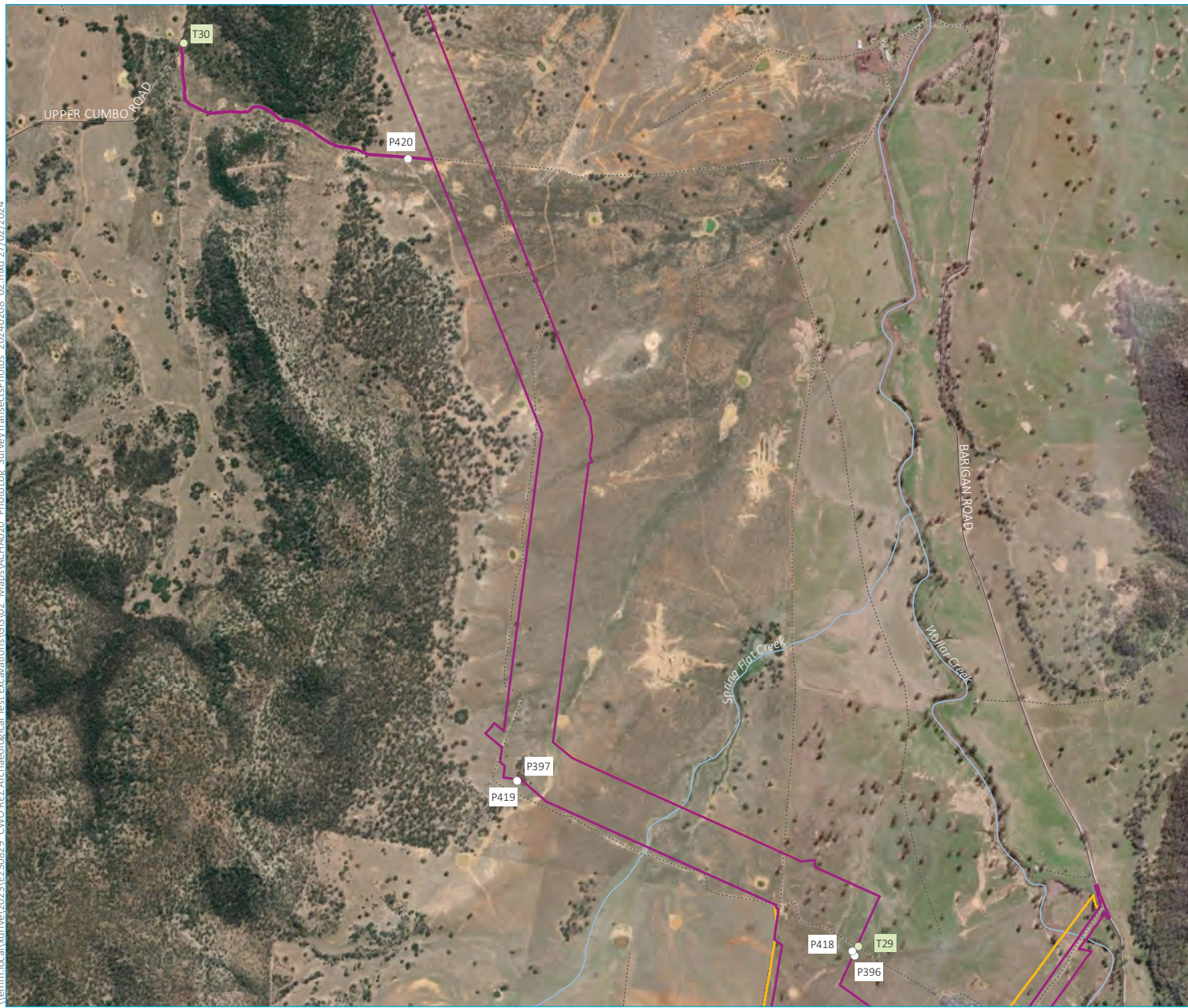
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 - Survey transect
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Documentation points
 Photographic log
 Map 14 of 25
 Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2

Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



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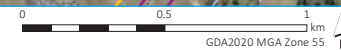
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- Minor road
 - Vehicular track
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- Major road
 - NPWS reserve
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Documentation points
 Photographic log
 Map 15 of 25

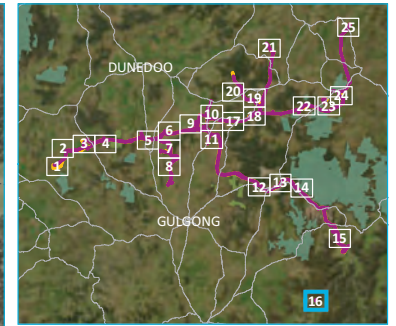
Central West Orana Renewable
 Energy Zone transmission
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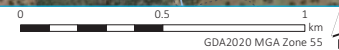
- KEY**
- Amended construction area
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 - Minor road
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- Major road
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Documentation points
 Photographic log
 Map 16 of 25

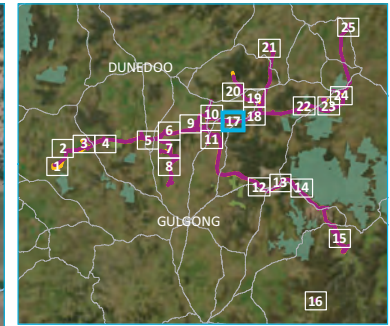
Central West Orana Renewable
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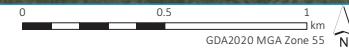


- KEY**
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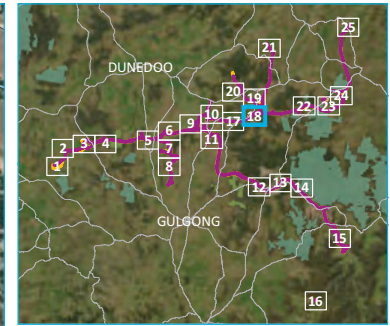
Documentation points
 Photographic log
 Map 17 of 25

Central West Orana Renewable
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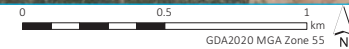


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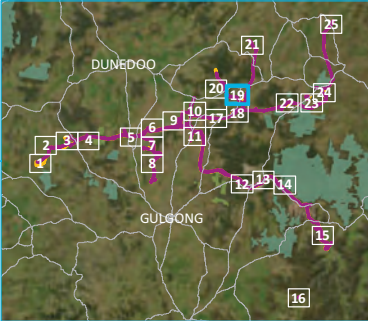
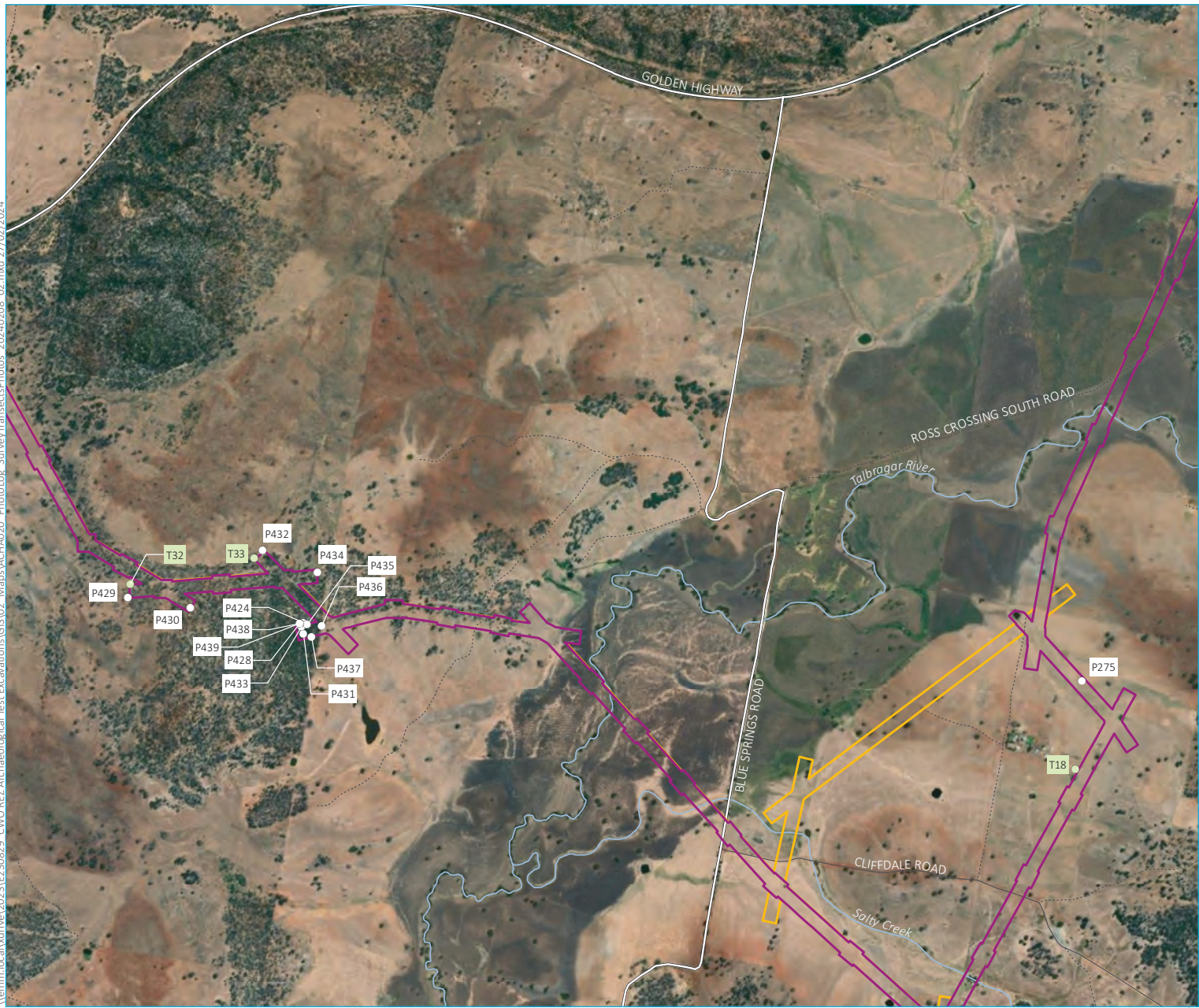
Documentation points
Photographic log
Map 18 of 25

Central West Orana Renewable
Energy Zone transmission
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Figure D.2

Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



\\erm\local\drivel\2023\EP30829_CWO REZ Archaeological Test Excavations\GIS\02_Map\ACHA020_PhotoLog_SurveyTransects\Photos_20240208_02.mxd 27/05/2024



- KEY**
- Amended construction area
 - Exhibited construction area
 - Survey photo
 - Survey transect
- Existing environment**
- Major road
 - Minor road
 - Vehicular track
 - Named watercourse
- INSET KEY**
- Major road
 - NPWS reserve
 - State forest

Documentation points
 Photographic log
 Map 19 of 25

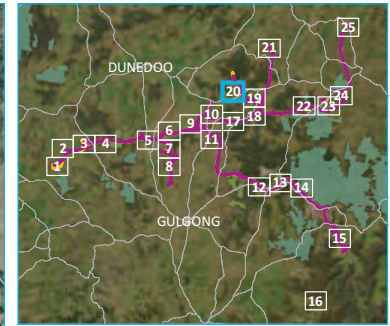
Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2



Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



\\erm\local\drivel\2023\1E230829_CWO REZ Archaeological Test Excavations\GIS\02_Map\ACHA020_PhotoLog_SurveyTransects\Photos_20240208_02.mxd 27/02/2024



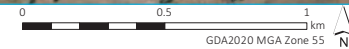
- KEY**
- Amended construction area
 - Exhibited construction area
 - Survey photo
 - Survey transect
- Existing environment**
- Major road
 - Vehicular track
 - Named watercourse
- INSET KEY**
- Major road
 - NPWS reserve
 - State forest

Documentation points
 Photographic log
 Map 20 of 25

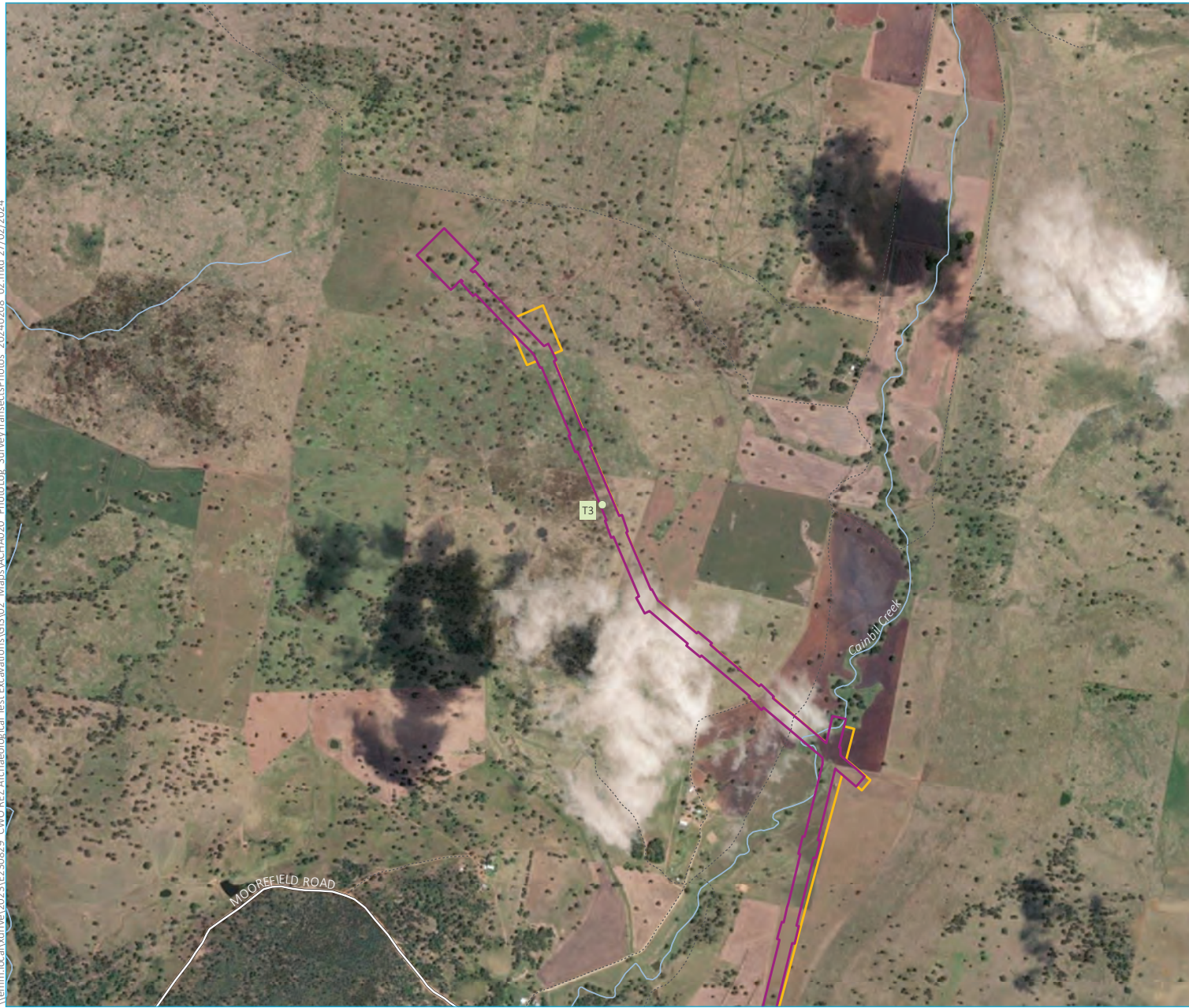
Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2



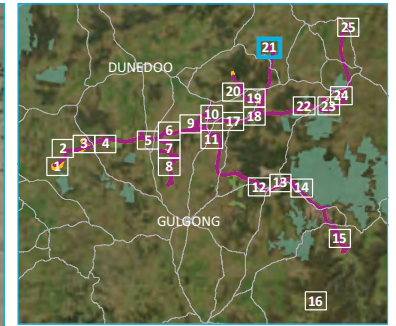
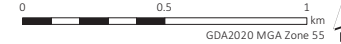
Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



\\verm\local\drive\2023\EP30859_CVO REZ Archaeological Test Excavations\GIS\02_Maps\ACHA020_PhotoLog_SurveyTransectsPhotos_20240208_02.mxd 27/07/2024



Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



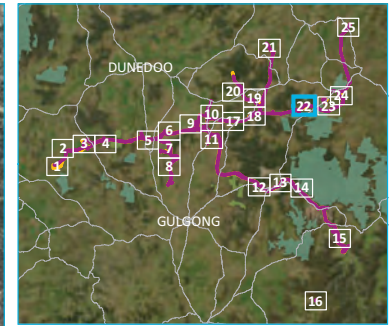
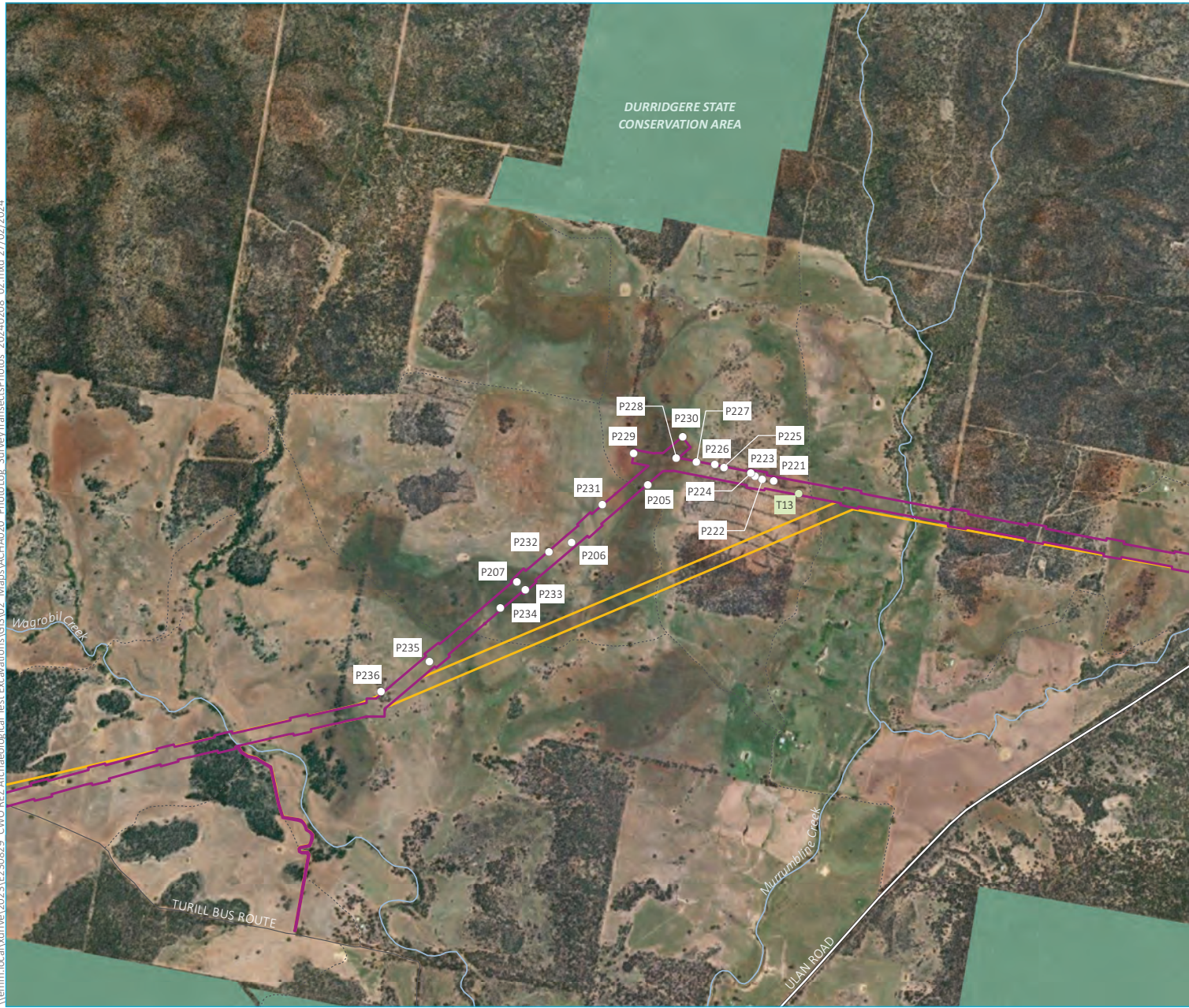
- KEY**
- Amended construction area
 - Exhibited construction area
 - Survey transect
- Existing environment
- Major road
 - Vehicular track
 - Named watercourse
- INSET KEY**
- Major road
 - NPWS reserve
 - State forest

Documentation points
 Photographic log
 Map 21 of 25

Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2



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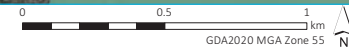
- KEY**
- Amended construction area
 - Exhibited construction area
 - Survey photo
 - Survey transect
- Existing environment**
- Major road
 - Minor road
 - Vehicular track
 - Named watercourse
 - NPWS reserve
- INSET KEY**
- Major road
 - NPWS reserve
 - State forest

Documentation points
 Photographic log
 Map 22 of 25

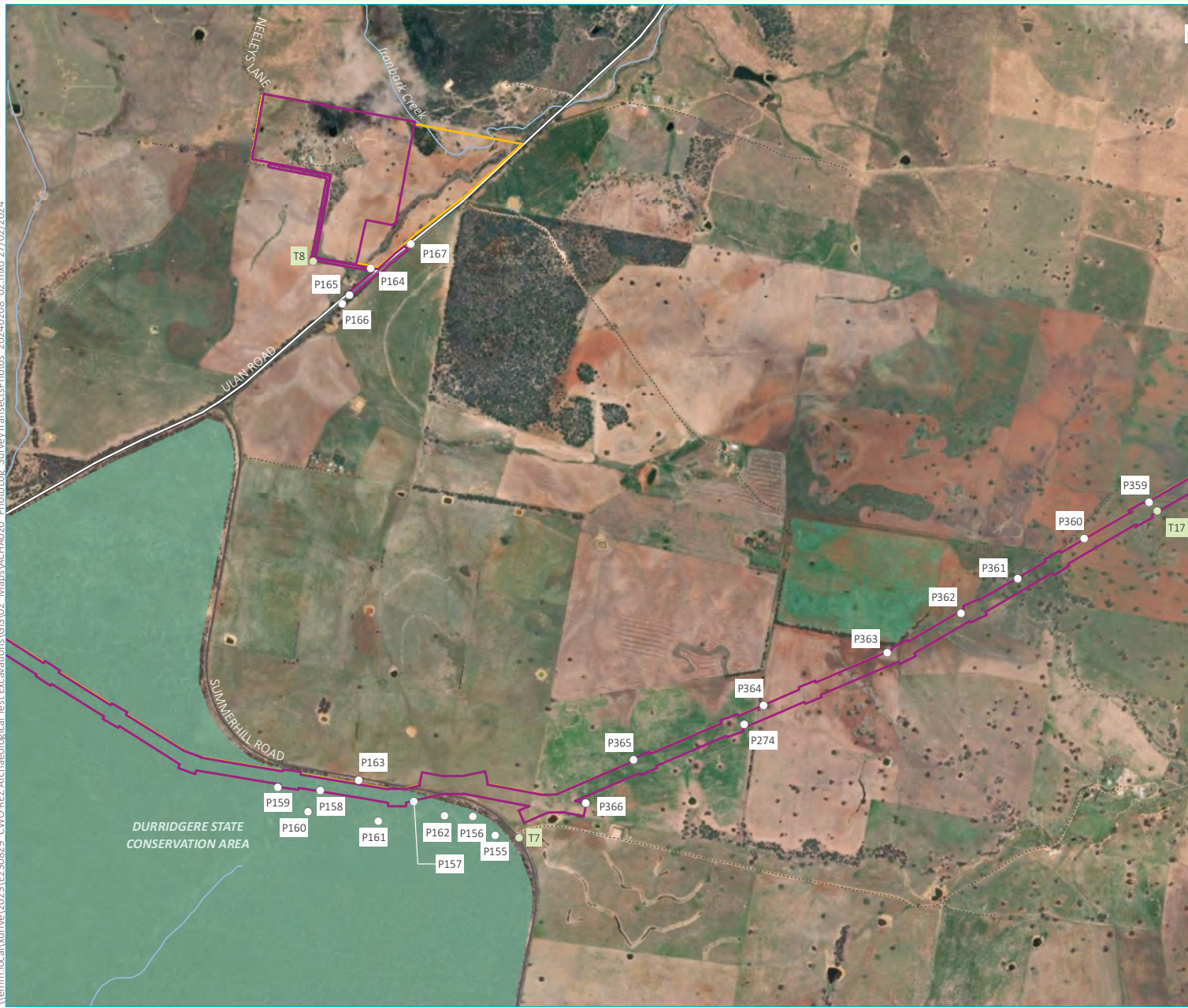
Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2



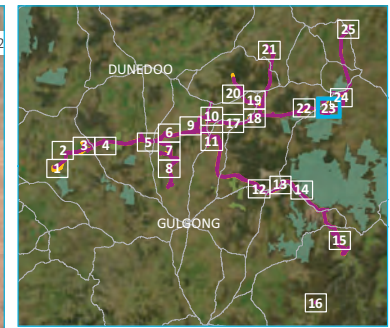
Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



\\emm.local\drive\2023\EP230829_CWO REZ Archaeological Test Excavations\GIS\02_Map\ACHA020_PhotoLog_SurveyTransects\Photos_20240208_02.mxd 27/02/2024



Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)

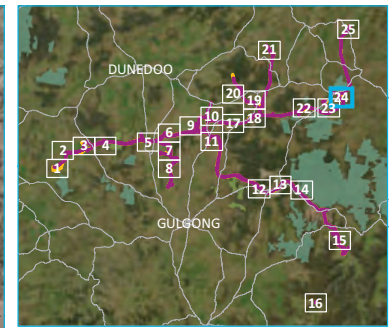
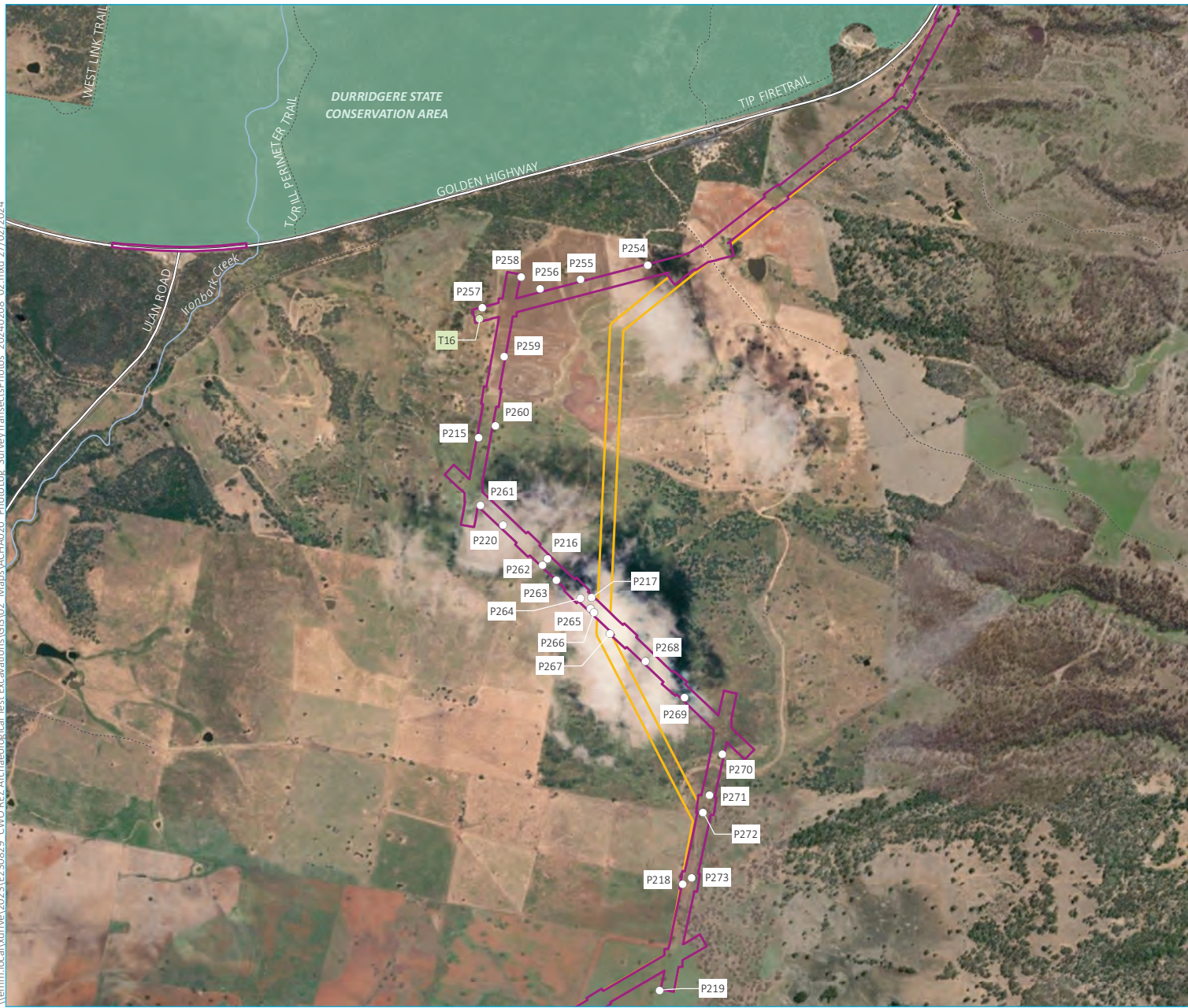


- KEY**
- Amended construction area
 - Exhibited construction area
 - Survey photo
 - Survey transect
- Existing environment**
- Major road
 - Minor road
 - Vehicular track
 - Named watercourse
 - NPWS reserve
- INSET KEY**
- Major road
 - NPWS reserve
 - State forest

Documentation points
 Photographic log
 Map 23 of 25
 Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2



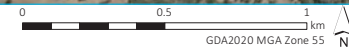
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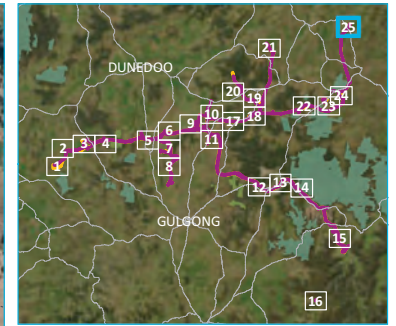
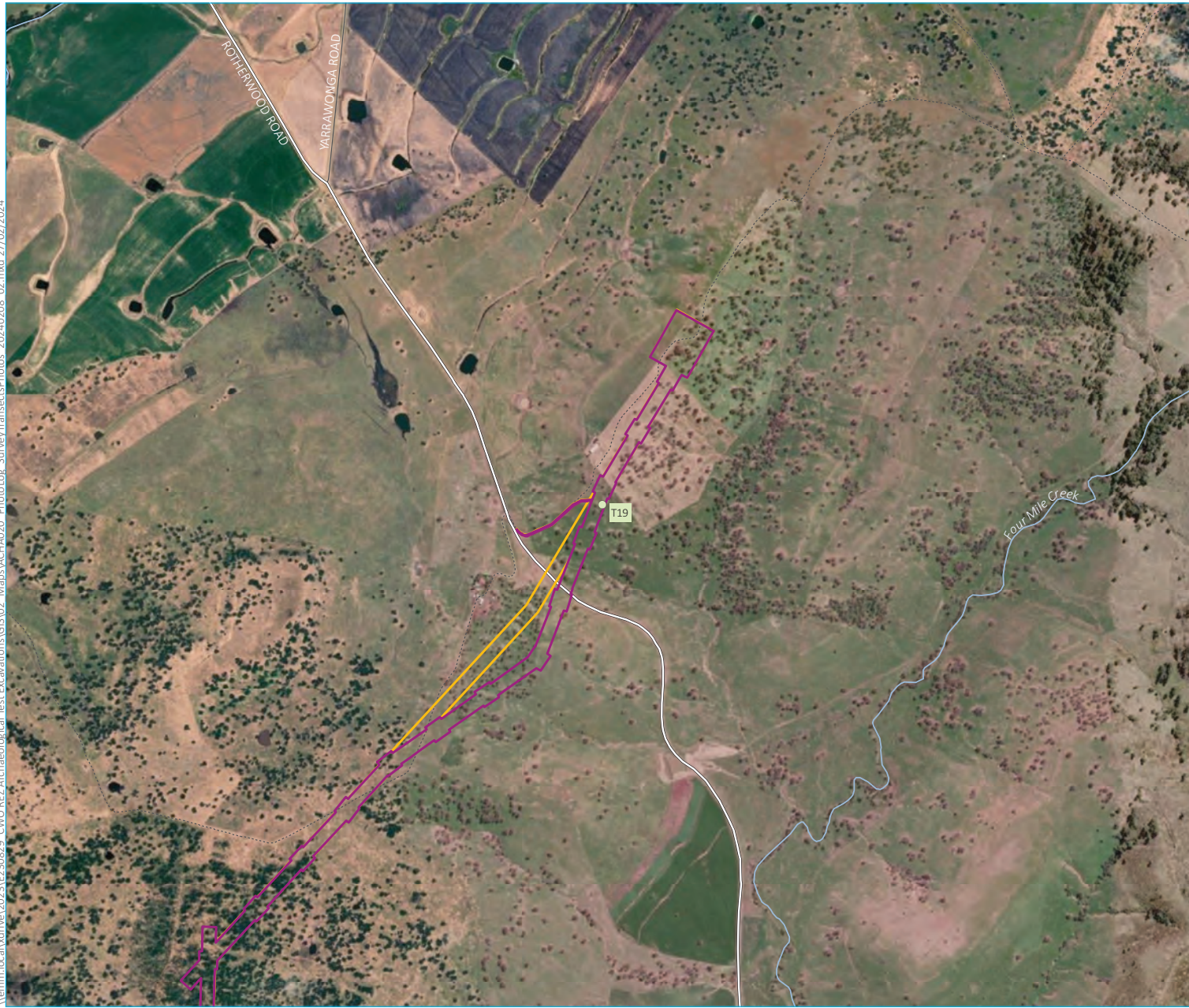
- KEY**
- Amended construction area
 - Exhibited construction area
 - Survey photo
 - Survey transect
- Existing environment**
- Major road
 - Minor road
 - Vehicular track
 - Named watercourse
 - NPWS reserve
 - State forest
- INSET KEY**
- Major road
 - NPWS reserve
 - State forest

Documentation points
 Photographic log
 Map 24 of 25
 Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2

Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



\\verm.local\drive\2023\EP30829_CWO REZ Archaeological Test Excavations\GIS\02_Maps\ACHA020_PhotoLog_SurveyTransectsPhotos_20240208_02.mxd 27/02/2024

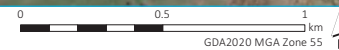


- KEY**
- Amended construction area
 - Exhibited construction area
 - Survey transect
- Existing environment**
- Major road
 - Minor road
 - Vehicular track
 - Named watercourse
- INSET KEY**
- Major road
 - NPWS reserve
 - State forest

Documentation points
 Photographic log
 Map 25 of 25

Central West Orana Renewable
 Energy Zone transmission
 Aboriginal Cultural Heritage Assessment addendum
 Figure D.2

Source: EMM (2024); EnergyCo (2024); WSP (2024); DFSI (2020); ESRI (2024); OEH (2024)



Survey Transect: T1

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5: Detail- poor exposure



Photo 6:



Photo 7:



Photo 8:



Survey Transect: T2

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west







Photo 5:

Photo 6:

Photo 7:

Photo 8:

Survey Transect: T3

Photo 1: View north	Photo 2: View east	Photo 3: View west	Photo 4: View south
 A landscape view looking north, showing a grassy field with scattered trees under a clear blue sky. The foreground is in shadow, and the terrain appears to be a gentle slope.	 A landscape view looking east, showing a grassy field with scattered trees under a clear blue sky. The terrain is relatively flat.	 A landscape view looking west, showing a grassy field with scattered trees under a clear blue sky. The foreground is in shadow, and the terrain appears to be a gentle slope.	 A landscape view looking south, showing a grassy field with scattered trees under a clear blue sky. The terrain is relatively flat.
Photo 5:	Photo 6:	Photo 7:	Photo 8:

Survey Transect: T4

Photo 1: View south



Photo 2: View west



Photo 3: View east



Photo 4: View north

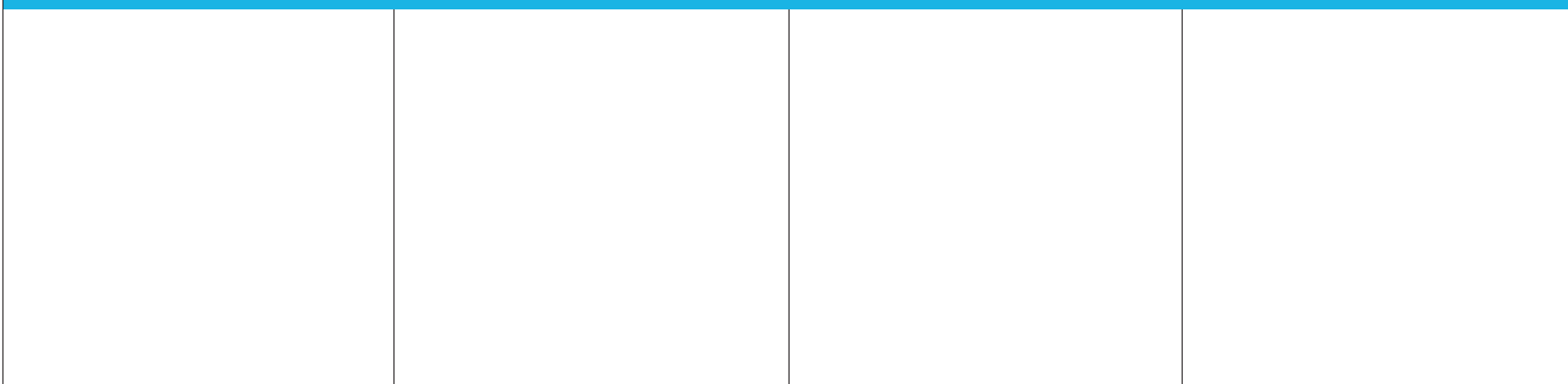


Photo 5:

Photo 6:

Photo 7:

Photo 8:



Survey Transect: T5

Photo 1: View north



Photo 2: View east



Photo 3: View west



Photo 4: View south



Photo 5:

Photo 6:

Photo 7:

Photo 8:

Survey Transect: T6

Photo 1: View west



Photo 2: View east



Photo 3: View south



Photo 4: View west, detail- warren

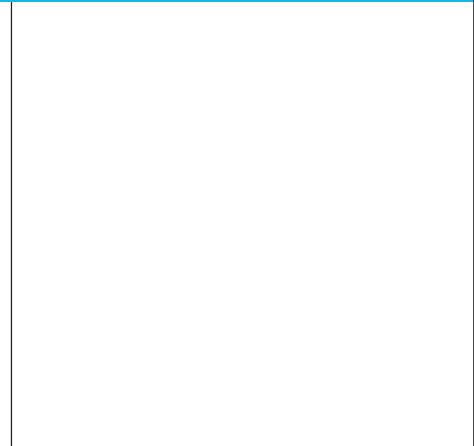
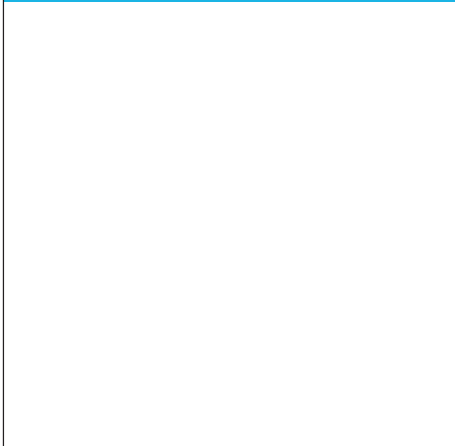


Photo 5:


Photo 6:

Photo 7:





Photo 8:



Survey Transect: T7

Photo 1: View west	Photo 2:	Photo 3:	Photo 4:
			
Photo 5:	Photo 6:	Photo 7:	Photo 8:

Survey Transect: T8

Photo 1: View east	Photo 2: View north	Photo 3: View south east	Photo 4: View north
 A photograph showing a dirt road in the foreground, leading to a field with sparse vegetation and a few trees in the distance under a blue sky with light clouds.	 A photograph showing a dirt path leading through a dense area of green trees and bushes.	 A photograph showing a paved road curving to the right, bordered by tall grass and trees.	 A photograph showing a dirt road leading through a field with trees on the right side.
Photo 5:	Photo 6:	Photo 7:	Photo 8:

Survey Transect: T9

Photo 1: View south east



Photo 2: View south



Photo 3: Detail- ploughed paddock



Photo 4: View north east



Photo 5: View south west






Photo 6:

Photo 7:

Photo 8:

Survey Transect: T10

Photo 1: Detail- Ploughed paddock	Photo 2: Detail- poor visibility	Photo 3: View north east	Photo 4:
			
Photo 5:	Photo 6:	Photo 7:	Photo 8:

Survey Transect: T11

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west

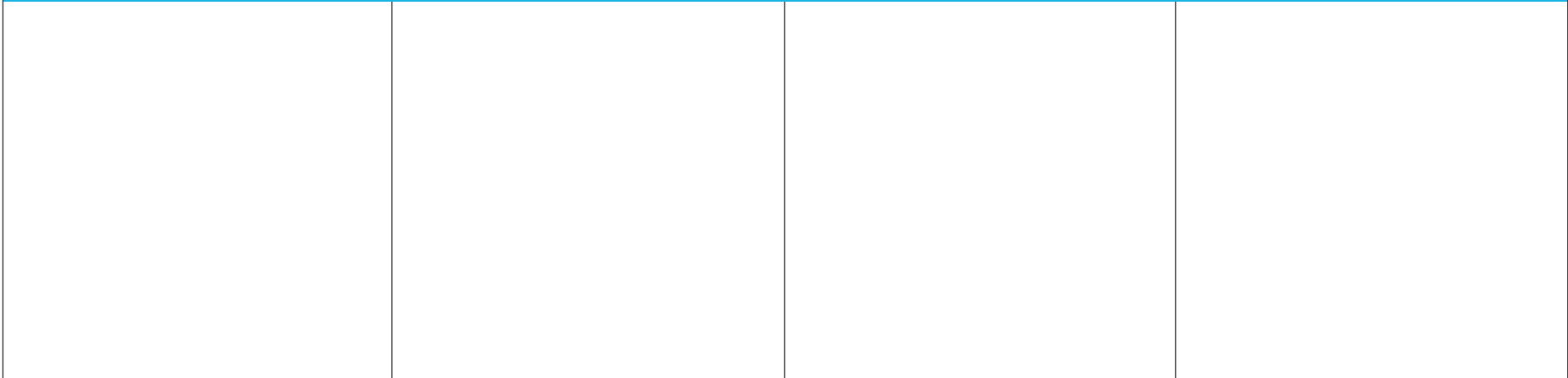


Photo 5:

Photo 6:

Photo 7:

Photo 8:



Survey Transect: T12

Photo 1: View south



Photo 2: View west



Photo 3: View north



Photo 4: View east



Photo 5: View north west



Photo 6: View north west



Photo 7: View west



Photo 8: Detail- context



Survey Transect: T13

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5: Detail- context



Photo 6:

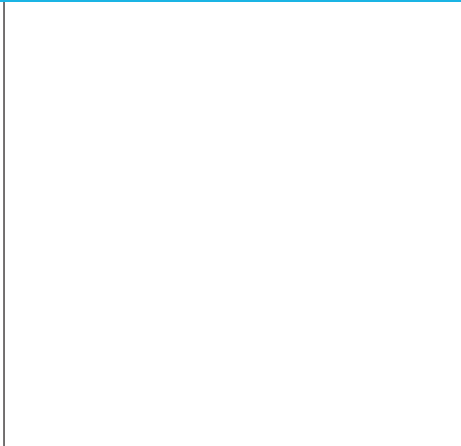


Photo 7:

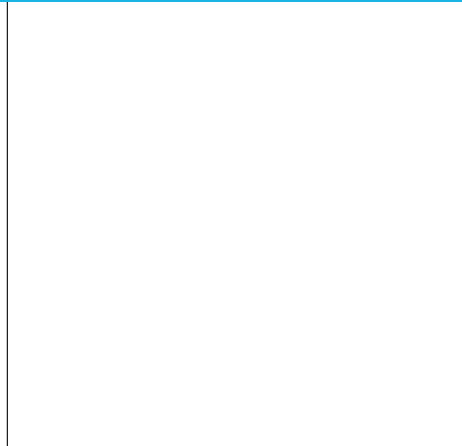


Photo 8:



Survey Transect: T14

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west

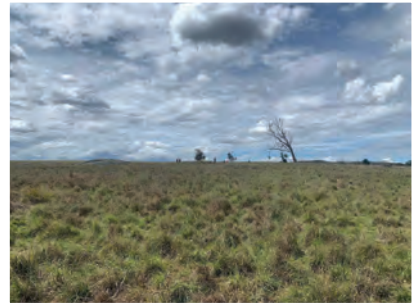


Photo 5:

Photo 6:

Photo 7:

Photo 8:

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Survey Transect: T15

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west

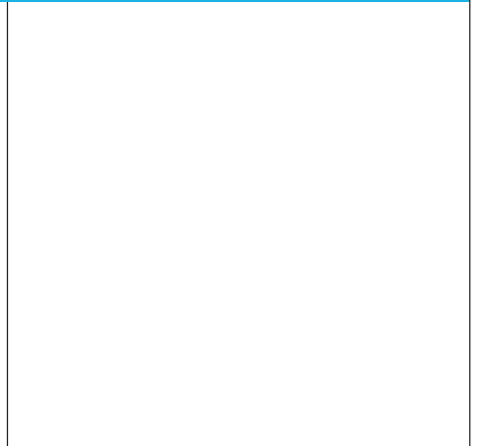
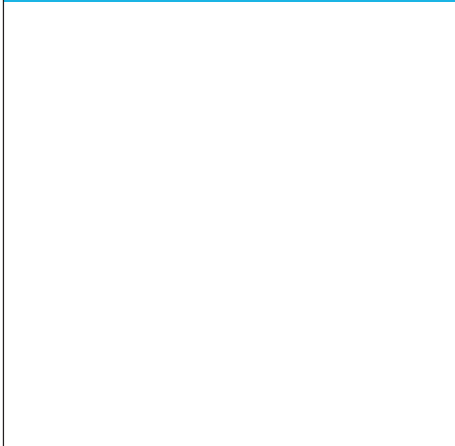


Photo 5:

Photo 6:

Photo 7:

Photo 8:



Survey Transect: T16

Photo 1: View north



Photo 2: View east



Photo 3: View south

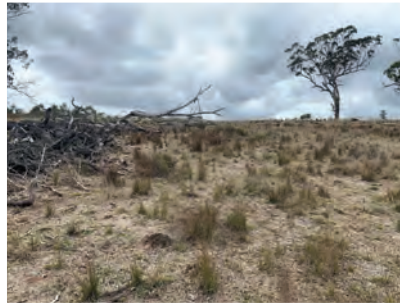


Photo 4: View west

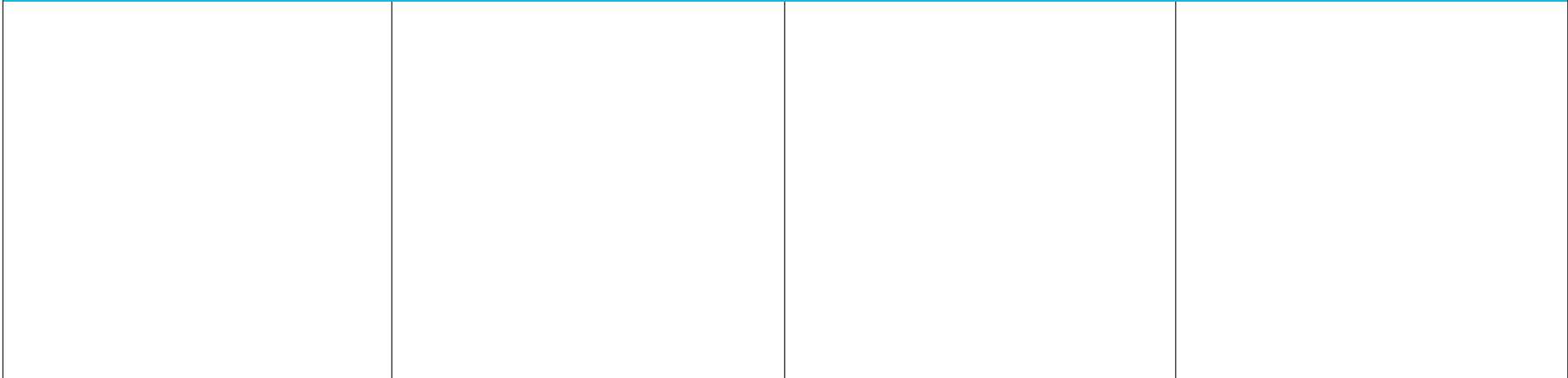


Photo 5:

Photo 6:

Photo 7:

Photo 8:



Survey Transect: T17

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

Photo 6:

Photo 7:

Photo 8:

Survey Transect: T18

Photo 1: View north



Photo 2: View east



Photo 3: View south east



Photo 4: Detail- context



Photo 5: Detail- context



Photo 6: Detail- context



Photo 7: Detail- dam



Photo 8: Detail- context



Survey Transect: T19

Photo 1: View south



Photo 2: View north



Photo 3: View west



Photo 4: View east



Photo 5:

Photo 6:

Photo 7:

Photo 8:

Survey Transect: T20

Photo 1: View west



Photo 2: View north



Photo 3: View east



Photo 4: View south

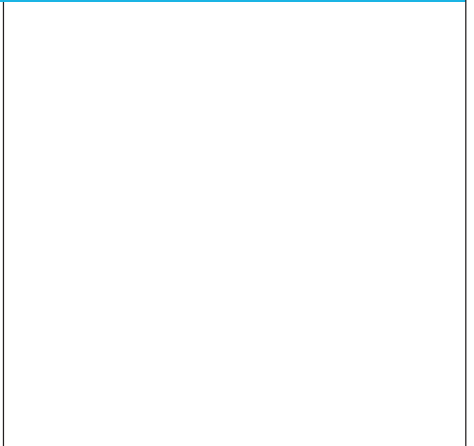
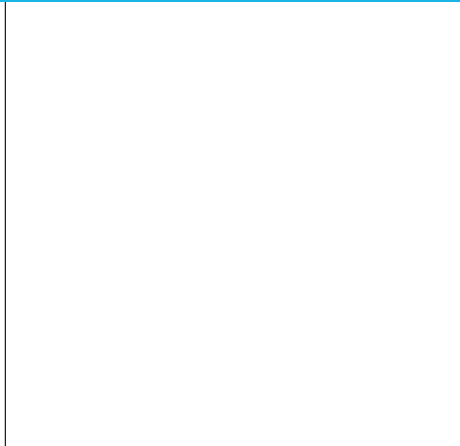
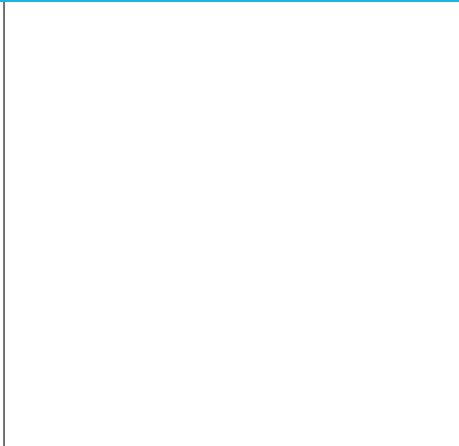
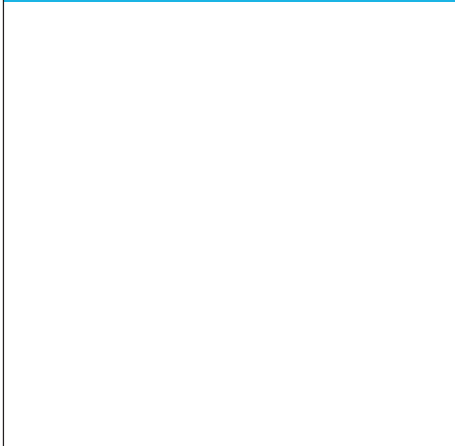


Photo 5:

Photo 6:

Photo 7:

Photo 8:



Survey Transect: T21

Photo 1: View north



Photo 2: View south



Photo 3: View east



Photo 4: View west



Photo 5: Detail- context



Photo 6: Detail- context



Photo 7: Detail- context



Photo 8:



Survey Transect: T22

Photo 1: View south



Photo 2: Detail- context



Photo 3: Detail- context



Photo 4:





Photo 5:

Photo 6:

Photo 7:

Photo 8:

Survey Transect: T23

Photo 1: View north	Photo 2: View west	Photo 3: View south	Photo 4: View east
 A landscape photograph showing a grassy field with a few trees on the right side under a clear blue sky.	 A landscape photograph showing a grassy field with trees in the distance and a bright sun in the upper left corner of the sky.	 A landscape photograph showing a grassy field with a cluster of trees on the right side under a clear blue sky.	 A landscape photograph showing a grassy field with a few trees and a utility pole in the distance under a clear blue sky.
Photo 5:	Photo 6:	Photo 7:	Photo 8:

Survey Transect: T24

Photo 1: View east



Photo 2: View south



Photo 3: Detail- Possible artefact



Photo 4:





Photo 5:

Photo 6:

Photo 7:

Photo 8:

Survey Transect: T25

Photo 1: View north	Photo 2: View south	Photo 3: View east	Photo 4: View west
			
Photo 5:	Photo 6:	Photo 7:	Photo 8:

Survey Transect: T26

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

Photo 6:

Photo 7:

Photo 8:

Survey Transect: T27

Photo 1: View north



Photo 2: View west



Photo 3: View east



Photo 4: View south





Photo 5:

Photo 6:

Photo 7:

Photo 8:

Survey Transect: T28

Photo 1: View west	Photo 2: View east	Photo 3:	Photo 4:
			
Photo 5:	Photo 6:	Photo 7:	Photo 8:

Survey Transect: T29

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west

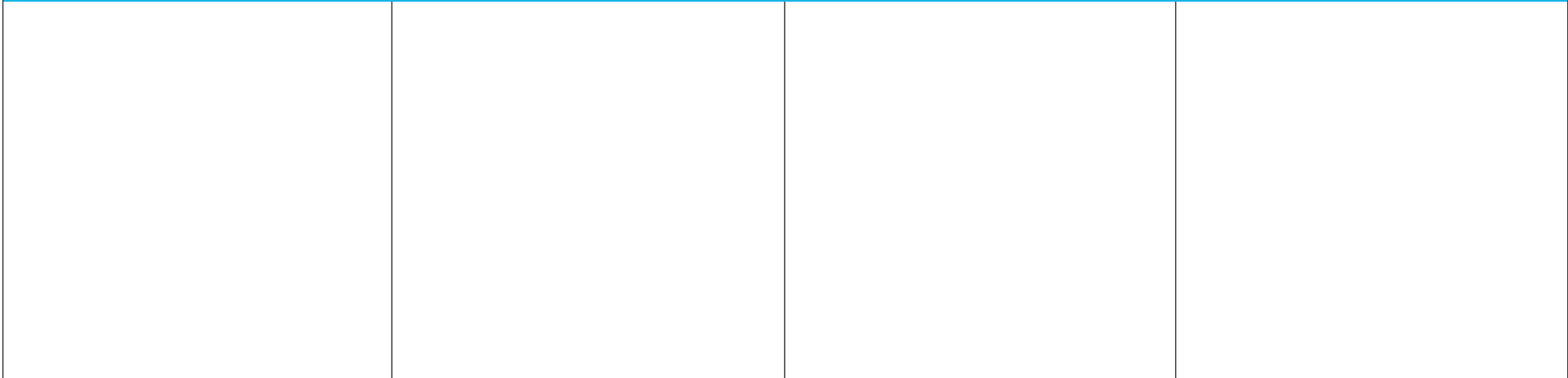


Photo 5:

Photo 6:

Photo 7:

Photo 8:



Survey Transect: T30

Photo 1: View north



Photo 2: View west



Photo 3: View south



Photo 4: Detail- context

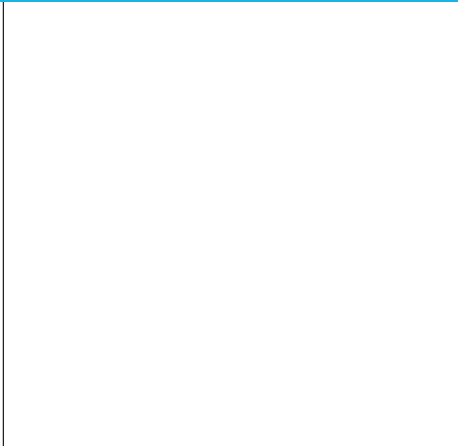
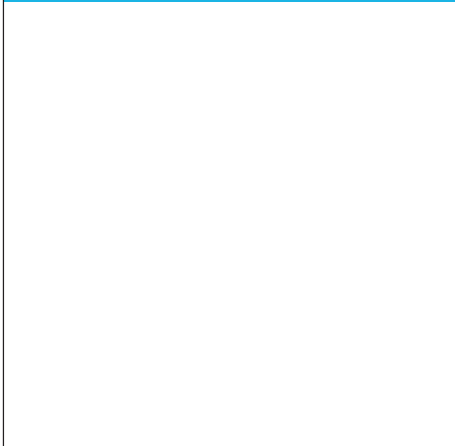


Photo 5:





Photo 6:

Photo 7:





Photo 8:



Survey Transect: T31

Photo 1: View north	Photo 2: View east	Photo 3: View south	Photo 4: View west
 A landscape photograph showing a grassy field with a few trees on the right side under a cloudy sky.	 A landscape photograph showing a grassy field with trees in the distance under a cloudy sky.	 A landscape photograph showing a grassy field with trees on the right side under a cloudy sky.	 A landscape photograph showing a grassy field with trees in the distance under a cloudy sky.
Photo 5:	Photo 6:	Photo 7:	Photo 8:

Survey Transect: T32

Photo 1: View east	Photo 2: View north	Photo 3: View west	Photo 4: View south
			
Photo 5:	Photo 6:	Photo 7:	Photo 8:

Survey Transect: T33

Photo 1: View east



Photo 2: View north



Photo 3: View west



Photo 4: View south



Photo 5:

Photo 6:

Photo 7:

Photo 8:

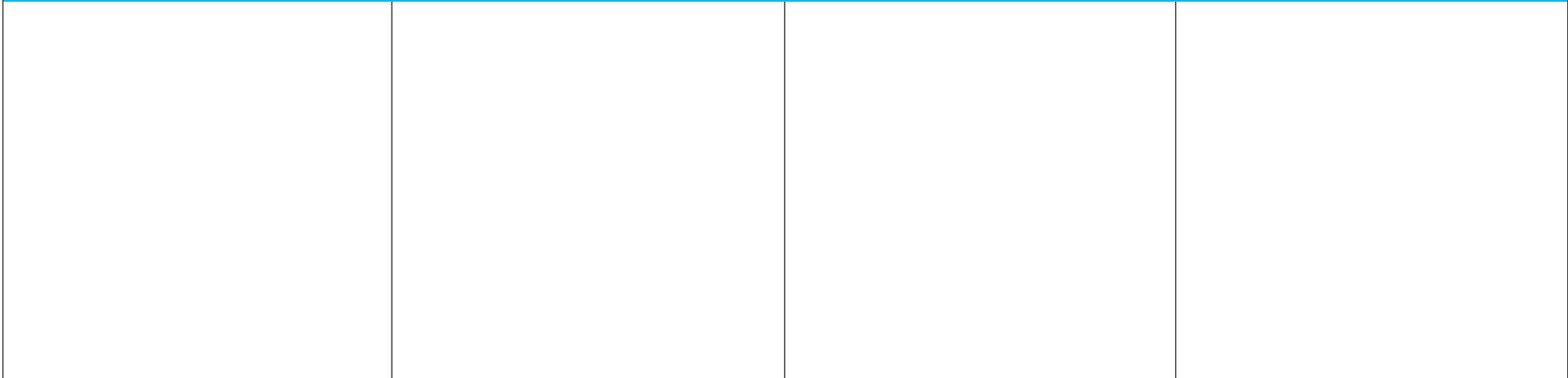


Photo Point ID: 1



Photo 1: Detail of channel	Photo 2: North	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 2



Photo 1: East	Photo 2: South east	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 3

Photo 1: North



Photo 2: South



Photo 3: East



Photo 4: West



Photo 5:

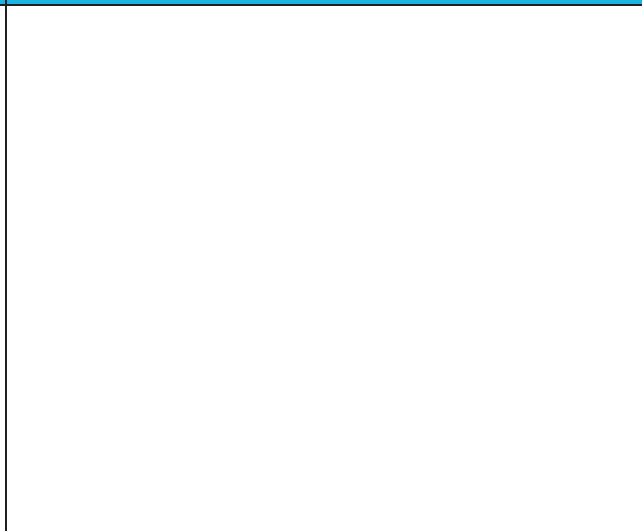


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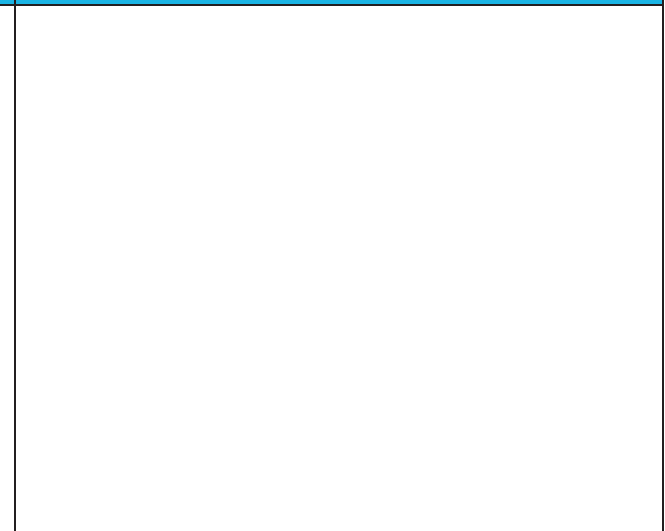


Photo Point ID: 4

Photo 1: North east



Photo 2: South



Photo 3: West



Photo 4: South east



Photo 5:

Photo 6:

Photo Point ID: 5

Photo 1: East	Photo 2: North	Photo 3: South
		
Photo 4: South west	Photo 5:	Photo 6:
		

Photo Point ID: 6

Photo 1: North



Photo 2: South



Photo 3: East



Photo 4: South west



Photo 5:

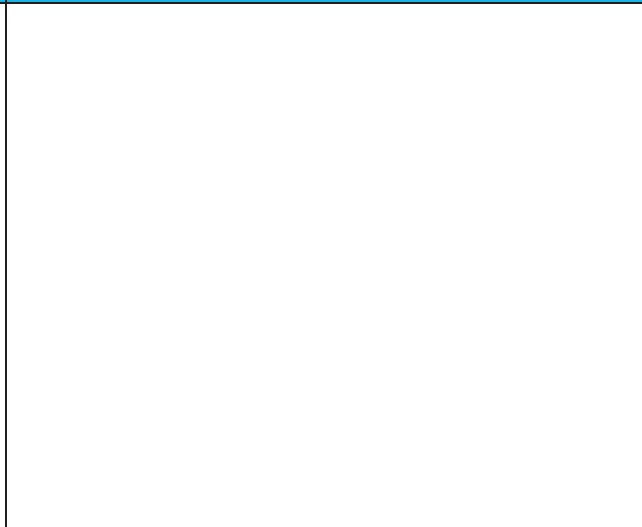


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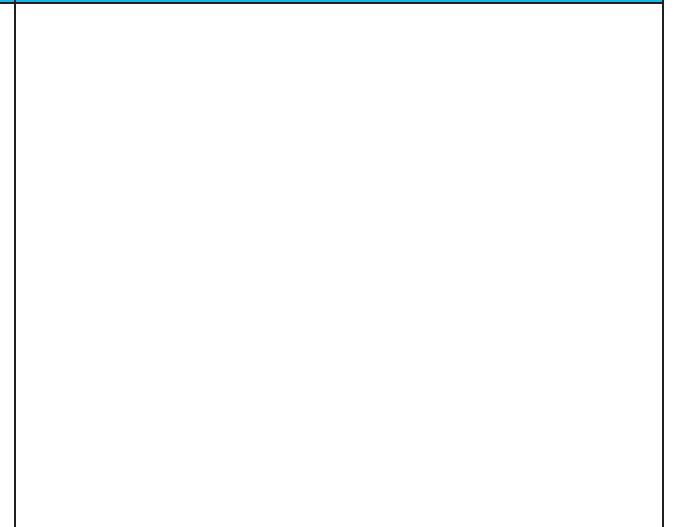


Photo Point ID: 7

Photo 1:	Photo 2:	Photo 3: South east
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 8

Photo 1: South



Photo 2: North



Photo 3: East



Photo 4: West



Photo 5:

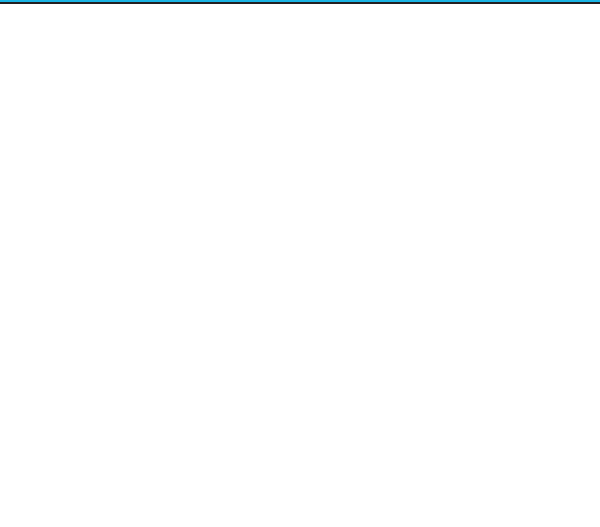


Photo 6:

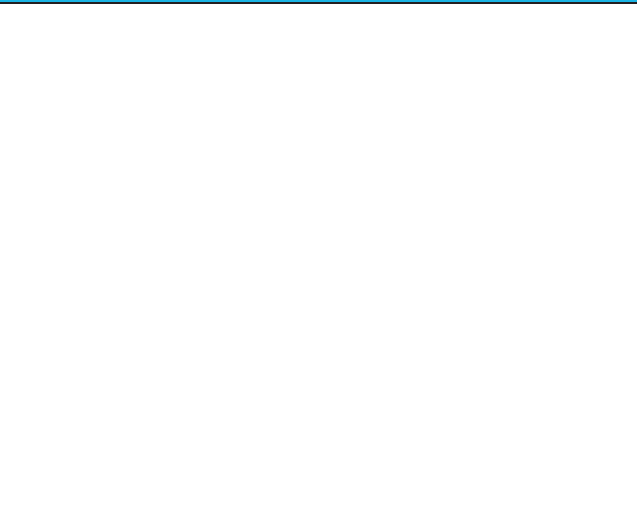


Photo Point ID: 9

Photo 1: North



Photo 2: South



Photo 3: West



Photo 4: East



Photo 5:

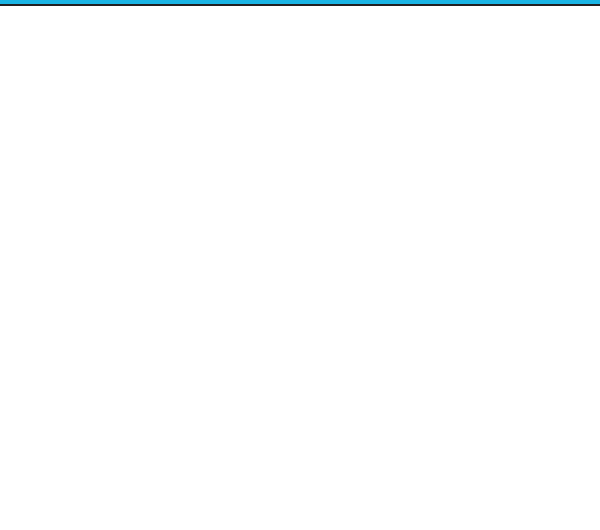


Photo 6:

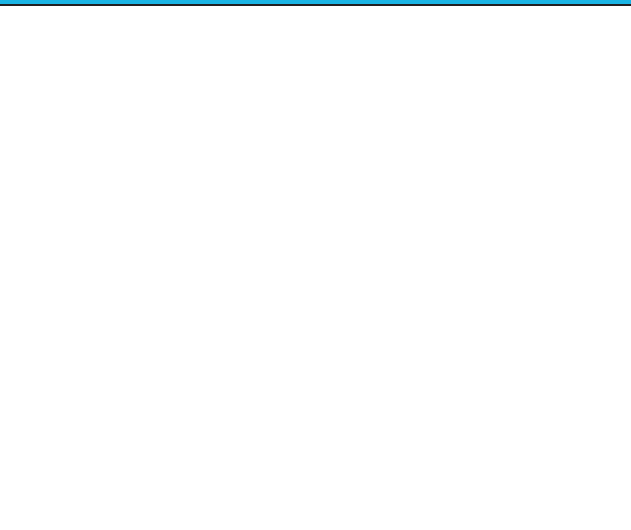


Photo Point ID: 10

Photo 1: North east



Photo 2: South



Photo 3: North



Photo 4: East



Photo 5:

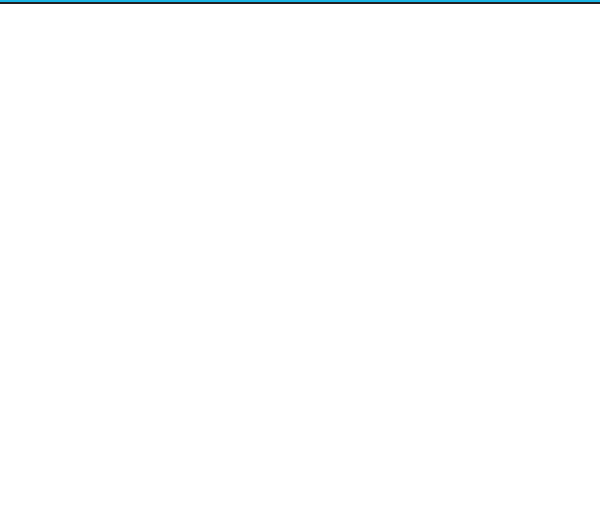


Photo 6:

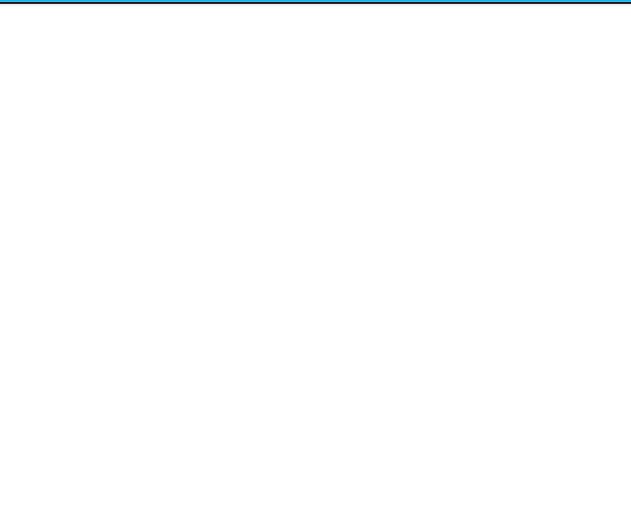


Photo Point ID: 11

Photo 1: West



Photo 2: North



Photo 3: East



Photo 4: South



Photo 5:

Photo 6:

Photo Point ID: 12



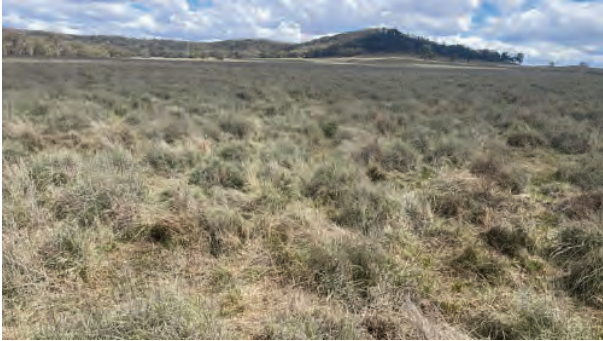

Photo 1: North	Photo 2: East	Photo 3: South
		
Photo 4: West	Photo 5:	Photo 6:
		

Photo Point ID: 13

Photo 1: West



Photo 2: South



Photo 3: South west



Photo 4: South east



Photo 5:

Photo 6:

Photo Point ID: 14

Photo 1: South west



Photo 2: West



Photo 3: North west



Photo 4: North



Photo 5: North east



Photo 6:



Photo Point ID: 15

Photo 1: South



Photo 2: North east



Photo 3: North



Photo 4: East



Photo 5:

Photo 6:

Photo Point ID: 16

Photo 1: West



Photo 2: East



Photo 3: South



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 17

Photo 1: South



Photo 2: East



Photo 3: West



Photo 4: North



Photo 5:

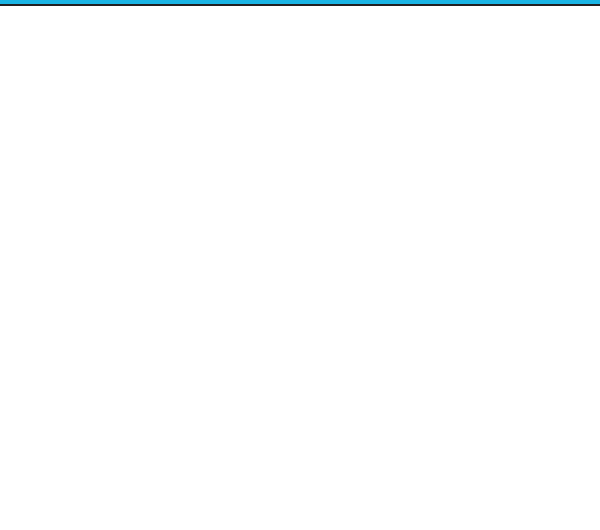


Photo 6:

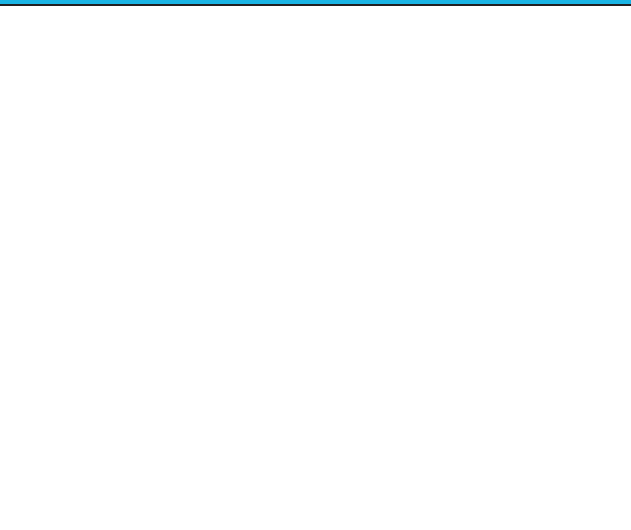


Photo Point ID: 18

Photo 1: West



Photo 2: South west



Photo 3: East



Photo 4: North



Photo 5:

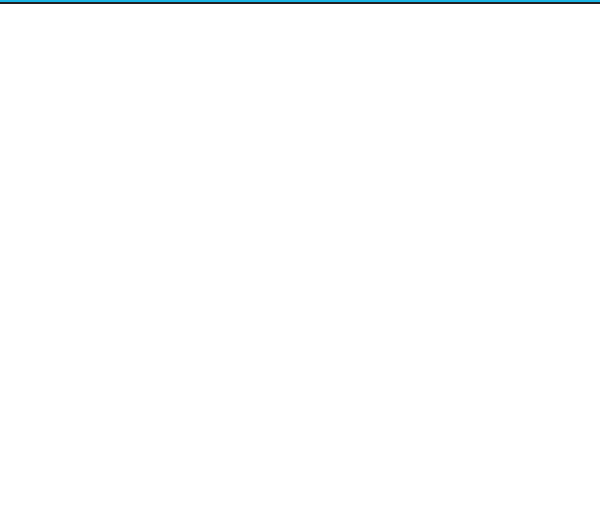


Photo 6:

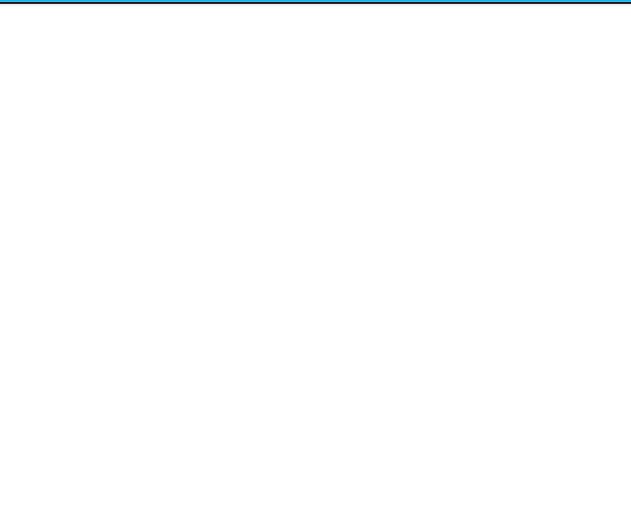


Photo Point ID: 19



Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 20

Photo 1: TPs 300, 299, 298



Photo 2: TPs 300, 301, 302



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 21


Photo 1: 308 in foreground	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 22

Photo 1: North west



Photo 2: South west



Photo 3:

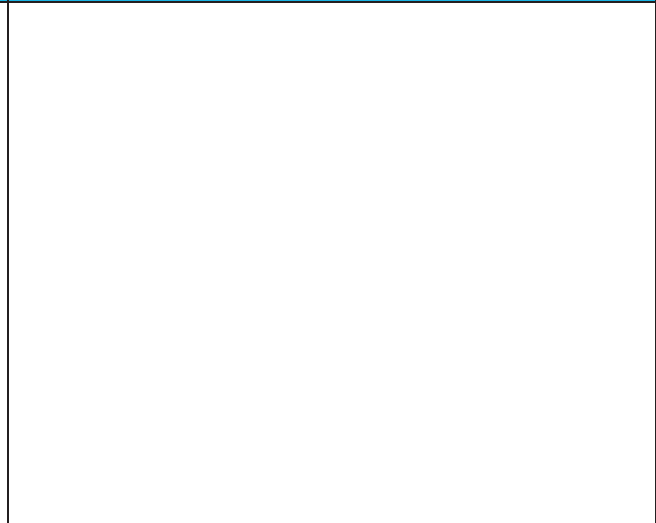


Photo 4:

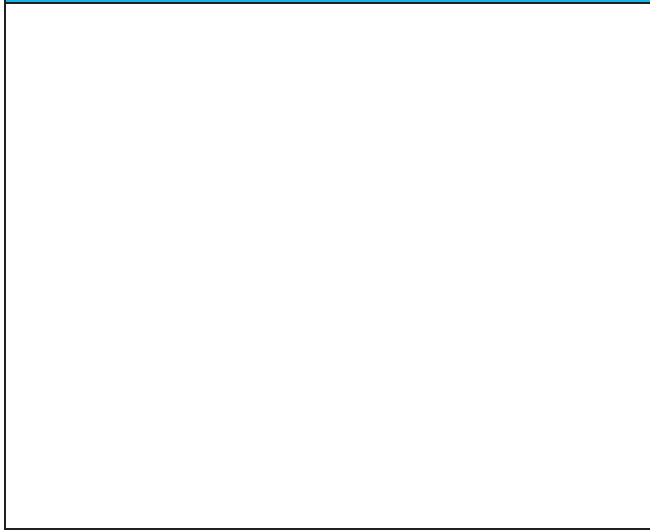


Photo 5:

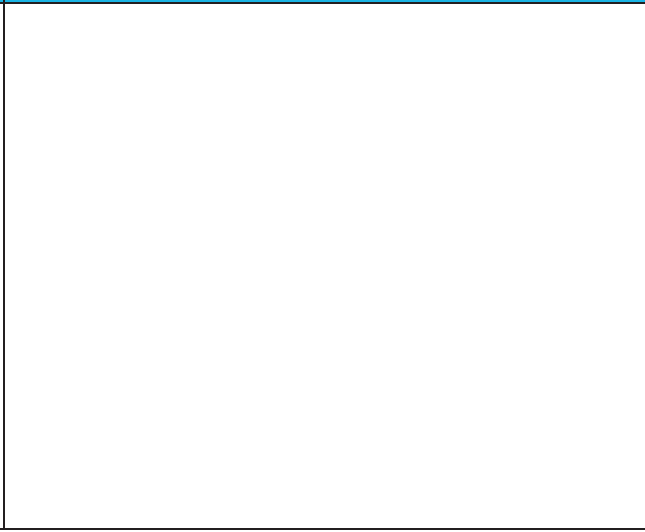


Photo 6:



Photo Point ID: 23

Photo 1: E



Photo 2: S



Photo 3: W



Photo 4:



Photo 5:

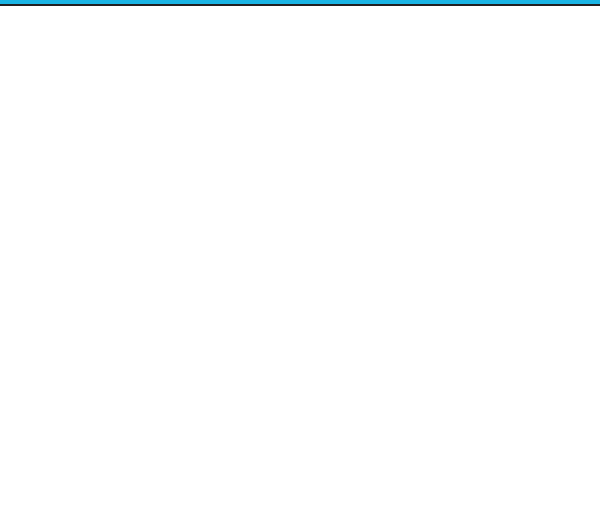


Photo 6:

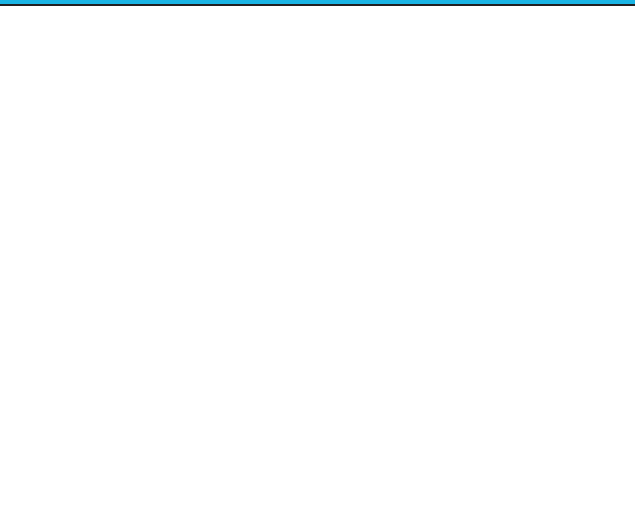


Photo Point ID: 24


Photo 1: View north	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 25

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

Photo 6:

Photo Point ID: 26

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:



Photo 6:



Photo Point ID: 27

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:



Photo 6:



Photo Point ID: 28

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:



Photo 6:



Photo Point ID: 29

Photo 1: View east



Photo 2: View south



Photo 3: View west



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 30

Photo 1: View east



Photo 2: View south



Photo 3: View west



Photo 4: View north



Photo 5:

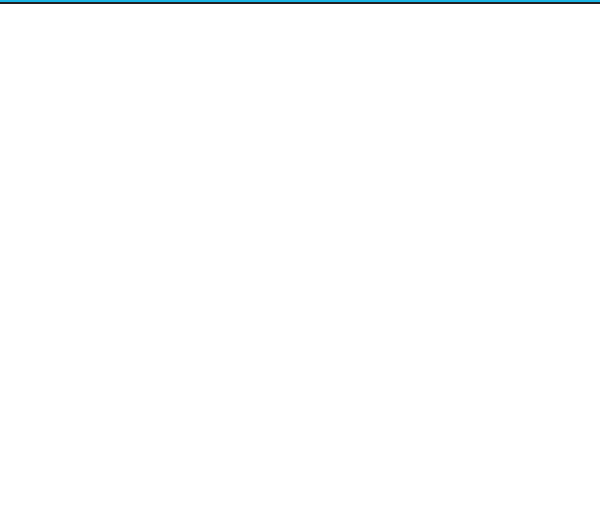


Photo 6:

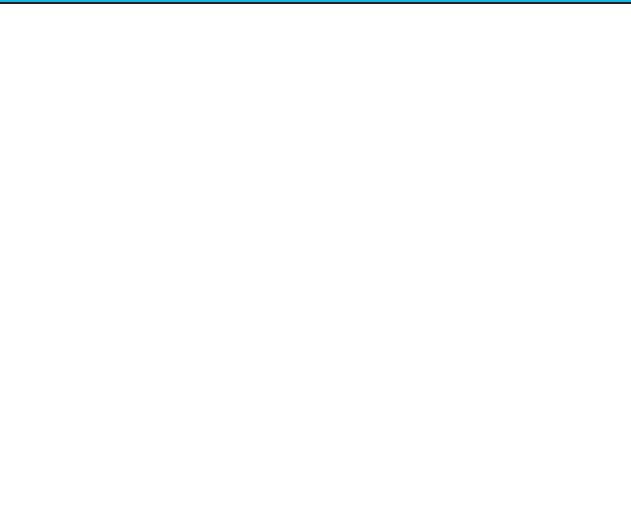


Photo Point ID: 31

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

Photo 6:

Photo Point ID: 32

Photo 1: View north



Photo 2: View west



Photo 3: View south



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 33

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

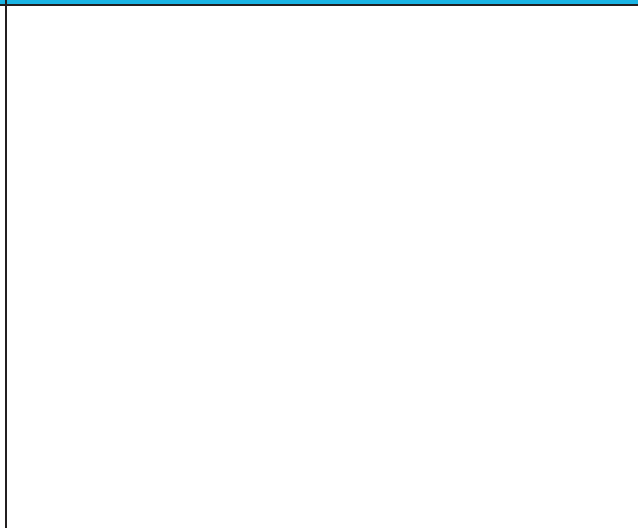


Photo 6:

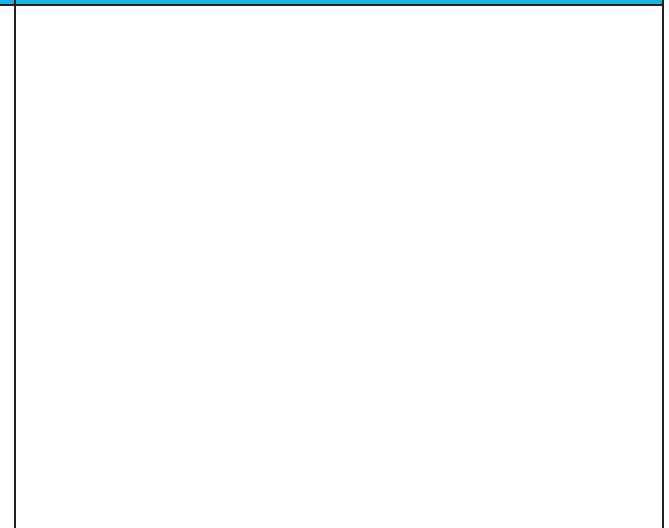


Photo Point ID: 34

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:



Photo 6:



Photo Point ID: 35

Photo 1: South west



Photo 2: South east



Photo 3: South east



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 36


Photo 1: East north east	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 37

Photo 1: Detail - clay surface soil



Photo 2: View east



Photo 3: View west



Photo 4: View north west



Photo 5: View north east



Photo 6:



Photo Point ID: 38

Photo 1: S



Photo 2: Soil



Photo 3: W



Photo 4: N



Photo 5: E



Photo 6:



Photo Point ID: 39

Photo 1: W



Photo 2: N



Photo 3: E



Photo 4: S



Photo 5: E



Photo 6:



Photo Point ID: 40

Photo 1: E



Photo 2: NE



Photo 3: S



Photo 4: NW



Photo 5:



Photo 6:



Photo Point ID: 41

Photo 1: W



Photo 2: N



Photo 3: E



Photo 4: S



Photo 5: W ploughed clay



Photo 6:



Photo 1: S

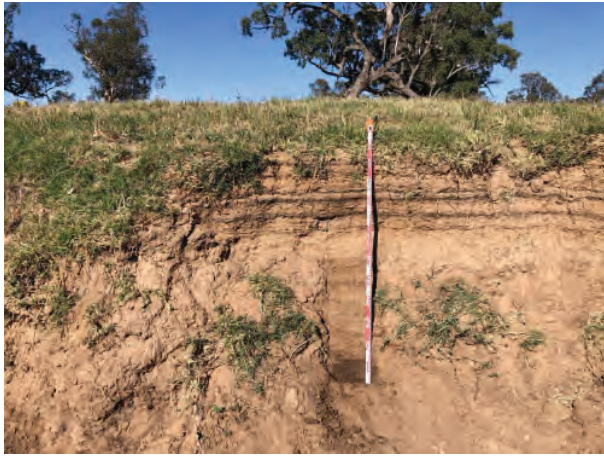


Photo 2: S



Photo 3: W



Photo 4: E



Photo 5:



Photo 6:



Photo Point ID: 43

Photo 1: N

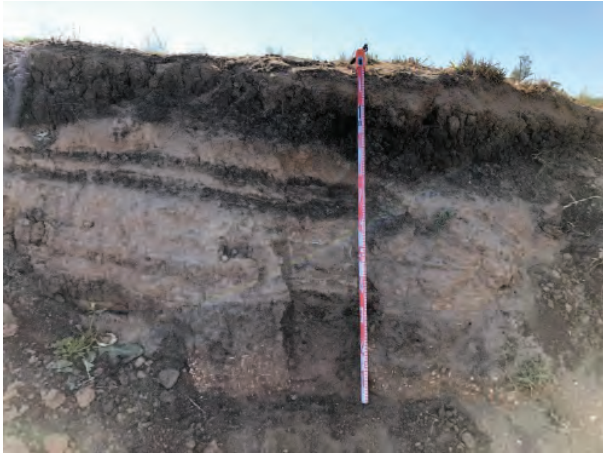


Photo 2: E



Photo 3: N

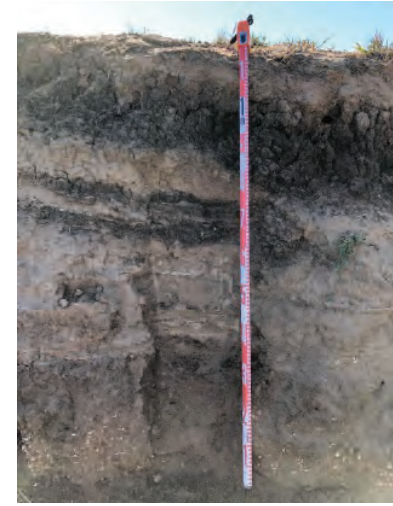


Photo 4: E



Photo 5: SE



Photo 6:



Photo Point ID: 44

Photo 1: E



Photo 2: SW



Photo 3: NW team



Photo 4: NW team



Photo 5: NE



Photo 6:



Photo Point ID: 45

Photo 1: E



Photo 2: E



Photo 3: S



Photo 4: W



Photo 5: N



Photo 6:



Photo Point ID: 46

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5: Detail - moderate exposure



Photo 6:



Photo Point ID: 47

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5: Detail - moderate exposure



Photo 6:



Photo Point ID: 48

Photo 1: View east



Photo 2: View south



Photo 3: View west



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 49




Photo 1: South	Photo 2: East	Photo 3: South east
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 50

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

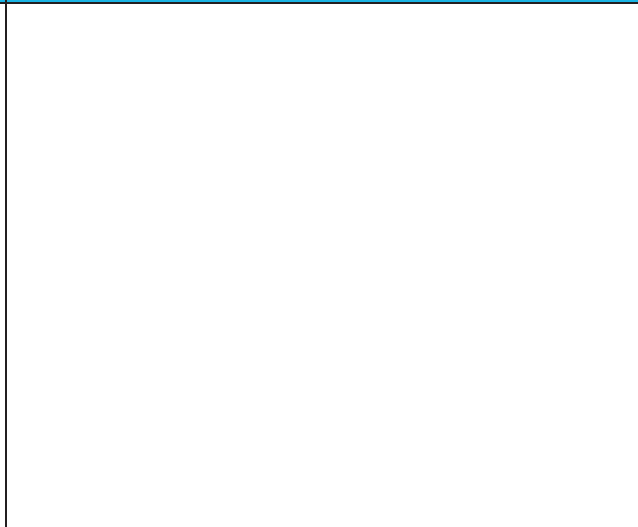


Photo 6:

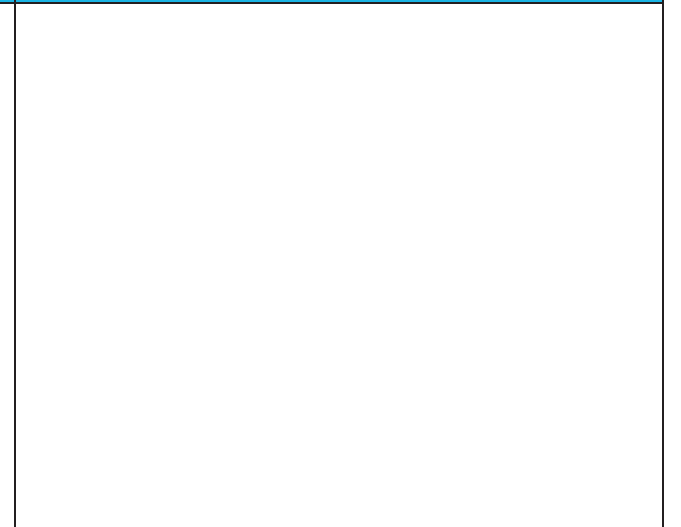


Photo Point ID: 51

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

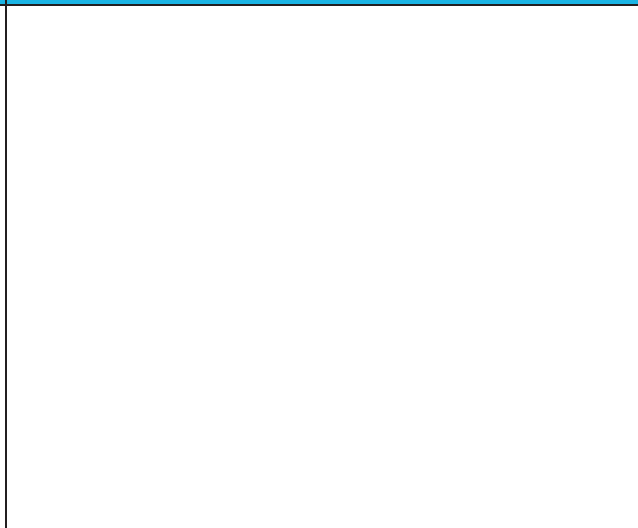


Photo 6:

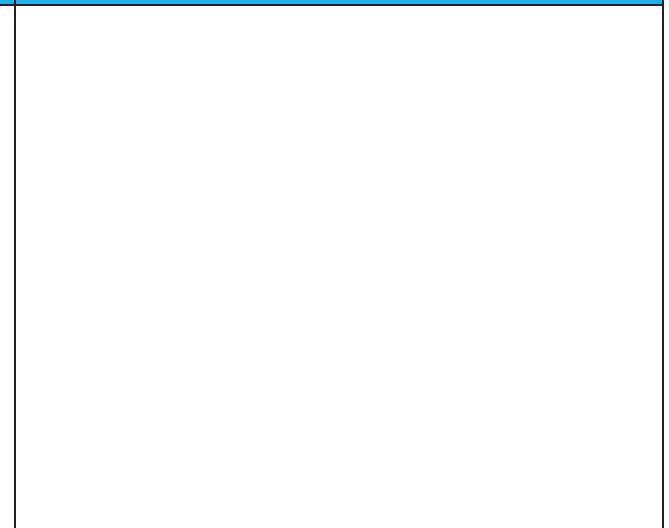


Photo Point ID: 52

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

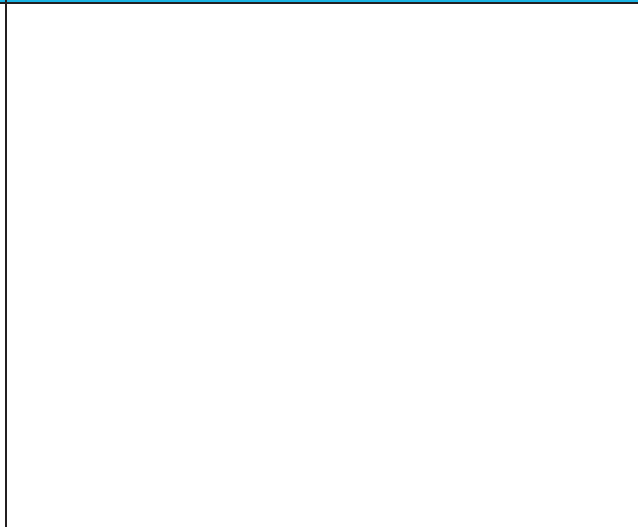


Photo 6:

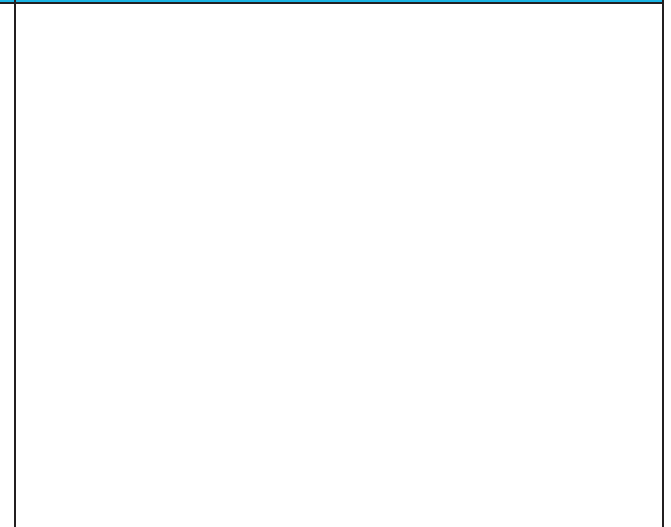


Photo Point ID: 53

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

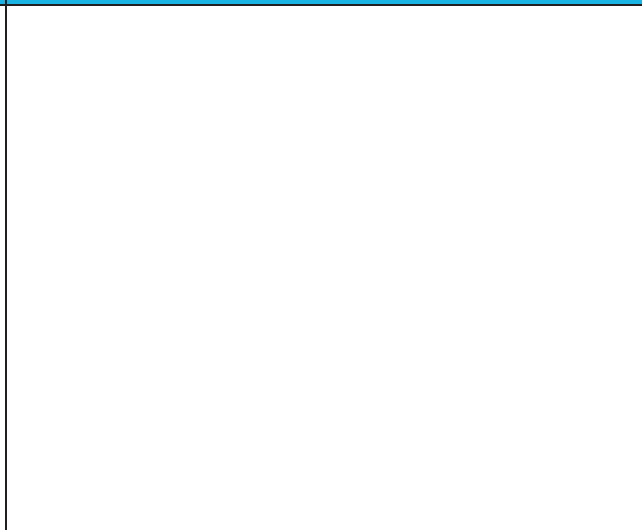


Photo 6:

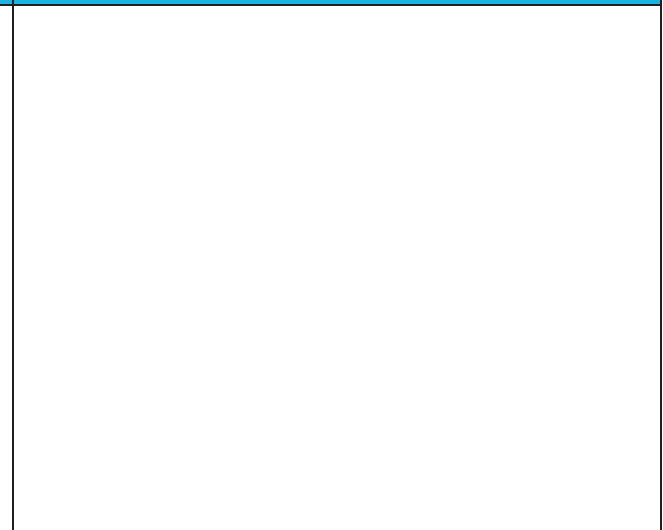


Photo Point ID: 54

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

Photo 6:

Photo Point ID: 55

Photo 1: North



Photo 2: South east



Photo 3: South



Photo 4: West



Photo 5:

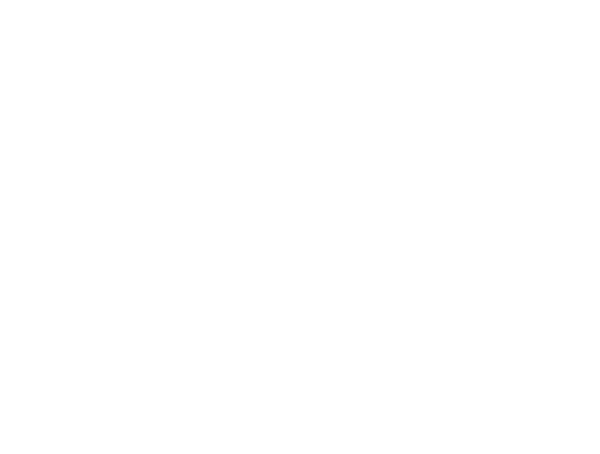


Photo 6:



Photo Point ID: 56

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

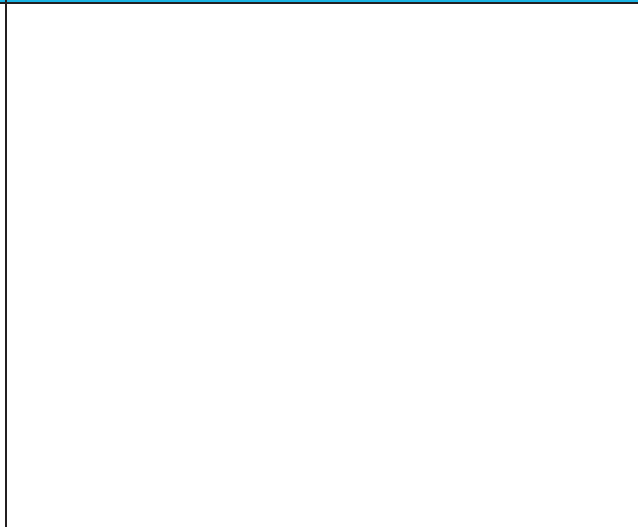


Photo 6:

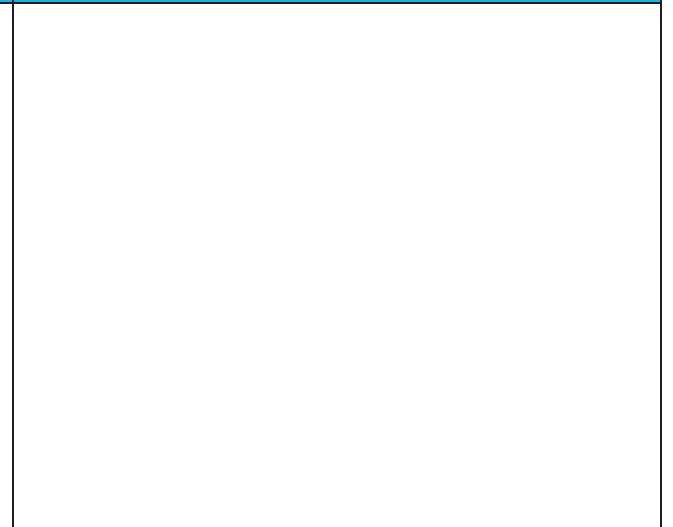


Photo Point ID: 57

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

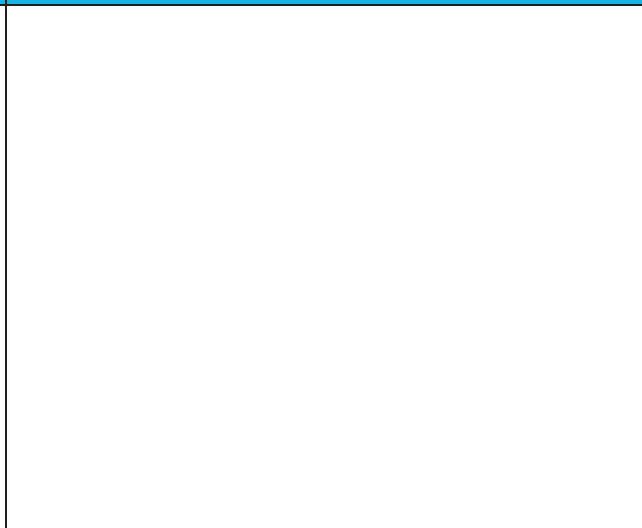


Photo 6:

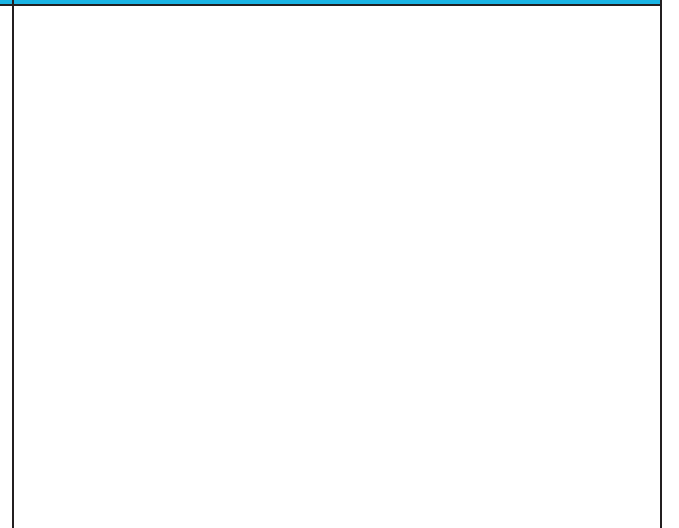


Photo Point ID: 58

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

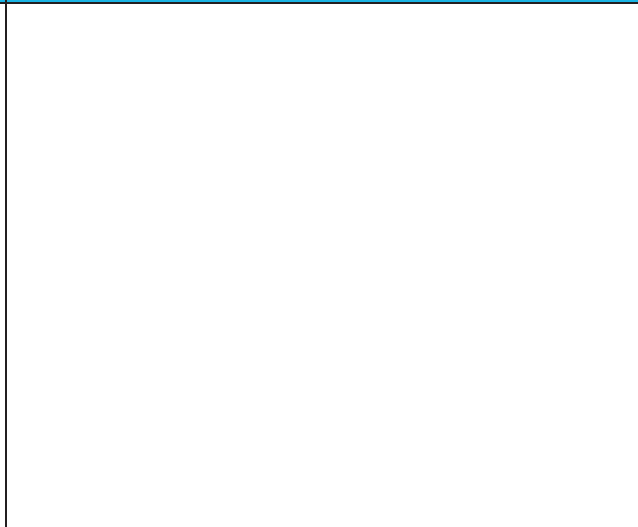


Photo 6:

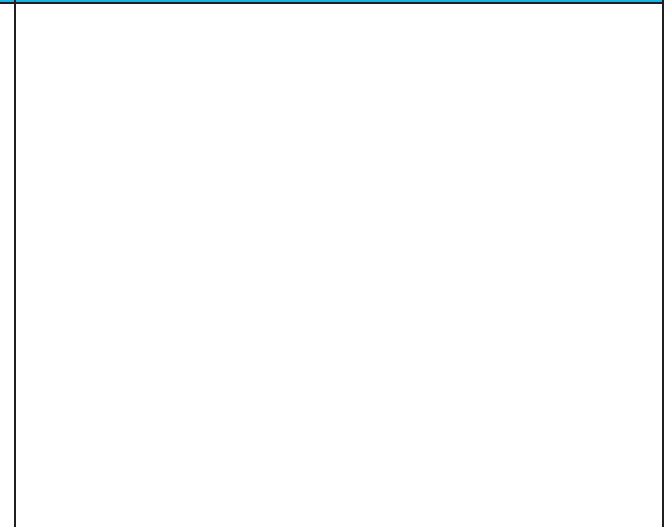


Photo Point ID: 59

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

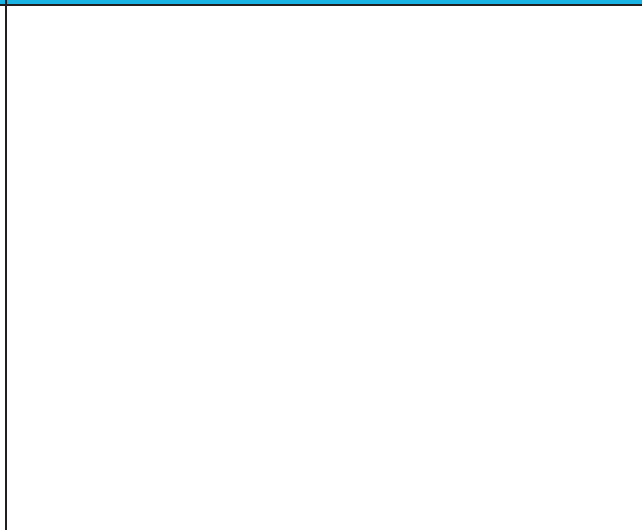


Photo 6:

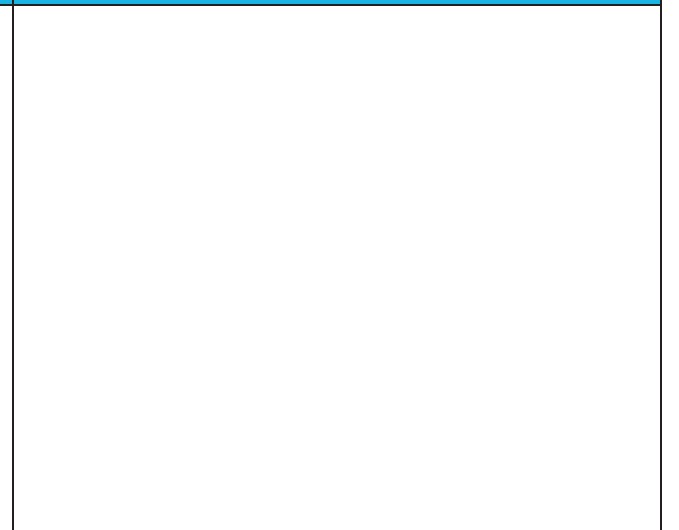


Photo Point ID: 60

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:



Photo 6:



Photo Point ID: 61

Photo 1: North	Photo 2: North-East	Photo 3: East
		
Photo 4: South east	Photo 5:	Photo 6:
		

Photo Point ID: 62

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

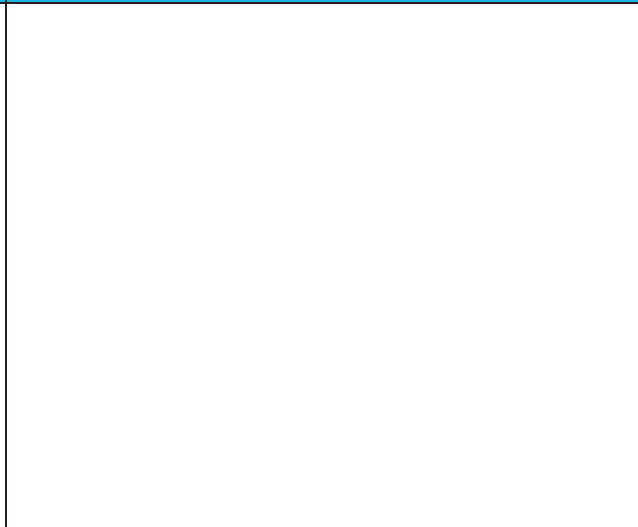


Photo 6:

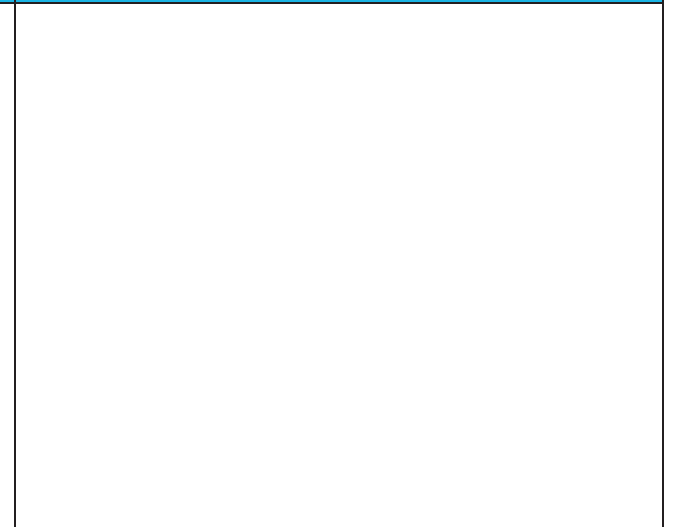


Photo Point ID: 63

Photo 1: North



Photo 2: North west



Photo 3: East



Photo 4: South



Photo 5:

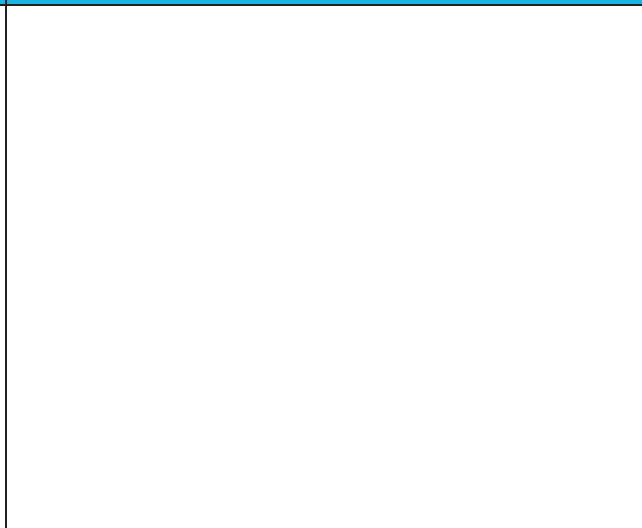


Photo 6:

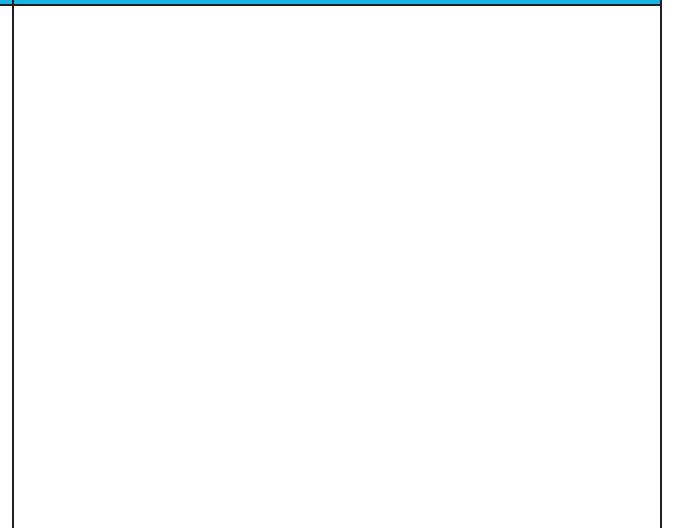


Photo Point ID: 64

Photo 1: North

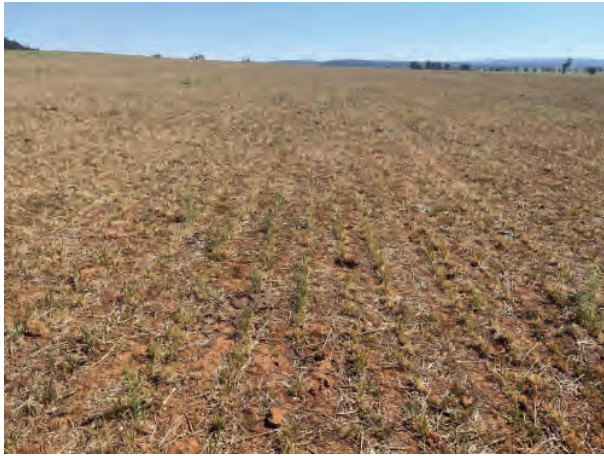


Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

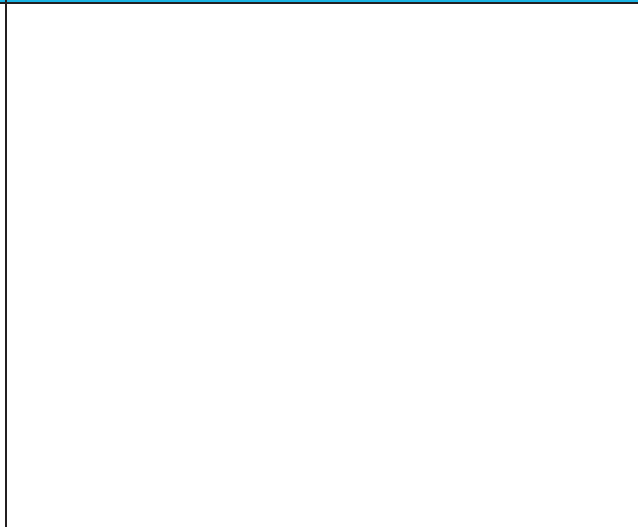


Photo 6:

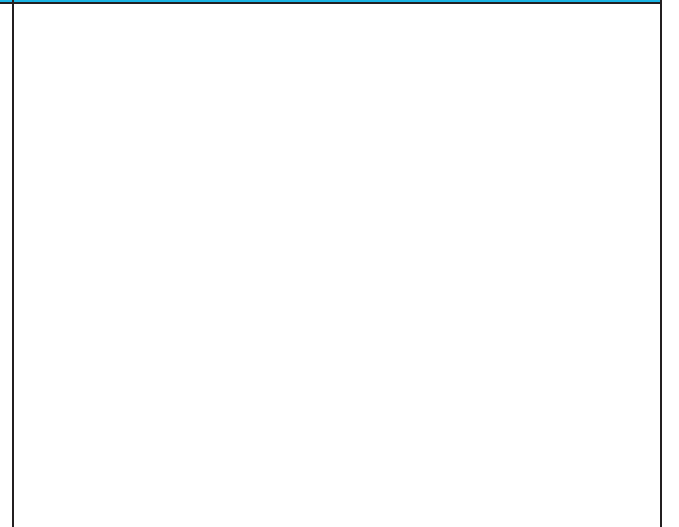


Photo Point ID: 65





Photo 1: North	Photo 2: East	Photo 3: South
		
Photo 4: West	Photo 5:	Photo 6:
		

Photo Point ID: 66

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:



Photo 6:



Photo Point ID: 67

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

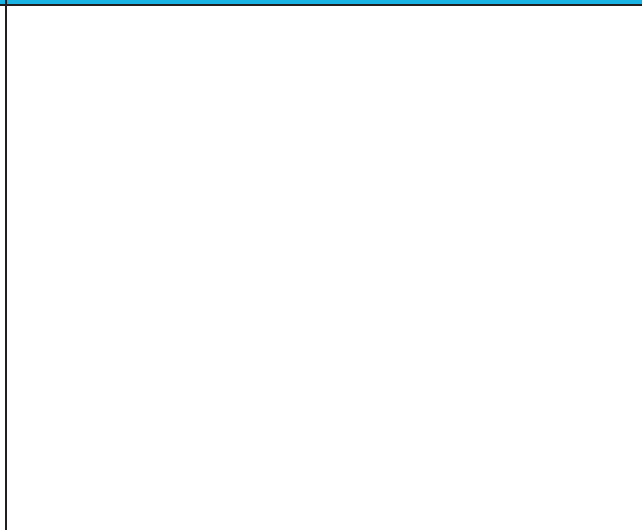


Photo 6:

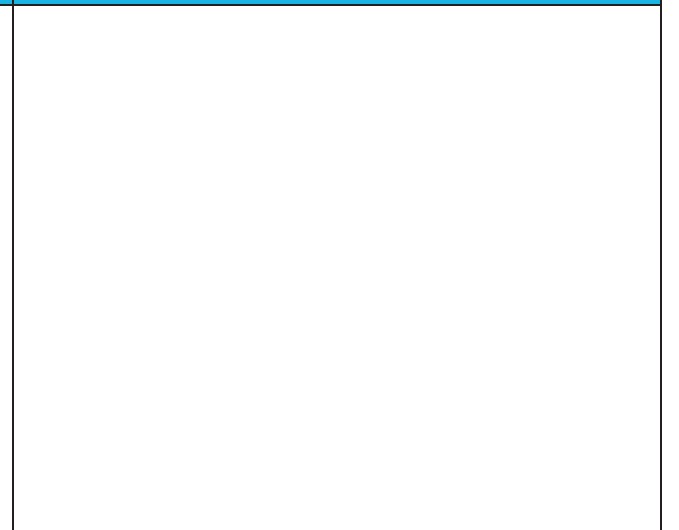


Photo Point ID: 68

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:



Photo 6:



Photo Point ID: 69

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

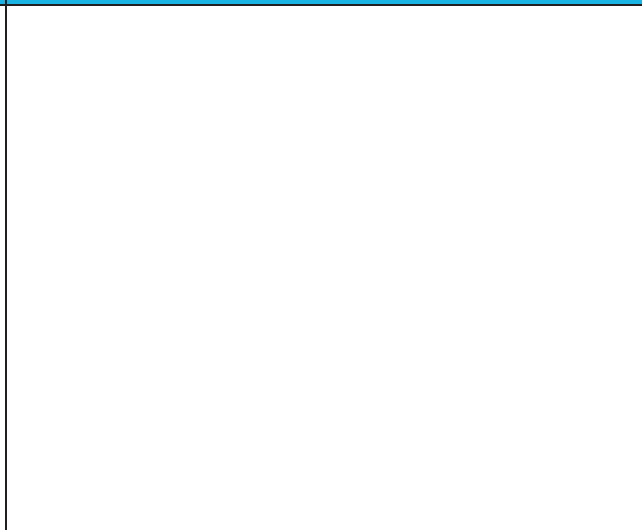


Photo 6:

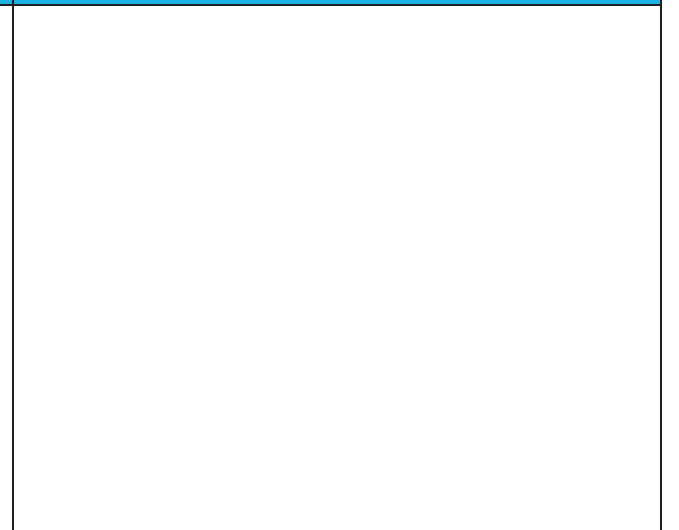


Photo Point ID: 70





Photo 1: North	Photo 2: East	Photo 3: South
		
Photo 4: West	Photo 5:	Photo 6:
		

Photo Point ID: 71

Photo 1: South



Photo 2: West



Photo 3: North



Photo 4: East



Photo 5:

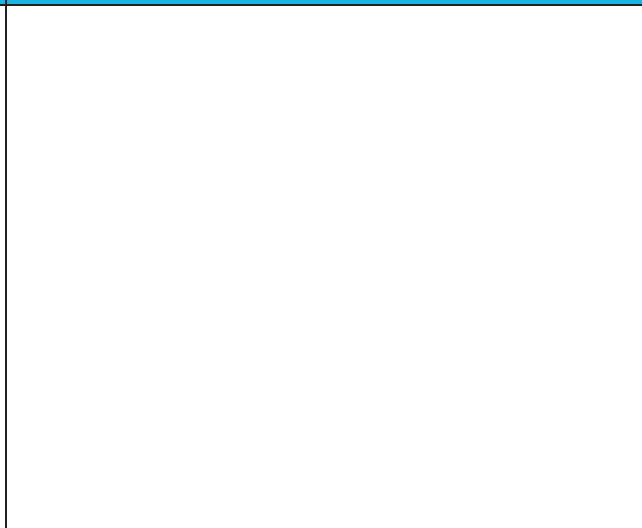


Photo 6:

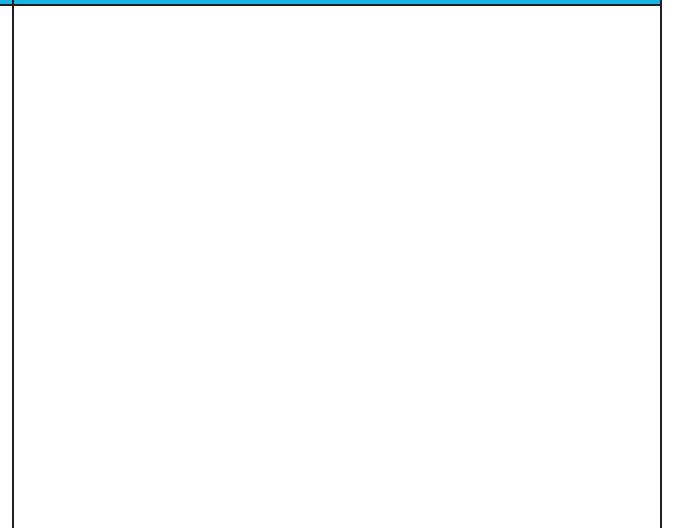


Photo Point ID: 72

Photo 1: South



Photo 2: West



Photo 3: North



Photo 4: East



Photo 5:

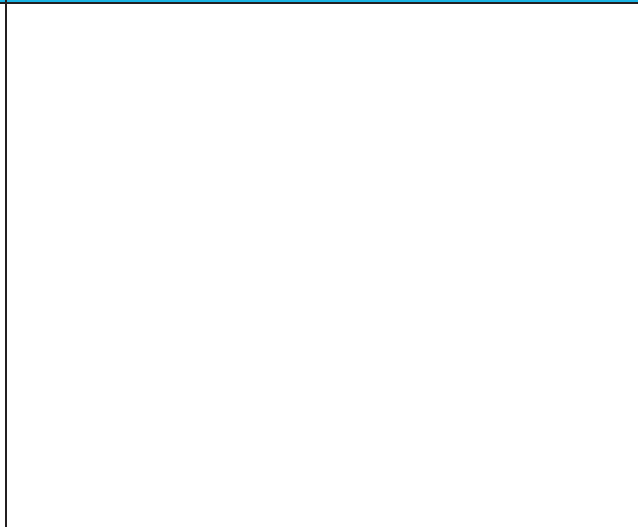


Photo 6:

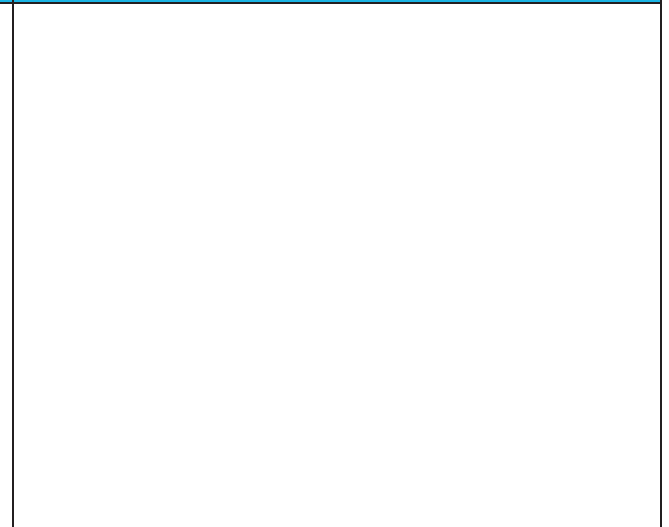


Photo Point ID: 73

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

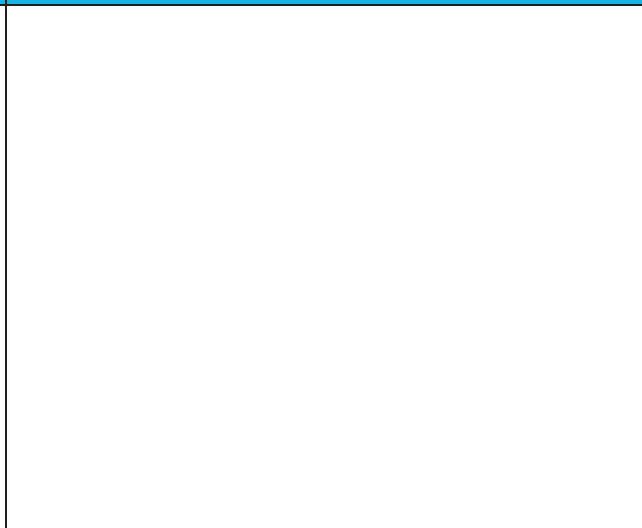


Photo 6:

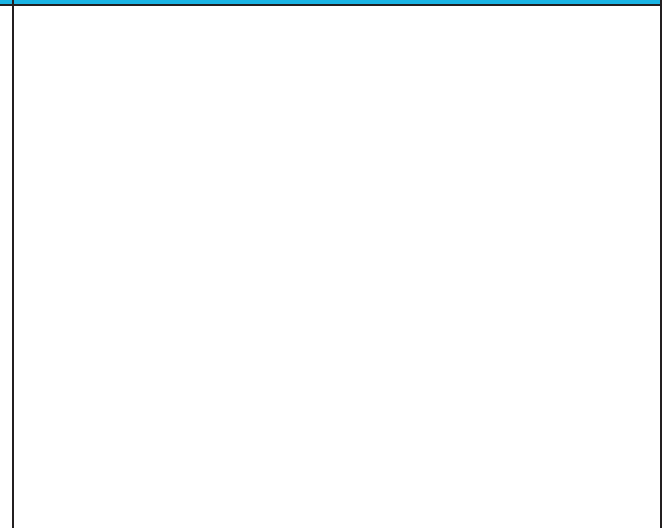


Photo Point ID: 74

Photo 1: North east



Photo 2: South east



Photo 3: South west



Photo 4: North west



Photo 5:



Photo 6:



Photo Point ID: 75

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

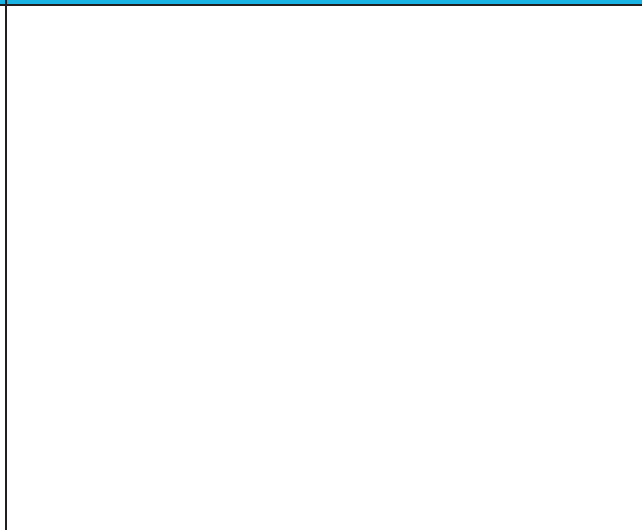


Photo 6:

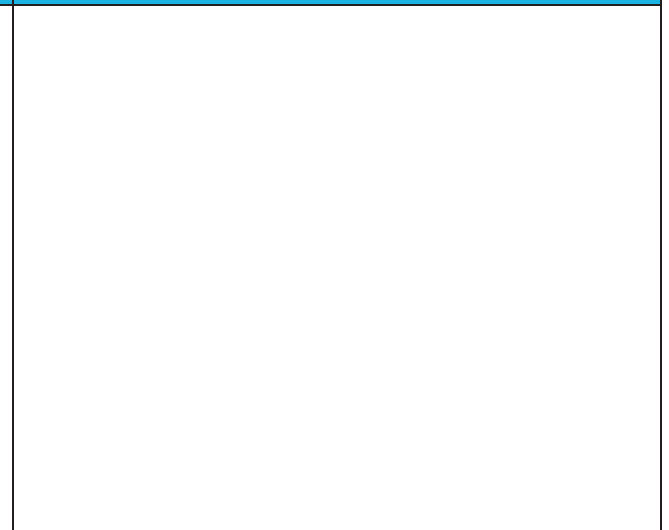


Photo Point ID: 76

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:



Photo 6:



Photo Point ID: 77

Photo 1: North

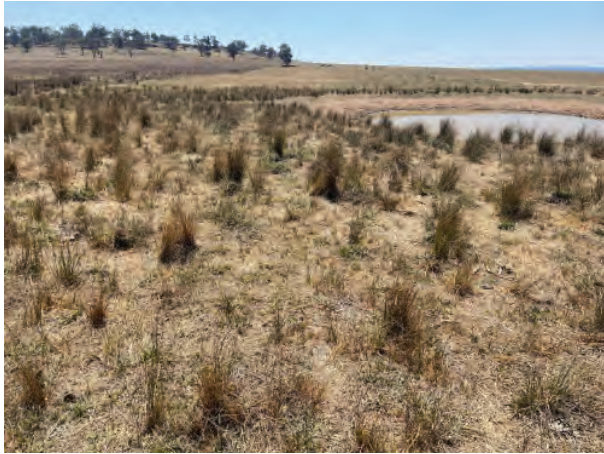


Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

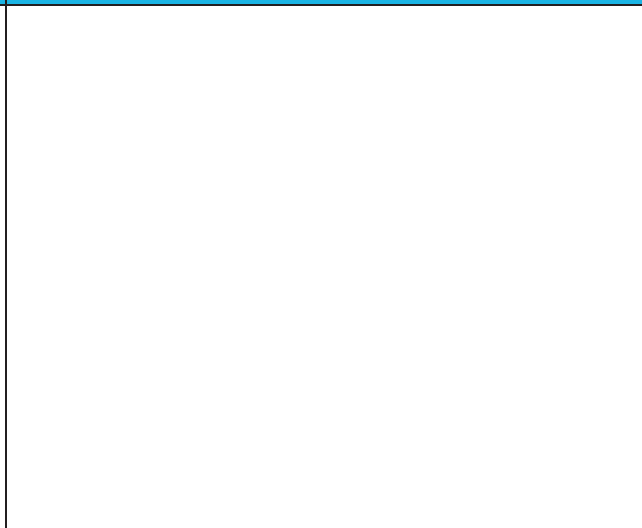


Photo 6:

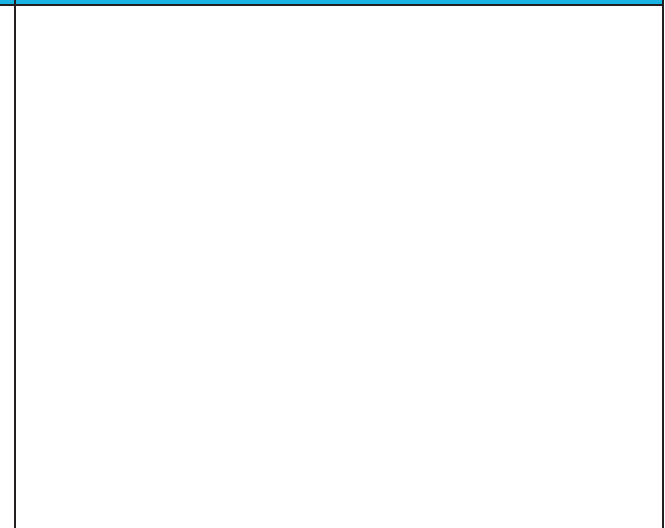


Photo Point ID: 78

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:



Photo 6:



Photo Point ID: 79

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

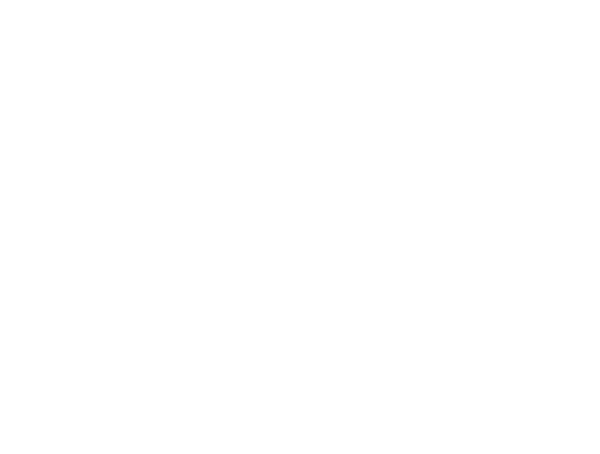


Photo 6:



Photo Point ID: 80

Photo 1: North west



Photo 2: North east



Photo 3: South east



Photo 4: South west



Photo 5:



Photo 6:



Photo Point ID: 81

Photo 1: North west



Photo 2: North east



Photo 3: South east



Photo 4: South west



Photo 5:



Photo 6:



Photo Point ID: 82

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:



Photo 6:



Photo Point ID: 83

Photo 1: East



Photo 2: West



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 84

Photo 1: North west



Photo 2: South east



Photo 3: Eroded creek bank



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 85



Photo 1: East	Photo 2: West	Photo 3:
 A photograph showing a field of dry, yellowish-brown grass in the foreground. In the background, there is a line of trees with green foliage under a clear blue sky. A thin wooden stake with a red flag is visible in the grass on the right side of the frame.	 A photograph showing a field of dry, yellowish-brown grass. The background is filled with a dense stand of trees with thin trunks and green leaves. The sky is blue with some light clouds.	
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 86



Photo 1: West	Photo 2: East	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 87



Photo 1: West	Photo 2: East	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 88

Photo 1: West



Photo 2: East



Photo 3: South east



Photo 4: North



Photo 5:

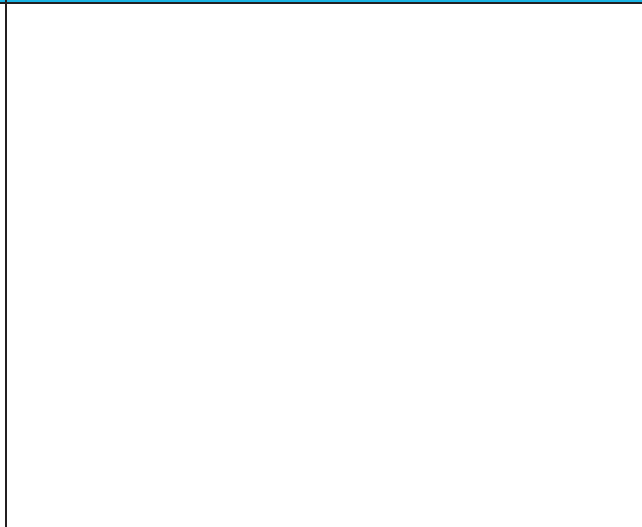


Photo 6:

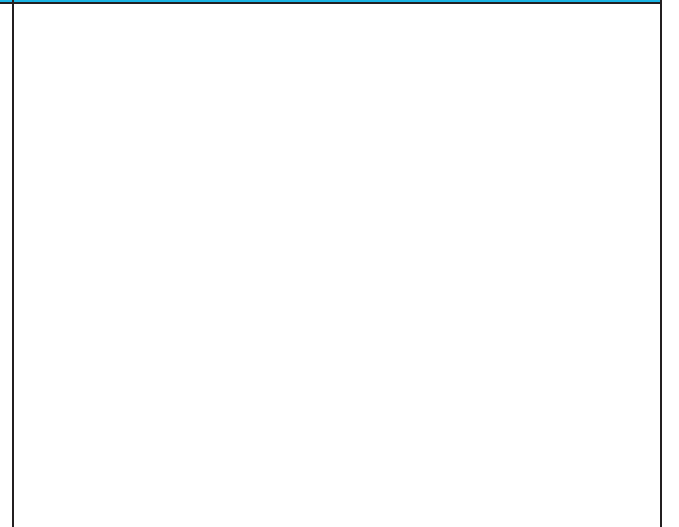


Photo Point ID: 89

Photo 1: West



Photo 2: North



Photo 3: South



Photo 4: East



Photo 5: Compacted clay



Photo 6:



Photo Point ID: 90

Photo 1: West



Photo 2: North



Photo 3: South



Photo 4: South west



Photo 5: South east



Photo 6:



Photo Point ID: 91

Photo 1: East



Photo 2: North east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 92

Photo 1: South



Photo 2: South



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 93

Photo 1: View east



Photo 2: View south



Photo 3: View west



Photo 4: View north



Photo 5:

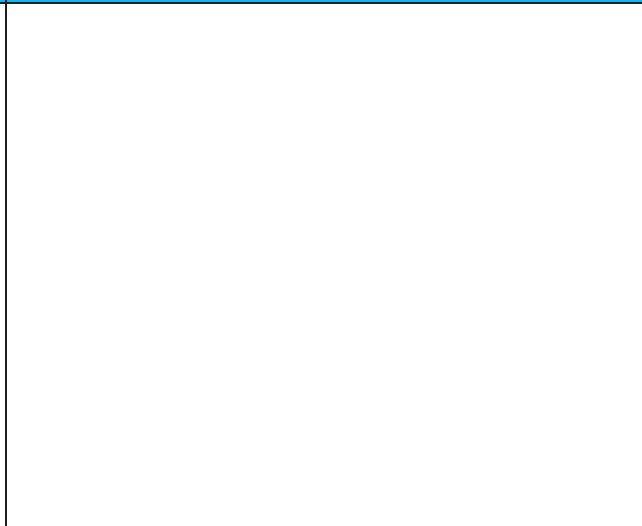


Photo 6:

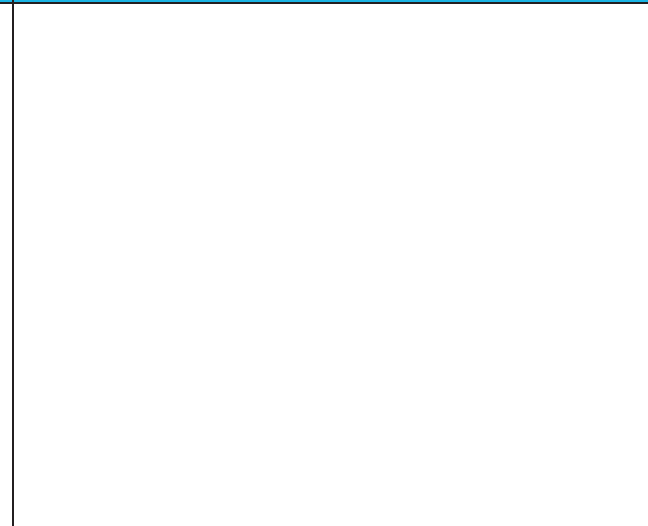


Photo Point ID: 94

Photo 1: View west



Photo 2: View south



Photo 3: View east



Photo 4: View north



Photo 5:



Photo 6:



Photo Point ID: 95

Photo 1: West

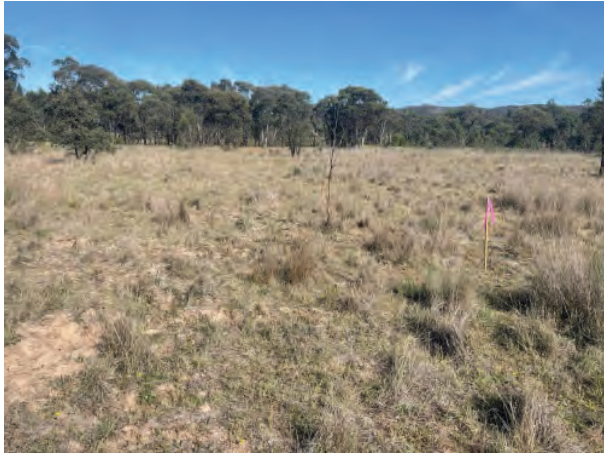


Photo 2: South west



Photo 3: South



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 96

Photo 1: East



Photo 2: South east



Photo 3: South



Photo 4: West



Photo 5:



Photo 6:



Photo Point ID: 97

Photo 1: West



Photo 2: North



Photo 3: North west



Photo 4: North west



Photo 5:

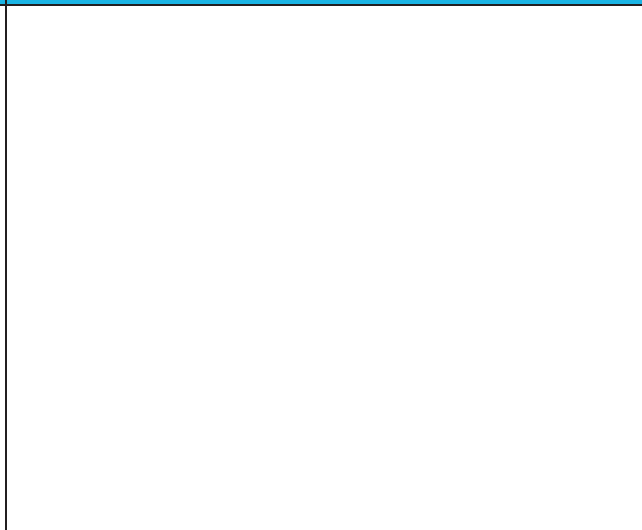


Photo 6:

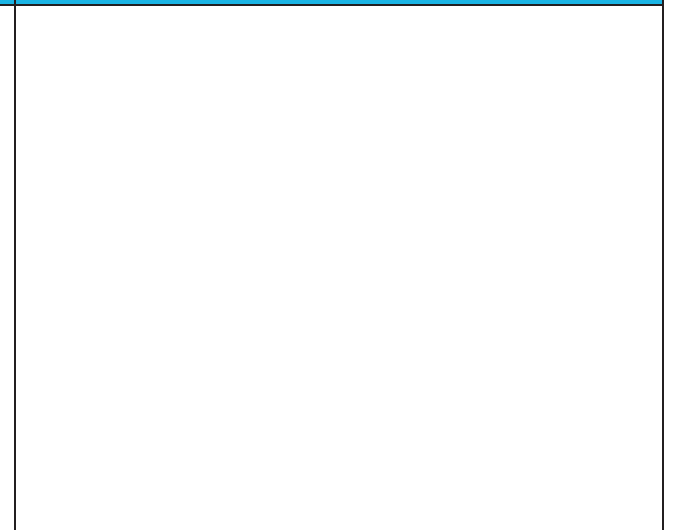


Photo Point ID: 98




Photo 1: Detail - prior excavation activity	Photo 2: Detail - prior excavation activity	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 99

Photo 1: View west



Photo 2: View south



Photo 3: View east



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 100


Photo 1: View north	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 101

Photo 1: GPS coords



Photo 2: E



Photo 3: N



Photo 4: W



Photo 5: S



Photo 6:



Photo 1:



Photo 2:



Photo 3:



Photo 4:



Photo 5:



Photo 6:



Photo Point ID: 103

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

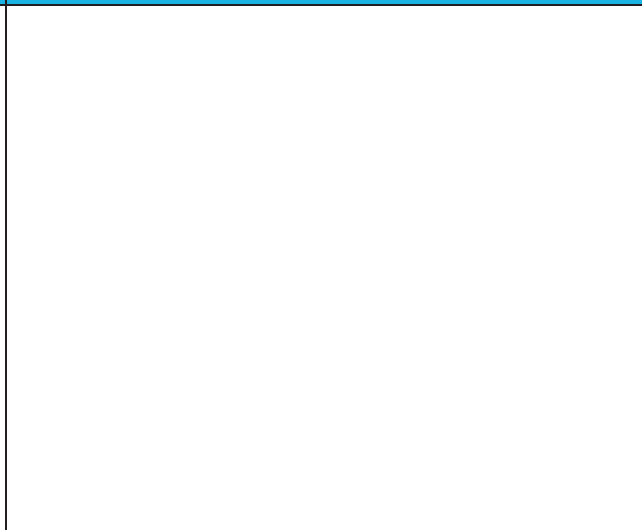


Photo 6:

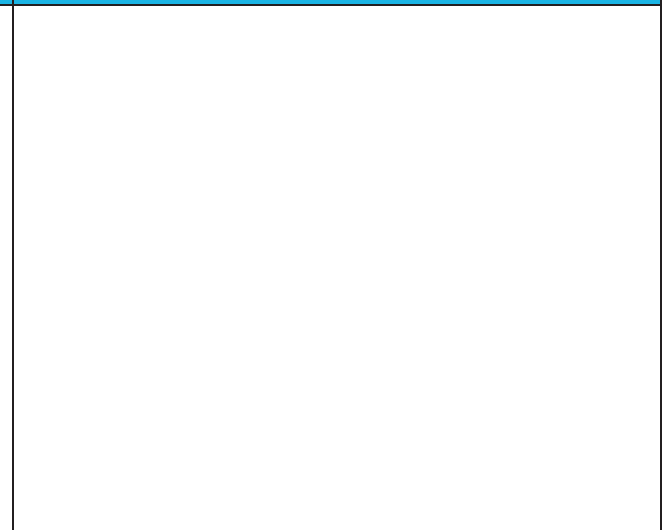


Photo Point ID: 104

Photo 1: View west



Photo 2: Detail - ephemeral watercourse



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 105

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

Photo 6:






Photo 1: View north	Photo 2: View east	Photo 3: View south
 A wide-angle photograph of a flat, open landscape under a clear blue sky. The ground is a mix of brown and green, suggesting sparse vegetation. In the distance, there are low hills and a few scattered trees.	 A wide-angle photograph of a flat, open landscape under a clear blue sky. The ground is a mix of brown and green. A bright light source is visible in the upper left corner, creating a lens flare effect. In the distance, there are low hills and a few scattered trees.	 A wide-angle photograph of a flat, open landscape under a clear blue sky. The ground is a mix of brown and green. A large, leafy tree is prominent in the middle ground on the left side. In the distance, there are low hills and a few scattered trees.
Photo 4: View west	Photo 5: Detail - moderate exposure	Photo 6:
 A wide-angle photograph of a flat, open landscape under a clear blue sky. A large, leafy tree is prominent in the middle ground on the left side. In the distance, there are low hills and a few scattered trees.	 A close-up photograph of the ground, showing a mix of brown soil, small green plants, and some dry vegetation. The lighting is bright, creating shadows.	

Photo Point ID: 107

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5: Detail - moderate exposure



Photo 6:



Photo Point ID: 108

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:



Photo 6:



Photo Point ID: 109

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

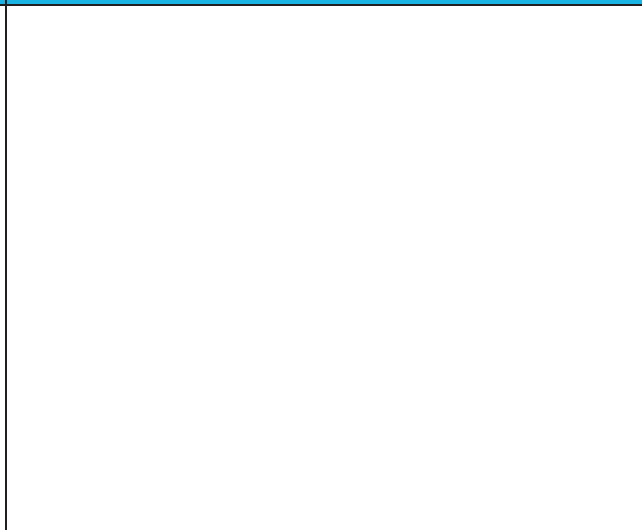


Photo 6:

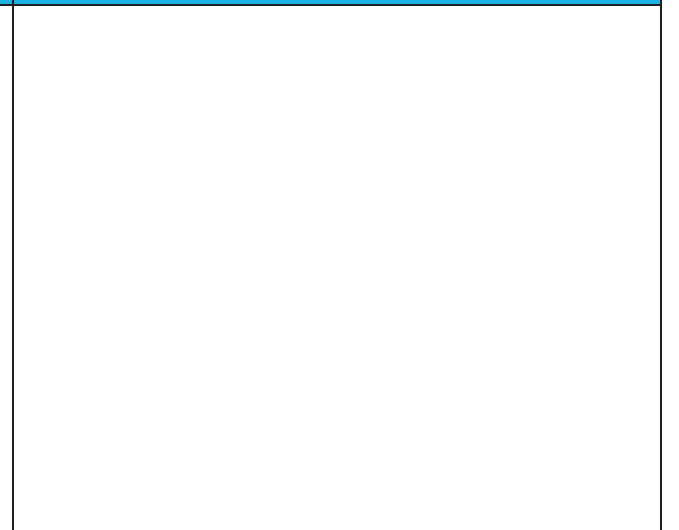


Photo Point ID: 110

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

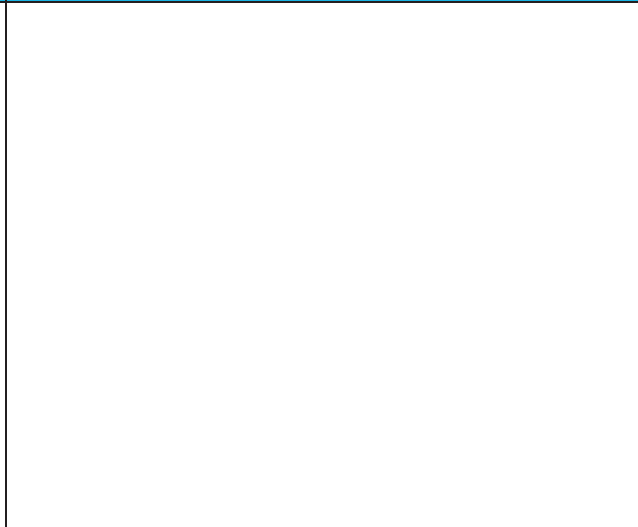


Photo 6:



Photo Point ID: 111

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

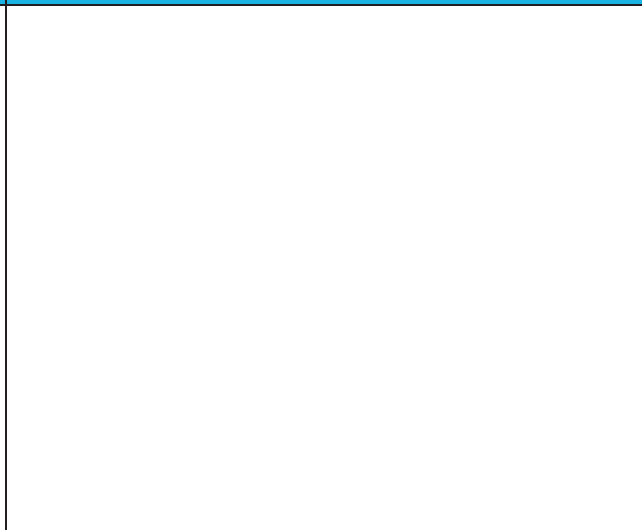


Photo 6:

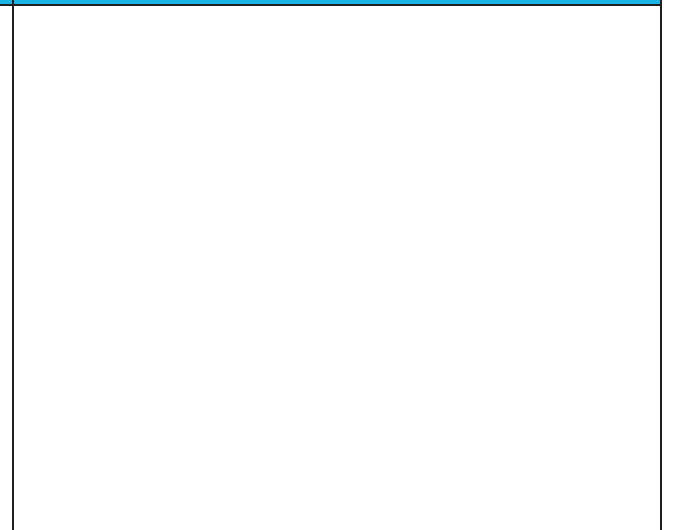


Photo Point ID: 112

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:



Photo 6:



Photo Point ID: 113

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

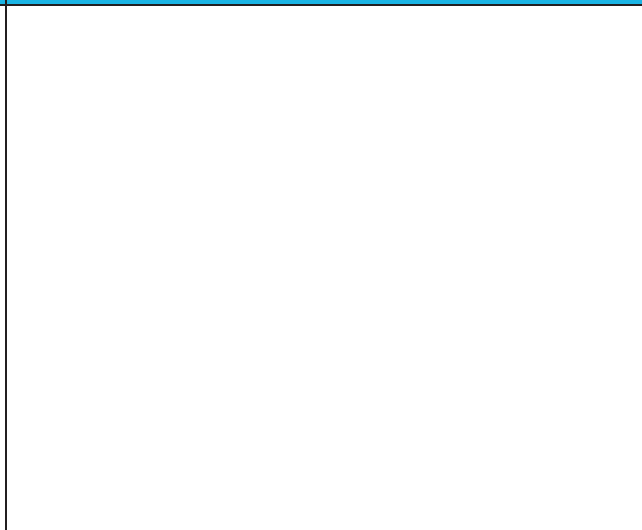


Photo 6:

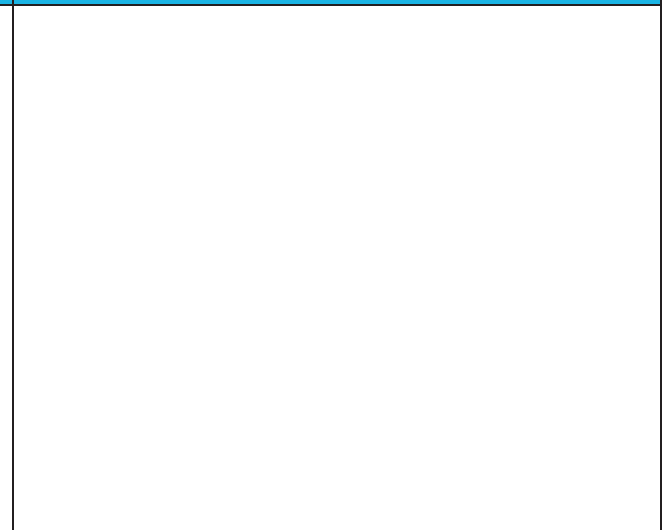


Photo Point ID: 114

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:



Photo 6:



Photo Point ID: 115

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

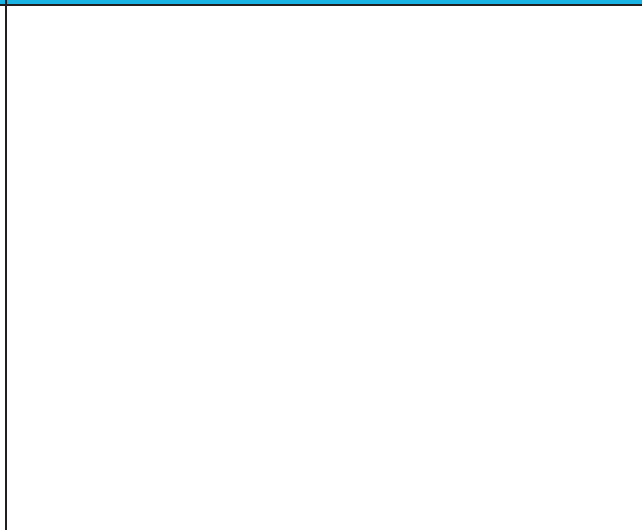


Photo 6:

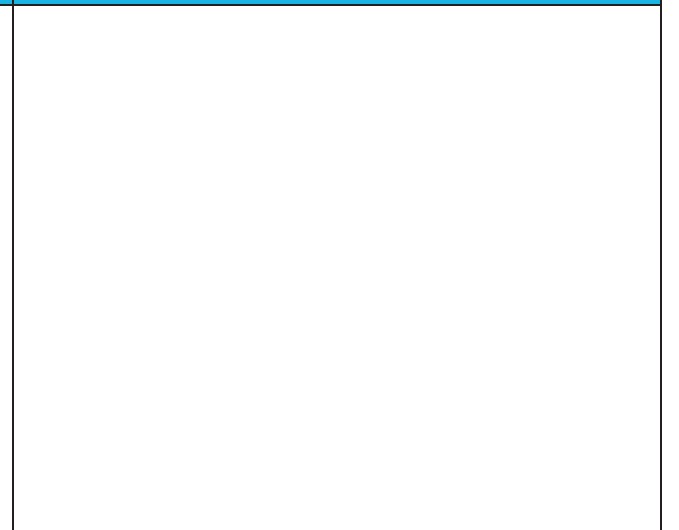


Photo Point ID: 116

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:



Photo 6:



Photo Point ID: 117

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

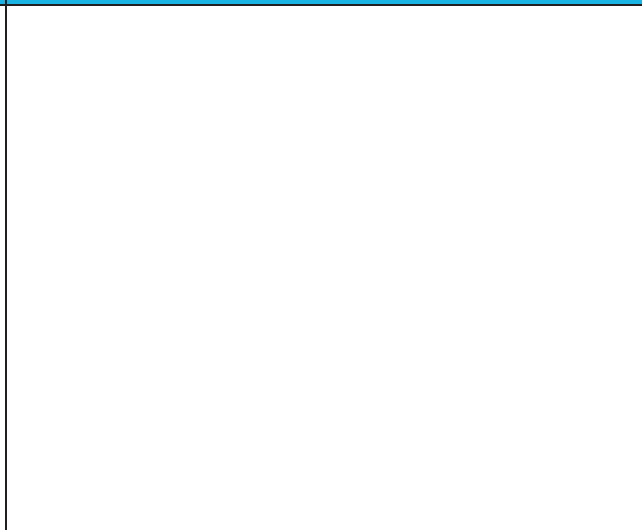


Photo 6:

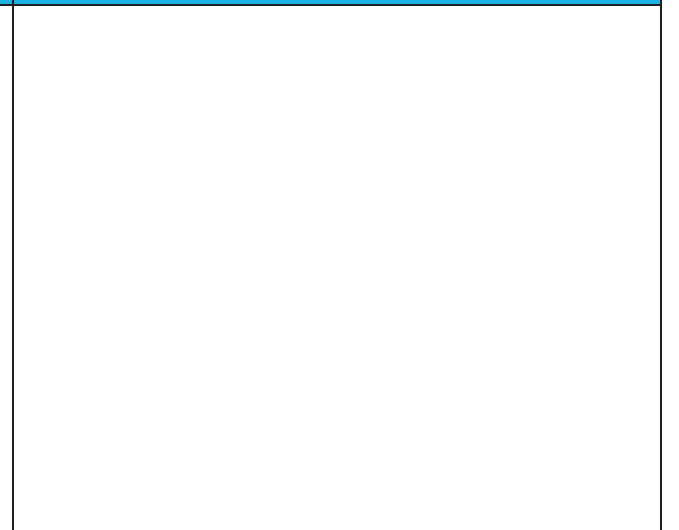


Photo Point ID: 118

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:



Photo 6:

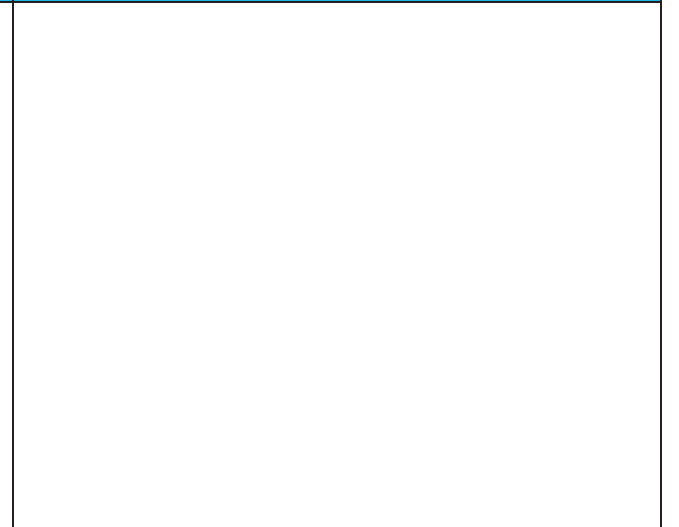


Photo Point ID: 119

Photo 1: North east



Photo 2: South west



Photo 3: West



Photo 4: East



Photo 5:



Photo 6:



Photo Point ID: 120

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:



Photo 6:



Photo Point ID: 121

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

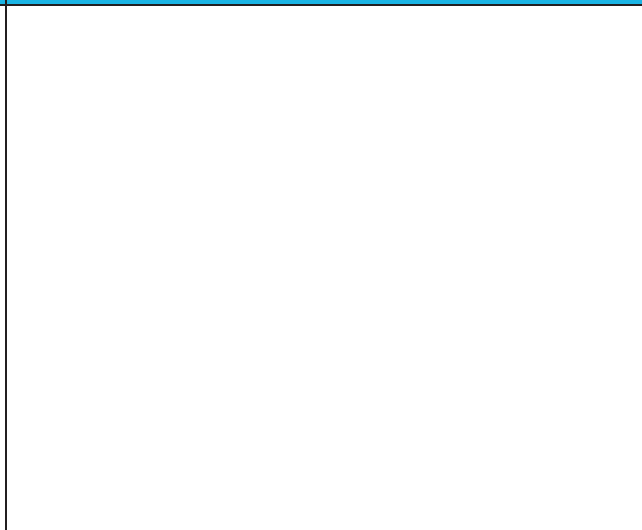


Photo 6:

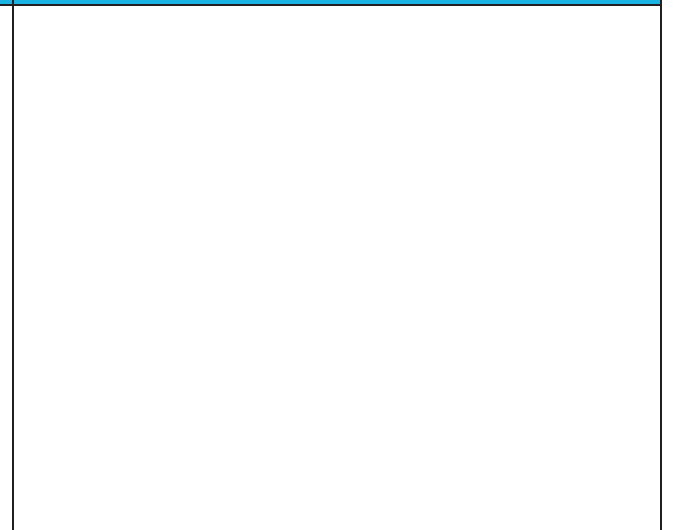


Photo Point ID: 122

Photo 1: North east



Photo 2: South west



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 123



Photo 1: North east	Photo 2: South west	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 124

Photo 1: North



Photo 2: East



Photo 3: South



Photo 4: West



Photo 5:

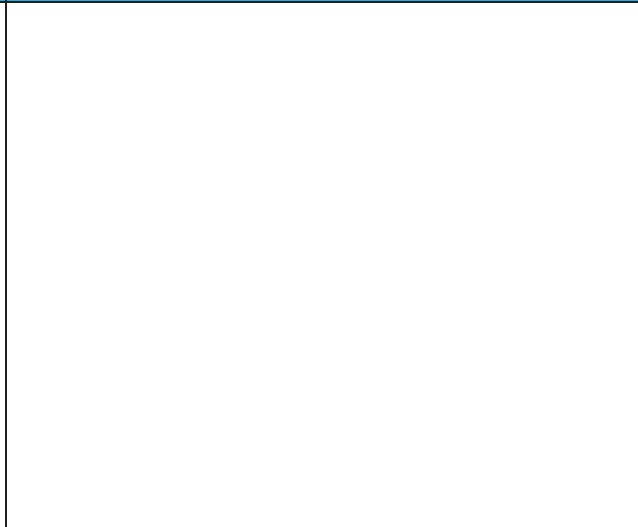


Photo 6:



Photo Point ID: 125

Photo 1: West



Photo 2: East



Photo 3: North



Photo 4: South



Photo 5:

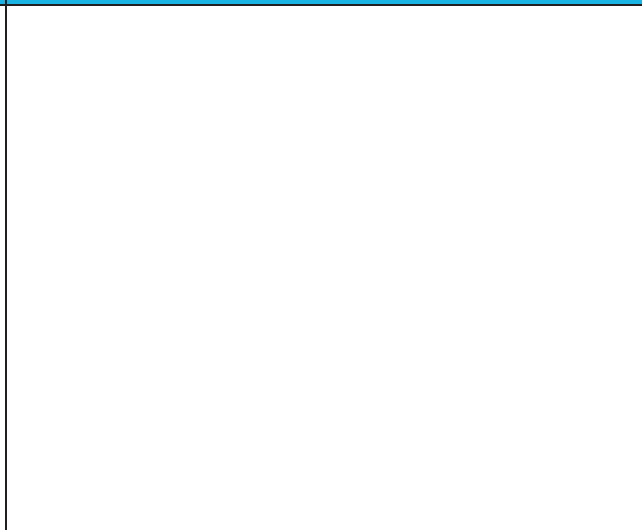


Photo 6:

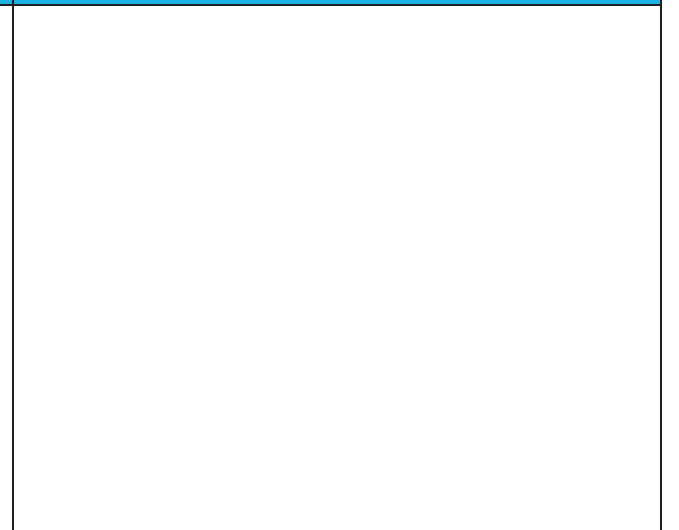


Photo Point ID: 126

Photo 1: North



Photo 2: West



Photo 3: South



Photo 4: East



Photo 5:



Photo 6:



Photo Point ID: 127

Photo 1: North



Photo 2: West



Photo 3: South



Photo 4: East



Photo 5:



Photo 6:



Photo Point ID: 128

Photo 1: North



Photo 2: West



Photo 3: South



Photo 4: East



Photo 5:



Photo 6:



Photo Point ID: 129

Photo 1: View west



Photo 2: View north



Photo 3: View east



Photo 4: View south



Photo 5:

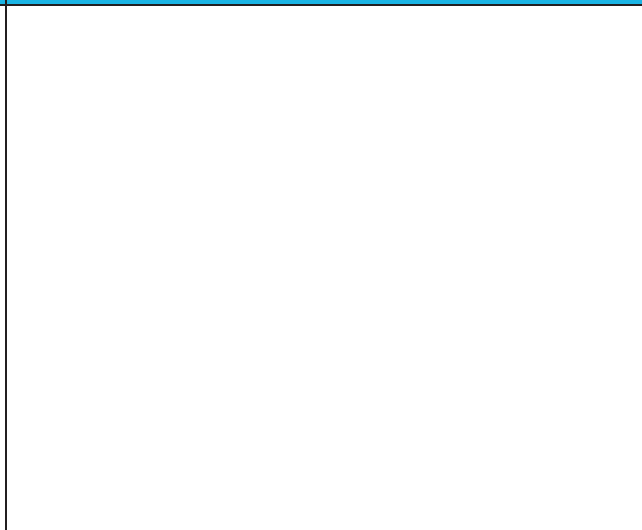


Photo 6:

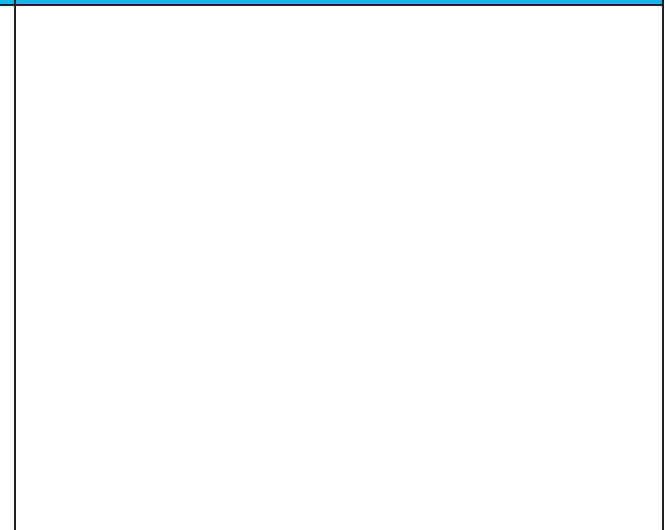


Photo Point ID: 130

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View south west



Photo 5: View west



Photo 6:



Photo Point ID: 131

Photo 1: View south



Photo 2: View west



Photo 3: View north



Photo 4: View east



Photo 5:

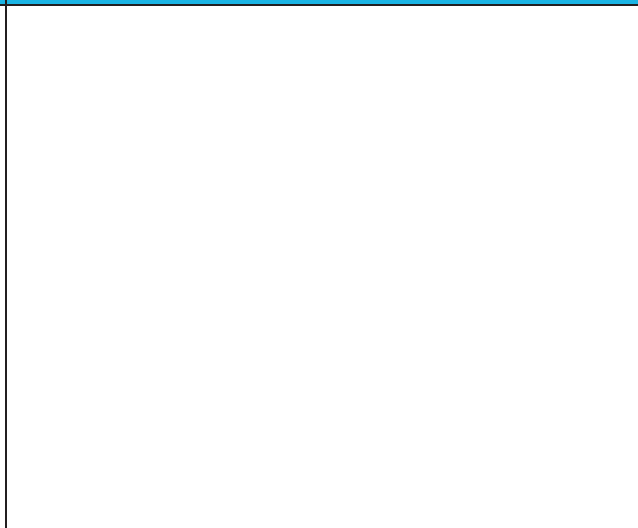


Photo 6:

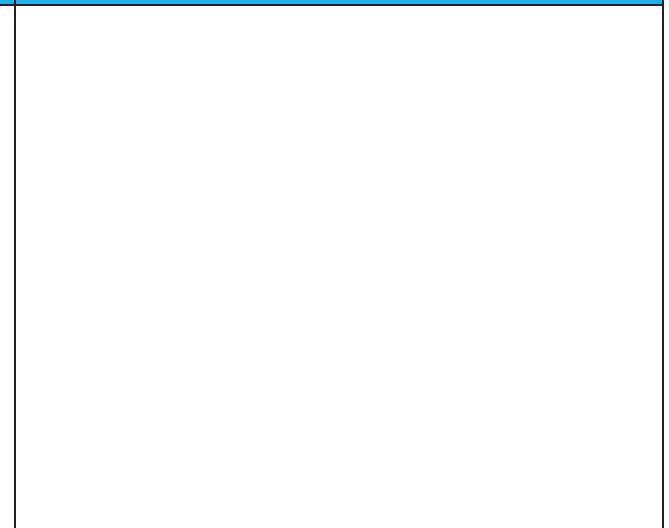


Photo Point ID: 132

Photo 1: Detail - possible fossicking



Photo 2: View south east



Photo 3: View south



Photo 4: View west



Photo 5: View north



Photo 6:

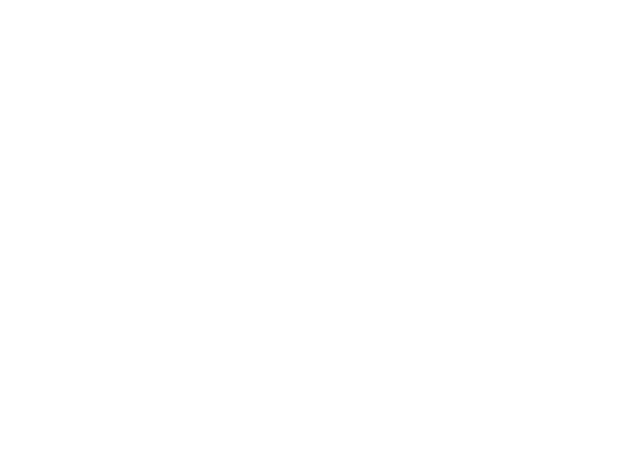


Photo Point ID: 133

Photo 1: Detail - possible fossicking



Photo 2: Detail - possible fossicking



Photo 3: View west



Photo 4: View north



Photo 5: View west



Photo 6:



Photo Point ID: 134

Photo 1: Detail - possible fossicking



Photo 2: View north



Photo 3: View east



Photo 4:

Photo 5:

Photo 6:



Photo Point ID: 135

Photo 1: View west

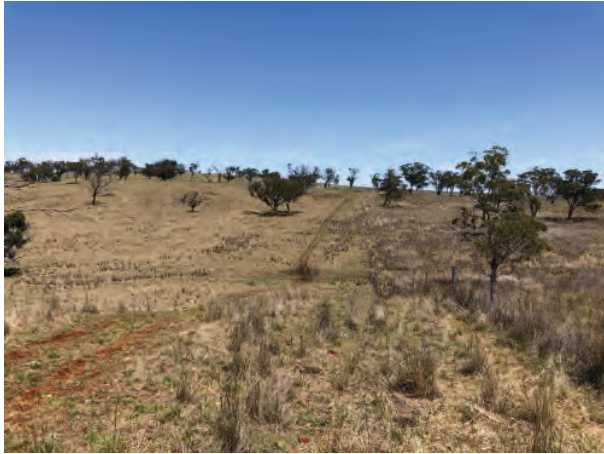


Photo 2: View north east



Photo 3: View north



Photo 4: View east



Photo 5:



Photo 6:



Photo Point ID: 136

Photo 1: View north



Photo 2: View east

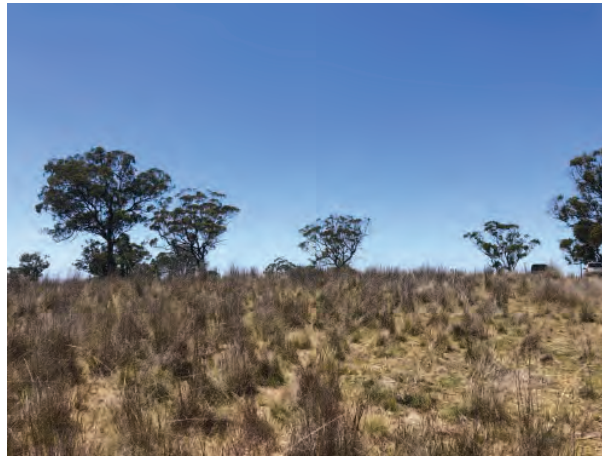


Photo 3: View south



Photo 4: View west



Photo 5:

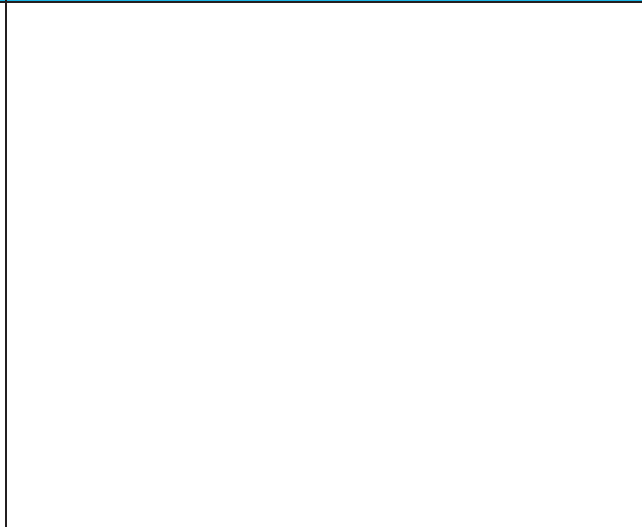


Photo 6:



Photo Point ID: 137

Photo 1: View west



Photo 2: View north



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 138

Photo 1: View north east

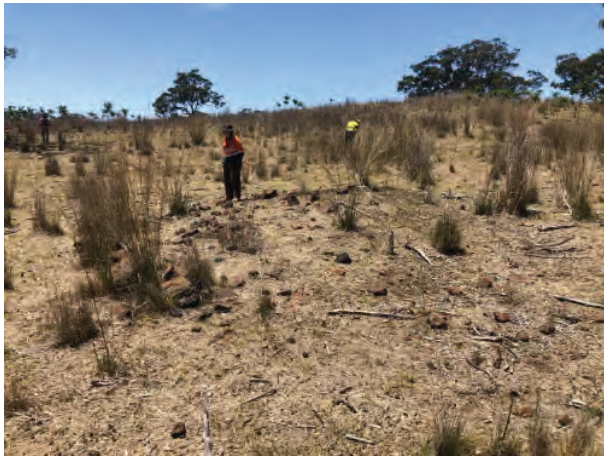


Photo 2: View south east



Photo 3: view south



Photo 4: View north west



Photo 5: Detail - slag conglomerate



Photo 6:



Photo Point ID: 139

Photo 1: View north



Photo 2: Detail - slag conglomerate



Photo 3: Detail - poor exposure



Photo 4: View north



Photo 5: view south



Photo 6:



Photo Point ID: 140

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:



Photo 6:



Photo Point ID: 141

Photo 1: View north west



Photo 2: View north



Photo 3: View east



Photo 4: View south



Photo 5:

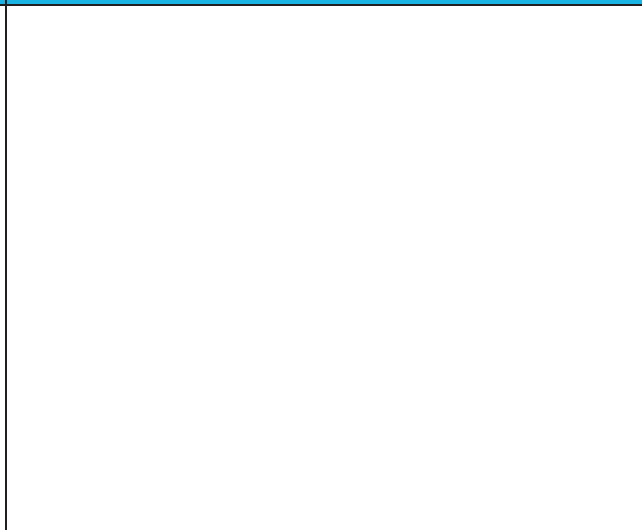


Photo 6:

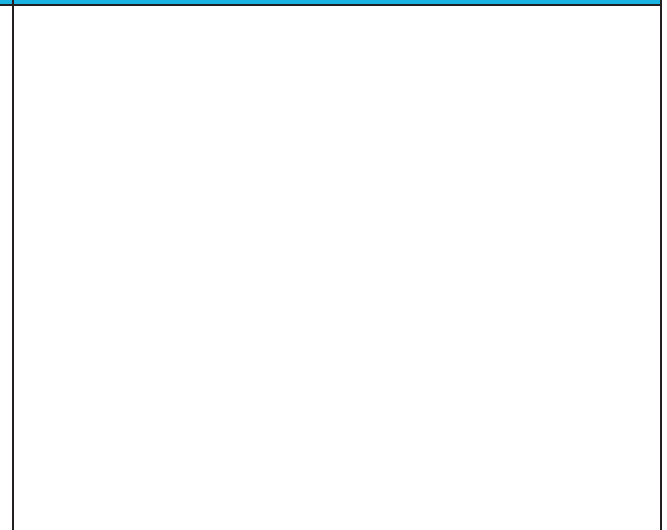


Photo 1: View east



Photo 2: View south



Photo 3: View north



Photo 4: View west



Photo 5:



Photo 6:



Photo Point ID: 143

Photo 1: View south



Photo 2: View west



Photo 3: View north



Photo 4: View east



Photo 5:

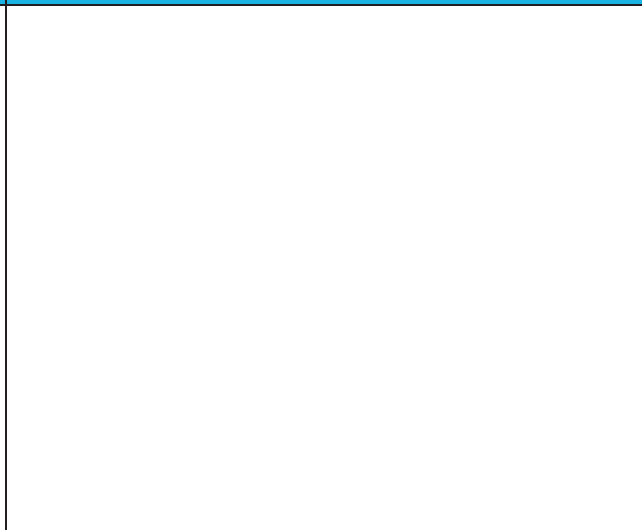


Photo 6:

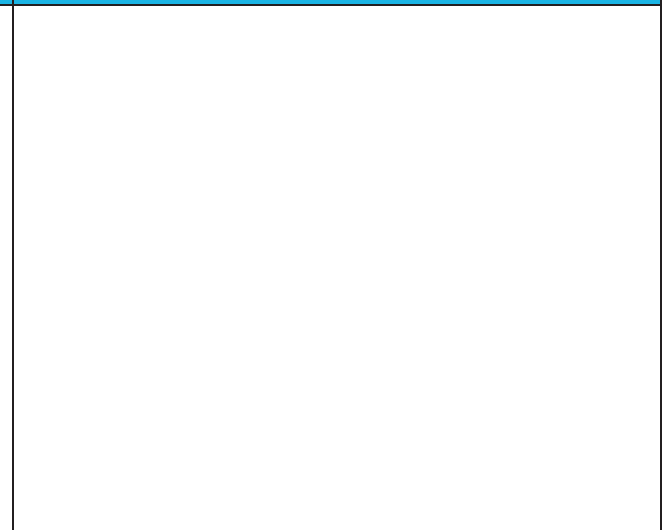


Photo Point ID: 144

Photo 1: View west



Photo 2: View south



Photo 3: View east



Photo 4: View north



Photo 5:



Photo 6:



Photo Point ID: 145

Photo 1: View south



Photo 2: View north



Photo 3: View west



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 146

Photo 1: View south



Photo 2: View east



Photo 3: View north



Photo 4: View west



Photo 5:



Photo 6:



Photo Point ID: 147

Photo 1: SE



Photo 2: NE



Photo 3: SW



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 148

Photo 1: View west



Photo 2: View north



Photo 3: View east



Photo 4: View south



Photo 5:



Photo 6:



Photo Point ID: 149

Photo 1: View east



Photo 2: View south



Photo 3: View west



Photo 4: View north



Photo 5:

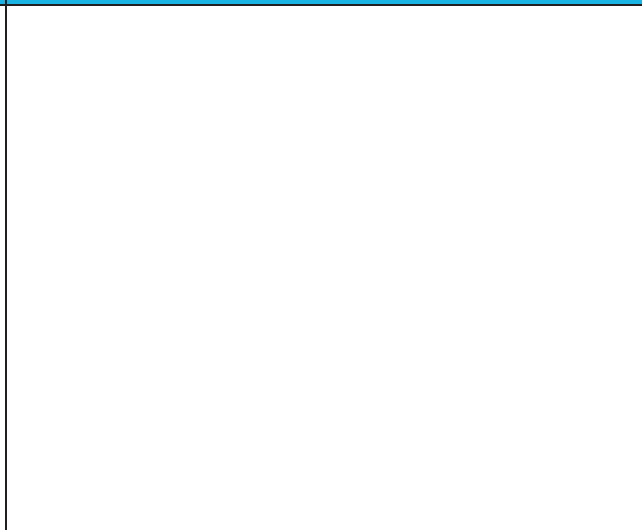


Photo 6:

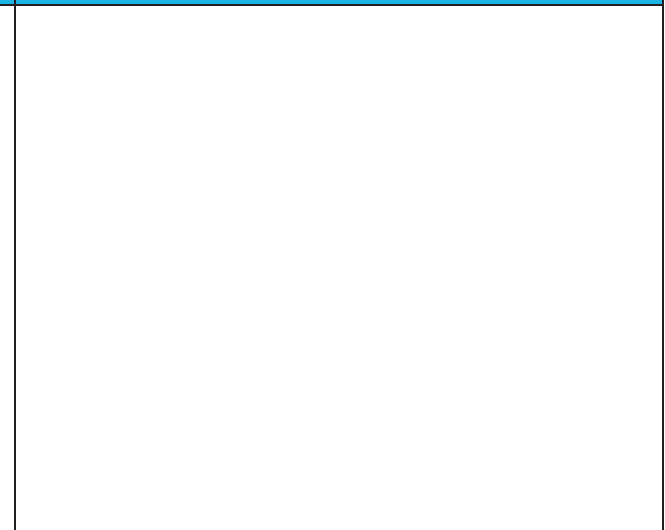


Photo Point ID: 150

Photo 1: View north east



Photo 2: View north west



Photo 3: View south



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 151

Photo 1: View west



Photo 2: View south



Photo 3: View north



Photo 4: View east



Photo 5:

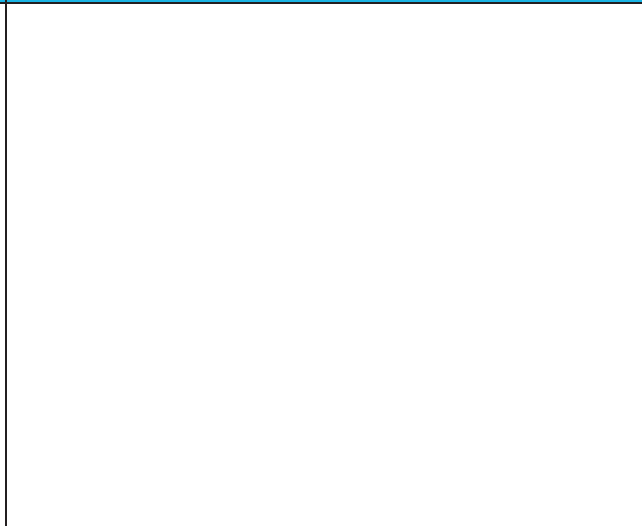


Photo 6:

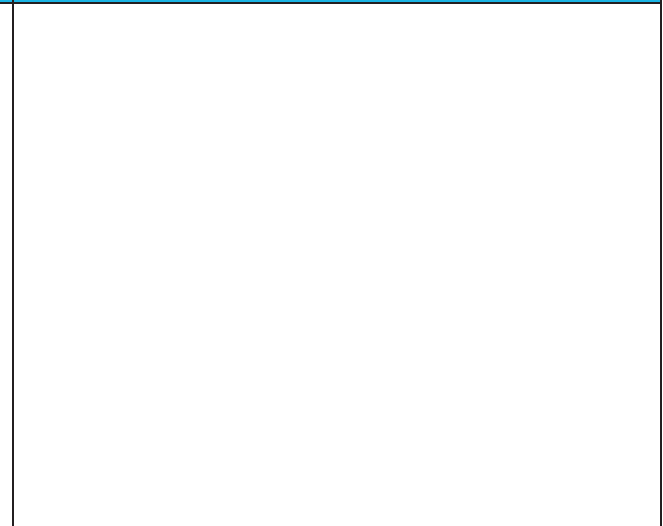


Photo Point ID: 152

Photo 1: View north west



Photo 2: View north east



Photo 3: View east



Photo 4: View south



Photo 5:

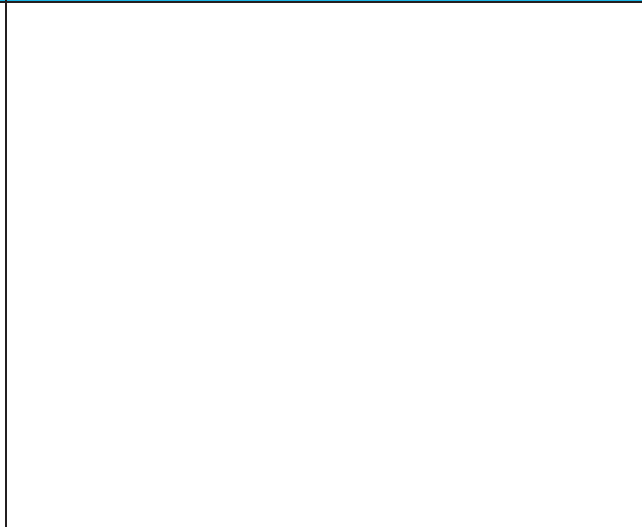


Photo 6:



Photo Point ID: 153

Photo 1: View north



Photo 2: View west



Photo 3: View south



Photo 4: View east



Photo 5:

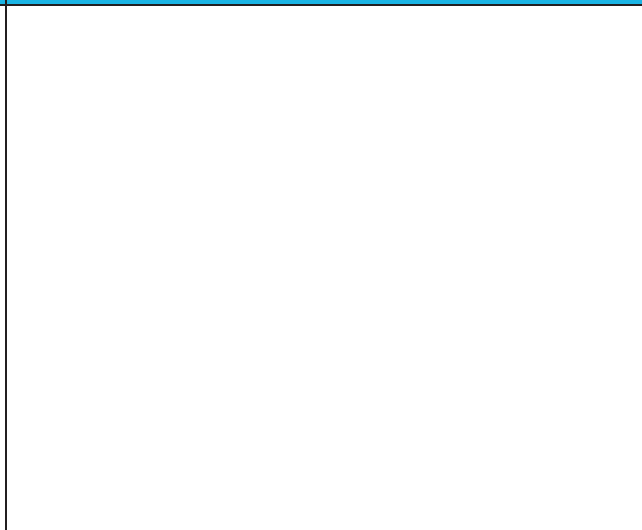


Photo 6:

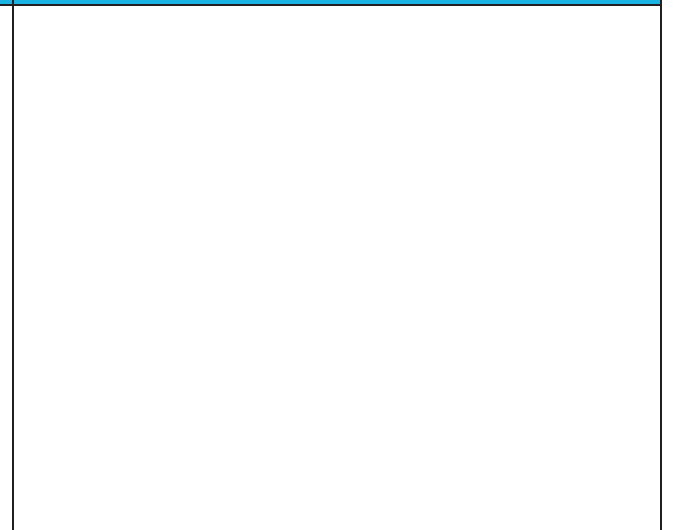


Photo Point ID: 154

Photo 1: View north west



Photo 2: View north east



Photo 3: View south



Photo 4: View west



Photo 5:

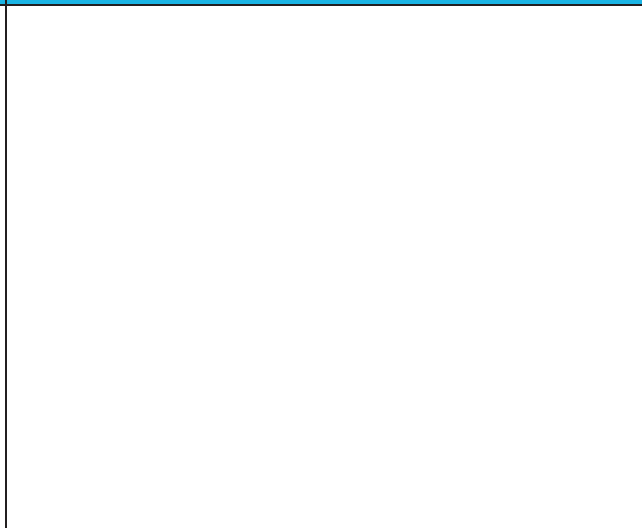


Photo 6:

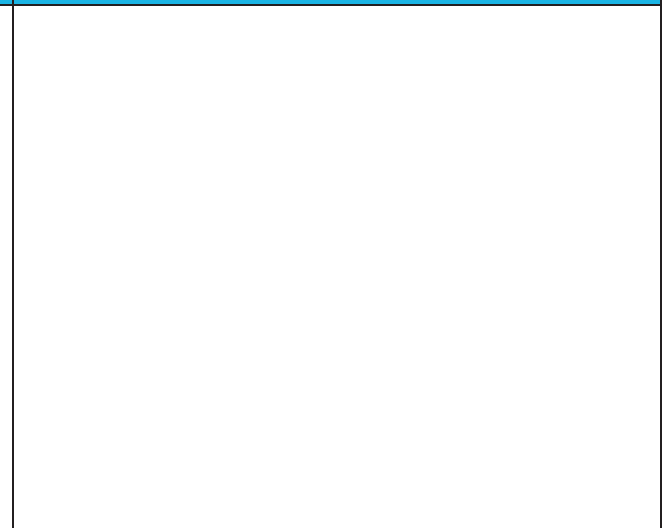


Photo Point ID: 155


Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 156

Photo 1: View east



Photo 2: View south



Photo 3: View west



Photo 4: View north



Photo 5:

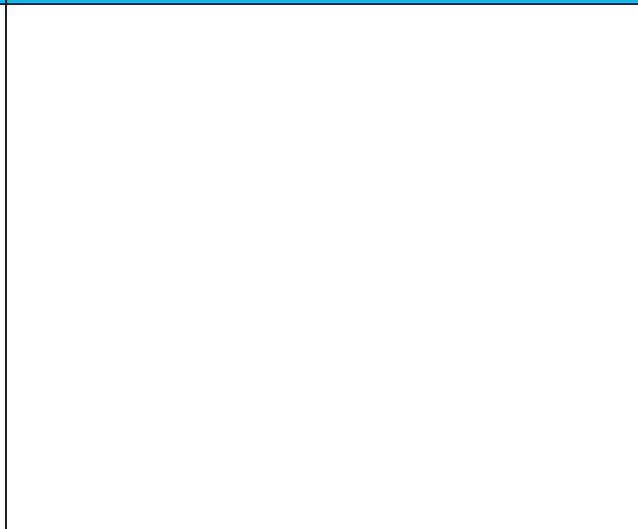


Photo 6:

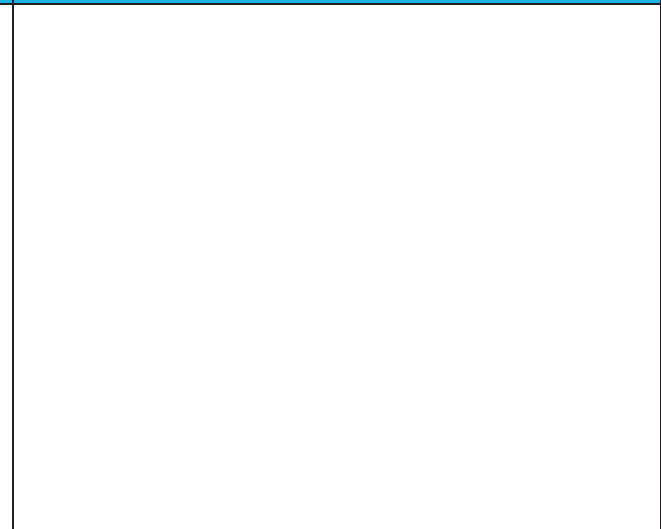


Photo Point ID: 157

Photo 1: View east



Photo 2: Detail - sand soil landscape



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 158

Photo 1: View north east



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

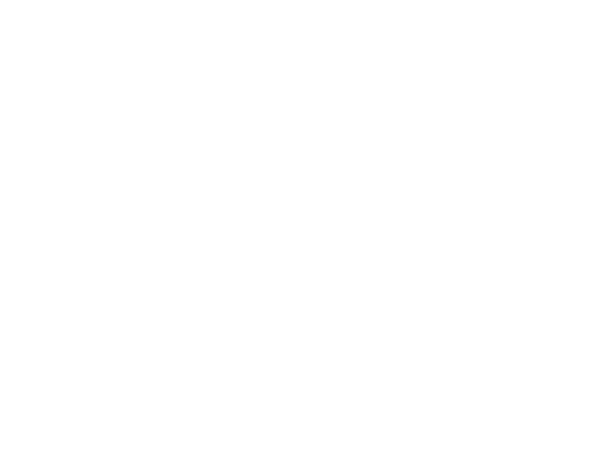


Photo 6:



Photo Point ID: 159

Photo 1: View north east



Photo 2: Deatil - warren



Photo 3: View west



Photo 4: View south



Photo 5: View north east, creek



Photo 6:



Photo Point ID: 160

Photo 1: View south



Photo 2:

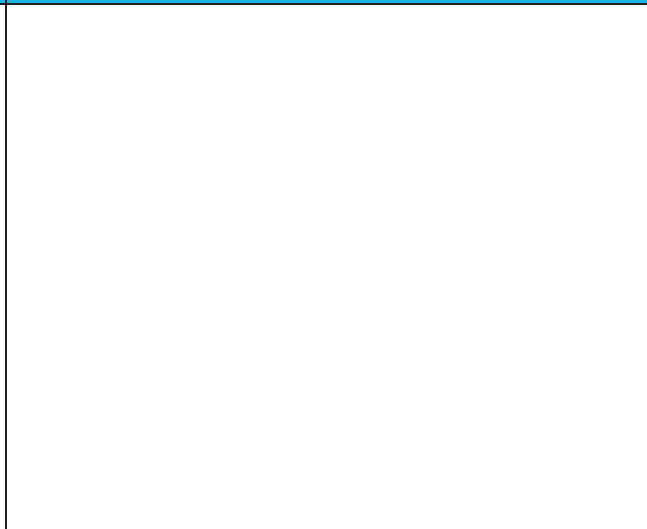


Photo 3:

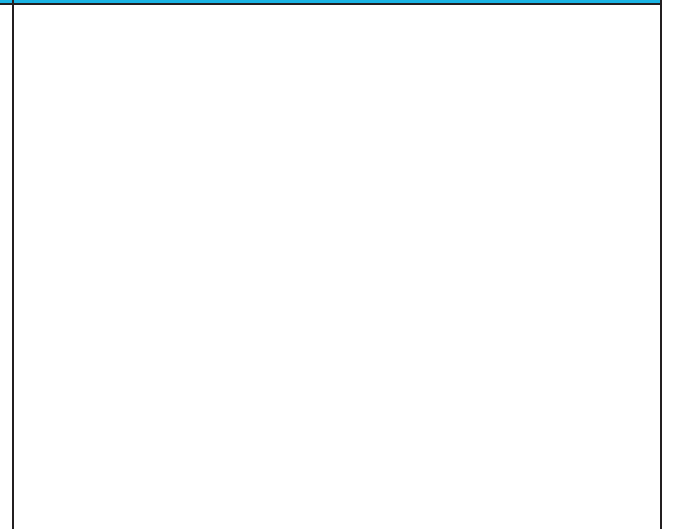


Photo 4:

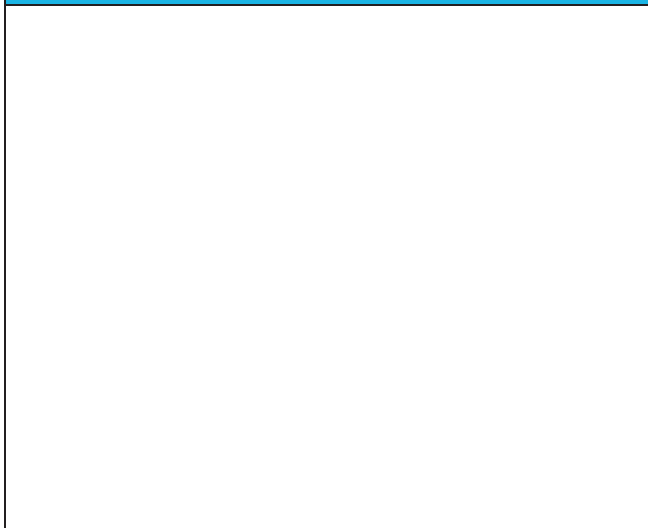


Photo 5:

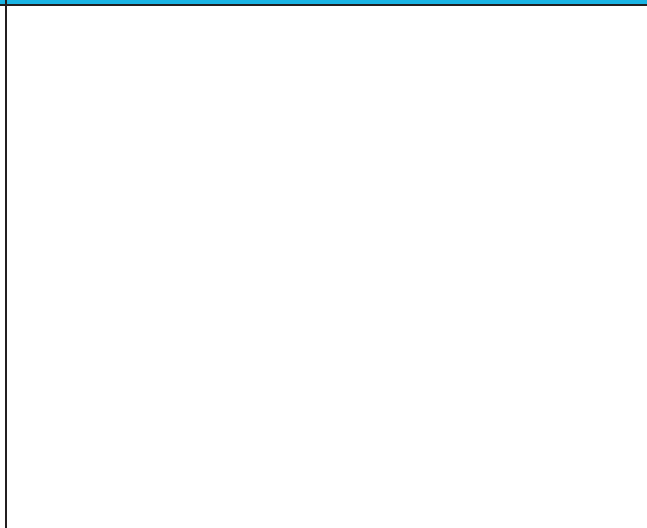


Photo 6:

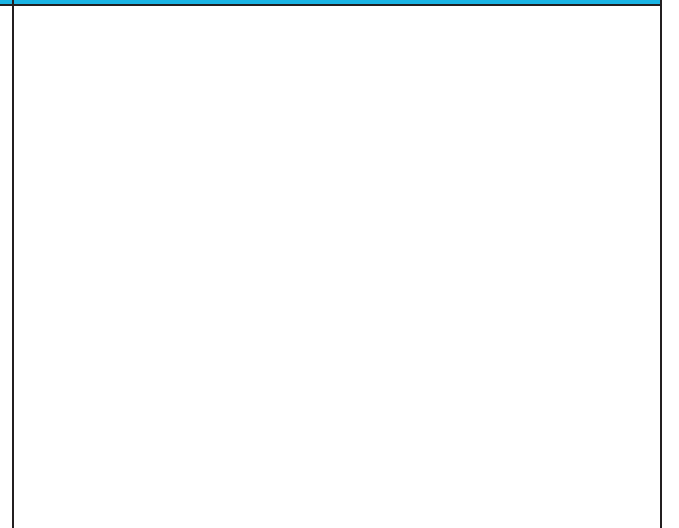


Photo Point ID: 161

Photo 1: View north east



Photo 2: View south east



Photo 3: View west



Photo 4: View north



Photo 5:

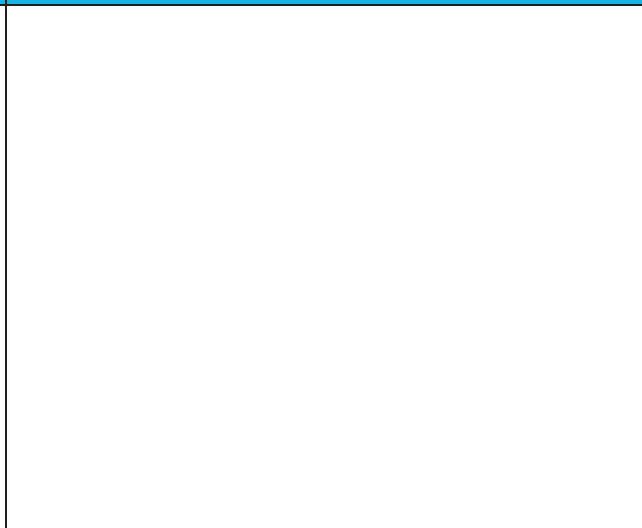


Photo 6:

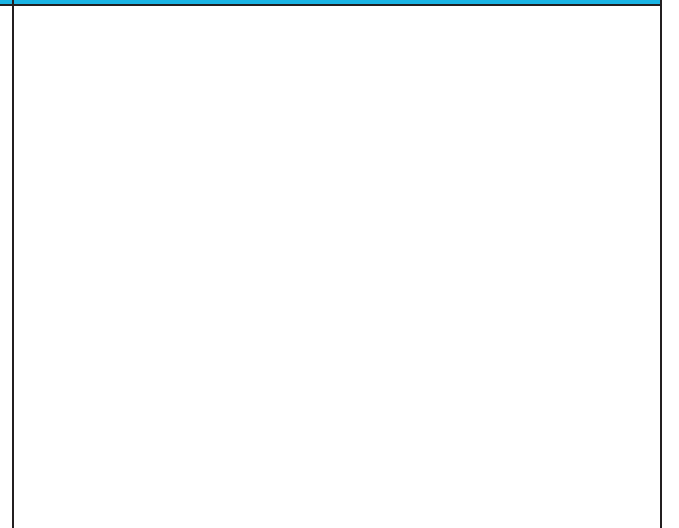


Photo Point ID: 162

Photo 1: View east



Photo 2: View north

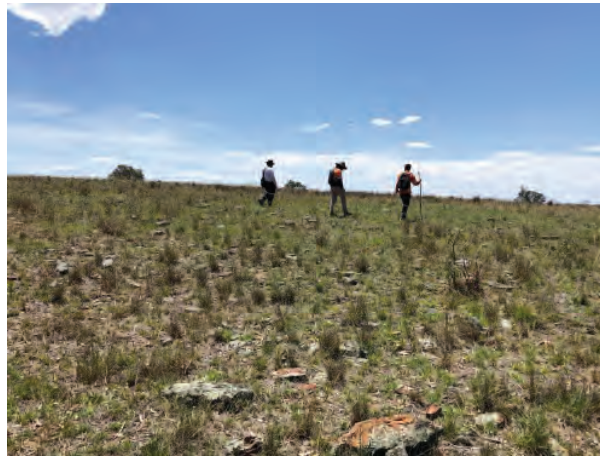


Photo 3: View west



Photo 4: View south



Photo 5:



Photo 6:



Photo Point ID: 163

Photo 1: View east



Photo 2: View south



Photo 3: View west



Photo 4: View north



Photo 5:

Photo 6:

Photo Point ID: 164

Photo 1: View south



Photo 2: View west



Photo 3: View north



Photo 4: View east



Photo 5:

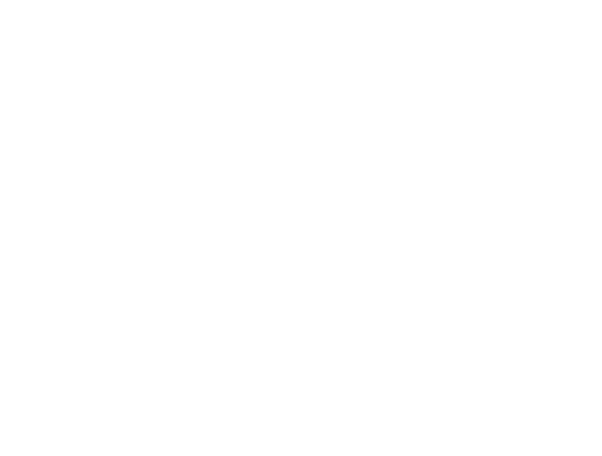


Photo 6:



Photo Point ID: 165

Photo 1: View west



Photo 2: View north



Photo 3: View east



Photo 4: View south



Photo 5: Detail - exposed bedrock sandstone



Photo 6:



Photo Point ID: 166

Photo 1: View east



Photo 2: View north



Photo 3: View west



Photo 4: View south



Photo 5:



Photo 6:

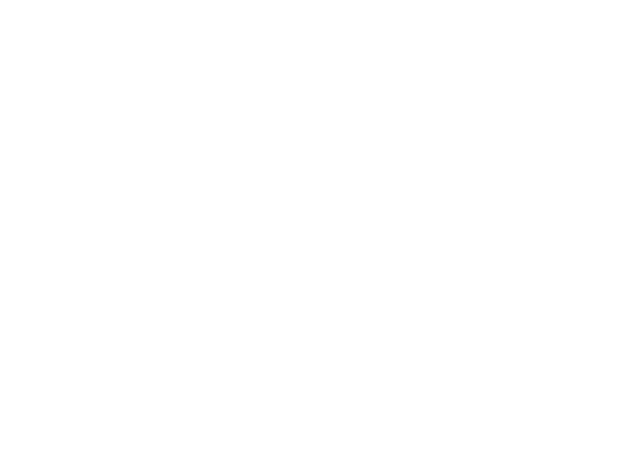


Photo Point ID: 167

Photo 1: View east



Photo 2: View north



Photo 3: View west



Photo 4: View - south



Photo 5:

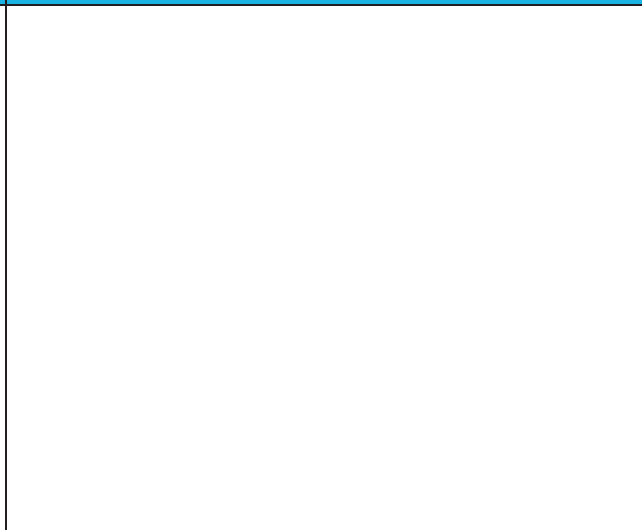


Photo 6:

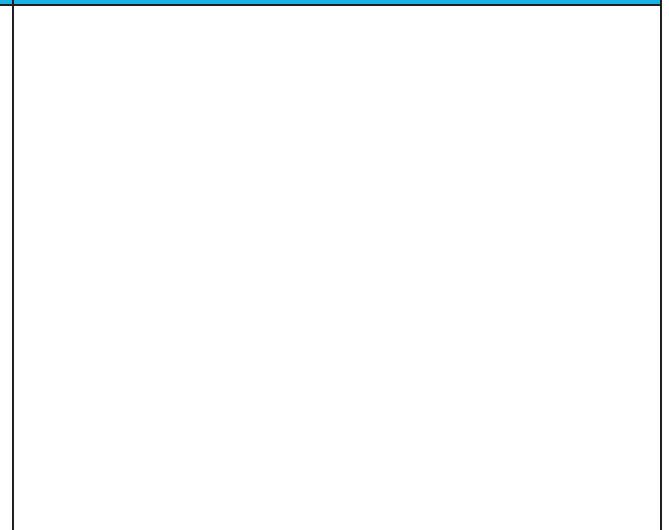


Photo Point ID: 168

Photo 1: View south



Photo 2: Detail - rockshelter



Photo 3: View east



Photo 4: View north



Photo 5: View west



Photo 6:



Photo Point ID: 169

Photo 1: View south



Photo 2: View west



Photo 3: View north



Photo 4: View east



Photo 5:

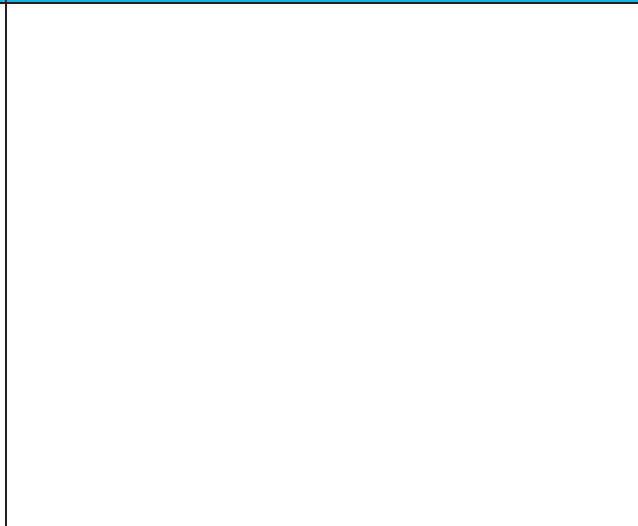


Photo 6:

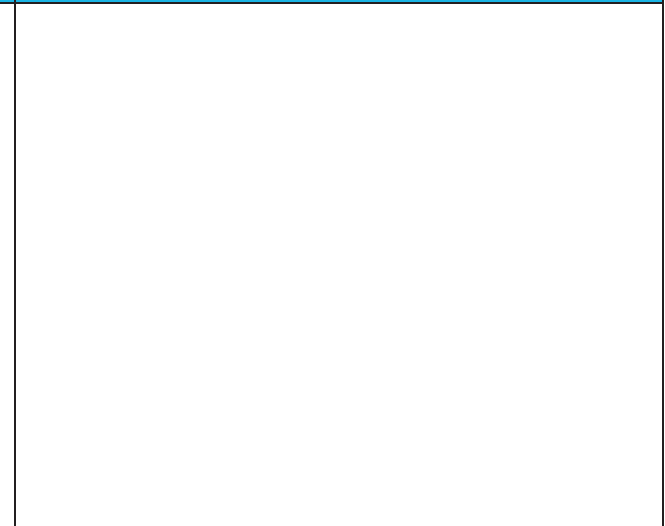


Photo Point ID: 170

Photo 1: View north



Photo 2: View west



Photo 3: View south



Photo 4: View east



Photo 5:



Photo 6:



Photo Point ID: 171

Photo 1: View west



Photo 2: View north



Photo 3: View east



Photo 4: View south



Photo 5:

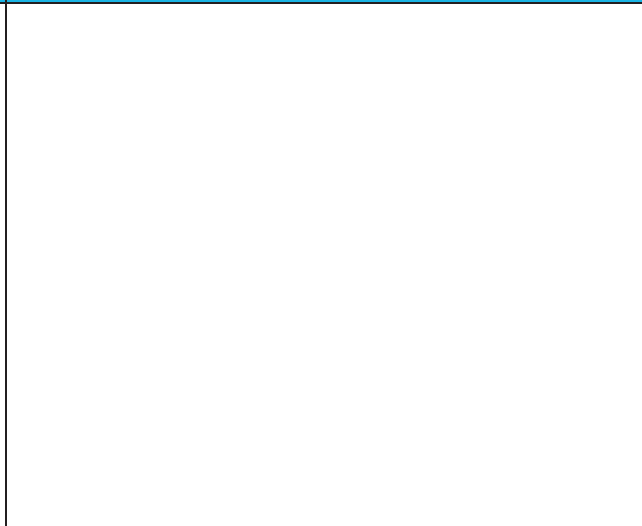


Photo 6:

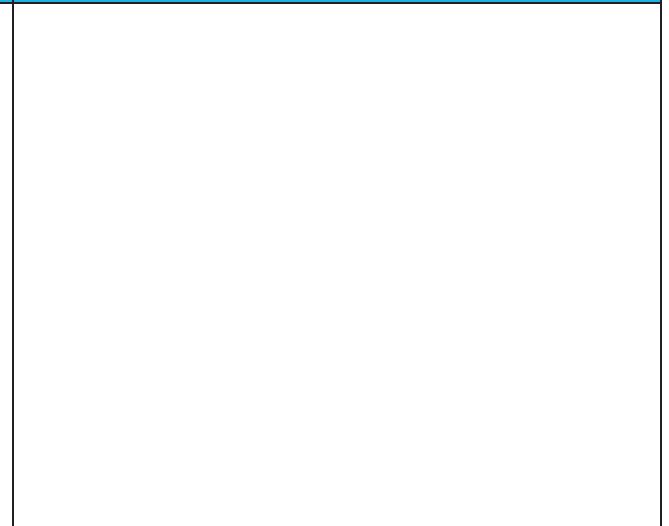


Photo Point ID: 172

Photo 1: Detail - poor exposure



Photo 2: View west



Photo 3: View east



Photo 4: Detail - red sand



Photo 5:



Photo 6:



Photo Point ID: 173

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

Photo 6:

Photo Point ID: 174

Photo 1: View east



Photo 2: View south



Photo 3: View west



Photo 4: View north



Photo 5:

Photo 6:

Photo Point ID: 175

Photo 1: View east



Photo 2: View south



Photo 3: View west



Photo 4:

Photo 5:

Photo 6:

Photo 1: View south



Photo 2: View west



Photo 3: View east



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 177

Photo 1: View south



Photo 2: Detail - slag conglomerate



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 178

Photo 1: View west



Photo 2: View north



Photo 3: View south



Photo 4: View east



Photo 5:



Photo 6:



Photo Point ID: 179

Photo 1: View south



Photo 2: View south west



Photo 3: View north west



Photo 4: View north



Photo 5: View east



Photo 6:



Photo Point ID: 180

Photo 1: View south west



Photo 2: View west



Photo 3: View north west



Photo 4: View north



Photo 5:



Photo 6:

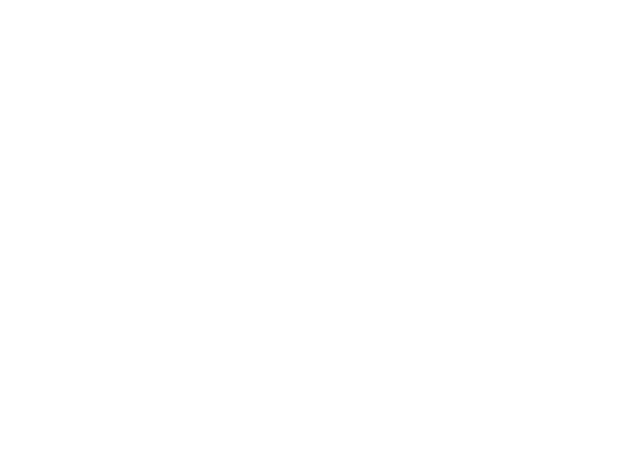


Photo Point ID: 181

Photo 1: View south



Photo 2: View west



Photo 3: View north



Photo 4: View east



Photo 5:

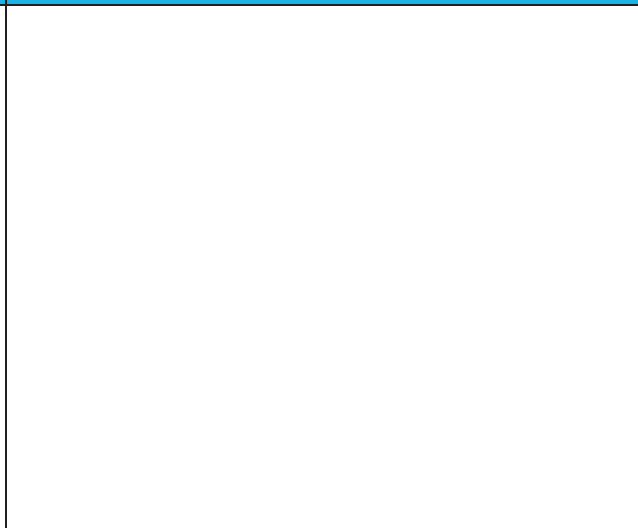


Photo 6:

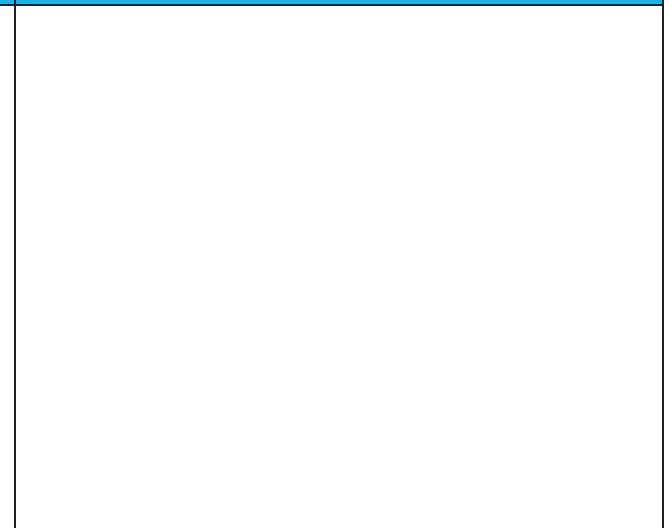


Photo 1: View south



Photo 2: View west



Photo 3: View north east



Photo 4: View south east



Photo 5:



Photo 6:



Photo Point ID: 183

Photo 1: Detail - West facing, abandoned excavation area



Photo 2: Detail - West facing, new excavation area



Photo 3: Detail - flood event



Photo 4: Detail - east facing, abandoned excavation area



Photo 5: NE side river no testing big floods



Photo 6:



Photo Point ID: 184

Photo 1: View south



Photo 2: View north east



Photo 3: View north west



Photo 4: View west



Photo 5:



Photo 6:



Photo Point ID: 185

Photo 1: View south



Photo 2: View south west



Photo 3: View west



Photo 4: View north west



Photo 5: View east



Photo 6:

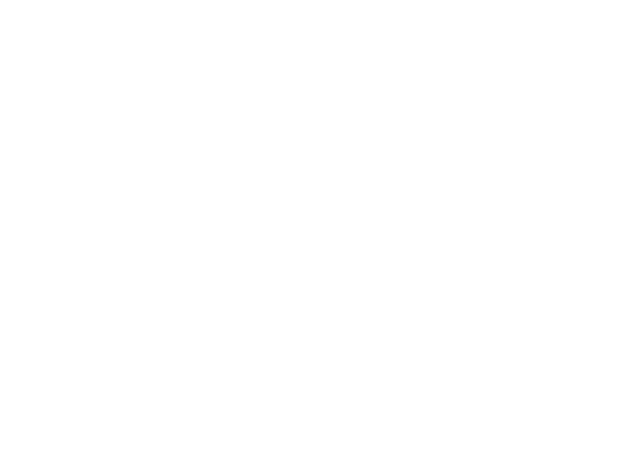


Photo Point ID: 186

Photo 1: View south



Photo 2: View west



Photo 3: View north



Photo 4: View east



Photo 5:



Photo 6:



Photo Point ID: 187

Photo 1: Detail - grinding slab



Photo 2: Detail - plate polish



Photo 3: Detail - grinding slab



Photo 4: View south



Photo 5: View north



Photo 6:



Photo 1: Detail - quartz conglomerate



Photo 2: View north



Photo 3: View east



Photo 4: View south



Photo 5: View west



Photo 6:

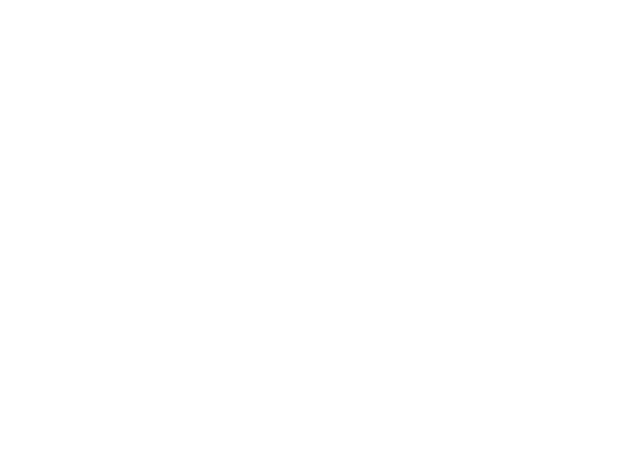


Photo Point ID: 189

Photo 1: View east



Photo 2: View south



Photo 3: View west



Photo 4: View north



Photo 5:

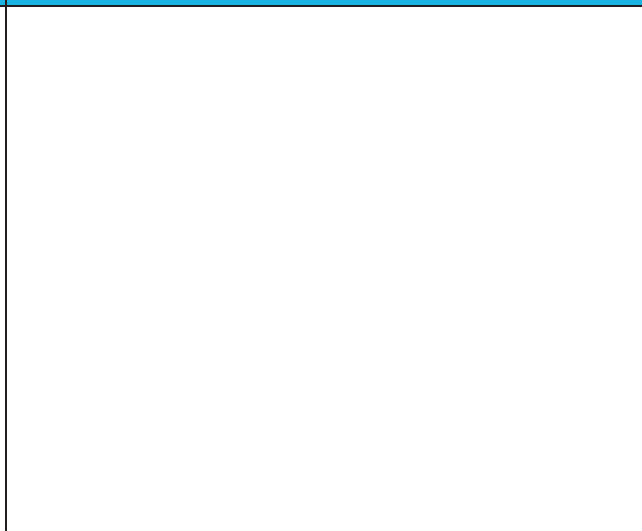


Photo 6:

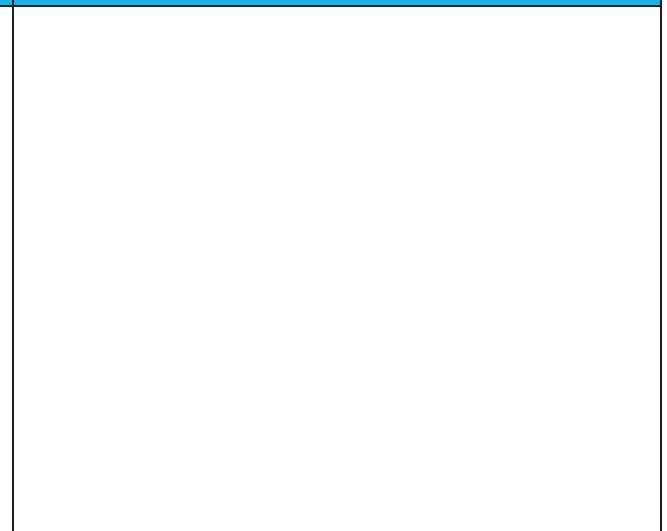


Photo Point ID: 190

Photo 1: View south



Photo 2: View west



Photo 3: View north



Photo 4: View east



Photo 5:



Photo 6:



Photo Point ID: 191

Photo 1: View south



Photo 2: View west



Photo 3: View north



Photo 4: View south east



Photo 5:

Photo 6:

Photo Point ID: 192

Photo 1: View east



Photo 2: View north



Photo 3: View west



Photo 4: View south



Photo 5:



Photo 6:



Photo Point ID: 193

Photo 1: View north east



Photo 2: View south east



Photo 3: View north west



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 194

Photo 1: View north east



Photo 2: View south west



Photo 3: View south east



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 195

Photo 1: View north east



Photo 2: View south



Photo 3: View south east



Photo 4: View north west



Photo 5:

Photo 6:

Photo Point ID: 196

Photo 1: View north east



Photo 2: View south west



Photo 3: View south east



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 197

Photo 1: View north east



Photo 2: View south west



Photo 3: View south east



Photo 4: View north west



Photo 5:

Photo 6:

Photo Point ID: 198

Photo 1: View north east



Photo 2: View south west



Photo 3: View south east



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 199

Photo 1: View north east



Photo 2: View south east



Photo 3: View south west



Photo 4: View west



Photo 5:

Photo 6:

Photo Point ID: 200

Photo 1: View east



Photo 2: View west



Photo 3: View north



Photo 4: View south



Photo 5:

Photo 6:

Photo Point ID: 201

Photo 1: View east



Photo 2: View south



Photo 3: View west



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 202

Photo 1: View west



Photo 2: View north



Photo 3: View east



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 203



Photo 1: View north	Photo 2: View east	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 204

Photo 1: View north



Photo 2: View east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 205

Photo 1: View north



Photo 2: View south



Photo 3: View east



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 206

Photo 1: View south



Photo 2: View north



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 207

Photo 1: View north



Photo 2: View west



Photo 3: View east



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 208

Photo 1: View north east



Photo 2: View south west



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 209



Photo 1: View north east	Photo 2: View south west	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 210

Photo 1: View north west



Photo 2: View south east



Photo 3: View north east



Photo 4: View south west



Photo 5:

Photo 6:

Photo Point ID: 211

Photo 1: View south west



Photo 2: View north east



Photo 3: View south east



Photo 4: View north west



Photo 5:

Photo 6:

Photo Point ID: 212

Photo 1: View west



Photo 2: View east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 213



Photo 1: View east	Photo 2: View west	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 214

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

Photo 6:

Photo Point ID: 215

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:



Photo 6:



Photo Point ID: 216

Photo 1: View north



Photo 2: View east



Photo 3: View east



Photo 4: View south



Photo 5: View west



Photo 6:



Photo Point ID: 217

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

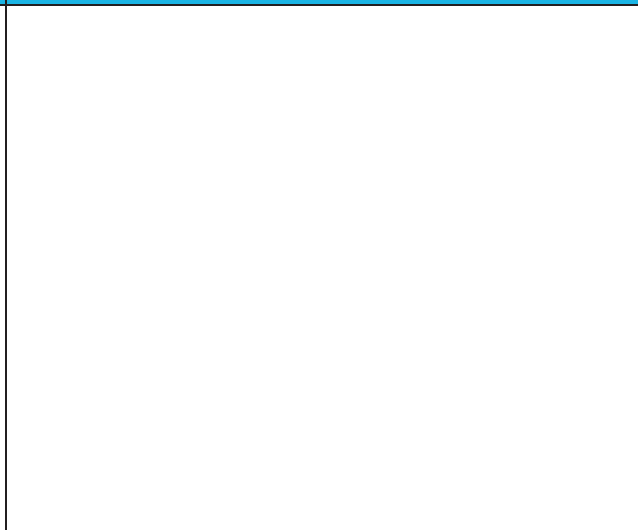


Photo 6:

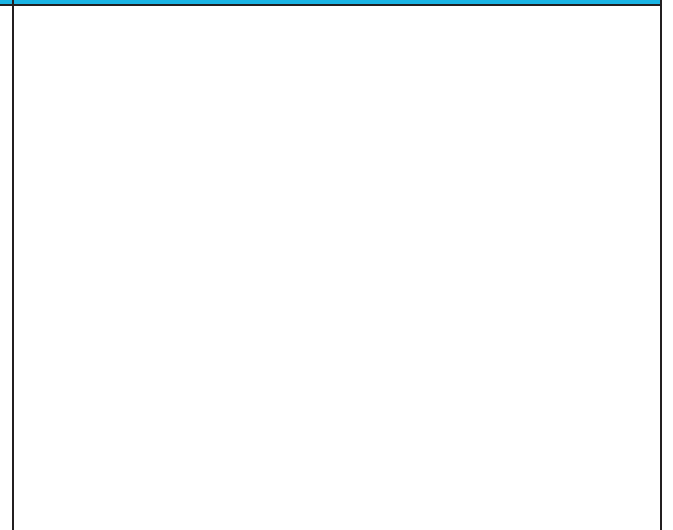


Photo Point ID: 218

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:



Photo 6:



Photo Point ID: 219

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

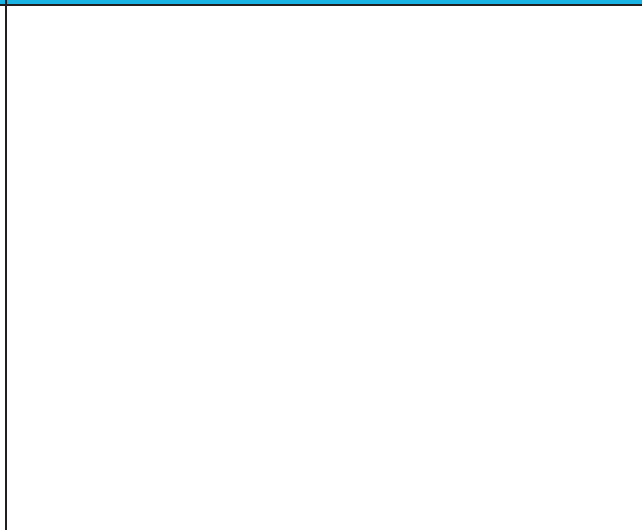


Photo 6:

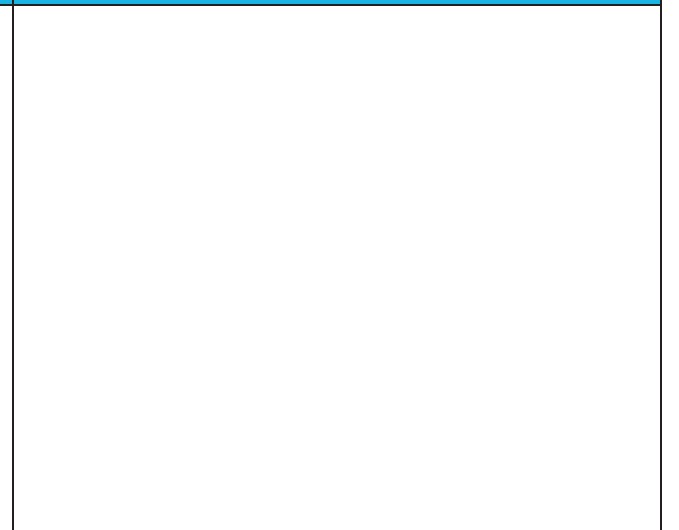


Photo Point ID: 220

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

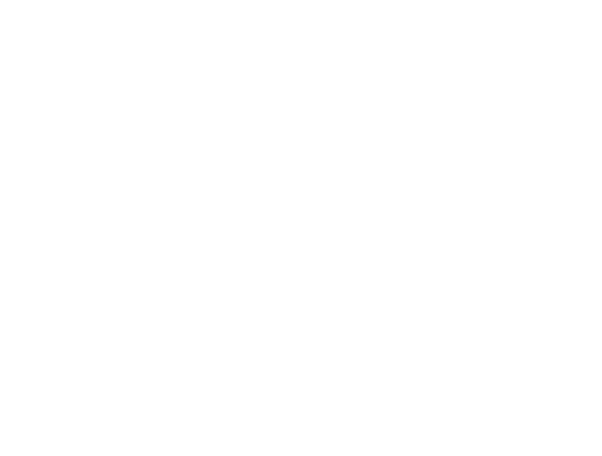


Photo 6:



Photo Point ID: 221

Photo 1: View north

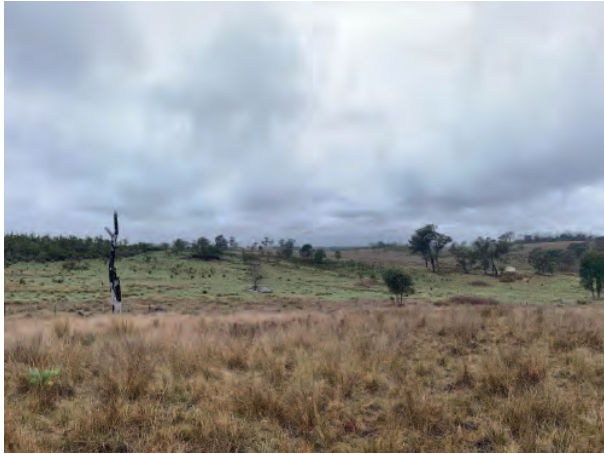


Photo 2: View east



Photo 3: View south

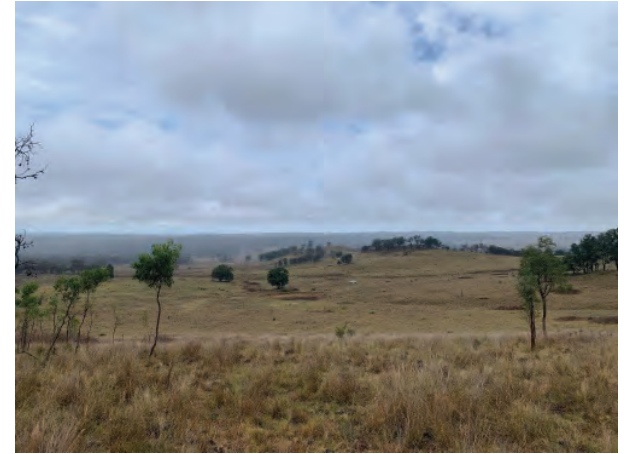


Photo 4: View west



Photo 5:

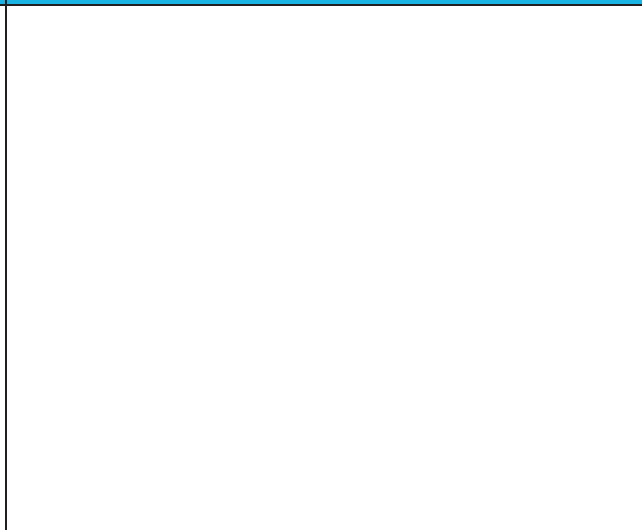


Photo 6:

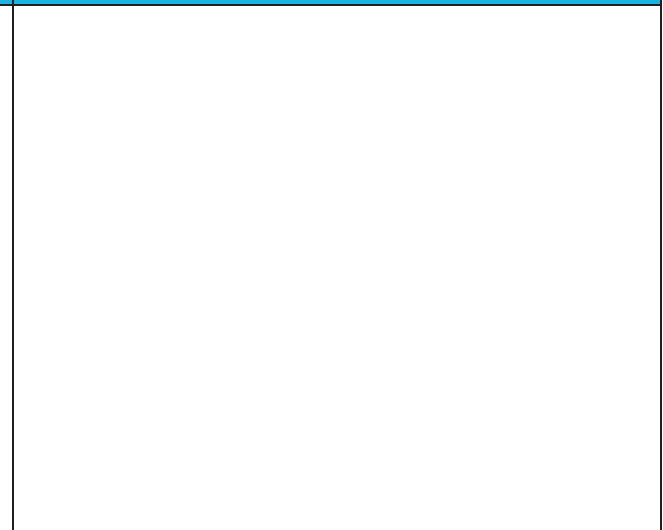


Photo Point ID: 222

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

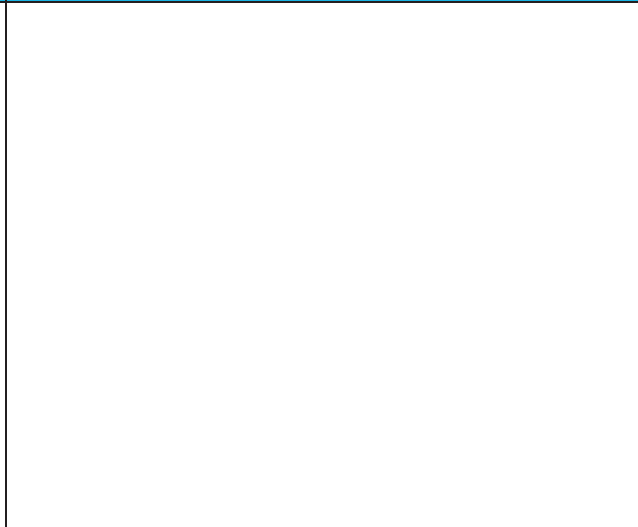


Photo 6:



Photo Point ID: 223

Photo 1: View north

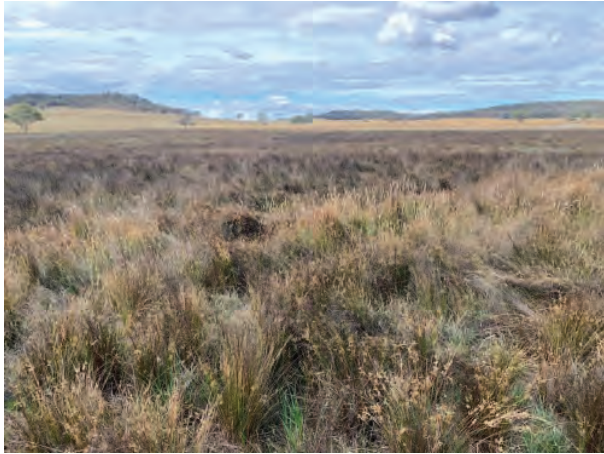


Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

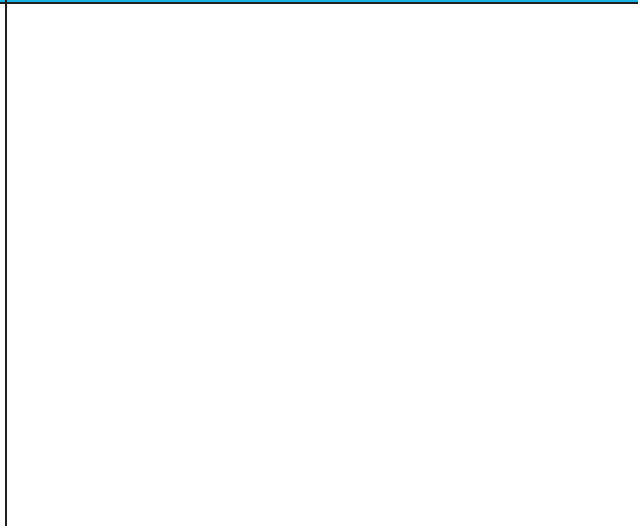


Photo 6:

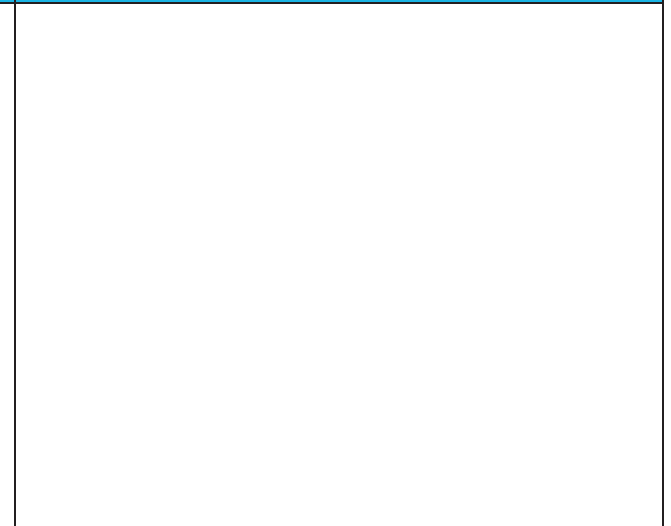


Photo Point ID: 224

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:



Photo 6:



Photo Point ID: 225

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

Photo 6:

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:



Photo 6:



Photo Point ID: 227

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 228

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west

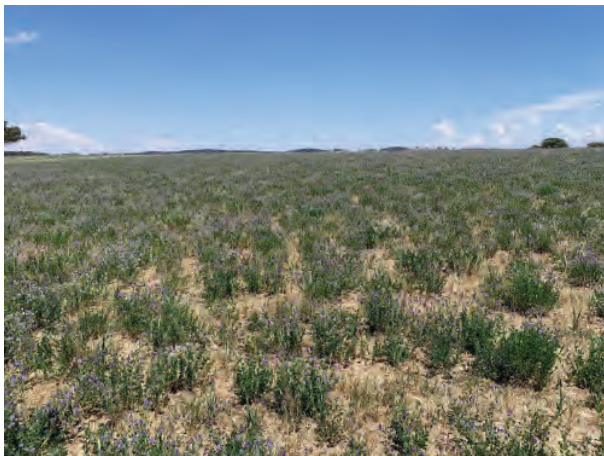


Photo 5:

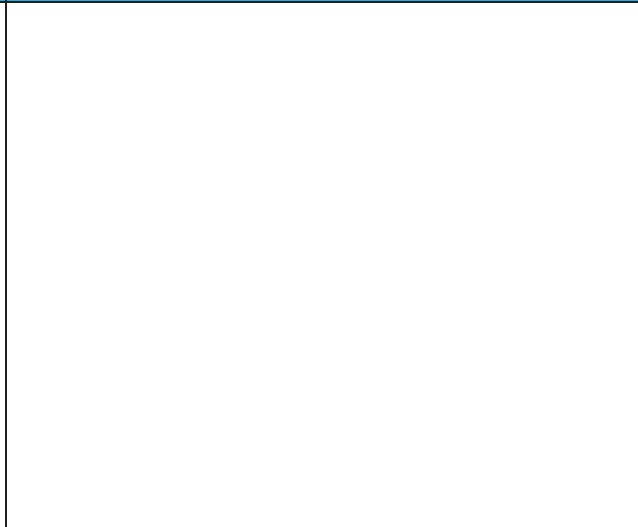


Photo 6:

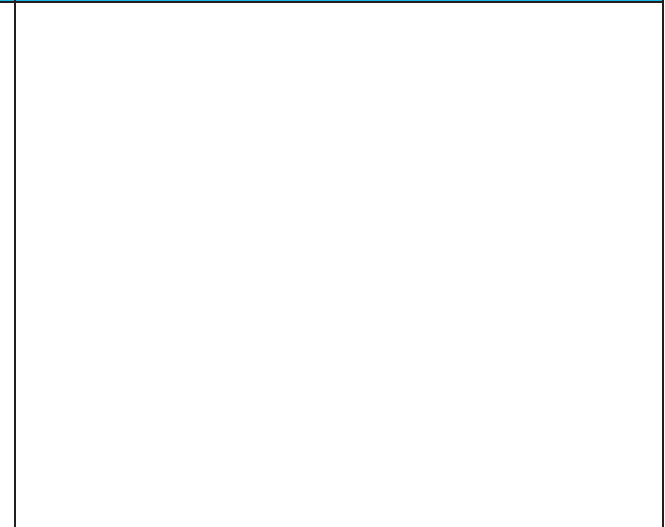


Photo Point ID: 229

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:



Photo 6:



Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

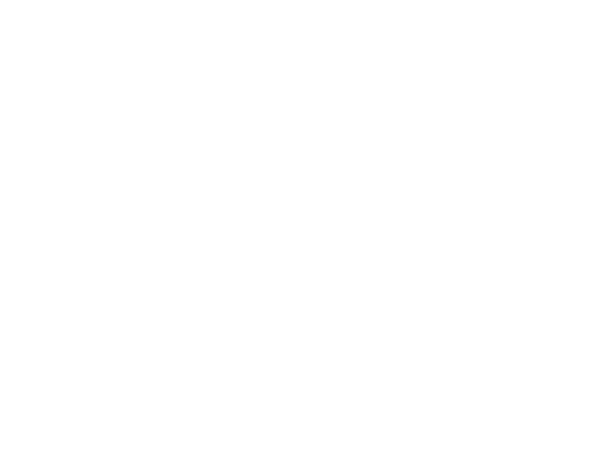


Photo 6:



Photo Point ID: 231

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

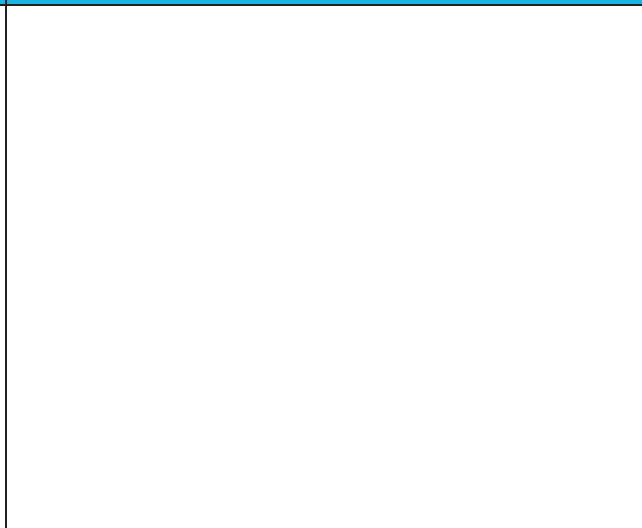


Photo 6:

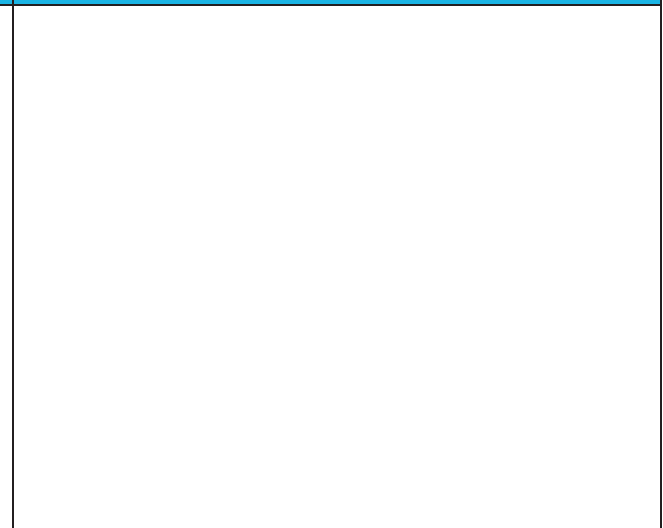


Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:



Photo 6:



Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

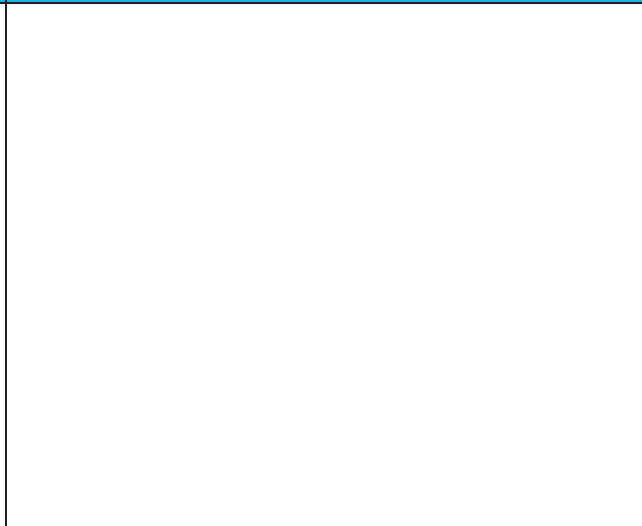


Photo 6:

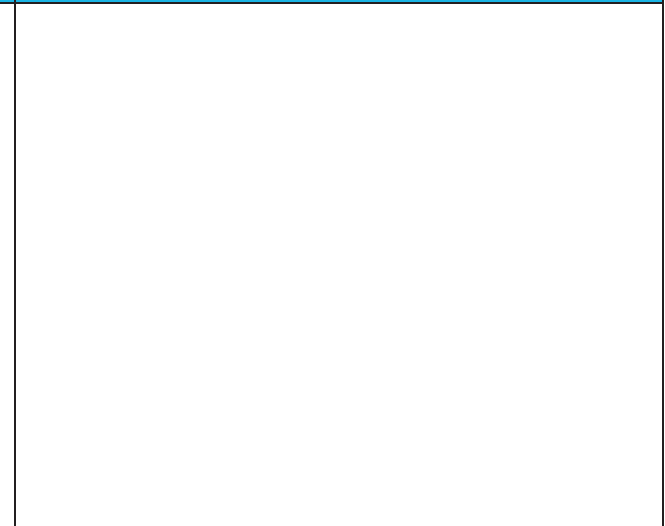


Photo Point ID: 234


Photo 1: W	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 235

Photo 1:



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:

Photo 6:

Photo Point ID: 236

Photo 1: View south east



Photo 2: View north west



Photo 3: View south west



Photo 4:

Photo 5:

Photo 6:

Photo 1: View east



Photo 2: View west



Photo 3: View north



Photo 4:



Photo 5:

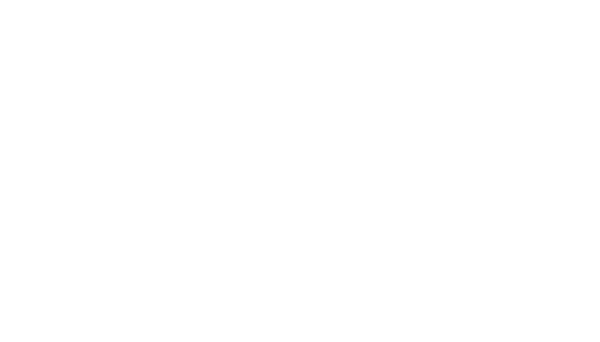


Photo 6:



Photo 1: View north



Photo 2: View south



Photo 3: View west



Photo 4: View east



Photo 5:



Photo 6:



Photo Point ID: 239



Photo 1: View east	Photo 2: View west	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 240

Photo 1: View east



Photo 2: View north



Photo 3: View south



Photo 4: View west



Photo 5:

Photo 6:

Photo Point ID: 241

Photo 1: View east



Photo 2: View west



Photo 3: View north



Photo 4: View south



Photo 5:

Photo 6:




Photo 1: View east	Photo 2: View south	Photo 3: View west
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 243

Photo 1: View east



Photo 2: View west



Photo 3: View south



Photo 4: View north



Photo 5:

Photo 6:

Photo Point ID: 244

Photo 1: View north east



Photo 2: View south west



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 245

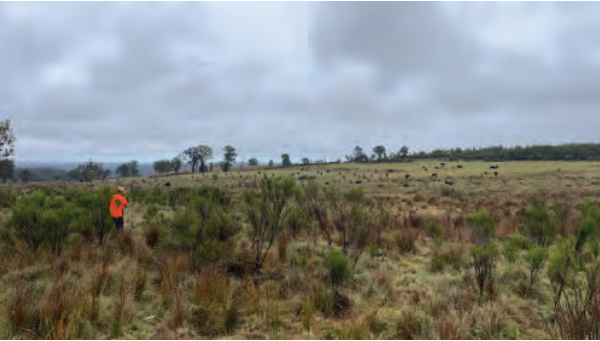
Photo 1: View south west	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: View north east



Photo 2: View south west



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 247

Photo 1: View north



Photo 2: View south



Photo 3: View east



Photo 4: View west



Photo 5:

Photo 6:

Photo Point ID: 248

Photo 1: View south east



Photo 2: View north west



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 249


Photo 1: View north east	Photo 2: View south west	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 250

Photo 1: View south west



Photo 2: View north east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 251



Photo 1: View north east	Photo 2: View east	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 252

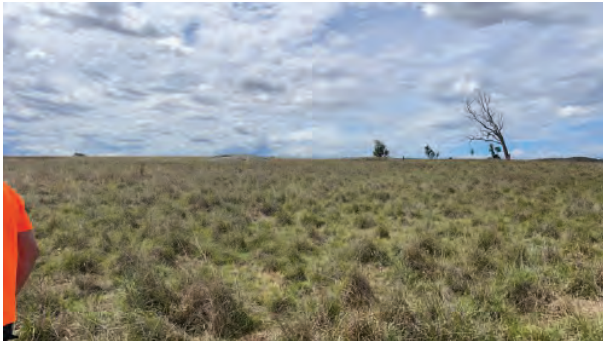

Photo 1: View north	Photo 2: Detail - ground visibility	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 253

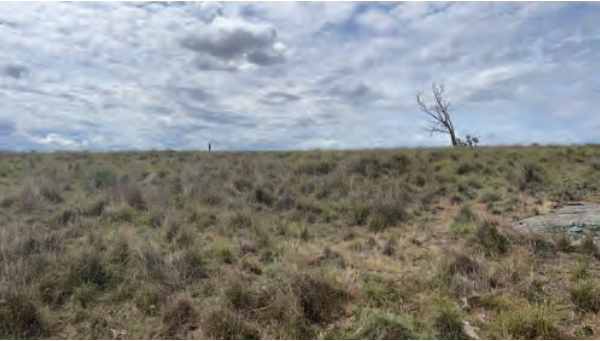

Photo 1: View north	Photo 2: View south	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: View south



Photo 2: View north



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 255

Photo 1: View north east



Photo 2: View north



Photo 3: View west



Photo 4: View east



Photo 5:

Photo 6:

Photo Point ID: 256


Photo 1: View east	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 257



Photo 1: View north	Photo 2: View east	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 258

Photo 1: View west



Photo 2: View north



Photo 3:

Photo 4:

Photo 5:

Photo 6:



Photo 1:	Photo 2: View north west	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 260

Photo 1: View south west



Photo 2: View north east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 261




Photo 1: View north east	Photo 2: View south west	Photo 3: View north west
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: View east



Photo 2: View west



Photo 3: View north east



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 263

Photo 1: View north west



Photo 2: View south west



Photo 3: View north east



Photo 4:



Photo 5:



Photo 6:



Photo Point ID: 264

Photo 1: View south west



Photo 2: View north east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 265



Photo 1: View south west	Photo 2: View north east	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:




Photo 1: View north east	Photo 2: View south west	Photo 3: View north west
 A wide-angle photograph of a grassy field with scattered trees under a blue sky with light clouds. The field is filled with green and yellowish grasses.	 A wide-angle photograph of a grassy field with scattered trees under a clear blue sky. The field is filled with green and yellowish grasses.	 A wide-angle photograph of a grassy field with scattered trees under a blue sky with light clouds. A person in a bright green shirt is visible in the distance near a large tree.
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 267


Photo 1: View south west	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: View south west



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 269



Photo 1: View south west	Photo 2: View north east	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:



Photo 1: View south	Photo 2: View south west	Photo 3:
 A wide-angle photograph of a large, flat, open field under a heavy, overcast sky. Several small figures of people are visible in the distance, providing a sense of scale. The ground appears to be a mix of soil and sparse vegetation.	 A photograph showing a field with rows of young plants or crops. The ground is dark and appears to be recently tilled or planted. A line of trees is visible in the background under a cloudy sky.	
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 271

Photo 1: View east



Photo 2: View west



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 272

Photo 1: View south



Photo 2: View west



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo 1: View west



Photo 2: View south



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo 1: View south



Photo 2: View south west



Photo 3: View south west



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 275



Photo 1: View south east	Photo 2: View north west	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 276

Photo 1: View north east



Photo 2: View south east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 277



Photo 1: View south east	Photo 2: View north west	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 278

Photo 1: View north



Photo 2: View south east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 279



Photo 1: View south east	Photo 2: View north west	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 280

Photo 1: View north west



Photo 2: View south west



Photo 3: View north



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 281


Photo 1: View south east	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 282

Photo 1: View south west



Photo 2: View north east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 283

Photo 1: View south west



Photo 2: View north east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 284

Photo 1: View south



Photo 2: View north



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 285



Photo 1: View south	Photo 2: View north	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: View north



Photo 2: View south



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo 1: View south



Photo 2: View north



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4: View west



Photo 5:



Photo 6:



Photo Point ID: 289


Photo 1: View south east	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:


Photo 1: View north west	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:



Photo 1: View north west	Photo 2: View south	Photo 3:
 <p>A photograph showing a dirt road with a large, shallow flood of muddy water on the right side. A white sign on the left reads "ROAD SUBJECT TO FLOODING" and "INDICATORS SHOW DEPTH". The background shows a grassy field under a cloudy sky.</p>	 <p>A photograph of a dirt road junction. The road is unpaved and reddish-brown. There are several large trees on the right side of the road. The sky is overcast.</p>	
Photo 4:	Photo 5:	Photo 6:

Photo 1: View west



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 293

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4:

Photo 5:

Photo 6:

Photo 1: View north



Photo 2: View east



Photo 3: View south west



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 295

Photo 1: View east



Photo 2: View south



Photo 3: View north west



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 296


Photo 1: View east	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:




Photo 1: NW	Photo 2: View east	Photo 3: View south west
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: View east



Photo 2: View south



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 299



Photo 1: View north	Photo 2: View south	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 300

Photo 1: View north



Photo 2: View east



Photo 3: View west



Photo 4:

Photo 5:

Photo 6:

Photo 1: View south west



Photo 2: View south east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 302

Photo 1: View north west



Photo 2: View south



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 303


Photo 1: View south east	Photo 2: View north west	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:



Photo 1: N	Photo 2:	Photo 3:
 A person wearing a high-visibility yellow-green vest and dark pants is working in a field. They are surrounded by several black buckets and are using a blue container. In the background, there are white utility vehicles and other people in a grassy field under a clear blue sky.	 A close-up view of a red plastic barrier or tape stretched across a field. The barrier is surrounded by green grass and some bare soil. A wooden post is visible in the background.	
Photo 4:	Photo 5:	Photo 6:

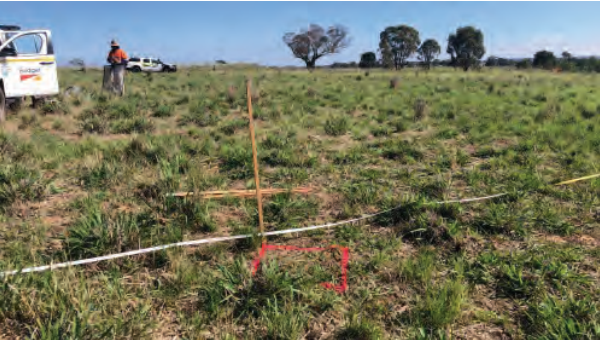

Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:



Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:



Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:



Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 311



Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:



Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 314


Photo 1: View north	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 315


Photo 1: View south east	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo 1: N

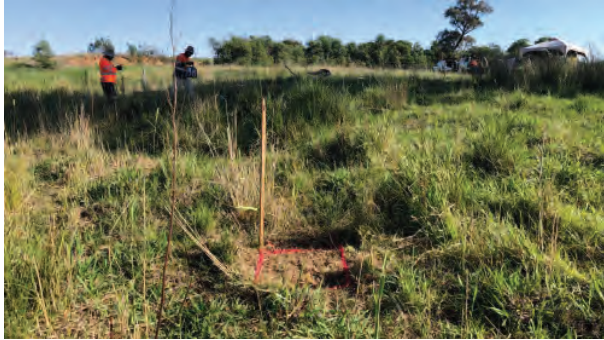


Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:



Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

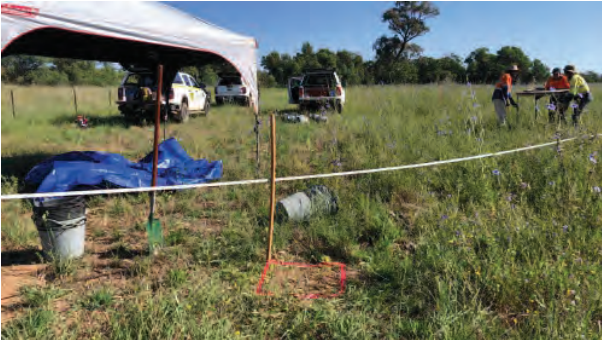

Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:



Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

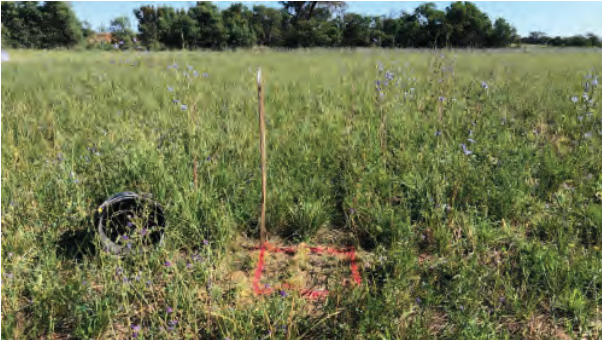

Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N

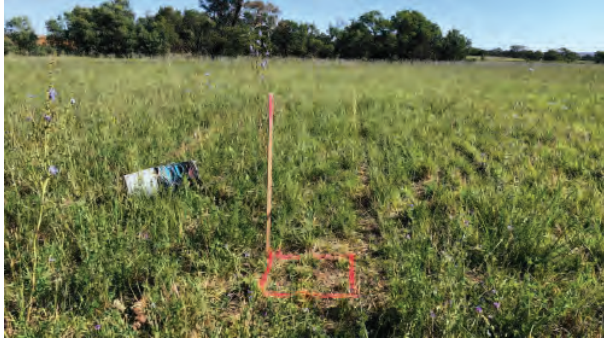


Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 323

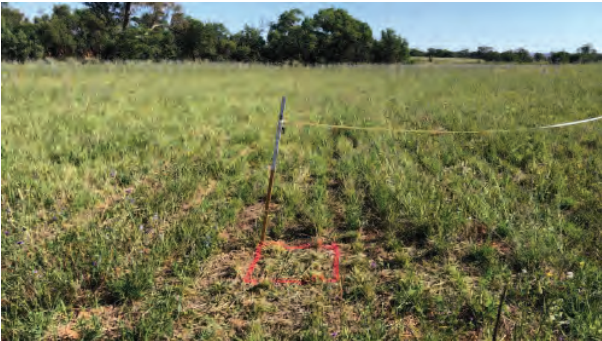

Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N

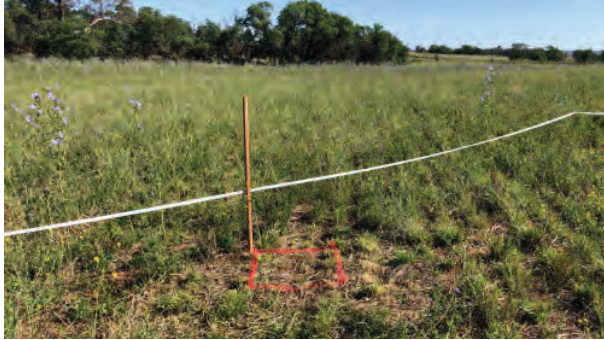


Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:



Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:



Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 327



Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

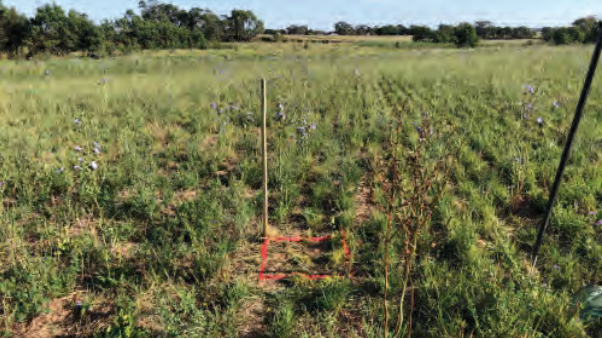

Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 330

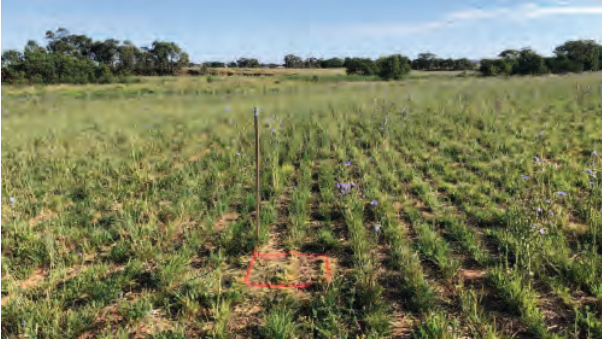

Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:



Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 333


Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N

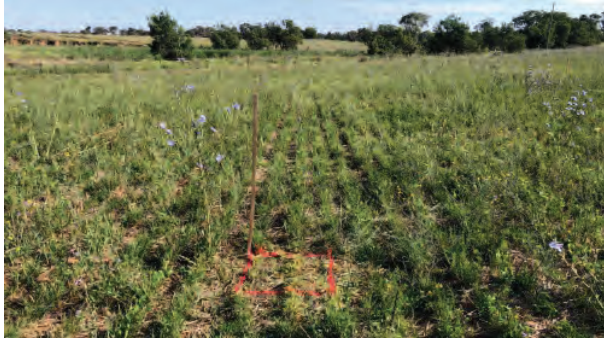


Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

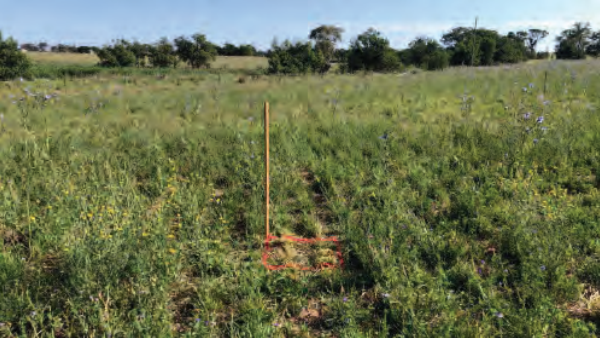

Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 337

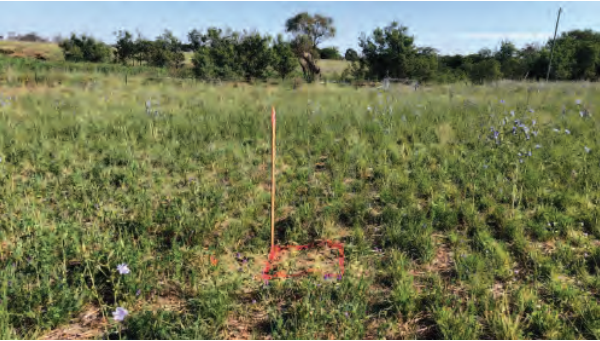

Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:



Photo 1:	Photo 2: N	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 341



Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

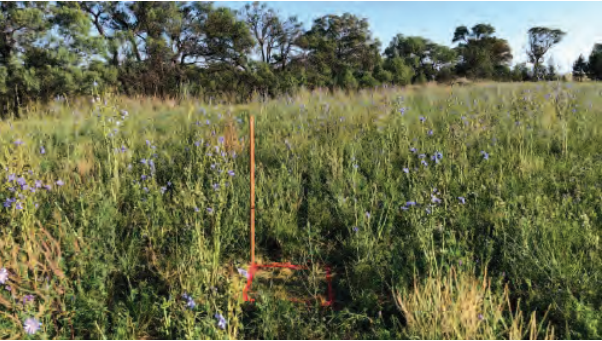

Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N

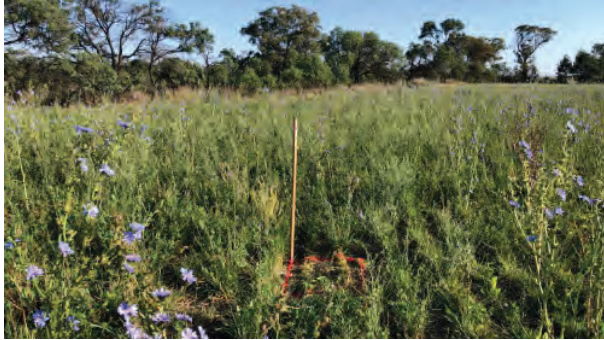


Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:



Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N

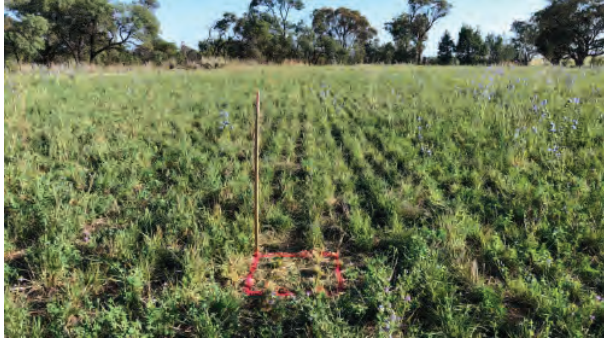


Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

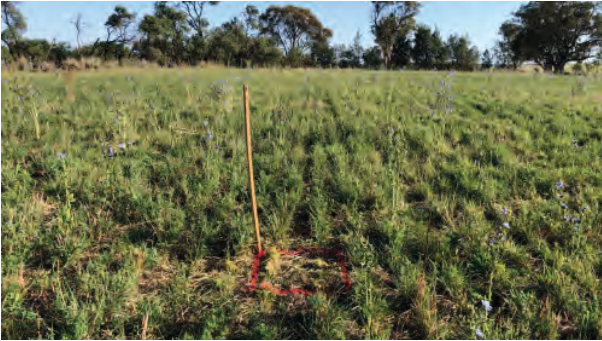

Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N

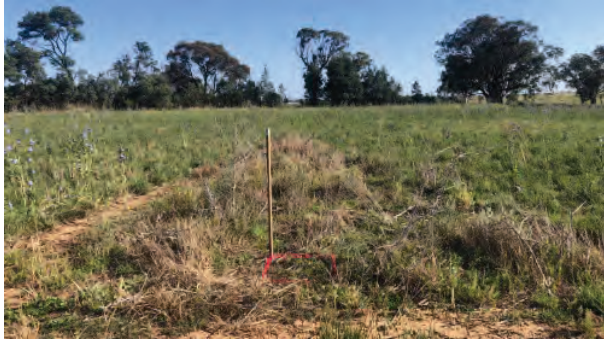


Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

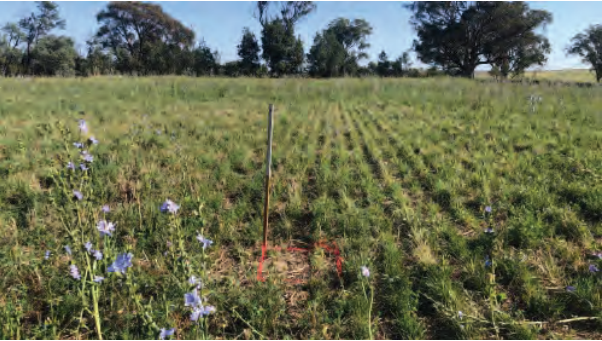

Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N

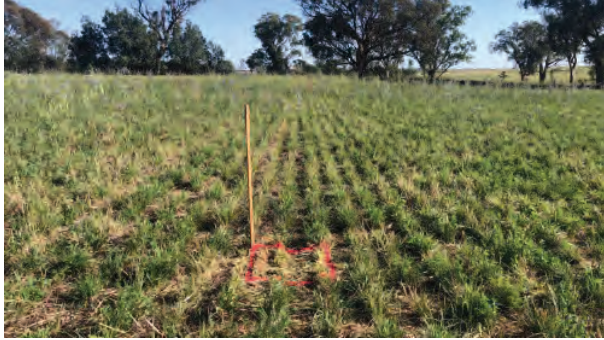


Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

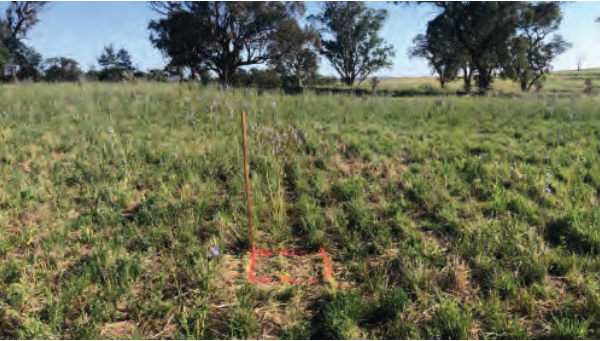

Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N

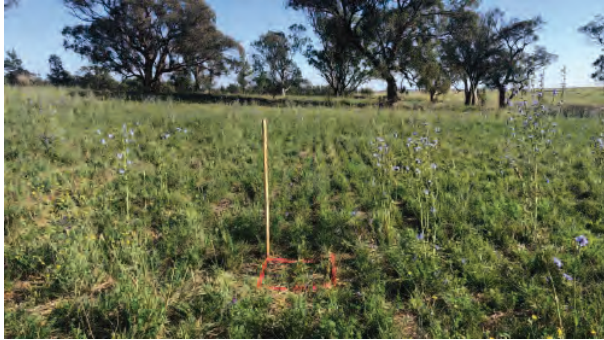


Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

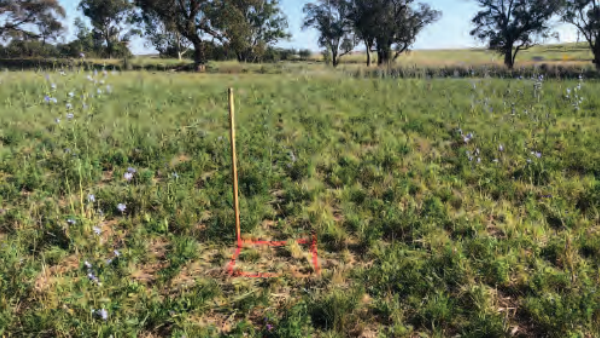

Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo 1: N



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo 1: N



Photo 2:



Photo 3:



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 357



Photo 1: View north	Photo 2: View east	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 358


Photo 1: East facing, Helipad	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 359



Photo 1: S	Photo 2: S	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 360


Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:


Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:
		

Photo Point ID: 362


Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:



Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 364

Photo 1: View north



Photo 2:

Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 365


Photo 1: View north	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 366


Photo 1: View east	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 367



Photo 1: View east	Photo 2: Poor vis	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 368


Photo 1: View east	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 369


Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 370


Photo 1: East	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 371


Photo 1: East	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 372


Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 373


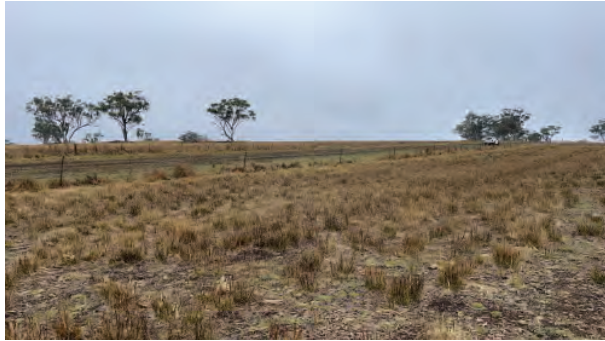
Photo 1: Sw	Photo 2: View north west	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 374

Photo 1: View north west



Photo 2: View south east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 375



Photo 1: View north west	Photo 2: View south east	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 376

Photo 1: View north west	Photo 2: View south east	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 377


Photo 1: View north west	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 378

Photo 1: View north west



Photo 2: View south east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 379



Photo 1: View north west	Photo 2: View south east	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 380


Photo 1: View north west	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 381

Photo 1: View west



Photo 2: View east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 382


Photo 1: View south east	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: View north



Photo 2: View east



Photo 3: View south



Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 384


Photo 1: Detail - context	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 385

Photo 1: View east



Photo 2: Detail - moderate exposure



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 386


Photo 1: West	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 387


Photo 1: West	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 388


Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 389


Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 390

Photo 1: Photo to shaft from spoil heap



Photo 2: View NE to structure



Photo 3: West across structure



Photo 4: View N across debris to structure and spoil



Photo 5:



Photo 6:



Photo Point ID: 391


Photo 1: North	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 392


Photo 1: NE	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 393


Photo 1: South across site	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 394

Photo 1: View W across site



Photo 2:

Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 395


Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: South



Photo 2: North



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 397

Photo 1: N	Photo 2: W	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: N



Photo 2:



Photo 3:

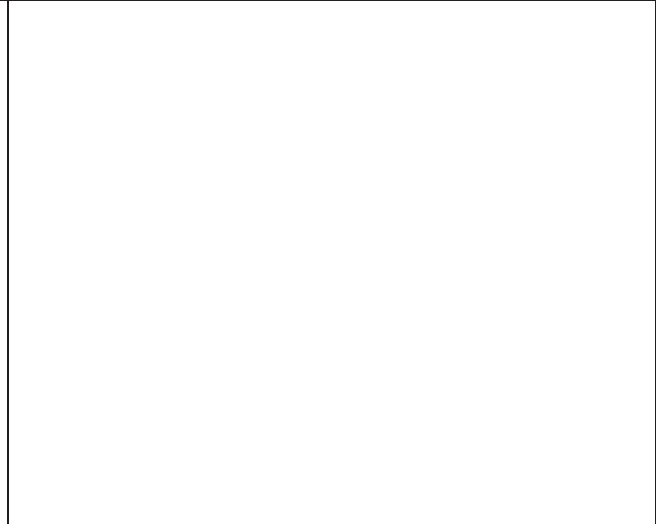


Photo 4:



Photo 5:



Photo 6:



Photo Point ID: 399


Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 400


Photo 1: W	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 401


Photo 1: NW	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1:



Photo 2:



Photo 3: W



Photo 4:

Photo 5:

Photo 6:

--	--	--

Photo 1:



Photo 2:



Photo 3:



Photo 4:



Photo 5: W



Photo 6:



Photo 1:



Photo 2:



Photo 3:



Photo 4: W



Photo 5:

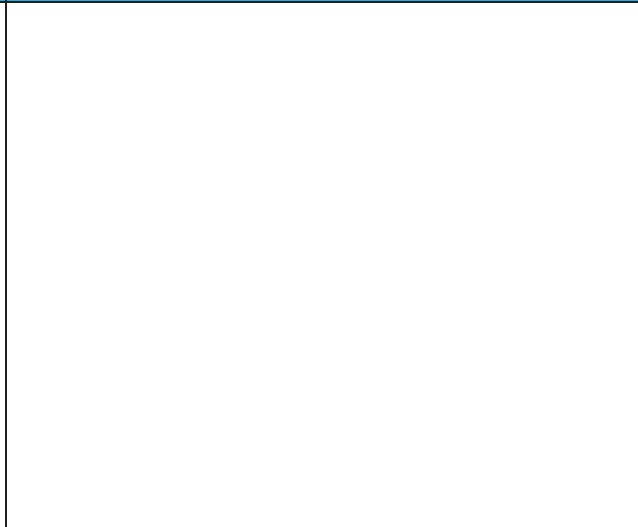


Photo 6:

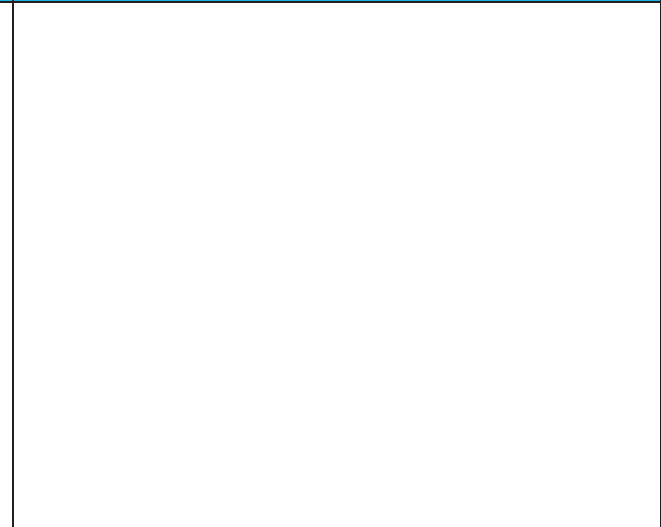








Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:
		

Photo 1:



Photo 2:



Photo 3:



Photo 4: N



Photo 5:



Photo 6:



Photo 1:



Photo 2:



Photo 3:



Photo 4: NW



Photo 5:



Photo 6:



Photo 1:



Photo 2:



Photo 3:



Photo 4:

Photo 5:

Photo 6:

Photo 1:



Photo 2:



Photo 3:



Photo 4:



Photo 5:

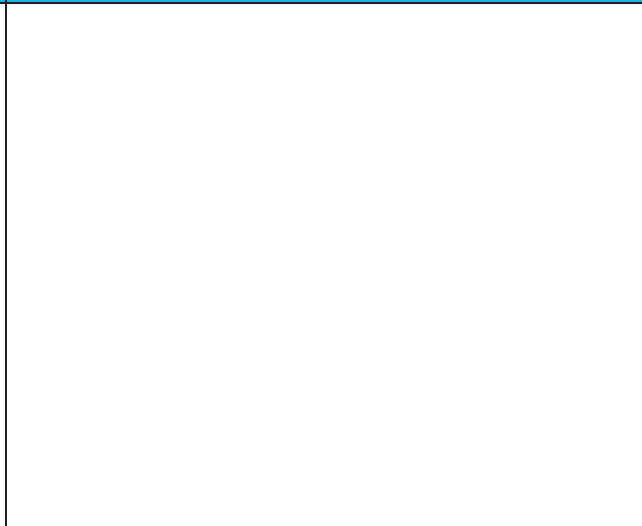


Photo 6:

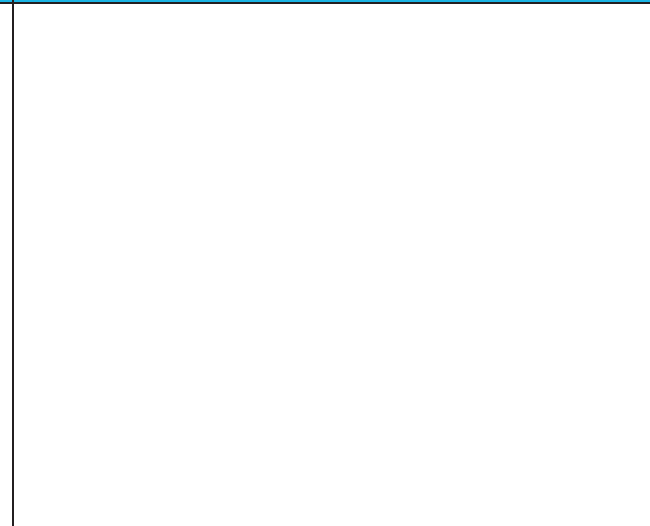


Photo Point ID: 410


Photo 1: View south	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 411


Photo 1: View north	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:



Photo 1:	Photo 2: West	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 413

Photo 1:



Photo 2: South



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo 1:



Photo 2: North east



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 415


Photo 1: View SE looking across sites to stockpile	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1:

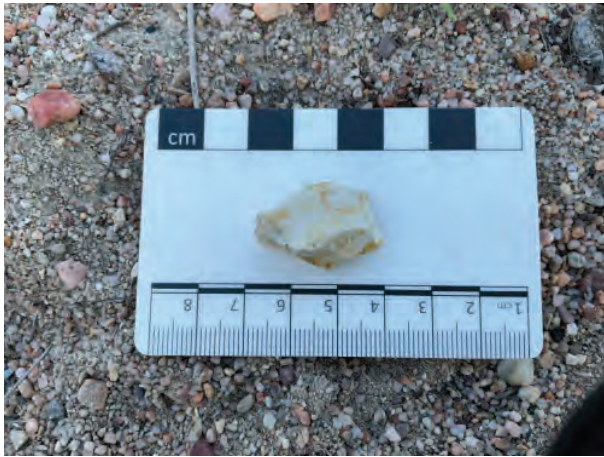


Photo 2: North

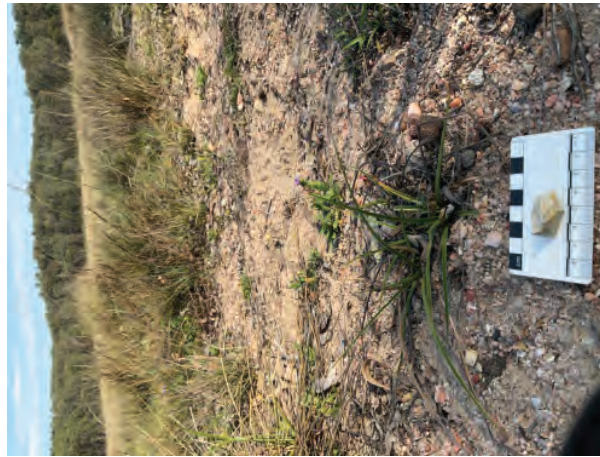


Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 417

Photo 1:



Photo 2: East



Photo 3:

Photo 4:

Photo 5:

Photo 6:



Photo 1:	Photo 2: South	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:



Photo 1:	Photo 2: North	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 420

Photo 1:



Photo 2: South



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 421

Photo 1:



Photo 2: South



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 422

Photo 1:



Photo 2: East



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 423

Photo 1:



Photo 2:

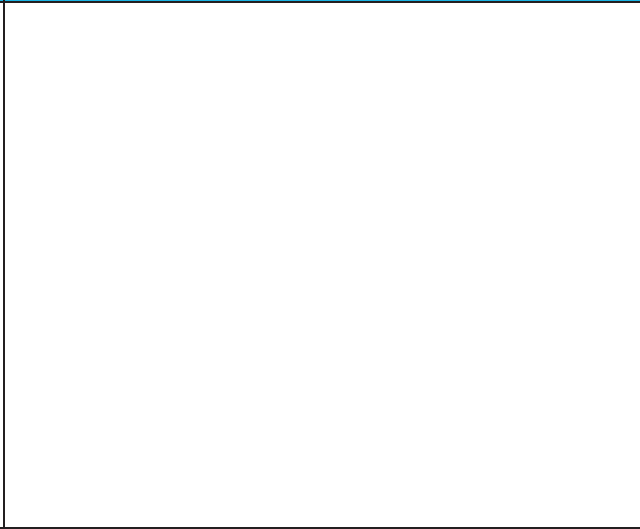


Photo 3:

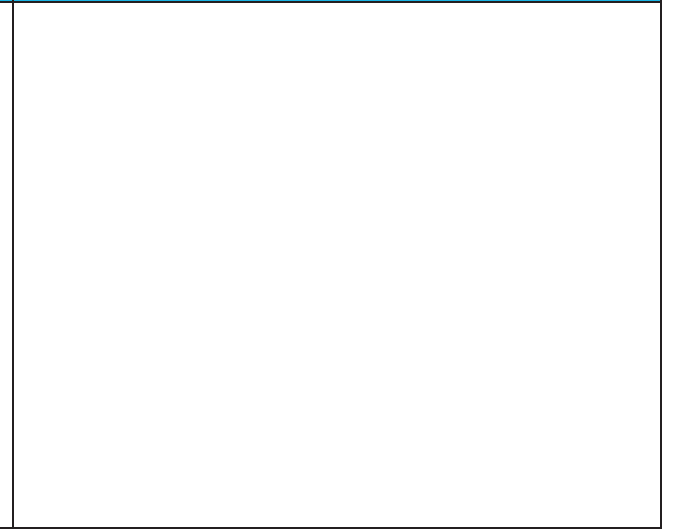


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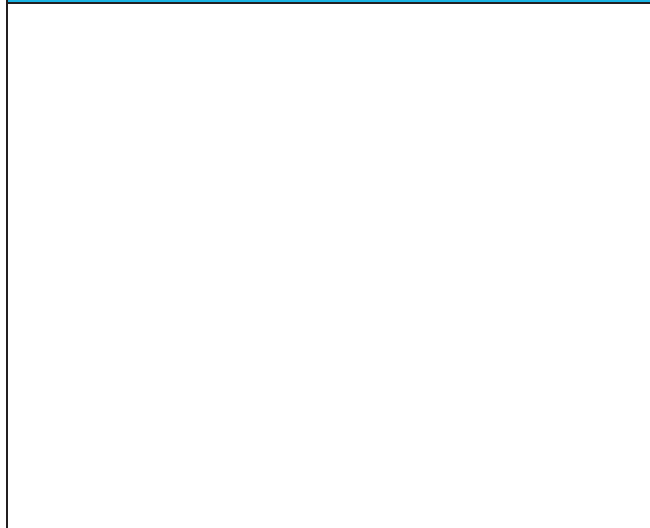


Photo 5:

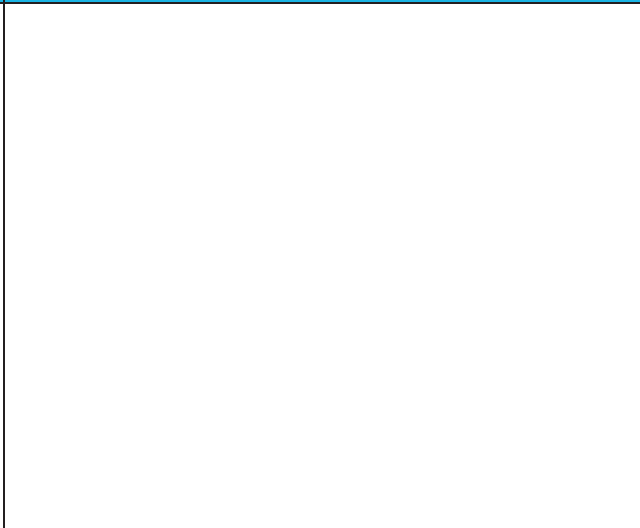


Photo 6:

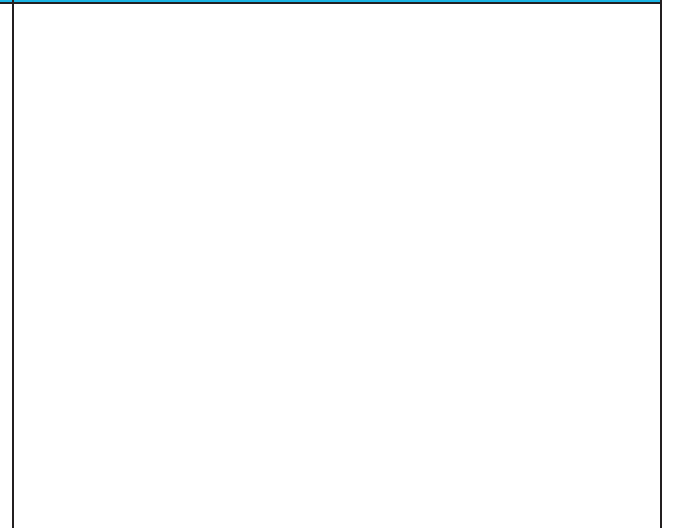


Photo 1:



Photo 2:



Photo 3:



Photo 4:



Photo 5:



Photo 6:





Photo 1:	Photo 2: South	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1:



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 427


Photo 1: NE	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1:



Photo 2:



Photo 3: East



Photo 4:

Photo 5:

Photo 6:

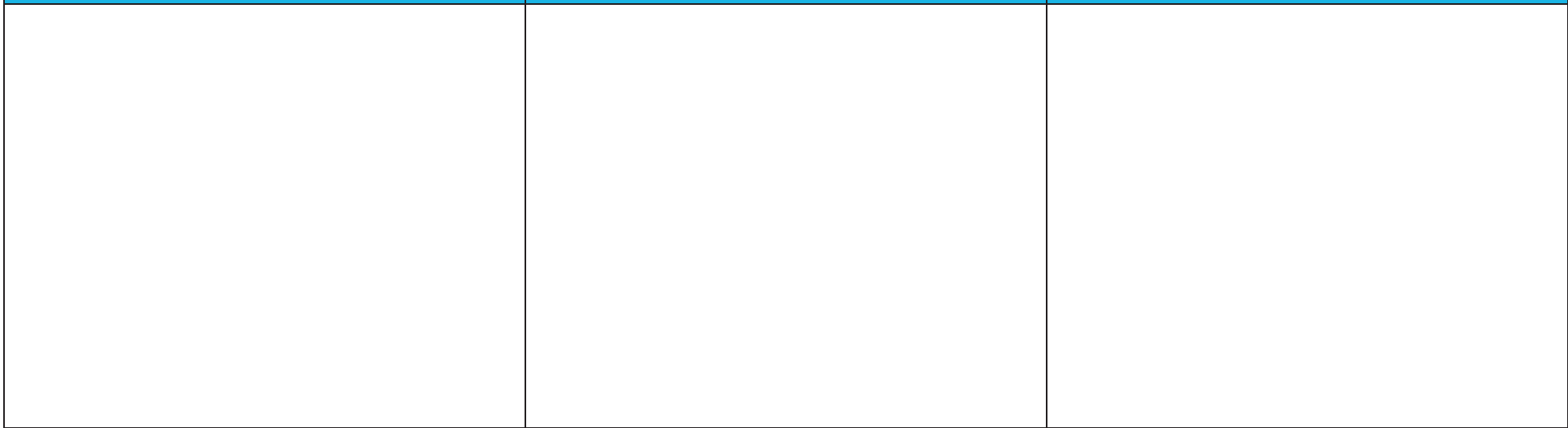


Photo Point ID: 429

Photo 1:



Photo 2:

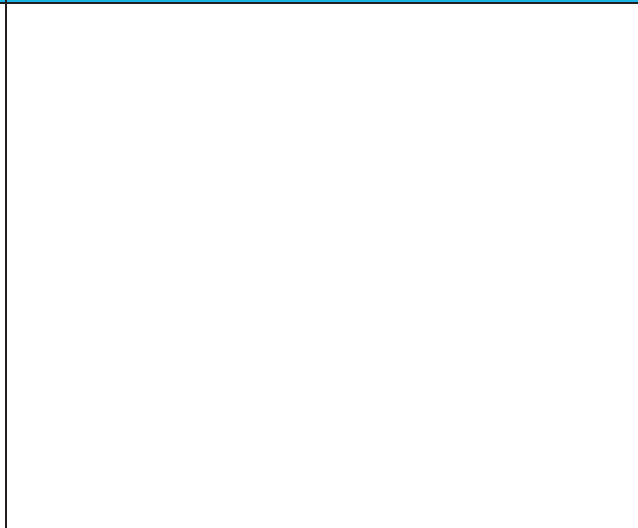


Photo 3:

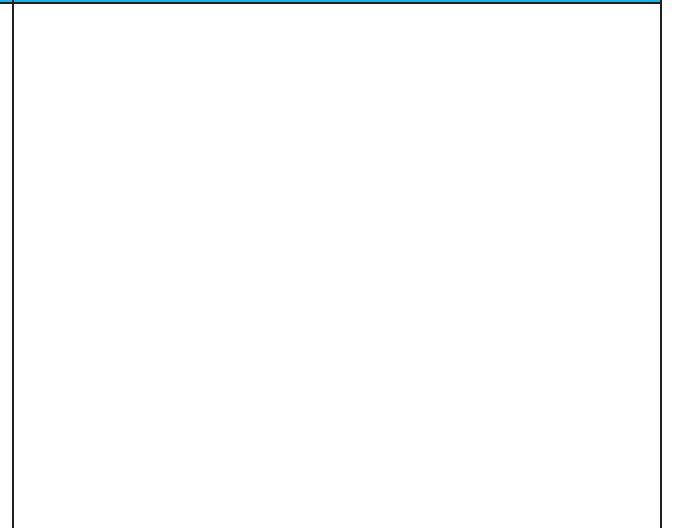


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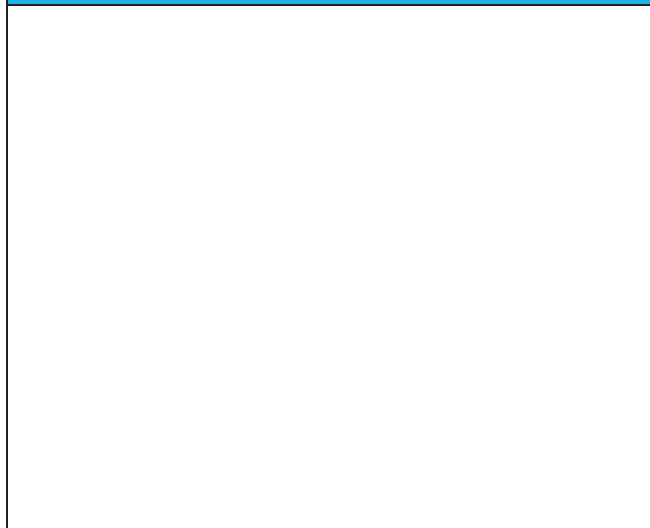


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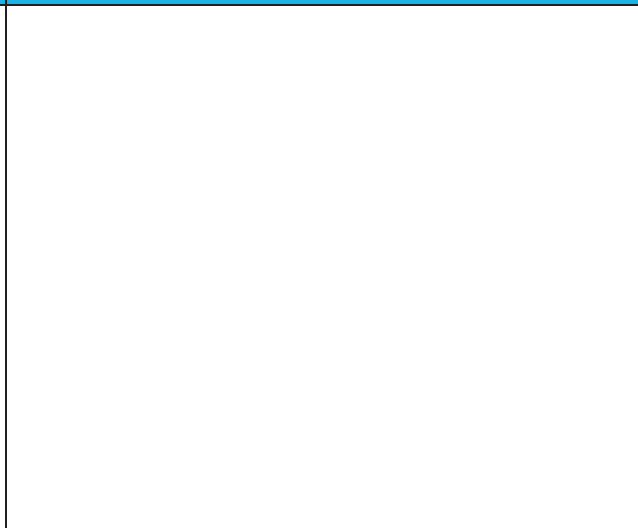


Photo 6:

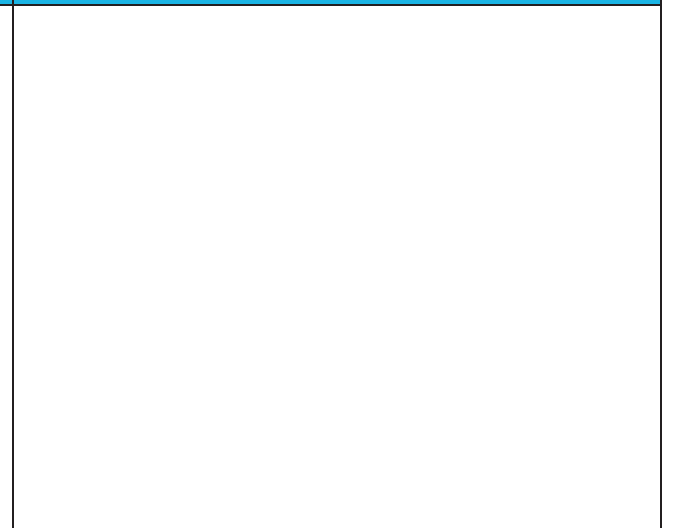




Photo 1:	Photo 2: NE	Photo 3:
 <p>A close-up photograph of a light-colored, irregularly shaped rock resting on a bed of small, reddish-brown pebbles and twigs. A white ruler with black markings is placed vertically to the right of the rock for scale. The ruler shows markings in centimeters, with the word 'cm' visible at the bottom. The rock is approximately 5-6 cm long.</p>	 <p>A landscape photograph showing a field of tall, golden-brown grasses in the foreground. In the background, there is a line of green trees under a clear blue sky with a few wispy clouds. The field appears to be a natural or semi-natural area.</p>	
Photo 4:	Photo 5:	Photo 6:

Photo 1:



Photo 2: West



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 432


Photo 1:	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 433


Photo 1: N	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 434

Photo 1: West



Photo 2:

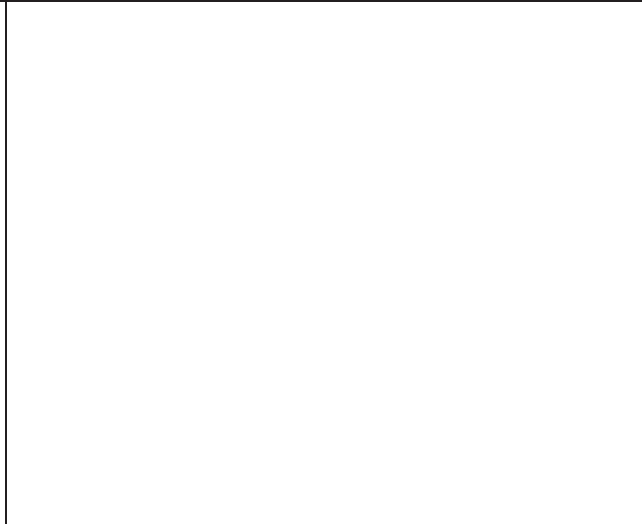


Photo 3:



Photo 4:

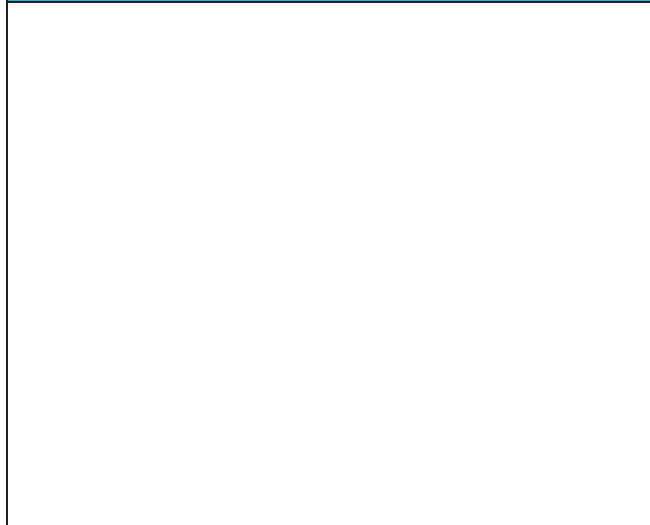


Photo 5:

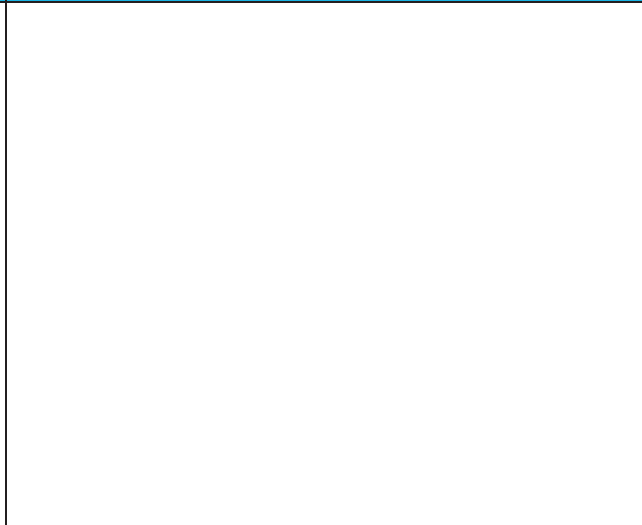


Photo 6:



Photo Point ID: 435


Photo 1: North	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: View west



Photo 2: View north west



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 437



Photo 1:	Photo 2: East	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: View east



Photo 2: Detail - tentative groove

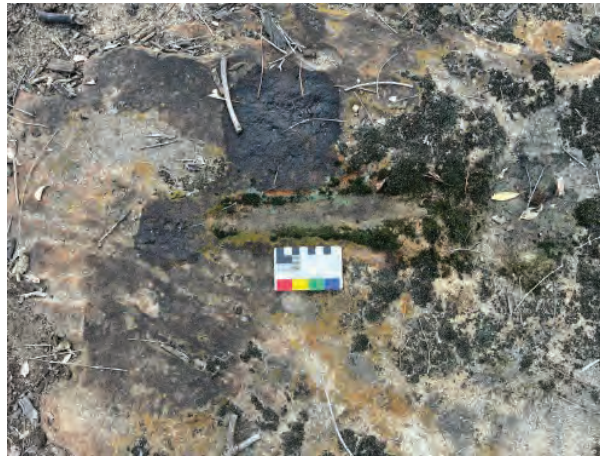


Photo 3: Detail - tentative groove



Photo 4:

Photo 5:

Photo 6:

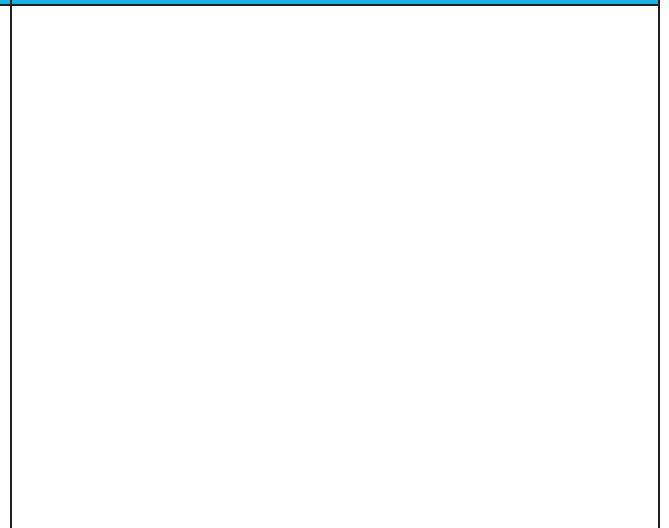
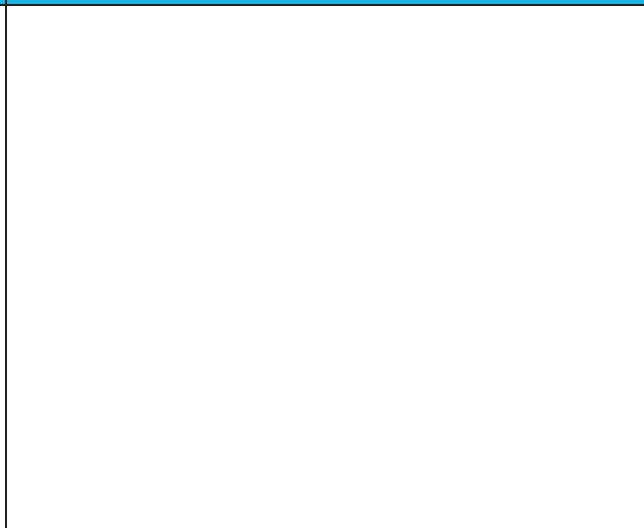
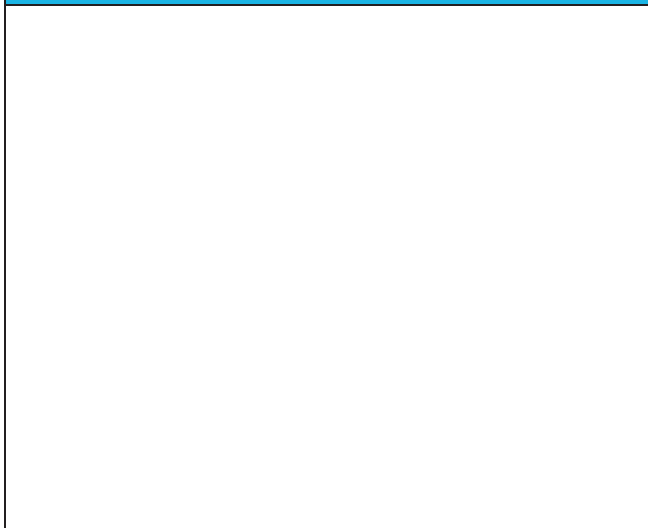


Photo Point ID: 439



Photo 1: Surface	Photo 2: SE	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1:



Photo 2:



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 441



Photo 1: Surgace	Photo 2: North	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: View north



Photo 2: Details - grinding grooves

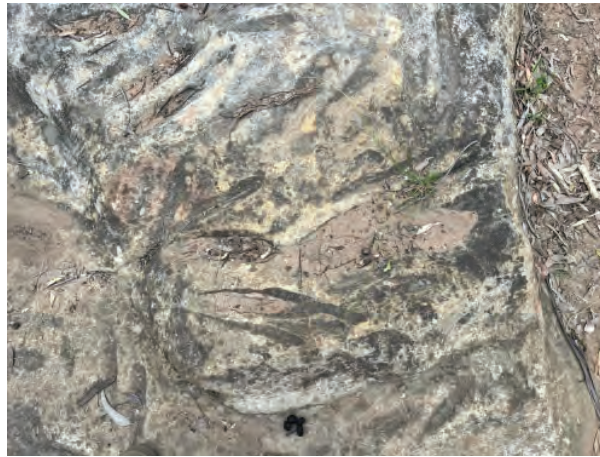


Photo 3: Details - grinding grooves



Photo 4: Details - grinding grooves



Photo 5: Details - grinding grooves



Photo 6:



Photo Point ID: 443



Photo 1: Surface	Photo 2: East	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 444



Photo 1: Surface	Photo 2: West	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo Point ID: 445

Photo 1: View north



Photo 2: Detail - grinding groove



Photo 3: Detail - grinding groove



Photo 4:

Photo 5:

Photo 6:

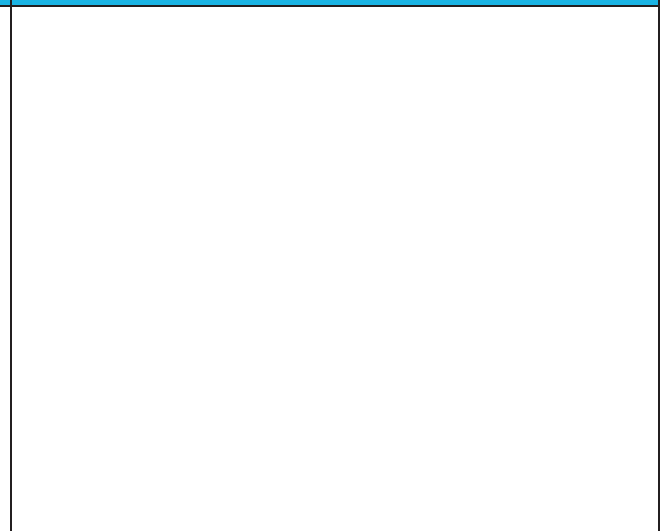
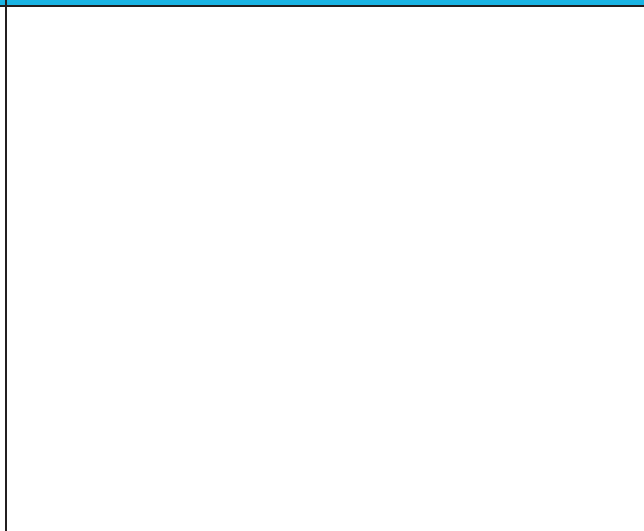
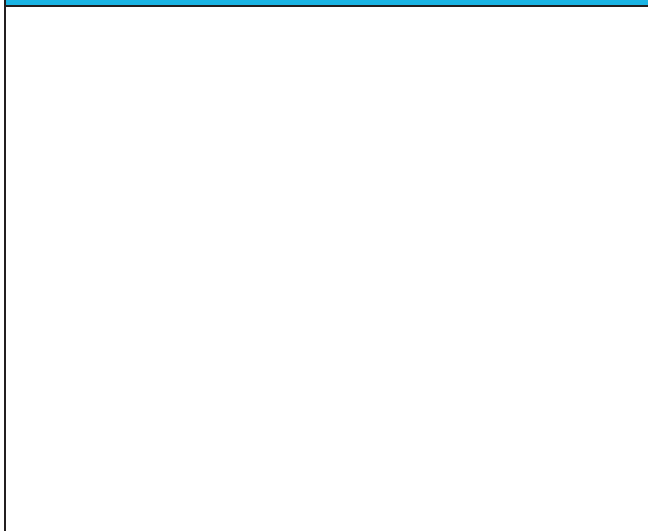


Photo Point ID: 446

Photo 1: Surface



Photo 2: East



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo 1: View north



Photo 2: Detail - tentative grinding groove



Photo 3: Detail - tentative grinding groove



Photo 4:

Photo 5:

Photo 6:

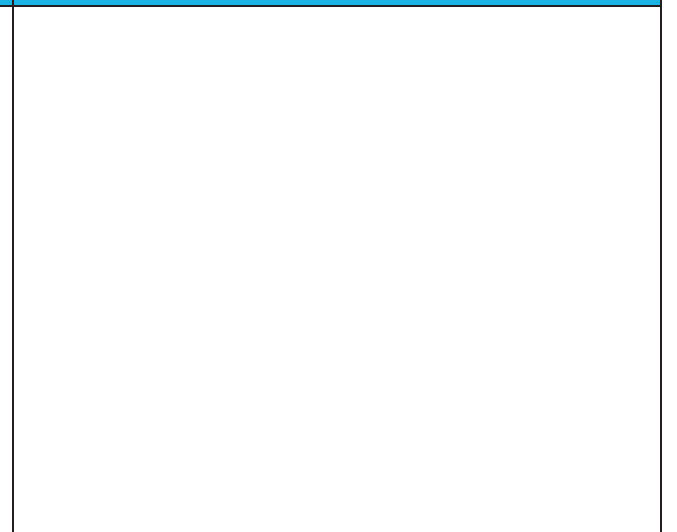
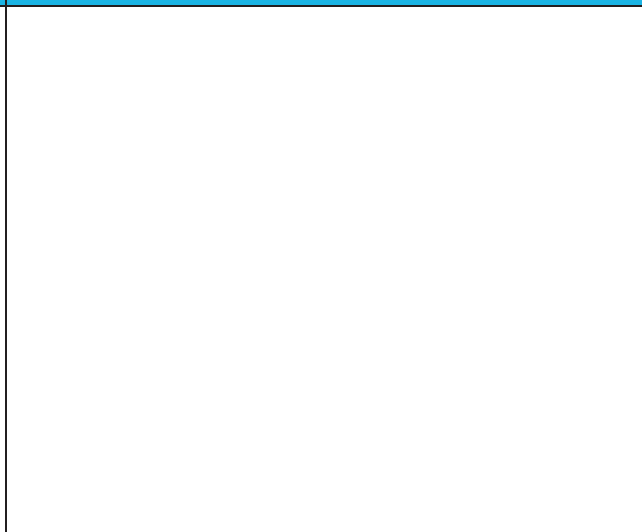
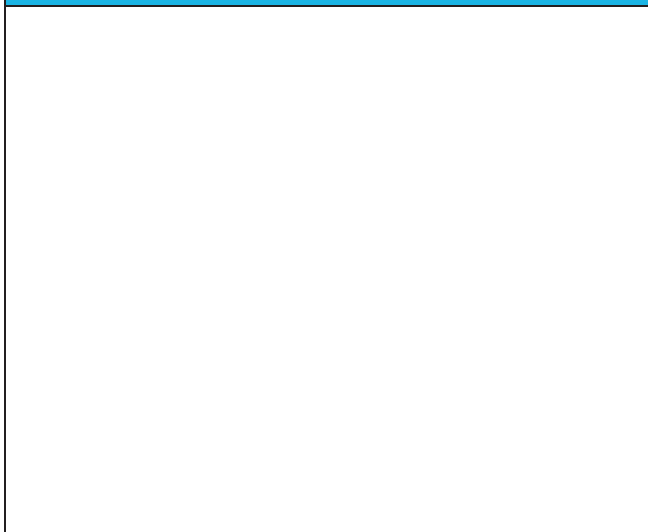


Photo 1: Surface



Photo 2: West



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 449

Photo 1: East



Photo 2: West



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 450

Photo 1: East



Photo 2: East



Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo Point ID: 451


Photo 1: West	Photo 2:	Photo 3:
		
Photo 4:	Photo 5:	Photo 6:

Photo 1: East



Photo 2:



Photo 3:



Photo 4:

Photo 5:

Photo 6:

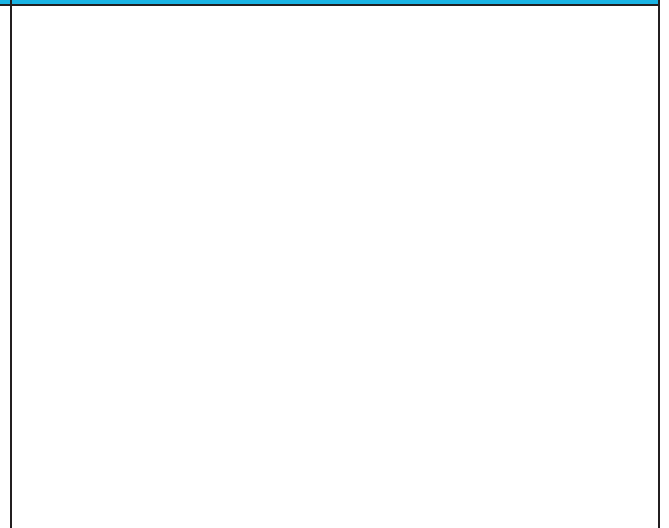
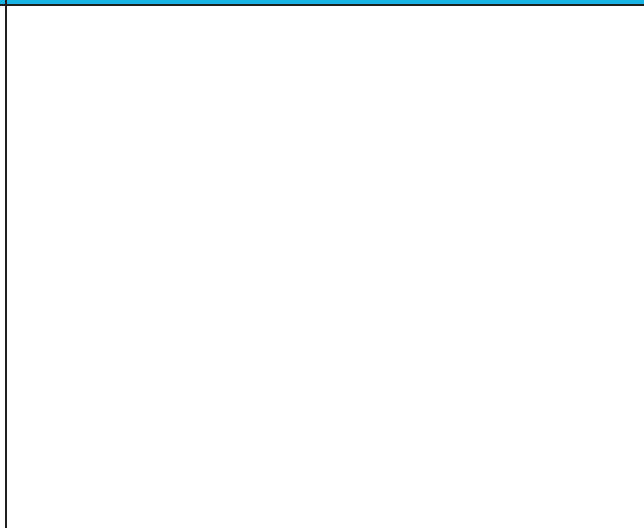
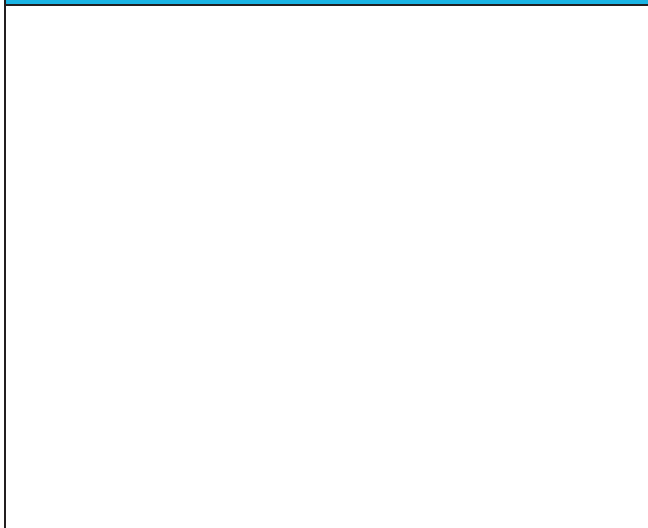


Photo 1:



Photo 2:




Photo 3:

Photo 4:

Photo 5:

Photo 6:

D.7 Lithics analysis report



**ARTEFACT
ANALYSIS OF
CWO REZ TEST
EXCAVATIONS**

January 2024

Dr Trudy Doelman



Introduction

The analysis of lithic assemblages from the test excavations along the CWO REZ (Central-West Orana Renewable energy Zone) addresses a series of research questions which can broadly be divided into six main categories:

1. **Site occupation/chronology.** When was the site/s occupied? Was the assemblage the product of repeated occupations or a single event? Do the characteristics of the assemblage change with time (sub-surface excavation)? How intensive was the occupation? Is there potential for a Pleistocene occupation?
2. **Lithic Source Procurement.** Which raw material resources were used? What types of raw material sources were used (primary and secondary)? Does a preference for a raw material occur? Can we infer the distance from the sources based on artefact size and the frequency and amount of cortex?
3. **Stone reduction technology.** How were cores prepared and worked? Were systematic core reduction strategies employed? The analysis will be broken down into descriptions of the:
 - a. Core attributes
 - b. Flake attributes
 - c. Tools
4. **Site Function.** What types of activities occurred on-site/s? Do discrete areas of stone working occur? Can site function be related to environmental factors i.e. distance to water?
 - a. This analysis includes comparisons of the artefact density by location, the assemblage composition (number of cores, complete flakes, split flakes, broken flakes, tools and other artefact types e.g. grinding stone, axes, hammerstones) and frequencies of artefact types (represented by ratios of cores:complete flakes, complete flakes: broken flakes etc).
5. **Regional Comparisons.** How does this site compare with others in the surrounding region? Comparisons can be made with the results from O'Discoll and Kuskie (2015:135-139) and Doelman (2017, 2018, 2023).
6. **Spatial patterning.** Data from the technological analysis will be presented by site which will allow a spatial analysis of the artefact attributes. A further analysis was undertaken on the excavated assemblage to assess the nature and integrity of the sub-surface deposit.
 - What post-depositional influences have impacted on the assemblage (e.g. size-sorting)?

Analysis Methodology

The selection of the artefact attributes addresses the above research questions. The analysis will follow those attributes initially recorded by Driscoll and Kuskie (2015) and extended here to include other attributes relevant to a technological and/or spatial analysis (Table 1).

The attributes recorded for each artefact are dependent on the technological class (i.e. if a complete flake, core or tool etc). Artefacts such as cores and tool generally represent a small fraction of an assemblage but can offer the greatest amount of information. These additional attributes provide

further information to examine the types of technological strategies used to prepare and reduce cores, the intensity of core reduction (curation) and can contribute to an understanding of the product/s manufactured, patterns of mobility and the transportation of artefacts (Table 1).

Term	Attributes
Technological class	Artefact type (e.g. core, complete flake, longitudinal split, flake fragmentation, retouch, angular fragments/lithic fragments, other (axe, grindstone etc)
Material	Raw Material type (silcrete tuff, chert, quartz, quartzite etc)
Colour	Raw Material colour
Translucency	Opaque, semi-translucent, translucent
Cortex	Percentage of cortex (if on a flake – amount on the dorsal surface of a flake)
Cortex Type	Type of cortex (rough/terrestrial, water-rolled/tabular)
Platform Type	unifacial, crushing/missing, Flaked (>2 flake scars), Facetted (3 or more small, systematic flake removals), Cortical (with cortex), n/a
Initiation Type	Bending, heritzan, bipolar, wedging, unclear
Termination Type	Feather, hinge, step, overshot, step
Tool Type	Select the type of tool – usewear, concave scraper, convex scraper, straight scraper, elouera (backed artefact), notched scraper, endscraper, saw, stepped scraper, drill, backed (generic), bondi point, thumbnail scraper, denticulate, burin, geometric microlith, nosed scraper
Maximum Dimension	All artefacts (in size groupings)
Complete and Broken Flakes	
Form	Form of the flake – Indeterminate, Expanding, Block (angular Fragment), Blade, N/A, Platform Rejuvenation Flake (tablet), Bipolar, Errailure, Ridge straightening flake, elongated flake. These attributes reflect core reduction strategies.
Complete Flakes	Showing intensity of retouch or systematic core preparation
Overhang removal	Exterior platform preparation indicates systematic core reduction (complete flakes and proximal flakes)
Scar Direction	The direction of the dorsal flake scars – 1 (initiated from the platform only), 90 (initiated at right angles to the platform), 180 (initiated at the distal end of the flake), radial (initiated from 90 and 270 degrees from the platform)
Complete Tools	(examines measures of curation)
Retouch Edge	The number of retouched quadrants (on complete tools only)
Retouch Type 1, 2, 3, 4	Select the retouch type for quadrants 1, 2, 3 and 4
Cores	Identifying technological strategies and intensity of reduction
Core Type	Unidirectional, bidirectional, bifacial, multiplatform, prismatic, burin-blade core, test, bipolar, alternate-blade, atypical burin-blade
Core Body	Core body form – block, flake, nodule, non-diagnostic
Scar Form	Primary scar form? – elongated, expanding, blade, mixed
Core Platform No.	Number of platforms on the core
Step Termination	Number of step terminations on the core
Hinge Termination	Number of hinge terminations on the core
Number of Core Scars	Number of core scars
Metrical Attributes	(in mm to 1 dp)
Width	Maximum width of the complete flake/tool/core
Thickness	Maximum thickness of the complete flake/tool/core at mid-point
Core Length	Maximum length from the working platform
Platform width	Platform width – proximal and complete flakes and tools
Platform Thickness	Platform thickness – proximal and complete flakes and tools (and complete splits)
Weight	Weight of the artefact in grams to 1dp

Table 1 Attributes recorded for the assemblage

Artefacts were cleaned, sorted, given a unique ID number (if required), individually analysed and entered into the software program E4 loaded with a configuration file written for this specific purpose. This program prompts the user to record all relevant attributes through a series of menus based on the artefact type (e.g. core, complete flake, complete tool etc) which is then stored in a Microsoft Access database. In this way a comprehensive typological, technological and metrical analysis of the excavated assemblage was undertaken. The location of the excavated artefacts was also recorded by waterway, spit/depth and excavation square. Analysis was aided using a 15x hand lens and a standard digital vernier calliper. Measurements were made in millimetres to one decimal place. A definition of the terms used for the artefact types and their attributes can be found in Appendix B of this report.

Assemblage Distribution

A series of test pits were excavated within waterway systems (Table 2). A total of 1068 artefacts were recovered from nine locations. Most of the artefacts (n=452, 42.3%) were from the Laheys Creek transect. Along this creek line two major concentrations of artefacts were found at TP74 and TP89. These two test pits were extended (Table 2). Another concentration of artefacts occurs along Tallawang Creek at TP168. This test pit was also extended (Table 2). The highest concentration along Sportsman Hollow Creek was 19 artefacts in TP414B while the highest density of artefacts along Sandy Creek was in TP48 (n=11) and TP58 (n=11) (Table 3). Few artefacts were found along Cockabutta Creek, Whites Creek, Planters Creek and Prospect Creek.

<i>Location</i>	<i>Count</i>	<i>Number of TPs</i>	<i>Density per TP</i>	<i>%</i>
Browns Creek	64	44	1.5	6.0
Cockabutta Creek	31	47	0.7	2.9
Laheys Creek	452	84	5.4	42.3
Prospect Creek	5	23	0.2	0.5
Planters Creek	8	42	0.2	0.7
Sportsman Hollow Creek	145	85	1.7	13.6
Tallawang Creek	196	61	3.2	18.4
Sandy Creek	147	48	0.3	13.8
Whites Creek	17	42	0.4	1.6
Total	1068			

Table 2 The counts and distribution of artefacts throughout the test pits by location

Whites Creek		Tallawang Creek		Sportsman Hollow Creek		Prospect Creek		Laheys Creek		Cockabutta Creek		Sandy Creek		Planters Creek		Browns Creek	
Count	TP	Count	TP	Count	TP	Count	TP	Count	TP	Count	TP	Count	TP	Count	TP	Count	TP
269	5	162	6	394	2	13	5	100	3	319	1	28	2	581	3	224	11
271	1	163	3	395	2			101	1	708	1	34	1	583	1	224E	2
272	1	164	2	395	1			102	10	710	2	35	3	589	3	224N	4
275	1	168A	12	395B	4			103	4	711	16	38	5	604	1	224NE	3
276	1	168B	17	395C	2			104	10	712	3	39	1			226	1
277	2	168C	18	396	1			108	17	324	1	40	3			227	1
278	1	168D	20	397	1			109	9	330	1	42	2			230	1
289	1	170	1	397	1			110	5	713	4	43	4			231	1
290	1	185	7	398	1			111	5	348	2	44	3			235	1
293	1	186A	6	399	1			112	1			45	6			236	1
305	1	186B	6	400	2			113	4			46	3			237	1
308	1	186C	1	401	1			114	12			48	11			239	1
		186D	7	407	5			115	2			49	5			240	1
		187	7	408	8			116	4			50	1			242	2
		188	1	408B	1			117	7			51	8			243	2
		188B	5	408C	12			73	6			52A	8			245	6
		191	1	408D	8			74	1			52B	3			246	4
		195	1	409	2			74A	22			52C	8			252	3
		174	3	410	4			74B	21			53	5			253	3
		175	6	410B	2			74C	25			54	2			254	1
		175B	1	410C	5			74D	24			55	7			256	1
		175C	2	410D	7			74NW-A	9			56	4			260	1
		176	4	411	3			74NW-B	8			57	7			261	5
		177	3	414	6			74NW-C	1			58	11			262	4
		178	3	414B	19			74NW-D	12			58B	6			264	1
		179	7	414C	5			74SE	7			58C	5			265	2
		180	6	414D	10			74SE-B	2			58D	3				
		181	4	419	2			74SE-C	3			59	3				
		182	3	420	2			74SE-D	10			60	7				
		183	1	421	3			75	4			61	2				
		198	3	422	1			75NW	6			63	2				
		198A	4	423	1			76	6			67	1				
		198B	3	429	1			77	7			68	3				
		199	2	431	1			78	1			69	1				
		200	3	434	3			79	2			72	1				
		201	1	445	2			86	2								
		202	2	445D	3			87	1								
		204	4	449	3			88	8								
		205	3	453	1			89	23								
		207	1	453B	1			89B	35								
		208	1	473	1			89C	40								
		209	1	476	4			89D	41								
		211	1					89NW	3								
		214	2					89SE	1								
		216	1					90	1								
		217	1					91	10								
		218	1					92	2								
		220	4					94	5								
								96	1								
								97	1								
								98	1								
								105	4								
								106	4								

Table 3 The counts and distribution of artefacts by test pits

Table 4 shows the number of artefacts from each spit, the mean maximum length and total weights. All artefacts, independent of raw material type, concentrate in spits 1 and 2. A decrease in the number and weights of artefacts with depth suggests a degree of size-sorting. Of note is the large size of the surface artefacts compared with the excavated artefacts (Table 4). This difference suggests a bias towards the exposure of larger artefacts on the surface and the burial of smaller artefacts.

<i>Spit</i>	<i>Count</i>	<i>%</i>	<i>Mean Maximum Length (mm)</i>	<i>Std Dev.</i>	<i>Total Weight (g)</i>	<i>%</i>
Surface	10	1.1	43.4	27.7	752.7	19.3
1	459	43.4	19.2	9.4	1409.26	34.9
2	412	39.0	18.5	9.5	1964.49	48.7
3	129	12.2	19.1	9.2	337.86	8.4
4	35	3.3	25.7	11.5	262.78	6.5
5	14	1.3	20.8	9.6	54.42	1.3
6	2	0.2	22.2	5.7	2.29	0.1
7	5	0.5	16.2	4.1	3.09	0.1
9	1	0.1	21.8		0.88	0.0
Total	1057				4035.07	

Table 4 Distribution of the artefacts by spits

Site Chronology/Occupation

A useful guide for assessing site age is the presence or absence of backed artefacts. These artefacts are typically only found in mid to late Holocene sites (<5000 years bp) throughout most of eastern Australia (Attenbrow 2002: 115-159, Hiscock 2008). The presence of backed artefacts is compared with depth to establish the timing of occupation in the CWO REZ area (Table 5). The results are used to identify whether the assemblage should be analysed as a whole or as a series of discrete occupations discarded over time. Table 5 shows that backed artefacts occur in spits 1-5 with most found in spit 2 (n=10). However, backed artefacts were only found along Laheys Creek, Sandy Creek and Sportsman Hollow Creek

<i>Creek</i>	<i>TP</i>	<i>Spit</i>	<i>Count</i>
Laheys	109	2	2
	74A	2	1
	74B	2	1
	74D	2	1
	77	1	1
	89D	2	4
	89D	3	1
	89NW	1	1
Sandy	51	1	1
	57	1	1
	58	1	1
Sportsman Hollow	408	5	1
	414	3	1

Table 5 The number of backed artefacts by spit and creek line

Stone Procurement

Firstly, the dominant raw material types found in the assemblage are defined.

Quartz

Quartz is a mineral composed of silicon dioxide (SiO_2) and is the second most abundant mineral in the Earth's crust (after feldspar); it is common in igneous, metamorphic, and sedimentary rocks (Lapidus 1990:429). Due to its abundance, hardness and often excellent flaking properties, quartz varieties are frequently found in archaeological sites throughout the world (Seong 2004:76-77).

Quartz can occur in small to very large crystal form (*macrocrystalline*) or as a fine-grained material with crystals invisible to the unaided eye (*microcrystalline/cryptocrystalline quartz*). Macrocrystalline quartz is extremely smooth and reflects enough light to have a vitreous lustre it is commonly divided into crystal and milky quartz categories. Here, the milky quartz artefacts were also classified by the degree of translucency as this characteristic equates to the quality/flakability of quartz. For example, translucent quartz flakes more conchoidally and hence is better quality. The surface of microcrystalline quartz scatters more light and has a dull or sub-vitreous lustre. Microcrystalline quartz can be divided into a number of varieties distinguished by colour, banding or degree of translucency. Flint, chert, and jasper are names commonly used for opaque specimens of microcrystalline quartz (Andrefsky 1998: 41; Odell 2004: 19). Other varieties are translucent e.g. agate, prase and carnelian. Chalcedony is a term used collectively to distinguish translucent, monochromatic varieties of microcrystalline quartz. Below is a useful way to classify crystalline and cryptocrystalline quartz varieties:

- A) If it has a vitreous lustre on conchoidal surfaces, it is coarsely crystalline quartz (crystalline quartz)
- B) If it has a dull lustre on conchoidal surfaces, it is a variety of microcrystalline/cryptocrystalline quartz.
- C) If it is opaque, it is jasper, a microcrystalline/cryptocrystalline quartz.
- D) If it is translucent and banded, it is agate, a variety of chalcedony.
- E) If it is translucent, and not banded, the name chalcedony is used.

Jasper

The name "jasper" is used to describe an opaque, microcrystalline quartz. It typically has a red colour but can range from black, blue/grey or orange/yellow.

Chalcedony

Chalcedony is often used specifically to describe the white, grey, or blue translucent raw material. It has a porous structure which readily accepts impurities giving it a range of colours e.g. carnelian is a red/amber translucent variety of chalcedony.

These forms of crystalline and microcrystalline/cryptocrystalline quartz are formed in veins when SiO_2 carried in solution is precipitated in cracks in the bedrock. If a variety of cryptocrystalline quartz cannot be identified it is called CCQ.

Indurated Mudstone/Tuff (IMT)

Mudstone is a sedimentary rock composed primarily of clay- or silt-sized particles (less than 0.063 mm in diameter) whereas a siltstone must contain over 50% silt-sized material. Silt is any particle smaller than sand, 0.06 mm, and larger than clay, > 0.0039 mm. A simple test to determine whether a rock is a mudstone is to if it feels gritty or chalky.

Siliceous or indurated rocks are sedimentary rocks that have silica (SiO₂) as the principal constituent. A siliceous siltstone/mudstone has silica precipitated throughout the rock making it hard and able to flake conchoidally. The size of the grains distinguishes between mudstone and siltstone. It can be from microscopic, with a smooth feel, to fine-grained with a visible matrix. The highly silicified siltstone is chert-like and it appears that this raw material type can be grade towards chert in the project area but retains a chalky texture. This material was collectively called IMT and presence of banding was recorded.

Silicified wood

Silicified wood forms when plant remains are buried rapidly in wet sediments and saturated with dissolved minerals – i.e. silica. The lack of oxygen slows decay of the wood, allowing minerals to replace cell walls and to fill void spaces in the wood. The resulting mineral retains the plant's original structure i.e. tree rings.

Stone Sources

Over 80% of the artefacts in the excavated assemblage were made from crystal or milky quartz (Table 6). These raw material types dominate by number and weight (Table 6). Tuff (5.2%) and a distinctive grey CCQ (6.7%) were the next most common raw materials. The CCQ material is a translucent green when held to the light.

<i>Material</i>	<i>Count</i>	<i>%</i>	<i>Mean Length (mm)</i>	<i>Std Dev.</i>	<i>Total Weight (g)</i>	<i>%</i>
Crystal Quartz	80	7.6	15.4	6.9	127.7	3.2
Milky Quartz	801	75.8	18.0	8.6	3106.5	77.0
Sub-total	881	83.4			3234.2	80.2
Basalt	3	0.3	37.3	37.4	151.9	3.8
CCQ	71	6.7	24.4	12.6	348.6	8.6
Chalcedony	6	0.6	23.1	5.5	10.2	0.3
Chert	3	0.3	26.4	11.3	7.7	0.2
FGS	2	0.2	23.4	9.8	3.8	0.1
Glass	1	0.1	11.9		0.2	0.0
Hornfels	1	0.1	32.5		6.4	0.2
Jasper	13	1.2	28.5	12.5	146.7	3.6
Quartzite	19	1.8	39.8	14.2	527.8	13.1
Silicified Wood	9	0.9	24.6	7.9	30.3	0.8
Tuff	55	5.2	25.8	11.3	270.2	6.7
Volcanic	4	0.4	33.6	17.7	50.4	1.2
Total	1057				4035.07	

Table 6 The counts of artefacts by the raw material types in the excavated assemblages

The cortex (or weathered exterior of the parent rock) provides information about the type of stone sources used (i.e. a primary or secondary source). Artefacts with a rough (also called terrestrial) cortex were acquired from a primary source (or an *in-situ* outcrop). Artefacts with a smooth or water-rolled cortex originate from a secondary source (e.g. a cobble from a waterway, having a smooth surface, Figure 1). Sources of colluvial quartz, also with a water-rolled cortex, occur through the area. These sources are also considered secondary. A vein cortex was also included to mineral growth within a vein e.g. quartz (Figure 1). These two types of cortex can still be considered from primary/terrestrial exposures. Weathered, also obtained from an outcrop, was also included. A distinctive orange cortex

represents a fracture along an internal flaw (Figure 1). This type of cortex is only found on the milky quartz artefacts and is also associated with an outcrop.

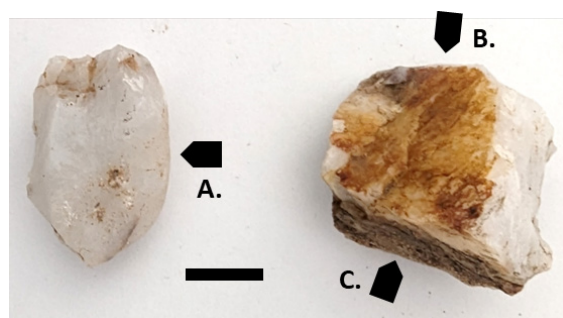


Figure 1. Types of cortex found on the milky quartz artefacts. A. Highly rounded, water-rolled, B. Orange, fractured, C. vein (scale=1 cm)

The amount of cortex on an artefact often indicates the distance artefacts were transported from the source (Hiscock and Mitchell 1993:12-17). A high percentage of cortex on an artefact indicates that the source of stone was nearby while artefacts with less cortex or no cortex were typically transported further from the source. Equally, as cores are transported away from the source they are reduced further, and the resulting flakes are also smaller.

To understand the use of stone sources in the CWO REZ assemblage the raw material types and their characteristics were compared. A variety of raw material sources were used and most of these artefacts have no cortex (Table 7). However, quartzite and jasper artefacts have a higher frequency of cortex. Sources were also compared by raw material type to identify whether differences occur in the source of procurement. Artefacts made from CCQ, milky quartz, crystal quartz, quartzite, CCQ, jasper and tuff all have a water-rolled or terrestrial cortex. Relatively high numbers of milky quartz artefacts were acquired from a terrestrial source (Table 7).

Material	0% Cortex Count	%	Water-Rolled	Outcrop
Basalt			3	
CCQ	39	54.9	17	15
Chalcedony	3	50.0	3	
Chert	1	33.3	2	
Crystal Quartz	64	80.0	10	6
FGS	2	100.0		
Glass	1	100.0		
Hornfels	1	100.0		
Jasper	1	7.7	4	8
Milky Quartz	546	68.2	190	65
Quartzite	5	26.3		6
Silicified Wood	4	44.4		4
Tuff	26	47.3	17	12
Volcanic	2	50.0	2	

Table 7 The type of cortex on the raw material types in the excavated assemblages

The cortex on the milky quartz artefacts varies from highly rounded and smoothed to more angular and sometimes still retaining rough or vein cortex (e.g. ids=438, 887, 742, 795, 787). The larger size of these later artefacts suggests that an exposure of milky quartz occurs nearby and upstream. A comparison of the maximum lengths of artefacts in the Laheys and Sportsman Hollow Creeks shows a significant difference ($t=4.927$, $df=589$, $p=0.0001$) with larger artefacts found along Sportsman Hollow Creek. Within this creek system the milky quartz cores were also larger than along other creek lines.

As already noted, milky/crystal quartz artefacts dominate the assemblage by count and weight in all sites. However, differences do occur between locations. Tuff artefacts concentrate in Whites Creek, Browns Creek and Sportsman Hollow Creek (Figure 2). These sites, although still dominated by milky quartz, have a higher proportion by weight of artefacts made from tuff (and other raw material types) when compared to Laheys Creek and Cookabutta Creek. Artefacts of CCQ were more commonly found in Browns Creek, Sandy Creek and Whites Creek while jasper artefacts were more commonly found in Browns Creek. These differences presumably reflect the availability of sources along the creek lines. It is predicted that a source of grey, cryptocrystalline quartz is located in the headwaters of Sandy, Browns or Whites Creek.

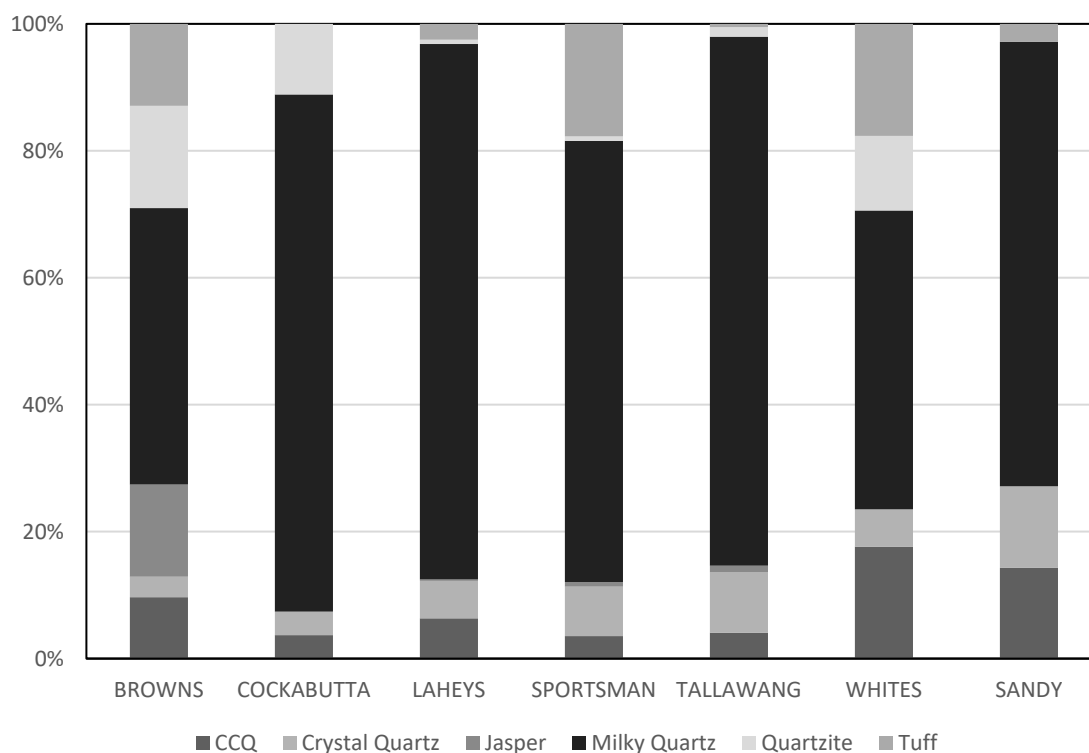


Figure 2 Raw material type by location

The mean sizes of all the complete flakes by raw material types are very small (Table 8). The largest complete flakes were made from chert, quartzite and volcanic material.

<i>Material</i>	<i>Count</i>	<i>%</i>	<i>Mean Length (mm)</i>	<i>Std Dev.</i>
CCQ	24	7.7	16.5	8.5
Chalcedony	2	0.6	21.5	0.3
Chert	3	1.0	19.9	14.6
Crystal Quartz	24	7.7	12.1	4.0
FGS	1	0.3	30.3	
Hornfels	1	0.3	21.8	
Jasper	2	0.6	19.7	7.9
Milky Quartz	219	70.0	16.4	6.4
Quartzite	8	2.6	32.7	9.2
Silicified Wood	3	1.0	14.5	7.7
Tuff	23	7.3	16.8	9.7
Volcanic	3	1.0	29.5	19.2
Total	313			

Table 8 Axial length of all complete flakes and standard deviations (mm) by raw material type

Stone Reduction Technology

The types of artefacts and their characteristics are used to establish how sources were worked, used and discarded on-site. Artefacts were classified as cores or flakes, broken or complete and retouched (tools) or non-retouched (Table 9). Artefacts that were shattered through extreme heat/or weathering and could not be identified by type but had a flaked surface were called a heat-fractured artefact (HSA). By-products of flaking also include angular fragments (blocks). The composition of the assemblage will firstly be compared followed by an analysis of the cores, flakes and tools.

Assemblage Composition

Milky & Crystal Quartz

The assemblage of milky quartz is dominated by broken flakes (including unretouched proximal, broken and distal flakes) which account for 41.0% (n=289) of the assemblage (Table 9). The main reason for this result is the inherent tendency of quartz flakes tend to shatter during manufacture (Tallavaara et al. 2010). This factor also explains the large number of angular fragments (12.8%, n=90) seen in the assemblage.

Using a MNF (Minimum Number of Flakes) Index (Hiscock 2002: 254) which takes into account the number of proximal fragments, complete flakes and half the complete splits a MNF of 298 complete flakes of milky quartz occur in the assemblage. A total of 52 cores and 21 core fragments were also found (Table 9). Only 35 (4.4%) milky quartz tools were found in the assemblage and most were made on complete flakes (n=19, 2.4%). Fewer artefacts of crystal quartz were found in the assemblage, reflecting its scarcity in the environment compared to milky quartz. Little difference was seen the frequency of artefact types made from crystal with the exception of higher proportion of complete tools (Table 9).

Type	<i>Milky Quartz</i>		<i>Crystal Quartz</i>	
	<i>Count</i>	<i>%</i>	<i>Count</i>	<i>%</i>
Core	52	6.5	5	6.3
Core Fragment	21	2.6		
Complete Flake	219	27.3	24	30
Complete Split	33	4.1	3	3.8
Broken Flake	136	17	14	17.5
Distal Flake	149	18.6		
Proximal Flake	57	7.1		
Sub-total	342	42.7		
Complete Tool	19	2.4	4	5.0
Broken Tool	4	0.5	1	1.3
Proximal Tool	5	0.6		
Distal Tool	7	0.9		
Sub-total	35	4.4		
Block	99	12.4	5	6.3
Total	801		80	

Table 9 Composition of the milky and crystal quartz artefacts

Broken flakes may be a result of breakage during manufacture, post-depositional breakage (ploughing, treadage, weathering or heat-shattering) or the deliberate snapping of complete flakes during the manufacture of particular tools, such as geometric microliths (Boot 1987: 10-15; Holdaway and Stern 2004: 133-135). However, milky quartz and crystal quartz is more likely to shatter along cleavage lines during manufacture resulting in more breakages.

Other Raw Material Types

A comparison is made between milky quartz artefacts and other raw material types, excluding crystal quartz artefacts (Table 10). The results show that fewer broken flakes and more tools occur in this component of the assemblage.

<i>Type</i>	<i>Count</i>	<i>%</i>
Core	11	5.9
Core Fragment	8	4.3
Complete Flake	70	37.4
Complete Split	6	3.2
Broken Flake	6	3.2
Distal Flake	21	11.2
Proximal Flake	12	6.4
Sub-total	39	20.8
Complete Tool	12	7.8
Distal Tool	5	2.7
Proximal Tool	2	1.1
Block Tool	1	0.6
Broken Tool	2	1.1
Spall tool	1	0.6
Sub-total	23	13.9
HFA	3	1.6
Block	22	11.8
Total	187	

Table 10 Composition of the other artefacts in the assemblage (excluding crystal quartz)

Cores

A total of 68 cores and 29 core fragments were found in the assemblage. The majority of the cores were made from milky quartz (n=52, 76.5%). A variety of other raw materials were also found as cores (Table 11). Most of the cores were found along Layeys Creek (n=23) and Sportsman Creek (n=18).

All the cores have a relatively small mean size (Table 12). The largest is a milky quartz core with a maximum length of 104.8 mm. Evidence of material testing was observed on some of the larger milky quartz nodules (e.g. ids=310 & 737). These cores have obvious internal flaws and fractures and were discarded immediately. The bipolar technique is employed to maximise the use of raw material i.e., when core is small and heavily reduced or used to split small nodules of raw material or even used to remove flakes from a flake body (Andrefsky 1998:227).

<i>Id</i>	<i>TP</i>	<i>Material</i>	<i>Core Type</i>	<i>Core body</i>	<i>Scar form</i>	<i>Platform No.</i>	<i>Length (mm)</i>	<i>Core Scar No.</i>
128	75nw	milky quartz	bipolar	nodule	elongated	1	21.90	1-2
199	224ne	quartzite	uni-directional	nodule	expanding	1	66.80	3-5
210	89b	crystal quartz	bi-directional		expanding	2	26.30	1-2
214	89b	milky quartz	bipolar		expanding	1	28.20	1-2
214	89b	milky quartz	multi-directional		expanding	3	31.10	3-5
215	89b	milky quartz	bi-directional	nodule	mixed	2	36.20	1-2
217	89b	milky quartz	test	nodule	expanding	1	74.30	1-2
231	89b	milky quartz	bipolar	nodule	mixed	2	29.70	3-5
251	89	milky quartz	bipolar	nodule	elongated	2	27.90	1-2
279	89d	milky quartz	multi-directional		mixed	3	27.30	3-5
28	74c	milky quartz	prismatic		elongated	1	23.00	3-5
309	89c	milky quartz	bi-directional	nodule	expanding	2	33.10	3-5
310	89c	milky quartz	test	nodule	expanding	1	53.50	1-2
340	88	milky quartz	uni-directional	flake	expanding	1	32.40	1-2
353	92	milky quartz	Sub-prismatic		mixed	1	23.60	3-5
367	94	tuff	bi-directional	flake	mixed	2	46.10	3-5
401	103	jasper	multi-directional		expanding	3	31.70	3-5
405	76	quartzite	Radial-bifacial		expanding	5	72.40	3-5
408	76	milky quartz	bipolar	flake	expanding	2	18.70	3-5
435	116	milky quartz	bipolar		elongated	1	21.10	1-2
443	108	Silicified wood	burin-blade	flake	elongated	1	27.00	1-2
444	108	milky quartz	test		expanding	1	41.00	1-2
485	117	milky quartz	Uni-directional	nodule	elongated	1	16.70	1-2
487	414b	tuff	bi-directional	flake	mixed	2	30.00	1-2
488	414b	milky quartz	bipolar	nodule	expanding	2	21.50	1-2
501	408d	milky quartz	bipolar		expanding	1	36.00	1-2
514	414c	milky quartz	bi-directional	block	expanding	2	27.00	1-2
521	408d	crystal quart	Radial-bifacial	nodule	mixed	6	35.30	>10
524	408b	crystal quart	uni-directional		expanding	1	32.20	1-2
526	414d	milky quartz	uni-directional	block	elongated	1	37.80	1-2
530	414d	milky quartz	Radial-bifacial		expanding	4	29.70	3-5

<i>Id</i>	<i>TP</i>	<i>Material</i>	<i>Core Type</i>	<i>Core body</i>	<i>Scar form</i>	<i>Platform No.</i>	<i>Length (mm)</i>	<i>Core Scar No.</i>
532	414d	milky quartz	Burin-blade	flake	elongated	1	47.70	3-5
540	408c	milky quartz	bi-directional	nodule	elongated	2	28.20	1-2
557	449	milky quartz	uni-directional		expanding	1	31.00	1-2
563	445	milky quartz	bipolar		elongated	2	37.10	3-5
567	423	jasper	uni-directional		expanding	1	30.50	1-2
570	401	tuff	uni-directional		expanding	1	60.50	1-2
587	407	milky quartz	Radial-bifacial		mixed	4	29.00	3-5
595	422	Crystal quartz	uni-directional	block	expanding	1	45.30	1-2
625	419	milky quartz	test		elongated	1	48.70	1-2
640	186b	milky quartz	multi-directional	block	mixed	3	41.80	3-5
658	185	milky quartz	bipolar	block	elongated	1	19.60	1-2
69	74a	CCQ	atypical burin-blade		blade	2	46.80	1-2
714	164	milky quartz	atypical burin-blade	flake	elongated	2	15.30	1-2
725	168a	milky quartz	bipolar	nodule	elongated	1	19.90	1-2
737	168b	milky quartz	uni-directional	nodule	expanding	1	44.50	1-2
738	168b	milky quartz	uni-directional	block	expanding	1	36.40	1-2
742	208	milky quartz	multi-directional	block	expanding	3	104.80	3-5
758	tp324	milky quartz	uni-directional		mixed	1	29.70	3-5
761	711	milky quartz	uni-directional	block	expanding	1	35.90	1-2
779	712	basalt	multi-directional	nodule	mixed	6	80.40	>10
787	269	milky quartz	multi-directional	block	expanding	3	44.70	3-5
788	269	milky quartz	test	nodule	elongated	1	23.50	1-2
806	253	milky quartz	uni-directional	nodule	expanding	1	23.60	1-2
819	175	milky quartz	uni-directional	nodule	mixed	2	41.20	1-2
826	182	milky quartz	bipolar	nodule	expanding	3	36.80	3-5
830	177	milky quartz	multi-directional	block	mixed	3	45.50	3-5
846	209	milky quartz	bi-directional	block	expanding	2	26.00	1-2
862	202	milky quartz	alternate-blade	block	elongated	1	31.00	1-2
887	199	milky quartz	uni-directional	nodule	expanding	1	32.60	1-2
898	476	milky quartz	bi-directional		expanding	2	31.80	1-2
982	55	milky quartz	bi-directional		mixed	2	16.3	1-2
1004	59	milky quartz	bipolar		elongated	1	17.7	1-2
1006	42	milky quartz	bipolar	nodule	expanding	1	17.6	1-2
1016	58	milky quartz	uni-directional		expanding	1	22.2	1-2
1118	46	milky quartz	radial-bifacial		expanding	4	26.6	3-5
1122	50	CCQ	bi-directional	nodule	expanding	2	45.6	1-2
1132	43	milky quartz	uni-directional	nodule	expanding	1	22.3	1-2

Table 11 Characteristics of the cores in the assemblage

<i>Material</i>	<i>Count</i>	<i>Mean Length (mm)</i>	<i>Std Dev.</i>
Basalt	1	80.4	
CCQ	2	46.2	0.8
Crystal Quartz	5	35.1	6.9
Jasper	2	31.1	0.8
Milky Quartz	52	32.4	15.1
Quartzite	2	69.6	4.0
Silicified Wood	1	27.0	
Tuff	3	45.5	15.3

Table 12 Size of the cores by material type in the assemblage

The cores typically have elongated, expanding or mixed flake scars. Only one core in the excavated assemblage shows clear evidence of blade scars (Table 11). Cores show limited evidence of platform preparation i.e. overhang removal or faceting (n=2). Cores were exhausted due to their small size and/or platform angle or failed after attempts to remove flakes resulted in step or hinge terminations. Seven of the cores were made on flake bodies. Most of the milky quartz cores were made from angular blocks or rounded to semi-rounded, waterborne nodules (Table 11). Sometimes cores were rotated with more than once with eight multi-directional cores present in the assemblage. The number of core platforms is associated with larger core sizes and tend to have expanding rather than elongated flake scars. In general, few flakes removed from the cores e.g., two cores have more than ten flake scars (Table 11).

Systematic Core Reduction Strategies

The analysis of the cores indicates that a number of strategies were employed to systematically prepare and reduce the cores which are represent by four technological strategies.

1. Burin-Blade Cores (on flake body). Two typical burin-blade cores were identified (Figure 3). One of these was made on a flake of silicified wood (id=443) and the other on a large flake of milky quartz (id=532).



*Figure 3 Examples of burin-blade cores in the assemblage. Arrows show platforms.
Left. Id=443; Right. Id=532 (scale= 1 cm)*

2. Atypical Burin-Blade Cores. Two examples of atypical burin-blade core were found in the excavated assemblage (ids=862, 714; Figure 4). The cores were anvil rested and flaked using a bipolar technique along one lateral margin allowing the production of elongated flakes.

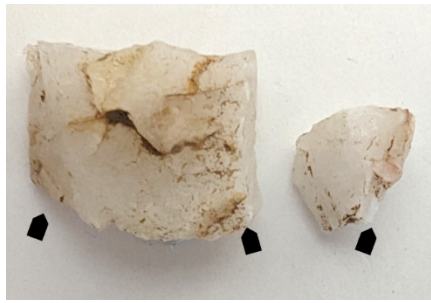


Figure 4 Examples of atypical burin-blade cores in the assemblage. Arrows show platforms.
Left. Id=443; Right. Id=532 (scale=1 cm)

3. Prismatic/Sub-Prismatic Core. If cores are flaked from single platform in a radial fashion they become conical/prismatic in profile (Holdaway and Stern 2004:206). As flaking progresses the core shape changes from sub-prismatic (e.g., id=353) to prismatic (e.g., id=28). These cores typically have blade/elongated flake scars (Figure 5). A prismatic core is usually flaked unidirectionally around the margins of the flake to remove elongated flakes. (Figure 5). To remove the elongated flakes the core was anvil-rested to continue flaking. The production of blades/elongated creates from a prismatic core allows the manufacture of a very standardized final product. The flake scars on these cores are long and narrow and highly reduced.



Figure 5 Examples of sub-prismatic and prismatic cores in the assemblage. Arrows show platforms.
Left. Id=28; Right. Id=353 (scale=1 cm)

4. Alternate-blade core. This core was flaked across the same core face from opposite directions (Figure 6). The core shows the 180° rotation and the use of established parallel flake scars to extend the life of the core e.g., id=862.



Figure 6 An example of alternate-blade core in the assemblage. Arrows show platforms.
Left. Id=862 (scale=1 cm)

5. Radial-bifacial core Bifacial, Radial Core. These cores were bifacially flaked in a radial fashion across a core body using a bipolar technique (e.g. 521, 530, 587, 405, Figure 7). Although defined as core similar artefacts were described McCarthy (1976:23) as a discoid tool or Kodja.



Figure 7 Examples of radial-bifacial cores in the assemblage. Left to right. Id=405, 587, 530, 521 (scale=1 cm)

Flakes

The characteristics of the complete flakes made from milky quartz are used to support and further enhance the results of the core analysis. Other raw material types will be used as a comparison.

The form of the complete flakes is used to determine how cores were reduced and what was manufactured on site. Table 13 compares the form of the complete flakes. Over 25% of the complete flakes have an expanding or elongated form (Table 13). Few blades are seen in the assemblage. A blade is defined strictly as having a length x2 longer than the width with parallel dorsal scarring (Flenniken and White 1985; Holdaway and Stern 2004:149). In total, including broken and complete flakes, only 22 blades were found in the assemblage (Table 14). Most of these blades were made from CCQ. Artefacts with a blocky form are generally associated with early core reduction but also reflects the nature of the raw material i.e., milky quartz shatters along cleavage lines during manufacture. This result correlates with the form of the flake scars on the cores. Of interest is the axial lengths of the elongated and expanding flakes (Table 13). The size of the expanding flakes is significantly smaller than the elongated flakes ($t=4.622$, $df=116$, $p<0.0001$) indicating that expanding flakes were manufactured later in core reduction or resulted from core preparation.

<i>Form</i>	<i>Count</i>	<i>%</i>	<i>Axial Length (mm)</i>	<i>Std Dev.</i>
Bipolar	5	2.3	17.4	7.4
Blade	2	0.9	17.0	6.6
Block	10	4.6	24.6	8.9
Elongated	61	27.9	17.5	4.7
Expanding	57	26.0	13.2	5.4
Indeterminate	66	30.1	16.1	6.7
Platform Rejuvenation	18	8.2	19.4	4.9
Total	219			

Table 13 Form of the milky quartz complete flakes in the excavated assemblage

<i>Material</i>	<i>Count</i>
CCQ	9
Chalcedony	2
Crystal quartz	2
FGS	1
Milky quartz	5
Tuff	3

Table 14 Counts of broken and complete blades by material type

The presence of broken and complete platform rejuvenation flakes (n=25) indicates that the use of cores was sometimes extended on-site. Platform rejuvenation flakes (also known as a core rejuvenation flake) were used to both create a new platform and to limit flaking mistakes by reducing the angle of the striking platform thereby extending the life of a core (Odell 2003: 121).

The additional presence of relatively high numbers (n=33) of complete split flakes made from milky quartz (which only occur during flaking) also shows that core reduction occurred on-site (Table 9). The highest density of these flakes was found in TP168A (n=3). These types of flakes usually occur early in core reduction when the aim is to remove a large flake and can be considered a flaking error produced when the force used to strike the core is too great and at the incorrect angle. Given the generally small size of these flakes (18.2±4.6 mm), however, it is more likely that these also represent a flaking error due to the size of the cores and/or difficulty of flaking milky quartz. It is also likely that bipolar flaking compacted the focus of the removals resulting in more split flakes. The largest complete split of milky quartz is 29.5 mm, whereas the largest split flake of crystal quartz is 74.6 mm. Only five complete flakes of other raw material types were found (e.g. tuff, chalcedony, CCQ and glass) and, with the exception of the glass artefact, these were all larger than 20 mm.

CCQ, milky and crystal quartz flakes share a small mean length. In comparison, flakes of chert and chalcedony are larger than the other raw material types and more elongated shown by the mean length and width (Table 15). Larger flakes of less common raw materials were also found e.g. quartzite. This result suggests that large flakes of high-quality material were selected for transportation. A distal flake of basalt was also identified in TP74B along Laheys Creek (id=87). This artefact may be from a reworked axe. Another distal flake of basalt was also found along Sandy Creek in TP39 (id=909). This artefact also appears to have a polished dorsal surface from reworking an axe.

<i>Material</i>	<i>Count</i>	<i>Mean Axial Length (mm)</i>	<i>Std Dev.</i>	<i>Mean Width (mm)</i>	<i>Std Dev.</i>
CCQ	24	16.5	8.5	16.5	6.7
Chalcedony	2	21.5	0.3	12.1	3.3
Chert	3	19.9	14.6	20.6	4.9
Crystal Quartz	24	12.1	4.0	10.1	3.1
FGS	1	30.3		7.9	
Hornfels	1	21.8		33.1	
Jasper	2	19.7	7.9	11.4	2.4
Milky Quartz	219	16.4	6.4	12.7	5.7
Quartzite	8	32.7	9.2	27.5	7.6
Silicified Wood	3	14.5	7.7	20.0	1.4
Tuff	23	16.8	9.7	19.0	8.3
Volcanic	3	29.5	19.2	25.8	15.1

Table 15 Size of the complete flakes by material type in the excavated assemblage

There are also numerous examples of snapped proximal flakes (e.g., 140, 111, 141). The flakes were probably deliberately snapped to manufacture geometric microliths.

Core rotation is shown by the dorsal scars of the complete flakes (Table 20). Most of the cores were flaked in one direction, however, a relatively high number of flakes made from milky quartz were from rotated cores shown by the presence of scars from 90°, 180° and the radial patterns (Table 20). This result is reflected in the numbers of flaked platform types (n=20, 9.1%). In the entire assemblage only one complete flake, made from chalcedony, has a faceted platform. In addition, a complete tool of milky quartz and another of crystal quartz have a faceted platform. Five proximal flakes, three of CCQ and two of tuff, also have a faceted platform. In total only eight flakes have a faceted platform. The presence of faceted platforms and exterior platform preparation (such as overhang removal) indicates a more systematic core reduction. Little evidence of exterior platform preparation was found on the milky quartz (Table 16). Attempts were made to remove thin flakes shown by the platforms that were crushed during removal, although this also occurs during bipolar flaking and the difficulties of flaking quartz (Table 16).

<i>Distal End</i>	<i>Count</i>	<i>%</i>	<i>Platform Types</i>	<i>Count</i>	<i>%</i>
Abrupt	26	11.9	Cortical	13	5.9
Cortical	10	4.6	Crushed	43	19.6
Crushed	15	6.8	Flaked	20	9.1
Feather	158	72.1	Missing	19	8.7
Platform	2	0.9	Unifacial	124	56.6
Plunge	3	1.4			
Step	5	2.3			
<i>Scar Direction</i>					
0	127	58.0	<i>Platform Preparation</i>		
180	30	13.7	None	2	0.9
90	48	21.9	Overhang	217	99.1
NA	10	4.6			
Radial	4	1.8			

Table 16 Characteristics of the complete flakes made from milky quartz in the assemblage

Tools

Only 68 tools were found in the CWO REZ assemblage. In addition, a reworked axe was recycled and used as a core (Table 21). This figure represents a relatively low proportion of the assemblage (6.4%). Most of the tools were made on complete flakes ($n=40$, 58.8%). These complete tools are larger than the unretouched complete flakes indicating a selection for size (complete flakes= 16.8 ± 7.6 mm, complete tools= 24.7 ± 10.4). It must be noted that due to hardness of milky quartz artefacts are rarely retouched and edge-damage from use is common. It is likely that the frequency of tool use in the assemblage is much higher than identified.

Tool Type		CCQ	Milky quartz	Crystal quartz	Chalcedony	Tuff	Quartzite	Jasper	Silicified Wood	Total	%
Backed	Backed Fragment	2	4	1						7	10.3
	Bondi Point		4		1					5	7.4
	Geometric microlith		5							5	7.4
	Elouera	1								1	1.5
	Sub-total									18	26.5
Scraper	End-scraper	1				1				2	2.9
	Step-scraper	2	3				3			8	11.8
	Convex-scraper		4							4	5.9
	Straight-scraper	2	2			2		1		7	10.3
	Sub-total									21	30.9
Notch	Notch		3							3	4.4
	Denticulate	1	1							2	2.9
	Sub-total									5	7.4
Burin			1							1	1.5
Usewear		5	11	3		2		1	1	23	33.8
Total		14	38	4	1	5	3	2	1	68	

Table 17 Tools found in the assemblage

The backed artefacts are complete, broken or unfinished Bondi points and geometric microliths and one Elouera (Figure 4). These tools account for 26.5% of the tool assemblage. The Elouera (id=414) was made from grey CCQ and has evidence of use. A Bondi point of chalcedony also has evidence of use (id=68). These tools may have been hafted, discarded after use and subsequently replaced. There is also an example of a milky quartz Bondi point with a missing tip (id=459, Figure 8). This tool failed and was replaced after use. In contrast, id=92 is a proximal backed tool of milky quartz which broke during manufacture (Figure 8). Three broken geometric microliths were also identified. Two, ids=39 and 286, have lateral breaks. It is likely that these tools were also broken during manufacture. The six backed fragments also represent failures during manufacture and all were found along Laheys Creek. Four backed fragments and two geometric microliths were found in TP89D or TP89NW. Along this creek two Bondi points, three geometric microliths and the Elouera were also found. Two Bondi points were also found along Sportsmans Hollow Creek. Along Sandy Creek in TP57 a geometric microlith of crystal quartz (id=1144) and a Bondi point of CCQ (id=1143) were found. Nearby an additional geometric microlith (id=948) was found in TP58 and a Bondi point (id=962) in TP51. The composition of an assemblage characteristics has been linked to the duration of an occupation (c.f., Shott 1997:206) i.e., the longer a site was occupied the greater the diversity of tool types.

Typically, geometric microliths are backed in three quadrants (1, 2 and 3) (Figure 15). However, milky quartz geometrics backed in one or two quadrant or partly along one or more quadrant. Rather than these being defined as being unfinished (discarded during manufacture) it seems likely that backing occurred on quartz to shape the tool and if this was not needed (i.e. the shape was present without backing) some quadrants remained unretouched. This would not affect its performance as a tool. Equally, it is likely that unretouched quartz fragments were also hafted. An excellent example of unretouched, hafted quartz flakes was observed in a waterlogged assemblage found along the Hoko River of northwest America which preserved quartz flakes still embedded in the wooden hafts (Flenniken 1981). Flenniken noted that these flakes, if found alone, would never have been interpreted as hafted or even utilised tools. A similar scenario was observed in Australia. Hayden (1973: 125) found that both modified and suitable unmodified quartz flakes were hafted in a taap knife and by analogy the death spear.



Figure 8 Examples of Bondi points, a blade and Elourea in the assemblage Left to right, Ids=580, 616, 459, 68, 92, 355, 414 (scale 1cm)



Figure 9 Examples of broken and complete geometric microliths in the assemblage Left to right, Ids=287, 284, 39, 286, 461 (scale 1cm)

There are a number of scrapers, with scalar retouch, found in the assemblage and these were made from a variety of raw materials (Table 17, Figures 10 &11). Scrapers dominate the tool assemblage (n=21, 30.9%). Other, rarer and non-local raw material types, such as quartzites or tuffs, were used in tool manufacture (Table 17). Chalcedony, CCQ and chert are all varieties of microcrystalline quartz which have excellent flaking properties. These tools are more likely to be curated and transported maintaining a longer uselife. Most of the scrapers were found along Laheys Creek and Sandy Creek (Figure 13). Id=1126 is a heavily stepped scraper and may have been hafted as a burren.



Figure 10 Examples large scrapers in the assemblage. Top, Left to right, ids=542, 782, 200, 402. Middle, Sandy Creek, left to right, dorsal surface, Lower, ventral surface, ids=995, 988, 1126 (scale=1cm)



Figure 11 Examples milky quartz complete tools in the assemblage. Left to right, ids=51, 775, 753 (scale=1cm)

Denticulate and notched tools were also found in addition to unmodified flakes with usewear damage. One burin was also identified on a milky quartz flake.

A previously noted a reworked axe, also used as a core, was found in the assemblage (Figure 12). Attempts to rework a broken bevel failed and it was subsequently discarded.



Figure 12 Reworked axe, id=51, 778 (scale=1cm)

Figure 12 Attempt to rework broken axe, front and back views. Id=42 (scale=1cm)

Other raw material types, rarely seen in the surface assemblage, were often used in tool manufacture (Table 17). Chalcedony, CCQ and chert are all varieties of microcrystalline quartz which has excellent flaking properties. These tools are likely to have been transported and curated through resharpening.

As already noted Figure 13 shows the number and types of tools found along the creek lines. Of interest is not only the higher numbers of tools along Laheys Creek and Sandy Creek but also the differences frequencies of the tools. Along Sandy Creek there are more artefacts with usewear damage while along Laheys Creek there is a higher number of backed artefacts.

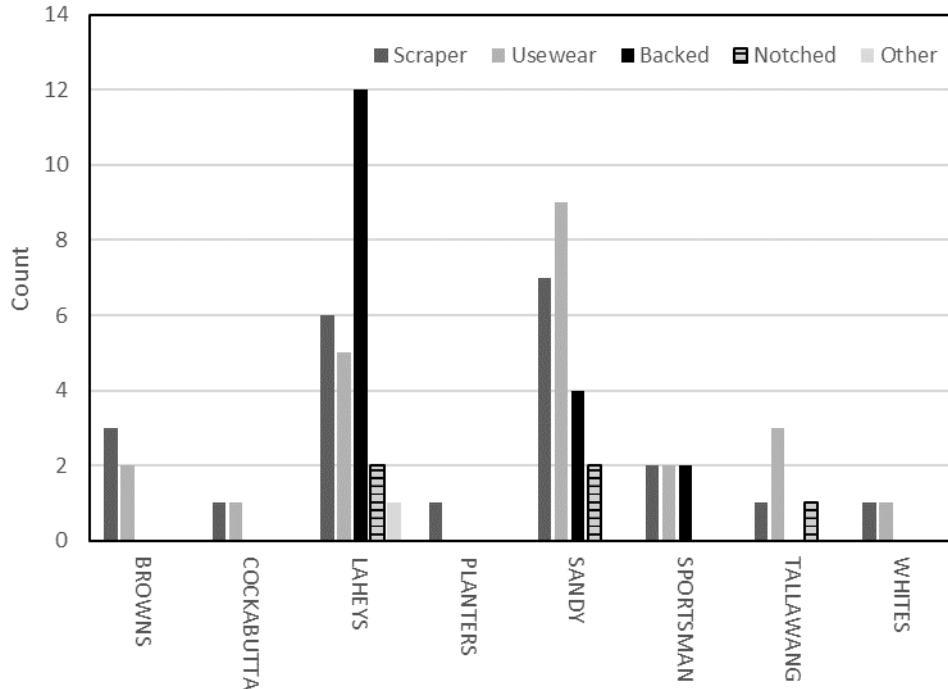


Figure 13 Types and counts of tools found along the creek lines

Post-Depositional Influences

Many processes affect archaeological remains after their initial discard. In this report the influence of heat and chemical weathering damage are considered for the excavated assemblage. An assessment of site disturbance will be made using the presence of conjoins, weathering, water movement and artefact displacement.

Heat Damage

Only one artefact has evidence of being burnt. This tuff artefact was a core fragment found in spit 3 of TP408c located along Sportsman Hollow Creek. No evidence of heat treatment was observed.

Water Movement

In TP445D, located along Sportsman Hollow Creek, three examples of water-rolled artefacts were found in spit 3 (ids=560, 559, 171). This result suggests the movement and redeposition of artefacts in this area. A further water-rolled artefact was found in spit 3 of TP224 along Browns Creek (id=171). Three water-rolled artefacts were also found along Sandy Creek in TP40 (968), TP54 (id=917) and TP35 (id=1130).

Chemical Weathering of Tuff

A process which may account for the fragmentation of tuff artefacts is chemical weathering which is caused by rainwater reacting with the mineral grains to cause internal fractures in the rock and breaks them apart (Allaby 2013). Smaller rocks (i.e. artefacts) found in humid climatic conditions are more susceptible to this process. During the analysis external damage was observed on the surface of one tuff artefact (id=803). This HSA/weathered artefact was found in spit 2 of TP253 along Browns Creek.

Vertical Distribution of Raw Material Types

Typically, a variety of post-depositional processes (e.g. trampling and bioturbation) can lead to the downwards displacement of artefacts through sediments especially in a sandy environment (Richardson 1992). Small artefacts are more likely to be affected by size sorting i.e. larger numbers of smaller artefacts will occur at the base of an excavation (Baker 1978). Table 4 shows the size and weight of all artefacts in the assemblage. By comparing the maximum lengths of the complete flakes of milky quartz by spit shows that the size of the artefacts generally decreases with depth (Table 18).

<i>Spit</i>	<i>Count</i>	<i>Mean Maximum Length (mm)</i>	<i>Std Dev.</i>
Surface	2	28.0	2.1
1	88	19.1	7.1
2	102	17.4	7.4
3	17	17.2	7.0
4	6	18.3	4.9
5	1	12.3	
7	2	13.3	3.6
8	0		
9	1	21.8	

Table 18 Mean maximum length of complete flakes made from milky quartz in the assemblage by spit.

Conjoining Artefacts

Conjoining (or refitting artefacts) was not systematically undertaken across the excavated or surfaces assemblages but sometimes recognised during the analysis. These indicate specific core reduction areas. Two sets of conjoining artefacts was observed in the assemblage. One set was found in TP106, near Laheys Creek, in spit 2 and are a proximal and distal flake of milky quartz (id=904 & 903). The other set was found along Sandy Creek in spit 3 of TP53 (ids=1018 & 978). This set was also a proximal and distal flake of milky quartz. Both sets represent breakages after manufacturing.

Archaeological Potential

The results from the CWO REZ excavation are compared against similar sites in the region to better understand the significance of the archaeological deposit.

Comparative Analysis

The surface and excavated assemblages can be directly compared to the results of the O’Driscoll and Kuskie (2015) and Doelman (2017, 2018) assessments at Moolarben and previous testing for the CWO REZ project (Doelman 2023). The results show that there are several major assemblage differences that occur in the CWO REZ assemblage (Table 19).

All assemblages are dominated by high quality macrocrystalline (milky/crystal) quartz artefacts. A high number of tuff artefacts occur in the excavated assemblages from Stage 1 when compared to Stages 2 and 3 at Moolarben (Table 19). This difference may be related to access with tuff available near or within the Stage 1 survey area. This pattern also emerges in the CWO REZ assemblage with fewer tuff artefacts again indicating an increased distance from tuff sources. Similar core reduction technology and tool manufacture was seen in both areas. These include the flexible and innovative ways of manufacturing elongated flakes of milky quartz from large flakes, water-rolled pebbles and blocky fragments obtained from a primary outcrop. Comparing the two CWO REZ assemblages shows similarities in the raw material types and amounts of cortex, sources used, tool and core types (Table 19, Doelman 2023). Two differences were observed. Milky quartz artefacts from the initial testing of the CWO REZ (Doelman 2023) were significantly larger ($t=2.465$, $df=843$, $p=0.0139$) and the frequency of cores in the assemblage was higher. These results suggest larger nodules and milky quartz exposures were located closer to the test pits.

O’Driscoll and Kuskie (2015) interpreted the sites in the Stage 1 survey as either:

1. Transitory movement (without camping) but having evidence of minor food processing/equipment maintenance undertaken in multiple episodes each of short duration (very low, low, moderate or high intensity of use)
 - Isolated find =very low intensity of use
 - <200 artefacts = low intensity of use
 - ~1000 artefacts = moderate intensity

2. Transitory movement (without camping) but having no evidence of minor food processing/equipment maintenance undertaken in multiple episodes each of short duration.
3. Transitory movement (without camping) but having no evidence of minor food processing/equipment maintenance undertaken in multiple episodes each of short duration but with task specific locations (e.g. axe grinding grooves).

Based on the definitions proposed by O'Driscoll and Kuskie (2015) all the sites in the CWO REZ assessment are short-term transitory without camping ranging from very low to moderate intensity.

	Stage 1 O'Driscoll and Kuskie (2015)				Stage 2		Stage 3		CWO REZ SNI Jan	CWO REZ Nov 2023
	Excavated	Surface collection	Survey	Scrape	Surface	Excavation	Surface	Excavation		
Count of cores	20	66	30	100	241	61	377	23	7	68
% of cores	5.6	12.6	7.3	10.3	8.3	3.2	13.8	8.3	8.3	6.4
Material type (% of tuff)	72/359 20.1	65/522 12.5	40/413 9.7	33/969 3.4	187/2887 6.5	148/1880 7.9	313/2740 11.4	31/277 11.2	31/84 5.6	55/1057 5.2
% of Tuff artefacts with no cortex	71/72 98.6	50/65 76.9	30/40 75.0	29/33 87.9	124/187 66.3	109/148 73.6	190/313 60.7	21/31 67.7	15/31 49	26/55 47.3
% of quartz artefacts with no cortex	180/190 94.7	307/394 77.9	283/316 89.6	719/326 45.3	1827/2121 86.1	1217/1419 85.8	1783/2204 80.9	166/223 74.4	36/49 73.5	610/881 69.2
Count of Tools (not backed)	40	78	10	120	27	55	145	3	3	50
Count of Tools (backed)	1	3	8	5	24	42	80	6	9	18
Mean weight quartz	1.4	7.2	4.1	*	4.5	0.6	7.6	2.9	4.9	3.7
Mean weight tuff	3.0	36.9	20.7	*	31.6	1.4	19.4	6.6	1.9	4.9
Core: complete flake	20:34 1:1.7	66:122 1:1.8	30:132 1:7.7	100:163 1:1.6	242:474 1:2.0	61:353 1:5.8	377:679 1:1.8	23:48 1:2.1	7:29 1:4.1	68:313 1:4.6

*unknown Table 19 Comparison of CWO REZ with Moolarben assemblages to other sites on the area

The four main loci of occupation which occur at CWO REZ include TP89 (A, B, C and D) and TP74 (A, B, C and D) near Laheys Creek and TP168 (A, B, C and D) near Tallawang Creek. One smaller concentration of activities occurs along Sandy Creek (TPS 58, B, C & D).

TP74 (A, B, C and D) is characterised by high artefact numbers (~20 per m²), high diversity of material types, including CCQ, chalcedony, basalt and tuff, and tool types (backed and scrapers). These features of an assemblage imply a longer duration of occupation (c.f., Shott 1997). The presence of processing tools and are typically seen at longer-term/repetitive occupation sites (Andrefsky 1998:202).

TP89 (NS, SE, A, B, C and D) only has one CCQ artefact but a higher frequency of cores (n=9) and backed artefacts (n=6). These tools were manufactured on-site and represent “gearing-up” to maintain hunting weaponry. This area can be considered a low-intensity, task specific assemblage.

At *TP168 (A, B, C and D)* all artefacts are made from milky/crystal quartz. The presence of split flakes and cores (n=5) suggests a small working area.

TP58, B, C and D has a higher variety of raw material types including CCQ, silicified wood and chalcedony. A higher frequency of processing tools (scrapers, usewear and notched tools) were also found in this location. These two assemblage characteristics indicate more time-at-place.

Summary

It is now possible to return to the questions posed in the research design.

Source Information. Which raw material resources were used?

The assemblage was dominated by milky quartz artefacts. However, differences do occur to the frequency and diversity of raw material types between the waterways.

Milky and crystal quartz artefacts account for over 80% of the assemblage. Tuff and CCQ artefacts were the next common. Other raw material types include chert, jasper, chalcedony, silicified wood, basalt, quartzite and volcanics. One split glass artefact was found. The milky quartz artefacts are generally high quality with few inclusions or flaws and many flake conchoidally. Test pits located in Sandy, Whites and Browns Creeks have the highest frequency of CCQ artefacts indicating a source upstream. Browns Creek may also have a primary source of jasper.

Two types of raw material sources were used, terrestrial (primary) and waterborne (secondary). There are a number of milky quartz artefacts with a terrestrial/outcropping cortex. This result indicates that these primary sources were closer to the test pits along Tallawang Creek. Here 47.8% (n=22) of the milky quartz artefacts with cortex were derived from an outcropping exposure. During the analysis it was also observed that water-rolled and rough cortex sometimes appeared together on one artefact. The cortex was often irregular, less rounded and more angular, a feature which reflects the amount of time spent in a waterway.

Stone reduction technology. How was the stone worked and used? Can the function of the site be inferred from the artefact assemblage?

The composition of the quartz assemblage reflects its physical properties. The artefacts are highly fragmented with high numbers of broken flakes and angular fragments. The relatively high number of complete splits in Sandy, Laheys and Tallawong Creeks indicates that manufacture concentrated in these locations.

Angular fragments, from primary exposures and small water-rolled nodules of quartz were used to manufacture milky quartz cores. Rarely larger flakes were also used as a core body. The fracturing properties of quartz can vary significantly and appears to reflect its colour and translucency. This was apparent in the opaque milky quartz which was rarely used. Nodules were tested and sometimes discarded if the material was deemed poor quality. Selected nodules were split using a bipolar technique and depending on the size rotated to produce bi-directional and multi-directional cores. A variety of flake types were produced including a surprisingly high number of elongated and sometimes even blade flakes. Nodules were probably found when needed, in the immediate vicinity, worked and discarded in the same context. However, there does appear to be spatial differences in the size, degree of waterborne damage (rounding) and the cortex types of the available cobbles. It is likely that these differences relate to the time pebbles/cobbles spent in a waterway with higher quality, but smaller, pebbles found downstream.

Cores were also made on blocky, sometimes tabular-shaped/angular fragments which were obtained from a primary exposure. Evidence for an atypical 'systematic' reduction of milky quartz cores made on these fragments occurred on site (i.e. the manufacture of elongated/blade flakes). Blocks were flaked along the lateral margin with limited platform preparation in a similar method to the Redbank A strategy described by Hiscock (1993) in the Hunter Valley. This strategy most likely reflects the opportunistic use suitably shaped fragments which produced the blanks used to make geometric microliths and points.

Radial/bifacial, alternate-blade cores and sub/prismatic cores of milky quartz were also observed in the assemblages. Prismatic cores were also systematically prepared and used to produce elongated flakes. Larger, wider flakes were also selected, retouched and used as scrapers or, if made from milky quartz, used for its sharp working edge.

High numbers of elongated flakes reflect the types of flakes manufacture (i.e. elongated or blade flakes). In addition, the selection of large flakes of non-local material and/or the movement of prepared cores selected for transportation indicates curation.

Tool Use

Numerous examples of complete geometric microliths and Bondi points were found. Backed artefacts of milky quartz were made on-site due to the presence of blade cores and unfinished tools. Milky quartz is not typically used to make backed artefacts, with a high failure rate, but was readily available. The surface assemblage was dominated by milky quartz backed artefacts (most of these were geometric microliths). Microcrystalline materials (e.g., CCQ, chalcedony) were also used to make backed artefacts. Broken backed artefacts resulting from use were also found, some with missing tips from Bondi points or with use damage. It is likely that these were discarded and replaced on-site.

In summary, three factors which influenced assemblage composition 1. The dependence and reduction of milky quartz cores leading to highly fragmented assemblages, flexible flaking strategies and the appearance of backed artefacts of milky quartz; 2. the apparent limited availability of high-quality raw materials leading to the movement of curated tools, that could be resharpened, and cores and the rationing of high-quality raw material; and 3. the availability of different raw material types in the catchments of the waterways.

Post-depositional influences. What post-depositional influences have impacted on the assemblage?

Four observations of post-depositional factors were made:

- The excavated assemblage had little evidence of heat damage.
- Size-sorting influenced the assemblage seen in the smaller size of artefacts with depth.
- Tuff artefacts were sometimes impacted by chemical weathering.
- Substantial size differences occur between the excavated and surface assemblages (e.g. artefact size) which can be explained by post-depositional visibility/disturbance of surface assemblages.

Site chronology/Occupation. When was the site occupied? Was the assemblage the product of repeated occupations or a single event? Does any spatial patterning occur in the assemblage?

The site was occupied during the mid-late Holocene based on the tool types i.e., backed artefacts. These artefacts typify the “Australian Small Tool Tradition”, defined by Mulvaney and Kamminga (1999). It is likely that most occupation was short-term, single events but repeated over time – seen in the different areas of tool use, artefact colours and raw material types. There is no evidence that the assemblage was Pleistocene in origin. TP89, TP74 and TP168 have the highest artefact density and represent more intensive activity. While the diversity of artefact and material types does reflect the site density at TP74 and TP57, the assemblage composition also indicates a longer duration of occupation associated with a possible campsite. Different activities/site functions occurred in different parts of the landscape and creek lines. For example, areas of backed artefact manufacture and tool use.

Comparative Analysis. How does this site compare with others in the surrounding region?

An analysis, based on O’Driscoll and Kuskie (2015), suggests most test pits at CWO REZ represent transient movement and activity. The assemblage at TP74 indicates more campsite activities whereas TP89 has more task specific activities (e.g. backed artefact manufacture). Differences in the frequency of raw material types occur at Moolarben. However, all assemblages are dominated by milky quartz. Similar core reduction technology and tool manufacture was seen in both areas and in the CWO REZ SNI (Doelman 2023) assemblage. However, the frequency of cores and size of artefacts were different between the two assemblages. Differences can be attributed to the location and types of stone sources available but also the placement of different activities in the landscape.

Conclusion

This report provides some additional understanding of site chronology/occupation, raw material selection, core preparation and reduction strategies and tool manufacture that in the region.

The characteristics of the cores, flakes and tools in the assemblage indicate that substantial differences occurred in the ways milky/crystal quartz and non-quartz raw materials were worked and transported. These differences may be related to distance from source area and/or rarity of higher quality raw material types. The only exception is the increase of a high quality grey CCQ material in tests pits along Whites Creek and Browns Creek. Decisions were made to transport larger flakes and sometimes cores of non-local material. The dominance of milky quartz in the landscape has created flexibility in core reduction, tool manufacture and use. This flexibility is seen in the core types and presence of unfinished and finished backed artefacts made from milky quartz, typically seen in mid-late Holocene assemblages. The highly fragmented nature of the quartz assemblage relates to its flaking properties. Internal flaws or fractures caused fragmentation during manufacture. However, in general the macrocrystalline quartzes available in the region are of very high quality. The advantage of milky quartz is its ability to maintain a strong and sharp edge and this out ways any issues with manufacturing failure. Benefits also include its abundance and ease of access in nearby waterways.

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D.8 Lithics catalogue

ID	AREA	CREEK	SQ	ST	DATACLASS	MATERIAL	COLOUR	TMATERIAL	DISTEND	IN	CORTEX	CORTEXT	FORM	PLATTYPE	OVERHANG	DSCAR	TOOLTYPE1	CORETYPE	COREBODY	SCARFORM	CPLATNO	STEPT	HINGET	LENGTH	LENGTHCF	WIDTH	THICK	PLWID	PLTH	CORSCAR	WEIGHT	CM
896		COCKABUTTA	348	5	COMPFLAKE	CQUART	CLEAR	SEMI	FEATHER	HERTIZEN	0%		PLATREJUV	UNI		90						0		17.60	15.60	9.10	6.00	6.40	4.90		1.09	
897		COCKABUTTA	348	5	COMPFLAKE	CQUART	CLEAR	SEMI	FEATHER	HERTIZEN	0%		EXPAND	UNI		0						0		12.00	9.80	11.20	2.40	6.00	2.40		0.28	
148	5	BROWNS	245	2	COMPFLAKE	MQUART	WHITE	OPAQ	FEATHER	BENDING	0%		EXPAND	UNI		RADIAL						0		24.00	17.90	21.00	6.70	15.10	6.40		2.74	
149	5	BROWNS	246	2	BLOCK	CCQ	GREY	OPAQ			1-25%	weathere d										0		24.00	0.00	0.00	0.00	0.00	0.00		2.57	
150	5	BROWNS	246	2	COMPFLAKE	TUFF	GREY	OPAQ	FEATHER	HERTIZEN	26-50%	WATER-ROLL	INDETER	CORTICAL		90						0		34.40	33.10	18.20	8.90	14.40	8.40		5.24	
156	5	BROWNS	246	2	COMPFLAKE	TUFF	GREY	OPAQ	FEATHER	HERTIZEN	0%		EXPAND	CRUSH		RADIAL						0		20.70	15.10	20.60	4.70	0.00	0.00		1.04	BANDED
157	5	BROWNS	246	2	COMPFLAKE	QUARTZITE	LGREY	OPAQ	FEATHER	UNCLEAR	0%		BLOCK	MISSING		180						0		47.70	47.70	26.50	11.50	0.00	0.00		12.39	
163	5	BROWNS	245	2	DISTFLAKE	MQUART	WHITE	SEMI	CRUSH		0%		BIPOLAR									0		22.10	0.00	0.00	0.00	0.00	0.00		2.61	
164	5	BROWNS	224	2	BLOCK	QUARTZITE	GREY	OPAQ			0%											0		22.00	0.00	0.00	0.00	0.00	0.00		2.22	
165	5	BROWNS	224	2	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									0		18.80	0.00	0.00	0.00	0.00	0.00		0.52	
166	5	BROWNS	224	2	COMPFLAKE	TUFF	GREY	OPAQ	FEATHER	HERTIZEN	0%		INDETER	UNI		90						0		27.80	27.80	16.50	5.60	6.50	4.50		2.33	SILC WOOD?
167	5	BROWNS	224	2	BLOCK	JASPER	RED	OPAQ			1-25%	weathere d										0		21.50	0.00	0.00	0.00	0.00	0.00		1.46	
168	5	BROWNS	224	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		EXPAND	CRUSH		0						0		12.10	11.30	9.40	4.10	0.00	0.00		0.44	
169	5	BROWNS	224	3	COMPOL	JASPER	RED	OPAQ	CORTICAL	HERTIZEN	26-50%	weathere d	EXPAND	UNI		0	STRATSCRAP					0		17.60	13.70	17.20	2.80	17.50	1.80		1.11	X1 Q3 SCRAPER
170	5	BROWNS	224	3	COMPFLAKE	JASPER	RED	OPAQ	CORTICAL	HERTIZEN	1-25%	weathere d	INDETER	CORTICAL		180						0		16.60	14.10	9.70	6.00	10.40	4.90		1.13	
171	5	BROWNS	224	3	COMPFLAKE	JASPER	RED	OPAQ	FEATHER	HERTIZEN	51-99%	WATER-ROLL	PLATREJUV	UNI		90						0		26.40	25.30	13.10	6.50	10.50	5.60		2.57	ROUNDED
172	5	BROWNS	245	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	BIPLOAR	0%		BIPOLAR	FLAKED		180						0		30.40	28.90	24.70	10.60	23.40	9.00		8.19	
173	5	BROWNS	245	2	DISTFLAKE	MQUART	WHITE	SEMI	CRUSH		0%		BIPOLAR									0		13.30	0.00	0.00	0.00	0.00	0.00		0.32	
174	5	BROWNS	224	2	BLOCK	QUARTZITE	LGREY	OPAQ			1-25%	WATER-ROLL										0		19.70	0.00	0.00	0.00	0.00	0.00		3.47	
175	5	BROWNS	224	2	COMPFLAKE	QUARTZITE	LGREY	OPAQ	FEATHER	BENDING	1-25%	WATER-ROLL	BLOCK	UNI		RADIAL						0		37.70	31.50	28.40	10.30	32.10	7.90		13.20	
176	5	BROWNS	224N	1	PROXFLAKE	MQUART	WHITE	SEMI			0%		INDETER	UNI								0		14.40	0.00	0.00	0.00	10.90	4.50		0.49	
177	5	BROWNS	230	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									0		25.10	0.00	0.00	0.00	0.00	0.00		2.46	
178	5	BROWNS	245	3	BROKFLAKE	MQUART	WHITE	SEMI			0%		BLOCK									0		20.60	0.00	0.00	0.00	0.00	0.00		2.08	
179	5	BROWNS	243	2	DISTFLAKE	TUFF	GREY	OPAQ	FEATHER		26-50%	WATER-ROLL	BLOCK									0		32.60	0.00	0.00	0.00	0.00	0.00		5.70	
180	5	BROWNS	242	3	COMPSPILT	MQUART	WHITE	SEMI	FEATHER		0%		INDETER									0		24.30	0.00	0.00	0.00	0.00	0.00		1.83	
181	5	BROWNS	224N	1	BLOCK	JASPER	RED	OPAQ			1-25%	weathere d										0		12.50	0.00	0.00	0.00	0.00	0.00		0.50	
182	5	BROWNS	231	3	COMPFLAKE	TUFF	YELLOW	OPAQ	CORTICAL	HERTIZEN	100%	weathere d	EXPAND	CRUSH		NA						0		22.70	9.40	22.70	1.30	0.00	0.00		0.50	
183	5	BROWNS	224NE	3	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									0		17.30	0.00	0.00	0.00	0.00	0.00		1.43	
184	5	BROWNS	224	1	DISTFLAKE	CCQ	GREY	SEMI	FEATHER		1-25%	WATER-ROLL	INDETER									0		12.10	0.00	0.00	0.00	0.00	0.00		0.22	
185	5	BROWNS	224N	4	BROKFLAKE	MQUART	YELLOW	SEMI			0%		INDETER									0		22.50	0.00	0.00	0.00	0.00	0.00		2.06	
186	5	BROWNS	240	4	COMPFLAKE	MQUART	WHITE	SEMI	CRUSH	BIPLOAR	0%		BIPOLAR	FLAKED		180						0		20.10	18.70	10.10	4.90	12.10	4.20		1.39	
187	5	BROWNS	236	4	BLOCK	CCQ	GREY	SEMI			26-50%	WATER-ROLL										0		20.00	0.00	0.00	0.00	0.00	0.00		2.93	
188	5	BROWNS	227	1	DISTFLAKE	CCQ	GREY	OPAQ	FEATHER		100%	weathere d	INDETER									0		24.60	0.00	0.00	0.00	0.00	0.00		1.54	
189	5	BROWNS	242	3	BROKFLAKE	CQUART	CLEAR	TRANS			1-25%	FLATO	INDETER									0		11.70	0.00	0.00	0.00	0.00	0.00		0.21	
190	5	BROWNS	224E	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									0		27.80	0.00	0.00	0.00	0.00	0.00		2.46	
191	5	BROWNS	224NE	2	COMPFLAKE	MQUART	WHITE	SEMI	CORTICAL	WEDGE	1-25%	WATER-ROLL	INDETER	UNI		90						0		14.90	14.30	12.80	4.00	12.70	2.70		1.22	
192	5	BROWNS	226	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	BIPLOAR	0%		ELONG	MISSING		180						0		11.60	13.00	6.30	2.10	0.00	0.00		0.15	
193	5	BROWNS	245	1	COMPFLAKE	MQUART	WHITE	OPAQ	FEATHER	UNCLEAR	0%		EXPAND	MISSING		0						0		22.90	18.50	22.40	3.40	0.00	0.00		1.85	
194	5	BROWNS	243	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	1-25%	FLATO	INDETER	UNI		0						0		18.30	17.30	13.10	6.90	12.10	2.90		1.32	
195	5	BROWNS	235	4	BLOCK	JASPER	RED	OPAQ			26-50%	weathere d										0		25.00	0.00	0.00	0.00	0.00	0.00		2.79	

101	1	LAHEYS	74NW-B	3	COMPFLAKE	CQUART	CLEAR	TRANS	FEATHER	HERTIZEN	51-99%	weathere d	EXPAND	UNI	NA					0			12.40	6.20	12.40	1.20	9.40	1.60		0.17			
102	1	LAHEYS	74NW-C	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		ELONG	UNI	0						0			13.50	13.10	6.80	2.30	5.40	2.60		0.28		
103	1	LAHEYS	74NW-D	1	PROXFLAKE	MQUART	WHITE	SEMI			100%	WATER-ROLL	EXPAND	CORTICAL							0			38.50	0.00	0.00	0.00	21.60	8.00		10.08		
104	1	LAHEYS	74NW-D	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		ELONG	CRUSH	RADIAL						0			25.30	25.30	10.50	6.60	0.00	0.00		1.80		
105	1	LAHEYS	74NW-D	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		EXPAND	UNI	90							0			10.80	6.10	7.80	3.10	8.50	3.80		0.23	
106	1	LAHEYS	74NW-D	1	BROKFLAKE	MQUART	WHITE	SEMI			100%	weathere d	INDETER									0			19.40	0.00	0.00	0.00	0.00	0.00		1.03	
107	1	LAHEYS	74NW-D	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		EXPAND	MISSING	90							0			14.80	13.00	14.50	3.40	0.00	0.00		0.67	
108	1	LAHEYS	74NW-D	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									0			26.70	0.00	0.00	0.00	0.00	0.00		3.39	
109	1	LAHEYS	74NW-D	1	BROKFLAKE	MQUART	WHITE	OPAQ			0%		INDETER									0			27.20	0.00	0.00	0.00	0.00	0.00		2.16	
110	1	LAHEYS	74NW-A	1	DISTTOOL	CCQ	GREY	SEMI	N/A		0%		BLADE									0			15.70	0.00	0.00	0.00	0.00	0.00		0.43	
111	1	LAHEYS	74NW-A	1	PROXFLAKE	CCQ	GREY	SEMI			0%		BLADE	FLAKED								0			9.30	0.00	0.00	0.00	2.10	1.90		0.40 SNAP	
112	1	LAHEYS	74NW-A	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									0			5.20	0.00	0.00	0.00	0.00	0.00		0.10	
113	1	LAHEYS	74NW-A	1	COMPFLAKE	MQUART	WHITE	SEMI	ABRUPT	HERTIZEN	0%		EXPAND	UNI	0							0			24.00	20.50	20.60	3.60	11.30	4.20		2.34	
114	1	LAHEYS	74NW-D	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		PLATREJUV									0			16.50	0.00	0.00	0.00	0.00	0.00		1.29	
115	1	LAHEYS	74NW-D	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	WEDGE	26-50%	WATER-ROLL	INDETER	CRUSH	0							0			15.80	15.70	7.80	6.00	0.00	0.00		0.80	
116	1	LAHEYS	74NW-D	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									0			12.00	0.00	0.00	0.00	0.00	0.00		0.34	
117	1	LAHEYS	74NW-D	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		ELONG									0			11.40	0.00	0.00	0.00	0.00	0.00		0.16	
118	1	LAHEYS	74NW-B	1	BROKFLAKE	MQUART	WHITE	OPAQ			0%		INDETER									0			15.30	0.00	0.00	0.00	0.00	0.00		0.43	
119	1	LAHEYS	74NW-B	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER									0			9.10	0.00	0.00	0.00	0.00	0.00		0.14	
120	1	LAHEYS	74NW-B	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									0			22.00	0.00	0.00	0.00	0.00	0.00		1.17	
121	1	LAHEYS	74NW-B	1	PROXFLAKE	MQUART	WHITE	SEMI			0%		ELONG	UNI								0			15.00	0.00	0.00	0.00	8.20	1.40		0.39	
122	1	LAHEYS	74NW-B	1	BLOCK	MQUART	WHITE	SEMI			0%											0			11.20	0.00	0.00	0.00	0.00	0.00		0.38	
123	1	LAHEYS	74NW-B	2	COMPSPLIT	MQUART	WHITE	SEMI	CRUSH		1-25%	WATER-ROLL	INDETER									0			18.60	0.00	0.00	0.00	0.00	0.00		1.36	
124	1	LAHEYS	75NW	2	COMPFLAKE	TUFF	PINK/GREY	OPAQ	FEATHER	HERTIZEN	0%		EXPAND	UNI	0							0			9.00	6.10	8.00	1.90	8.40	2.20		0.16	
125	1	LAHEYS	75NW	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									0			13.00	0.00	0.00	0.00	0.00	0.00		0.29	
126	1	LAHEYS	75NW	1	COMPTOL	MQUART	GREY	SEMI	FEATHER	HERTIZEN	1-25%	WATER-ROLL	EXPAND	FLAKED	0							0			26.30	15.20	25.60	6.30	18.90	5.50		3.15 X1 NOTCH	
127	1	LAHEYS	75NW	3	COMPSPLIT	MQUART	WHITE	SEMI	FEATHER		0%		INDETER									0			20.70	0.00	0.00	0.00	0.00	0.00		1.50	
128	1	LAHEYS	75NW	2	CORE	MQUART	WHITE	SEMI			26-50%	WATER-ROLL																					
129	1	LAHEYS	75NW	1	COMPFLAKE	CCQ	GREY	OPAQ	FEATHER	HERTIZEN	1-25%	weathere d	INDETER	UNI	0											20.30	18.40	14.10	4.20	8.10	4.60		1.13 GREEN TRANS
130	1	LAHEYS	74SE	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER									0			9.70	0.00	0.00	0.00	0.00	0.00		0.11	
131	1	LAHEYS	74SE-D	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER									0			15.10	0.00	0.00	0.00	0.00	0.00		0.60	
132	1	LAHEYS	74SE-C	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER									0			1.00	0.00	0.00	0.00	0.00	0.00		0.08	
133	1	LAHEYS	74SE-C	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		EXPAND									0			20.90	0.00	0.00	0.00	0.00	0.00		0.92	
134	1	LAHEYS	74SE-D	2	DISTFLAKE	MQUART	WHITE	OPAQ	FEATHER		0%		INDETER									0			11.40	0.00	0.00	0.00	0.00	0.00		0.35	
135	1	LAHEYS	74SE-D	2	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									0			11.30	0.00	0.00	0.00	0.00	0.00		0.23	
136	1	LAHEYS	74SE-D	2	BLOCK	MQUART	WHITE	OPAQ			1-25%	FLATO										0			16.00	0.00	0.00	0.00	0.00	0.00		0.57	
137	1	LAHEYS	74SE	1	PROXFLAKE	FGS	darkgrey	SEMI			0%		BLADE	CRUSH								0			16.50	0.00	0.00	0.00	0.00	0.00		0.32	
138	1	LAHEYS	74SE	1	PROXFLAKE	MQUART	WHITE	SEMI			51-99%	WATER-ROLL	INDETER	UNI								0			24.50	0.00	0.00	0.00	11.20	4.60		2.75	
139	1	LAHEYS	74SE	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		EXPAND	UNI	90							0			21.40	16.10	16.90	4.00	9.10	3.70		1.73	
140	1	LAHEYS	74SE	1	PROXFLAKE	MQUART	WHITE	OPAQ			0%		ELONG	UNI								0			12.10	0.00	0.00	0.00	6.90	2.40		0.27 SNAP	
141	1	LAHEYS	74SE	1	PROXFLAKE	MQUART	WHITE	SEMI			0%		ELONG	UNI								0			11.30	0.00	0.00	0.00	5.50	2.30		0.24 SNAP	
142	1	LAHEYS	74SE-D	1	BLOCK	MQUART	WHITE	SEMI			26-50%	ROUGH										0			20.20	0.00	0.00	0.00	0.00	0.00		0.88	

228	1	LAHEYS	89B	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	BENDING	1-25%	WATER-ROLL	PLATREJUV	CORTICAL		90												0				22.70	20.80	7.90	5.50	7.80	6.40		1.59		
229	1	LAHEYS	89B	2	PROXFLAKE	MQUART	WHITE	SEMI			0%		ELONG	UNI															0				9.00	0.00	0.00	0.00	6.80	2.10		0.22	
230	1	LAHEYS	89B	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		ELONG																0				11.90	0.00	0.00	0.00	0.00	0.00		0.19	
231	1	LAHEYS	89B	2	CORE	MQUART	WHITE	SEMI			1-25%	WATER-ROLL																	2	2	0		29.70	0.00	19.00	13.60	0.00	0.00	3-5	8.27	
232	1	LAHEYS	89B	2	BROKFLAKE	CQUART	GREY	SEMI			0%		INDETER																0				13.10	0.00	0.00	0.00	0.00	0.00		0.13	
233	1	LAHEYS	89B	2	DISTFLAKE	CQUART	CLEAR	TRANS	FEATHER		0%		EXPAND																0				11.20	0.00	0.00	0.00	0.00	0.00		0.10	
234	1	LAHEYS	89B	2	DISTFLAKE	CQUART	CLEAR	TRANS	FEATHER		0%		INDETER																0				10.20	0.00	0.00	0.00	0.00	0.00		0.21	
235	1	LAHEYS	89B	2	BLOCK	MQUART	WHITE	SEMI			1-25%	WATER-ROLL																	0				10.70	0.00	0.00	0.00	0.00	0.00		0.34	
236	1	LAHEYS	89	2	BROKFLAKE	MQUART	WHITE	SEMI			0%		ELONG																0				7.80	0.00	0.00	0.00	0.00	0.00		0.12	
237	1	LAHEYS	89	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	51-99%	WATER-ROLL	INDETER	UNI			0												0				16.10	15.20	12.20	5.40	8.20	2.90		0.75	
238	1	LAHEYS	89	2	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER																0				13.90	0.00	0.00	0.00	0.00	0.00		0.54	
239	1	LAHEYS	89	2	BROKFLAKE	MQUART	WHITE	OPAQ			1-25%	ROUGH	INDETER																0				8.90	0.00	0.00	0.00	0.00	0.00		0.15	
240	1	LAHEYS	89	2	DISTFLAKE	MQUART	WHITE	SEMI	CRUSH		0%		BIPOLAR																0				12.50	0.00	0.00	0.00	0.00	0.00		0.36	
241	1	LAHEYS	89	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		26-50%	WATER-ROLL	INDETER																0				22.40	0.00	0.00	0.00	0.00	0.00		2.88	
242	1	LAHEYS	89	2	PROXFLAKE	MQUART	WHITE	SEMI			0%		EXPAND	UNI															0				12.70	0.00	0.00	0.00	0.00	9.60	2.50	0.31	
243	1	LAHEYS	89	2	BLOCK	MQUART	WHITE	SEMI			0%																		0				19.40	0.00	0.00	0.00	0.00	0.00		1.26	
244	1	LAHEYS	89	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	BIPLOAR	26-50%	WATER-ROLL	EXPAND	CORTICAL			90												0				25.00	20.40	25.50	6.90	13.80	5.60		4.32	
245	1	LAHEYS	89	2	COMPFLAKE	MQUART	WHITE	OPAQ	FEATHER	UNCLEAR	0%		INDETER	UNI			90												0				31.30	16.00	26.90	7.00	14.00	8.00		47.20	
246	1	LAHEYS	89	2	COMPFLAKE	CQUART	CLEAR	TRANS	ABRUPT	HERTIZEN	0%		INDETER	UNI			180												0				13.00	12.90	10.70	5.40	4.60	2.10		0.68	
247	1	LAHEYS	89	1	COMPFLAKE	MQUART	WHITE	SEMI	ABRUPT	HERTIZEN	0%		ELONG	UNI			0												0				20.00	16.10	13.10	2.70	8.80	3.80		0.89	
248	1	LAHEYS	89	1	BLOCK	MQUART	WHITE	SEMI			1-25%	WATER-ROLL																	0				12.70	0.00	0.00	0.00	0.00	0.00		0.79	
250	1	LAHEYS	89D	2	COMPFLAKE	MQUART	WHITE	OPAQ	FEATHER	BIPLOAR	1-25%	WATER-ROLL	EXPAND	CORTICAL			0												0				22.40	14.70	22.50	6.00	9.40	6.20		1.92	
250	1	LAHEYS	89D	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER																0				18.80	0.00	0.00	0.00	0.00	0.00		0.47	
251	1	LAHEYS	89	1	CORE	MQUART	WHITE	SEMI			0%																						27.90	0.00	24.90	14.40	0.00	0.00	1-2	11.48	rough on wr cortex
252	1	LAHEYS	89	1	DISTFLAKE	MQUART	WHITE	SEMI	CRUSH		0%		BIPOLAR																0				17.20	0.00	0.00	0.00	0.00	0.00		0.69	
253	1	LAHEYS	89	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	0%		BLOCK	UNI			90												0				20.40	18.50	17.40	9.60	8.50	4.70		2.83	
254	1	LAHEYS	89	1	DISTFLAKE	CQUART	CLEAR	TRANS	FEATHER		0%		INDETER																0				13.20	0.00	0.00	0.00	0.00	0.00		0.69	
254	1	LAHEYS	89	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		51-99%	WATER-ROLL	INDETER																0				15.10	0.00	0.00	0.00	0.00	0.00		0.66	
255	1	LAHEYS	89	1	BLOCK	CQUART	CLEAR	TRANS	FEATHER		0%																		0				11.60	0.00	0.00	0.00	0.00	0.00		0.37	
256	1	LAHEYS	89	1	DISTFLAKE	CQUART	CLEAR	TRANS	FEATHER		0%		INDETER																0				13.50	0.00	0.00	0.00	0.00	0.00		0.56	
257	1	LAHEYS	89	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		ELONG	UNI			0												0				24.80	23.50	12.40	3.30	7.10	2.70		1.20	
258	1	LAHEYS	89	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER																0				15.70	0.00	0.00	0.00	0.00	0.00		0.43	
259	1	LAHEYS	89	1	BLOCK	MQUART	WHITE	OPAQ			0%																		0				29.10	0.00	0.00	0.00	0.00	0.00		6.03	
260	1	LAHEYS	89D	2	BROKFLAKE	CQUART	CLEAR	TRANS			0%		INDETER																0				9.40	0.00	0.00	0.00	0.00	0.00		0.18	
261	1	LAHEYS	89D	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	1-25%	WATER-ROLL	EXPAND	FLAKED			90												0				23.70	15.20	23.20	6.80	23.50	5.50		2.88	
262	1	LAHEYS	89D	2	BLOCK	MQUART	WHITE	SEMI			1-25%	WATER-ROLL																	0				19.60	0.00	0.00	0.00	0.00	0.00		1.99	
263	1	LAHEYS	89D	2	BLOCK	MQUART	WHITE	SEMI			0%																		0				15.50	0.00	0.00	0.00	0.00	0.00		1.36	
264	1	LAHEYS	89D	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	0%		ELONG	UNI			90												0				21.80	16.90	9.90	4.70	7.40	2.70		1.11	
265	1	LAHEYS	89D	2	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER																0				11.90	0.00	0.00	0.00	0.00	0.00		0.18	
266	1	LAHEYS	89D	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER																0				21.00	0.00	0.00	0.00	0.00	0.00		1.48	
268	1	LAHEYS	89D	2	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER																0				12.20	0.00	0.00	0.00	0.00	0.00		0.30	
269	1	LAHEYS	89D	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		INDETER	UNI			0												0				17.50	17.10	11.30	3.80	4.90	3.60		0.71	

351	1	LAHEYS	89NW	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		100%	WATER-ROLL	INDETER								0			9.60	0.00	0.00	0.00	0.00	0.00		0.18				
352	1	LAHEYS	89NW	1	DISTTOOL	MQUART	WHITE	SEMI	CORTICAL		1-25%	ROUGH	ELONG									0			21.50	0.00	0.00	0.00	0.00	0.00		1.01			
353	1	LAHEYS	92	1	CORE	MQUART	WHITE	SEMI			1-25%	WATER-ROLL										1 2	0		23.60	0.00	19.40	15.00	0.00	0.00	3-5	6.45	ANVIL		
354	1	LAHEYS	92	1	COMPFLAKE	MQUART	WHITE	SEMI	ABRUPT	HERTIZEN	0%		INDETER	UNI								180			38.70	35.90	23.10	5.00	7.40	5.40		5.64			
355	1	LAHEYS	91	2	COMPFLAKE	CHAL	LGREY	SEMI	HINGE	HERTIZEN	0%		BLADE	FACET								0			25.10	21.70	9.80	2.50	10.00	2.90		0.97			
356	1	LAHEYS	91	2	BLOCK	QUARTZITE	LGREY	OPAQ			1-25%	WATER-ROLL												0	30.40	0.00	0.00	0.00	0.00	0.00		2.50			
357	1	LAHEYS	91	2	COMPFLAKE	MQUART	WHITE	SEMI	CORTICAL	HERTIZEN	1-25%	WATER-ROLL	BIPOLAR	UNI								0			20.00	15.60	9.70	6.00	7.20	3.00		1.95			
358	1	LAHEYS	91	2	PROXFLAKE	MQUART	WHITE	SEMI			0%		ELONG	UNI										0	11.60	0.00	0.00	0.00	5.80	0.80		0.15			
359	1	LAHEYS	91	2	PROXFLAKE	MQUART	WHITE	SEMI			26-50%	WATER-ROLL	INDETER	UNI										0	17.00	0.00	0.00	0.00	7.40	2.80		0.56			
360	1	LAHEYS	91	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		EXPAND											0	12.40	0.00	0.00	0.00	0.00	0.00		0.23			
361	1	LAHEYS	91	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		1-25%	WATER-ROLL	ELONG											0	13.20	0.00	0.00	0.00	0.00	0.00		0.60			
362	1	LAHEYS	91	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		ELONG	FLAKED									0		18.60	15.60	11.70	3.70	12.40	5.20		0.92			
363	1	LAHEYS	91	2	BLOCK	MQUART	WHITE	SEMI			26-50%	WATER-ROLL												0	15.30	0.00	0.00	0.00	0.00	0.00		0.81			
364	1	LAHEYS	91	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		ELONG											0	14.40	0.00	0.00	0.00	0.00	0.00		0.25			
365	1	LAHEYS	89SE	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		ELONG	MISSING									0		27.00	27.00	9.60	4.80	0.00	0.00		1.37			
366	1	LAHEYS	94	3	BLOCK	MQUART	WHITE	OPAQ			0%												0		19.20	0.00	0.00	0.00	0.00	0.00		2.54			
367	1	LAHEYS	94	3	CORE	TUFF	YELLOW	OPAQ			1-25%	WATER-ROLL																							
368	1	LAHEYS	94	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	51-99%	WATER-ROLL	ELONG	MISSING									0		21.40	21.40	8.80	5.90	0.00	0.00		1.11			
369	1	LAHEYS	94	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	100%	WATER-ROLL	INDETER	CORTICAL									NA			20.50	20.20	13.90	4.90	6.30	2.50		1.43		
370	1	LAHEYS	94	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		EXPAND											0	12.30	0.00	0.00	0.00	0.00	0.00		0.19			
371	1	LAHEYS	87	2	COMPTOOL	SWOOD	darkgrey	SEMI	FEATHER	HERTIZEN	26-50%	weathere d	EXPAND	UNI								90	USEWEAR		0	23.30	18.90	21.70	6.80	5.10	2.30		3.15		
372	1	LAHEYS	104	1	COMPTOOL	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		INDETER	UNI									0	USEWEAR		0	27.20	21.20	19.60	6.60	13.00	5.30		3.27	X1 USE
373	1	LAHEYS	104	1	COMPFLAKE	CHAL	LGREY	SEMI	CORTICAL	HERTIZEN	1-25%	WATER-ROLL	INDETER	UNI								90			0	23.80	21.30	14.40	4.70	6.70	1.90		1.92		
374	1	LAHEYS	104	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		PLATREJUV											0	20.70	0.00	0.00	0.00	0.00	0.00		2.82			
375	1	LAHEYS	104	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		EXPAND											0	7.30	0.00	0.00	0.00	0.00	0.00		0.04			
376	1	LAHEYS	104	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER											0	7.60	0.00	0.00	0.00	0.00	0.00		0.13			
377	1	LAHEYS	104	1	BLOCK	MQUART	WHITE	SEMI			1-25%	WATER-ROLL												0	12.00	0.00	0.00	0.00	0.00	0.00		0.23			
378	1	LAHEYS	104	1	PROXFLAKE	MQUART	WHITE	SEMI			0%		INDETER	UNI										0	25.90	0.00	0.00	0.00	11.70	2.40		4.46			
379	1	LAHEYS	104	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	0%		BLADE	MISSING									0		21.70	21.70	10.00	2.90	0.00	0.00		0.82			
380	1	LAHEYS	104	2	COMPFLAKE	TUFF	YELLOW	OPAQ	HINGE	HERTIZEN	0%		EXPAND	UNI									0		38.50	18.30	38.30	6.10	32.50	6.10		5.79			
381	1	LAHEYS	104	2	PROXFLAKE	MQUART	WHITE	SEMI			26-50%	WATER-ROLL	BLOCK	UNI									OH		0	26.00	0.00	0.00	0.00	24.80	8.10		4.19	OH	
382	1	LAHEYS	100	2	COMPFLAKE	MQUART	WHITE	OPAQ	ABRUPT	HERTIZEN	0%		EXPAND	UNI									0		21.00	16.20	20.90	5.40	7.40	3.20		1.56			
383	1	LAHEYS	102	3	BLOCK	SWOOD	brown	SEMI			51-99%	ROUGH												0	38.40	0.00	0.00	0.00	0.00	0.00		4.76			
384	1	LAHEYS	102	SURFACE	COMPSPLIT	CHAL	LGREEN	OPAQ	FEATHER		100%	WATER-ROLL	INDETER											0	31.10	0.00	0.00	0.00	0.00	0.00		4.79			
385	1	LAHEYS	102	SURFACE	COMPFLAKE	MQUART	WHITE	OPAQ	FEATHER	HERTIZEN	0%		PLATREJUV	UNI								90			0	29.50	20.90	29.50	4.90	15.80	7.00		4.10		
386	1	LAHEYS	102	SURFACE	COMPFLAKE	MQUART	WHITE	OPAQ	FEATHER	UNCLEAR	0%		INDETER	UNI									0		26.50	25.20	14.10	5.80	6.80	4.40		2.09			
387	1	LAHEYS	102	4	COMPFLAKE	SWOOD	brown	SEMI	FEATHER	HERTIZEN	0%		EXPAND	FLAKED									90		0	19.30	9.30	19.40	4.10	8.50	5.70		0.92		
388	1	LAHEYS	101	2	BLOCK	CCQ	GREY	OPAQ			26-50%	weathere d												0	33.20	0.00	0.00	0.00	0.00	0.00		10.32			
389	1	LAHEYS	96	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		PLATREJUV	MISSING									0		25.80	25.70	15.70	3.90	0.00	0.00		1.70			
390	1	LAHEYS	100	1	BLOCK	MQUART	WHITE	OPAQ			1-25%	WATER-ROLL												0	16.40	0.00	0.00	0.00	0.00	0.00		1.23			
391	1	LAHEYS	100	1	PROXFLAKE	CQUART	CLEAR	SEMI			1-25%	WATER-ROLL	INDETER	UNI										0	8.80	0.00	0.00	0.00	5.20	1.80		0.18			

433	1	LAHEYS	115	1	BLOCK	MQUART	WHITE	OPAQ			0%								0		26.00	0.00	0.00	0.00	0.00	0.00		3.08											
434	1	LAHEYS	115	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	BIPLOAR	0%		EXPAND	CRUSH		90				0		23.60	19.40	23.60	7.30	0.00	0.00		2.62										
435	1	LAHEYS	116	1	CORE	MQUART	WHITE	OPAQ			1-25%	weathere d						BIPOLAR	NONDIAG	ELONG		1	0	0				21.10	0.00	19.50	11.60	0.00	0.00	1-2	5.82				
436	1	LAHEYS	116	1	BLOCK	MQUART	WHITE	SEMI			26-50%	WATER-ROLL									0								15.10	0.00	0.00	0.00	0.00	0.00		1.46			
437	1	LAHEYS	116	1	PROXFLAKE	MQUART	WHITE	SEMI			1-25%	ROUGH	INDETER	UNI								0								14.20	0.00	0.00	0.00	9.20	1.20		0.35		
438	1	LAHEYS	116	1	BLOCK	MQUART	WHITE	SEMI			1-25%	WATER-ROLL										0								14.00	0.00	0.00	0.00	0.00	0.00		0.96	angular	
439	1	LAHEYS	113	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	51-99%	WATER-ROLL	INDETER	CRUSH		0						0								32.40	32.60	15.10	3.10	0.00	0.00		2.48		
440	1	LAHEYS	108	1	PROXFLAKE	MQUART	WHITE	SEMI			0%		ELONG	FLAKED								0								16.30	0.00	0.00	0.00	10.40	4.80		0.96		
441	1	LAHEYS	108	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER									0								16.30	0.00	0.00	0.00	0.00	0.00		1.00		
442	1	LAHEYS	108	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	0%		EXPAND	CRUSH		0														13.50	12.40	12.20	2.30	0.00	0.00		0.37	failed attempt at bbc	
443	1	LAHEYS	108	2	CORE	SWOOD	b/w	OPAQ			1-25%	weathere d						BURINBL	FLAKE	ELONG		1	1	0						27.00	0.00	21.60	10.30	0.00	0.00	1-2	7.28		
444	1	LAHEYS	108	2	CORE	MQUART	WHITE	SEMI			0%							TEST	NONDIAG	EXPAND		1	0	0						41.00	0.00	39.10	23.80	0.00	0.00	1-2	45.34		
445	1	LAHEYS	108	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER									0								11.60	0.00	0.00	0.00	0.00	0.00		0.19		
446	1	LAHEYS	113	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		INDETER	UNI		0														18.60	18.30	13.30	3.60	5.70	1.50		0.77		
447	1	LAHEYS	113	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER									0								14.40	0.00	0.00	0.00	0.00	0.00		0.37		
448	1	LAHEYS	113	2	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									0								11.40	0.00	0.00	0.00	0.00	0.00		0.48		
449	1	LAHEYS	114	1	BLOCK	CQUART	CLEAR	SEMI			0%											0								18.20	0.00	0.00	0.00	0.00	0.00		1.08		
450	1	LAHEYS	114	1	COMPSPLIT	MQUART	WHITE	SEMI	FEATHER		1-25%	WATER-ROLL	INDETER									0								18.70	0.00	0.00	0.00	0.00	0.00		0.67		
451	1	LAHEYS	114	1	PROXFLAKE	MQUART	WHITE	SEMI			51-99%	WATER-ROLL	EXPAND	FLAKED								0								32.10	0.00	0.00	0.00	17.60	7.20		3.98		
452	1	LAHEYS	114	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	26-50%	WATER-ROLL	EXPAND	UNI		0														8.70	7.50	7.50	1.70	5.00	1.00		0.12		
453	1	LAHEYS	114	1	PROXFLAKE	MQUART	WHITE	SEMI			0%		ELONG	UNI								0								11.20	0.00	0.00	0.00	7.00	0.90		0.17		
454	1	LAHEYS	114	1	BLOCK	MQUART	WHITE	SEMI			0%											0								13.30	0.00	0.00	0.00	0.00	0.00		0.50		
455	1	LAHEYS	114	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		1-25%	WATER-ROLL	INDETER									0								17.70	0.00	0.00	0.00	0.00	0.00		1.58		
456	1	LAHEYS	109	2	COMPFLAKE	CQUART	CLEAR	SEMI	FEATHER	HERTIZEN	0%		INDETER	UNI		0														10.20	10.00	7.60	1.20	5.50	1.60		0.14		
457	1	LAHEYS	109	2	COMPFLAKE	MQUART	WHITE	SEMI	ABRUPT	WEDGE	0%		ELONG	UNI		0														15.30	13.50	8.80	5.00	8.60	3.30		0.69		
458	1	LAHEYS	109	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		PLATREJUV	UNI		90															16.50	11.90	16.30	6.50	11.60	7.50		1.09	missing tip
459	1	LAHEYS	109	2	COMPFLAKE	MQUART	WHITE	SEMI	N/A	HERTIZEN	0%		ELONG	UNI		0	BONDI														18.10	18.10	9.20	3.00	5.50	2.80		0.69	
460	1	LAHEYS	109	2	PROXFLAKE	MQUART	WHITE	SEMI			0%		INDETER	UNI																	16.80	0.00	0.00	0.00	9.60	3.50		0.75	
461	1	LAHEYS	109	2	BROKTOOL	MQUART	WHITE	SEMI			0%		ELONG				BACKED														10.00	0.00	0.00	0.00	0.00	0.00		0.15	
462	1	LAHEYS	109	2	PROXFLAKE	MQUART	WHITE	SEMI			1-25%	WATER-ROLL	ELONG	UNI								0								9.80	0.00	0.00	0.00	4.80	1.60		0.18		
463	1	LAHEYS	114	2	BLOCK	MQUART	WHITE	OPAQ			0%											0								11.10	0.00	0.00	0.00	0.00	0.00		0.26		
464	1	LAHEYS	114	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		ELONG	UNI		90															15.30	13.80	8.70	3.10	6.80	1.00		0.42	
465	1	LAHEYS	114	2	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER																		12.30	0.00	0.00	0.00	0.00	0.00		0.58	
466	1	LAHEYS	114	2	PROXFLAKE	MQUART	WHITE	SEMI			0%		ELONG	UNI																	12.90	0.00	0.00	0.00	6.70	4.00		0.58	
467	1	LAHEYS	111	3	BLOCK	MQUART	WHITE	OPAQ			0%											0									19.30	0.00	0.00	0.00	0.00	0.00		1.01	
468	1	LAHEYS	117	1	COMPFLAKE	MQUART	WHITE	OPAQ	FEATHER	UNCLEAR	51-99%	WATER-ROLL	ELONG	UNI		0															11.60	11.10	7.10	1.80	5.10	1.40		0.22	
469	1	LAHEYS	117	1	DISTFLAKE	MQUART	WHITE	OPAQ	FEATHER		0%		INDETER																		11.90	0.00	0.00	0.00	0.00	0.00		0.15	
470	1	LAHEYS	117	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER																		9.70	0.00	0.00	0.00	0.00	0.00		0.23	
471	1	LAHEYS	117	1	BLOCK	MQUART	WHITE	SEMI			0%											0									12.50	0.00	0.00	0.00	0.00	0.00		0.77	
472	1	LAHEYS	117	1	BLOCK	MQUART	WHITE	OPAQ			0%											0									28.10	0.00	0.00	0.00	0.00	0.00		5.17	
473	1	LAHEYS	110	1	COMPFLAKE	MQUART	CLEAR	SEMI	FEATHER	HERTIZEN	51-99%	WATER-ROLL	ELONG	UNI		0															21.90	19.60	13.50	4.30	10.30	3.40		1.33	
474	1	LAHEYS	110	2	BLOCK	MQUART	WHITE	OPAQ			0%											0									12.50	0.00	0.00	0.00	0.00	0.00		0.19	
475	1	LAHEYS	110	2	BLOCK	MQUART	WHITE	SEMI			1-25%	WATER-ROLL																			13.50	0.00	0.00	0.00	0.00	0.00		0.67	
476	1	LAHEYS	110	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	1-25%	WATER-ROLL	ELONG	CORTICAL		180															15.40	13.50	9.40	3.40	9.30	3.80		0.66	

477	1	LAHEYS	110	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		ELONG	UNI		0						14.40	14.00	8.00	1.90	4.60	1.50		0.24	
478	1	LAHEYS	111	3	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		EXPAND									25.60	0.00	0.00	0.00	0.00	0.00		1.78	
479	1	LAHEYS	111	3	COMPFLAKE	TUFF	RED	OPAQ	FEATHER	HERTIZEN	0%		EXPAND	UNI		0						20.20	17.80	17.00	2.90	13.50	1.90		0.71	
480	1	LAHEYS	111	1	DISTFLAKE	MQUART	WHITE	OPAQ	FEATHER		0%		INDETER									8.30	0.00	0.00	0.00	0.00	0.00		0.20	
481	1	LAHEYS	109	2	COMPSPILT	MQUART	WHITE	SEMI	FEATHER		100%	WATER-ROLL	ELONG									17.20	0.00	0.00	0.00	0.00	0.00		0.47	
482	1	LAHEYS	111	1	COMPTOOL	CCQ	LGREY	OPAQ	ABRUPT	HERTIZEN	1-25%	weathere d	ELONG	FLAKED		0	USEWEAR					23.70	20.90	12.10	4.00	8.20	1.40		1.33	
483	1	LAHEYS	112	1	BLOCK	TUFF	GREY	OPAQ			1-25%	weathere d										45.10	0.00	0.00	0.00	0.00	0.00		8.91	
484	1	LAHEYS	109	2	COMPSPILT	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	0%		ELONG	CRUSH		0						14.90	0.00	0.00	0.00	0.00	0.00		0.33	
485	1	LAHEYS	117	1	CORE	MQUART	WHITE	OPAQ			1-25%	WATER-ROLL						UNIDIR	NODULE	ELONG		16.70	0.00	14.10	8.50	0.00	0.00	1-2	3.01	anvil
497	1	LAHEYS	117	1	BROKFLAKE	MQUART	WHITE	OPAQ			0%		PLATREJUV									28.90	0.00	0.00	0.00	0.00	0.00		6.71	
901	1	laheys	106	2	COMPFLAKE	CCQ	GREY	SEMI	FEATHER	HERTIZEN	0%		EXPAND	UNI	OH	90						29.80	23.60	22.60	4.20	17.70	3.60		2.57	OH
902	1	laheys	106	2	COMPFLAKE	MQUART	WHITE	OPAQ	FEATHER	UNCLEAR	51-99%	WATER-ROLL	EXPAND	MISSING		0						19.80	15.30	17.10	3.50	0.00	0.00		0.98	
903	1	laheys	106	2	PROXFLAKE	MQUART	WHITE	SEMI			1-25%	WATER-ROLL	INDETER	CORTICAL								24.70	0.00	0.00	0.00	6.70	7.10		3.93	CONJOIN 904
904	1	laheys	106	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		1-25%	WATER-ROLL	INDETER									28.10	0.00	0.00	0.00	0.00	0.00		2.53	
905	1	laheys	105	1	BROKFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		INDETER	UNI		0						15.20	0.00	0.00	0.00	0.00	0.00		0.92	
906	1	laheys	105	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	1-25%	FLATO	INDETER	UNI		0						12.00	10.20	8.20	4.80	8.70	4.90		0.52	
915	14	PLANTERS	581	2	COMPFLAKE	CHERT	LGREY	OPAQ	ABRUPT	BIPLOAR	0%		INDETER	FLAKED		0						23.70	14.80	19.40	3.80	4.30	2.30		1.26	
916	14	PLANTERS	589	2	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									10.20	0.00	0.00	0.00	0.00	0.00		0.23	
924	14	PLANTERS	583	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									19.00	0.00	0.00	0.00	0.00	0.00		1.24	
926	14	PLANTERS	589	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		26-50%	weathere d	INDETER									12.60	0.00	0.00	0.00	0.00	0.00		589.00	
934	14	PLANTERS	581	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER									9.60	0.00	0.00	0.00	0.00	0.00		0.27	
936	14	PLANTERS	589	2	COMPFLAKE	MQUART	WHITE	SEMI	PLATFORM	WEDGE	1-25%	weathere d	PLATREJUV	CRUSH		180						14.70	13.60	8.60	5.00	0.00	0.00		0.74	
975	14	PLANTERS	581	1	COMPFLAKE	CHERT	LGREY	OPAQ	CORTICAL	HERTIZEN	1-25%	WATER-ROLL	EXPAND	UNI	OH	0						16.70	8.60	16.40	1.10	7.00	0.60		0.36	OH
976	14	PLANTERS	604	1	PROXTOOL	MQUART	WHITE	SEMI			0%		EXPAND	CRUSH			STRATSCRAP					23.00	0.00	0.00	0.00	0.00	0.00		2.22	
743	1	PROSPECT	A1-TP13	1	PROXFLAKE	MQUART	WHITE	SEMI			0%		INDETER	UNI								20.60	0.00	0.00	0.00	10.80	5.80		1.89	
744	1	PROSPECT	A1-TP13	1	COREFRAG	MQUART	WHITE	SEMI			0%											20.30	0.00	0.00	0.00	0.00	0.00		2.63	
745	1	PROSPECT	A1-TP13	1	COMPFLAKE	MQUART	WHITE	OPAQ	FEATHER	UNCLEAR	0%		EXPAND	UNI		RADIAL						19.10	13.70	19.20	6.70	8.50	4.10		2.26	
746	1	PROSPECT	A1-TP13	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	0%		ELONG	UNI		90						18.60	18.60	8.70	5.90	6.00	4.30		0.92	
747	1	PROSPECT	A1-TP13	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		INDETER	UNI		0						13.80	12.10	10.90	3.50	10.50	4.20		0.52	
907	2	SANDY	54	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		26-50%	WATER-ROLL	ELONG									12.60	0.00	0.00	0.00	0.00	0.00		0.20	
908	2	SANDY	38	3	DISTFLAKE	CCQ	GREY	SEMI	CORTICAL		0%		PLATREJUV									15.60	0.00	0.00	0.00	0.00	0.00		0.84	chal
909	2	SANDY	38	3	DISTFLAKE	BASALT	BLACK	OPAQ	FEATHER		26-50%	WATER-ROLL	INDETER									17.30	0.00	0.00	0.00	0.00	0.00		0.67	
911	2	SANDY	48	1	COMPSPILT	MQUART	WHITE	SEMI	CRUSH		0%		INDETER									25.30	0.00	0.00	0.00	0.00	0.00		1.76	
912	2	SANDY	48	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		1-25%	WATER-ROLL	EXPAND									10.60	0.00	0.00	0.00	0.00	0.00		0.14	
913	2	SANDY	68	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		100%	WATER-ROLL	INDETER									13.20	0.00	0.00	0.00	0.00	0.00		0.36	
914	2	SANDY	48	1	COREFRAG	MQUART	WHITE	SEMI			0%											29.60	0.00	0.00	0.00	0.00	0.00		3.27	
917	2	SANDY	54	1	BLOCK	MQUART	WHITE	SEMI			26-50%	WATER-ROLL										14.40	0.00	0.00	0.00	0.00	0.00		0.55	rounded
918	2	SANDY	48	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER									16.40	0.00	0.00	0.00	0.00	0.00		0.46	
919	2	SANDY	42	4	COMPSPILT	MQUART	WHITE	SEMI	ABRUPT		0%		ELONG									16.70	0.00	0.00	0.00	0.00	0.00		0.66	
920	2	SANDY	40	1	COMPFLAKE	MQUART	WHITE	SEMI	CRUSH	BIPLOAR	0%		ELONG	CRUSH		180						23.10	23.10	9.30	3.60	0.00	0.00		1.03	

549	10	SPORTSMANS	408C	2	DISTFLAKE	TUFF	LGREY	OPAQ	FEATHER		0%		EXPAND							0			17.90	0.00	0.00	0.00	0.00	0.00		0.57		
550	10	SPORTSMANS	408C	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER								0			10.60	0.00	0.00	0.00	0.00	0.00		0.17	
551	10	SPORTSMANS	414D	4	DISTFLAKE	MQUART	PINK	OPAQ	FEATHER		100%	WATER-ROLL	EXPAND								0			24.80	0.00	0.00	0.00	0.00	0.00		2.21	
552	10	SPORTSMANS	414B	3	COMPFLAKE	MQUART	WHITE	SEMI	CRUSH	HERTIZEN	0%		ELONG	UNI		180					0			20.60	19.90	7.90	3.60	6.00	1.30		0.63	
553	10	SPORTSMANS	408	1	BLOCK	MQUART	PINK	OPAQ			1-25%	weathered									0			57.80	0.00	0.00	0.00	0.00	0.00		43.82	
554	10	SPORTSMANS	414D	4	DISTFLAKE	MQUART	W/P	OPAQ	FEATHER		51-99%	WATER-ROLL	INDETER								0			37.60	0.00	0.00	0.00	0.00	0.00		6.39	
555	10	SPORTSMANS	414B	3	COMPSPILT	MQUART	WHITE	OPAQ	FEATHER		0%		INDETER								0			17.40	0.00	0.00	0.00	0.00	0.00		0.53	
556	10	SPORTSMANS	414B	3	DISTFLAKE	MQUART	W/P	OPAQ	FEATHER		1-25%	WATER-ROLL	INDETER								0			18.30	0.00	0.00	0.00	0.00	0.00		0.59	
557	11	SPORTSMANS	449	3	CORE	MQUART	WHITE	SEMI			0%							UNIDIR	NONDIAG	EXPAND	1	0	0	31.00	0.00	17.40	11.90	0.00	0.00	1-2	11.37	
558	11	SPORTSMANS	445	3	BLOCK	MQUART	WHITE	SEMI			0%										0			16.30	0.00	0.00	0.00	0.00	0.00		1.04	
559	11	SPORTSMANS	445D	3	DISTFLAKE	MQUART	WHITE	SEMI	CORTICAL		26-50%	WATER-ROLL	INDETER								0			13.20	0.00	0.00	0.00	0.00	0.00		0.40	
560	11	SPORTSMANS	445D	3	COMPFLAKE	TUFF	YELLOW	OPAQ	HINGE	HERTIZEN	51-99%	WATER-ROLL	EXPAND	MISSING		0					0			22.70	12.70	22.80	5.60	0.00	0.00		1.78	
561	11	SPORTSMANS	445D	3	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER								0			16.50	0.00	0.00	0.00	0.00	0.00		0.82	
562	11	SPORTSMANS	473	1	COMPFLAKE	MQUART	CLEAR	SEMI	FEATHER	WEDGE	51-99%	WATER-ROLL	BLOCK	UNI		0					0			37.70	32.90	35.10	15.00	10.80	3.20		15.41	
563	11	SPORTSMANS	445	1	CORE	MQUART	WHITE	SEMI			26-50%	WATER-ROLL						BIPOLAR	NONDIAG	ELONG	2	0	0	37.10	0.00	26.20	13.60	0.00	0.00	3-5	14.78	
564	10	SPORTSMANS	414B	3	BROKFLAKE	MQUART	PINK	OPAQ			0%		INDETER								0			17.00	0.00	0.00	0.00	0.00	0.00		0.60	
565	11	SPORTSMANS	449	4	DISTFLAKE	MQUART	WHITE	SEMI	CRUSH		0%		INDETER								0			22.60	0.00	0.00	0.00	0.00	0.00		2.50	
565	11	SPORTSMANS	453B	1	COMPFLAKE	MQUART	WHITE	OPAQ	FEATHER	HERTIZEN	0%		EXPAND	UNI		90					0			18.30	9.80	18.30	5.60	16.60	9.10		1.74	
566	10	SPORTSMANS	395C	1	PROXFLAKE	CQUART	CLEAR	SEMI			0%		EXPAND	UNI							0			16.50	0.00	0.00	0.00	14.20	3.00		0.78	
567	10	SPORTSMANS	423	3	CORE	JASPER	RED	OPAQ			1-25%	WATER-ROLL						UNIDIR	NONDIAG	EXPAND	1	0	0	30.50	0.00	16.30	14.80	0.00	0.00	1-2	7.91	
568	10	SPORTSMANS	397	3	BLOCK	MQUART	WHITE	SEMI			0%										0			14.60	0.00	0.00	0.00	0.00	0.00		0.43	
569	10	SPORTSMANS	394	5	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	1-25%	WATER-ROLL	INDETER	CORTICAL		0					0			12.30	10.10	8.60	2.00	9.30	3.40		0.33	
570	10	SPORTSMANS	401	1	CORE	TUFF	GREY	OPAQ			1-25%	WATER-ROLL						UNIDIR	NONDIAG	EXPAND	1	0	0	60.50	0.00	47.50	32.60	0.00	0.00	1-2	87.46	
571	11	SPORTSMANS	453	2	COMPFLAKE	TUFF	YELLOW	OPAQ	HINGE	HERTIZEN	1-25%	WATER-ROLL	EXPAND	CORTICAL		90					0			21.30	9.80	21.00	2.90	11.50	2.50		0.66	
572	11	SPORTSMANS	449	4	PROXFLAKE	MQUART	WHITE	SEMI			0%		ELONG	FLAKED							0			18.90	0.00	0.00	0.00	6.90	3.80		0.77	
573	10	SPORTSMANS	411	2	BLOCK	TUFF	YELLOW	OPAQ			26-50%	TABULAR									0			32.50	0.00	0.00	0.00	0.00	0.00		7.56	
574	10	SPORTSMANS	411	2	PROXFLAKE	SWOOD	GREY	SEMI			0%		INDETER	UNI							0			13.00	0.00	0.00	0.00	3.40	1.40		0.37	
575	10	SPORTSMANS	411	2	COMPFLAKE	TUFF	LGREY	OPAQ	FEATHER	HERTIZEN	1-25%	weathered	EXPAND	UNI		90					0			20.20	11.80	20.40	4.10	10.20	3.30		1.14	
576	10	SPORTSMANS	420	1	DISTFLAKE	TUFF	LGREY	OPAQ	FEATHER		0%		BLADE								0			14.10	0.00	0.00	0.00	0.00	0.00		0.40	
577	10	SPORTSMANS	420	1	DISTFLAKE	TUFF	GREY	OPAQ	HINGE		0%		INDETER								0			24.10	0.00	0.00	0.00	0.00	0.00		1.37	
578	10	SPORTSMANS	434	3	COMPFLAKE	TUFF	brown	OPAQ	FEATHER	HERTIZEN	1-25%	WATER-ROLL	BLOCK	CORTICAL		0					0			48.80	44.00	27.30	17.10	26.30	18.40		15.12	
579	10	SPORTSMANS	395	4	COMPFLAKE	CCQ	LGREY	OPAQ	FEATHER	HERTIZEN	0%		EXPAND	UNI		90					0			28.40	16.80	24.00	6.50	22.40	5.20		3.83	
580	10	SPORTSMANS	408	5	DISTTOOL	MQUART	WHITE	SEMI	FEATHER		0%		ELONG					BONDI			0			15.90	0.00	0.00	0.00	0.00	0.00		0.53	
581	10	SPORTSMANS	399 (A-D)	7	COMPFLAKE	TUFF	LGREY	OPAQ	ABRUPT	HERTIZEN	0%		BLADE	UNI		0					0			21.80	19.20	12.10	3.60	9.50	3.50		1.02	
582	10	SPORTSMANS	398 (A-D)	7	BROKFLAKE	TUFF	LGREY	OPAQ			1-25%	weathered	INDETER								0			17.80	0.00	0.00	0.00	0.00	0.00		0.89	
583	10	SPORTSMANS	397 (A-D)	7	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	1-25%	WATER-ROLL	EXPAND	UNI		90					0			10.80	8.10	7.80	0.90	6.00	0.70		0.16	
584	10	SPORTSMANS	396 (A-D)	7	COMPFLAKE	MQUART	WHITE	OPAQ	FEATHER	UNCLEAR	1-25%	WATER-ROLL	INDETER	CORTICAL		NA					0			15.90	15.70	11.90	1.60	9.20	2.30		0.51	
585	10	SPORTSMANS	395 (A-D)	7	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		1-25%	WATER-ROLL	INDETER								0			14.50	0.00	0.00	0.00	0.00	0.00		0.51	
586	10	SPORTSMANS	407	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		EXPAND								0			12.40	0.00	0.00	0.00	0.00	0.00		0.17	
587	10	SPORTSMANS	407	1	CORE	MQUART	WHITE	OPAQ			0%								RADBIF	NONDIAG	MIXED	4	1	0	29.00	0.00	26.40	13.50	0.00	0.00	3-5	12.65

898	11	SPORTSMANS	476	3	CORE	MQUART	WHITE	OPAQ			0%							BIDIR	NONDIAG	EXPAND	2	3	0	31.80	0.00	18.60	16.80	0.00	0.00	1-2	6.00
899	11	SPORTSMANS	476	2	COMPFLAKE	VOL	GREY	OPAQ	ABRUPT	HERTIZEN	0%		PLATREJUV	UNI	90							0			45.20	35.80	28.50	13.00	23.40	9.30	19.52
900	11	SPORTSMANS	476	2	COMPFLAKE	VOL	GREY	OPAQ	PLATFORM	HERTIZEN	1-25%	WATER-ROLL	PLATREJUV	FLAKED	90							0			50.80	44.80	39.40	15.50	42.40	8.30	28.74
618	2	TALLAWANG	186B	1	COREFRAG	MQUART	WHITE	SEMI			0%											0			14.00	0.00	0.00	0.00	0.00	0.00	1.25
627	2	TALLAWANG	186B	1	BLOCK	MQUART	WHITE	SEMI			0%											0			25.40	0.00	0.00	0.00	0.00	0.00	3.36
628	2	TALLAWANG	187	2	BROKFLAKE	MQUART	WHITE	SEMI			0%			INDETER								0			24.80	0.00	0.00	0.00	0.00	0.00	1.62
629	2	TALLAWANG	187	2	COMPFLAKE	CCQ	GREY	OPAQ	HINGE	HERTIZEN	0%			EXPAND	FLAKED	0						0			35.40	12.60	34.80	7.10	32.70	8.60	5.00
630	2	TALLAWANG	187	2	COMPFLAKE	MQUART	WHITE	SEMI	CRUSH	HERTIZEN	0%			ELONG	FLAKED	0						0			12.40	12.20	7.10	2.00	6.90	2.00	0.26
631	2	TALLAWANG	187	1	BLOCK	MQUART	WHITE	SEMI			26-50%	WATER-ROLL										0			14.10	0.00	0.00	0.00	0.00	0.00	1.03
632	2	TALLAWANG	187	3	DISTFLAKE	MQUART	WHITE	SEMI	CORTICAL		1-25%	WATER-ROLL	BLOCK									0			26.50	0.00	0.00	0.00	0.00	0.00	5.99
633	2	TALLAWANG	187	3	COMPSPLIT	MQUART	WHITE	SEMI	FEATHER		0%			BLOCK								0			27.90	0.00	0.00	0.00	0.00	0.00	4.05
635	2	TALLAWANG	188	3	BLOCK	MQUART	WHITE	SEMI			0%											0			12.20	0.00	0.00	0.00	0.00	0.00	0.45
636	2	TALLAWANG	187	3	PROXFLAKE	MQUART	WHITE	SEMI			0%			INDETER	UNI							0			19.40	0.00	0.00	0.00	12.40	5.30	1.99
637	2	TALLAWANG	186B	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%			EXPAND								0			22.60	0.00	0.00	0.00	0.00	0.00	1.55
638	2	TALLAWANG	186B	1	BLOCK	MQUART	WHITE	SEMI			0%											0			8.80	0.00	0.00	0.00	0.00	0.00	0.21
639	2	TALLAWANG	186B	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	0%			EXPAND	UNI	0						0			8.10	6.50	7.50	1.80	8.10	2.90	0.16
640	2	TALLAWANG	186B	2	CORE	MQUART	WHITE	SEMI			1-25%	VEIN						MULTI	BLOCK	MIXED	3	1	0	41.80	0.00	27.30	17.60	0.00	0.00	3-5	24.55
641	2	TALLAWANG	186D	1	PROXFLAKE	MQUART	WHITE	OPAQ			0%			INDETER	UNI							0			14.30	0.00	0.00	0.00	4.10	2.20	0.96
642	2	TALLAWANG	186D	2	COMPFLAKE	MQUART	WHITE	OPAQ	ABRUPT	HERTIZEN	100%	WATER-ROLL	INDETER	CRUSH	NA							0			26.50	23.90	19.80	5.10	0.00	0.00	3.70
643	2	TALLAWANG	186D	1	BLOCK	MQUART	WHITE	OPAQ			0%											0			20.20	0.00	0.00	0.00	0.00	0.00	2.29
644	2	TALLAWANG	186D	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%			INDETER								0			9.20	0.00	0.00	0.00	0.00	0.00	0.07
645	2	TALLAWANG	186D	3	PROXFLAKE	MQUART	WHITE	SEMI			0%			INDETER	MISSING							0			17.20	0.00	0.00	0.00	0.00	0.00	0.80
646	2	TALLAWANG	186D	3	BLOCK	MQUART	WHITE	SEMI			0%											0			8.10	0.00	0.00	0.00	0.00	0.00	0.24
647	2	TALLAWANG	186D	3	DISTFLAKE	MQUART	YELLOW	SEMI	FEATHER		0%			INDETER								0			11.20	0.00	0.00	0.00	0.00	0.00	0.34
648	2	TALLAWANG	186C	2	COMPFLAKE	MQUART	WHITE	SEMI	ABRUPT	WEDGE	1-25%	FLATO	ELONG	UNI	0							0			18.90	16.80	11.00	4.50	10.00	4.00	1.24
649	2	TALLAWANG	186A	1	COMPTOL	JASPER	brown	OPAQ	N/A	HERTIZEN	1-25%	WATER-ROLL	EXPAND	CORTICAL	0	USEWEAR						0			23.90	18.40	21.40	4.20	16.40	2.50	2.39 X2 USE
650	2	TALLAWANG	186A	1	DISTTOOL	MQUART	WHITE	SEMI	FEATHER		0%			INDETER								0			17.40	0.00	0.00	0.00	0.00	0.00	1.37 X1 USE
651	2	TALLAWANG	186A	1	DISTTOOL	MQUART	WHITE	SEMI	FEATHER		0%			INDETER								0			17.80	0.00	0.00	0.00	0.00	0.00	1.13
652	2	TALLAWANG	186A	1	COMPSPLIT	MQUART	WHITE	SEMI	ABRUPT		0%			INDETER								0			29.50	0.00	0.00	0.00	0.00	0.00	2.51
653	2	TALLAWANG	186A	1	BROKFLAKE	MQUART	WHITE	SEMI			0%			INDETER								0			9.80	0.00	0.00	0.00	0.00	0.00	0.25
654	2	TALLAWANG	186A	2	DISTFLAKE	TUFF	YELLOW	OPAQ	CORTICAL		100%	WATER-ROLL	EXPAND									0			14.90	0.00	0.00	0.00	0.00	0.00	0.23
655	2	TALLAWANG	195	1	BLOCK	MQUART	WHITE	SEMI			0%											0			20.10	0.00	0.00	0.00	0.00	0.00	1.28
656	2	TALLAWANG	185	1	COREFRAG	MQUART	WHITE	SEMI			26-50%	weathere										0			15.90	0.00	0.00	0.00	0.00	0.00	1.29
657	2	TALLAWANG	185	1	DISTFLAKE	CQUART	CLEAR	SEMI	FEATHER		0%			EXPAND								0			18.80	0.00	0.00	0.00	0.00	0.00	0.77
658	2	TALLAWANG	185	1	CORE	MQUART	WHITE	OPAQ			51-99%	FLATO						BIPOLAR	BLOCK	ELONG	1	0	0	19.60	0.00	14.60	10.10	0.00	0.00	1-2	2.81
659	2	TALLAWANG	191	2	DISTFLAKE	MQUART	WHITE	OPAQ	FEATHER		0%			INDETER								0			17.90	0.00	0.00	0.00	0.00	0.00	0.85
660	2	TALLAWANG	185	1	DISTFLAKE	MQUART	WHITE	SEMI	CRUSH		0%			BLOCK								0			19.80	0.00	0.00	0.00	0.00	0.00	3.72
661	2	TALLAWANG	188B	1	BROKFLAKE	MQUART	WHITE	SEMI			0%			INDETER								0			18.40	0.00	0.00	0.00	0.00	0.00	0.89
662	2	TALLAWANG	168A	2	COMPFLAKE	MQUART	CLEAR	SEMI	FEATHER	UNCLEAR	0%			EXPAND	CRUSH	180						0			10.80	10.50	9.20	1.00	0.00	0.00	0.15
663	2	TALLAWANG	162	4	BLOCK	CQUART	CLEAR	TRANS			0%											0			15.20	0.00	0.00	0.00	0.00	0.00	0.74

816	2	TALLAWANG	177	2	COMPFLAKE	MQUART	WHITE	SEMI	PLUNGE	UNCLEAR	0%		EXPAND	UNI	90					0		15.90	15.00	11.70	1.60	5.80	2.80		0.51		
817	2	TALLAWANG	175	2	BLOCK	MQUART	W/P	SEMI			26-50%	WATER-ROLL								0		33.80	0.00	0.00	0.00	0.00	0.00		12.33	ANGULAR	
818	2	TALLAWANG	175	2	BLOCK	MQUART	WHITE	OPAQ			0%									0		9.40	0.00	0.00	0.00	0.00	0.00		0.11		
819	2	TALLAWANG	175	1	CORE BROKFLAKE	MQUART	WHITE	SEMI			1-25%	WATER-ROLL					UNIDIR	NODULE	MIXED	2	0	4	41.20	0.00	19.50	21.10	0.00	0.00	1-2	16.37	
820	2	TALLAWANG	175	1	BROKFLAKE	MQUART	WHITE	OPAQ			0%		INDETER							0		9.10	0.00	0.00	0.00	0.00	0.00		0.13		
821	2	TALLAWANG	175	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	0%		INDETER	FLAKED		NA				0		12.30	9.30	8.50	2.00	6.90	2.20		0.20		
822	2	TALLAWANG	182	2	BLOCK	MQUART	WHITE	SEMI			0%									0		24.00	0.00	0.00	0.00	0.00	0.00		4.21		
823	2	TALLAWANG	178	2	COMPFLAKE	CQUART	CLEAR	SEMI	FEATHER	UNCLEAR	0%		EXPAND	UNI		0				0		11.20	10.20	9.20	3.00	7.90	2.00		0.30		
824	2	TALLAWANG	178	2	DISTFLAKE	CQUART	CLEAR	SEMI	FEATHER		0%		ELONG							0		10.70	0.00	0.00	0.00	0.00	0.00		0.21		
825	2	TALLAWANG	178	2	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER							0		13.00	0.00	0.00	0.00	0.00	0.00		0.44		
826	2	TALLAWANG	182	2	CORE COREFRAG	MQUART	GREY	SEMI			26-50%	WATER-ROLL					BIPOLAR	NODULE	EXPAND	3	2	0	36.80	0.00	35.50	23.60	0.00	0.00	3-5	39.77	
827	2	TALLAWANG	182	2	FRAG	MQUART	WHITE	SEMI			0%									0		14.40	0.00	0.00	0.00	0.00	0.00		0.84		
828	2	TALLAWANG	177	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		100%	WATER-ROLL	INDETER							0		11.00	0.00	0.00	0.00	0.00	0.00		0.26		
829	2	TALLAWANG	179	2	BROKFLAKE	MQUART	WHITE	OPAQ			0%		EXPAND							0		15.60	0.00	0.00	0.00	0.00	0.00		0.58		
830	2	TALLAWANG	177	1	CORE BROKFLAKE	MQUART	WHITE	SEMI			1-25%	weathere d					MULTI	BLOCK	MIXED	3	1	0	45.50	0.00	33.70	28.90	0.00	0.00	3-5	59.28	
831	2	TALLAWANG	179	2	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER							0		14.80	0.00	0.00	0.00	0.00	0.00		0.76		
832	2	TALLAWANG	176	2	BLOCK	MQUART	WHITE	OPAQ			1-25%	WATER-ROLL								0		20.00	0.00	0.00	0.00	0.00	0.00		2.73		
833	2	TALLAWANG	183	2	COMPFLAKE	CCQ	darkgrey	OPAQ	FEATHER	HERTIZEN	0%		INDETER	UNI		90				0		35.00	27.30	21.70	7.50	15.40	3.80		7.06		
834	2	TALLAWANG	179	2	COMPFLAKE	MQUART	WHITE	OPAQ	ABRUPT	HERTIZEN	1-25%	FLATO	BLOCK	CORTICAL		0				0		30.60	19.20	20.40	14.00	23.40	17.90		9.53		
835	2	TALLAWANG	179	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	1-25%	WATER-ROLL	INDETER	CRUSH		0				0		10.00	10.00	7.00	1.60	0.00	0.00		0.15		
836	2	TALLAWANG	179	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	0%		EXPAND	FLAKED		0				0		18.60	17.20	15.70	5.10	12.80	5.20		1.06		
837	2	TALLAWANG	179	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER							0		13.30	0.00	0.00	0.00	0.00	0.00		0.32		
838	2	TALLAWANG	179	2	DISTFLAKE	MQUART	WHITE	OPAQ	FEATHER		0%		INDETER							0		13.60	0.00	0.00	0.00	0.00	0.00		0.39		
839	2	TALLAWANG	176	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER							0		12.50	0.00	0.00	0.00	0.00	0.00		0.22		
840	2	TALLAWANG	174	3	COMPFLAKE	MQUART	WHITE	SEMI	ABRUPT	UNCLEAR	0%		INDETER	CRUSH		0				0		11.40	9.00	10.80	3.60	0.00	0.00		0.34		
841	2	TALLAWANG	174	4	DISTFLAKE	MQUART	WHITE	SEMI	CRUSH		0%		ELONG							0		11.10	0.00	0.00	0.00	0.00	0.00		0.21		
842	2	TALLAWANG	176	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER							0		9.20	0.00	0.00	0.00	0.00	0.00		0.22		
843	2	TALLAWANG	176	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		EXPAND							0		11.00	0.00	0.00	0.00	0.00	0.00		0.13		
844	2	TALLAWANG	174	3	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	26-50%	WATER-ROLL	INDETER	UNI		0				0		10.20	8.90	8.20	2.30	7.30	3.30		0.23		
845	2	TALLAWANG	181	2	BLOCK	MQUART	WHITE	OPAQ			26-50%	FLATO								0		22.70	0.00	0.00	0.00	0.00	0.00		1.73		
846	2	TALLAWANG	209	1	CORE	MQUART	WHITE	SEMI			0%							BIDIR	BLOCK	EXPAND	2	0	0	26.00	0.00	23.20	20.50	0.00	0.00	1-2	12.30
847	2	TALLAWANG	180	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	BIPLOAR	0%		PLATREJUV	CRUSH		90				0		16.10	16.10	6.10	5.10	0.00	0.00		0.44		
849	2	TALLAWANG	181	2	DISTFLAKE	CCQ	GREY	OPAQ	FEATHER		0%		INDETER							0		9.20	0.00	0.00	0.00	0.00	0.00		0.10		
849	2	TALLAWANG	181	2	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		INDETER							0		8.10	0.00	0.00	0.00	0.00	0.00		0.16		
850	2	TALLAWANG	181	2	BLOCK	MQUART	WHITE	OPAQ			0%									0		11.60	0.00	0.00	0.00	0.00	0.00		0.31		
851	2	TALLAWANG	180	1	BROKFLAKE	MQUART	WHITE	SEMI			0%		INDETER							0		11.90	0.00	0.00	0.00	0.00	0.00		0.32		
852	2	TALLAWANG	180	1	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	HERTIZEN	51-99%	FLATO	EXPAND	UNI		0				0		24.30	18.40	22.70	7.80	22.90	8.70		4.19		
853	2	TALLAWANG	180	1	PROXFLAKE	MQUART	WHITE	SEMI			0%		ELONG	UNI						0		14.00	0.00	0.00	0.00	9.40	3.30		0.84		
854	2	TALLAWANG	180	1	COMPFLAKE	MQUART	WHITE	SEMI	CORTICAL	WEDGE	1-25%	weathere d	BLOCK	MISSING		180				0		27.20	24.80	14.10	7.30	0.00	0.00		3.20		
855	2	TALLAWANG	180	1	DISTFLAKE	MQUART	WHITE	SEMI	FEATHER		0%		EXPAND							0		15.10	0.00	0.00	0.00	0.00	0.00		0.89		

961	2	TALLAWANG	185	WALL CLEAN	BLOCK	MQUART	WHITE	OPAQ			0%									0			18.90	0.00	0.00	0.00	0.00	0.00	0.48			
992	2	TALLAWANG	185	3	BLOCK	MQUART	W/Y	SEMI			0%										0			10.70	0.00	0.00	0.00	0.00	0.00	0.95	CHECK NOV 23	
775	6	WHITES	275	1	COMPTOL	MQUART	WHITE	SEMI	ABRUPT	HERTIZEN	1-25%	WATER-ROLL	BLOCK	FACET		0	USEWEAR				0			34.70	29.50	25.30	11.20	19.10	11.80	9.85	USE X1	
777	6	WHITES	289	3	BLOCK	CCQ	GREY	OPAQ			26-50%	WATER-ROLL									0			18.00	0.00	0.00	0.00	0.00	0.00	1.36		
779	6	WHITES	276	5	BLOCK	MQUART	WHITE	OPAQ			0%										0			37.50	0.00	0.00	0.00	0.00	0.00	9.21		
780	6	WHITES	293	2	COMPFLAKE	MQUART	WHITE	OPAQ	FEATHER	HERTIZEN	1-25%	WATER-ROLL	EXPAND	UNI		90					0			41.00	34.80	37.80	8.00	24.80	7.30	13.76		
781	6	WHITES	278	1	COREFRAG	CCQ	CREAM	OPAQ			51-99%	WATER-ROLL									0			18.70	0.00	0.00	0.00	0.00	0.00	0.95		
782	6	WHITES	277	5	COMPTOL	QUARTZITE	GREY	OPAQ	N/A	UNCLEAR	0%		PLATREJUV	MISSING		90	STEPSCRAP				0			43.20	39.10	30.80	15.30	0.00	0.00	19.32	X2 STEP	
783	6	WHITES	277	5	HFA	TUFF	YELLOW	OPAQ			1-25%	WATER-ROLL	N/A								0			11.90	0.00	0.00	0.00	0.00	0.00	0.39		
784	6	WHITES	308	4	DISTFLAKE	CCQ	CREAM	OPAQ	FEATHER		0%		EXPAND								0			14.30	0.00	0.00	0.00	0.00	0.00	0.23		
785	6	WHITES	305	2	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	0%		ELONG	MISSING		180					0			22.60	22.20	13.00	6.00	0.00	0.00	1.49		
786	6	WHITES	271	2	COMPFLAKE	QUARTZITE	GREY	OPAQ	FEATHER	HERTIZEN	1-25%	WATER-ROLL	PLATREJUV	UNI		90					0			38.40	32.00	35.00	8.30	7.30	2.90	7.90		
787	6	WHITES	269	4	CORE	MQUART	WHITE	SEMI			26-50%	FLATO						MULTI	BLOCK	EXPAND	3 4	0		44.70	0.00	28.10	21.10	0.00	0.00	3-5	35.36	OUTCROP
788	6	WHITES	269	4	CORE	MQUART	brown	OPAQ			51-99%	WATER-ROLL						TEST	NODULE	ELONG	1 2	0		23.50	0.00	16.30	13.00	0.00	0.00	1-2	4.63	
789	6	WHITES	269	4	DISTFLAKE	TUFF	YELLOW	OPAQ	FEATHER		51-99%	weathere d	EXPAND								0			23.80	0.00	0.00	0.00	0.00	0.00	1.80		
790	6	WHITES	269	4	COMPFLAKE	MQUART	WHITE	SEMI	FEATHER	UNCLEAR	0%		EXPAND	CRUSH		180					0			16.30	12.50	16.30	2.90	0.00	0.00	0.76		
791	6	WHITES	269	1	BROKFLAKE	TUFF	YELLOW	OPAQ			100%	weathere d	INDETER								0			17.70	0.00	0.00	0.00	0.00	0.00	0.81		
793	6	WHITES	272	2	DISTFLAKE	CQUART	CLEAR	SEMI	FEATHER		0%		INDETER								0			12.60	0.00	0.00	0.00	0.00	0.00	0.46		
794	6	WHITES	290	2	DISTFLAKE	MQUART	WHITE	OPAQ	FEATHER		100%	weathere d	INDETER								0			17.90	0.00	0.00	0.00	0.00	0.00	0.78		

Appendix E

Post-approval requirements – updated guiding principles

E.1 Guiding principles

The key recommendation of the EIS ACHAR and Chapter 8 of this report is the development of an Aboriginal cultural heritage management plan (ACHMP) to guide the management and mitigation of cultural materials within the construction area. While specific approaches and methodology would be developed as part of the ACHMP, the below section provides over-arching guiding principles for the management of key content requirements and each site type that may be adversely affected by the project.

E.1.1 Contents of the ACHMP

The ACHMP should include, but not be limited to the following:

- Where the project may interact with other approved projects, the document would consider and comply with other ACHMPs and cultural management measures.
- Processes, timing, communication methods and project involvement (e.g. on-site activities) for maintaining Aboriginal community consultation and participation through the remainder of the project. This should include a grievance mechanism that is readily available and designed for use by the local Aboriginal community.
- If not previously completed and where necessary, provide descriptions and methods for undertaking further investigation and assessment of the sites and cultural deposits currently assigned a tentative classification.
- If not previously completed, additional test excavations to further inform design and avoidance opportunities within 150 m of identified creek-lines within the EIS ACHAR and this report (AH06).
- If not previously completed, discuss and identify any areas of design optimisation with the RAPs to avoid or further minimise harm to identified Aboriginal sites, objects and place (AH01-03).
- Detail descriptions and methods of any additional investigative and/or mitigative archaeological actions that may be required prior to construction works commencing or during the project. These should include, but not limited to, archival recording of all identified Aboriginal objects, sites and places that may be adversely affected (AH08); suitable recovery or relocation, documentation and analysis of any archaeological sites proposed for direct impacts; management of any archaeological excavation of areas of significant buried cultural material and where direct impacts are proposed; and/or cultural monitoring for any areas identified by Aboriginal community as having significant cultural value. For these activities, details of location/s, methods, personnel, and timing should be included.
- Description and methods of actions to minimise any inadvertent impacts to identified Aboriginal objects and/or sites and areas of archaeological sensitivity outside, but in close proximity, of the construction area. This should include, but not be limited to, cultural inductions for all personnel and subcontractors outlining their location and significance, fencing and clear marking of heritage sites and zones of interest in close proximity to proposed works, appropriate screening for sensitive and gender-specific areas, and any additional requirements identified by the Aboriginal community. A suitable regime of monitoring these activities should also be outlined, including locations, methods, personnel and timing.
- Description and methods for undertaking further Aboriginal heritage assessment, investigation and mitigation of any areas of the construction area that have changed following completion of the ACHA, this report, and/or during the final design and construction phases of the project.

- Description and methods of post-excavation analysis and reporting of the archaeological investigations and activities implemented as part of the ACHMP. For excavations, these should include suitable collection and processing of stone artefacts, and chronological, soil, and environmental samples.
- Procedures for managing the unexpected discovery of Aboriginal objects, sites and/or human remains during the project.
- Procedures for the curation and long-term management of cultural materials recovered or relocated as part of the works outlined in the ACHMP and any preceding stages associated with the project. This should include any ongoing monitoring requirements to ensure the preservation of recovered cultural materials, such as culturally modified trees.
- Processes for reviewing, monitoring, and updating the ACHMP as the project progresses.

E.1.2 Avoidance and/or impact minimisation approaches

The specific methods for avoiding or minimising impacts to identified Aboriginal sites and places would typically be highly specific to the cultural materials in question and the development activities occurring nearby. Below are some general approaches that can be applied with site specific options developed and applied as part of the ACHMP (Section E1.1):

- incorporation of the sites, cultural deposits, curtilages, and obligations for their protection into cultural inductions for site personnel
- where available, incorporation of the sites and curtilage into 'no-go' and/or constraint layers within the development document packages; and their inclusion into ground disturbance permit/approval requirements for the project
- establishment of fencing and/or signage during works in and around identified sites and cultural deposits. These should be developed in conjunction with an Aboriginal heritage specialist and/or RAPs.
- where necessary, establishment of surface protection such as heavy duty ground protection mats, or equivalent. These should be developed in conjunction with an Aboriginal heritage specialist and/or RAPs
- the installation of underground/detectable tape at depths of 50 cm below current ground surface across the surface of the cultural deposits.
- establishment of permanent (non-intrusive) signage to indicate cultural deposits and to contact an Aboriginal heritage specialist prior to development activity.

In relation to any proposed blasting, the following guiding principles should be adopted where sites are considered structurally unsound (or cannot be determined):

- Where vibration intensive activities have potential to exceed levels of 80 millimetres (mm) per second within close proximity (nominally 50 metres) of an Aboriginal site, a geotechnical engineer or other suitable specialist would be first engaged to determine project-specific restrictions and requirements prior to the blasting proceeding; and which may result in modifications to vibration limits and/or distance of activities from the Aboriginal site.

- Where moderate or high risk remains, in collaboration with heritage specialist, RAPs and a suitably qualified environment and engineering specialist, the project would establish-suitable monitoring for ground movement within and on the Aboriginal site, with an ideal detection and/ or accuracy of +/- 5 mm. These would be established prior to construction activities, and then continue to be used for four weeks following the completion of activities. They would be monitored weekly, increasing to daily where movement >5 mm is observed.
- Visual inspection of the site by a heritage specialist and RAPs to monitor and identify any visual changes. This should be undertaken weekly during the construction activities, at any point where monitoring units indicate a change of >5 mm, and as a close out visit 4-6 weeks following the completion of activities.
- Where impacts are observed, they would be mitigated in accordance with guiding principles for the respective Aboriginal site in the addendum report.

E.1.3 Methods for identified site types

In terms of each site type, the following provides a number of guiding principles that should be adopted in the ACHMP and other relevant documents *where sites and/or cultural deposits would be adversely affected (direct and indirect)*, including the following:

- Management of high and moderate density artefact scatters (SNI-AS41, SNI-AS43, SNI-AS57, SNI-AS91, SNI-AS101, SNI-FA02, SNI-FA05/SNI-AS80, SNI-FA07, SNI-FA11, SNI-FA12, #36-3-0496, #36-3-0503, #36-3-0658, #36-3-0793, SNI-AS71, SNI-AS02, SNI-FA04, SNI-FA06, SNI-FA08, SNI-FA09, SNI-FA10, SNI-IF104):
 - Detailed field survey should be undertaken to identify the curtilage of the site and all observable surface cultural materials. Once identified, cultural materials should be spatially documented, collected and subject to detailed lithic analysis.
 - Where subsurface potential is identified, it should be subjected to archaeological excavations as outlined below.
- Management of grinding grooves (SNI-GG01 – GG09 inclusive, SNI-GG15-17 inclusive, SNI-AS65, Argyll No.3/#36-3-0111):
 - Suitable field survey to ensure all individual grooves are identified. This may include additional surveys at dawn or dusk to ensure appropriate lighting to further identify such features. This should be followed by detailed spatial documentation and archival recording of each individual groove.
 - Residue analysis should be undertaken of each groove by a specialist to determine whether any past dietary information can be obtained from the feature. Other specialist techniques that explore geological make up, formation history of the feature, age, and other relevant information may also be considered.
 - Where required, methods for protection in situ and/or relocation of the grooves (and associated sandstone outcrop) should be included.

- Management of culturally modified trees (#36-3-3918, SNI-CMT02, SNI-CMT04, SNI-CMT16, SNI-CMT19):
 - Archival recording of the tree both in its landscape context and the specific features of the modifications prior to disturbance.
 - Methods for protection in situ and/or suitable relocation of the tree, either in its entirety and/or via the removal of the 'scar' portion of the tree. It should be dictated that these approaches should be overseen by a qualified arboriculturist.
 - Where left in situ, the processes and methods for long term monitoring of the culturally modified tree to ensure its ongoing preservation.
 - Where relocated, methods for the long-term curation and conservation of the removed tree or tree fragment, including suitable conditions and preservation agents as required.
- Management of rockshelters (#36-3-3794, #36-3-0449, #36-3-0570, #36-3-0790, SNI-RS01 – RS04 inclusive, SNI-RS06):
 - Archival recording of the site both in its landscape context and the specific features of the modifications prior to disturbance, including a focus on any rock art that may be present.
 - Archaeological excavation of any cultural deposits to inform the significance of the site and provide information on the past use by Aboriginal people. Excavations should include an investigative phase and if needed a salvage phase
 - Investigative phase –Where cultural deposits are to be adversely affected, additional investigation in the form of high-resolution systematic grids of test pits should be undertaken. These should be suitably spaced based on the confines and extent of the rockshelter and deposits, but typically ≤ 5 m apart. The talus slope where present should also be encompassed in these investigations. Excavations should be undertaken manually in discrete test pits (1 m²), use 5 cm spits for recovery, sieve all sediment through a 3 mm mesh, recover suitable palaeo environmental and chronological sampling, and undertake appropriate recording.
 - Salvage phase – once the extent and nature of the cultural deposits are known, additional salvage excavation (conservation *ex situ*) of the area/s should be undertaken. Excavation should focus on contiguous open area excavations using the same approaches as the test excavation phase, with the aim being to recover a substantive portion of the cultural deposit.
 - Where relevant, development methods for the long term stabilisation and protection of the rockshelters, as well as future monitoring activities.
 - Where relevant and feasible, methods for protection in situ and/or relocation of any rock art panels (and associated sandstone outcrop) should be included.

- Management of sub-surface cultural deposits and areas of archaeological potential in the vicinity of identified creek-lines (including Deadmans Creek, Bora Creek, Cumbo Creek, Wilpinjong Creek, Tallawang Creek north crossing, and Copes Creek):
 - Test excavations that include both an investigative phase and a salvage phase:
 - Investigative phase – the excavations undertaken as part of the ACHA were disparate and widely spaced to maximise investigation of the construction area. Where cultural deposits are to be adversely affected, additional investigation in the form of high-resolution systematic grids of test pits spaced 10–20 m across targeted areas should be implemented. Excavations should be undertaken manually in discrete test pits (1 m²), use 10 cm spits for recovery, sieve all sediment through a 5 mm mesh, recover suitable paleo-environmental and chronological sampling, and undertake appropriate recording.
 - Salvage phase – once the test pits containing the highest significance are identified, archaeological salvage excavation (conservation *ex situ*) of the area/s should be undertaken. Depending on the number of high value locales and the nature of the impacts, salvage excavation may focus on some or all of these test pits. In accordance with current best practice, all salvage works should consist of initially 25 m² of contiguous open area excavation centred on the test pit/s of interest and expanding up to 100 m² where suitable thresholds are met (e.g. continuing high density of artefact numbers, unique characteristics, etc). Excavations should be undertaken manually in discrete test pits (0.25–1 m²), use 5 cm spits for recovery, sieve all sediment through a 3 mm mesh, recover suitable palaeo environmental and chronological sampling, and undertake appropriate recording.
- Management of high density stone artefact cultural deposits (SNI-FA02, SNI-FA05/SNI-AS80, SNI-FA12):
 - Where test pit/s containing the highest significance are identified, archaeological salvage excavation (conservation *ex situ*) of the area/s should be undertaken. Depending on the number of high value locales and the nature of the impacts, salvage excavation may focus on some or all of these test pits. In accordance with current best practice, all salvage works should consist of initially 25 m² of contiguous open area excavation centred on the test pit/s of interest and expanding up to 100 m² where suitable thresholds are met (e.g. continuing high density of artefact numbers, unique characteristics, etc). Excavations should be undertaken manually in discrete test pits (0.25–1 m²), use 5 cm spits for recovery, sieve all sediment through a 3 mm mesh, recover suitable palaeo environmental and chronological sampling, and undertake appropriate recording.
- Management of low density background artefact scatter cultural materials (SNI-BS1):
 - No further mitigation measures are recommended. It has been demonstrated that ~2.1–<17 artefacts/m² would be expected across the construction area, which reflects the ephemeral use of the region by Aboriginal people for several millennia. It is considered that further investigation of these areas would not alter the significance or understanding of these cultural deposits.
- Analysis and reporting:
 - All additional investigation, mitigation and monitoring activities should ensure suitable reporting and lodgement with relevant repositories, such as the Heritage NSW AHIMS database.

- In the case of excavations, post- excavation analysis should be undertaken for all recovered sedimentological and cultural materials. Analysis should include processing of chronological samples (e.g. optically stimulated luminescence, radiocarbon), palaeo environmental samples (e.g. particle size, geochemistry, pollen analysis, etc), and stone tool analysis.
- Identification of short and long term repositories for recovered cultural materials and other collected samples.

E.1.4 Contents and methods for interpretation strategy, plan and implementation

The following points provide some guiding principles for consideration in the development of heritage interpretation of the project:

- Initially an interpretation strategy should be developed to identify key and over-arching themes. Subsequently, a plan would refine the strategy with content (visual and textual) and design details in order to allow the implementation stage.
- The documents should be co-designed and closely developed with local Wiradjuri and Gomeroi traditional owners. This includes identification of initial aims and ideas, content and structure.
- Given the nature of the project, these documents may consider off-site public outreach opportunities at nearby townships such as Gulgong, Ulan, Mudgee, et cetera.
- The content should include, but not be limited to:
 - the ethnographic and historical record, which includes post-Contact and contemporary associations with the site and immediate environs
 - consultation and input from the Wiradjuri and Gomeroi traditional owners
 - information obtained from the archaeological excavations and findings undertaken for the project on the cultural and environmental landscape within which past Aboriginal people interacted with in the past.

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