

DEPARTMENT OF MINES
SOUTH AUSTRALIA

REPORT ON LIMESTONE AND DOLOMITE DEPOSITS

YUNTA AREA

(Highways and Local Government Department)

by

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PLANS

<u>No.</u>	<u>Title</u>	<u>Scale</u>
S4723	Limestone and Dolomite Deposits Yunta Area.	Approx. 1 inch to 1 mile

Rept. Bk. No. 61/81
G.S. No. 3261
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ABSTRACT

Reconnaissance mapping has located twelve deposits of rock suitable for bituminous surface treatment, screenings. Probable reserves, suitability of each site for quarrying and exploration necessary to prove the deposits are described.

INTRODUCTION

The Highways Department require a deposit of limestone or dolomite in the vicinity of Yunta to provide screenings for bitumenising the Yunta section of the Adelaide-Broken Hill road.

A reconnaissance survey was carried out on 21st and 22nd July 1965 and several deposits were located. Surface samples from four of these, representing the various rock types encountered, were submitted to the Highways Department for laboratory testing and all returned satisfactory results.

The deposits were inspected in company with engineers from the Highways Department on 31st August 1965.

GEOLOGICAL SETTING

The main road runs north easterly through a broad shallow valley which is flanked to the north west and south east by prominent ranges. The valley is underlain by rocks of the Umberatana Group of the Adelaide System. These are folded into a series of anticlines with opposing north easterly and south westerly plunges.

No systematic regional mapping has been carried out in the vicinity of Yunta but the Manunda one mile military sheet, lying to the south, has been published.

Elsewhere in the State the Umberatana Group comprises a glaciogene sequence with shale, siltstone and tillite predominating. In the central Flinders Range several lenticular limestone units occur in the middle part of the sequence and some dolomite beds are present over this interval in the nearby Manunda area.

The top of the Umberatana Group is defined by the Grampus Quartzite and this is overlain by a pink to buff coloured dolomite, the Nuccaleena Formation.

In the Yunta area the range which flanks the main road to the south east is underlain by the Grampus Quartzite which here strikes north easterly and dips at 50° to 60° to the south east. The Nuccaleena Formation above this has been mapped over a distance of three miles on both sides of the Yunta Creek. Deposits 4 to 8 lie in this formation.

Grey limestone and argillaceous limestone is developed locally in the Umberatana Group and several deposits (Numbers 1 to 3, 9 to 12) flank the Yunta Creek between the township and the eastern range.

The reconnaissance included the area on the north western side of the main road as far west as the range at Teetulpa Homestead, but the sequence here consists of laminated shale dipping to the north west.

THE STONE DEPOSITS

Limestone deposits in the Umberatana Group are described hereunder (see plan S4723).

Deposit 1

Buff coloured limestone outcrops intermittently on a low rise on the southern side of the main track from Yunta to

Panaramatee Station. Bedding is locally contorted but it strikes generally north easterly and dips 20° to the south east. In one area 150 yards long, limestone bands, separated by soil covered ground, outcrop over a width of 50 yards. Testing is necessary to ensure that the soil covered areas are not underlain by shale or weathered limestone. Local relief is low and development of a large quarry will be difficult.

Deposit 2

Limestone outcrops on a small rise on the southern bank of Yunta Creek where the Panaramatee-Yunta track crosses. The bed is 18-20 yards wide and is overlain by laminated shale striking at 60° and dipping 50° to the south east. The rise is 40 yards long and reaches to only 12' above the creek bank. Reserves are small.

Deposit 3

Thinly bedded argillaceous limestone is exposed over 40 yards in a tributary creek and outcrops on adjacent low rises. The rock is not suitable for screenings.

Deposit 9

Limestone outcrops continuously over a width of 70 yards on a low rise one mile south of deposit 1. The ground falls away rapidly to the south to a broad drainage course where a 25 to 30 ft. face could be opened up. The outcrop extends for 150 yards to the north. Two old bulldozed costeans one to two feet deep have been filled with drift sand and exposures in the walls are poor; they show kunkar limestone indicating that the deposit is capped by at least two feet of overburden. Further bulldozing is necessary to test the deposit.

Deposit 10

Two bands of grey limestone each 100 yards in width outcrop in the bed of a wide shallow tributary to the Yunta Creek.

Bedding strikes at 55° and dips 45° to the south east. Flat ground flanks the creek for a considerable distance to the south west and north east and a quarry would be subject to flooding. Large reserves are present but testing by drilling is required.

Deposit 11

Buff to grey limestone outcrops over a width of 50 yards on an elongate rise over a length of several hundred yards on the eastern side of Yunta Creek. Bedding dips at 55° to the south east. The sample numbered U5/24903 was collected from this deposit.

Deposit 12

Grey banded limestone outcrops at intervals over a large area of the flats adjacent to the main road on the eastern side of Yunta Creek. Low hills further to the east are underlain by laminated shale which is folded into a small shallow south plunging syncline and it is likely that the limestone on the flats is dipping at a very low angle. Diamond drilling is necessary to ensure that no interbedded shale is present and to determine the thickness of overburden.

The site is attractive because of its proximity to the main road.

The sample numbered U5/24902 was collected from this area.

Deposit 4

Adjacent to the Panaramatoo - Yunta track elongate narrow ridges are underlain by Nuccaleena dolomite 14 yards wide. The deposit contains only a small reserve.

Deposit 5

On a locally prominent ridge on the western side of Yunta Creek the dolomite outcrops continuously over a width of 17 yards with a further 15 yards of intermittent outcrop on the south

eastern side. The ridge is 400 yards long and the crest is approximately 18 feet above the surrounding plain. One diamond drill hole is required to prove the full width of the bed. The deposit could contain 40,000 cubic yards of rock. The sample numbered U5/24904 was collected from across this outcrop.

Deposits 6 and 7

Are located along strike to the south west from deposits Nos. 4 and 5. The bed outcrops over a width of 18 to 20 yards along a length of 800 yards at each deposit, but the ridges are more subdued than at deposit 5.

Deposit 8

A broad flat plain separates this deposit from deposit 7. At deposit 8 outcrop is continuous over a width of 30 yards with intermittent outcrop for a further 15 yards. The hill rises abruptly from the plain and reaches a height of about 30 feet and outcrop extends for approximately 150 yards along the strike which here trends at 75° . The rock is a pale pink siliceous dolomite dipping at $50-55^{\circ}$ to the south. Sample numbered U5/24901 was collected from this deposit. From a quarrying point of view it is the most attractive of the sites described and is located only $1\frac{1}{2}$ miles from the main road across undulating country. One exploratory hole should be drilled to test the quality of stone at depth. Reserves probably exceed 60,000 cubic yards.

SUMMARY AND CONCLUSIONS

Eight deposits of limestone and four of dolomite have been located within three miles of the main road at Yunta.

Laboratory testing of samples of the various rock types has shown that all are suitable for screenings.

Deposit 12 is the most favourably located being only $\frac{1}{4}$ mile from the road, but it is situated on the flats adjacent to

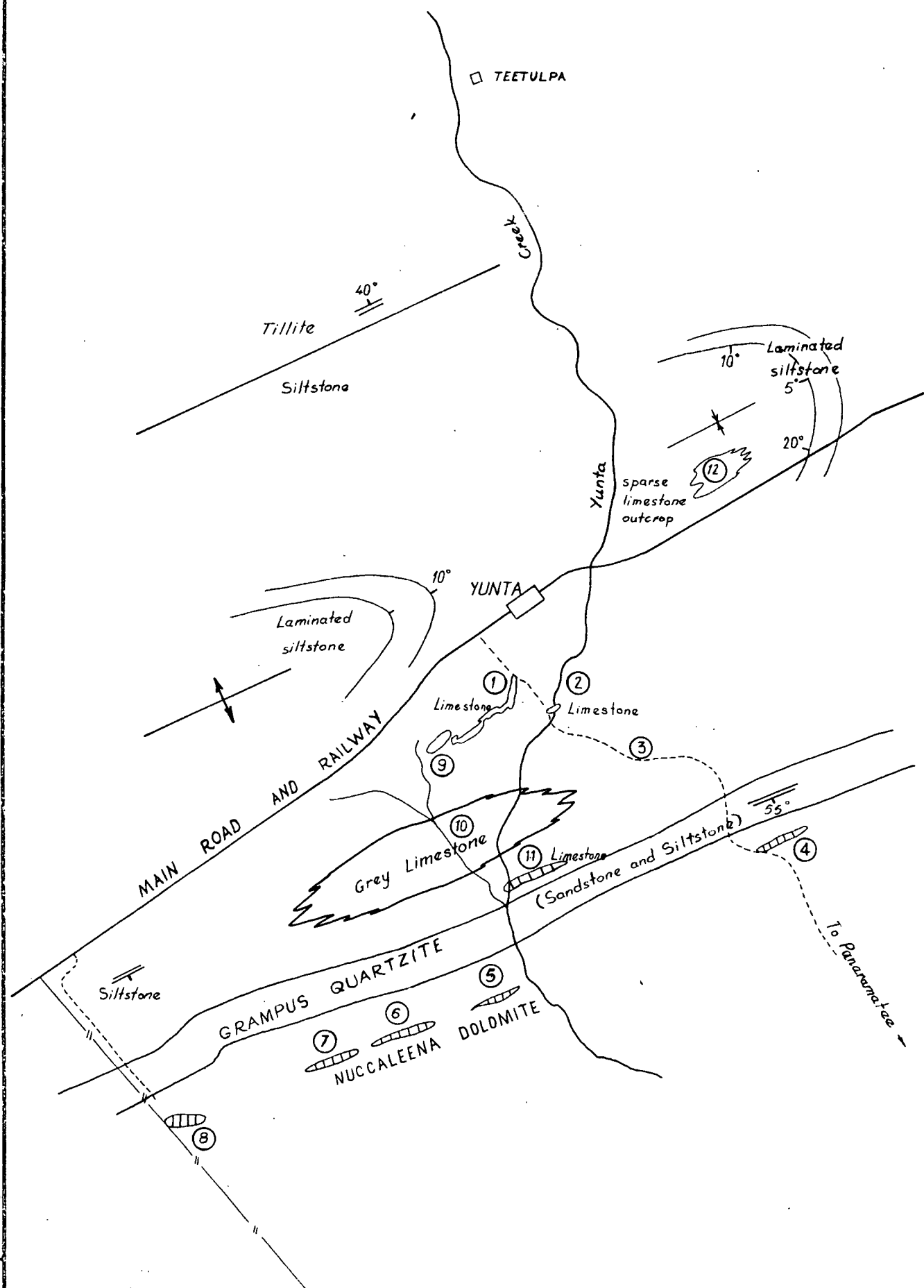
Yunta Creek and flooding of a pit could occur.

Deposit 8, topographically is superior to the others and is within $1\frac{1}{2}$ miles of the main road. Further investigation of this deposit is therefore recommended.

MNH:AWK
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To accompany report by M.N. Hiern

DEPARTMENT OF MINES — SOUTH AUSTRALIA

Drn.
Tcd.
Ckd.
Exd.

LIMESTONE & DOLOMITE
DEPOSITS
YUNTA AREA

SCALE: Approx. 1" = 1 Mile.

S4723
Fk

DATE: 22 Sept. 85.