

RB 54/81

PORT PATERSON - SUPPLY OF ROCK MATERIAL

(S.A. HARBOURS BOARD)

PLAN: 62-134

In a previous report (Johns, R.K., 5/2/62) it was suggested that kunkar as currently used for embankments at Augusta Salt Ltd. might be adequate physically for use as Class D filling in the construction of embankments to provide access to a proposed new berth for the bulk loading of salt at Port Paterson. Following a request for determination of availability of 100,000 cub. yds. of this material in the deposit situated 1 mile southeast of the works pits were excavated by the company using a bulldozer with ripper. Though this plant was incapable of effectively removing massive stone it did provide useful exposures in softer materials.

Kunkar has been exposed over a length of some 800 yards in a low rise (a fossil ? dune) which is elevated some 5-10 feet above the surrounding terrain (see plan 62-134). This rise trends in a general north-south direction and is obviously older than the superimposed sand dune system which trend in a northwest-southeast direction.

Massive sheet kunkar occurs over much of the low rise. It comprises hard, structureless white limestone or strongly cemented rounded nodules; it is of sporadic occurrence and attains a maximum observed thickness of 3 feet. A nodular form of limestone is widespread - it occurs at the natural ground surface over the rise and invariably underlies the sheet kunkar and it also extends beyond the limits of the dune. The limestone is in places mantled by sand (up to 6 ft. in one trench) or by soil (up to 1 ft. thick). Nodules range from pea size to about 6 inches in diameter, and are commonly less than 2 inches; they are enclosed in limy clay. In some places the nodules appear to decrease in size with a corresponding increase in clay content with depth though the deepest exposures (10 ft. in the main pit) show fairly uniform material. The occurrence of hard sheet limestone on the floor of the main (southern) pit probably represents a former land surface.

The assessment of reserves of the various grades of limestone available for quarrying is complicated by the following

1) Sheet kunker occurrence is sporadic and thickness is variable and known with certainty only where indicated.

2) Nodular kunker (with clay) can be safely assumed to underlie the rise to a depth of 10 ft. but occurrence on the flat to the east has been ascertained in only one excavation.

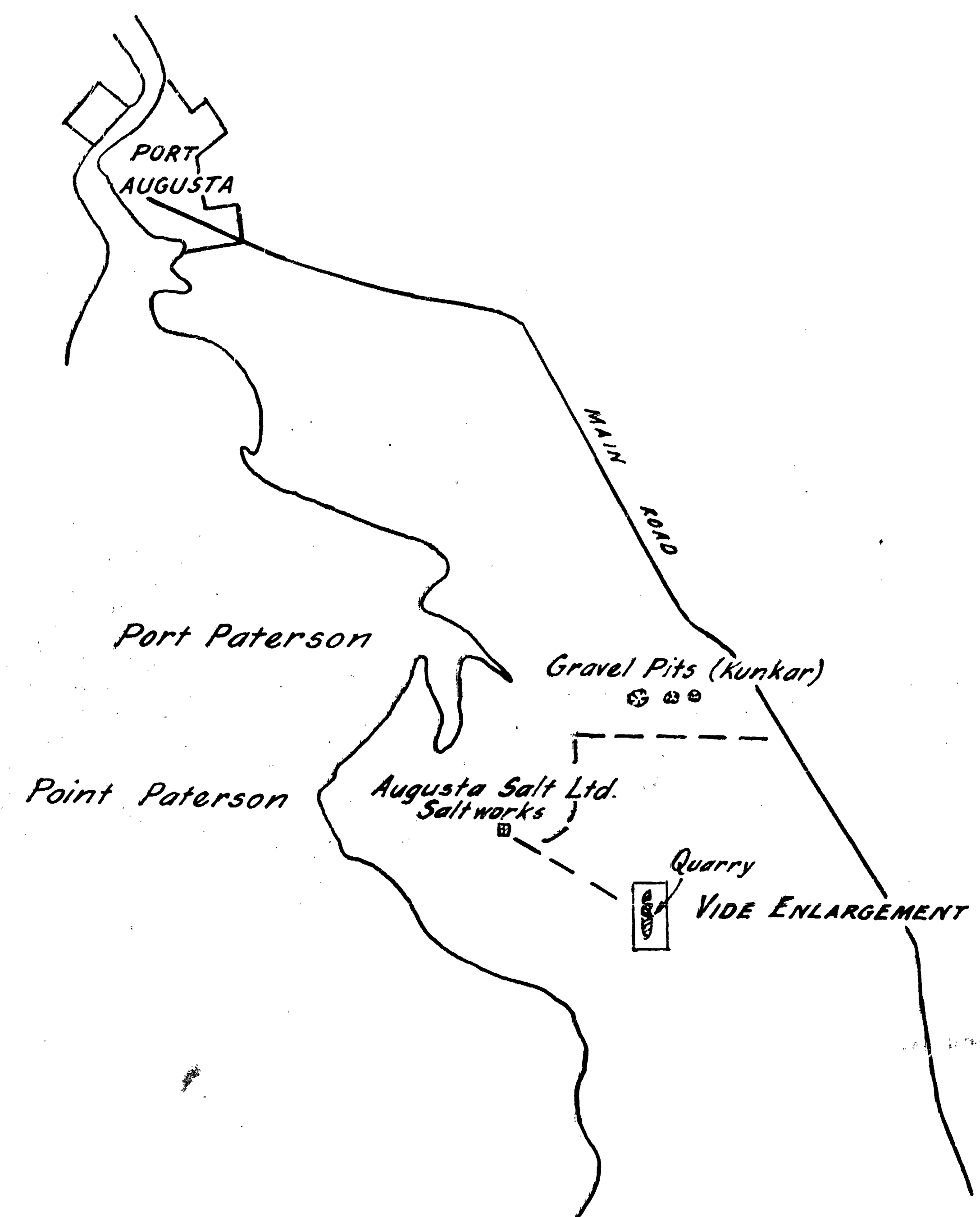
3) Nowhere has the full thickness of kunker been determined.

The hard sheet kunker will obviously be adequate as a heart to the proposed work. Considering a thickness of 2 ft. over the unmarked parts of the rise, reserves are estimated to be 5000 cub. yds. Extensions may be indicated during quarry operations while subsurface sheets (as exposed on the floor of the main pit) might reasonably be expected to occur.

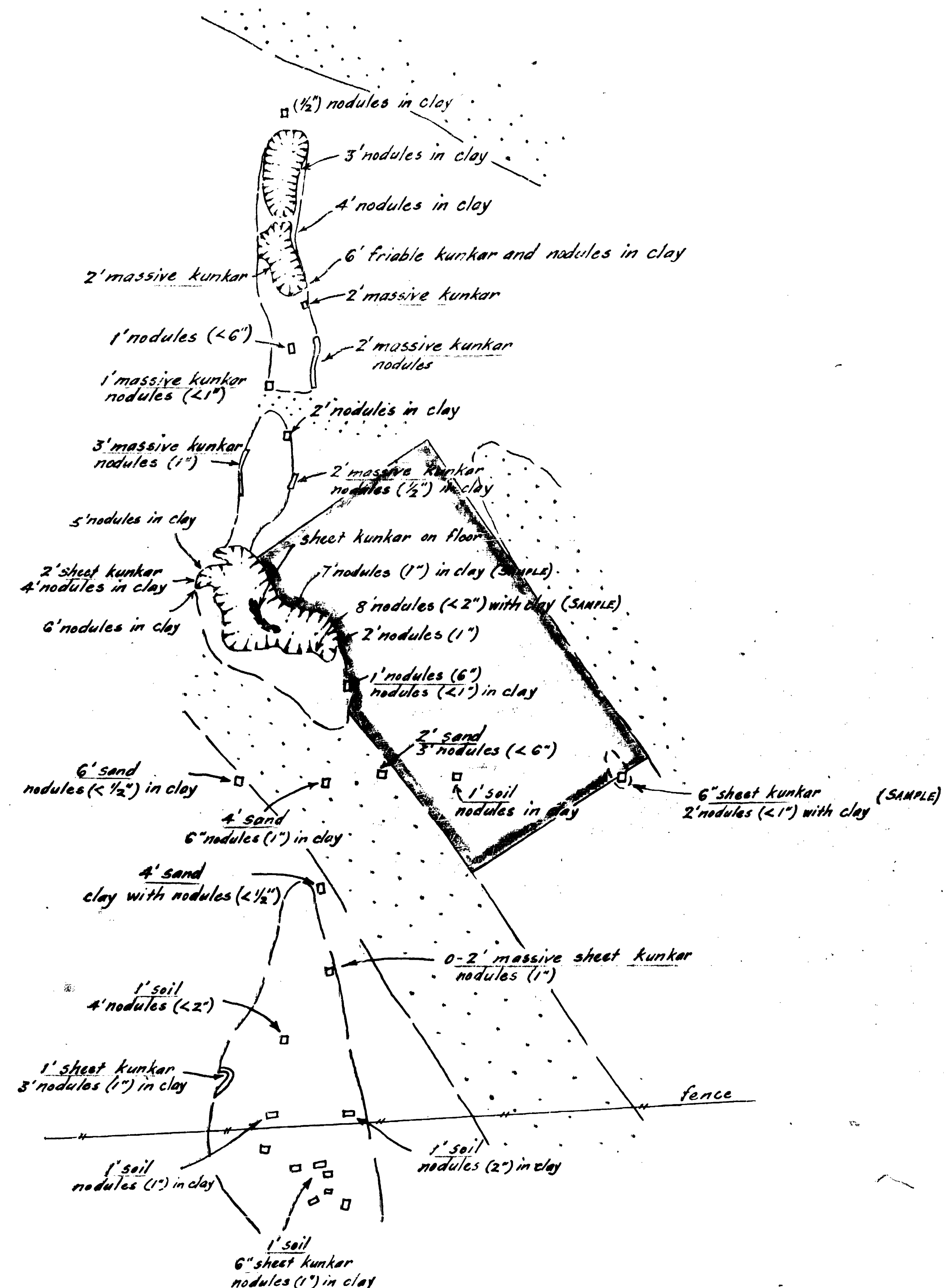
Preliminary tests undertaken by Mr. H.W. Jones (Engineer for Design, S.A. Harbours Board) on three representative samples indicate that the nodular material will be acceptable. If the thickness of this class of stone is considered as 9 ft., extensions of the main pit in a southeasterly direction will involve mining an area as shown on the plan to provide 100,000 cub. yds. It is recommended that trenches be constructed at each corner of this area (excepting that at the pit) to prove this depth of material. Should a thickness of 9 ft. be not forthcoming here, the required volume is expected to be provided by quarrying at the present site from lower benches and by extending southerly along the length of this old dune, to and beyond the fence if necessary.

H. Jones
H. K. JONES
SENIOR GEOLOGIST
NON-METALLIC SECTION

RKJ:AGK
20/3/62

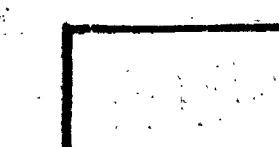


LOCALITY PLAN
SCALE: 2 Miles to 1 inch



LEGEND

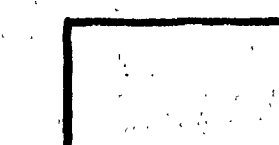
Soil covered areas



Sand dunes



Kunkar (massive and nodular)



Trenches, pits



Quarry



Area considered in volume calculations



To accompany report by R. K. Johns.

S.A. DEPT. OF MINES

PORT PATERSON
SUPPLY OF ROCK MATERIAL
S. A. HARBORS BOARD

Approved

Passed

Drn.

Tcd. R.R.

Ckd.

Exd.

Director of Mines

Scale 100 yards to 1 inch

62 - 134

Fh I

Date 16-3-62

Associated Drawing No. No. Amendment Exd. Date

Req. No.
D.M.
Compiled from