Rept.Bk. 35/115
Hyd. 8/53
D.M. 13/53

DEPARTMENT OF MINES,
SOUTH AUSTRALIA.

CORPORATION OF THE TOWN OF MURRAY BRIDGE

PROPOSAL TO DRAIN AMANDA ST. STORMWATER UNDERGROUND.

This matter was discussed by telephone with the Town Clerk, Mr. Whitehead, to-day. He advises that there are some half dozen bores in the vicinity, generally about 80-90 feet in depth, used as drainage points for private septic tank installations. Static water level is believed to be near the bottom of the bores.

An examination of the geological data collected by D. McGarry in 1949 indicates that a bore would probably penetrate permeable limestone ("cliffrock") at shallow depth, and the getaway for clean water would in such circumstances be good. Some igneous rock outcrops are known to exist in the area, and whether a bore would penetrate such impermeable material cannot be predicted. If it did, subsurface drainage would not be a success. The limestones may be underlain by carbonaceous clays and sands not regarded as suitable for subsurface drainage.

The proposal also poses some engineering problems. First, the disposal underground of the quantity of 150,000 gallons, as mentioned in the Town Clerk's letter, would mean ponding much of the water for a period of hours before it could be drained away. The bore would hardly be capable of handling all runoff as it accumulated, so that local flooding in the street would still occur, although the water would not lie there indefinitely as at present.

Second, surface runoff always carries a certain amount of sediment and foreign matter such as leaves. This will cause blockage and failure of a drainage bore, and would need to be removed. With a suitable filtering structure, the coarser fraction may, at some little expense, be removed, but it is not possible to remove very finely divided silt, which would be taken down the bore. Such silt, I feel sure, would ultimately cause blockage

failure, even if the structure worked satisfactorily for several years. Once a bore of this type becomes clogged, I know of no satisfactory method of cleaning it out, particularly as much of the soakage, and therefore the clogging, occurs above normal static water level, where blowing and surging are ineffective.

It is understood that Council has considered an alternative, this being the installation of electrically driven pump and a discharge main, to pump the water out of the depression as it accumulates. Mr. Whitehead believes the cost of such a scheme would be between £300 and £400.

Such an installation has advantages. It is not subject to ultimate failure by clogging up, and its estimated cost probably compares favourably with the cost of drilling a bore and installing filtering equipment. In the circumstances I feel it would be considered advisable to recommend to the corporation that:-

(i) A bore could probably be constructed that would dispose of the runoff water for a time.

(ii) The disposal rate would be slow enough to cause local flooding for some hours after sudden storms.

(iii) An expensive filtration structure would be needed, but even this would not remove very fine sediment.

(iv) Ultimate failure of the bore because of clogging may reasonably be expected.

(v) If such failure occurs, it is practically impossible to restore the efficiency of the bore.

(vi) The cost of installing surface disposal works including pump and discharge main may possibly compare favourably with the cost of works for disposal underground.

(vii) If drilling is attempted, the hole should be taken as deep as possible into any porous limestone that occurs. If it passes below the limestone locally known as "cliffrock" into either granit or any type of slate or schist, or into grey carbonaceous clays and sands, drilling should be discontinued.

E.P. O'Driscoll
Senior Geologist
HYDROLOGY

EPO'D:GC
20/2/53.