

single line of defence against both forces. We have, therefore, included the guard pier in the gross estimate of all the schemes. It may be held that in apportioning the cost of the works between the City and the Harbour that the City should be charged with so much of the cost of the pier as it saves in other protection works, but we have not been able to agree as to this and have, therefore, for the present, placed the whole cost amongst the Harbour Commissioners own work.

The widening of Commissioners Street on the Harbour side would encroach largely upon wharf space which has cost a large sum to bring it to its present state of usefulness. This moving out of the shore line also reduces the possible length of the proposed piers, and by that much reduces the ultimate capacity of the Harbour, but the reduction, as will be seen by the appended tables, is not very great and it is attended with some reduction in the cost of construction. We have left this curtailment of the Harbour property and Harbour capacity to be valued hereafter, if thought proper, and in the meantime have confined ourselves to apportioning to the City the cost of moving the wharf line as much further out as is necessary to restore the breadth taken for street widening.

Upon this basis the following schemes and estimates have been prepared :—

SCHEME 1.—This project contemplates widening Commissioner and Common streets to 100 feet, mainly by taking ground on the north, or City side, and for flood protection it proposes raising the widened streets about seven feet so as to be above highest flood level. The cross streets, where they approach Commissioners and Common streets would, of course be graded to the high level. The wharves would be raised about three feet above their present level, so as to be above the May freshets, and access to them would be had by ramps as at present. There would be in all seven double ramps and