CELMN-ED-SP (CELMN-ED-SP/14 Feb 89) 2d End Mr. Stutts/saj/2614
SUBJECT: Lake Pontchartrain, Louisiana and Vicinity, High Level Plan, Design Memorandum No. 19A - General Design, London Avenue Outfall Canal

DA, New Orleans District, Corps of Engineers,
P.O. Box 60267, New Orleans, La. 70160-0267 30 Jun 89

FOR Commander, Lower Mississippi Valley Division
ATTN: CELMV-ED-PG

Responses in this subject 2d End are offered herein and are referenced by like paragraph designations to those comments contained in the 1st End.

a. Page 7, Para following subpara 4. A legal opinion has been issued by CELMN-RE indicating that local interests are obligated to cost-share the project mitigation feature. It is the District intent to obtain a signed Memorandum of Understanding with the assuring agencies for the project. That agreement will detail the apportionment of first cost for the mitigation feature to be borne by each assuring agency, along with identifying the agency or agencies responsible for O&M for the mitigation feature. A copy of this signed agreement will be furnished to LMVRE by a separate chain of correspondence when it is available.

b. Page 7 and 8, Para 9.

(1) Local engineering efforts used in preparing this GDM included borings, surveys, and soils design work relative to the evaluation of the parallel protection alternative. Credit for the value of these efforts will be given toward the local share of the cost for the selected plan.

(2) The selected plan will be constructed with Federal funds. The local credit balance currently is in excess of the share required for the selected plan. With respect to construction of parallel protection on the Orleans Avenue Canal, the matter is unresolved. A CEEC-EP letter dated February 9, 1989 is under review in this office. If it is assumed that no avenue exists for reimbursing the local sponsor for construction of the parallel protection plan, then it is likely that that plan would be constructed under Federal auspices to the limit that the Federal share of the butterfly valve plan would allow, with remaining construction to be accomplished

either by the local sponsor or by the Corps with local sponsor contribution, whichever is the more desirable on balance. Appropriate arrangements would be needed to ensure that the work beyond that done under Federal auspices would, in fact, be completed in a timely manner. The need for the unusual procedures described derives from the fact that the local sponsor has accumulated project credits which are likely to exceed the sponsor's total requirements, so that additional credits have no value to them.

c. Pages 33, 43, and 48, Paras 31, 51h and 60a.

(1) Para. 51h, page 43. Revise Case III to read "Case III: S-Case with water to stillwater level and wave load (where applicable) with factor of safety, FS = 1.2." Add "Case IV: Q-Case with water to stillwater level and wave load with a factor of safety, FS = 1.25."

(2) Para. 60a, page 48. Revise Case III to read "Case III: S-Case with water to stillwater level and wave load (where applicable) with factor of safety, FS = 1.2." Add "Case IV: Q-Case with water to stillwater level and wave load with a factor of safety, FS = 1.25."

d. Page 43, Para 51h. Wave loads were not applied to the Butterfly Valve structure because the CERC model study of wave conditions in the canal indicated that wave action from the lake would not reach the structure during the design storm (see CERC miscellaneous paper CERC 87-4, "Effects of Wave Action on Hurricane Protection Structure for London Avenue Outfall Canal in Lake Pontchartrain, New Orleans, Louisiana"). Where applicable, wave loading on the floodwalls nearer the Lakefront was employed.

e. Page 53, Para 71.

(1) No exception to the National Historic Preservation Act of 1966 (NHPA), as amended, is claimed for this project feature. The regulations implementing this act (36 CFR Part 800: Protection of Historic Properties) were followed during the cultural resources and environmental analysis of the project.

(2) A thorough review of the available information revealed that the possibility of significant cultural resources being affected by the proposed project was negligible. The Butterfly Valve alternative is located entirely within an

existing levee corridor on post-1930 reclaimed land. The London Avenue Canal is an artificial channel and, therefore, the potential for historic shipwrecks is precluded. The Parallel Protection alternative is located entirely within an existing levee corridor in a heavily built-up, post-1900 residential area. No cultural resources are recorded in the vicinity of either alternative. Therefore, it was our conclusion that no cultural survey was necessary.

(3) In keeping with section 800.4(a) of the above cited regulation, we coordinated this conclusion with the Louisiana State Historic Preservation Officer (SHPO) through public review of the Environmental Assessment in October 1988. No adverse comments were received from the SHPO. This coordination completed all procedural requirements under NHPA.

f. Page 67, Para 71. Concur. An update of the project's economics using the latest guidelines contained in EC 11-2-156 dated March 31, 1989 yields a Benefit-to-Cost ratio (B/C ratio) of 8.1 to 1 at the project interest rate (3.125 %) and 3.0 to 1 at the current Federal discount rate. Remaining benefits versus remaining costs are 5.0 to 1 for the project interest rate and 1.9 to 1 for the current Federal discount rate.

g. Page 68, Para 93. Concur.

h. Plates 6, 9 and 10. Although the London Avenue Outfall Canal is connected to Lake Pontchartrain, a bridge severely limits the size of waterborne traffic which can access the project site. With this in mind, the following responses are provided.

(1) Installation. It is anticipated that the gates will be moved by barge to the mouth of the canal in Lake Pontchartrain, and from there, over the short distance, truck-hauled to the site. The gates will be lowered into the forebay area and rolled into position under the machinery room floors. Once in position, each gate will be lowered onto its pintle and then have its upper pintle secured. DDM design will ensure there is sufficient clearance to raise the gates above the pintles, thereby allowing for the required lateral movement.

(2) Removal. We concur that there is not enough room between the needle girder recesses and the machinery room overhang to vertically lift and remove a gate with the dewatering

bulkheads in place. Should gate removal become necessary, it will be accomplished without dewatering the gatebay. Small barges or pontoons will be secured to the gate, which will then be floated off of its pintle and out from between the piers. The gates will be skin plated on both sides and sealed to facilitate this type of operation. Since we are also in agreement with LMVD that the potential need for gate removal is extremely small - there will be little or no marine traffic to cause damage by impacting the gates, a dampening system will prevent the gates from slamming shut and routine maintenance can be handled with the gates in place during normal dewatering - this method of removal is considered adequate.

i. Plates 42 - 94. (Should be plates 92 - 94). For plate 92, the only boring in that reach is boring 33 which consists of fine sands from the ground surface to EL - .3 (levee embankment), and a fat clay layer 4.5 ft. thick overlying 13 ft. of sands. Altering the stratification to include the fat clay will not change the I-Wall stability (tip EL +.7) Plate 93 is the start of the transition from the canal levee to the lakefront levee. Boring 34 is the nearest boring to the start of the transition. The stratification of boring 34 is clayey sand to EL -1.5 (levee embankment) overlying a 10 ft. thick layer of fat clay. Changing the stratification from (SM) to (SC) will not change the I-Wall stability (tip EL -.4). The foundation sands on both plates will be changed to clays, but the change will not affect either plate 92 or 93. For plate 94, we concur the stratification will be altered in the DDM to reflect the clays and silts shown in borings 1-ULP, 1-LP and 35. The stationing in the DDM for the geological profile and borings will also include the structure B/L.

j. Plates 66, 67, 68 and 70. We concur that if soft clay layers are present, they will be included in the appropriate stability analyses. Funds have been programmed for the DDM for two forty foot undisturbed borings at the structure site. The soft clay layer in boring 3-LUG consists of .2 ft. and .4 ft. clay (separated by a sand layer) at EL -14 to EL -15 in laboratory log sample 6A. The very soft clay layers in boring 4-LUG consist of .4 ft. at EL -13.2 to EL -14.2 in laboratory log sample 4A and .3 ft. at EL -16.8 to EL -17.8 in laboratory log sample 5A. The boring log program will not plot less than a 1 ft. layer of sample; therefore, sample sizes are increased to 1 ft. These borings are in an area of hydraulic fill and artificial fill. The soil layers are not continuous. The

non-continuity of the soils is especially seen by borings 2-LUG and 3-LUG which are centerline levee and toe borings fifty feet apart.

k. Plate 94, et al. Concur. The information requested is presented as enclosure 2. Please note that deflection was not used as a criterion for selection of sheet pile size; however, the deflections corresponding to the noted cases are presented as requested.

2 Encls
added 1
2 as

FREDERIC M. CHATRY
Chief, Engineering Division