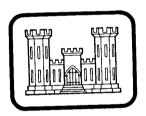
DEPARTMENT OF THE ARMY CORPS OF ENGINEERS

LAKE PONTCHARTRAIN, LA., AND VICINITY AND MISSISSIPPI RIVER - GULF OUTLET, LA.

DESIGN MEMORANDUM NO. 12 REVISED

SEABROOK LOCK SOURCES OF CONSTRUCTION MATERIALS



PREPARED BY
U. S. ARMY ENGINEER WATERWAYS EXPERIMENT STATION
VICKSBURG, MISSISSIPPI

UNDER THE DIRECTION OF THE DISTRICT ENGINEER NEW ORLEANS DISTRICT, CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA

DECEMBER 1978

LAKE PONTCHARTRAIN, LOUISIANA AND VICINITY

STATUS OF DESIGN MEMORANDUMS

Design Memo	Title	Status
No.		
1	Hydrology and Hydraulic Analysis Part I - Chalmette	Approved 27 Oct 66
	Part II - Barrier	Approved 18 Oct 67
	Part III - Lakeshore	Approved 6 Mar 69
	Part IV - Chalmette Extension	Approved 1 Dec 67
2	Lake Pontchartrain Barrier Plan, GDM, Advance Supplement, Inner Harbor Navigation Canal Levees	Approved 31 May 67
2	Lake Pontchartrain Barrier Plan, GDM, Citrus Back Levee	Approved 29 Dec 67
2	Lake Pontchartrain Barrier Plan, GDM, Supplement No. 1, Lake Pontchartrain Barrier, Rigolets Control Structure, Closure Dam,	Approved 10 Nov 70
	and Adjoining Levees	Approved to No.
2	Lake Pontchartrain Barrier Plan, GDM Supplement No. 2, Lake Pontchartrain Barrier, Rigolets Lock and Adjoining Levees	Approved 19 Oct 71
2	Lake Pontchartrain Barrier Plan, GDM, Supplement No. 3, Lake Pontchartrain Barrier, Chef Menteur Pass Complex	Approved 19 Sep 69
2	Lake Pontchartrain Barrier Plan, GDM, Supplement No. 4, New Orleans East Back Levees	Approved 18 Aug 71
2	Lake Pontchartrain Barrier Plan, GDM, Supplement No. 5, Orleans Parish Lakefront Levees - West of IHNC	Scheduled Indefinite
2	Lake Pontchartrain Barrier Plan, GDM, Supplement 5A, Citrus Lakefront Levees - IHNC to Paris Road	Approved 12 Jul 76

STATUS OF DESIGN MEMORANDUMS (cont'd)

Design Memo No.	Title	Status
2	Lake Pontchartrain Barrier Plan, GDM, Supplement No. 5B, New Orleans East Lakefront Levee - Paris Road	
	to South Point	Approved 5 Dec 72
2	Lake Pontchartrain Barrier Plan, GDM, Supplement No. 5C, Orleans Parish Outfall Canals - West of the IHNC	Scheduled Indefinite
2	Lake Pontchartrain Barrier Plan, GDM, Supplement No. 5D, Orleans Parish Lakefront Levees, Orleans Marina	Submitted Apr 78
	Lake Pontchartrain Barrier Plan, GDM Supplement No. 6, St. Charles Parish Lakefront Levees	Approved 4 Nov 70
2	Lake Pontchartrain Barrier Plan, GDM, Supplement No. 7, St. Tammany Parish, Mandeville Seawall	Indefinite
2	Lake Pontchartrain Barrier Plan, GDM, Supplement No. 8, IHNC Remaining Levees	Approved 6 Jun 68
2	Lake Pontchartrain Barrier Plan, GDM, Supplement No. 9, New Orleans East Levee from South Point to GIWW	Approved 1 May 73
2	Lake Pontchartrain Barrier Plan, GDM, Supplement No. 10, Jefferson Parish Lakefront Levees	Scheduled Indefinite
3	Chalmette Area Plan, GDM	Approved 31 Jan 67
3	Chalmette Area Plan, GDM, Supplement No. 1, Chalmette Extension	Approved 12 Aug 69
4	Lake Pontchartrain Barrier Plan, and Chalmette Area Plan, GDM, Florida Avenue Complex, IHNC	Scheduled Jun 79

STATUS OF DESIGN MEMORANDUMS (cont'd)

Design		
Memo	mi + 1 o	Status
No.	Title	
5	Chalmette Area Plan, DDM, Bayous Bienvenue and Dupre Control Structures	Approved 29 Oct 68
6	Lake Pontchartrain Barrier Plan, DDM, Rigolets Control Structure and Closure	Indefinite
7	Lake Pontchartrain Barrier Plan, DDM, Chef Menteur Control Structure and Closure	Indefinite
8	Lake Pontchartrain Barrier Plan, DDM, Rigolets Lock	Approved 20 Dec 73
9	Lake Pontchartrain Barrier Plan, DDM, Chef Menteur Navigation Structure	Indefinite
10	Lake Pontchartrain Barrier Plan, Corrosion Protection	Approved 21 May 69
12	Sources of Construction Materials	Approved 30 Aug 66
1	Lake Pontchartrain, Louisiana, and Vicinity, and Mississippi River-Gulf Outlet, Louisiana, GDM, Seabrook Lock	Approved 4 Nov 70
2	Lake Pontchartrain, Louisiana and Vicinity, and Mississippi River- Gulf Outlet, Louisiana, DDM, Seabrook Lock	Scheduled Jan 79
Report	Lake Pontchartrain Barrier Plan, Seabrook Lock Breakwater	Scheduled Sep 79
12	Lake Pontchartrain and Vicinity, Louisiana, Sources of Construction Materials (Revised)	Scheduled Nov 78

LAKE PONTCHARTRAIN, LA, AND VICINITY AND MISSISSIPPI RIVER - GULF OUTLET

DESIGN MEMORANDUM NO. 12 SOURCES OF CONTRUCTION MATERIALS

SEABROOK LOCK

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LAKE PONTCHARTRAIN, LOUISIANA, AND VICINITY AND MISSISSIPPI RIVER - GULF OUTLET, LOUISIANA DESIGN MEMORANDUM NO. 2 - DETAIL DESIGN SEABROOK LOCK

SECTION 1 - GENERAL

- 1-1. Project authorization. The Flood Control Act approved 27 October 1965 (Public Law 89-298) authorized a project for hurricane-flood protection on Lake Pontchartrain, Louisiana, substantially in accordance with the recommendations of the Chief of Engineers in House Document No. 231, 89th Congress, 1st Session, except that the recommendations of the Secretary of the Army in that document shall apply with respect to the Seabrook Lock feature of the project.
- 1-2. <u>Location</u>. The authorized lock complex is located on the south shore of Lake Pontchartrain at its junction with the Inner Harbor Navigation Canal (IHNC). The IHNC provides access from Lake Pontchartrain to the Mississippi River and, indirectly, to the Gulf of Mexico through the Mississippi River Gulf Outlet and the Gulf Intracoastal Waterway. Plate No. 1 shows the lock's location with respect to adjacent geographical features.
- 1-3. Description of lock complex. The Seabrook Lock Complex is illustrated on Plates 1 through 8, and will consist of the following three major components: a navigation lock, a rock and shell dam, and an outlet structure.

The navigation lock will be 84-ft wide, 860-ft center to center of the operating sector gate pintles, with an 800-ft usable length and a nominal draft of 15 ft. Two reinforced concrete gate bays with hydraulically-operated steel sector gates will be located at each end of the lock. The connecting chamber walls will consist of steel sheet pile cells topped with a concrete wall supported on bearing piles within the cells. Guide walls will be provided at each end of the lock.

The outlet structure will consist of three gated bays, each 32-ft wide with a sill elevation of -15.8 ft m.s.l. The gates will be the vertical steel lift gates operated by electric motordriven wire rope hoists. Top of the gates will be 4.2 ft m.s.l. in the closed position. A lakeward stilling basin and landward retaining walls will be provided.

The rock dike will form a closure between the lock landward gate bay, the outlet structure, and the adjacent shorelines. It will consist of a clam shell core covered by riprap and derrick stone with a steel sheet pile cutoff wall in the dike.

The rock and shell dam between the east shore and the outlet structure and between the outlet structure and the easterly lockwall will provide maintenance vehicular access to the outlet structure and lockwall. The rock and shell dam between the west shore and the landward gate bay will provide public access to the observation areas on the westerly lockwall and nonpublic vehicular access to the operations and maintenance building adjacent to the landward gate bay end of the westerly wall.

The westerly lockwall is designed to accommodate public access for viewing lockages and has been designed to blend aesthetically with the adjacent Lake Pontchartrain shoreline.

- 1-4. Operation of lock and outlet structure. The proposed operating procedure for the Seabrook Lock and Outlet Structure is essentially as follows:
- a. The lock will normally be left open with no lockages for current velocities up to 3 ft per second in the lock chamber. Navigation through the lock during this period will be controlled by the lockmaster because of obvious limitations in the channel width.
- b. When velocities through the lock chamber fall within the range of 3 ft per second to 6 ft per second, the lock gates will be left open unless a vessel approaches, in which case the gates will be closed and a normal lockage operation accomplished. This condition will exist for about 7 hr on an average day.
- c. When velocities through the lock chamber reach 6 ft per second (this will occur when there is about 1 ft differential between the IHNC and lake), the lock gates will be closed and operated only as required for lockage operations.
- d. Because of the flow interruption that will be experienced by closing the lock gates as described above, a plan for operating the gated outlet structure to reduce flood stages in the IHNC during hurricanes has been formulated. The operating procedure for stage relief in the IHNC provides for the gates of the outlet structure to be fully opened when a stage of 3.5 occurs on the IHNC side of the lock and to remain open for the duration of the hurricane. Flows from the IHNC will pass into the lake continually throughout the hurricane regardless of the track.

Lockages will continue for some period of time after the outlet structure gates have been fully opened and cease when a stage of 5.0 is obtained on the IHNC side of the lock. At this time, the lock personnel will fully close both sets of lock gates and leave the lock site. The complex will remain unmanned throughout the duration of the hurricane.

e. The complex will also be used for salinity control in Lake Pont-chartrain. With coordination with the Louisiana Wildlife and Fisheries Commission, a method of operation to provide an acceptable salinity level in Lake Pontchartrain will be formulated.

- f. To satisfy riparian flow requirements, the outlet structure will normally be operated to provide an opening of approximately 260 sq ft. One gate bay will be partially opened on a continual basis to provide this flow area. After completion of the Seabrook Complex, a data collection system will be established, and it will serve to determine any future modifications to the operating procedure described herein as may be necessary. The Complex will otherwise be operated as described above.
- 1-5. Purpose and scope. The purpose of this design memorandum is to present the results of investigations, the sources of cementitious materials and aggregates, riprap, and construction procedures to be specified for the construction of the lock and outlet structure.

SECTION II - CONCRETE INVESTIGATION

2-1. General. This investigation of concrete materials for the lock and outlet structure was made in accordance with the requirements in EM 1110-2-2000, Standard Practice for Concrete. Studies for the structure were made to assure adequate advanced planning of the concrete materials which are most likely to be used in the structure. This planning anticipated as many problems as could be envisioned during construction and resulted in recommendations for specifying good practices, which should alleviate such problems. The preliminary concrete investigation resulted in the obtaining of necessary base data which determined the scope of future investigations. All of this investigation was completed by reviewing the planning documents and preliminary designs. It revealed such basic data as: concrete quantities, concrete qualities, number of anticipated contracts, climatic and exposure conditions, and expected locations within the structure requiring various classes of concrete.

2-2. Concrete Quantities. There will be approximately 60,000 cu yd of concrete placed in the Seabrook Lock and Outlet Structure as shown below.

Seabrook Lock and Outlet Structure

Navigation Lock	Concrete Quantities, cu yd
Lock walls Sector gates and gate bays Outlet structures and stilling basin Seepate cutoff concrete cap Dolphin-concrete ring Miscellaneous Permanent approach wall - concrete cap Erosion protection - concrete steps	31,140 19,900 5,730 290 455 41 807 1,502 Total

2-3. Concrete Qualities. Since the lock and outlet structure components are relatively thin, only two basic classes of concrete will be required. A 3000 psi concrete will be required for all parts of the structure except structural girders and anchorages. The 5000 psi at 28 days concrete for the girders will be a contractor* requirement but the contractor-proposed mixture proportions will be verified prior to fabrication of the girders. The portland cement and possibly pozzolan used in the anchorages will be paid for separately as the rest of the concrete in the piers. The strength requirements will be based on 28 days for concrete containing only portland cement or portland-pozzolan cement but concrete containing fly ash as

^{*} CE 1401.01, Standard Guide Spec. Require Government Designed Mixes (WES).

a cement replacement will be proportioned to comply with the strength requirements at 90 days. The maximum water-cement ratio planned to be used on these projects is 0.60 as required by Table III in EM 1110-2-2000 for durability of exposed concrete, strength requirements will necessitate a lower w/c ratio. Concrete in ogee sections and stilling basin will be limited to a w/c ratio of 0.45. A small amount of 2000 psi concrete will be used in sidewalks, etc.

Concrete Qualities

		Design Compressive Strength, f'
(1)	General structural concrete	3000 psi
(2)	Structural girders	5000 psi
(3)	Nonstructural concrete	2000 psi

- 2-4. Number of Contracts. The concrete structure will probably be awarded in one contract. The quantity of concrete required will justify the use of CE 1401.01, Standard Guide-Specification for Concrete. A few additional small contracts for recreational facilities may be awarded later. These contracts will probably use ready-mixed concrete and an end-result type specification for concrete strength. These contracts will not be discussed in this design memorandum, but the maximum 1-1/2-hr delivery time will be strictly adhered to and adequate Government quality assurance procedures will be established.
- 2-5. Climatic and Exposure Conditions. The climatic and exposure conditions to which the concrete and its placement would be subjected are considered very good for the structures. The project site is located on the Inner Harbor Navigation Canal and Lake Pontchartrain, which is a moderate climatic area of the Southern United States. The specific climatic and exposure conditions for the project area are as follows:
- a. Temperature. The ambient temperatures of the Seabrook Lock and Outlet Structure project area are temperate and conducive to long-season recreational use. Extremes are very rare. The weather station at New Orleans, Louisiana, recorded a low of 33° and a high of 97° during 1977. The yearly mean temperature is 66.7°. Snowfall is extremely rare, and when it does occur, it remains on the ground only a short time. Freezing and thawing will not be a problem as there are normally no freezing cyles in the winter and the humidity is normally high, helping to prevent shrinkage cracking of the concrete.
- b. $\underline{\text{Wind}}$. Wind records in the project area indicate that winds of high velocity are rare, and in most cases such winds are associated with

hurricanes, which occasionally cross the area during summer or early fall. There have been some destructive local windstorms in the area with winds in excess of 100 miles per hour, generally connected with tropical disturbances. The average yearly wind velocity is about 8.0 mph from the southeast. Summer and fall velocities are somewhat lower than winter and spring.

- c. Rainfall. A number of stations, operated by or in cooperation with the National Weather Service for the collection of precipitation data, are located in or near the Lake Pontchartrain area. The pertinent data are collected and published by the Weather Service in its climatological bulletins. The average annual rainfall for the basin is about 60 in., but there is variation depending on the location of the station. The heaviest period of precipitation is in November, December, and January. Records show that large amounts of rainfall occur in practically every month during the year.
- 2-6. Project Access. Land access to the Seabrook Lock Complex construction site will not be a problem as it is in a highly developed area. Short access roads may be necessary.

SECTION III - CEMENTITIOUS MATERIALS INVESTIGATION

3-1. General. Since portland cement is normally the concrete ingredient with the highest unit cost, it is necessary to investigate various options. The investigations revealed that natural cement and slag cement are not available in sufficient quantities for this project. All portland cement producers within a radius of approximately 300 miles of the project were contacted and estimated cost and other significant data were obtained; these data are shown in Table 3-2. Cement and aggregate studies indicate that Type I or Type II, low alkali cement should be specified. An estimate of quantities of cementitious materials required for the project is given in Table 3-1 below.

Table 3-1. Cementitious Quantities

			brook Lock		1- Asserta	+0
Cementi- tious Materials	1-1/ Portland Cement	2-in. Aggre Portland- Pozzolan	Portland Cement/ Fly Ash	Portland Cement	in. Aggrega Portland- Pozzolan	Portland Cement/ Fly Ash
Portland cement, cwt Portland-	261,000		195,200	245,950		184,380
pozzolan, cu ft		132,475		 .	125,120	,
Fly Ash cu ft			33,130			31,280

- 3-2. Types of Portland Cement Investigated. When investigating the availability of various types of portland cement, it was found that Type I was readily available within a reasonable distance from the project site, and that many producers are no longer manufacturing Type II cement. Since most of the aggregates available require the use of low alkali cement, this was investigated also.
- 3-3. Availability. The investigations revealed adequate supplies of portland cement Type I, low alkali, but limited supplies of Type II that meet the heat of hydration requirements at 7 days. The above investigation also reviewed the availability of portland-pozzolan cement and the conclusions are that it will be available and potentially and economically feasible for optional bidding by the contractors. The following are large bulk manufacturers-suppliers of Type I and Type II portland cement and portland-pozzolan cement in the area investigated that expressed an interest in supplying the project.

- Citadel Cement Corp.
 P. O. Box 6238
 Birmingham, AL 35217
- 2. Dundee Cement
 P. O. Box 67
 Clarksville, MO 63336
- 3. Ideal Basic Industries
 P. O. Box 1381
 P. 1 2 2 3 what city?
- Lone Star Industries, Inc. New Orleans Plant P. O. Box 3368 New Orleans, LA
- 5. Louisiana Cement 14900 Intracoastal Drive New Orleans, LA 70129

- 6. Martin Marietta Cement Southern Division 15 South 20th Street Birmingham, AL 35233
- 7. River Cement
 P. O. Box 14545
 St. Louis, MO 63178
- 8. Louisiana Industries New Orleans, LA

- 3-4. Testing Requirements to be Specified. Alternate 2 (or prequalified cement source, ETL 1110-1-93, on p 7 of the March 1976 version of CE 1401.01) will be specified. This alternate requires the cement to be sampled at the mill of shipping point, stored in sealed bins and tested by the Government. If feasible, the Corps of Engineers Quality Assurance Programs for portland cement will be included in the lock and outlet structure specifications.
- 3-5. <u>Laboratory Studies</u>. Concrete mixtures containing materials generally representative of the materials that could be used on this project were investigated. The concrete mixture studies were made to determine necessary cementitious materials contents needed to obtain the required compressive strength of 3000 and 5000 psi for mixtures containing both 1-1/2-in. and 3-in. MSA. The results of these studies are shown in Exhibit A.

Table 3-2

Sources of Cementitious Materials

				Meets Heat of Hydration at 7 days	Not Producing Type II		Could possibly meet Heat of Hydration at 7 days	water uset of Hudration	Meets near or ingrees.		Present but would meet HH	@ 7 days but not LA	Not Producing Type II		Not Available in	New Orleans	Meets Heat of Hydration	at 7 days		
	Mode	ot	Transportation	Rail	Barge, Truck	Barge, Truck	Truck	100	Truck	Truck	Truck	Truck	Rail, Truck				10.4	Truck		
	Annual Price	Increase	\$/Ton		\$5.00	\$5.00	\$6.00	00.0¢	\$5.00	\$5.00	\$8.50	\$8.50					4	\$5.00 \$5.00		
	Sitel	Cost	\$/Ton	\$52.74	\$52.74	\$52.74	\$53.402	\$53.40	\$49.29	\$49.29	\$51.40	\$51.40	600 000	962.00		1		\$59.00	-	
,	Type	oę	Material	T I TT	177 £ 177	H	Η	II, LA	I	II, LA	H	11	٠	٦		H		I II. IA	()	
	Location	of	Plant	Demopolis, AL	Birmingnam, AL	or tours, in	Mobile, AL		New Orleans, LA		Now Orleans, LA	(;	Calera, AL		St. Louis, MO		Artesia, MS		
	Name and Address		Droducer/Manufacturer	Citadel Cement Corp.	Birmingham, AL	Dundee Cement	Ideal Basic Industries	Mobile, AL	Lone Star Industries	New Orleans, LA	+ com of of the proof of the pr	Norr Orleans T.A	New Ottomic)	Martin Marietta	Birmingham, AL	River Cement	St. Louis, MO	Louisiana Industries	New Orleans, LA	

^{1&}lt;sub>1978</sub> Cost 2₁₉₇₉ Cost 3₁₉₈₀ Cost 4_{55.00} Cement Increase plus \$3.50 Freight Increase

SECTION IV - POZZOLAN INVESTIGATION

- 4-1. General. There are no natural deposits of pozzolan material in the southern United States. The minimal amount of construction of mass concrete type structures in recent years has also limited the types of pozzolan available for the project.
- 4-2. Types of Pozzolans Investigated. The only pozzolan considered commercially available in the project area is fly ash pozzolan. However, some former pozzolan sources in the southern United States were checked with negative results. Therefore, only fly ash is specified for use as a replacement for cement in concrete.
- 4-3. <u>Availability</u>. Fly ash sources in Missouri, Alabama, and Texas were checked and results are shown in Table 4-1. The principal suppliers of fly ash in this area are as follows:

AMAX Resource Recovery Systems, Inc. 228 West Valley Avenue Homeswood, AL 35209

Walter M. Handy Co., Inc. 1988 S Glenstone Springfield, MO 65804 General Portland, Inc.
Trinity Division
P. O. Box 47524
Dallas, TX 75247

Dundee Cement Co. P. O. Box 67 Clarksville, MO 63336

4-4. Cost Data Justifications. The volume of concrete and structure configuration indicate that heat should not be a major problem. The use of pozzolan, therefore, must be justified only by economic considerations. The cement to fly ash ratio used in the cost study was 70 to 30 percent for concrete containing 1-1/2-in. maximum size aggregate and 75 to 25 percent for 3-in. aggregate concrete. The cost study was made for 3000 psi concrete at 28 days age. The study shows that a savings can be effected by the use of fly ash replacement. The results are presented below and in Exhibit B.***

The Dundee plant in St. Louis, Missouri, manufactures a portland-

pozzolan cement.

*** The data shown above and in Exhibit B include the additional cost of handling and storage and batching facilities when fly ash is used.

General Portland, Inc., also manufactures a portland-pozzolan cement, but they cannot provide sealed storage.

Para 4-4

Cost Savings of Concrete with Fly Ash

Aggregate Size, in.	Fly Ash % by Volume	Concrete Cost, cu yd	Cost Savings <u>per cu</u> yd
1-1/2 1-1/2 3 3	0 30 0 25	\$26.78 25.70 27.84 27.41	\$1.08 \$0.43

4-5. Quantity of Pozzolan. Approximately 60,000 cu yd of concrete will be required in the structure, requiring approximately 261,600 cwt of portland-pozzolan or 64,200 cwt of fly ash if either of these options is used. If pozzolan is used, the requirements in paragraph 5.2, p 9 of CE 1401.01, March 1976, will be specified.

4-6. Conclusion. Based on the cost study, the use of fly ash will be included as an option in the job specification.

Sources of Pozzolan Table 4-1

tion Remarks		10% 1979 \$2.35 1980 \$2.59	Not in market area	ıck
Mode of Transportation	Rail	Rail	Rail	Barge, Truck
Annual Price Increase \$/Ton	\$1.50	10%	1	\$5.00
Site Cost \$/Ton	\$26.20 ¹	\$23.50	\$30.00 ²	\$52.74
Type of Material	Pozzolan- Fly Ash	Pozzolan- Fly Ash	Pozzolan- Fly Ash	Portland- Pozzolan
Location of Plant	Stilesboro, GA	LaDue, MO	Dallas, TX	St. Louis, MO
Name and Address of Producer/Manufacturer	Amax Resource Recovery Systems Atlanta, GA	Walter N. Handy Springfield, MO	General Portland, Inc. Dallas, TX	Dundee Cement St. Louis, MO

1₁₉₇₈ Cost. 2₁₉₈₀ Cost.

SECTION V - AGGREGATE INVESTIGATION

5-1. General. Investigations were undertaken to establish the location and capabilities of major producers of concrete aggregates, and filter and bedding materials within a 150-mile radius of the jobsite. The concrete aggregate must meet the grading requirements as described in paragraph 3-4.a. and 3-4.c. of EM 1110-2-2000, Change 7, dated 20 July 1973, "Standard Practice for Concrete." Alternate 2 as specified in paragraph 7.5.1.1 of CE 1401.01 dated March 1976 will be specified for fine aggregate. An estimate of the quantities of construction materials for the structure are presented below. All of the material except shell backfill must come from the sources investigated or equivalent sources.

Aggregate Quantities

2.	Concrete Coarse Aggregate (No. 4 - 1-1/2 in.) Concrete Sand Fill (wet sand)	28,531 cu yd 15,359 cu yd 405,000 cu yd 169,380 cu yd
	(shell)	107,500 ca ya

- 5-2. Description of Each Source. Locations, quantities, and transportation facilities available for many of the concrete aggregate sources were field checked by personnel of the New Orleans District. Other sources were contacted by telephone or were referred by other districts. Most sources provide graded aggregate furnished to specification and so pitrun sample test results were not used as the sole criterion for acceptance or rejection. A summary of acceptance test data is presented in Tables C2 and C3 of Exhibit C. Locations of sand and gravel suppliers are shown in Plate 11. Photographs of the suppliers' operations and structures containing the concrete aggregates to establish their service records are shown in Exhibits D and E, respectively.
- 5-3. Cost Data. The cost of aggregate per ton at the plant for the producers that responded to our inquiries is shown on Table Cl of Exhibit C. A cost comparison of the use of 1-1/2- and 3-in. maximum size aggregate is also shown below:

Producer	Aggregate Size	Type Delivery	Cost per Ton at Site
Louisiana Industries, Price, LA	No. 4-1-1/2	Truck	6.60
Reed Crushed Stone, KY	1-1/2-3 in.	Barge	9.50

Para 5-3

A cost comparison per cubic yard of concrete mixtures containing 1-1/2-in. or 3-in. maximum size aggregate is shown below. Details of these calculations are shown in Exhibit B. The costs used in the comparison calculations were those furnished by the producers shown above.

Maximum Aggregate Size	Fly Ash	Cost of Concrete, cu yd, \$	Cost Savings Using 3-in. Maximum Size Agg., \$
1-1/2	With	25.70	
3 1 - 1/2	With Without	27.41 26.78	-1.71
3	Without	27.84	1.06

There would be more expense with the use of 3-in. maximum size aggregate. The cost of handling and storage of the additional aggregate size was not considered in these calculations but would increase the expense. The contractor will have the option of using the 1-1/2- to 3-in. size range.

5-4. Service Records. A service record was developed on a number of potential concrete aggregate sources. This investigation was conducted by visiting the quarry sites and organizations such as state highway departments, Corps of Engineers Districts, private contractors, etc., who have utilized the aggregate to develop information on the material and to locate structures containing the aggregate for close inspection. Exhibit D contains photographs of the concrete aggregate quarry operations, and Exhibit E contains photographs of the material in service. The concrete aggregate sources investigated were:

Concrete Aggregate

- a. Ratcliff Sand Co., Mobile, AL (source No. 1).
- b. Gifford-Hill, Inc., Fluker, LA (source No. 18).
- c. Smith Sand and Gravel, Mt. Herman, LA (source No. 20).
- d. Louisiana Industries, Price, LA (source No. 21).
- e. B & B Gravel Co., Bluff Creek, LA (source No. 22).
- f. Gifford-Hill, Inc., Arcola, LA (source No. 23).
- g. Lambert Sand and Gravel, Baines, LA (source No. 28).
- h. American Sand and Gravel, Hattiesburg, MS (source Nos. 43 and 45).
- i. Hammitt and Green, Inc., Columbia, MS (source No. 47).
- j. Blain Sand and Gravel, Columbia, MS (source No. 49).

- k. Green Bros., Inc., Brookhaven, MS (source No. 52).
- 1. Green Bros., Crystal Springs, MS (source No. 55).
- m. Traxler Sand and Gravel, Crystal Springs, MS (source No. 57).
- n. Blain Sand and Gravel, Crystal Springs, MS (source Nos. 60 and 61).
- o. St. Catherine Sand and Gravel, Natchez, MS (source No. 66).

Photographs of the aggregate in service from some of the producers listed above were not available, and source No. 21 would not allow a photograph of its quarry operation. All concrete aggregate sources investigated will produce satisfactory material when used with low alkali cement.

- 5-5. <u>Listed Sources</u>. The following concrete aggregate sources shall be listed in the specifications:
- a. Source No. 18, Gifford-Hill, Inc., Amite, LA. The pit is located 1 mile north of Fluker, Louisiana, on US Highway 51 and is approximately 80 miles from the Seabrook Lock construction site. Production of natural sand and gravel is sufficient to furnish the project. The maximum size coarse aggregate is 1-1/2 in. Transportation would either be by truck of rail. Tests indicate that the aggregate would be satisfactory in concrete, but the use of low alkali cement is indicated unless further testing indicates otherwise.
- b. Source No. 20, Smith Sand and Gravel, Mt. Herman, LA. The pit is located 5 miles northwest of Franklinton, Louisiana, and approximately 102 miles from the project site. Production of natural sand and gravel is adequate to supply the project with the maximum size coarse aggregate being 1-1/2 in. Transportation to the site would be by truck. Tests indicate that the aggregate should be used with low alkali cement unless further testing indicates otherwise.
- c. Source No. 21, Louisiana Industries, New Orleans, LA. The pit is at Price, Louisiana, and approximately 60 miles from the project site. Production of natural sand and gravel is adequate to supply the project. The maximum size coarse aggregate is 1-1/2 in. and transportation to the site would be by truck or rail. The quality history study indicates that the material is satisfactory for use in concrete, however, complete physical tests and petrographic examinations have not been conducted on this material and should be done before the material is used.
- d. Source No. 23, Gifford-Hill, Inc., Roseland, LA. The pit is 1 mile north of Arcola, Louisiana, and approximately 77 miles from the project site. Production of natural sand and gravel is adequate to supply the project. The maximum size coarse aggregate is 1-1/2 in. and transportation would be by rail or truck. Tests indicate the presence of reactive aggregate but the quality history study found no evidence of alkali-aggregate reactivity.

Para 5-5

- e. Source No. 49, Blain Sand and Gravel, Columbia, MS. The pit is 9 miles south of the intersection of Mississippi Highways 13 and 43 off Highway 43 and approximately 95 miles from the project site. Production of natural sand and gravel should be adequate to supply materials for the project. The maximum size coarse aggregate is 1-1/2 in. and transportation would be by truck. Tests indicate that the material would make satisfactory concrete aggregate.
- 5-6. <u>Conclusions</u>. The sources listed above would be satisfactory concrete aggregates when used with low alkali cement.

SECTION VI - PROTECTION STONE INVESTIGATION

- 6-1. General. Sources within reasonable transportation distance of the project site were investigated as to availability and suitability of the material for use as riprap and are shown in Exhibit C. A quality history was developed for each source. Material and transportation costs were obtained.
- 6-2. Quantities Required. The following quantities are required for the project.

Erosion Protection Riprap (Type B) Riprap (Type C) Derrick Stone	65,305 tons 48,423 tons 9,755 tons 43,222 tons
Cover Stone	43,222 tons

- 6-3. Quality Requirements. The quality requirements for materials to be used for protection stone for this project will be in accordance with the guidelines established by ETL 1110-2-120, dated May 1971, and LMVSP-0S-018, dated March 1976. The gradation limits of the various size stone are given in Table 6-1. Stone for slope and scour protection shall be of a hard, durable quality that will not disintegrate under the elements nor be easily broken in handling. It shall be clean and free from earth and be roughly angular, not rounded, in shape. Stone must weigh at least 160 1b per cu ft and have a maximum absorption of 2 percent, unless other tests and service records show satisfactory results. Scour protection for Seabrook Lock was designed as follows.
- a. Cover Stone for Dam. Cover stone for the dam was designed assuming an 8-ft wave attack due to a hurricane critical to the south shore of Lake Pontchartrain with the lock, dam, and other units of the hurricane barrier in place. These conditions governed the selection of stone protection for both sides of the dam. Cover stone for the dam resulting from use of these criteria will consist of random placement of two layers of the gradation listed in Table 6-l to a total thickness of 5 ft.
- b. Toe Protection Along Outside of Chamber Walls. Stone protection along the outside toe of the chamber walls was sized to prevent displacement due to the underwater rolling effect produced by waves striking the vertical face of wall. This stone protection will consist of an 18-in. layer of the Type B riprap with a gradation as shown in Table 6-1. This gradation is different than the Type B riprap listed in Design Memorandum No. 12. A change was required in order to make the riprap size and thickness compatible (i.e., maximum stone size and 1.5 times the minimum median stone size equal to the thickness of the stone protection). However, the minimum medium stone size was not changed.
- c. <u>Bottom Protection</u>. Bottom protection landward and lakeward of the lock and outlet structure as well as within the lock chamber was designed to resist forces resulting from the maximum anticipated velocities

in these various areas. Stone protection is these areas will consist of an 18-in. layer of Type B riprap except landward and lakeward of the outlet structure protection in these two areas will consist of 30 in. of derrick stone. As a result of hydraulic model studies performed by WES, derrick stone protection was determined to be required over the entire elevation - 16.8 upper approach area and downstream 75 ft beyond the stilling basin end sill. This is the erosion protection that will be used for the outlet structure approaches as reflected by Plates 42, 43, and 44. Type B riprap and derrick stone gradations will be as shown in Table 6-1.

- d. Toe <u>Details</u>. Toe details for the erosion protection at the Seabrook Lock <u>Complex</u> presented some unique problems, particularly where the toes intersected the soft lacustrine excavation slopes. In general, most of these toes were designed to prevent the heavier protective stone from bearing directly on the softer adjacent existing soil materials and to prevent loss of the slope protection stone by undermining due to settlement or erosion. One area which deserves special mention here is the termination of the outlet structure stilling basin stone protection. A pile of derrick stone in the form of an inverted toe will be provided in this location to provide a reservoir of material to supplant any downstream erosion and still maintain the integrity of the apron stone protection.
- e. Filter Design. The gradations for the protective stone have been selected so that the underlying finer material will not "pipe" or wash through the voids of the overlying coarser material. The criterion used required that the D85 size of the underlying finer material be greater than the one-fifth the D15 criterion, a 12-in. layer of Type C riprap was placed beneath the Type B riprap. The gradation for the Type C riprap is shown in Table 6-1. The filter design is in accordance with EM 1110-2-1901.

Table 6-1. Gradations for Stone Protection

A. Cover stone, derrick stone and Type B riprap.

Limits of Stone Weight in Pounds			
Cover Stone	Derrick Stone	Type B Riprap	
5000-8000	1000-2000	200-400	
3000-5500	600-1500	90-180	
2000-3500	350-800	20-40	
	Cover Stone 5000-8000 3000-5500	Cover Stone Derrick Stone 5000-8000 1000-2000 3000-5500 600-1500	

B. Type C Riprap.

Sieve Size	Percent By Weight Passing
6 in.	100
	100
4 in.	90-100
1-1/2 in.	45-95
3/4 in.	15-50
1/2 in.	5-30
No. 4	0-5

These gradations can be produced by most of the riprap and derrick stone producers currently in operation shown on Table C1 of Exhibit C.

- 6-4. Summary of Test Results. Test results for riprap are given in Table $\overline{\text{C4}}$ of Exhibit C and in more detail on the data sheets in Exhibit C.
- 6-5. <u>Service Records</u>. A service record was developed on a number of the potential riprap sources. This investigation was conducted by visiting the quarry sites and organizations such as state highway departments, Corps of Engineers Districts, private contractors, etc., who have utilized the aggregate or stone to develop information on the material and to locate structures containing the stone for close inspection. Exhibit F contains photographs of the riprap quarry operations, and Exhibit G contains photographs of the material in service. The riprap sources investigated were:

Riprap

- a. Reed Crushed Stone, Gilbertsville, KY (source No. 70).
- b. Three Rivers Rock Co., Smithland, KY (source No. 74).
- c. Westlake Quarry, Neely's Landing, MO (source No. 75).
- d. Bussen Quarry, Jefferson's Barracks, MO (source No. 78).
- e. Southern River Rock Co., Perryville, MO (source No. 87).

Photographs of the riprap in service from Reed Crushed Stone were not available. A geological description of the quarry operations of Southern River was not available. All riprap sources investigated produce satsifactory material. Transportation of material to the project site from the five sources listed above would be by barge.

- 6-6. <u>Listed Sources</u>. The following riprap sources shall be listed in the specification:
- a. <u>Source 70.</u> <u>Reed Crushed Stone, Gilbertsville, KY.</u> This source is located near Gilbertsville, Kentucky, on the Tennessee River. The quarry is located near the Kentucky Dam. Crushed limestone for riprap is produced by this operator and concrete aggregates up to 6 in. are available. The source is approximately 941 river miles from the project site.

The St. Louis Limestone of Mississippian Age (AAPG, 1970) is quarried by the producers at this location. Three ledges totaling approximately 180 ft are presently quarried. The lower ledge consists of approximately 70 ft of gray, dense, medium to massively bedded fine to coarse grained limestone with oolitic beds predominant in the coarser materials. Stylolites and chert nodules are encountered throughout this section. The intermediate ledge consists of approximately 50 to 60 ft of gray to dark

gray, dense, fine to coarse grained, medium to massively bedded limestone. The upper ledge consists of approximately 50 ft of gray to dark gray, dense, medium to coarse grained, massive limestone. The upper quarried ledge is overlain by 30 to 40 ft of weathered limestone and soil.

One prominent joint set at approximate right angles is distinguishable in the quarry faces and very little weathering is apparent on the planes. In general a thin layer of calcite is present on joint surfaces. There were no major solution widened joints or cavities viewed in the quarry walls.

The producer presently owns 160 acres and estimates reserves to be several million cubic yards. The materials are processed by blasting, then loaded on trucks by power shovels. The raw materials are initially crushed by a primary jaw crusher, then conveyed to secondary conical crushers and screens by belt. Following crushing and screening the materials are transported by belt to bins, and then to stockpiles by truck.

b. Source 74. Three Rivers Rock Co., Smithland, KY. This source is located at Mile 7 on the Cumberland River near Smithland, Kentucky, and approximately 929 river miles from the project site. Production is from the Ste. Genevieve Limestone of Mississippian Age (AAPG, 1970). Riprap and crushed coarse concrete aggregates up to 6 in. are available from this source, and the daily production of graded materials is 3200 cu yd. Approximately 365 acres are owned by the producer, and reserves are estimated to be in excess of 200 million tons.

Four ledges totaling approximately 135 ft are presently quarried. Ledge 4 (lowest ledge) consists of approximately 98 ft of gray, dense, massive bedded, fossiliferous limestone overlain by 3 to 5 ft of black shale. Ledge 3 consists of approximately 45 ft of gray, dense, massive, finely crystalline limestone overlain by gray, dense, occasionally oolitic, finely crystalline limestone. Ledge 2 consists of approximately 10 ft of finely crystalline, massive bedded limestone with lenticular shaley beds in the lower 3 ft. Ledge 1 consists of approximately 25 ft of predominantly gray, dense, finely crystalline limestone, becoming oolitic in the upper 10 to 15 ft.

A single joint system at approximate right angles was noted in the quarry faces. There was very little weathering along the joint, but secondary calcite was prevalent along joint planes. There were no major solution cavities seen in the quarry faces.

Materials from this source have been used by the USAE Districts of Nash-ville, Memphis, New Orleans as protection stone on the Mississippi, Ohio, and Red Rivers; however, their exact locations could not be specified by the producer. Material from this source was used at Kentucky Dam, as shown in Exhibit G.

Source 75. Westlake Quarry and Materials Co., Neely's Landing, MO. This source is located at Neely's Landing, Missouri, and is approximately 938 river miles from the project site. Protection stone is quarried from the Baily Formation of Devonian Age (AAPG, 1966). The quarry is on the western valley wall of the Mississippi River. The paleozoic rocks in this

area are overlain by a variable thickness loess cover. The paleozoic units are approximately horizontal, and no faulting or folding was seen in the quarry faces exposed.

Four ledges are presently being quarried, although overburden is being removed from an upper ledge for eventual production. Ledge 1 (upper ledge), presently not quarried, consists of dark gray, hard, massive bedded limestone with chert seams. Ledge 2 is approximately 60-ft thick and Ledge 3 consists of approximately 12 ft of gray, hard, finely crystalline, medium bedded limestone.

A single joint, set at approximate right angles, is exposed in the quarry faces. The joints in the upper ledge are highly weathered and solution widened, and red clay seams are found along the planes. The joints in the lower ledges of the quarry do not exhibit solution widening, although secondary calcite is found along many joint planes.

d. Source 78. Bussen Quarry Co., St. Louis, MO. This source, located in St. Louis, Missouri, at Mississippi River Mile 168.5 is 1035 river miles from the project site. The quarry is locally known as the Jefferson Barracks Quarry and production is from the St. Louis Limestone of Mississippian Age (AAPG, 1966). The units that are quarried outcrop in the valley wall of the Mississippi River at this location and strike northwest with a 10 dip to the northeast.

Five ledges are presently being quarried, and a tabulation of the produced materials, together with the available laboratory data, are shown in Exhibit D. Ledge 1 (upper ledge) consists of 10 to 15 ft of hard, light gray, fine grained massive limestone. Ledge 2 consists of 15 ft of soft to moderately hard argillaceous limestone, and Ledge 3 consists of approximately 30 ft of interbedded fine grained brown to gray limestone and thin shale beds and seams. Ledge 4 consists of approximately 20 ft of interbedded dark gray, finely crystalline limestone underlain by 3 to 5 ft of black fissile shale. Ledge 5 consists of approximately 6 ft of finely crystalline massive limestone. Joints in Ledge 1 are somewhat solution widened, and red mud seams and partings are also found within this unit. The weathering is primarily limited to the upper ledge of the quarry only.

Production is accomplished by initially blasting the raw materials from the quarry face, then passing the materials through a jaw crusher, and then a grizzly for grading. The production of protection stone having a maximum weight of 300 lb is 750 tons per day.

Bussen Quarry services local government agencies with protection stone, while a large quantity of quarried materials is utilized for production of crushed aggregates for concrete. Representatives of the Bussen Quarry stated that they could manufacture the lighter gradations of protection stone (less than 300 lb) but are not equipped to supply the heavier gradations. Also, the owner felt that he would not be competitive with other quarries located further south on the Mississippi River.

Para 6-6

Protection stone from this source has been previously used by the USAE along the Mississippi River.

Barge transportation is the most feasible means of transport of materials from this quarry to the site.

e. Source 87. Southern River Rock Co., Perryville, MO. This source is located near Perryville, Missouri, and the quarry operation is at Mile 123.1 on the Mississippi River. The source is approximately 944 river miles from the project site. Ledge rock for riprap production is plentiful and plant capacity is approximately 2000 tons per day.

The stone is of the Salem Formation, Mississippian Age, and is worked in four ledges.

- 6-7. Estimated Costs of Materials. The estimated costs are shown in Table $\overline{\text{Cl}}$ of Exhibit C. The costs include the cost of the material at the source and transportation costs to the site but does not include any profit or placement charges that are often reflected in riprap prices bid by contractors.
- 6-8. <u>Conclusion</u>. The investigations indicate that protection stone of acceptable quality and in sufficient quantities for the construction of the project is available from a number of sources at competitive prices. It is recommended that the sources listed above be included in the job specifications as sources of protection stone.

SECTION VII - CONSTRUCTION PLANT INVESTIGATION

- 7-1. General. Alternate 2, semi-automatic plant, as provided in paragraph 10 of CE 1401.01, March 1976, will be substituted for batching and mixing concrete.
- 7-2. Plant Requirement, Type, and Capacity. The determination of the type and capacity of the concrete plant is in accordance with the applicable parts of EM 1110-2-2000. The plant requirements are determined from the quantity of concrete that will be required for the lock and outlet structure placements. The location of batch plant may be "on-site" or "off-site" due to the proximity of the project site to local commercial sources. Mixers may be either tilting drum, spiral blade, vertical shaft, or truck type. Batch plant capacity requirements are determined by the criteria that no uncooled concrete is to be left uncovered over 1 hr. The plant capacity required will be approximately 96 cu yd/hr for placement of uncooled concrete in a 5-ft lift. Production requirement is discussed in greater detail in Exhibit H.
- 7-3. Washing and/or Rescreening Requirements. Not normally required for nominal 1-1/2-in. maximum size aggregate, as long as the aggregate complies with the cleanliness specifications.
- 7-4. Mixer Requirements. The type, expected capacity, and quantity will be as outlined in paragraph 4-1b in EM 1110-2-2000, Change 3. The capacity of the plant is determined from the number of mixers, the rated capacity of each mixer, and the charging, mixing, and discharging time of each mixer. The total time should be increased by 15 seconds per cycle when the capacity for sustained operation is computed. Thus, a plant containing two 2-cu yd mixers, each of which can be charged in 20 seconds and discharged in 15 seconds, leads to the following computation:

The mixing formula in paragraph 10.10 of the Standard Guide Specifications requires 1 min 15 sec mixing time for 2-cu yd mixers. The time of a cycle is 20 sec (charging) plus 1 min 15 sec (mixing) plus 15 sec (discharging) plus 15 sec (contingency) or 2 min 05 sec. Thus, the plant capacity is 4 cu yd in 2 min 05 sec or approximately 116 cu yd per hr.

Therefore, two 2-cu yd mixers will provide the required capacity plus some contingency for placement of uncooled concrete in a 5-ft lift height. These mixer requirements are based on the largest expected continuous placement (approximately 54- by 48- by 12-ft) in the lock chamber walls, which are to contain approximately 40 percent of the total concrete volume. If the mixer requirements are based on the largest continuous concrete placement in the gate bay slab and outlet structure slab, two 4-cu yd mixers will be required (approximately 186 cu yd/hr). However, these two sections contain only approximately 18 percent of the estimated total concrete volume in the project.

- 7-5. Special Requirements. Some special requirements may be necessary to assure adequate handling, testing, and placement of the concrete. This would include any special requirement for treatment of water to meet Corps of Engineers Specification CRD-C 400-63.
- 7-6. Plant Location at Project Site. The concrete production plant for the Seabrook Lock and Outlet Structure will be located on the south side of Lake Pontchartrain near the project site. Ample area appears to be available in the New Orleans Lakefront Airport area for the Resident Engineer's office, contractor's plant area, and general aggregate stockpile area.

SECTION VIII - CONVEYING CONCRETE

- 8-1. Bucket Size. Transportation of concrete from the mixer to the forms should be done as rapidly as possible so that properties of the concrete as discharged from the mixer are not materially changed. The devices used for receiving the concrete from the mixers and conveying it to and depositing it in the forms should be designed to maintain the concrete in the same condition in which it is discharged from the mixer. A 4-cu yd maximum size bottom dump bucket as specified in alternate 1 of CE 1401.01, March 1976, paragraph 11.2, is satisfactory.
- 8-2. Time of Delivery. Concrete mixed in stationary mixers and transported in non-agitating equipment shall be placed within 30 min after it has been mixed unless otherwise authorized by the Contracting Officer. If the concrete is truck-mixed or when an agitator is used for transporting concrete mixed by stationary mixers, the concrete shall be delivered within 1-1/2 hr after introduction of the cement to either the water or aggregate. If the temperature of the concrete exceeds 85°F, this time shall be reduced to 45 min. These requirements are in accordance with the Standard Guide Specifications for Concrete.
- 8-3. Special Conveyance. Conveyor belts, pumps, chutes, etc., may be specified and their use allowed only after permission of the Contracting Officer. Before their use is allowed, Technical Report No. TR-C-74-4, US Army Waterways Experiment Station and American Concrete Institute Title No. 72-33, "Placing Concrete with Belt Conveyors," ACI Journal, September 1975, pp 474-490, will be reviewed.

SECTION IX - INSULATION REQUIREMENTS

9-1. <u>General</u>. The specifications for insulation of placements shall be in accordance with paragraphs 3-10 and 5-6 of EM 1110-2-2000, and Cold Weather paragraphs 16.4 and 16.5 of CE 1401.01. Determination of period of time required for cold weather protection was based upon paragraphs 3-10 of EM 1110-2-2000. The results showed only a slight possibility that weather protection would be needed.

SECTION X - INSPECTION REQUIREMENTS

- 10-1. General. The inspection requirements for this project will be as presented at the OCE Sponsored Construction Quality Management Seminar; the Government will strive to establish a mutual understanding of the construction quality management system with the Contractor. The Contractor will be advised that it is his responsibility to control the quality for the project and that the Corps of Engineers will not interfere with these responsibilities unless the materials and/or workmanship being incorporated in the project do not meet the requirements of the project contract documents. The Contractor will be informed in the contract documents that he will be required to regulate, test, and inspect his procedures, equipment, materials, and personnel in such a way that it is most likely that the requirements of the contract will be met. The Government (Resident Engineer Staff) will verify (1) that the Contractor's quality control system is working and (2) that the end results comply with the contract documents and other requirements established by the District Engineering Divisions. Both the Contractor's and the Government's Laboratory will be evaluated by the Division Laboratory.
- 10-2. Contractor Quality Control. The quality control requirements stipulated beginning on page 93 of CE 1401.01, Standard Guide Specifications for Concrete, will be included in the project specifications. The size of the organization and qualifications of personnel to perform quality control will be determined by the Contractor based on his needs for control. The Contractor's quality control reports will be used to aid the Government in verifying that the Contractor's quality control system is working but will not be used to assure material and/or workmanship accetpability.
- 10-3. Government Quality Assurance. The Government will establish procedures to review the Contractor's Quality Control Plan and recommend, as appropriate, changes to same which will help verify that the culmination of the plan will reasonably and statistically help assure that the materials and/or workmanship will comply with the requirements of the project contract documents. The Government will review the Contractor's quality control tests to confirm the likelihood that the finished product will comply. In addition, all end product testing to be performed by the Government will be as stipulated in EM 1110-2-2000, Standard Practice for Concrete, Section 5-1c. The Government will be performing off-site tests on the following items, which pertain to concrete prior to approval for use:
 - (1) Aggregate (Engineering Division)
 - (2) Water
 - (3) Portland Cement
 - (4) Air-entrainment admixtures

Para 10-3

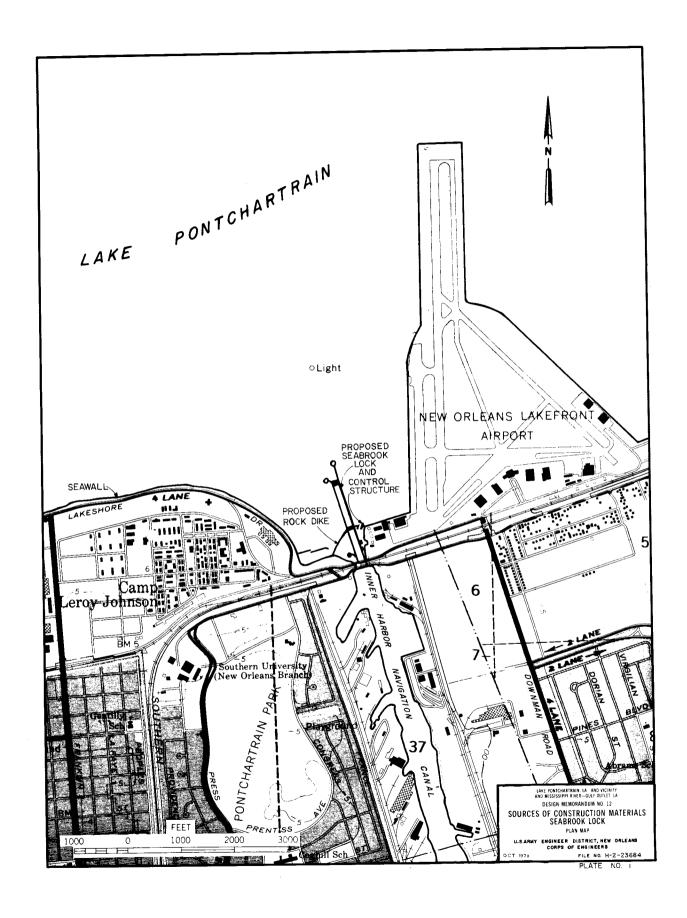
- (5) Chemical admixtures, if proposed by the Contractor
- (6) Concrete Mixture Proportioning (Engineering Division)
- (7) Curing Compound

The bulk of the on-site testings of items pertaining to concrete will consist of the following:

- (1) Aggregate grading and cleanliness
- (2) Fine aggregate FM
- (3) Slump
- (4) Air content
- (5) Strength testing
- (6) Scale checks

SECTION XI - CONCLUSION AND RECOMMENDATIONS

- 11-1. Conclusion. It is concluded that there are adequate concretetype materials available to construct the concrete structures without difficulty. These materials can be delivered to the construction site on existing highways with the use of short project access roads to be constructed. Barge transportation to the project sites will also be available all year. Also, there are no adverse climatic conditions to be considered in the construction of the structure.
- 11-2. Recommendations. It is recommended that this Construction Materials Memorandum, as presented herein, be adopted as the basis for further detailed design studies, plans, and specifications for the Seabrook Lock Complex.



LMVED-TD (NOD 28 Aug 80) 5th Ind

SUBJECT: Lake Pontchartrain, Louisiana & Vicinity, and Mississippi
River-Gulf Outlet, Louisiana, Design Memorandum No. 12,
Revised, "Seabrook Lock, Source of Construction Materials"

DA, Lower Mississippi Valley Division, Corps of Engineers, Vicksburg, Miss. 39180

18 DEC 80

TO: District Engineer, New Orleans, ATTN: LMMNED-MP

The action proposed in the 4th Ind is satisfactory, subject to resolving comments in paras 7, 8, and 9 of DAEN-CWE-BB letter, 6 Dec 79, subject as above. OCF comments should be resolved during the preparation of plans and specifications and responded to in accordance with LMVD Supplement No. 1 to ER 1110-2-1200. Additional indorsement to this chain of correspondence is not necessary.

R. H. RESTA
Chief, Engineering Division

FOR THE DIVISION ENGINEER:

4 Incl

CF: DAEN-CWE-BB

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7)

DEPARTMENT OF THE ARMY NEW ORLEANS DISTRICT, CORPS OF ENGINEERS P. O. BOX 60267

NEW ORLEANS, LOUISIANA

REPLY TO ATTENTION OF:

LMNED-MP

28 August 1979

SUBJECT:

Lake Pontchartrain, Louisiana & Vicinity, and Mississippi River-Gulf Outlet, Louisiana, Design Memorandum No. 12, Revised, "Seabrook Lock, Source of Construction Materials"

Division Engineer, Lower Mississippi Valley ATTN: LMVED-TD

- 1. The subject Design Memorandum is submitted herewith for review and approval, and has been prepared generally in accordance with the provisions of ER 1110-2-1150.
- 2. Approval of this Design Memorandum is recommended.

1 Incl (16 cys) fwd sep as

THOMAS A. SANDS Colonel, CE

District Engineer

LMVED-TD (NOD 28 Aug 79) 1st Ind
SUBJECT: Lake Pontchartrain, Louisiana & Vicinity, and Mississippi
River-Gulf Outlet, Louisiana, Design Memorandum No. 12,
Revised, "Seabrook Lock, Source of Construction Materials"

DA, Lower Mississippi Valley Division, Corps of Engineers, Vicksburg, Miss. 39180 23 OCT 79

TO: District Engineer, New Orleans, ATTN: LMNED-MP

1. Reference:

- a. LMVED-TD M/L, 9 Feb 78, subject: Information Regarding Status of Cultural Resource Investigations and Environmental Impact Statements to be Included in Engineering Documents.
 - b. LMVED M/L, 29 Mar 78, subject: Effect of Schedule Delays.
- c. LMVED-TL M/L, 23 Jul 79, subject: Information Regarding Endangered Species to be Included in Engineering Documents.
- 2. The transmittal letter should have included the necessary data required by the above-referenced letters.
- 3. The DM is approved subject to resolution of the following comments:
- a. General. This DM makes reference that CE 1401.01, Standard Specifications for Concrete, will be used as guide specifications for plans and specifications. In Dec 78, the above guide specifications were superseded by CW 03305, Concrete, which should be used as guide specifications for this project.
- b. Para 1-3, page 1-1. The elevation of the dam which forms the closure between the lock landward gatebay and the shoreline was changed to 7.2 ft NGVD in an LMNED-PP letter, 19 Oct 66, subject: Lake Pontchartrain La., and Vicinity Report on Controlling Elevation of Seabrook Lock. This lower elevation would permit dam overtopping from the canal to the lake, thus affording better stage relief along the IHNC than the authorized plan, and would not significantly increase the level of Lake Pontchartrain. However, with the delay (possible indefinite stoppage) of construction of the control structure at Chef Menteur and Rigolets, you should reevaluate the elevation of the dam to determine if it should be further modified.
- c. Table 3-1, page 3-1. Portland-Pozzolan (Type IP) cement is sold by the hundred weight and should be expressed as cwt in lieu of cu ft as shown. Using a specific gravity of 3, which is close enough for estimating purposes, the units will be 247,728 cwt of Portland-Pozzolan for the 1-1/2-in. aggregate and 233,974 cwt for 3-in. aggregate.

LMVED-TD (NOD 28 Aug 79) 1st Ind 23 OCT 78
SUBJECT: Lake Pontchartrain, Louisiana & Vicinity, and Mississippi
River-Gulf Outlet, Louisiana, Design Memorandum No. 12,
Revised, "Seabrook Lock, Source of Construction Materials"

d. Para 4-3, page 4-1. The following should be listed as a source for fly ash:

Trinity Materials, Inc. P. O. Box 708 Hattiesburg, Miss. 39401

- e. Para 4-5, page 4-2. The values shown should be 247,728 cwt of Portland-Pozzolan cement and 33,130 cu ft of fly ash.
 - f. Para 5-1, page 5-1.
- (1) 'In the second sentence, "Change 7" should be "Change 2" of EM 1110-2-2000.
- (2) Use Alternate 1 for fine-aggregate grading as Alternate 2 is used for mass concrete with low-cement content.
- g. Para 6-3, page 6-1. The stone used in the dam (bedding, core, and cover) should be designed using the criteria set forth in the U. S. Army Coastal Engineering Research Center's Shore Protection Manual, Volume II, Chapter 7, dated 1977. Furthermore, all the parameters used in this design should be presented.
- h. Para 8-2, page 8-1. The maximum placing temperature permitted should be $\overline{85}$ degrees F.

FOR THE DIVISION ENGINEER:

R. H. RESTA

Chief, Engineering Division

CF: DAEN-CWE-B (12 cy) w 12 cy Incl 1 LMNED-MP (NOD 28 Aug 79) 2d Ind SUBJECT: Lake Pontchartrain, Louisiana and Vicinity, and Mississippi River - Gulf Outlet, Louisiana, Design Memorandum No. 12, Revised, "Seabrook Lock, Source of Construction Materials"

DA, New Orleans District, Corps of Engineers, P.O. Box 60267, New Orleans, LA 70160 11 August 1980

TO: Division Engineer, Lower Mississippi Valley, ATTN: LMVED-TD

1. References:

- a. LMVED-TD 1st Ind dated 23 Oct 79.
- b. LMVED-TD 1st Ind dated 23 Jan 80. (Incl 2)
- 2. In response to paragraph 2 of referenced l.a. above, the following information is offered to comply with data needed in the letter of transmittal:
- a. Status of EIS. The final statement was filed with CEQ on 9 January 1975. By court order dated 30 December 1977, a new environmental impact statement has been ordered. The revised draft environmental impact statement is scheduled to be submitted to the Environmental Protection Agency in August 1981 and the final statement is officially scheduled for submission in May 1982. This document will present the results of ongoing studies of alternative plans.
- Section 404 Evaluation. In response to a request from former Congressman F. Edward Hebert, the New Orleans District conducted a public meeting to discuss the entire project on 22 February 1975. A portion of this meeting was dedicated to a presentation of methods for the disposal of dredged effluents for all portions of the project with the exception of the St. Charles Lakefront Levee, as required by Section 404 of the Federal Water Pollution Act of 1972. The Statement of Findings on the meeting was forwarded to the Environmental Protection Agency on 22 August 1975 for review and approval. Approval of the plan for the disposal of dredged material was granted on 1 October 1975 contingent upon the complete elimination of the St. Charles Parish portion of the project. On 15 October 1975, clarification of the status of the St. Charles Parish Lakefront Levee was provided to the Environmental Protection Agency to indicate compliance with the conditional approval. EPA has clarified their position by stating that deauthorization of the levee is not essential to meeting their condition. Furthermore, EPA stated that it was not their intent to require the elimination of hurricane protection studies in St. Charles Parish.

IMNED-MP (NOD 28 August 1979) 2d Ind 11 August 1980

SUBJECT: Lake Pontchartrain, Louisiana and Vicinity, and Mississippi
River - Gulf Outlet, Louisiana, Design Memorandum No. 12,
Revised, "Seabrook Lock, Source of Construction Materials"

- c. Status of Cultural Resources Investigations. An architectural survey of the Mississippi River-Gulf Outlet, Shiplock project, conducted by the New Orleans District in 1979 revealed no significant structures near the proposed action. The area has been filled and developed; urban and business development precludes discovery of historic or prehistoric remains. If cultural resources are uncovered during construction, work will cease and the contractor will immediately notify the District Engineer.
- d. <u>Endangered Species</u>. Based on extensive environmental studies conducted to date in connection with the tidal passes to Lake Pontchartrain, the proposed action is not likely to jeopardize the continued existence of any endangered species or result in the destruction or adverse modification of critical habitat of such species.
- e. Effect of Schedule Delays. The subject design memorandum was scheduled for submission in May 1979. Submission of the design memorandum in August 1979 will not affect the schedule construction start for this feature of the Lake Pontchartrain project.
- 3. We have reviewed the comments provided in paragraph 3 of 1.a. above and our responses are as follows:
 - a. Para. 3.a. Concur.
 - b. Para. 3.b. Concur.
 - c. Para. 3.c. Concur.
 - d. Para. 3.d. Concur.
 - e. Para. 3.e. Concur.
 - f. Para. 3.f. Concur.
- g. Para. 3.g. Concur, Sections 6-1. through 6-3. have been revised to reflect designs using the SPM. The revised pages are inclosed as incl 3.
- h. Para. 3.h. The maximum placing temperature permitted will be 90°F. An approved retarder will be used to facilitate placing and finishing when the temperature reaches or exceeds 85°F.

LMNED-MP (NOD 28 August 1979) 2d Ind 11 August 1980
SUBJECT: Lake Pontchartrain, Louisiana and Vicinity, and Mississippi
River - Gulf Outlet, Louisiana, Design Memorandum No. 12,
Revised, "Seabrook Lock, Source of Construction Materials"

- 4. In response to comments contained in reference 1.b. above, the following responses apply to the indicated paragraphs.
 - a. Para l.a. Concur.
- b. Para. 1.b.(1)(2). Concur, new data sheets, including petrographic data, for sources 18, 20, 21, 23, and 49 are inclosed (Incl 4).
 - c. Para. l.c. Concur on the use of low alkali cement.
 - d. Para. 1.d. See para. 4.b. above.
- e. <u>Para. l.e.</u> Concur, the use of commercial concrete batch plants is being investigated. Letters have been sent to local New Orleans concrete producers so that the individual and combined capabilities can be assessed. Results of this study will be included in the DM when responses to our solicitations have been received.
- f. Para. l.f. In regards to the number of sources listed in Exhibit c, EM 1110-2-2000 indicates that "all sources considered should be investigated". Because of the feasibility of barging, sources as far away as St. Louis, MO. were considered. The five sources selected for inclusion in the specification were selected on the basis of cost, test results, and availability. Most, if not all, of the other operating sources listed could provide suitable aggregate, but would cost more or cannot provide adequate amounts. The suggestion that the pits closed should be shown as "inactive" in tables C2 and C3 does not seem necessary as this information is indicated in table C1 under the "Material Availability" column. The statements that are suggested to be added to Section V will be added.

FOR THE DISTRICT ENGINEER:

3.Incl (16 Copies)
2-4 As Stated

FREDERIC M. CHATRY Chief, Engineering Division LMVED-TD (NOD 28 Aug 79) 3d Ind SUBJECT: Lake Pontchartrain, Louisiana & Vicinity, and Mississippi River-Gulf Outlet, Louisiana, Design Memorandum No. 12, Revised, "Seabrook Lock, Source of Construction Materials"

DA, Lower Mississippi Valley Division, Corps of Engineers, Vicksburg, Miss. 39180 19 SEP 80

TO: District Engineer, New Orleans, ATTN: LMNED-MP

- 1. Resolution of the 1st Ind comments is satisfactory except as follows:
- a. Para 3b. Concur is not adequate for response to this comment. The impact of not constructing the Chef Menteur and Rigolets complexes and adjoining levees of the Lake Pontchartrain low level hurricane protection plan on the functions of the Seabrook overtopping dam should be determined now in case the high level plan is selected.
- b. Para 3g. The revisions to Section 6 are satisfactory except for the coverage presented in 6-3d addressing the stone size for the lakeward and landward approaches to the lock and the lock chamber. The type B stone for these areas of the lock is not considered adequate protection against high prop turbulence. WES should be consulted and requested to develop a riprap size that will be stable. It is our understanding that WES has an ongoing model study that could be easily expanded to perform the needed test.
- c. <u>Para 3h.</u> The maximum placing temperature of concrete should be 85 degrees as stated in the 1st Ind. The 90-degree limit with retarder should be used only for smaller cast-in-place structural concrete structures where CW03301 is used for guide specifications.
- d. Paras 4a and 4e. The method for submitting for review the requested specifications and study results on capabilities of local concrete producers should be indicated.

FOR THE DIVISION ENGINEER:

3 Incl wd 15 cy incl 2-4 R. H. RESTA Chief, Engineering Division

Robert I Kanpma

CF: DAEN-CWE-B (12 cy) w 12 cy incl 2-4 LMNED-MP (NOD 28 Aug 79) 4th Ind SUBJECT: Lake Pontchartrain, Louisiana & Vicinity, and Mississippi River-Gulf Outlet, Louisiana, Design Memorandum No. 12, Revised, "Seabrook Lock, Source of Construction Materials:

DA, New Orleans District, Corps of Engineers, P.O. Box 60267, New Orleans, LA 70160 6 November 1980

TO: Division Engineer, Lower Mississippi Valley, ATTN: LMVED-TD

- 1. In response to comment l.a. on the 3rd Indorsement, we propose to leave the elevation of the dam unchanged for either high level or barrier plans. In both cases the highest stage at the dam is the same and occurs on the IHNC side, 11.5 feet NGVD, during the design hurricane. For this reason the overtopping from the IHNC side of the dam is the most critical and is unaffected by choice of plans. Rock sizes determined for the barrier plan remain unchanged if the high level plan is adopted instead.
- 2. In response to comment 1.b., change the rock gradation of the type B and C stone to that listed in the table below. This stone size is used at several project locations to withstand a 4-foot wave. Thicknesses of riprap are changed to 4.5 feet for the Type B and 2 feet for the Type C riprap; thicknesses reflect placement under water. These changes are an interim action to reflect the need for stone large enough to withstand propeller wash. We will request that WES modify their ongoing Section 32 Propeller Wash Study to analyze the Seabrook Lock rock gradations. When the results of this model study are finalized, rock gradations listed below may be changed during preparation of plans and specifications.

Percent Lighter by Weight

Limits of Stone Weight in Pounds

	Type B	Type C
100	800 - 2,000	80 - 200
50	400 - 600	40 - 60
15	125 - 480	13 - 48

- 3. In response to comment 1.c., concur.
- 4. In response to comment l.d., the requested specifications and study results on capabilities of local concrete producers will be provided when available in subsequent indorsements to this chain of correspondence.

FOR THE DISTRICT ENGINEER:

3 Incl No Change FREDERIC M. CHATRY

Chief, Engineering Division

LMVED-TD (OCE 6 Dec 79) 1st Ind 23 JAN 80

SUBJECT: Lake Pontchartrain, LA and Vicinity, and Mississippi RiverGulf Outlet, LA, Design Memorandum No. 12, Revised, "Seabrook Lock, Source of Construction Materials"

- d. Para 6. Source 21 and also source 18 were tested in 1977 at which time a complete analysis of these sources was performed. Therefore, new Aggregate Data Sheets, including petrographic information, should replace those presented in the subject DM. This should also be done on any other source where more recent Aggregate Data Sheets are available which include a petrographic summary.
- e. Para 7. Commercial concrete batch plants should be investigated as to their use in producing concrete for this project. In addition to the type of plant, suppliers of materials, and capacity of the plant, a logistics study should be made to determine if a combination of two or more of these producers of concrete can meet the rate of placement of 96 cy/hr for the largest block size discussed in Exhibit H.
- f. Para 10. Additional information should be presented as to the basis for selection or rejection of the 94 sources listed in Exhibit C. We suggest that in Exhibit C, under the remarks column of Tables C2 and C3, a comment should be made after each source that is known to be closed, that it is "inactive." In addition to indicating the inactive sources in Exhibit C, a statement should be made in Section V that the owners of these sources might reopen the sources for use by the Contractor for this project and allow the Contractor to use his own equipment to produce the required concrete aggregate. Also, a statement should be made that the crushed stone from Three Rivers Rock Co., Source 74, is Alkali-Carbonate Reactive and will require special attention if used as a part of the aggregate for this project in accordance with Appendix C of EM 1110-2-2000 and WESCI letter, dated 8 Mar 78.

FOR THE DIVISION ENGINEER:

R. H. RESTA V // Chief, Engineering Division

CF: DAEN-CWE-BB LMVED-TD (OCE 6 Dec 79) 1st Ind
SUBJECT: Lake Pontchartrain, LA and Vicinity, and Mississippi RiverGulf Outlet, LA, Design Memorandum No. 12, Revised, "Seabrook
Lock, Source of Construction Materials"

DA, Lower Mississippi Valley Division, Corps of Engineers, Vicksburg, Miss. 39180 93 JAN 80

TO: District Engineer, New Orleans, ATTN: LMNED-MP

Basic letter is referred for necessary action subject to the following comments referenced to paragraphs of the letter:

a. Para 3. The fine and coarse aggregate gradation limits in either ASTM C33 or the Louisiana Standard Specifications for Road and Bridges would be acceptable for the grading of concrete aggregate for this project. The aggregate sources presented in para 5-5 of DM No. 12 will meet at least one of the above standard gradations. You should furnish the requested specifications for approval.

b. Para 4.

- (1) Petrographic data should be presented for these specific three sources and also on any other natural fine and coarse aggregate source, crushed stone sources, and riprap sources where data are available. However, the petrographic report need only be summarized on the bottom of the Aggregate Data Sheet. If additional information is required, it can be obtained from the complete petrographic report that is on file at WES or within your District.
- (2) We do not concur that additional testing of the aggregate is required to determine if low-alkali cement is required in addition to a petrographic examination. This additional testing is not considered necessary since past testing on natural coarse aggregate sources in Arkansas, Mississippi, and Louisiana indicates that nearly all sources have some amount of potentially reactive aggregate and at least 70 percent of fine aggregate sources also have potentially reactive aggregate. Also, by recommending the use of low-alkali cement, we are not increasing the cost of this project due to the fact that nearly all cement produced for use in Arkansas, Louisiana, and Mississippi meets low-alkali requirements.
- c. Para 5. In regard to the second sentence of this comment, see comment in para b(2) above.

3

Page 10/ 4

Incl 2





6 December 1979

SUBJECT: Lake Pontchartrain, LA and Vicinity, and Mississippi River-Gulf Outlet, LA, Design Memorandum No. 12, Revised, "Seabrook Lock,

Source of Construction Materials"

TO: Division Engineer, Lower Mississippi Valley

ATTN: LMVED-TD

- 1. Reference 1st Indorsement, LMVED-TD, 23 October 1979, on letter LMNED-MP. 28 August 1979, subject as above.
- 2. The following comments (discussed by telephone with Mr. U. T. Ammon on 26 November 1979) on the subject design memorandum, transmitted with above referenced correspondence, are furnished for appropriate action.
- 3. Paragraph 5-1. The grading requirements do not have to comply with guide specification as stated in this paragraph. EM 1110-2-2000, paragraphs 3-4d and 3-4e permit use of local grading when the aggregate grading does not conform to standard specifications. A review of the fine and course aggregate gradings for the sources listed in paragraph 5-5 show they do not meet standard specification requirements. A study of local grading practices should be accomplished and recommended specification limits should be submitted for approval by the Division Engineer.
- 4. Paragraphs 5-5a, d, and e and Exhibit C Sources 18, 23 and 49. Approval of these sources should be withheld until petrographic data are submitted. The use of low-alkali cement should be proven by mortar bars or petrographic results confirmed by either service record or quick chemical test (Refer to EM 1110-2-2000, Appendix B - paragraph 39).
- 5. Paragraph 5-5b and Exhibit C Source 20. The fineness modular values have been reversed. Also, EM 1110-2-2000, Appendix B, paragraph 3g, indicates that additional test data are required prior to recommending the use of low-alkali cement.
- 6. Paragraph 5-5c and Exhibit C Source 21. Test data for this source are required prior to approval.
- 7. Section VII. The use of commercial concrete supplies would be feasible for the project. The existing suppliers, type and capacity of batch plants, and their aggregate sources should be included.

Page 30 4

6 December 1979

DAEN-CWE-BB
SUBJECT: Lake Pontchartrain, LA and Vicinity, and Mississippi River-Gulf
Outlet, LA, Design Memorandum No. 12, Revised, "Seabrook Lock,
Source of Construction Materials"

- 8. Paragraph 7-6. Any restrictions, on batch plant location adjacent to New Orleans Lakefront Airport, should be included.
- 9. Section VIII. Any restrictions on placing equipment adjacent to New Orleans Lakefront Airport should be included.
- 10. Exhibit C. This list of 94 aggregate sources and their test data is not adequately explained in this design memorandum; adequate explanations should be included.

FOR THE CHIEF OF ENGINEERS:

Juck R. Thompson

Chief, Engineering Division Directorate of Civil Works

- 6-1. General. Sources within reasonable transportation distance of the project site were investigated as to availability and suitability of the material for use as riprap and are shown in Exhibit C. A quality history was developed for each source. Material and transportation costs were obtained.
- 6-2. Quantities Required. The following quantities are required for the project.

RIPRAP	TYPE	В	50,000	tons
RIPRAP	TYPE	C	21,800	tons
RIPRAP	TYPE	1	29,200	tons
RIPRAP	TYPE	2	10,800	tons
RIPRAP	TYPE	3	20,100	tons
RIPRAP	TYPE	4	7,100	tons
Derric	k Stor	ne:	22,000	tons
			39,700	

- 6-3. Quality Requirements. The quality requirements for materials to be used for protection stone for this project will be in accordance with the guidelines established by ETL 1110-2-120, dated May 1971, and LMVSP-0S-018 dated March 1976. The gradation limits of the various size stone are given in Table 6-1. Stone for slope and scour protection shall be of a hard, durable quality that will not disintegrate under the elements nor be easily broken in handling. It shall be clean and free from earth and be roughly angular, not rounded, in shape. Stone must weigh at least 160 1b per cubic foot and have a maximum absorption of 2 percent, unless other tests and service records show satisfactory results. Scour protection for Seabrook Lock was designed as follows.
- a. Cover stone for dam. Cover stone for the dam was designed assuming an 8-foot wave attack due to a hurricane critical to the south shore of Lake Pontchartrain with the lock, dam and other units of the hurricane barrier in place. These conditions governed the selection of stone protection for both sides of the dam. Cover stone for the dam resulting from use of these criteria will consist of random placement of two layers of the gradation listed in Table 6-1 to a total thickness of 6 feet. Gradations for the riprap underlayers are also listed in Table 6-1. Thicknesses selected are for placement in the wet: 4.0 ft for the first underlayer, Type 1 riprap; 1.5 ft for the second underlayer, Type 2 riprap.
- b. Toe protection along outside of chamber walls. Stone protection along the outside toe of the chamber walls was sized to prevent displacement due to the underwater rolling effect produced by waves striking the vertical face of the wall. This stone protection will consist of a 36-inch layer of the Type B riprap and a 18-inch underlayer of Type C riprap with gradations as shown in Table 6-1. Thicknesses reflect placement underwater.
- c. Bottom protection. Bottom protection landward and lakeward of the lock and outlet structure as well as within the lock chamber was designed

various areas. Stone protection in these areas will consist of the 36-inch layer of Type B riprap except landward and lakeward of the outlet structure. Protection in these two areas will consist of 4.5 feet of derrick stone. As a result of hydraulic model studies, performed by WES, derrick stone protection was determined to be required over the entire elevation - 16.8 upper approach area and downstream 75 feet beyond the stilling basin end sill. This is the erosion protection that will be used for the outlet structure approaches as reflected by Plates 8, 9, and 10. Underlayers will consist of 3.0 feet of Type 3 riprap in the first underlayer and 1.5 feet of Type 4 riprap in the second underlayer. Thicknesses reflect design for underwater placement. Gradations are given in Table 6-1.

- d. Toe details. Toe details for the erosion protection at the Seabrook Lock Complex presented some unique problems particularly where the toes intersected the soft lacustrine excavation slopes. These toes as reflected by Plates 9 and 10 have been revised from those shown in Design Memorandum No. 1, General, to more effectively protect the main embankments from erosion. In general, most of these toes were designed to prevent the heavier protective stone from bearing directly on the softer adjacent existing soil materials and to prevent loss of the slope protection stone by undermining due to settlement or erosion. One area which deserves special mention here, is the termination of the outlet structure stilling basin stone protection. A pile of derrick stone in the form of an inverted toe will be provided in this location to provide a reservoir of material to supplant any downstream erosion and still maintain the integrity of the apron stone protection.
- e. Filter design. The gradations for the protective stone have been selected so that the underlying finer material will not "pipe" or wash through the voids of the overlying coarser material. The criterion used required that the D85 size of the underlying finer material be greater than the one-fifth the D15 size of the overlying coarser material.

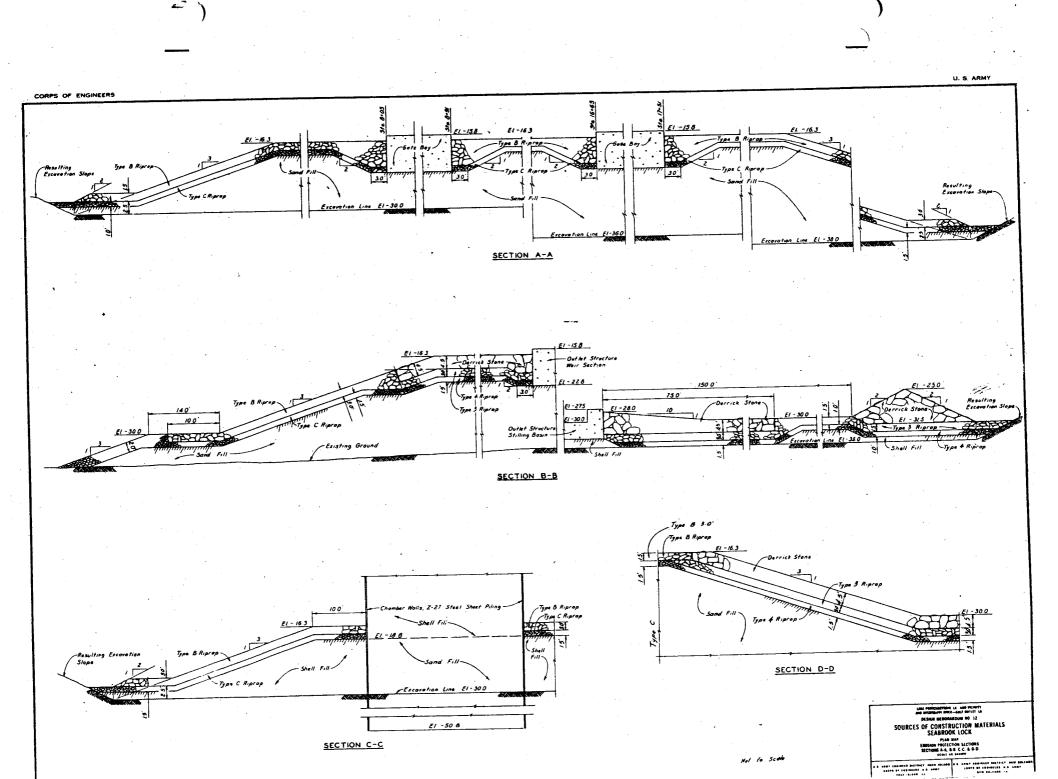
TABLE 6-1 - Gradations for Stone Protection

A. Cover stone and derrick stone (Uniform Stone)

Percent Lighter	Limits of Stone	Weight in Pounds
by Weight	. Cover Stone	Derrick Stone
100	3470	1640
25	2770 ·	1310
0	2080	980

B. Graded Riprap

Percent Lighter		Limits of	Stone Weight	in Pounds		
by Weight	Type B	Type C	Type 1	Type 2	Type 3	Type 4
100	200-400	20-40	720-1000	36-50	320-470	16-23
50	90-180	9-18	280-470	14-23	130-220	6-11
15	20-40	2-4	60-310	3-15	30-150	1-7



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NO. B		1			89	<i>j</i>					l				<u> </u>
NO. 16		1			76	MORTAR	MAKING PR	OPERTIES	CRD-	C 116)					
NO. 30		 			55		CEMEN					<u>. 3</u>	DAYS		
NO. 50		1			11	LINEAR	THERMAL E	XPANSION,	MILLI	ONTH\$/	EG F. IC	RO-C 125, 1	261:	<u> </u>	
NO. 100]		ROCK 1	YPE		PARAL	LEL	ACROSS	ON:	AVER	AGE
NO. 200				ŀ	ļ								ļ		
-200(4)		1			p.5										
F.M.(b)		1			2.69								<u> </u>		
(e) CRO-	105	(b) CF	1D+C 104			MORTA	R;					·			
					DD C 1			FINE AG	REGA	TE			OARSE AG	GREGATE.	1
MORTAR	BAR EX	CPANSIO	N A 1 100)F, % (C	NU-C 1		2 MO.	6 MO.	9 M	10.	2 MO.	3 MO.	6 MO.	9 MO.	12 M
LOW-	LK. CE	MENT:		% No	20 EQ	JIVALENT:				-					
нісн-	ALK. CE	MENT:		3 N	10 EQ	JIVALENT:	<u> </u>	L	L					ļ	
SOUNDN	ESS IN C	ONCRE	E ICRO	C 40, 11	41:		·						FAT	HW-CD	HDK
FINE	AGG.				co	ARSE AGG:					D	FE 300.			├
FINE	AGG.				co	ARSE AGG:					D	FE 300		L	<u> </u>
PETROG	RAPHIC	DATA	CRD-C !	27):											
T	he g	rave	l was	pri	mar:	ily de	nse che	ert wit	h.	a sul	stan	tial a	mount	of por	ous'
	hert	. s	atura	ted	por	ous ch	ert nea	r the	cor	ncret	e sur	face	can ca	use po	pou
w	hen	froz		The	sand	i was	similar	but	sith	n mor	e que	irtz a	nd les	s cher	t.
(Chalc	edon	y pa				etecte							•	
															
				æ.											
REMARK	S: .														
		_ ,													
T	AN-1	-1 (Pit r	run)											

STATE. L	ο .	INDE	K NO.:	10					EGATE)			AEWES			
								DATA	SHEET		ATE:	June	1977			
AN SYMBI	DI NO.	No	57	G-1	2. 5	3-8			Y	PR O	F MATE	uau Gr	avel.	_pand Frankl	plt_	run
OCATION	Ort 1	Ito cf Li	nnk C	of Bo	gue	Ch	itte	River	appro	X.	5 m1	<u>les N</u>	M ot	Frankl.	inton,	
T		11.6	E O	r Ln.	ΙW		106	6.								
<u>_</u>	Con	4+h	Sond	R Gr	eve]	C	0	Route	1. Bo	<u>(3</u>	48. M	t. He	rman.	La.		
PRODUCE	SIII	1111	DALIU.													
SAMPLED			P. Mc													
BAMPLED		omen	061210		Latr.	10+					-					
TESTED	DA: N	GM-N	LTGI	10	י עטי רפחדי	11 12 14 14 14 14 14 14 14 14 14 14 14 14 14	101	Struct	ure							
USED AT:		you	pren.	A CTITAL	<u> </u>	14 A W	<u> </u>	<u> </u>								
PROCESSI	`>==		STING													
PROCESSI	NO BET	MATIO	N AND A	GE:	HO10	CPT	e a	lluvia	1 depc	sit	s of	the 1	Bogue	Chitto	<u>River</u>	•
GEOLOGIC	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					<u> </u>						``			,	
	ue Ican	C 1031	ICUM. %	PASSIN	G):	<u> </u>		TEST	RESULTS	Ţ					٠. ,-	FINE
GRADI	NG ICAL		i	Г	Γ	1		L				3-6"	1 3	4-1"	*4-}"	AGG.
SIEVE	3-6"	11-3"	4-1"	24-1"	FINE	-		GR, \$.S.D.	CAD-C 107	100)		-		2.52		2,62
				 		-		ION, % ICRE						2,2	1	0.6
6 IN.			ļ			-						<u> </u>	-	=1===		2
5 IN.		 		 	 			IMPURITIE!			L 1211	 		0.0	1	
4 IN.		 	ļ	 -,	 	501	FT PAF	RTICLES, 3	2 LO	<u>'</u>	(2	.00	sand)	12.2		0.1
3 IN.		<u> </u>	ļ		├ ──								/	3.7		
2 IN.			 		 -			ND ELONG				 		6.3		4.0
2 IN.		ļ	1 00	-	 	WT	AV %	LOSS, S CYC	MgSO4 (CF	р-ст	317	B		18.5		
1 IN.			100		ļ			ASION LOSS) GRAI	JING	=		 	
*1 IN.		ļ	89	 	├ ──	-		LB/CU FT			,	 		0.3	1	1.7
} IM.		 	59	 _	<u> </u>	+		PARTICLE				 		-	1	
IN.			<u> 22</u> .	↓	ļ	_		AT, BTU/LE				╁				
į in.			12	1	105	RE	ACTIV	ITY WITH N	вон	-	C,MM/L:	 				
NO. 4			5	ļ	96	┞	ICR	ID-C 128):			C.MM/L:	 		-1		
NO. 8		ļ			89	<u> </u>						<u> </u>			<u> </u>	1
NO. 16		<u> </u>		<u> </u>	82			MAKING PR						. •		
NO. 30			<u> </u>		70			CEMEN						DAYS,		<u>`</u>
. NO. 50			ļ	<u> </u>	25	J.r.i	HEAR !	THERMAL E	XPANSION,	MILLI	ONTHS/C	EG F. IC	RD-C 125,	1 261:	<u> </u>	
NO. 100				<u> </u>	4	4		ROCK	TYPE		PARALI	EL .	ACROSS	ON	AVE	RAGE
NO. 200		<u> </u>	<u> </u>		1	4	· · · · ·	<u> </u>						 		
-200 ^(e)		L		<u> </u>	0.8									· 		
. F.M. ^(b)		<u> </u>	J	<u> </u>	2.44	1								1		
(e) CRD-0	105	(b) C	RD-C 104	·		نىل	MORTA	A:				·				
MORTAR-		PANEIO	N AT 100	0F % (C	RD-C 12	23):			FINE AGO	REGA	TE			COARSE AG		1
MOR I AR-	BAREA			Jr., 4 10				2 MO.	6 MO.	9 M	0. 1	2 MO.	3 MO.	6 MO.	9 MO.	12 MO.
LOW-A	LK. CEN	ENT:		% N	20 EQL	IIVAI	ENT:	<u> </u>			_					
нібн-	ALK. CE	MENT:		% N(10 EQL	JIVAI	ENT:	<u> </u>	<u> </u>							
SOUNDNE	SS IN C	ONCR'S	TE ICRD	-C 40, 11	141:									FAT	HW-CD	HD-CW
FINE	AGG.				co	ARSE	AGG:					DI	FE 300			
FINE	AGG.				co	ARSE	AGG:		·			DI	FE 300	L		<u> </u>
PETROG	RAPHIC	DATA (CRD-C 12	27):	•	٠.					1			a auam	- Т	he
	The	gra	vel w	as p	rime	ırı	TÀ C	iense a	ina poi	ous	cne	rt an	or som	e quar	curfo <i>o</i>	
exce	ssiv	e em	ount	01 1	orou	1S	cnei	rt wher	ı satu	ate	a ne	LT TH	e con	crete	antrac	lace
cause	pop	outs	whe	n ir	ozen	\cdot T	ne s	sand wa	as sim:	TEI	. Dut	W101	-b	quart	2 2207	TCDD
cher	t. :	ome	cher	t pa	rtic	те	8 We	ere ch	ятседо	11 T.C	50 - 511-	914 ~~	one s	and an	ent. Græv	C.L.
shou	Tq p	e co	nside	ered	pote	ent	lal.	Ly read	ctive v	v 1 T l	I STÝ	яттев	n Tu C	he cem	C110.	
				d)										. •		
HEH4HA:	Š															····
WAS-	1-1	(Gra	vel)													
WAS-																
		T 1 2 4	run)	١.												

. [91 A 1 P	1.4	James 1	· inv		20		AGGR		- 1		14	USAEW			
1	LÁL	.30	Trone.			90		AIAU √√ — • • • •	SHEET		\		July	19//		
Ĺ	1 AH 97 MI	OL NO	NO	-57	G-51	and	S-36			YIP OF	MAIPH	IAL N	nturni	Sand	and Gr	uvel
	LOC AT 101	4: 	Betw	een :	LA llv	y l	6 and	the ra	llroad	<u>; ap</u>	prox	12 1	miles	southe	ast or	
-			on a	nd 8	. 4 m	lles	NW OI	Sun, Inc.	(Drdoo	Dla	n+1	p	O · Box	781	Sun I	_
-	PRODUCE	R:	Lou	1810	na_tr	naus	tries,	inc.	(Frice	LTa	111677		0. 002	7013	Dull, L	
١	SAMPLED	BY.	Dam	es a	nd Mo	ore.		.								
ļ	TESTED F		New	Or1	eans	Dis	trict					<u> </u>				
Ī	USED AT:															
																
-	PROCESS					A 1 1		deposi	+ o o f	tho	Rogu	o Ch	itto F	liver (Holoce	nel
-	GEOLOGI	CAL FOR	RMATIO	A DIA	GE:	WII	uviai	debosi	LS OI	the	սուր	e on	Teco i	(IVEL)	HOTOCE	ne).
ŀ				ICUM 7	PASSIN	G1:	_ 	TEST	RESUL TS	1		*		<u> </u>	T	
ŀ	GRADI	NG ICHL			T					<u></u>		3-6"	1 } -3	· }-1}"	#4-1"	FINE AGG.
	SIEVE	3-6"	1,-3"	3-13"	44-3"	FINE AGG.	BULK SP	GR, S.S.D.	(CRD-C 107	108)					2.50	
Ì	6 IN.						ABSORPT	ION, % (CRE	o-C 107, 106	1:					2.7	0.5
Ì	5 IN,							IMPURITIES			1211		_		1	1
	4 IN.		ļ				SOFT PAR	TICLES, 7	ICRD-C 130	1	,	2 00	0		18.3	
-	3 IN.	 -			ļ			R THAN SP				2.00	gand)	<u>'</u>	3.8	0.0
ŀ	2; IN.		ļ		 			ND ELONG								3.9
-	2 IN.		 		100			LOSS, 5 CYC							*	3.7
ŀ	1 } IN.	•	 		96		T .	LB/CU FT			37 48 40		-	1	1	
ł	1 IN.		 		73			PARTICLE							0.2	0.0
	in.	, ,			32			AT, BTU/LE			24)					
	in.				14	100	REACTIV	ITY WITH N	•оң	Sc.	mM/L:					
	NO. 4				1	97		D-C 1281:	·	RC	,mM/L:	ļ				
	NO. 8		<u> </u>			79	<u> </u>					L	_ L			<u> </u>
	NO. 16	ļ	<u> </u>	ļ	 	66	1	MAKING PR								
	NO. 30		 		ļ	55 19		CEMENT					- 7	DAYS	!. 	
	NO. 50 -	<u> </u>	 	 	 	3		THERMAL E			PARALL		ACROSS	0N	AVER	
ļ	NO. 100		-		 	1	1 -	ROCK	YPE		AHALL	==	ACROSS	ON	AVE	
1	-200(a)	-	1		1	0.4										
	F.M.(b)			·		2.83										
ļ	(e) CRD-C	105	(b) CR	D-C 104			MORTA	R:					. _			
į	MORTAR-	BAR EX	PANSIO	N AT 100)F, % {CF	RD-C 12	31:		FINE AGO	REGAT	Ε			COARSE AC	GREGATE	
								2 MO.	6 MO.	9 MO	. 12	MO.	3 MO.	6 MO.	9 MO.	12·MO.
		LK. CEN		1			IVALENT:									
	SOUNDNE			E (CBD-			IVALENT.	<u> </u>	L					F&T	HW-CD	нр-с*
	FINE		UNCRE	EICHD	C 40, 11		RSE AGG:					D	FE 300			
	FINE						RSE AGG:						FE300			
	PETROG															
								pale								
								. The								
		erica ty-oi			san	a, co		l mainl examin								
					me o	f th	e cher		. Well	, 1,01		CITCL			- char	
	REMARKS	S:							· ·							
													•			
	l															

STATE	ĹA	INDE	X NO.:	12				REGATE		TEST	ED 87:	USA	LEWES			
LAT.:	30	LON				,	DAT	A SHEET					nber			
LAB SYM	90L NO.:	N	0-57	G-4	0, S	-26			TYPE	OF M	TERIAL	.: N &	atura	1		
LOCATIO	н: О.	l mi	le E	ast	of U	. s.	51, ap	prox 1	0 1	mile	Nor	th c	of th	e in	tersect	ion
with	LA H	wy 1	0 in	Arc	ola,	LA										
PRODUC	en:Gif	ford	<u>-H11</u>	1 Co	. (P	lant	No. 33) P. O.	В	ox 2	<u>:63, </u>	Rose	eland	<u>,</u> LA	70486	
SAMPLED															·	·
TESTED	FOR: N	ew (rlea	ns D	ist	Aggre	gate Te	est	 ,	:						
USED AT	:															
																
PROCESS						ahaa i	River	A 7 7		/ U 0 1		7.			- : : : 	
GEOLOGI	CAL FOR	MATIO	H AND A	GE: 18	ugrb	anoa	urver 7	ATTUVI		(noı	ocei	ie/				
GRADI	ING (CRD	-C 1031	CUM S	PASSIN	G)·	Γ	TEST	RESULTS						Т—	#4-	<u> </u>
	I I I					1		NESCE 15	لــا)-6"	1 } -3"	1-1	1/2"	FINE AGG.
SIEVE	3-6"	13-3"	1-11"	/2"	AGG.		GR, S.S.D.	(CDD C 10)		,			 -	+-		2.63
6 IN.				-/-	·		TION, % ICR			<u>,</u>	\dashv			+	1.2	0.4
5 IN.	 			 	 	 	IMPURITE				, 		===	-		1
4 IN.				 	 	 	ATICLES, T			121	' -	·	 	+	0.0	
3 IN.					l		ER THAN S			-C 122	, (2	.00	Sand)	5.3	0.0
2} IN.							AND ELONG							1	3.1	
2 IN.							LOSS, 5 CY						·		1.9	4.3
I J IN.				100			RASION LOS					A			24.4	<u> </u>
1 IM.				92		I	, LB/CU FT									
į IN.				68		FRIABLE	E PARTICLE	5, % ICRD-0	142)						0.2	0.0
j IN.				35		SPEC HE	AT, BTU/L	B/DEG F. (C	RD-C	124)						
₹ IA.				16			A HTIW YTIV	нон		Sc,mM/	L:	*******				
NO. 4				1	100	10	RD-C 1281:			Rc,mM/	L:					
NO. 8					94	1		·								
NO. 16			·		79	1 444174	MAKING PR									
NO. 30					64	1175	CEMEN	T, RATIO:_	-	DAYS	·	3	 	DAY	'S	<u> </u>
NO. 50					16	LINEAR	THERMAL E	XPANSION,	WILLI	ONTH	DEG F	. ICRD	C 125, 1	26):		·
NO. 100				<u> </u>		l	ROCK	TYPE		PARA	LLEL	ACF	ROSS	ON	AVER	AGE
-200 ⁽⁸⁾					0.3											
F.M.(b)	<u>`</u>				2.4	L- L						ļ				
(e) CRD-C		4		L		\ \		· · · · · · · · · · · · · · · · · · ·		<u></u>		1				
•			D-C 104			MORTA	I I	FINE AGO	BEG			Т.				 -
MORTAR-	BAR EXP	ANSION	AT 100	F, % (CR	D-C 121	1):	2 MO.	6 MO.		io. T	12 MO.	+,	мо.	6 MO.	GGREGATE	12 MO.
- LOW-AI	LK. CEME	NT:	·	% Ne,	O EQUI	VALENT:				-		1-		U MU.	3 MO.	12 MU.
HIGH-A	LK. CEM	ENT:				VALENT:										
SOUNDNE	SS IN CO	NCRET	E (CRD-C	40, 114): <u>.</u>	,								FOT	HW-CD	но-сw
FINE A	GG.				COA	RSE AGG:						DFE	00			
FINE A					COA	RSE AGG:						DFE	00			
PETROGR					. .		i						,			
roted	THE F	grav	er Me	is pr	'imai	тту о	ense a	nd por	ous	ch	ert (and '	vuggy	che	rt. Sa	tu-
sand	ree . Por(vus (zimi	lert	, пев	ፈ ጊዜ ተትኮ	ie cor	crete	surfac	e c	an	ause	po	pouts	whe	n froze	n. T
Were	chale	redo.	ישי נ	in ha	+ P +	more	quartz	and 1	ess	ch	ert.	So	me ch	ert	particl	es
react	ive w	ith	alka	יט טו ווארוו	i in	the a	na ana ement.	grave	т 8	nou.	TO DE	e co	ns1de	red	potenti	ally
0	·	,1	~210	-2.200		ATTE C	CHICHO.									
												*				
		-		Ф						*						
REMARKS:													·· · · · · ·			
						*										
							*									

STAIR M	S	.000	e HO	7			AĞGR	EGATE SHEET	. 1151	PD IIY	USAEWE	S		
1 A I	31	TUNI		89			DAJA				July 1			
LAR SYMI	ioi NO.	No	5.7	', G-	24,	S-18					Natura			
LOCATIO		p 1	ant	loca	ted	$0.3 \mathrm{m}$	ile Wes	t of M	S Hwy	43 ap	prox.	9 mile	s Souti	1
		0	Int	erse	ctio	n wit	h Ilwy 1	3, Sou	theas	t of C	olumbi	a, MS (Ford P.	lant)
PRODUCE	rı	B	lain	Sand	& C	ravel	Co., B	lox 100	1, Co	lumbia	, MS			
SAMPLED	BY:	Da	ames	& Mo	ore									
TESTED F	FOR	No	ew 01	lean	s Di	stric	t							
USED AT:	:													
					:								- 	
PROCESS	ING BEF	ORE TE	STING.										·	
GEOLOGI	CAL FOR	MATIO	N AND A	GE:										
						,						 -	14.	
GRAD	ING ICAD	-C 1031	(CUM.	PASSIN	G):		TEST	RESULTS		3.6	13.3	r. 2-13	#4-	FINE AGG.
SIEVE	3-6"	1 } -3"	}. ;	#4-	FINE									
				1"	AGG.		GR, 5.5.D.					- 		2.63
6 IN.				<u> </u>	 		TION, TORE			- _	_	_	2.8	1
\$ IN.	L		<u> </u>	<u> </u>	<u> </u>		IMPURITIES			'' 			0.0	<u> </u>
4 IN.	ļ			1	ļ	SOFT PA	RTICLES.	2 40	<u>, </u>	. (2 0)) sand)		19.0	0.0
3 IN.			<u> </u>	 	ļ					t	, <u>Jana)</u>		1.4	1
2; IN.		 -	 	 	 		LOSS, 5 CYC						*	3.0
2 IN.	ļ	ļ	<u> </u>	100	}	WT AU	LOSS, 5 CYC	MgSO4 ICF	117 1451	PAOING	3		20.3	-
1 } IN.	<u> </u>			97	ļ		LB'CU FT			1420110		_		
1 IN.	 			$\frac{197}{81}$	 		PARTICLE						0.2	0.2
} 1N.	 			50	 	+	AT, BTU'LE							
; IN.	 	 		32		1	ITY WITH N		Sc.mM					
	 	 	 -	 	100	1	RD-C 1281		FIC, MA					
NO. 8	1.	 -	 	 	86									
NO. 16	 	 	 		79	MORTAR	-MAKING PR	OPERTIES	CRD-C 116	9				
NO. 30	 	 	 	—	70	-1						DAYS	·	
NQ. 50	1.	†			14	LINEAR	THERMAL E	XPANSION,	HELIONT	SDEG F.	ICRD-C 125.	1261:		
NO. 100	Ţ÷				1] . [ROCK	TYPE	PAF	ALLEL.	ACROSS	ON	AVER	IÁGE
NO. 200	1				<u> </u>	↓			_					
-500(a)					0.3	┨					· · · · · · · · · · · · · · · · · · ·			
F.M.(b)		L		<u>.l</u> .	2.5	1						1		
(e) CRD-	C 105	(b) CF	D-C 104		<u> </u>	MORT	AR:				Т	,		
MORTAR	-BAR EX	PANSIO	N AT 10	0F, % (C	RD+C 12	231:	<u> </u>	FINE AGO		1	 	COARSE AC		Γ
				· · · · · ·			Z MO.	6 MO.	9 MO.	12 MO.	3 MO.	6 MO.	9 MO.	12 MO.
	ALK, CEN					IVALENT:	- 	 		 	 	ļ	· · · · · ·	†
	ALK, CE		+			IVALENT:	<u> </u>		·		- -	FST	нж-ср	HD-CW
	ESS IN C	DNCRE	E ICRD	-C 40, 11							D≠€ 300			1
FINE						ARSE AGG					DFE 300	 	<u> </u>	
FINE	AGG.	DATA	CBO-C 1	271	CO.	ARSE AGG					□ · . ⊑ 300	L	L	
Th	e gra	vel	was	prim	aril	y por	ous che	rt wit	h some	e vugg	y and p	porous	chert,	, and
so	me qu	artz	:. S	atur	ated	porou	ıs cher	t near	the o	concre	te sur	face ca	an pop	out
wh	en fr	ozer	ı. T	he s	and	was si	lmilar	but wi	th mo	re qua	rtz and	l less	chert	
So	me ch	ert	part	icle	s we	re cha	lcedon	ic so	both 1	the sa	nd and	grave:	L shou]	rq pe
co	nside	red	pote	ntia	11y	react:	ive wit	n alka	Lies	in the	cemen	ι.		
							·						•	
REMARK	KS:													
МА	R-1-1	_												
			it ma	teri	al f	or te	st.							
				-:-						•				

Fan 6086

LAKE PONTCHARTRAIN, LA, AND VICINITY AND MISSISSIPPI RIVER - GULF OUTLET, LA SEABROOK LOCK

EXHIBIT A

TYPICAL CONCRETE MIXTURES

DEPARTMENT OF THE ARMY
WATERWAYS EXPERIMENT STATION, CORPS OF ENGINEERS
VICKSBURG, MISSISSIPPI

FOR

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA

EXHIBIT A

TYPICAL CONCRETE MIXTURES

General Index

1. <u>General</u>. These typical concrete mixtures were furnished by the Waterways Experiment Station. The first mixture was the mixture designed for the concrete temperature control study. The other mixtures were taken from mixtures designed for past projects or research at the Waterways Experiment Station using Type II cement.

2. Table of Contents

Subject	Page
$f_c^* = 3000$ -psi concrete with 1-1/2-in. maximum size aggregate, with no fly ash	A2
$f_c' = 3000$ -psi concrete with 1-1/2-in. maximum size aggregate, including fly ash	A3
$f_c^* = 3000$ -psi concrete with 3-in. maximum size aggregate and no fly ash	A4
f' = 3000-psi concrete with 3-in. maximum size aggregate including fly ash	A5

						DA	TE		
B NAME					MIXTURE		6/9/	76	
OB. NO.	MIXTURE SER. NO	0.	-	PROPOF (WORK S		IN	ITIALS		
58. 110.				(CRD	-C 3)	1			
			POZZOLAN SEF	3. NO.			A. E. ADN	IX: SER. NO. N	V.R.
ORTLAND CEMENT T			TYPE				NAME	Lab stock	
ER. NO.	RC-705	1	None	2			AMOUNT	•	ъ м
RAND AND MILL LO	ne Star		SOURCE				L	%	м
THER CLINEIV	ER. NO.				None	10.			
RAND AND MILL	None			NAME	T				
	FINE AGGR	EGATE					COARSE	AGGREGATE	
TYPE 37		SER.	NO.	D≓+		ura1			SER. NO.
Natural			Pollock		L.			ustries	0.75 7 1/0
SOURCE Louisia	ina Indust	ries,	Pollock,	LA	SOURCE Pol	lock.	, LA		SIZE 1-1/2
				MATE	ERIALS			_	
MATERIAL	SIZE F	RANGE	BULK SPECIFIE GRAVITY		NIT WEIGHT LID), LB/CU FT		PTION, CENT	TOTAL MOISTURE CONTENT, PERCENT	NET MOISTURI CONTENT, PERCENT
			3.15		196.56				
CEMENT									
F. AGGREGATE		200	2.62		163.49	F .	.6		+1.5
C. AGGREGATE (A)	#4-1-	-1/2 i	2.54		158.50	2	.0		
C. AGGREGATE (B)									
C. AGGREGATE (C)									
C. AGGREGATE (D) POZZ/OTHER CEMENT									
POZZ/OTHER CEMENT									
				PROP	PORTIONS				
		CALCULA	TED BATCH DA	TA (1 CU	YDI			ACTUAL BATCH D	ATA CUFT
MATERIAL			T			CAT C	URF DRY	WATER	5
MATERIAL		VOLUME /BATCH	SAT. SURF DE BATCH WT, L		FACTOR		WT, LB	CORRECTION, L	B BATCH WT
CEMENT	CUFT			В	FACTOR		+ WT, LB		
	2 CU FT	.289	450.0) (13)	FACTOR		+ WT, LB		
CEMENT F. AGGREGATE	2 6	.289	450.0 1130.4) (13)	FACTOR		H WT, LB		
CEMENT F. AGGREGATE C. AGGREGATE (A)	2 6	.289	450.0) (13)	FACTOR		H WT, LB		
CEMENT F. AGGREGATE C. AGGREGATE (A) C. AGGREGATE (B)	2 6	.289	450.0 1130.4 2035.3) (13)	FACTOR		H WT, LB		
F. AGGREGATE C. AGGREGATE (A) C. AGGREGATE (B) C. AGGREGATE (C)	2 6	.289 .914 .841	450.0 1130.4 2035.3) (13)	FACTOR		H WT, LB		
F. AGGREGATE C. AGGREGATE (A) C. AGGREGATE (B) C. AGGREGATE (C) C. AGGREGATE (D)	6 12	.289 .914 .841	450.0 1130.4 2035.3) (13)	FACTOR			CORRECTION, L	
F. AGGREGATE C. AGGREGATE (A) C. AGGREGATE (B) C. AGGREGATE (C) C. AGGREGATE (D) POZZ/OTHER CEMEN	6 12	.289 .914 .841	450.0 1130.4 2035.3	B (13)	FACTOR		(1)	CORRECTION, L	
F. AGGREGATE C. AGGREGATE (A) C. AGGREGATE (B) C. AGGREGATE (C) C. AGGREGATE (D)	6 12 T	.289 .914 .841	450.0 1130.4 2035.3	B (13)	FACTOR		(1)	CORRECTION, L	
F. AGGREGATE C. AGGREGATE (A) C. AGGREGATE (B) C. AGGREGATE (C) C. AGGREGATE (D) POZZ/OTHER CEMEN WATER	CUFT 2 6 12 7 3 1 1	.289 .914 .841 .110 .606 .350	450.0 1130.4 2035.3	B (13)	FACTOR			CORRECTION, L	
F. AGGREGATE C. AGGREGATE (A) C. AGGREGATE (B) C. AGGREGATE (C) C. AGGREGATE (D) POZZ/OTHER CEMEN WATER AIR	CUFT 2 6 12 7 3 1 1	.289 .914 .841 (10) .606 .350	450.0 1130.4 2035.3) (13) k 3			(1)	CORRECTION, L	
F. AGGREGATE C. AGGREGATE (A) C. AGGREGATE (B) C. AGGREGATE (C) C. AGGREGATE (D) POZZ/OTHER CEMEN WATER AIR TOTAL AIR FYIELD	T 3 1 1 REE 27	.289 .914 .841 .606 .350	450.0 1130.4 2035.3) (13)	URE DATA	BATCI	(1)	CORRECTION, L	B BATCH WT
F. AGGREGATE C. AGGREGATE (A) C. AGGREGATE (B) C. AGGREGATE (C) C. AGGREGATE (C) POZZ/OTHER CEMEN WATER AIR TOTAL AIR FYIELD	T 3 1 1 REE 27	.289 .914 .841 (11) .606 .350 (8) ,000 (14)	225.0) (13)	URE DATA	BATCI	(1)	CORRECTION, L	B BATCH WT
F. AGGREGATE C. AGGREGATE (A) C. AGGREGATE (B) C. AGGREGATE (C) C. AGGREGATE (C) POZZ/OTHER CEMEN WATER AIR TOTAL AIR FYIELD SLUMP 2-3/4 REMOLD EFF	T 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	.289 .914 .841 (10) .606 .350 (5) ,000 (14)	2035.3 225.0	(4)	URE DATA	BATCI	(1)	CORRECTION, L	B BATCH WT
F. AGGREGATE C. AGGREGATE (A) C. AGGREGATE (B) C. AGGREGATE (C) C. AGGREGATE (C) POZZ/OTHER CEMEN WATER AIR TOTAL AIR FYIELD	CUFT 2 6 12 7 3 1 REE 0 27	.289 .914 .841 (10) .606 .350 (5) ,000 (14)	225.(225.(2130.4 2035.3	(4)	URE DATA " MIXING WATE " AMBIENT	BATCI	(1)	TH CFF ACT CFF W/C	B BATCH WT

DB NAME			į	CRETE	MIXTURE		TE					
				ROPOR		<u> </u>	6	/9/76	<u> </u>			
OB. NO.	MIXTU	RE SER. NO.		(WORK S (CRD-		"	ITTALS					
							A E AD	MIY: SE	R. NO. M	17 D		_
ORTLAND CEM	ENT TYPE	II	POZZOLAN SER.	ΝΟ.			1	E. ADMIX: SER. NO. N.V.R. AME Lab stock				
ER. NO.	ADDITI RO	C-705		Ash			AMOUNT			%		ML
BRAND AND MIL	Lone S	Star	SOURCE				L	%				ML
THER CEMENT			i		AL ADMIX SER. 1	10.		76				
BRAND AND MIL	.L. 1	ione		NAME	None							
	F	INE AGGREGATE					COARSE	AGGRE	GATE	,		
TYPE Natu	ıral	SER.	NO.	D	TYPE Natu	ıral				SER. N	٥.	
			Pollock	rit	Loui	siana	Indu	stri	es			
source Loui	isiana :	Industries,	Pollock,	LA	source Pol	llock, LA				SIZE]	L-1/2	_ <u>i</u>
					RIALS							
								TOTAL	MOISTUR	E NE	r MOISTU	RE
MATERI	AL	SIZE RANGE	BULK SPECIFIC GRAVITY		IIT WEIGHT IID), LB/CU FT	ABSOR PERC		co	NTENT,	c	PERCENT	,
			3.15		196.56							
30% I	FA		2.50		156.00							
		#4 - 200	2.62		163.49	0.	6				+1.5	_
F. AGGREGATE		$\frac{#4-1-1/2}{4}$ if			158.50	2.	0				-1.1	_
C. AGGREGATE (17										
C. AGGREGATE (
												_
C. AGGREGATE												
POZZ/OTHER CE	EMENI											_
				PROP	ORTIONS							
		CALCULA	TED BATCH DAT	A (1 CU	YD)			ACTUAL	BATCH D	ATA	CUFT	
MATER	IAL.	SOLID VOLUME CU FT/BATCH	SAT. SURF DRY BATCH WT, LB		FACTOR		JRF DRY I WT, LB		WATER RECTION, L	.в	ACTUAL BATCH W	
		1.602	314.9	13)		<u> </u>		<u> </u>				
CEMENT	FA	0.687	107.2									
		6.914	1130.4									
F. AGGREGATE		12.841	2035.3							\dashv		
, c. ACCOPCATE		1								\dashv		
C. AGGREGATE		(11)				<u> </u>				\dashv		
C. AGGREGATE	(C)											
C. AGGREGATE		(10)	l.							_ +-		
C. AGGREGATE C. AGGREGATE C. AGGREGATE	(D)	(10)										_
C. AGGREGATE C. AGGREGATE POZZ/OTHER C	(D)			(3)		,,,,		1)	77777	,,,,,,	7777	1
C. AGGREGATE C. AGGREGATE C. AGGREGATE POZZ/OTHER C	(D)	3.606	225.0	(3)		////		"				\mathbb{Z}
C. AGGREGATE C. AGGREGATE POZZ/OTHER C	(D)	3.606 1.350	225.0	(3)				(2)				Z
C. AGGREGATE C. AGGREGATE C. AGGREGATE POZZ/OTHER C	CEMENT	3.606 1.350	225.0	(3)								Z
C. AGGREGATE C. AGGREGATE C. AGGREGATE POZZ/OTHER C WATER AIR	(D)	3.606 1.350	225.0	(4)	URE DATA							Z
C. AGGREGATE C. AGGREGATE C. AGGREGATE POZZ/OTHER C WATER AIR TOTAL	AIR FREE	3,606 1,350 27,000 (14	225.0 ////////////////////////////////////	(4)		<i>S</i>			//////			
C. AGGREGATE C. AGGREGATE C. AGGREGATE POZZ/OTHER C WATER AIR	AIR FREE	3.606 1.350	225.0 /////////	(4)	URE DATA _% MIXING WATE % AMBIENT				H CF	22.1		

JOB NAME	CONCRETE PROPOR			TIONS	RE 6/9/76 INITIALS				
PORTLAND CEMEN SER, NO. BRAND AND MILL OTHER CEMENT	RC-T05 Lone Star	POZZOLAN SEF NOI TYPE SOURCE	ne	al admix ser. no. None		A. E. ADMIX: SER. NO. NAME Lab Stoc AMOUNT %	N.V.R. k	ML	
None FINE AGGREGATE TYPE Natural SER. NO.									
Pollock Pi source Louisiana Industries, Pollock, I				Limesto	ne	e 1-1/2-3 in.	size 3	in.	

MATERIALS

MATERIAL	SIZE RANGE	BULK SPECIFIC GRAVITY	UNIT WEIGHT (SOLID), LB/CU FT	ABSORPTION, PERCENT	TOTAL MOISTURE CONTENT, PERCENT	NET MOISTURE CONTENT, PERCENT
CEMENT		3.15	196.56			
F. AGGREGATE	#4-200	2.62	163.49	0.6		+1.5
C. AGGREGATE (A)	#4-1-1/2 i		158.50	2.0		-1.1
C. AGGREGATE (B)	1-1/2-3 in		167.23	0.7	<u> </u>	-0.5
C. AGGREGATE (C)				,		
C. AGGREGATE (D)		ļ				
POZZ/OTHER CEMENT					+	

PROPORTIONS

		CALCULA	TED BATCH DATA (1	(סץ ט	ACTUAL BATCH DATA CU FT				
мат	ERIAL	SOLID VOLUME CU FT/BATCH	SAT. SURF DRY BATCH WT, LB	FACTOR	SAT. SURF DRY BATCH WT, LB	WATER CORRECTION, LB	ACTUAL BATCH WT		
CEMENT		1.960	385.3 (13)						
F. AGGREGA	TE.	5.823	922.9						
C. AGGREGA	TE (A)	7.487	1186.7		<u> </u>	 			
C. AGGREGA	TE (B)	7.488	1252.2			ļ			
C. AGGREGA	TE (C)	(11)			<u> </u>				
C. AGGREGA	ATE (D)	(10)			<u> </u>				
POZZ/OTHE	R CEMENT				<u> </u>				
WATER		3.175	198.09 (3)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(1)	17/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/	77777777		
AIR		1.067	///////////////////////////////////////		Y////////	<u> </u>	X/////////		
	AIR FREE	(5	(4)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(2	W/////////////////////////////////////	1777777		
TOTAL.	YIELD	27,000 (14	1 <i>V/////////</i>		V////////	<u> </u>	<i>X/[///////////////////////////////////</i>		

MIXTURE DATA

SLUMP 2-3/4 IN.	AIR CONTENT (D) %	MIXING WATER	TH CFLB/CU YD
	l .	AMBIENTF	ACT CF 385.3 LB/CU YD
	AIR CONTENT (F) 5.0	CONCRETE	w/cwT
ACT UW LB/CU FT	BLEEDING%	S/A 28 PERCENT VOL.	
WES FORM NO. 476	(0)	/ER)	

WES FORM NO. 476

JOB NAME					DATE				
			NCRETE PROPOR	MIXTURE PTIONS	6/9/76				
JOB. NO.	MIXTURE SER. NO.		(WORK S	HEET)	INITIALS				
PORTLAND CEMENT	TYPE II	POZZOLAN SEI	R. NO.			Lab stock			
BRAND AND MILL	RC-705 Lone Star	SOURCE			AMOU		%	ML	
OTHER CEMENT	SER, NO.		CHEMIC	AL ADMIX SER. NO.		%		ML	
BRAND AND MILL	None		NAME	None					
	FINE AGGREGATE				COAR	SE AGGREGATE			
TYPE Natura		Pollock		TYPE Natural Limesto		-1/2 in. 1/2-3 in.	SER. NO.	in.	
source Louisiana Industries, Pollock,			LA	SOURCE					

MATERIALS

MATERIAL	SIZE RANGE	BULK SPECIFIC GRAVITY	UNIT WEIGHT (SOLID), LB/CU FT	ABSORPTION, PERCENT	TOTAL MOISTURE CONTENT. PERCENT	NET MOISTURE CONTENT, PERCENT
CEMENT		3.15	196.56			
25% FA		2.50	156.00			
F. AGGREGATE		2,54	158.50			
C. AGGREGATE (A)		2.68	167.23			
C. AGGREGATE (B)						
C. AGGREGATE (C)					_	
C. AGGREGATE (D)				.,	 	
POZZ/OTHER CEMENT						

PROPORTIONS

	,,	CALCULA	TED BATCH DATA (1	CU YD)	ACTUAL BATCH DATA CU FT				
MATE	RIAL	SOLID VOLUME CU FT/BATCH	SAT. SURF DRY BATCH WT, LB	FACTOR	SAT. SURF DRY BATCH WT, LB	WATER CORRECTION, LB	ACTUAL BATCH WT		
CEMENT		1.470	288.9 (13)						
	% FA	0.490	79.5						
F. AGGREGATI		5.823	922.9						
C. AGGREGATI		7.487	1186.7						
C. AGGREGAT		7.488	1252.2						
C. AGGREGAT	E (C)	(11)							
C. AGGREGAT	E (D)	(10)							
POZZ/OTHER	CEMENT				<u> </u>				
WATER		3.175	198.09 (3)		(1)	777777777	· · · · · · · · · · · · · · · · · · ·		
AIR		1.067				X/////////////////////////////////////	////////		
	AIR FREE	(5)	(4)		(2)	200000	V7777777777777777777777777777777777777		
TOTAL	YIELD	27,000 (14)		X////////		<u> </u>	<i>Y////////</i>		

MIXTURE DATA

SLUMP 2-3/4	IN.	AIR CONTENT (D) %	MIXING WATERF	TH CFLB/CU YD
REMOLD EFF	DROPS	AIR CONTENT (E) %	AMBIENTF	ACT CF 368.4 LB/CU YD
тн им	LB/CU FT	AIR CONTENT (F) 5.0 %	CONCRETEF	W/CWT
ACT UW	LB/CU FT	BLEEDING %	s/A 28 PERCENT VOL.	

WES FORM NO. 476

LAKE PONTCHARTRAIN, LA, AND VICINITY AND MISSISSIPPI RIVER - GULF OUTLET, LA SEABROOK LOCK

EXHIBIT B

FLY ASH AND 3-IN. MAXIMUM SIZE AGGREGATE JUSTIFICATION

DEPARTMENT OF THE ARMY
WATERWAYS EXPERIMENT STATION, CORPS OF ENGINEERS
VICKSBURG, MISSISSIPPI

FOR

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA

EXHIBIT B

FLY ASH AND COST JUSTIFICATION

General Index

1.	General	. The	use of	fly as	sh is	based	on e	conon	nic j	ust	ific	atio	n.	The
cost	study	shows	savings	that r	may be	gaine	d by	, the	use	of	fly	ash	in	
conc	rete mi	xtures	depend:	ing upo	on cos	t of h	and1	ling.						

2. Table of Contents

Subject	Page
Unit cost data	В2
Concrete mix, 1-1/2-in. aggregate with and without fly ash	В3
3-in. aggregate concrete mix, with and without fly ash	В4

COST DATA

Unit Cost

The calculations on the following pages were based on the unit prices shown below:

Seabrook Lock

Portland cement, Ideal Basic Industries	\$2.47/cwt
Fine aggregate, Louisiana Industries	0.26/cwt
Coarse aggregate (A), Louisiana Industries	0.33/cwt
Coarse aggregate (B), Reed Crushed Stone	0.48/cwt
Fly ash, Walter N. Handy Co.	1.18/cwt
Portland-pozzolan, Type IP, Dundee Cement	2.64/cwt

All costs include cost of delivery to the site.

CONCRETE MIXES

Portland Cement II 3000 - 3500 psi

1-1/2-in. Aggregate, without Fly Ash	Seabrook Lock
Portland cement 450 lb @ \$2.47/cwt Fine aggregate 1130 lb @ \$0.26/cwt Coarse aggregate 2035 lb @ \$0.33/cwt Plant and Labor	\$11.12 2.94 6.72 <u>6.00</u> \$26.78
1-1/2-in. Aggregate, with Fly Ash	
Cement (70% by vol) 315 lb @ \$2.47/cwt Fly ash (30% by vol) 107 lb @ \$1.18/cwt Fine aggregate 1130 lb @ \$0.26/cwt Coarse aggregate 2035 lb @ \$0.33/cwt Plant and labor Additional handling cost of fly ash	\$ 7.78 1.26 2.94 6.72 6.00 1.00 \$25.70
Cost of mix without fly ash, cu yd Cost of mix with fly ash, cu yd	\$26.78 25.70
Savings with fly ash, cu yd	\$ 1.08
Cost of mix with Type II portland cement, cu yd Cost of mix with portland pozzolan cement, cu yd (436 lb @ \$2.64/cwt)	\$26.78 27.17
Additional cost with portland pozzolan cement, cu yd	\$ 0.39

Seabrook Lock

3-in. Aggregate, without Fly Ash	1-1/2-in. Aggregate
Portland cement 385 lb @ \$2.47/cwt = \$ 9. Fine aggregate 923 lb @ 0.26/cwt = 2. Coarse aggregate (A) 1188 lb @ 0.33/cwt = 3.	.40 .92
Coarse aggregate (B) 1252 lb @ 0.48/cwt = 6. Plant and labor 6.	.00
3-in. Aggregate, with Fly Ash	1-1/2-in. Aggregate
=	.94 .40 .92 .01 .00
Cost of cu yd batch, without fly ash Cost of cu yd batch with fly ash 27.	
Savings per cu yd with fly ash \$ 0.	.43
Cost with portland cement, cu yd \$27. Cost with portland pozzolan cement, cu yd 28. (373 lb @ \$2.64/cwt)	
Additional cost with portland-pozzolan \$ 0.	.34

LAKE PONTCHARTRAIN, LA, AND VICINITY AND MISSISSIPPI RIVER - GULF OUTLET, LA SEABROOK LOCK

EXHIBIT G

CONCRETE AGGREGATES AND RIPRAP

DEPARTMENT OF THE ARMY
WATERWAYS EXPERIMENT STATION, CORPS OF ENGINEERS
VICKSBURG, MISSISSIPPI

FOR

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA

EXHIBIT C

SUMMARY OF AGGREGATE AND STONE TEST RESULTS

General Index

1. General. Exhibit C contains the data of the sand and gravel sources and that of the stone sources for Seabrook Lock. It also summarizes the acceptance test data from all the test data sheets that are compiled for each source.

2.	Table of Contents	
<u>Table</u>	Title	Page
1	Sources of Sand, Gravel, and Rock	C6-C14
2	Summary of Acceptance Test Data, Fine Aggregate	C15-C18
3	Summary of Acceptance Test Data, Coarse Aggregate	C19-C23
4 .	Summary of Acceptance Test Data, Riprap	C24-C26

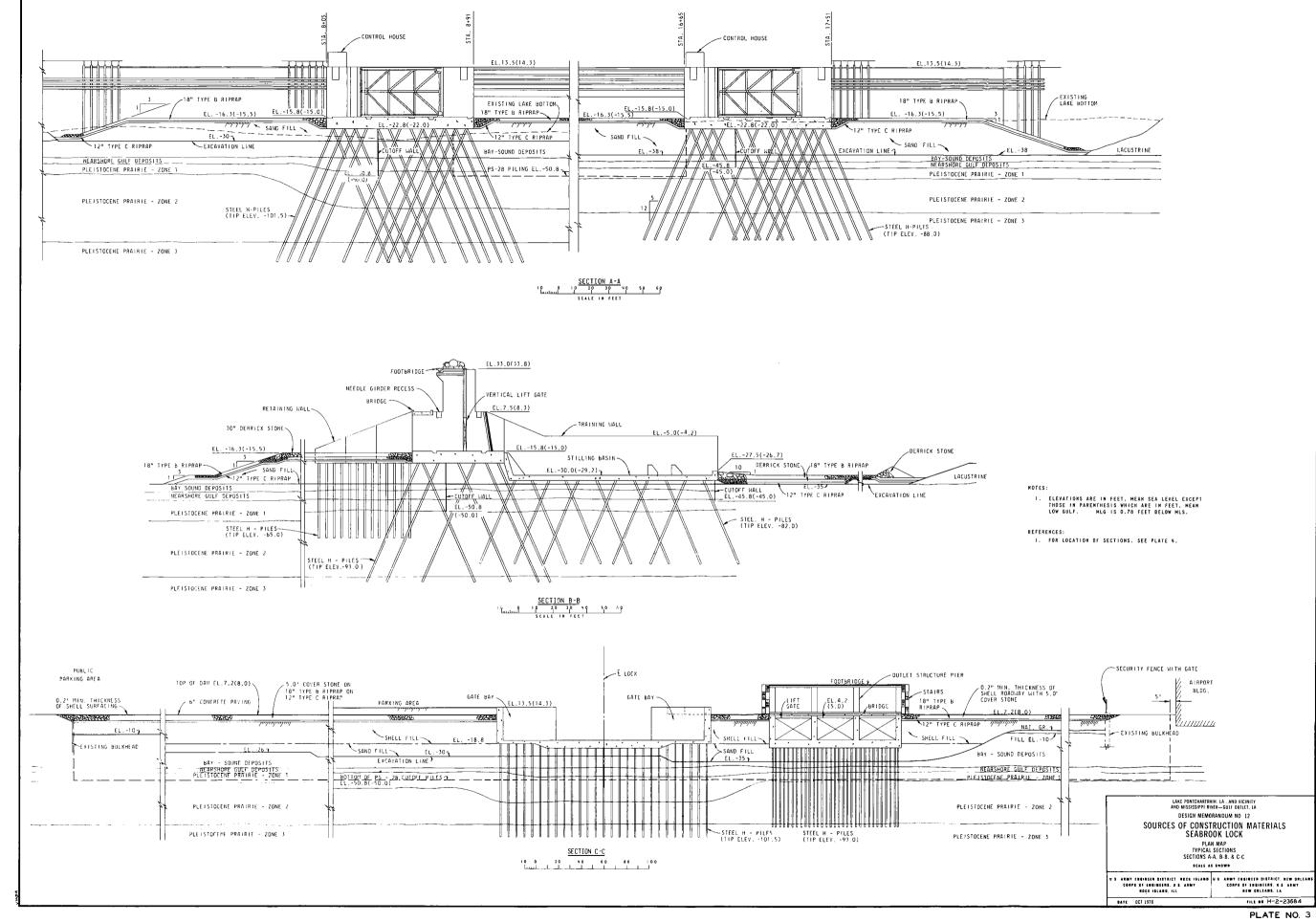
Source No	Source Least-
1	Source, Location Radcliff Sand Co., Mobile, AL
2	Radcliff Sand & Gravel Co, Mobile, AL
3	Leggett Sand & Gravel Co., Hansboro, MS
4	Kivett & Reel, Inc., Sun, LA
5	
6	Canal Sand & Gravel Co., Sun, LA
	Canal Sand & Gravel Co., Bush, LA
7	Sloat Dredging Co., Pearl River, LA
8	Traxler Gravel Co., Gulfport, MS
9	St. Tammany Sand & Gravel Co., Bush, LA
10	Jahncke Services, Inc., Bush, LA
11	Dixie Sand & Gravel Co., Franklinton, LA
12	Carion, Inc., Nicholson, MS
13	Unknown Contractor, Bonnet Carre Spillway
14	Jahncke Services, Inc., Bluff Creek, LA
15	Gulf Sand & Gravel Co., Amite, LA
16	Comite Sand & Gravel Co., Tangipahoa, LA
17	Baton Rouge Sand Co., Watson, LA
18	Gifford-Hill, Inc., Fluker, LA
19	Dixie Sand & Gravel Co., Sun, LA
20	Smith Sand & Gravel Co., Franklinton, LA
21	Louisiana Industries, Price, LA
22	B & B Gravel Co., Bluff Creek, LA
23	Gifford-Hill, Inc., Arcola, LA

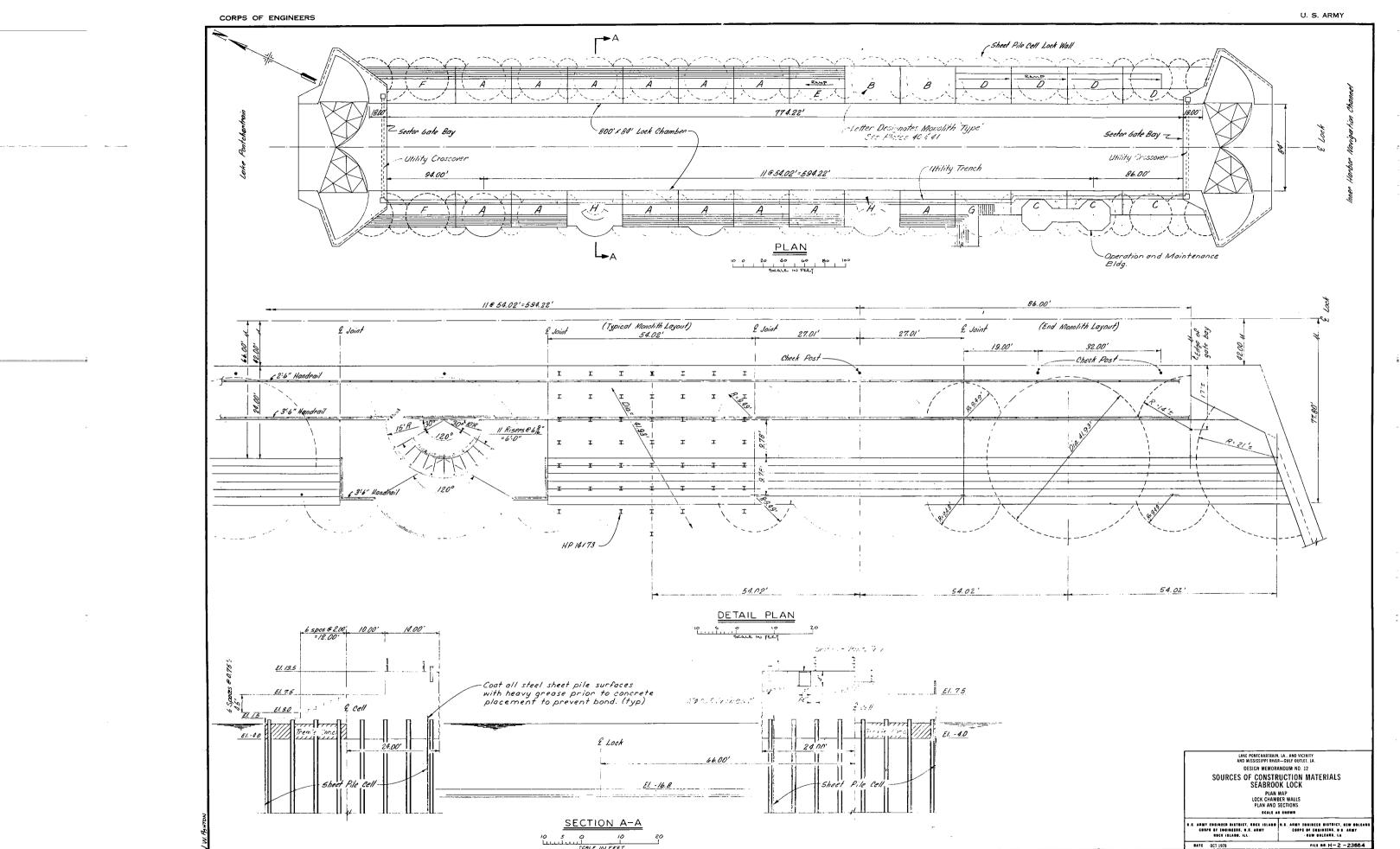
Source No.	Source, Location
24	A-1 Sand & Gravel Co., Magnolia, LA
25	Red Stick Sand & Gravel Co., Baywood, LA
26	Red Stick Sand & Gravel Co., Baywood, LA
27	Red Stick Sand & Gravel Co., Baywood, LA
28	Lambert Gravel Co., Bains, LA
29	Holloway Sand & Gravel Co., Jackson, LA
30	Mt. Vernon Gravel Co., St. Francisville, LA
31	Girod Gravel Co., Woodville, LA
32	Big River Industries, Erwinville, LA
33	Feliciana Sand & Gravel Co., Jackson, LA
34	New Orleans District Engineers, Miss. River Mile 234
35	Martin Gravel Co., Weyanoke, LA
36	River Materials, Miss. River Mile 249
37	Big River Industries, Erwinville, LA
38	Great River Corp., Miss. River Mile 293
39	Feliciana Sand & Gravel Co., St. Francisville, LA
40	Radcliff Gravel Co., Richton, MS
41	Richton Sand & Gravel Co., Richton, MS
42	Underwood Sand & Gravel Co., Beaumont, MS
43	American Sand & Gravel Co., Hattiesburg, MS
44	American Sand & Gravel Co., Hattiesburg, MS
45	American Sand & Gravel Co., Hattiesburg, MS
46	Underwood Builders, Beaumont, MS

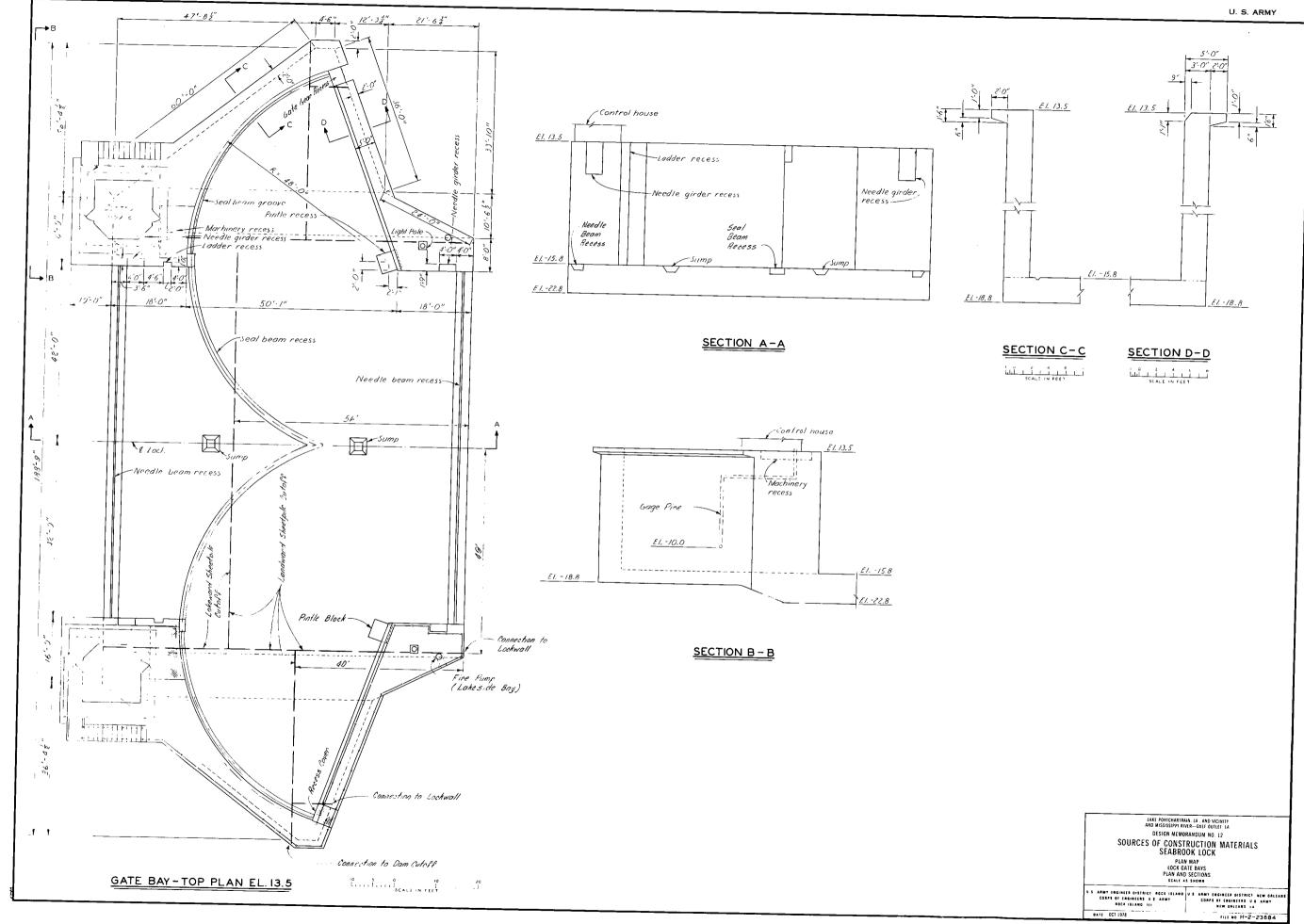
Source No	Source, Location
47	Hammitt & Green, Inc., Foxworth, MS
48	
49	American Sand & Gravel, Hattlesburg, MS Blain Sand & Gravel Co., Columbia MS
50	d craver co., cortumbra, MS
	Blain Sand & Gravel Co., Prentiss, MS
51	Vicksburg Sand & Gravel Co., Port Gibson, MS
52	Greene Brothers, Inc., Brookhaven, MS
53	Greene Brothers Sand & Gravel, Georgetown, MS
54	Greene Brothers Sand & Gravel, Crystal Springs, MS
55	Greene Brothers, Inc., Crystal Springs, MS
56	Traxler Gravel Co., Crystal Springs, MS
57	Traxler Sand & Gravel Co., Crystal Springs, MS
58	Greene Brothers Sand & Gravel Co., Carpenter, MS
59	Traxler Sand & Gravel Co., Carpenter, MS
60	Blain Sand & Gravel Co., Crystal Springs, MS
61	Blain Sand & Gravel Co., Crystal Springs, MS
62	St. Catherine Gravel Co., Natchez, MS
63	Unknown Producer, Miss. River Mile 378
64	St. Catherine Sand & Gravel Co., Natchez, MS
65	F & C Engineering Co., Miss. River Mile 306
66	St. Catherine Sand & Gravel Co., Natchez, MS
67	R. L. Hensley & Sons, Washington, MS
68	Lake Pearl Sand & Gravel Co., Mansura, LA
69	River Sand & Stone, Ohio River Mile 896
70	Reed Crushed Stone, Gilbertsville, KY

Source	Source, Location
<u>No.</u> 71	Williams Stone Quarry, Rosiclare, IL
72	Rigsby-Barnard Stone Quarry, Cave-In-Rock, IL
73	Denny & Simpson Stone Co., Cave-In-Rock, IL
	Three Rivers Rock Co., Smithland, KY
74	
75	Westlake Quarry, Miss. River Mile 71.5
76	Westlake Quarry, Miss. River Mile 46.5
77	Southern River Rock Co., Miss. River Mile 94.5
78	Bussen Quarries, Jefferson Barrack, MO
79	Columbia Quarry Co., Columbia, IL
80	Riverview Stone and Materials, Musicks Ferry, MO
81	Southern River Rock Co., Brickeys, MO
82	Stolle Quarry, Inc., Dupo, IL
83	Markham & Brown, Inc., Miss. River Mile 139
84	Westlake Quarry, Little Rock, MO
85	Westlake Quarry, Miss. River Mile 144
86	Charlie Bussen Quarry, Little Rock, MO
87	Southern River Rock Co., Miss. River Mile 128.1
88	Bussen Quarry, Glen Park, MO
89	Westlake Quarry, Golden Landing, MO
90	Wayne B. Smith, Louisiana, MO
91	Wayne B. Smith, Louisiana, MO
92	Florida Rock Corp., Naples, FL
93	Florida Crushed Stone Co., Brooksville, FL
94	Florida Rock Industries, Inc., Brooksville, FL

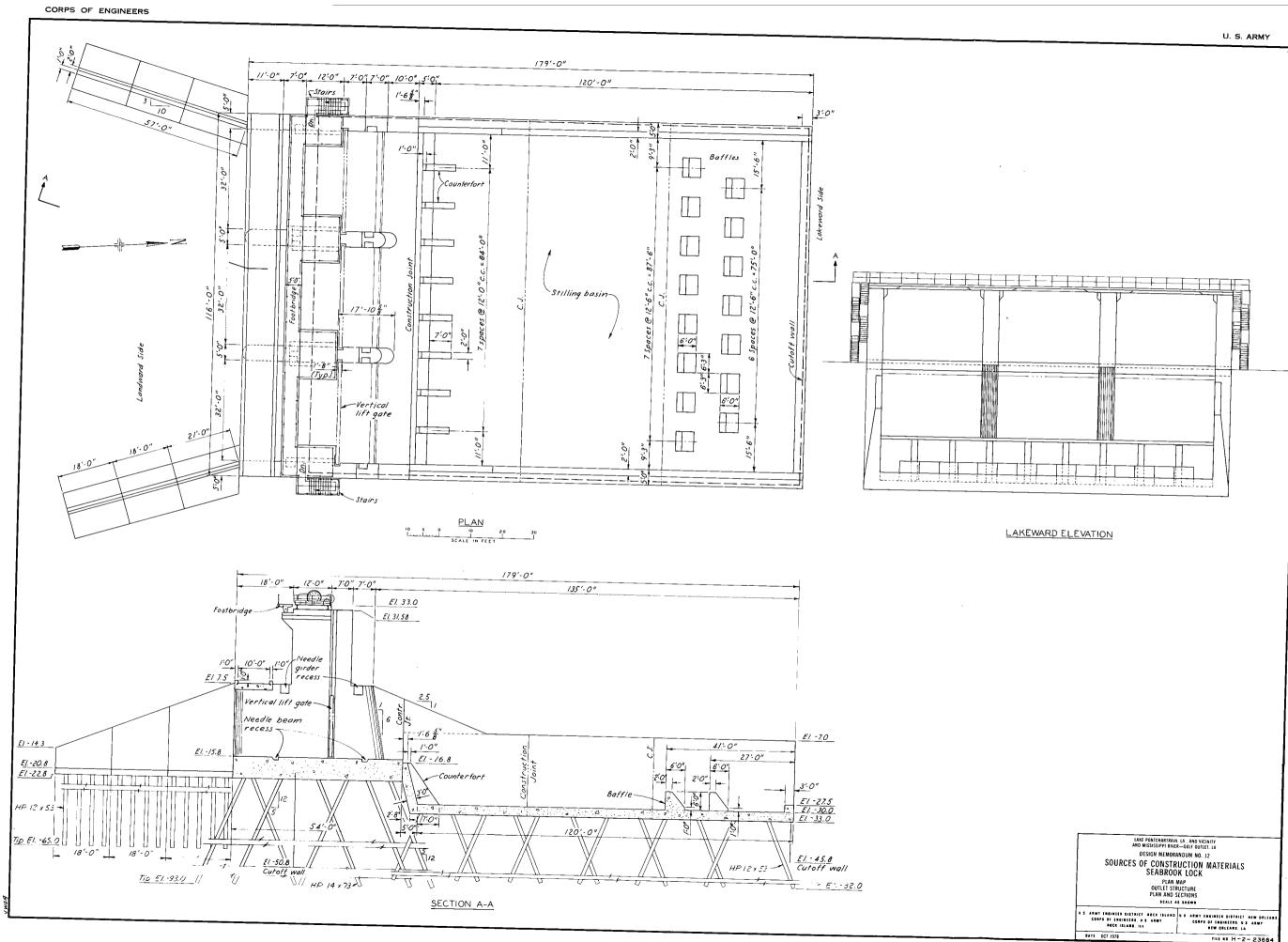
US ARMY ENGINEER DISTRICT ROCK ISLAND US ARMY INGINEER DISTRICT NEW ORLCA CORPS OF ENGINEERS US ARMY CORPS OF ENGINEERS US ARMY REW ORLCANS IN

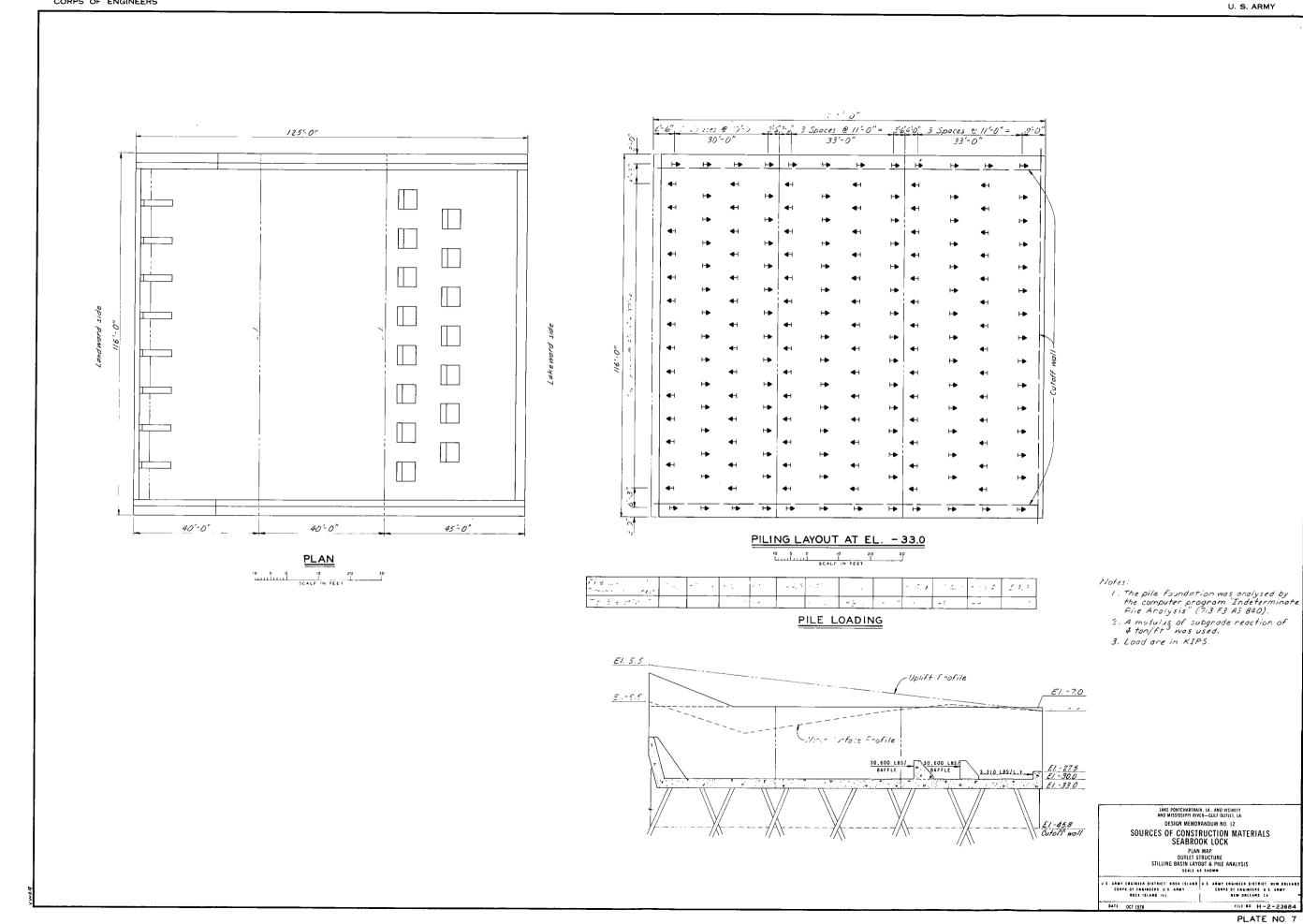




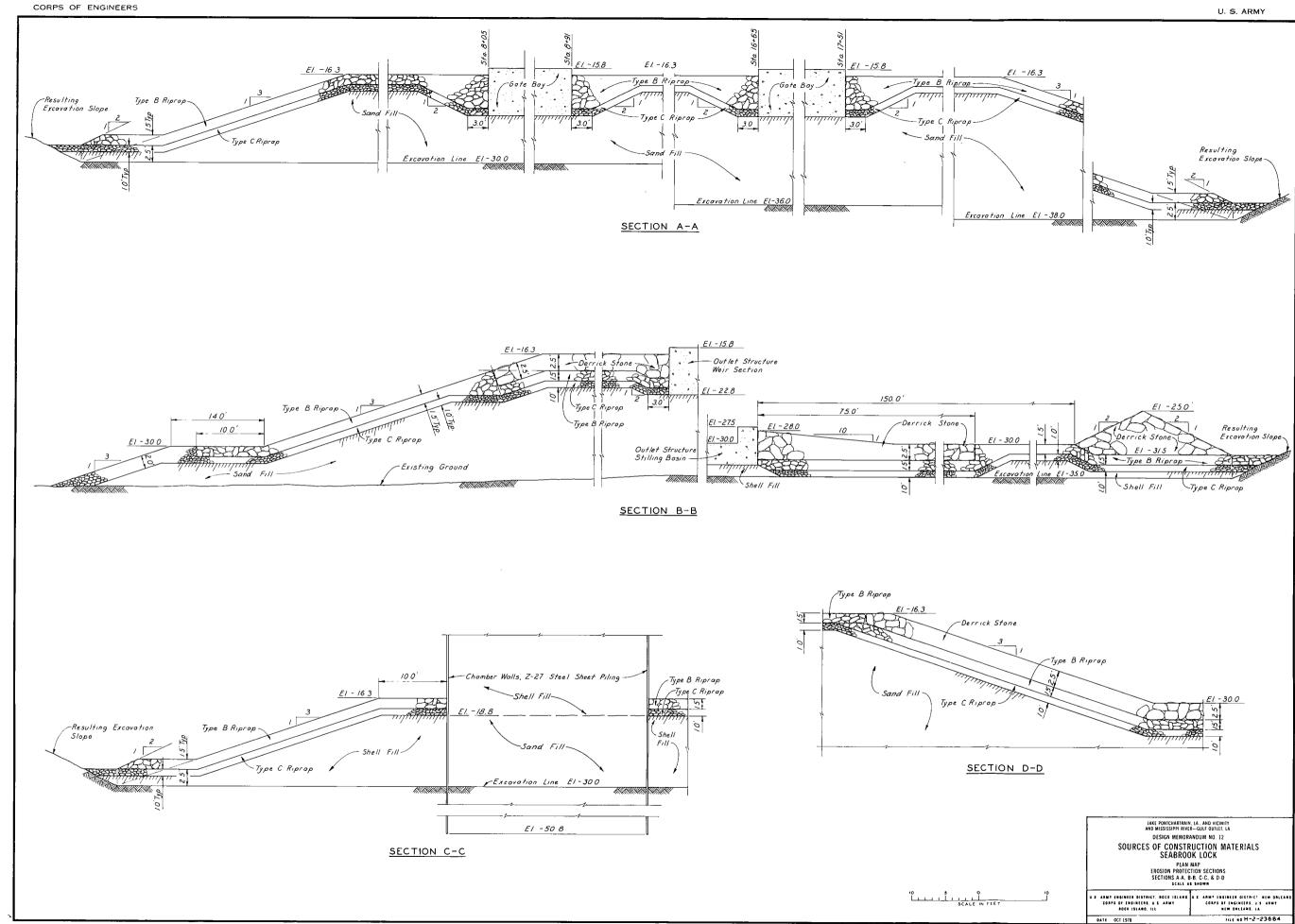


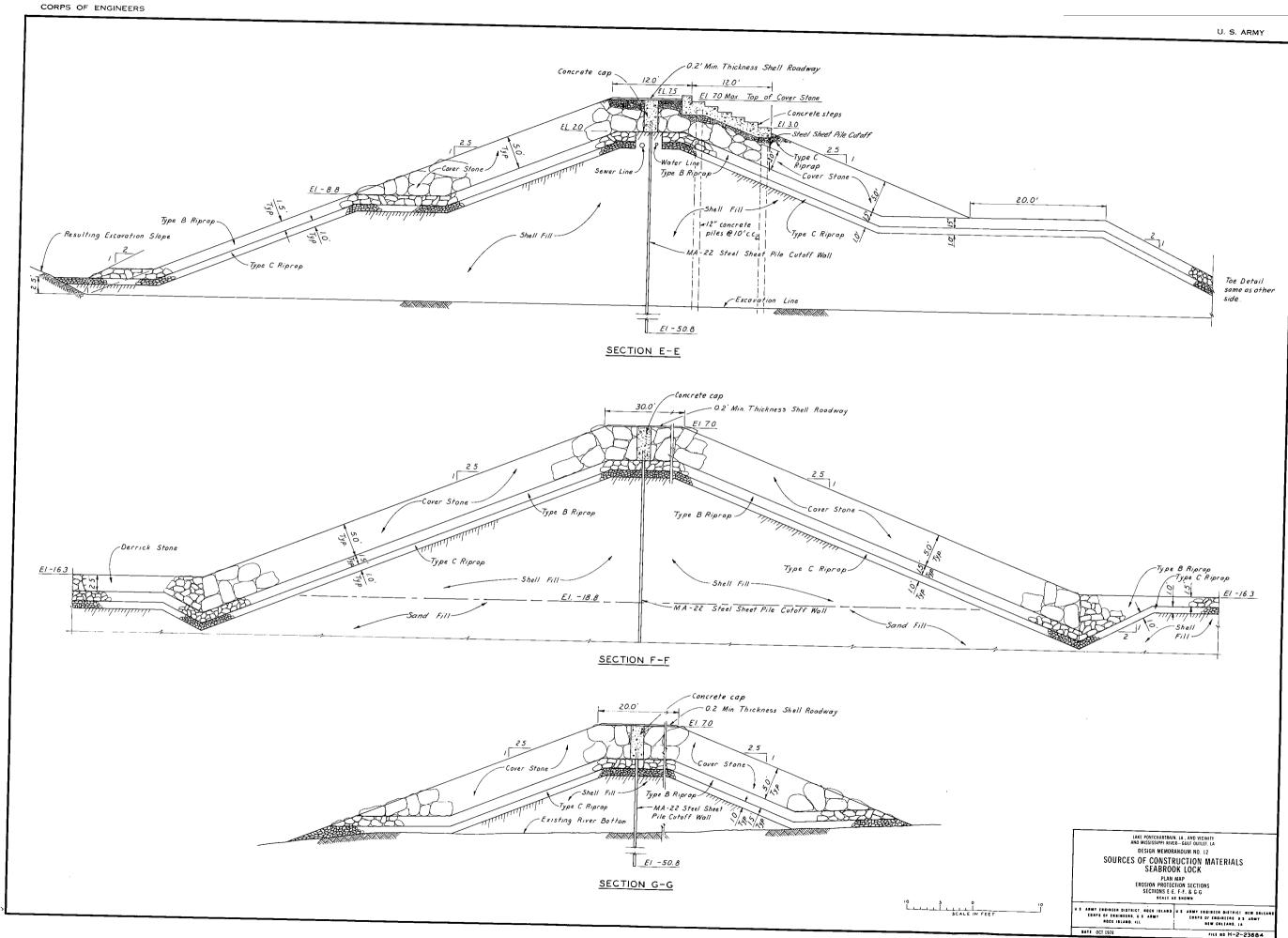
CORPS OF ENGINEERS





CORPS OF ENGINEERS





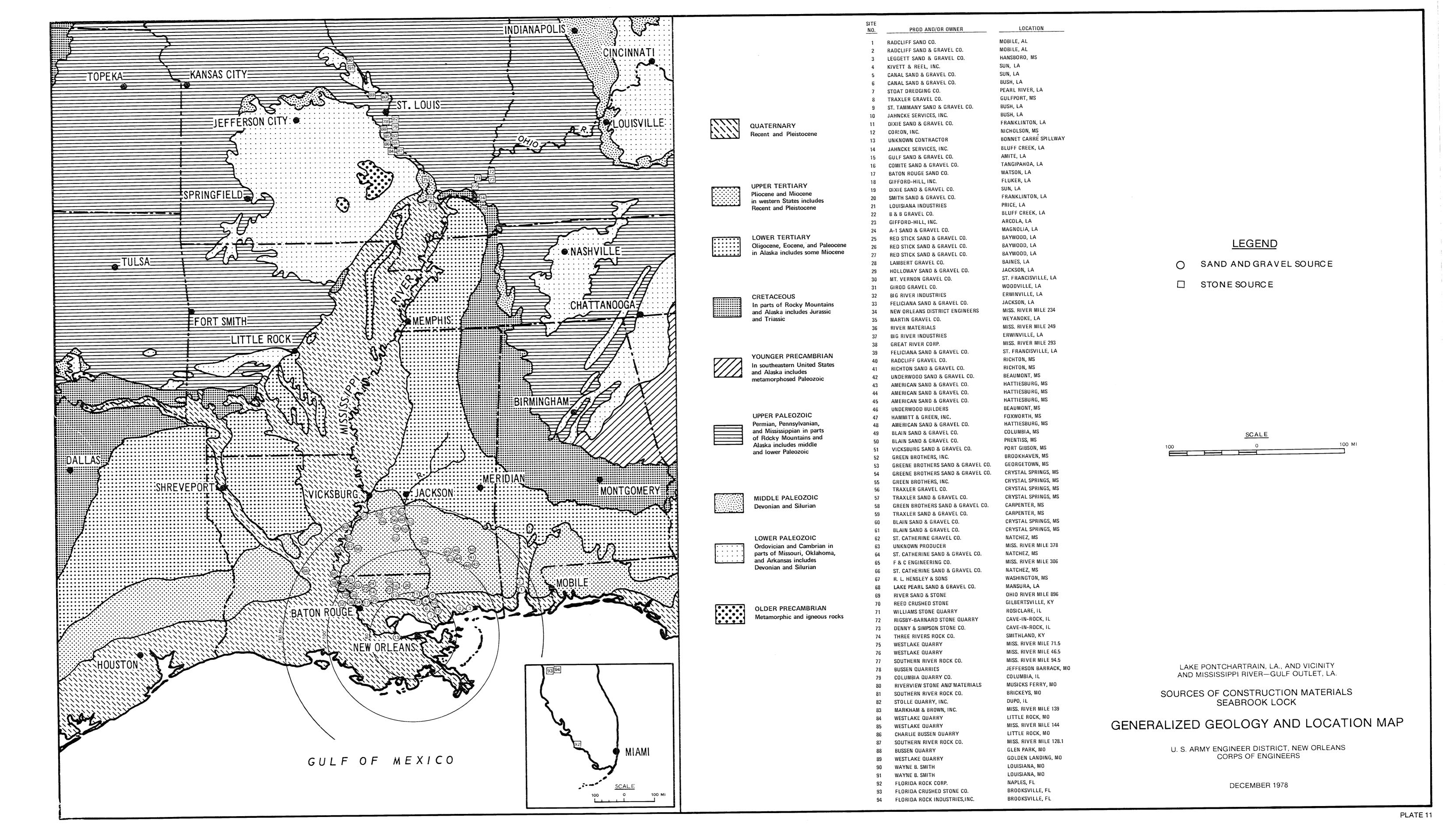


Table Cl Sources of Sand, Gravel, and Stone

Freight	\$/Ton Mile										
Mode of Transpor-	tation	Truck	Truck								
Haul Distance to	Site	150	160								
Site	\$/Ton	N/A	N/A								
Plant	\$/Ton								•		•
Plant	Tons/Day	1	1	_		-	,	7 71	T	5	۳Đ
Material	Availability Type Quantity	Sand Unknown	Sand Unknown	Sand Pit Closed	Sand Pit Closed Gravel	Sand Pit Closed Gravel	Sand Pit Closed Gravel	Sand Pit Closed Gravel	Sand Pit Closed	Sand Pit Closed Gravel	el Pit Closed
ž			Sand	Sand	Sand Gravel	Sand Gravel	Sand Gravel	Sand Gravel	Sand	Sand P Gravel	Gravel
0,	Locations Lat Long. Index	-	7	1	7	m	4	'n	9	^	∞
TM6-370	Locations Long. In	88	88	88	89	88	88	89	88	88	88
,	Lat	30	30	30	30	30	30	30	30	30	30
Location	ot Pit/Quarry	Mobile, AL	Saraland Pit, 10 mi N of Mobile, AL	Harrison Co., MS Sec 19, T7S, R 10W	Sun, LA	Pit No. 2 Sun, LA	Bush, LA	5 mi N of Pearl River, LA	Harrison Co., MS Sec 17, T 75, R 12W	3/4 ml S of Bogue Chitto River	1/2 mi N of Lock 30 No. 2 on Pearl River
Name and Address of	Producer/ Owner	Radcliff Sand Co. Mobile, AL	Radcliff Sand & Gravel Co, Mobile, AL	Leggett Sand & Gravel Co., Hansboro, MS	Kivett & Reel, Inc. Sun, LA	Canal Sand & Gravel Co., Sun, LA	Canal Sand & Gravel Co., Bush, LA	Sloat Dredging Co. Slidell, LA	Traxler Gravel Co. Gulfport, MS	St. Tammany Sand and Gravel Co., Sun, LA	Jahncke Services, Inc. Bush, LA
	Source	1	2	e.	4	5	9	7	80	6	10

(Continued)

Table Cl (Continued)

ļ	ĺ											•	
	-	Freight	\$/Ton Mile								90.		90.
		Mode of Transpor-	tation								Truck,		Truck
	Haul Distance	to Seabrook Lock	Site	1	07	20					80		102
	į	Site	\$/Ton		N/A	N/A					7.20		7.62 9.12
	i	Plant Cost	\$/Ton							•	2.40		1.50
	i	Plant Capacity	Tons/Day					D.			2000		1800
	N. c. c. c.	Material Availability (Type Quantity 7	Sand Pit Closed Gravel	Sand Unknown Gravel	Sand Unknown	Sand Pit Closed Gravel	Gravel Pit Closed	Sand Pit Closed Gravel	Sand Pit Closed ' Gravel	Sand Plentiful Gravel	Sand Pit Closed Gravel	Sand Adequate Gravel
		ns u	Index	ø.	10	н	7	e	4	5	9	7	œ
	020 347	IMD-3/U Locations	Lat Long. Index	88	88	06	06	06	06	06	06	90	06
		I	Lat	30	30	30	30	30	30	30	30	93	30
	1	Locarion	Pit/Quarry	15 mil SE of Franklinton, 'LA, Sec 16, T 45, R 12E	N of Hwy 11 on Pearl River	Bonnet Carre Spillway	1-1/4 mi N of Hwy 126 & 37	Amite, LA	10 mi N of Amite, LA	16 mi NE of Baton Rouge on Amite River	l mi N of Fluker, LA	15 mi SE of Franklinton, LA Sec 16, T 4S, R 12E	5 mi NW of Franklinton, LA
	Name and	Froducer/	Owner	Dixie Sand & Gravel Co. Amite, LA	Carion, Inc. Picayune, MS	Unknown Contractor	Jahncke Services, Inc. Jackson, LA	Gulf Sand & Gravel Co. Amite, LA	Comite Sand & Gravel Co. Amite, LA	Baton Rouge Sand Co. Baton Rouge, LA	Gifford-Hill, Inc. Amite, LA	Dixie Sand & Gravel Co. Amite, LA	Smith Sand & Gravel Mt. Herman, LA
-			Source	T ,	12	13	14	15	16	17	18	19	20

(Continued)

Table Cl (Continued)

	Freight	\$/Ton Mile	90.	.07	90.	_	.055	.055		90°	90.			•
	Ĺ	tation \$	Truck, Rail	Truck	Truck, Rail		Truck	Truck		Truck	Truck			. •
Haul Distance	to Seabrook Lock	Site	09	86	7.1		76	96	,	86	94			06 .
	Site Cost	\$/Ton	5.10	8.53 9.08	7.02		N/A	N/A		8.63 9.88	10.14 10.14			
	Plant Cost	\$/Lou	1.50	1.67	2.40		1	1		2.75	4.50			
	Plant Capacity	Tons/Day	900 1200		1500		l	I		1000 1000	1500			•
•	Material Availability C	Type Quantity I	Sand Adequate Gravel	Sand Unknown Gravel	Sand Adequate Gravel	Sand Pit Closed Gravel	Sand Unknown Gravel	Sand Unknown Gravel	Gravel Pit Closed	Sand Adequate Gravel	Sand Adequate Gravel	Sand Pit Closed Gravel	Sand Pit Closed	Lightweight Materials
	70 Sus	Index	6	11	12	18	70	70	70	П	7	m	4	2
	TM6-370 Locations	Lat Long. Index	90	06	06	06	06	06	06	91	16	91	91	91
	_	Lat	30	30	30	30	30	93	30	30	30	30	30 k	30
	Location	Pit/Quarry	Price, LA	Bluff Creek, LA	l mi N of Arcola, LA	0.6 mi E of Magnolia, LA	3.6 mi S of Hwy 37 & 63	Fedler Pit, Baywood, LA	Davis Pit, Baywood, LA	2 mi W of Baines on Hwy 66	E Feliciana Parish, T 35, R lW	6 mi SE of St. Francisville, LA	15 mi S of Wood- ville, MS on Bayou Sara Creek	18 mi W of Baton Rouge, LA at Erwinville, LA
Name and	Address of Producer/	Owner	Louisiana Industries New Orleans, LA	B & B Gravel Co. Baton Rouge, LA	Gifford-Hill, Inc. Roseland, LA	A-1 Sand & Gravel Co. Baton Rouge, LA	Red Stick Sand & Gravel Co., Baton Rouge, LA	Red Stick Sand & Gravel Co., Baton Rouge, LA	Red Stick Sand & Gravel Baton Rouge, LA	Lambert Gravel Co. St. Francisville, LA	Holloway Sand & Gravel Co., Jackson, LA	Mt. Vernon Gravel Co. Mt. Vernon, LA	Girod Gravel Co. Woodville, MS	Big River Industries Baton Rouge, LA
		Source	21	22	23	24	25	26	27	28	29	30	31	32

	Freight	Cost	\$/Ton Mile									-	90.
	Mode of	Transpor-	tation								.		Truck
	Haul Distance to	Seabrook Lock	STEE				06		66				116
		Cost		•									9.06 10.36
	Plant	S/Ton					е 32						2.10 3.40
	Plant	Capacity Tons/Dav					as Sourc		,				2000
	Material	>	. 7	Sand Unknown	Sand Pit Closed Gravel	Sand Pit Closed Gravel	Lightweight Same as Source 32 Materials	Sand Pit Closed Gravel	re1	rel Pit Closed	rel Pit Closed	Sand Pit Closed Gravel	Sand Plentiful Gravel
	Š		-	San	Sand	Sand Gravel	Lig Mate	Sand	Gravel	Gravel	Gravel	Sand Gravel	Sand
	170	Lat Long. Index	9	^	∞	6	10	11	I	7	7	1	-
	TM6-370	Long	91	91	16	91	91	91	91	88	88	88	68
		Lat	30	30	. 30	30	30	30	30	31	31	31	31
	Location of	Pit/Quarry	l mi W of Jack; son, LA	Mile 234, Miss. River	E of Weyanoke, LA	Mile 249, Miss. River	1/2 mi W of Erwinville, LA	Mile 292.7, Miss. River	4.8 ml N of St. Francisville, LA	Richton, MS	l mi S of Rich- ton, Sec 6, T 4N, R 9W	0.7 mi E of Hwy 15, 2.8 mi N of Hwy 98	Forrest Co., MS Sec 33, T 5N, R 13W
Name and	Address of Producer/	Owner	Feliciana Sand & Gravel Jackson, LA	New Orleans District Engineers	Martin Gravel Co. St. Francisville, LA	River Materials Bain LA	Big River Industries Erwinville, LA	Great River Corp. Tunica, LA	Feliciana Sand & Gravel Jackson, LA	Radcliff Gravel Co. Richton, MS	Richton Sand & Gravel Co., Richton, MS	Underwood Sand & Gravel Richton, MS	American Sand & Gravel Hattiesburg, MS
		Source	33	34	35	36	37	38	33	07	41	42	43

Table Cl (Continued)

		Cost	\$/Ton Mile	90.			90.	90.					.12/yd	
	Mode of	Transpor-	tation	Truck			Truck	Truck	,				Truck	Truck
	Haul Distance to	Seabrook Lock	Site	162			162	162					166	165
	Site		10u	11.22	77:71		11.47	11.47					15.78	15./8 N/A
		Cost		1.50).		1.75	1.75			•		2.50	
	Plant	Capacity Tone/Dam	(a)	1			3000	2000	•				1000	
		Availability Type Onantity	e g	Sand Unknown Gravel	Sand Gravel	Gravel	Sand Plentiful Gravel	Sand Plentiful Gravel	Sand Pit Closed Gravel	Sand Unknown Gravel	Sand Pit Closed Gravel	Sand Pit Closed	Sand Plentiful Gravel	Sand Unknown Gravel
	20	Index	4	1	5	. •	1	1	н Н	7	ω	6	10 8	1
	TM6-370	Lat Long. Index	06	06	90	90	06	06	91	91	91	91	91	91
		Lat	Σ	31 MS	31	31	31	31	31	31	31	31	31	31
	Location	Pit/Quarry	1 mi SE of Crystal Springs,	0.5 mt S'of Crystal Springs,	5 mi E of Car- penter, MS	4 ml E of Car- penter, MS	<pre>1 mi SE of Crystal Springs, MS (South Pit)</pre>	<pre>1 mi SE of Crystal Springs, MS (North Pit)</pre>	4.5 mi NE of Natchez	Mile 378, Miss. River	S of Natchez, MS	Mile 306, Miss. River	3.1 mi E of Hwy 61 & 84	2.5 mi E of Hwy 61 & 98
Name and	Address of Producer/	Owner	Traxler Gravel Co. Utica, MS	Traxler Sand & Gravel Co., Jackson, MS	Greene Brothers Sand & Gravel Co., Crystal Springs, MS	Traxler Sand & Gravel Co., 4 ml E of Utica, MS penter, M	Blain Sand & Gravel Co., Mt. Olive, MS	Blain Sand & Gravel Co., Mt. Olive, MS	St. Catherine Gravel Co., Natchez, MS	Unknown Producer	St. Catherine Sand & Gravel Co., Natchez, MS	F & C Engineering Co., (Contractor)	St. Catherine Sand & Gravel Co., Natchez, MS	R. L. Hensley & Sons Washington, MS
		Source	26	57	58	59	09	61	62	63	99	92	99	19

Table Cl (Continued)

	Freight Cost	\$/Ton Mile			· ·	90.	90.		90.	90.	
	Mode of Transpor∸	tation	•		Barge, Rail, Truck	Truck Barge	Truck	Truck	Truck, Barge	Truck, Barge	Truck Barge
	Haul Distance to Seabrook Lock	Site			941 B 570 T	612 T 956 B	620 T	620 т	585 T 929 B	582 T 938 B	572 T 913 B
•		\$/Ton			9.50B	43.72T	39.70T	N/A	37.60T 8.25B	36.72T 8.00B	7.908
	Plant Cost	\$/Ton			2.75	7.00	2.50	·	2.50	1.80	1.80
	Plant Capacity	Tons/Day	_		2000	4000	2500	. 2500	2000	2500	4000
	Material Availability	Type Quantity	Sand Pit Closed Gravel	Crushed Limestone	Crushed Limestone Plentiful	Crushed Limestone Plentiful	Crushed Limestone Plentiful	Crushed Limestone Plentiful	Crushed Limestone Plentiful	Limestone Ledge Rock Plentiful	Limestone Ledge Rock Plentiful
	07 Suc	Index	==	e	1	21	22	28	29	17	18
	TM6-370 Locations	Lat Long. Index	92	88	88	88	88	80	88	88	88
		Lat	31 A	37	х 37	37	, 37	. 37	37	37	. 37
	Location	Pit/Quarry	Between Hesmer, LA, & Mansura, LA	Mile 896, Ohio River	Gilbertsville, KY 37	Rosiclare, IL	Cave-In-Rock, IL	Cave-In-Rock, IL	Smithland, KY	Mile 71.5, Upper Miss. River	Mile 46.5, Upper Miss. River
	Name and Address of Producer/	Owner	Lake Pearl Sand & Gravel Marksville, LA	River Sand & Stone Golconda, IL	Reed Crushed Stone Gilbertsville, KY	Williams Stone Quarry Rosiclare, IL	Rigby-Barnard Stone Quarry, Cave-In-Rock, IL	Denny & Simpson Stone Co. Cave-In-Rock, IL	Three Rivers Rock Co. Smithland, KY	Westlake Quarry Neely's Landing, MO	Westlake Quarry Gray's Point, MO
		Source	89	69	70	71	72	73	74	75	76

(Continued)

Freight	\$/Ton Mile						80°			
Mode of	tation	Barge	Barge, Rail, Truck	Truck	Barge, Truck	Barge	Truck	Barge		Barge
Haul Distance to Seabrook Lock	Site	961 B	1035 B 691 T	т 679	1070 B 711 T	1000 B	685 T	1005 в		1010 B
Site	\$/Ton	N/A	10.508	N/A	N/A	N/A	57.50T	8.60B		N/A
Plant			2.50				2.70	2.50		
Plant Capacity	Tons/Day		4000	2000	0009		2000	10,000		
Material Availability	Type Quantity	Limestone Ledge Rock Unknown	Limestone Ledge Rock Plentiful	Crushed Limestone Plentiful	Limestone Ledge Rock Plentiful	Limestone Ledge Rock Unknown	Crushed Limestone Plentiful	Ledge Rock Plentiful	Crushed Limestone Pit Closed	Ledge Rock Unknown
70 ons	Lat Long. Index	20	4	10.	24	29	35	37	38	39
TM6-370 Locations	Long.	88	06	96	06	8	8	8	90	90
	Lat	r 37	40 38	38	10 38	38	38	38	38	38
Location of	Pit/Quarry	Mile 94.5, Upper Miss. River	St. Louis Co., MO 38 Sec 12, T 43N, R 6E	2.5 mi NE of Columbia, IL	St. Louis Co., MO 38 Sec 33, T 48N, R 6E	1/2 mi SW of Brickeys, MO	St. Clair Co., IL, Sec 13, 14, T 1N, R 10W	Mile 139, Upper Miss. River	Ste. Genevieve Co., MO, Sec 19, R 9E, T 38N	Mile 144, Upper Miss. River
Name and Address of Producer/	Owner	Southern River Rock Perryville, MO	Bussen Quarries St. Louis, MO	Columbia Quarry Co. Dupo, IL	Riverview Stone & Materials, St. Louis, MO	Southern River Rock Co. Perryville, MO	Stolle Quarry, Inc. Dupo. IL	Markham & Brown, Inc. Dallas, TX	Westlake Quarry Bridgeton, MO	Westlake Quarry St. Louis, MO

	Freight	Cost	3/ 1011 PITTE									
	Mode of	Ł	_	Barge	Barge		Barge	Barge Truck	Barge, Truck	Truck Barge	Truck	Truck, Rail
Haul Distance	to	Seabrook Lock	Site	996 в	994 B		1094 В	1149 B 792 T	1149 B 792 T	766 T 462 B	555	550
	Site	Cost	\$/1.on	N/A	d N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Plant	Cost	\$/Ton		2.85/yd N/A			2.75	4.00	5.00	5.00	5.25
	Plant	Capacity	Tons/Day		2000		2500	3000	3000	450	12,000	
	Material	Availability	Type Quantity	Limestone Ledge Rock Unknown	Ledge Rock Plentiful	Limestone Riprap Unknown	Limestone Ledge Rock Plentiful	Gravel Plentiful	Limestone Ledge Rock Plentiful	Limestone Riprap. Limited	Crushed Limestone Plentiful	Crushed Limestone Unknown
	0	su	Index	07	41	67	45	7	9	4	-	7
	TM6-370	Locations	Lat Long. Index	06	90	06	06	91	91	81	82	82
		1	Lat	38	38	38	38	39	39	26	28	L 28
	Location	jo	Pit/Quarry	Ste. Genevieve Co., MO, Sec 12, R 8E, T 38N	Mile 128.1, Upper 38 Miss. River	Glen Park, MO	Calhoun Co., IL Sec 1, T 14S, R 3E	Pike Co., MO Sec 17, R 6W, T 54N	Pike Co., MO Sec 20, T 54N, R 1W	10 mi E of Naples, FL	Hernando Co., FL Sec 8, T 22S, R 19E	Hernando, Co., FL 28 Sec 22, T 21S, R 19E
bac omeN	Address of	Producer/	Owner	Tower Rock Stone Co Ste. Genevleve, MO	Southern River Rock Perryville, MO	Bussen Quarry Glen Park, MO	Westlake Quarry St. Louis, MO	Wayne B. Smith Louisiana, MO	Wayne B. Smith Louisiana, MO	Florida Rock Corp. Naples, FL	Florida Crushed Stone Brooksville, FL	Florida Rock Industries, Inc., Jacksonville, FL
			Source	86	87	88	88	06	16	92	93	94

N/A - Not Available B - Barge T - Truck

Table C2
Fine Aggregate
Summary of Test Data

Remarks		Grading Only	,																	
Freezing- Thawing DFE300		1	l	!	1	၈	1	1	1	1	ł	ı	1	7	†	1	}	1	e l	
Friable Particles Percent	1	1	1	ł	1	!	1	}	1	1	1	1	1	ı	1	1	0.3	ł	1.7	
MgSO4 Loss Percent	2.91	1	3.551	3.40	3.80	2.19	2.02	1	ţ	ł	2.40	ł	2.60	2.8	1.8	ł	4.7	1	2.5	
Lighter than 2.00 Sp. Gr. Percent	1	ŀ	;	1	!	!	-	!	1	1	}	1	ļ	1	;	;	0.0	!	0.0	
F 1	7			-	ч	1	н	1	ł	**	OK	7	!	2	2	;	1	!	7	(Continued)
Abosrption Percent	0.1	i	9.0	0.5	0.4	0.2	0.3	1.2	0.3	0.7	7.0	1.2	0.3	0.5	0.7	4.0	0.3	0.7	0°5 0°6	ю)
Specific Gravity	2.63	1	2.60	2.62	2.62	2.66	2.64	2.59	2.61	2.62	2.62	2.58	2.62	2.60	2.62	2.64	2.63	2.62	2.63 2.62	
Date Tested	1950	1960	1951	1949	1948	1947	1947	1952	1952	1970	1964	1948	1962	1949	1958	1968	1977	1970	1972 1977	
Name of Producer	Radcliff Sand Co.	Radcliff S & G Co.	Leggett S & G Co.	Kivett & Reel	Canal S & G Co.	Canal S & G Co.	Sloat Dreding	Traxler Gravel Co.	St. Tammany S & G Co.	Dixie S & G Co.	Carion, Inc.	Unknown Contractor	Jahncke Services, Inc.	Comite S & G Co.	Baton Rouge Sand Co.	Gifford-Hill	Gifford-Hill	Dixie S & G Co.	Smith S & G Co.	NaSO ₄ Loss Test
Source No.	1	2	3	4	5	9	7	c c	6	11	12	13	14	16	1.7	18	18	19	20	1 NaSO $_{4}$

· (7					
Source No.	Name of Producer	Date Tested	Specific Gravity	Absorption Percent	Impurities	2.00 Sp. Gr.	MgSO4 Loss	Friable Particles	Freezing-	
21	Louisiana Industries	1974	2.62	5 0	NO.	rercent	Percent	Percent	DFE300	Remarks
22	B & B Gravel	1977	2.63		۱ ۹	!	;	ļ	ł	
23	Gifford-Hill Co.	1977	2.63	* *	7	0.0	4.8	0.0	!	
24	A-1 S & G Co.	1977	2.63		⊣ ∢	0.0	4.3	0.0	1	
25	Red Stick S & G	1977	2.63	f: 0	٧,	0.0	1.2	0.2	!	
28	Lambert Gravel Co.	1962		4.0	-1 _F -	0.0	4.8	0.0	!	
28	Lambert Gravel Co.	1977	2.63	6.5	⊣ ເ	1 3	3.6	1	ŀ	
29	Holloway S & G Co.	1965	2.62	6.5	۱ ۲	0.0	ŀ	5.5	!	
30	Mt. Vernon Gravel Co.	1969	2.61	0.4		!	!	!	ł	
E C16	Girod Gravel Co.	1969	2.62	0.1	•	!	l	!	i	
32	Big River Industries	1956	1.90	1.5.3	!	!	3.2	!	ł	
33	Feliciana S.& G Co.	1957	2,64	7.07	!	!	;	!	ŀ	
33	Feliciana S & G Co.	1961	•	0	۱.	0.0	;	1		
33	Feliciana S & G Co.	1977	2.62	7.0	٦,	. 0.1	2.8	!	1	
34	NOD Engineers	1957			٦,	0.1	4.8	6.0	!	
35	Martin Gravel Co.	1961	2.64	9.0	ਹ ਂ	1 }	;	1	!	
36	River Materials	1964	2.61	0.5	¦ "	0.01	1	1	;	
37	Big River Industries	1964	;) ; ; ; ;	ן י	•	2.5	!	1	
38	Great River Corp.	1971	2.63	0.4	, «	¦ ′;	1.5	1	;	
42	Underwood S & G	1977	2.63	t:0	> +	2.0	3.0	!	ı	
43	American S & G	1951	2.64	0.2	. •	0.0	3.2	0.1	1	
77	American S & G	1969	2.63	0.4	•		2.08	1	ŀ	
					i	!	ŀ	١.	1	
NaSO,	NaSO4 Loss Test									
				(Cont	(Continued)					

C16

Renarks

Freezing-Thawing	DFE300	1	1	1	1	1	;	1	1	1	1	1	!	1	!	i i	¦	1	!	1	\	ļ	
Friable	Percent	1	0.2	9	1	0.2	1.8	į	1	0.3	1	0.2	1	1	į	1	1	0.4	0.2	1.0	0.5	l	
Mg 504	Percent	1	3.1	1	2.7	3.0	6.4	2.2	2.5	5.8	3.3	6.3	1	1	3.4	.1	1	4.4	4.0	5.1	3.9	2.9	
Lighter than	2.00 Sp. Gr. Percent	1	0.0	1	0.0	0.0	0.0	i	1	0.0	1	0.0		1	. 1		1	. 0.0	0.1	0.0	0.0	. 1	
Organic	Impurities No.												+			۱		Н			,	7	
	Absorption Percent	5.0	7		7.7	÷ "	7.0		n. o	0.3	0.3	0.5	0.0	9.0	9.0	9 4		7.0	* *			4.0	
	Specific	ST CO	2,63	7.67	2.66	2.64	2.63	2.62	2.60	2.62	2.64	2.62	2.63	2.55	7.62	2.62	79.7	79.7	2.03	2.60	2.64	67.0	70.7
	Date	Tested	1970	1977	1957	1975	1977	1977	1948	1958	1977	1960	1977	1968	1968	1968	1968	1968	1977	1967	1977	1977	1949
	Name of	Producer	American S & G	American S & G	Underwood Builders	Hammitt & Green, Inc.	Blain S & G Co.	Blain S & G, Inc.	Vicksburg S & G	Greene Bros.	Greene Bros.	Greene Bros.	Greene Bros.	Traxler Gravel	Traxler S & G	Greene Bros.	Blain S & G	Blain S & G	St. Catherine				
	Source	No.	77	45	97	47	67	20	51	52	53		:S C17	26	95	56	99	26	57	58	09	61	62

	Remarks										
Freezing- Thawing	DFE300	Ι.	-	i i	!	;		!	1	!	1
Friable Particles	rercent	7:7	!	i I	!	!	ŀ	I	1 3	e 5 ¦	
MgSO4 Loss	7 0 7	, ,	;·	1 1	!	ľ	ł	ł		7.8)
Lighter than 2.00 Sp. Gr. Percent	0.1	; ;	2.0	2	1	i I	i	!		0.0	
Organic Impurities No.	1	ن	, m	, m		٠ ٧	+ ~	' !	7	0	
Absorption Percent	0.7	9.0	9.0	6.0	0.7	1.0	·	8.0	9.0	0.7	
Specific Gravity	2.62	2,61	2.62	2.62	2.63	2.62	2.61	2.62	2.62	2.62	
Date Tested	1977	1948	1957	1957	1957	1957	1957	1968	1977	1959	
Name of Producer	St. Catherine	Unknown Producer	St. Catherine	F & C Engineering	St. Catherine S & G	R .L. Hensley	Lake Pearl S & G				
No.	62	63	99	65	65	65	65	99	29	89	

Table C3

Coarse Aggregate

Summary of Test Data

Remarks												
Friable Particles Percent	: " 		1	l			 I			!	i	!
Abrasion Loss Percent	1	20.0	18.5	18.1	1	1	1	17	,I	18.6	23.0	15.9
MgSO4 Loss Percent	9.36	16.3	9.71	12.1	1	ł	ļ	12.3	3.7	2.4	4.2	3.2
Flat and Elongated Percent	i	I	l	ŀ	ļ	ŀ		.!	!	1	6.9	9.0
Lighter than 2.40 Sp. Gr. Percent	12.6	29.2	I	1	!	i		!	1	12.2	I	8.7
Soft Particles Percent	1	1	1	1	1	1	1			1.5	0.0	0.0
Absorption Percent	2.5	3.3	2.4	2.9	3.6	1.9	3.0	3.2	2.1	2.6	2.0	2.7
Specific Gravity	2.53	2.48	2.51	2.60	2.49	2.55	2.49	2.49	2.55	2.52	2.52	2.54
Date Tested	1949	1948	1947	1947	1952	1968	1970	1964	1962	1960	1949	1958
Producer and Size Range, in.	Kivett & Reel $1-1/2$ - No. 4	Canal S & G 1-1/2 - No. 4	Canal S & G 1-1/2 - No. 4	Sloat Dredging $1-1/2$ - No. 4	St. Tammany S & G 1-1/2 - No. 4	Jahncke Servies 1-1/2 - No. 4	Dixie S & G 1-1/2 - No. 4	Carion, Inc. 3/4 in No. 4	Jahncke Services 1-1/2 - No. 4	Gulf S & G 1 - No. 4	Comite S & G 1-1/2 - No. 4	Baton Rouge Sand 1-1/2 - No. 4
Source No.	4	v n	9	7	6	10	11	12	14	श	16	17

	Nemarks											
 Friable Particles	1100101	Y	1 1	e. o	! .	ກໍ່ເ	7. 6	7 0	7 6	·	0.1	!
Abrasion Loss	20 €	<u>.</u>	1 18.1	79.3		7 70	t 0	T0.5	18 0	20.8	I	17.5
MgSO4 Loss	3.0	;	3.2		- 4	· -	7 1			4.2	!	ł I
Flat and Elongated	0.5	; ;	1.0	; 1	2,9	3.1	2.7		9.1	2.4		1.6
Lighter than 2.40 Sp. Gr. Percent	8.6	<u> </u>	11.7		8.7	5.3	23,3	10.3	8.1	16.7	7: 1	16.2
Soft Particles Percent	0.2	1	0.0	! !	0.0	0.0	0.0	0.0	0.0	6.0	: I	1.4
Absorption Percent	2.3	3.0	2.5	3.1	1.9	1.2	3.0	2.2	2.1	1.6	2.6	2.7
Specific Gravity	2.54	2.49	2.54	2.51	2.53	2.56	2.49	2.52	2.52	2.55	2.54	2.50
Date Tested	1977	1970	1972	1974	1977	1977	1977	1977	1977	1962	1965	1969
Producer and Size Range, in.	Gifford-Hill Co 1-1/2 - No. 4	Dixie S & G 1-1/2 - No. 4	Smith S & G 1-1/2 - No. 4 1-1/2 - No. 4	Louisiana Industries 1-1/2 - No. 4	B & B Gravel . 1-1/2 - No. 4	Gifford-Hill 1-1/2 - No. 4	A-1 S & G 1 in No. 4	Red Stick S & G 1-1/2 - No. 4	Red Stick S & G 1-1/2 - No. 4	Lambert Gravel 1-1/2 - No. 4 1-1/2 - No. 4	Holloway S & G 1-1/2 - No. 4	Mt. Vernon Gravel 1-1/2 - No. 4
Source No.	18	19	20	21	22	23	24	26	27	28	29	30

Table C3 (Continued)

Remarks											
Friable Particles Percent	!	6	1	!	;	1	0.0	ì		0.1	11
Abrasion Loss Percent	30.5	17.6	i	17.9	1	20.7	21.5	ł	18.1	17.9	19.4
Mg SO ₄ Loss Percent	1	3.3	1	2.4	2.9	3.1	!	;	0.56	1.6	$\frac{1.72^{1}}{5.62^{1}}$
Flat and Elongated Percent	1	1.0		2.5	ł	1	1.3	;	ŀ	1.2	11.
Lighter than 2.40 Sp. Gr. Percent	ŀ	6.4	7.1	11.1	. e.	11.1	12.0	1	1	7.4	4.1
Soft Particles Percent	Į.	0.0		0.0	ŀ	1	0.0	1	. 1	0.0	11.
Absorption Percent	17.9	2.1 2.8 2.1	1.9	1.6	l	1.0	1.7	;	1.4	2.3	1.0
Specific Gravity	1.85	2.55 2.55 2.52	2.47	2.54	ł	2.56	2.53	1	2.58	2.55	2.57
Date Tested	1956	1957 1961 1977	1961	1964	1964	1971	1977	1948	1953	1977	1951
Producer and Size Range, in.	Big River Industries 1/2-in No. 30	Feliciana S & G 1-1/2 - No. 4 2-in No. 4	Martin Gravel 1-1/2 - No. 4	River Materials 1-in No. 4	Big River Industries 3/4-in No. 8	Great River Corp. 1-1/2 - No. 4	Feliciana S & G 1-1/2 - No. 4	Radcliff Gravel	Richton S & G 1-1/2 - No. 4	Underwood S & G $1-1/2 - No. 4$	American S & G 1-1/2 - No. 4 1-in No. 4
Source No.	32	33	35	36	37.	38	39	40	41	75	43

Na SO4 Loss Test

Table C3 (Continued)

,											
Source	Producer and	Date	Specific	Absorption Percent	Soft Particles Percent	Lighter than 2.40 Sp. Gr.	Flat and Elongated Percent	.MgSO4 Loss	Abrasion Loss Percent	Friable Particles	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
45	American S & G										200
	1-1/2 - No. 4 1-1/2 - No. 4	1977	2.52	1.8	0.0	13.0 14.0	1.2	4.0 4.6	19.0 18.0	0.1 0.1	
94	Underwood Builders	1957	2.56	1.5	ł	ļ		1	1	1	
47	Hammitt & Green, Inc. 1-1/2 - No. 4	1975	2.51	3.3	. 0.0	18.5	[5.9	19.8	1	
87	American S & G 3/4-in No. 4	1975	2.56	1.9	ł	ŀ	ł	1	!	l	
67	Blain S & G 1-1/2 - No. 4	1977	2.49	2.8	0.0	19.0	1.4	1	20.3	0.2	
20	Blain S & G 1-1/2 - No. 4	1977	2.45	4.4	0.0	26.6	4.2	14.5	26.8	9.0	
51	Vicksburg S & G $1-1/2$ - No. 4	1948	2.52	1.5	0.0		9.2	4.1	24.3	ł	
53	Greene Bros. $1-1/2$ - No. 4	1977	2.54	2.1	0.0	7.6	1.9	3.0	17.8	0.5	
55	Greene Bros. $1-1/2 - No. 4$	1977	2.55	1.9	0.0	6.5	3.1	8.9	22.7	0.1	
57	Traxler S & G 1-1/2 - No. 4	1977	2.54	2.2	0.0	7.7	1.4	9.4	21.7	0.2	
28	Greene Bros. 1-1/2 - No. 4 1-1/2 - No. 4	1967	2.52	3.1 3.0	10.0	15.0 15.0	1.5	7.2	19.3	0.2	
29	Traxler S & G 1-1/2 - No. 4	1961	2.54	2.6	·	12.8	, 1	!	ŀ	ŀ	

Table C3 (Concluded)

Renarks								
Friable Particles Percent	0.5	0.5	0.2	1	1	}	9.0	1
Abrasion Loss Percent	19.0	19.8	22.0	21.6	20.3	1	21.4	17.9
MgSO ₄ Loss Percent	3.3	2.6	3.3	1.2	ŀ	ŀ	l	2.2
Flat and Elongated Percent	0.1	1.6	0.3	7.6	3.0	ł	0.7	0.3
Lighter than 2.40 Sp. Gr.	8.4	4.7	7.2	ł	12.9	1	3.4	8.2
Soft Particles Percent	0.0	0.2	0.0	0.0	1	ı	0.0	0.0
Absorption Percent	1.9	1.5	1.4	1.4	2.1	1.7	6.0	1.8
Specific Gravity	2.54	2.56	2.57	2.64	2.57	2.57	2.57	2.55
Date Tested	1977	1977	1949 1977	1948	1957	1968	1977	1959
Producer and Size Range, in.	Blain S & G 2-in No. 4	Blain S & G 1-1/2 - No. 4	St. Catherine S & G 2-in No. 4	Unknown Producer 2-in No. 4	St. Catherine S & G 1-1/2 - No. 4	St. Catherine S & G 1-in No. 4	R. L. Hensley 2-in No. 4	Lake Pearl S & G 1-1/2 - No. 4
Source No.	09	61	62	63	79	99	. 67	89

Remarks

Wetting	Dentag	Drying % Ions	A LOSS	\	1	!	1	<u> </u>	l	1	!	ļ	1	ł	1	1	ļ	-	¦	ł	<u> </u>	1	ţ	i	}	!	!
Freezing-	of Cut les	20 Cycles	gso7 y	ł	1 .	1	1	ł	ŀ	ì	!	!	1	ł	ţ	l	1	!	1	1	ł	6.07	ł	l i	14.2	50.4	0.3
A 1- 4- 4- 4- 4- 4- 4- 4- 4- 4- 4- 4- 4- 4-	Abrasion	Loss	Percent	28.1	25.1	1	;	!	1	1	!	ļ	1	}	ł	26.7	ì	!	}.	21.6	35.7	ļ	29.5	23.8	ł	۱.	1
	Unit	Weight	1p/cn tt	1	ł	1	1	!	1	;	!	!	ļ	1	1	i	ĺ	1	1	-	1	165.1	1	!	173.2	174.4	170.7
;	Mg SO4	Loss	Percent	5.8	5.8	ł	! .	;	ł	!	1	!	1	ł	ł	6.3	ł	!	1	5.95	16.4	1	1	!	1	;	1
		Absorption	Percent	0.5	0.7	9.0	0.5	8.0	0.28	0.53	0.41	0.49	0.78	0.66	1.26	0.95	0.14	0.42	0.54	0.48	2.33	9.0	0.3	4.0	9.0	0.5	9.0
		Specific	Gravity	2.70	2.69	2.68	2.69	2.68	2.70	2.72	2.71	2.74	2.66	2.67	2.63	2.66	2.71	2.71	2.71	2.73	2.62	2.65	2.71	2.70	2.78	2.80	2.74
		Date	Tested	1969	1969	1973	1973	1973	1970	1970	1970	1970	1970	i			1970				1975	1973	1969	1969	1973	1973	1973
i		Name of	Producer	Of the State of Co.	Take a cooperation	Boad Crushed Stone	veed or dailed occurs		Utiliams Stone Co.	ATTTOMS SCORE SOL			Biochy-Rarnard	Mtgoby parmer			Donny f. Cfmncon	Delling a starteon			Three Rivers	Westlake Quarry	Most lake Ouarry	Carron Carron	Southern River Rock		
		Source	No.	9	60	0,	2		12	1			7.2	7.				C /			74	75	76	2	7.7	•	

Table C4 (Concluded)

		- 44	WENTER VE	•						
Wetting	and	Drying	Z LOSS	!	¦	t	0.3	;	;	}
Freezing-	Thawing	20 Cycles	% Loss	ŀ	1.7	1.7	ł	1	ļ	ţ
	~		ш,							36.2
	Unit	Weight	1b/cu ft	i	163.8	164.5	.	1	ţ	.1
	MgSO,	Loss	Percent	3.6	1	ł	1	12.38	1	10.89
		Absorption	Percent	0.5	6.0	0.8	1.9	1.2	2.1	2.5
		Specific	Gravity	2.65	2 63	2.64	2.54	7 57	2.55	2.48
		Date	Tested	1972	1072	1972	1974	1971	1971	1949
		Name of	Producer	Wayne B. Smith	,	wayne b. smith	minutes and Dools Cours	FIOLING NOCK COLP.	Florida Rock Corp.	Florida Rock Products
		Course	No.	06	: :	91	ć	76	93	76

SOURCE NO. 1

RADCLIFF SAND COMPANY

MOBILE, AL

STATE:	Ala.		IND	EX NO.	1		AGG	REGAT	Ε	TESTE	D BY:	SAD L	borat	ory		
LAT.:	30		LON	iG.: E	8		DATA	SHEE	T [DATE:	7]	eprua:	y 198	50		
LAB. SYM).: 7	6-96						TYPE	OF M	ATERIA	∟: Sໝ	ad.			
LOCATION	Mob	ile,	Ala	bama												
PRODUCER	Ra	dcli	ff S	and (ompa	any, M	obile,	Alab	MA.							
SAMPLED																
TESTED	FOR:	Tenn	0880	e-Ta	abigi	bee Wa	terway	•								
PROCESSI	NG BEF	ORE T	ESTING	Gr	rded	in th	e labo	rator	7							
GEOLOGIC	AL FOR	MATION	AND	AGE:												
						· · · · · · · · · · · · · · · · · · ·							, , ,	·		
GRADING	(CRD	C 103	(CUM.	70 PAS	SING):]	TE	ST RE	SULT	rs		3-6	" 1 ½ - 3"	3-14"	#4-]	FINE
SIEVE	3-6"	14 - 3"	3-11"	=4-3"	FINE									(c) [*]	(c)	AGG.
5.202		,, ,	4 '2	•	AGG.	BULK SP	. GR., SAT	SURF DRY	(CRD	-C 10	7,108):					2.63
51N.							ION, PER C									0.1
5:N.					<u></u>	CRGANIC	IMPURITIE	S, FIG. N). (CR	D-C I	21):	=				1
4 IN.			L				ARTICLES,									
31N.						ļ	T LIGHTE									\perp
2 IN.						<u> </u>	T FLAT A									
2 !N.					ļ							4-1) (CRD	C 115)			2.91
1 ½ 1N.				ļ	ļ	 	LOSS ():					1
I IN.				ļ			., LB/CU			·):	····		-		<u> </u>	-
in.				ļ		 	MPS, %									
± iN.						 	D LIGNITE									1
ĝIN.		<u> </u>		ļ		1	HEAT, BT						-			<u> </u>
NC. 4				ļ		REACTIV	ITY WITH	NaOH (CRD-6	128			 			82
NO. 8				 	89						Rc,m	M/L:			L	82
NO. 16				 		-1	-MAKING					_				
NO. 30		ļ	ļ	 										DAYS,		
NO.50			ļ	 	1	LINEAR	ROCK		10.4	PARA	γ	ACROSS	25,126).		AVER	ACE]
NO.100				 		 		1176	-		CLEC	ACK033	+	<u>`</u>		
- 200(0)		 	 	-							+	·				
F. N(b)				 -	3.	7			+							
(a) CPD-	l	(+) (-	L	10.4	0.	MORTA			1							.6
(8) CFD-	C 103	(6)(1	(0-0			MORTA	1	FINE AC	CREC	ATE			COARSE	ACCRE		.0
MORTAR -	BAR EX	(PANSIO	N AT I	00F, 7	CRD	-C (23):	3 MO,	6 MO.	9 1		12 MO.	3 MO.				12 MO.
LOW-A	ALK. CE	AENT:		% No.	O FOU	IVALENT:	3 1110.	J	-	-	12 110		+	. 3	+	
	ALK. CE					VALENT:		 -	-			-}	+			
SQUNDNE							L	L	<u> </u>			 	F & T	HW-	CD	HD-CW
FINE						COARSE A	iGG:					DF E 300	-	+		
FINE	AGG.					COARSE A	GG:					DF E 300	 	_	\neg	
PETROGR	APHIC	DATA (CRD-C	127):	······											
essent loosed and fo	tiall ly of eldsp e of	y dement ar. the	nse, ed s Som	whi ands e of rals	te boone the whi	rown r , and parti ch hav	eddish 1% mis cles o	-brow scella of ohe	n or neou	bl s n	ack ater ain	hard chert, ials c chalce ctive	2% wi onsist dony.	hite ting Che	or of a	brown mica dony
REMARKS	ş:						V₁1			-	,					

RADCLIFF SAND & GRAVEL CO.

MOBILE, AL

STATE:	Ala.		IND	EX NO.	2		AG	GREC	ATE	TEST	ED BY:	S	D L	abora	tory	,	
LAT,:	30 N		LON	4G.: 8	W 8		DAT	A S	HEET	DATE	:	20) Ju	ly 19	160		
LAB. SYM	BOL N	o.: 1{	30/16	66					TYP	E OF	MATERI					***************************************	
LOCATION					nort	h of	Mobil	e. A	labar	a i	Sar	ala	nd.	Alaba	ma		
			· · · · · ·														
PRODUCE	R: Ca	rola:	ad Di	+ 10	edc1	1ff S	and a	nd C	revel	Cor	nn anu	1	Inda	welor			
	<u> </u>	Laza	iu r		<u>auc</u>	. L.L.L	and a	na c	Tave		mpany		MAG	AGTOR	,eu		
SAMPLED	BY:	77	-1														
TESTED			vler -	. 7	1	d Do-											
PROCESSI					K at	d Dan	l										
																	
CEOL OCIC	AL 500	NATION	LAND	ACE: A			1	<u> </u>									
GEOLOGIC	AL FO	MAI ION	1 7110	AGE. A	TTA	11100 0	epos1	CB,	Kecer	it a	<u>ze</u>						
CRADING	(CBD	- C 102	CUM .	7. DA S	EINC):	r	1 =		2500								Leure
GRADING					T			EST	RESU	LTS		1	3-6"	1 1 - 3"	3-13"	#4-3°	FINE
SIEVE	3-6"	1 2 - 3"	3-15"	=4-3"	FINE										(c)	(c)	AGG.
				ļ			CR, SA):					
6 IN.				ļ			TION, PER							-		<u></u>	<u> </u>
5 IN.					ļ		IMPURIT										
41N.					ļ		ARTICLES										
31N.						PER CEN	T LIGHT	ER TH	IAN SP. GF	<u> </u>	(CRD-C	129):					
2½ IN.							T FLAT										
2 IN.						WEIGHTE	D AV. %	LOSS,	5 CYC. M	9504 (() 출 -1', *	*4-½)(CRD-C	115)		L	
1 ½ IN.						ABRASIO	N LOSS	(L. A.)	,%,(CR	D-C 1	7):					Ĺ	
I IN.						יש דואט W	r., LΒ/CU	FT (RD-C I	06):							
₹IN.						CLAY L	JMPS, %	(CRD	-C 118):								
½ IN.						COAL A	ND LIGNIT	E, %	(CRD-C	122);							
₹IN.						SPECIFIC	HEAT, E	TU/LB	/DEG. F.	(CRD-	C 124)						
NO. 4					100	REACTIV	TIY WIT	H Na	OH (CRD	-C 12	8): Sc,r	nM/L:					
NO. 8					100	1						nM/L:					
NO.16					100	MORTAR	- MAKING	PROP	ERTIES (CRD-	C 116)						
NO. 30						1	CEN						%		DAYS		~
NO.50							THERMA								<u>-</u> -		
NO. 100					40		ROCK				ALLEL			ON	T	AVERA	GE
NO.200							*****			+					-		
- 200 ^(e)								····		+					-+		
F.M(b)							···			+		 -			-+		
(a) CRD-	C 105	(b) CB	D-C I	LI		MORTA				ــــــــــــــــــــــــــــــــــــــ		<u> </u>					
 							T	FINE	AGGRE	CATE		1		OARSE	ACCRE	CATE	
MORTAR -	BAR EX	PANSIO	TA P	OF, 70	(CRD-	C 123):	3 MO.		MO. 9		12 140	+	-	6 MO.			
1 OW = A	IK CEL	ENT		77- N- (0 5011	VALENT:		+	MO. 9	MU.	12 MU		MO.	6 MU.	9 1	<i>NO.</i> 1	2 MO.
	ALK. CEN						 	+				+			+		
						VALENT:	1								+	_	
SOUNDNE.		CONCRE	. CE (CF	.u-c 4			.cc.					~		F&T	HW-	CD H	D-CW
FINE A						COARSE A		···				DFE			-	\dashv	
PETROGR						COARSE A						DFE	300				
3% mi	scel e pa	laned rtic	ous (Les a	detr	ital oate	. mine d wit	artz, erals, ch cla ues.	fel	dspar	, aı	ad mi	nor	oth	ers).	. So	me	
REMARKS		orime	etric	val	ue e	xceed	is 500	p.p	.m.					·	-		-

LEGGETT SAND & GRAVEL CO.

HANSBORO, MS

STATE:	Miss	•	IND	EX NO.	1		AGG	REGATI	TES	TED BY:	So.	Atl	antic	Div	r. L	ab.
			LON	16.: 89)0 Or	5 1 W	DATA	SHEE	T DAT	E: '	15 A	וניפו	st 19	751		
								1	YPE OF	MATERIA	L Na	tair	al Sa	and	, , , ,	
LOCATION	: Ua	mmi e	nn Co		ML	Sec.	30 %	Wł Wł	- NEL	& W= 1	wl Si	r.l				
		T 7				19 000	<u> </u>	. 02 02		G. 112	11.3	43.				
PRODUCES	<u> </u>		t Say		Cmar	vel Co	(For	merlu	Barron	Sand	2. C	r2 W	al Pi	t. Co	2. 1	
17	1.5	RRAN	u Dau	iu œ	OL E	LET OO	POL	Commos mer Ta	Dayor	Carro	u u	LEV	<u> </u>		·•/	
Hans	DOPO	111	55 <u>.</u>	62		nstruc	tion T	Commen	CLAL Com T	Cacal	- A 1771	<u> </u>	Wi so			
TESTED S	503: W	rank	P1g.	cora,	<u>, COI</u>	is cruc	OTOIL T	HSpaci	101	reepte	L'Ar	ا و	TTOO	.		
PROCESS:					11.55	•										
PROCESS.		UNC 1	2311110													
										· · · · ·						
CEO! 05.5	505	DAIATION	AND	ACE:		* - 34 -										
GEOLOGIC		MALION	AND	AGE.	NOT	indic	ated									
GRADING	(CBD.	- C 103	COM	77- DAS	SINC):	Τ	1 7-	CT OC	CLU TC	1					Γ	FINE
		,				1		ST RE	30L13	j	3	3 - 6 "	1 2 - 3"	$\frac{3}{4} - 1\frac{1}{2}''$		AGG.
SIEVE	3-6"	15-3"	3-12"	#4-3"	AGG.	BULK SP.	CD CAT	cure ony	(600 6	107.100	 -			(c)	(c)	
· ;		<u> </u>				DOLK ST.									 	2.60
6IN.		-				 	ION, PER C		<u>-</u> -						 	0.6
51N.		ļ		ļ			IMPURITIE								ļ	4
41N.					<u> </u>		RTICLES,									
31N.		<u> </u>		ļ	1		T LIGHTE									
2 1 IN.					<u> </u>	PER CEN	T FLAT A	ND ELONG	ATED (CR Naso l	D-C 119,1	120):					
2 IN.				<u> </u>		WEIGHTE	D AV. % LO	oss, 5 CYC	XXXXX	(c) ½ -1", =	4-½)(c	RD-0	C 115)			3.55
1 ½ IN.		!				ABRASION	LOSS (L	A.),%,	(CRD-C	117):					<u> </u>	
I IN.		T				UNIT WT	., LB/CU F	T (CRD-	C 106);							
3 IN.						CLAY LU	MP3, % (CRD-C II	8)						Γ	Τ
½IN.					İ		D LIGNITE				-				1—	-
3 IN.					00.	SPECIFIC	HEAT, BT	U/LB/DEG	F. (CRD	-C 124):	- T					1
NO. 4		 		 	98	REACTIVE	ITY WITH	NaOH (RD-C I	28): 5 c, n	nM/L:				 	67
NO. 8				 	911	7				Rc,~					†	35
NO.16	1	 		 	×81.	MORTAR-	-MAKING I	PROPERTIE	S (CRD	- C 116)			·	<u> </u>	<u></u>	
NO. 30		<u> </u>		 	71	TYPE_I	ICEME	NT, RATI	°_7_	DAYS,	134.	7		DAYS,_		%
NO.50	!	-		 	77	LINEAR	THERMAL	EXPANS	ION XIO	∳DEG. F.	(CRD-	C 12	5.126):	<u> </u>		
NO.100		 		 	* 1	1	ROCK			RALLEL	ACRO		0	v T	AVER	AGE
NO.200		 		-	-	┨ ├──							 			
- 200 ^(a)		 		 	 	1							<u> </u>			
F.M(6)	<u> </u>	1	 	┼	2.3	d					<u> </u>		ļ	+		
(a) CRD-	`	(5) (5)	20-6-1	L	200	MORTA				i	L		<u> </u>			
(4) CAB	<u> </u>	(0) (,				1 110/17	1	FINE AG	GREGATE		т		COARSE	ACCRE	CATE	
MORTAR	BAR EX	CIZNAPX	N AT I	00F, %	o (CRD	-C 123):	3 MO.	6 MO.		12 MO	, 3		6 MO			12 MO.
1 OW - 2	Y K CE	MENT:		970 No.	O FOU	IVALENT:	3 100.		3 14.0.	12 1810	+-		0 100	- -	W-0.	12 1910.
	ALK. CE					VALENT:				-						
							L	L	L	<u>. i </u>			F&T	61114		
SOUNDNE FINE		CONCR		ND-C		COARSE A					255		F & 1	HW.	- C D	HD-CW
FINE						COARSE A					DFE ₃					
1		D.T. /				trogra		no luc	e of	the e	DFE,		vse 1.	F. F.O.	con	et at
						%), qu										
						The										
						in th										
						rom su										
						are ha										
					whi	ch has	been	shown	to be	e reac	tive	Wi	th ti	ne a	ikai	ies
in Po	ortla	md (emen	t.												
REMARKS	S:								•	11- 1		117.			***************************************	P
	* Sa	mple	fai	ls t	o me	et spe	cified	i grad	ing of	n #16	and	#10	O si	eves	•	

KIVETT & REEL, INC.

SUN, LA

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CANAL SAND & GRAVEL CO.

SUN, LA

STATE:	La.		IND	EX NO.	3			NGG	REGAT	Έ	TEST	ΓED	BY:	SAD &	MES			
LAT.: 3				۱G.: {					SHE									
LAB. SYM	ABOL N	o.: 7 !	5/33	grav	el,	75/3	4 sai	2d		TYPE	OF	MA	TERIAL:	Gra	vel à	San	d	
LOCATION	N: S	un, l	ر ، ها	Cana	l Sa	nd &	Grav	rel	Co.,	No.	. 2	Pi	t					
PRODUCE	R: C	anal	Sand	1 & G	rave	l Co	., S1	1B,	La.									
SAMPLEC																		
TESTED					ock	No.	1											
PROCESS	ING BE	FORE T	ESTING	:														
GEOLOGI	CAL FO	RMATION	J AND	AGF:		··												
020203					···									- i				
GRADING	S (CRD	- G 103)	(CUM.	7o PASS	SING):	T	Т	TF	ST RE	SUU	TS			· · · · · · · · · · · · · · · · · · ·	1		Γ	FINE
	1	Τ	Γ	T		1	L	· · ·	J1 1/L	300				3-6	1 1 2 - 3"	국 - (날*	#4-某 (C)	AGG.
SIEVE	3-6"	15-3"	3-15	#4-X			SP. GR.,	SAT .	SURF DRY	(CR	D-C i	107,	108):				-	2.6
6 IN.									ENT (CRE								3.3	
5IN.						ORGAN	IC IMPU	RITIE	S, FIG. N	0. (C	RD-C	121):	<u> </u>				1
4 IN.									PER CEN									<u> </u>
3 IN.						↓ _			R THAN S						i	2	9.2	
2 ½ IN.	ļ	<u> </u>				1			ND ELONG									
2 IN.	 -	ļ				+			oss, 5 CY					})(CRD-	C 115)	1	6.3	3.8
1 ½ 1N.		ļ		100		 			. A.),%,			17):	*			2	0.0	
1 IN.	 			98					T (CRD-		16):						ļ	-
1 IN.				79					CRD-C		122)							
3 IN.		-		36	100	+			J/LB/DEC				24):	+===				
NO. 4				ت					NaOH (+	 	57	3	98
NO.8					85	1		• • • • • • • • • • • • • • • • • • • •	140011	ÇD	U IZ	ŀ	Rc,mM/		 		5	18
NO, 16						MORTA	R-MAKI	NG F	PROPERTI	ES (0	CRD-			!	<u>!</u> l			<u> </u>
NO. 30									NT, RAT				-		7	DAYS,	133	
NO.50									EXPAN:							····		
NO. 100	T				0.	2	R	ock :	TYPE		PAR	ALL	EL A	CROSS	ON	,	AVER	AGE
NO.200	4																	
- 500 _(a)																		
F.M.(b)	1	<u> </u>	Ĺ		2.	93												
(a) CRD-	C 105	(ь) ся	D-C I	04		MOR	TAR:											
MORTAR -	BAR EX	(PANSIO	N AT E	OF, %	(CRD)	-C 123)	.:		FINE AC			 -			COARSE			
1000	ALK. CEN	AENIT:			2 (10)		3 !	MO.	6 MO.	9	MO.	12	MO.	3 MO.	6 MO.	9	мо.	12 MO.
·	ALK. CE			70 Na ₂ 0						ļ		-						
SOUNDNE							<u>-</u>	!		<u></u>								
FINE		CONCAL	- 12 (01			COARSE	AGG:							FE 300	F&T	HW-	·CD I	HD-CW
FINE						COARSE									 			
PETROGR	RAPHIC	DATA (CRD-C	127):					 					- 300	!			
The g 3% qu and l	raphic grave lartz % mi	l is , and scell	comp 1 1% lanec	osed misc	of ella A s	26% neou	dense	the it	hert,	cor	asis C th	its 10	y checker	88% q t con	uartz tains	, ll	% oh lced	ert,
SOME REMARKS	of t	he mi	inor	alka	lies	in ;	p ort]	lana	th has	nt.	• en	sr	lown	to be	reac	Clve	Wit	h
	**	gre Test:	COL FOTE	duct	ed b	y WE	o ren S	7 • 1	- 12.U	•								

SOURCE NO. 6

CANAL SAND & GRAVEL CO.

BUSH, LA

	La.		IND	EX NO.	: 4		AGG	REGAT	E T1	ESTED	BY:	SAD			_	
LAT.: 30			LO	1G.: 1	39		DAT	A SHEE	T D/	ATE:	25	Septer	ber :	1947		
LAB. SYM	BOL N	0.:	7/15	0 gr	avel	, 57/1	51 sa	nd i	YPE C	F MA	TERIAL	Gray	rel &	San	d	
LOCATION	u: Br	ısh,														
		·····														
PRODUCE	R: Ci	nal	Sand	& G	rave	1 Co.,	Bush	. La.								
								<u> </u>								
SAMPLED	BY:															
TESTED	FOR:	Pear	·1 Ri	TOF	Look	No.	L									
PROCESSI	ING BE										······					
								*** 	***************************************							
																
GEOLOGIC	CAL FOR	MATION	GNA	AGE:												
						· · · · · · · · · · · · · · · · · · ·					·					
GRADING	(CRD	- C 103	(CUM.	70 PAS	SING):		ΤE	ST RES	SULTS	sT					1	FINE
	, ,	,			FINE	1	L					3-6"	12-3"	(c)	#4− (c)	FINE AGG.
SIEVE	3-6"	13-3"	4-12	#4- #	AGG.	BULK SP.	GR., SAT	SURF DRY	(CRD-	C 107	,108):					2.66
SIN.								CENT (CRD-							2.4	7
SIN.						ORGANIC	IMPURITI	ES, FIG. NO	(CRD	-C 12	1):					- 1
4 IN.	 							PER CENT							l	1
31N.		 -						R THAN SE				9):			 	1
2 1N.		l			 	PER CEN	T FLAT A	NO ELONGA	TED (C	RD-C	119,120	o):			 	1
2 IN.						WEIGHTE	D AV. % L	oss, 5 CYC	MgSO ₄	· ((c) ‡	-1, *4	- ½) (CRD-	C 115)		9.71	2.19
1 ½ IN.				100				L. A.), %, (· · · ·					8.5	1
I IN.				96		UNIT WT	., LB/CU	FT (CRD-	106)	:						
₹IN.				72		CLAY LU	MPS, %	(CRD-C II	8)						<u> </u>	
₫IN.				29		COAL AN	D LIGNITE	, % (CRD	-C 122	2):		1		—		-
∄IN.				2		SPECIFIC	HEAT, BT	U/LB/DEG.	F. (CR	D-C	124):					
NO. 4				0	100	REACTIV	TY WITH	NaOH (C	RD-C	128):	Se,mM	/L:		83	3	12
NO. 8					99	1					Rc,mM	1.		6'		15
															•	
NO, 16	1				93	MORTAR-	MAKING	PROPERTIE	S (CR	D - C I					·	40
NO, 16 NO, 30					,	1		PROPERTIE			116)	.5 -7,	28		·	Luivi
					72	TYPE	I CEM		<u>7</u>	DAY	116) s, 88				·	Luivi
NO. 30					72	TYPE	I CEM	ENT, RATIO	0 7	DAY	116) s, 88 4 EG. F. (DAYS,_	·	7.
NO. 30 NO. 50					72 13	TYPE	THERMAI	ENT, RATIO	0 7	DAY	116) s, 88 4 EG. F. (CRD-C 12	5,126):	DAYS,_	103	7.
NO. 30 NO. 50 NO. 100 NO. 200					72 13	TYPE	THERMAI	ENT, RATIO	0 7	DAY	116) s, 88 4 EG. F. (CRD-C 12	5,126):	DAYS,_	103	7.
NO. 30 NO. 50 NO. 100 NO. 200					72 13 1	TYPE	THERMAI	ENT, RATIO	0 7	DAY	116) s, 88 4 EG. F. (CRD-C 12	5,126):	DAYS,_	103	7.
NO. 30 NO. 50 NO. 100 NO. 200		(ь) ст	D-C I	04	72 13 1	TYPE	THERMAI ROCK	ENT, RATIO	0 7	DAY	116) s, 88 4 EG. F. (CRD-C 12	5,126):	DAYS,_	103	7.
NO. 30 NO. 50 NO. 100 NO. 200 - 200 ^(a) F.M. (b)	C 105			····	72 13 1	LINEAR 22 MORTA	THERMAI ROCK	ENT, RATIO	0 7 ON XII	DAY 0 9 DE	116) s, 88 4 EG. F. (CRD-C 12 ACROSS	5,126):	DAYS,	103	7.
NO. 30 NO. 50 NO. 100 NO. 200 - 200 ^(a) F.M. ^(b) (a) CRD-	C 105	PANSIO		····	72 13 1	TYPE	THERMAI ROCK	ENT, RATIO	O 7 ON XIII	DAY O 9 DE	116) s, 88 4 EG. F. (CRD-C IZ	5,126): ON	DAYS	103 AVER	7.
NO. 30 NO. 50 NO. 100 NO. 200 - 200 ^(a) F.M. (b)	C 105	PANSIO	N AT I	70 Na	72 13 1	LINEAR LINEAR 22 MORTA C 123): VALENT:	THERMAI ROCK	ENT, RATIO	O 7 ON XIII	DAY O 9 DE	116) rs, 88 EG. F. (CRD-C IZ	5,126): ON COARSE	DAYS	103 AVER	AGE
NO. 30 NO. 50 NO. 100 NO. 200 - 200 ^(a) F. M. (b) (a) CRD- MORTAR- LOW-A	C 105	(PANSIO	N AT I	70 Na	72 13 1	LINEAR 22 MORTA C 123):	THERMAI ROCK	ENT, RATIO	O 7 ON XIII	DAY O 9 DE	116) rs, 88 EG. F. (CRD-C IZ	5,126): ON COARSE	DAYS	103 AVER	AGE
NO. 30 NO. 50 NO. 100 NO. 200 - 200(a) F. M.(b) (a) CRD- MORTAR- LOW-A HIGH- SOUNDNE	C 105 BAR EX ALK. CEN ALK. CEN	PANSIO MENT: MENT: CONCRI	N AT I	70 Na ₂	72 13 1 2. (CRD-	TYPE	THERMAI ROCK R:	ENT, RATIO	O 7 ON XIII	DAY O 9 DE	116) rs, 88 EG. F. (CRD-C IZ	5,126): ON COARSE	AGGRE 9	AVER	AGE
NO. 30 NO. 50 NO. 100 NO. 200 - 200(a) F.M.(b) (a) CRD- MORTAR- LOW-A HIGH- SOUNDNE	C 105 BAR EX ALK. CEN ALK. CEN ALK. CEN ALK. CEN ALK. CEN	PANSIO MENT: MENT: CONCRI	N AT I	70 Na ₂	72 13 1 2. (CRD- O EQUI	TYPE	THERMAI ROCK R:	ENT, RATIO	O 7 ON XIII	DAY O 9 DE	116) rs, 88 EG. F. (CRD-C IZ	5,126): ON COARSE 6 MO.	AGGRE 9	AVER	AGE 12 MO.
NO. 30 NO. 50 NO. 100 NO. 200 - 200(a) F.M.(b) (a) CRD- MORTAR - LOW-A HIGH- SOUNDNE FINE FINE	C 105 BAR EX ALK. CEN ALK. CEN ALK. GEN AGG.	PANSIO MENT: MENT: CONCRI	N AT 10	70 Na ₂	72 13 1 2. (CRD-	TYPELINEAR 22MORTA -C 123): VALENT: VALENT:):	THERMAI ROCK R: 3 MO.	ENT, RATIO	O 7 ON XIII	DAY O 9 DE	116) rs, 88 EG. F. (ACROSS ACROSS 3 MO.	5,126): ON COARSE 6 MO.	AGGRE 9	AVER	AGE 12 MO.
NO. 30 NO. 50 NO. 100 NO.200 - 200 ^(a) F.M.(b) (a) CRD- MORTAR- LOW-A HIGH-/ SOUNDNE FINE FINE PETROGR	C 105 BAR EX ALK. CEN ALK. CEN ASS IN AGG. AGG.	PANSIO MENT: MENT: CONCRI 57/1: DATA	N AT 10	70 Na	72 13 1 2. (CRD- 0 EQUI-	TYPE	THERMAI ROCK R: 3 MO. GG: 5	ENT, RATIO	ON XIII	DAY O 9DE PARALI	2 MO.	3 MO. DFE 300 DFE 300	5,126): ON COARSE 6 MO.	AGGRE 9	AVER GATE MO.	AGE 12 MO.
NO.30 NO.50 NO.100 NO.200 - 200 ^(a) F.M. ^(b) (a) CRD- MORTAR- LOW-A HIGH- SOUNDNE FINE FINE PETROGR (Test	C 105 BAR EX ALK. CEN ALK. CEN ALK. CEN AGG. AGG. AGG.	PANSIO MENT: CONCRI 67/1: DATA (N AT 10	70 No. 70	72 13 1 2. (CRD- 0 EQUI 40, II4	TYPE_ LINEAR 22 MORTA -C 123): VALENT:): COARSE A COARSE A	THERMAI ROCK R: 3 MO. GG: 5	FINE AGE 6 MO. 7/150	ON XIII	DAYYO POE	2 MO.	ACROSS 3 MO. DFE 300 DFE 300	5,126): ON COARSE 6 MO. F & T	AGGRE 9 HW-	AVER GATE MO. Che	AGE 12 MO.
NO. 30 NO. 50 NO. 100 NO. 200 - 200(a) F.M.(b) G) CRD- MORTAR- LOW-A HIGH- SOUNDNE FINE FINE PETROGR (TOST 24% P	C 105 BAR EX ALK. CEN ALK. CEN ALK. CEN AGG. AGG. AGG. APHIC Sed by	MENT: MENT: CONCRI 57/1: DATA (y CR) s ch	N AT 10	% Naz	72 13 1 2. (CRD- 0 EQUI 40, II4	TYPE_ LINEAR 22 MORTA -C 123): VALENT: VALENT: COARSE A COARSE A	THERMAI ROCK R: 3 MO. GG: 5 GG: Composit a tr	FINE AGE 6 MO. 7/150 ed of	ON XIII	DAY O P DE P	2 MO.	ACROSS 3 MO. DFE 300 DFE 300	5,126): ON COARSE 6 MO. F&T 3	AGGRE 9 HW-	AVER GATE MO. Che	AGE 12 MO.
NO.30 NO.50 NO.100 NO.200 - 200(a) F.M.(b) G) CRD- MORTAR- LOW-A HIGH- SOUNDNE FINE FINE PETROGR (Test 24% P	C 105 BAR EX ALK. CEN ALK. CEN AGG. AGG. AGG. APHIC AGDOOU OODS	MENT: MENT: CONCRI 57/1: DATA (y CR) s chaists	CRD-CO) 1	70 No. 270 No. 270 No. 270 - C 127):	72 13 1 2. (CRD- 0 EQUI 40, II4	LINEAR LINEAR 22 MORTA C 123): VALENT: VALENT: COARSE A COARSE A 1 is (2, and 22, 12)	R: 3 MO. GG: 5 GG: 5 GG: 4 tr 6 oher	FINE AGE 6 MO. 7/150 ed of age of t, and	ON XIII P GREGAT 9 MC	DAY O % DE ARALL FE D. II	s, 88. EG. F. (CLEL) 2 MO. 30 Change	ACROSS 3 MO. DFE 300 DFE 300 DOTE 300	5,126): ON COARSE 6 MO. F & T 3	AGGRE 9 HW-	AVER GATE MO. Che The	AGE I2 MO.
NO.30 NO.50 NO.100 NO.200 - 200(a) F.M.(b) GO CRD- MORTAR- LOW-A HIGH- SOUNDNE FINE FINE PETROGR (Tost 24% p sand ing,	C 105 BAR EX ALK. CEN ALK. CEN AGG. AGG. AGG. APHIC CON CONS SAND	MENT: MENT: CONCRI 67/1: DATA (y CR) s cha	CRD-CO) 1	70 No. 70	72 13 1 2. (CRD-0 EQUID 0 EQUI	LINEAR LINEAR 22 MORTA -C 123): VALENT: VALENT:): COARSE A 1 is (2, 12%) otite,	R: 3 MO. GG: 5 GG: 5 Composit a tr cher, amph	FINE AGE 6 MO. 7/150 ed of age of t, and iboles	ON XIII	DAY O PDE ARALL FE D. II den. del miss d c:	s, 88. EG. F. (LEL 2 MO. se chilanes collares arbor	ACROSS 3 MO. DFE 300 DFE 300 DOTE 300 DOTE 300	5,126): ON COARSE 6 MO. F & Y 3 COTIA	AGGRE 9 HW-	AVER GATE MO. Che The s in	AGE I2 MO.
NO.30 NO.50 NO.100 NO.200 - 200 ^(a) F.M. ^(b) (a) CRD- MORTAR- LOW-A HIGH- SOUNDNE FINE FINE PETROGR (Test 24% p sand ing, chert	C 105 BAR EXALK. CEN ALK. CEN ALK. CEN AGG. AGG. AGG. APHIC God b BOTOU CONS SANd MENT: MENT: CONCRI 67/1: DATA (y CRI s cha ists stone	CRD-CCD) 1 of 8	70 No. 70	72 13 1 2. CCRD- O EQUIDO EQUIDA TAVE TUANTE	LINEAR LINEAR 22 MORTA -C 123): VALENT: VALENT:): COARSE A COARSE A COARSE A COARSE A COARSE A	THERMAI ROCK R: 3 MO. GG: 5 GG: 4 tr 6 cher, amph	FINE AGE 6 MO. 7/150 ed of ace of the and iboles my of	ON XIG	DAY O PDE ARALL FE D. II den den del peb	s, 88. EG. F. (LEL 2 MO. se chlarected arbox bles	ACROSS 3 MO. DFE 300 DFE 300 DOTE 300 DOTE 300 DOTE 300 DOTE 300 DOTE 300	SOME SOME SOME SOME SOME SOME SOME SOME	AGGRE 9 HW-	AVER GATE MO. Che The s ix the dony	AGE I2 MO.	
NO.30 NO.50 NO.100 NO.200 - 200 ^(a) F.M.(b) CO.CRD- MORTAR- LOW-A HIGH- SOUNDNE FINE FINE CTest 24% p sand ing, chert Chalc	C 105 BAR EXALK.CEM ALK.CEM SS IN AGG. AGG. APHIC God b BOTOU Sand 1 5 Boton	MENT: MENT: CONCRI 57/1: DATA (y CR) s chaists stone fine- y has	CRD-CCD)] of 8	70 No. 70	72 13 1 2. CCRD- O EQUI O EQUI O EQUI TUAT TUAT TUAT TUAT TUAT TOWN	LINEAR LINEAR 22 MORTA -C 123): VALENT: VALENT:): COARSE A COARSE A 1 is (2, and 22, 12, b) to be	THERMAI ROCK R: 3 MO. GG: 5 GG: 4 tr 6 cher, amph	FINE AGE 6 MO. 7/150 ed of age of t, and iboles	ON XIG	DAY O PDE ARALL FE D. II den den del peb	s, 88. EG. F. (LEL 2 MO. se chlarected arbox bles	ACROSS 3 MO. DFE 300 DFE 300 DOTE 300 DOTE 300 DOTE 300 DOTE 300 DOTE 300	SOME SOME SOME SOME SOME SOME SOME SOME	AGGRE 9 HW-	AVER GATE MO. Che The s ix the dony	AGE I2 MO.
NO.30 NO.50 NO.100 NO.200 - 200 ^(a) F.M. ^(b) (a) CRD- MORTAR- LOW-A HIGH- SOUNDNE FINE FINE PETROGR (Test 24% p sand ing, chert	C 105 BAR EXALK.CEM ALK.CEM SS IN AGG. AGG. APHIC God b BOTOU Sand 1 5 Boton	MENT: MENT: CONCRI 57/1: DATA (y CR) s chaists stone fine- y has	CRD-CCD)] of 8	70 No. 70	72 13 1 2. CCRD- O EQUI O EQUI O EQUI TUAT TUAT TUAT TUAT TUAT TOWN	LINEAR LINEAR 22 MORTA -C 123): VALENT: VALENT:): COARSE A COARSE A 1 is (2, and 22, 12, b) to be	THERMAI ROCK R: 3 MO. GG: 5 GG: 4 tr 6 cher, amph	FINE AGE 6 MO. 7/150 ed of ace of the and iboles my of	ON XIG	DAY O PDE ARALL FE D. II den den del peb	s, 88. EG. F. (LEL 2 MO. se chlarected arbox bles	ACROSS 3 MO. DFE 300 DFE 300 DOTE 300 DOTE 300 DOTE 300 DOTE 300 DOTE 300	SOME SOME SOME SOME SOME SOME SOME SOME	AGGRE 9 HW-	AVER GATE MO. Che The s ix the dony	AGE I2 MO.
NO.30 NO.50 NO.100 NO.200 - 200 ^(a) F.M. ^(b) (a) CRD- MORTAR- LOW-A HIGH- SOUNDNE FINE PETROGR (Tost 24% p sand ing, chert Chalc alkal	C 105 BAR EXALK. CEM ALK. CEM ALK. CEM AGG. AGG. APPHIC ACC ACC ACC ACC ACC ACC ACC ACC ACC A	MENT: CONCRI 57/1! DATA (y CR) s chaists stone fine- y has	CRD-CCD) 1 of 8	70 No. 270 No. 270 No. 270 - C 127): 127): 16% of 16%	72 13 1 2. CCRD- C EQUID C EQU	LINEAR LINEAR 22 MORTA -C 123): VALENT: VALENT:): COARSE A COARSE A 1 is (2, and 22, 12, b) to be	THERMAN ROCK R: 3 MO. GG: 5 GG: Compos d a tr cher namph	FINE AGO TYPE ON XIG	DAY O PDE ARALL FE D. II den den del peb	s, 88. EG. F. (LEL 2 MO. se chlarected arbox bles	ACROSS 3 MO. DFE 300 DFE 300 DOTE 300 DOTE 300 DOTE 300 DOTE 300 DOTE 300	SOME SOME SOME SOME SOME SOME SOME SOME	AGGRE 9 HW-	AVER GATE MO. Che The s ix the dony	AGE I2 MO.	

SLOAT DREDGING CO.

SLIDELL, LA

STATE:	La.		NDEX NO.	: 5		A	GGREGA	ΓΕ	TEST	ED BY:	SAD 8	WES			
LAT.:	30		LONG.:	89		DA	TA SHE	ET	DATE	30	Decemb	or 19	47		
LAB. SYN	ABOL NO.:	57/1	57 gra	vel,	57/1	58 se	and	TYPE	OF	MATERIA	L: Grav	rel &	Sand		
	N: Appro														
												,			***************************************
PRODUCE	R: Sloat	Dre	deine	Co	Slide	11.	la.								
			-66-	· · · · · ·											
SAMPLE	BY:														
TESTED	FOR: Pe	arl	River	Lock	8		· · · · · · · · · · · · · · · · · · ·								
PROCESS	ING BEFORE														
															
GEOLOGI	CAL FORMAT	ION AN	D AGE:												
GRADIN	G (CRD+G I	03)(CU	M. 70 PAS	SING):			TEST R	SUL	TS				3 .1"	- 4	FINE
SIEVE	3-6"15-	3" 3	1" " " " " " " " " " " " " " " " " " "	FINE			· · · · · · · · · · · · · · · · · · ·				1	1 2 - 3"	(c)	(c)	AGG.
SIEVE	3-0 12-	3 7	2 74 75	AGG.	BULK SP	. GR., S	AT SURF DE	Y (CR	D-C 1	07,108):				2.60	2.64
6 IN .							R CENT (CR								0.3
SIN.					ORGANIC	IMPUR	ITIES, FIG.	40. (CI	RD-C	151):		-		<u> </u>	1
41N.					SOFT PA	RTICLE	S, PER CEN	T (CR	D-C	30):			Ī		T
31N.					PER CEN	T LIGH	ITER THAN	SP. GR		(CRD-C I	29):				
2½ IN.					PER CEN	T FLAT	AND ELON	GATED	(CRD	-C 119,1	20):				
2 IN.					WEIGHTE	D AV. 7	6 LOSS, 5 C	C. Mg	50₄ (^{(c}) ½ -1*, *.	4- 1)(CRD	-C 115)	1	2.10	2.0
i ½ IN.			100		ABRASION	LOSS	(L. A.),%	, (CRE)-C ()	7):			1	B.1	T
I IN.			98		UNIT WT	., LB/C	U FT (CRD	-C 10	6);						
3 IN.			83		CLAY LL	MPS, T	ъ (CRD-C	118)							
½ IN.			42		COAL AN	D LIGN	HTE, % (CF	D-C	122);			-			
3 IN.			15				BTU/LB/DE								<u> </u>
NO.4			1	100	REACTIV	ITY WI	TH NaOH	(CRD-	C 128	3): Sc,im	M/L:			417	133
NO.8				96						Rc,m	M/L:			55	39
NO.16							G PROPERT								
NO.30				64			EMENT, RAT						DAYS		%
NO.50				14	LINEAR	THERN	AAL EXPAN	SION	XIC 9	DEG. F.	(CRD-C	25,126):			
NO. 100				1		ROC	K TYPE		PARA	ALLEL	ACROSS	0	N	AVERA	NGE
NO.200	1 1	_					·····		ļ		-, <u>,, , , , , , , , , , , , , , , , , , </u>				
- 200 ^{(a}					 										
F.M. 6	1			2.40	 				<u> </u>						
(a) CRD-	-C 105 (b)	CRD-	104		MORTA	R:									
MORTAR	BAR EXPAN	SION AT	100F. 97	(CRD	-C 123):		FINE A				<u> </u>	COARSE			
						3 M	D. 6 MO.	9	мо.	12 MO.	3 MO.	6 MO	. 9	MO.	2 MO.
	ALK, CEMENT		% Na												
	ALK. CEMENT				VALENT:										
·	ESS IN CON	CRETE	(CRD - C									F&T	HW-	CD +	10 - CW
FINE					COARSE A						DFE 300	- 			
L	RAPHIC DATA				_		ara me			7 4-	DFE 300		210		
misce but	t, 22% vellaneous some of teriousl	niggy is ro the	cks ar pebble	d mi	% porcental:	ous (s. l	chert, lost of Lcedony	20% the	qua ch hal	rtz, ert i cedor	and a s fine y has	trace -grai been	of ned show	quar	tz,
	s: ≉"B u	grad		.oss	at 100) ret			-	-		 			
1	~~ T		COME	o oo u	~J 11E	-									

TRAXLER GRAVEL CO.

GULFPORT, MS

STATE: 1	Vies.		IND	EX NO.:	6 (-av.)	AGG	REGAT	FT	TEST	ED BY:	SAD	Tes	ting	Tah	_	
STATE:] LAT.: 3(LAB. SYM	O N	<u></u>	LON	1G.: 80	0 W	. 64.7	DATA	SHEE	т	DATE	18	June	10	252		•	
LAB. SYM	BOL N).i 12	2/63	(F-1	<u> </u>		<u> </u>		TYPE	OF	MATERIA	AL: No	+117	• 1 S	end		
LOCATION	. 90	10	2/0)	(1 02	3.07		SE 4	- 4h		, P 1		17	a cui	70 D			
									9 N	4	, 800	3 1/	<u> T</u>	3, K	12π,	and	<u>. </u>
NE OI	NB4	, 01	SE4	OI 8	90.	1/, T/	S, R1	<u> </u>									
						GULLI	ort,	4133.	Pr	ope	rty (OMING	1 07	Mrs	. Ke	<u>na</u>	
Cue			omme	rcial	<u>. </u>												
SAMPLED																	
					or C	oncret	e. K	eesler	AF	'Β,	Miss.	•					,
PROCESSI																	
USED A	AT:	ACa	my M	Stat	ion (Cryst	al Spr	ings , f	la .	<u>(1</u>	956))					
GEOLOGIC	AL FOR	MATION	N AND	AGE:	Not	indic	ated										
GRADING	(CRD	C 103	(CUM. 4	70 PASS	ING):		TE	ST RE	SUL	TS			"		3 .1"		FINE
		. ,		7,,,	FINE	[3-6	1 1 2 - 3"	(c)	(c)	AGG.
SIEVE	3-6	12-3"	3-15	#4-¥	AGG.	BULK SP.	GR., SAT	SURF DRY	(CR)-C !	07,108)	:					2.59
61N.							ION, PER C										1.2
5IN.						ORGANIC	IMPURITIE	S, FIG. N). (CF	D-C	121):						- (1)
41N.			 	 			RTICLES,					-+					1==
31N.				 			T LIGHTE					29):				 	+
2 j IN.				 			T FLAT A							 		 	+
2 IN.						1	AV. % L							C 115)		 	+
			}				LOSS (L					4-270	- KD-1	1 113)		 	+===
1 ½ IN.			 	 									·				+
I IN.			ļ				., LB/CU I			6):				ļ		ļ	
₹IN.							MPS, 90 (ļ	ļ	ļ	
½ IN.		ļ	ļ				D LIGNITE									1	
₹IN.			<u> </u>				HEAT, BT									ļ	
NO. 4		ļ				REACTIV	TY WITH	NaOH (CRD-	C 12	8): 5c,	nM/L:				ļ	
NO. 8		<u> </u>			94							nM/L:		1		<u> </u>	
NO, 16						MORTAR-	MAKING I	PROPERTI	:s (c	RD-	C 116)						
NO. 30			L		53	TYPE	СЕМЕ	NT, RATI	0		DAYS,		%		DAYS,_		%
NO.50					* 6	LINEAR	THERMAL	EXPANS	ION	X10 5	DEG. F.	(CRD	-C 12	5,126):			
NO. 100					*1		ROCK	TYPE		PAR	ALLEL	ACR	oss	0!	N	AVER	IAGE
NO.200] [
- 200 ^(a)																	
F,M ^(b)																	
(a) CRD-	C 105	(ь) с	RD-C	04		MORTA	R:					·					
·····								FINE AC	GRE	SATE		T	,	COARSE	AGGRE	GATE	
MORTAR -	BAR EX	(PANSIC	N AT I	00F, 70	(CRD	-C 123):	3 MO.	6 MO.	9	MO.	12 MC). 3	MO.	6 MO	. 9	MO.	12 MO,
LOW-A	ALK. CE	MENT:		% Na 2	O EQU	VALENT:									_	$\neg \neg$	
	ALK.CE					VALENT:		 	<u> </u>		 	1		ļ	_	\dashv	
SOUNDNE								J	<u></u>		1			FBT	HW	-CD	HD-CW
FINE						COARSE A	GG:					DFE	300	<u> </u>	1:17		
FINE						COARSE A						DFE		-	+	+	
PETROGR		DATA	(CRD-/	1271									240	<u> </u>			
PETROGR	AFRIC	יאואט	CAD-C	. 1217.	None)					1						
REMARKS	: *	Samo	le fe	ils	to m	eet r	quire	ments	of	Fee	leral	Spe	oif	icati	ດກ		
												-2-					
	JU-A	-5011	a on	grad	÷mg•												

ST. TAMMANY SAND AND GRAVEL CO.

SUN, LA

STATE:	ĪA.		IND	EX NO.	: 7		AGG	REGAT	F	TEST	ED BY	: 54	ים מי	o+i n	or Te	<u></u>	
LAT.: 3			LO	va : A	00 W		DAT	A SHE	7	DATE	: 17	Top 1	1 - 7	72 0 T H	K LA	<u>u • </u>	
AB 574	ABOL N		150	/**	7 !	0/0.1	1 07.17	1 011121	7705	05	MATER	Jul	<u> </u>	7)2			
LAB. STN	ABUL N	75	<u> </u>	(FA)	<u> </u>	O(CA)		River	ITPE	01	MAILH	<u> </u>	vatur	al S	and a	& Gr	avel
LOCATIO	N: 3/	<u>4 mi</u>	. <u>So</u>	uth	of B	ogue (<u> hitto</u>	River	. 2	00	yds.	Eas	st 01	La.			
H1	ghway	NO.	1.														
PRODUCE	R: St	. Ta	mman	y Sa	nd &	Grave	ol Co.	, Sun,	La	• (Comm	erci	ial)				
SAMPLEC	BY:	TLS.	Eng	inee	rs												
TESTED						0											
PROCESS					~	<u> </u>											
																	
									•			<u> </u>					
GEOLOGIC	CAL FOR	MATION	AND	AGE:	Coas	tal Es	tuari	ne San	as.	åt G	rave	18 (or Qu	BTOL	nary	Age) •
							····							,			
GRADING	G (CRD	- C 103	(CUM.	70 PAS	SING):]	TE	ST RE	SUL	TS			3-6"	14-3"	3-15"	ma - 3	FINE
SIEVE	3-6"	11 - 3"	31"	#4-3"	FINE	1	·						3 0	, 2	(c) 2	(c) ⁴	AGG.
SIEVE	3-8	12-3	7-12	7-2	AGG.	BULK SP.	GR., SAT	SURF DRY	(CRE)-C 1	07,108):			2.49		2.6
6IN.	Ţ				T	 		ENT (CRD							3.6		0.3
SIN.	<u> </u>					ORGANIC	IMPURITI	ES, FIG. N	D. (CR	D-C	121):						_
41N.		·		 	 			PER CENT						 		 	1_
3 IN.	 		 	├──	 			R THAN S				1201:				 	+
	 		<u> </u>	ļ									ļ			-	
2 1N.	ļ			ļ	ļ			ND ELONG					<u> </u>	L	ļ		
2 IN.	ļ					 		oss, 5 cyc				4-1)	(CRD-	: 115)			
1½!N.			100			ABRASION	LOSS (L. A.),%,	(CRD	-C II	7}:					<u> </u>	
FIN.	<u> </u>		98	1		TW TINU	., LB/CU	FT (CRD-	C 10	6):							
₹1N.			84		!	CLAY LU	MP3, %	(CRD-C I	18):								
1 IN.			50	Ţ		COAL AN	D LIGNITE	, % (CR)-c	22):							-
ŽIN.			28	1	100	SPECIFIC	HEAT, BT	U/LB/DEG	. F. (CRD-	C 124)	:					1
NO. 4	1		1					NaOH (
NO.8	 			 	87	4		-			<u> </u>	nM/L:			 	 	
NO.16	<u> </u>			 			- MAKING	PROPERTI	5 (0	BD - (L	L	L		
	 			 	1	1					-		_				_
NO. 30	-			ļ				ENT, RATI							DAYS,_		
NO.50	-		ļ	ļ	15	LINEAR		EXPANS	ION			,		, 			
NO. 100		ļ			1	 	ROCK	TYPE		PARA	ALLEL	AC	ROSS	01	7	AVER	AGE
NO.200	1				<u> </u>									<u> </u>			
- 200 ^{(a}	1					1 1								ļ			
F.M.(6.	1				2.74												
(a) CRD-	C 105	(b) CF	D-C I			MORTA	R:										
						• · · · · · · · · · · · · · · · · · · ·	[FINE AC	GREC	ATE		T		COARSE	AGGRE	GATE	
MORTAR -	BAR EX	PANSIO	N AT I	00F, 97	(CRD	-C (23):	3 MO,	6 MO.	9	MO.	12 M	2. 3	MO.	6 MO	. 9	мо.	12 MO.
LOW-	ALK. CEN	ENT:		% Na.	O FOU	VALENT:			 - -			-			+	-	
	ALK. CEN					VALENT:		 	 							-+	
ļ							l	1	L								
SOUNDNE		CONCRI	LIE (CF	- O - C						-				F&T	HW-	-CD	HD-CW
FINE			····			COARSE A							E 300				
FINE						COARSE A	.GG:					DF	€ 300				
PETROGR	RAPHIC	DATA (CRD-C	127):	Pet	rogra	phic e	xamina	tic	n r	eves	ls	the	grave	ol to	00	n-
sist	nre	ຕໍດຫາ	nant]	lv of				hered									
								ample									
								ellan							neral		
								erial						_			
								(). Cha									
tne	штпо	r all	ra 116	a OI	roi	CTSUC	Cemer	nt, is	ħr.	25 G [iu il	. 50	 V.	. 0114	~ 011G		
ļ																	
<u> </u>																	
REMARKS	2:																
l																	
L																	

JAHNCKE SERVICES, INC.

BUSH, LA

STATE:]	.a	INDE	X NO.:	<u>8 (s</u>	<u>uppl</u>	2)		REGATE		TEST	ED BY:	US	SAEWE	S			
LAT			s.: 8				1	A SHEET		DATE	: 0c	tobe	r 19	68			
LABSYM	BOL NO.	NC	-28	G-1	(5)	C811			TYPE	OF MA	TERIAL	Nat	ural	grav	el		
LOCATIO	N: A	nrox	imat	ely	1/2	mi abo	ve Loc	k No.	2	on E	ast	side	of	Pearl	Riv	ver	
		ion															
220DUC	R:	Jahno	ice S	ervi	ces,	Inc.,	Bush,	La.,	P1	ant							
SAVPLED																	
TESTED																	
TA CESU		vest	Leve	e nu	rric	ane Pr	otecti	on Fig	000	wall							
							·										
PROCESS					<u>e</u>												
SEOLOGI	CAL FO	RMATIO	N AND A	GE:													
GRADI	NG (CR	D-C 103)	ICHM *	PASSIN	(G):	ļ	TEST	RESULTS			1		<u> </u>	T	$\overline{}$		<u> </u>
-		1		Τ	1	-					3	-6 "	: , -3	2-1 ÷	=	4-3	FINE AGG.
SIEVE	3-6"	1 2 - 3"	1 -1 1 7	=4-3"	AGG.	BULKSP	GR. S.S.D.	:080-0 to	108						12	.55	
5 IN.				†		1	10N (CR									.9	
5 IN.					-		IMPURITIE			D=C 121	,			-	- -	<u> </u>	
4 IN.		 				1	RTICLES,							_	_		
3 IN.							R THAN SE			D-C 122							<u> </u>
2, IN.							ND ELONG								\top		
2 IN.						WT AV	LOSS, 5 CY	C MgSO4 (C	RD-C	115)							
1 . IN.																	
1 IN. 96 UNIT WT, LB 'CU FT 'CRD-C 106):																	
IN. 82 FRIABLE PARTICLES. : ICRO-C 1421																	
; IN.				52		SPEC HE	AT, BTU'LE	DEG F. (RD-C	124)							<u> </u>
7 18.				26		REACTIV	ITY WITH N	0 0H	ļ	Sc.mM/	<u>- </u>		Í				
NO. 4		<u> </u>		4	ļ	(CR	D-C 1281:			Rc,mM.	<u>-: </u>			_			ļ
NO. 8				ļ		ļ							L		Ш.		
, NO. 16				ļ		MORTAR-	MAKING PR	OPERTIES	(CRD	-C 116)							
NO. 30		-		┼			CEMEN										
NO. 50				 		LINEAR	HERMAL E		MILL	Τ							
NO. 100		1		 			ROCK	YPE		PARA	LLEL	AC	2035	ON	-+	AVE⊅	AGE
-200 ^(a)		 				1				†			· · · · · · · · · · · · · · · · · · ·				
F.M.(b)		 		 	 	1				 	·						
1 CRD-C	105	(b) CR	D-C 104	1		MORTA	R ·					L		·			
							Ì	FINE AG	REG	ATE		\top	с	OARSE AC	GREG	ATE	
MORTAR-	BAREX	= ANSION	I AT 100	F. 5 (C	RD-C 12	3`:	2 MO.	6 MO.	9	мо.	12 MO.	3	vo.	6 MO.	9 M	0.	12 MO.
LOW-A	LK. CEV	ENT.		5 NO	20 EQU	VALENT:											
HIGH-A	LK. CE	MENT:		· Na	20 EQU	VALENT:	<u> </u>	<u> </u>	L								
SOUNDNE	\$5 IN C	NORET	E :CRD-	C 40, 11	41:									FST	H₩≺	CD.	HD-CW
FINE					COA	RSE AGG:						DFE:	02		<u> </u>		
FINE A		20.70.10	00.6.13	71.	COA	RSE AGG:						OFE3	00		<u> </u>		
PETROGR	IAPHIC :	PATA (C	RD-C 12	71:													
!																	
REVARKS	:		· ·······								<u> </u>						
1																	
ENG FORM	6011-R																

SOURCE NO. 11

DIXIE SAND & GRAVEL CO.

AMITE, LA

							I	ssued	Sept :	197	3						
STATE	La.	111100	N 40.:	9 (s	uppl)		. AGG	REGATE		TESTED		USA	EWES			
LAT.:	30	LON	<u>د. 8</u>	9				DAT	A SHEET		UATE:	3	L Au	gust	1970		,
LAB SYM	COL NO.	NO	-31	S-1(2),	N	031	G-1(2)	es SE	TYPE	OF MATE	RIAL.	Nat	ural	Sand	& Che	rt
LOCATIO	м. F	rank	lint	on,	La.,	J	Pit,	15 mil	cs SE	of	Frank	clint	on,	La.,	on	Highwa	y 16,
								<u> </u>									*
PRODUC	EH. D	ixie	San	d &	Grav	e]	Co.	, Divi	sion o	of !	Monroe	Sar	ıd &	Grav	rel C	0.	
	ite,																·····
SAMPLE																	_
TESTED	FOR: N	ew (rlea	ns D	istr	<u>i</u>	et										
USED AT	<u>. I</u>	ake	Pont	char	trai	n	and	Vicini	ty; H	ırr	icane	Floo	od P	rotec	tion		
· ·																	
PROCESS	ING BEF	ORE TE	STING:		None	•											
GEOLOG	CAL FO	HMATIO	N AND A	GE:												·	
						_											·
GRAD	ING ICRE	O-C 103)	CUM. S	PASSIN	(S):	-		TEST	RESULTS			3-6	.	1 1/2 -3"	2-12"	#4-1"	FINE
SIEVE	3-6"	1 1/2 - 3"	1-13	24-3	FINE AGG.	-						↓				ļ <u></u>	AGG.
!	ļ		 -	 	-	+-			ICRD-C 10		<u> </u>	 			 -	2.49	
6 IN.	<u> </u>				 	1			D-C 107, 10			 				3.0	0.7
5 IN.	<u></u>	ļ	ļ	 -	 -	Ŧ			S, FIG. NO.		HC 121)	+					
4 IN.					 	т			(CRO-C 13			┼				 	
3 IN.			ļ	 		\vdash			GR			 					
2) IN.					 	1			ATED (CR			┨				 	
2 IN.	 	 		130	<u> </u>	Т.			C MgSO4 (C			<u> </u>				 	
1 IN.				98	 	+-			(CRD-C 10		1451 GRAE	T	=-			 	
3 IN.			 -	85	 	Т			S. " /CRD-			 	-+-			 	
1 IN.				44		Т			C'056 F. (†				 	
ž IN.			•		100	т		TYWITH			Sc,mM/L:	1				†	
NO. 4				1	96			D-C 1231:			RC, mM/L:	1	_			-	
NO. 8					82			******	 				-1-			1	
NO. 16					70	\ <u></u>	ORTAR-N	AKING PR	OFERTIES	(CRD-	C 116)					-1	<u></u> _
NO. 30					57	ŀ	YPE	CEMEN	T. RAT10:_		CAYS.		<u> </u>		DAYS,		
NO. 50				<u> </u>	21	ا ا	INEAR T	HERMAL E	XPANSION.	MILL	ONTHS/D	EG F. (2	RD-C	25, 1261			
NO. 100	<u> </u>	L			2		L	ROCK	TYPE		PARALL	FL	ACROS	is	ON	AVER	AGE.
NO. 200				<u> </u>	<u> -</u> _		<u></u>					_					
-200(a)		ļ	ļ <u>.</u>		0.3		<u> </u>					-					
F.M. (b)		l	L	2.72	<u>.</u>												
(e) CPO-C	105	IP) CH	0-C 104			<u> </u>	MORTAR	<u> </u>									
MORTAR-	BAR EYF	ANSIG	AT 100	F. * (CF	RD-0 123	3 1:		-	FINE AGO			-				REGATE	
								2 MQ.	5 MO.	9 1.	0. 12	MO.	3 40	. 6	MO.	9 NO.	12 MO.
	LK. CEM				0 EQUI				<u> </u>								-
SOUNDNE			E (CRD-0						L					<u> </u>	ат	HW-CD	не.е
FINE A						95 1	E AGG:						FE 300	- -			HU-CW
FINE A	GG.						E AGG:						FE 300	_			
PETROGR	APHIC D	ATA :C	PO-C 127	1);									- 300				
										•							
1																	
ŀ																	
									·								
REMARKS	:																
}																	

CARION, INC.

PICAYUNE, MS

STATE:	<u>La.</u>			EX NO.	:10			A	GG	REGAT	Έ	TES	TED BY	: 8/	D La	bore	torv			
LAT,:	30		LO	NG.:	89)		DA	AT/	SHE	ET	DAT	E: Pe	bru	IATV	1964				
LAB. SYM	BOL N	0.:	LA57:	5 - 5	76						TYPE	OF	MATER	AL: N	latur	a1 S	and /	6 6	-01	-01
LOCATION						J.	S. H	Lehs	JAV	11 0	n t	he	Tout	der	a of	da o	e el	<u> </u>	-a.v	
	Pe	e+1 1	River	•		_		-0			-		MUGT.	Tar	14 DI	ue U	r cm	<u> </u>		
PRODUCE					H	_		¥4 a.												
· NODOCE	· Ca.	LIUM	TIM	, .	TCA	<u>/u</u>	ue,	<u>nia s</u>	110	STDDT										
SAMPLED						_														
TESTED					est	Į	acil:	Lty	*	ENG (NAS.	<u>A)</u>	<u>- 81:</u>	<u> </u>						
PROCESS	NG BEF	ORE T	ESTING	:																
													-							
GEOLOGIC	AL FOR	MATIO	AND	AGE:																
GRADING	(CRD	- C 103)	(CUM.	70 PAS	SING):	Γ		T	TΕ	ST RE	SUL	TS						l	JF	FINE
			Γ		FINE	١,		L					ì		3-6"	13-3"	3-15"		7	AGG.
SIEVE	3-6"	1 2 - 3"	3-15"	w4 - 3"	AGG.	Б	ULK SP.	GR.	SAT	SURF DRY	(CRI	D-C	107.108);			(c)	(c)		2.62
6IN.		-		 		7				ENT (CRD							<u> </u>	7		
5 IN.				-		! -				S, FIG. N		<u> </u>						3.2		0.4
						╆													4	OK
4 IN.				ļ		٠.	SOFT PARTICLES, PER CENT (CRD-C 130): PER CENT LIGHTER THAN SP.GR(CRD-C 129):										ļ	4		
3 IN.						⊢	PER CENT FLAT AND ELONGATED (CRD-C 119,120):										<u> </u>			
2 1N.						٠.													\perp	
2 IN.						! W	EIGHTE	AV.	% LC	oss, 5 cyc	. Mg:	so ₄ ((c) ½ -1°, •	4-1)	(CRD-	115)		12.	<u>3*</u>	2.4
1 ½ IN.						L	BRASION	Los	5 (L	A.),%,	(CRD	-C 1	17): "B	'' G	radi	ng		17	-	
I IN.						U	NIT WT.	, LB/	CU F	T (CRD-	C 10	6):							Т	
₹IN.						c	LAY LU	MPS,	% (CRD-C I	18):								\top	
įIN.						c	OAL AN	D LIG	NITE	, % (CR)-c	122):						=	_	
ĝΙΝ.					100	5	PECIFIC	HEAT	BT	U/LB/DEG	. F. (CRD-	C 124)	:				-	十	-
NO. 4						-				NaOH (十	
NO, 8					86									nM/L:			 	 	十	\dashv
NO, 16						l M	ORTAR -	MAKI	NG F	PROPERTI	5 (0	:RD -			!		L	L	<u> </u>	
NO. 30						•				NT, RAT			-		97 .		DAYS			_
			-	-													UA13,_			
NO. 50						١	INEAR			EXPANS	HUN					,				<u> </u>
NO. 100					8			RO	CK	TYPE		PAR	ALLEL	AC	ROSS	O	4	AVE	AGE	
NO.200						l														
- 200 ^(a)														<u> </u>						_
F.M.(b)					2.45		L							<u> </u>		<u> </u>				
(e) CRD-	C 105	(P) CB	D-C I	04		L	MORTA	₹:]
MORTAR -	BAD FX	PANSIO	N AT IC))))	(CRD-	٠,	123):			FINE AC	GREC	SATE			•	COARSE	AGGRE	GATE		
				,,,,		_	1237	3 N	10.	6 MO.	9	MO.	12 MC). 3	MO.	6 MO.	9	MO.	12	MQ.
LOW-A	LK. CEN	ENT:	•	70 Na ₂	O EQUI	VA	LENT:						1	Т			1			
HIGH-	ALK. CEM	ENT:		70 Na ₂	O EQUI	VA	LENT:							T			T			
SOUNDNE	SS IN 1	CONCRE	TE (CF	10-C 4	0, 114):							***************************************			F&T	HW-	-CD	HD	-cw
FINE A	AGG.				(co	ARSE A	G:	-					DF	E 300					
FINE A	AGG.					co	ARSE A	GG:						DF	E 300					
PETROGR	APHIC I	DATA (CRD-C	127):	···	_														
																				- 1
																				1
													•		•					1
		· · ·																		
REMARKS	:	#R_	S1-	e gr	Olin	,,	hag											•		1
]		- Pr	ach	•	à an b													

STATE:	T -		Jane	EX NO.	. 1		T .				75.67		DV.	THE C					
LAT.:	30			NG.:	<u>-</u> -		-J 🖧	.GG1	REGAT SHEE	t. T	DATE		D T.	neo .	10	4 0			
		0 . 37			90		1 07	110											
LAB. SYM		0.: N	0-1 :	8-4			. /			TPE	. 01	MA	LHIAL	F1:	ne	Sand			
LOCATION	A: BC	nnet	Car	re Si	2111	ray,	1/4 1/	11.	ReTox	<u>'</u> U	pper	• (iui de	wa.	11	, Bet	Weel	1.10	٥ <u>٠ ه</u>
				Y. &	M.	7. R.	R. 1	re	stle										
PRODUCE	R: Co	ntra	ctor																
																	,		
SAMPLED					Repr	esen	tativ	70			·								
TESTED																			
PROCESS	ING BE	FORE T	ESTING	:										······					
																			
																			
GEOLOGIC	CAL FO	RMATION	AND	AGE:												 .			
50.5					511.53.		 -											1	Lewe
GRADING	T	7	,		1	1	L	TE	ST RE	SUL	.TS			3	- 6"	1 ½ - 3"	$\frac{3}{4} - 1\frac{1}{2}'$	#4-	FINE
SIEVE	SIEVE 3-8" 12-3" 3-12" -4-3" FIN					BULK SP. GR., SAT SURF DRY (CRD-C 107,108):										(c)	(c)	AGG.	
		<u> </u>	ļ	ļ	-								108).						2.5
6 IN.			<u> </u>		 		<u>-</u>		ENT (CRD				· ·			-		 	1.2
5 IN.	 	 		 -	 	 			S, FIG. N					-+-				\vdash	- 4
4 IN.		 	 						ER CENT					<u>,, </u>				-	+==
3 IN.	 	 				 			THAN S									 	
2½ IN.	 	 			 	ļ												┼	
2 IN.	 	 		ļ					55, 5 CYC					- 5) (CH	D - 1	C 115)			
IŽIN,							ABRASION LOSS (L. A.), 76, (CRD-C 117):												
1 IN.	ļ	ļ				UNIT WT., LB/CU FT (CRD-C 106):													
₹ IN.	 	 				CLAY LUMPS, 76 (CRD-C 118):													
1 IN.	 	 		 	 	COAL AND LIGNITE, % (CRD-C 122):													
gIN.	ļ					SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124): REACTIVITY WITH Nach (CRD-C 128): Sa, mM/L: 139													
NO. 4		 				HEACT	VIIY W	/I T H	NAUH (.KD-	· (121	- 1				 		-	139
NO. 8		 				140074	3 A44 KI		ROPERTI	- (-00-		Rc,mM.	<u> </u>		L		Ь	100
NO, 16	 					ł								_			D. 4.1./D		_
NO. 30	 				-				NT, RATI			_					DAYS,_		
NO.50	 	 				LINEA			EXPANS	ION							 1	A1/5	2455
NO. 100	 	 			52	∤	но	CK 1	TPE		PAR	ALL	.EL	ACROS		Of		AVE	RAGE
- 200(a)	<u> </u>				7	 													
- 200 F.M(b)				 	040	l										 			
		<u></u>		<u> </u>	0.48	<u> </u>					<u> </u>						1		
(e) CRD-	C 105	(B) CF	(D-C	04		MORT	AH:		FINE AC	CRE	- AT F					226403	ACCE		
MORTAR -	BAR E	KPANSIO	N AT I	oor, 70	CRD-	-C 123)	-	<u>,, , , , , , , , , , , , , , , , , , ,</u>	FINE AG					3		COARSE			
I OW-	ALK. CE	MENT.		970 NI-	O FOU	VALENT		nO,	6 MO.	-	MU.	1	. MU.	э м	J.	6 MO	+	MO.	12 MO.
	ALK. CE				<u> </u>	VALENT				-		-					+-	-	
										Щ.				L		F&T	HW	- C D	HD-CW
SOUNDNE		JUNCA	(0)			COARSE	AGG:							DFE 30			100		
FINE						COARSE								DFE 30		<u> </u>	+		
		DATA (CBD-C	127):												<u> </u>			
PETROGR Chalc	RAPHIC Sedor	y, c	aloi	te aı	The	sam;	ple i	ıts	oompos of or				art	e, f	e 1			nert The	
							•												
REMARKS	3:															*			

JAHNCKE SERVICES, INC.

JACKSON, LA

r.		

SOURCE NO. 15

GULF SAND & GRAVEL CO.

AMITE, LA

STATE:			IND	EX NO.:	3 (5	Suppl)	AGG	REGAT	<u> </u>	TEST	D BY:	USAEW	ES			·	l
LAT.:	30		LON	IG.: 9	0		DATA SHEET DATE: 15 August 1960										
LAB. SYM	BOL N	o. ₹ 0/ £ .c	12 G-	-1(2)	Jo	b 637	5	1	YPE	OF I	MATERIAL	Natur	al Gr	avel]
LOCATION		Amit															
																	٦
PRODUCE	a :	Gulf	Sano	and	Gra	vel C	0., Am	ite. I	a.								7
																	٦
SAMPLED	BY:	New	Orle:	ans I	ist	rict								-			\neg
TESTED																	٦
PROCESSI																	\neg
			·				······································										ヿ
<u> </u>																	\neg
GEOLOGIC	AL FO	RMATION	AND	AGE:											··· ·		
														· · ·			
GRADING	(CRD	- C 103)	(CUM.	70 PASS	ING):		TE	ST RES	SUL	TS		1	1 1 - 3"	3 1 *		FIN	Ε
			As_	34	FINE				_	لت		3-6	12-3	(c)	(c)	AG	G.
SIEVE	3-6"	15-3"	Recd	#4- ª"	AGG.	BULK SP	. GR., SAT	SURF DRY	(CRE)-C i	07,108):				2.5	2	
BIN.							ION, PER C						·		2.6	1	
5IN.						ORGANIC	IMPURITE	S, FIG. NO). (CP	D-C	151):		—		<u> </u>		
4 IN.			-				ARTICLES,								1.5	—	_
3IN.						PER CEN	T LIGHTE	R THAN SE	P. GR	2.40	CRD-C 129	9):			12.		=
2 1N.						PER CENT FLAT AND ELONGATED (CRD-C 119,120):											
2 IN.						WEIGHTE	WEIGHTED AV. % LOSS, 5 CYC. MgSO4 ((C) 1-1, 4-1)(CRD-C 115) 2.4										
1½ IN.			100			ABRASION LOSS (L. A.), %, (CRD-C 117): 18.6—											
I IN.			97	100		UNIT WT	UNIT WT., LB/CU FT (CRD-C 106):										
3 IN.			87	95		CLAY LL	CLAY LUMPS, 76 (CRD-C 118): 0.1										
. ₹IN.			57	73		COAL AND LIGNITE, % (CRD-C 122):											
₹IN.			29	42		SPECIFIC	SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):										
NO. 4			2	2		REACTIVITY WITH NaOH (CRD-C 128): Sa,mM/L:											
NO, 8											Rc, mM	/L:			<u> </u>	1	
NQ.16						MORTAR	-MAKING	PROPERTIE	s (c	RD-C	: 116)						
NO. 30							СЕМЕ							DAYS,_			ኤ
NO.50						LINEAR	THERMAL	EXPANS	ION .	X10 %	DEG. F. (CRD-C 12	5,126):				٦.
NO. 100						l	ROCK	TYPE		PARA	LLEL	ACROSS	01	<u>'</u>	AVER	AGE	1
NO.200													 				-
- 200 ^(e)						[1
F.M.(b)		<u> </u>	L			L							.L				_
(a) CRD-	C 105	(P) CE	D-C I	04		MORTA	R:										
MORTAR -	BAR EX	PANSIO	N AT I	00F, %	(CRD-	-C (23):	<u> </u>	FINE AG				 	COARSE		———		
<u> </u>							3 MO.	6 MO.	9	MO.	12 MO.	3 MO.	6 MO	. 9	MO.	12 M	.U.
		MENT:				VALENT:	 				·····			+			
	ALK. CEN					VALENT:	L			1		l		- Lu	-65	HD C	-14/
SOUNDNE		CONCRI	LIE (CF	×0~C 4			.66:					DEF	F&T	1°W	- C D	HD-C	
FINE A						COARSE A	·· ·					DFE 300	 	-			
PETROGR		DATA (CRD - C	1273				= =			C + 1		inna	-1,17		4	
1					.		sample										
tabula	n. ba	TG C	OTOL	eu Cr	ert	rangi	ng iro	nn ⊥1gr	16	OLON	m tt vo	4 + ~ + ∓TRU£	Pe -	WIN	noc vii iii	64 2. T1101	Ω. T.
							quartz									311F	5
the 3/																מממת	A
dence	inte uig C	u bii	ישט פ	orce. S	at a w	aces,	t: or	18 d 01	in HHI	וטק	10 · 1 /	nii su	98.	3/8	in.	98	g.
No. 4,						- cuer	U. OI	1 3/4 3	-11.	۰ ۰۰	, I/	و ۱۹۱۹ م	30,	5/0	-111 e	,)(-,
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, 04,	AVC.	- 	• 3.	- •												
1																	
REMARKS	:																
1																	
								· · · · · · · · · · · · · · · · · · ·									

SOURCE NO. 16

COMITE SAND & GRAVEL CO.

AMITE, LA

AT.:	20		1		<u>4</u>			SHEET	DATE		y 1949					
	<u>30</u>			G.: 9	<u> </u>		DATA				Sand	R. Cir	ר בעד פי			
AB. SYME	OL NO	.: N	<u>)-2 </u>	<u>5=2</u>		44. 3	(4 1 1 2 4 2		TE OF	MAI LRIAL	Sand	oc UI	G. 46.7	-	•	
DCATION:	<u> 10</u>	Mi.	, Noi	rth c	1 AU	iite, l	Louisi	BUTAL			,				·	
			6			- T	A	ito I	ດນາ ຂາ	ana						
RODUCER	: Co	mi te	SRIK	anc	Ure	IVET C	O., All	ite, L	OUTPT	311A						
	514.		4.9 1	N	.+			~								
AMPLED	BY:	Hugn	We .	Most	. Cal	rmot 1	Floodg	ates		,					 	
ROCESSI					, val	Lune	LEVOUE	4005								
ROCESSI	NG BET	ONC 11														
· *											==					
EOLOGIC	AL FOR	MATION	AND	AGE:												
GRADING	(CRD-	G 103)	(CUM. °	70 PASS	ing):		TE	ST RES	ULTS		3-6"	1 ½ - 3"	2-11"	#4-3	FINE	
	"	.1 2"	3 .1"	#4- <u>3</u> "	FINE					·		.,	(c)	(c)_	AGG	
SIEVE	3-6	15-3	3-12	-4-3	AGG.	BULK SP.	GR , SAT S	SURF DRY (2.52		2.6			
6 IN.								ENT (CRD-					2.0	ļ	0.5	
51N.						1		s, FIG. NO.					~~		12	
41N.								PER CENT				<u> </u>	0.0	ļ	1-	
31N.							PER CENT LIGHTER THAN SP. GR(CRD-C 129):									
2 € IN.			<u> </u>			L	PER CENT FLAT AND ELONGATED (CRD-C 119,120): 6.9									
2 IN.			200				Weldings 111 12 2000) 2 0 10 11 11 2000									
t in.			100.				ABRASION LOSS (L. A.), 70, (CRD-C 117): 23.0									
I IN.			95.			UNIT WT., LB/CU FT (CRD-C 106): CLAY LUMPS, % (CRD-C 118):										
₹1N.			78.			COAL AND LIGNITE, % (CRD-C 122):										
1N.			1110		 	SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):										
를 IN.			18.		085	REACTIVITY WITH NOOH (CRD-C 128): So, mM/L: 453 8.										
NO. 4			0.	١	86.0	4										
NO. 16	ļ		 	 	602	MORTAR-	MAKING !	PROPERTIE	s (CRD-	C 116)		1	<u> </u>	4		
NO. 30			-		50.5	TYPE I	II CEME	NT, RATIO	3	DAYS, 10	<u></u>	7	DAYS,	105		
NO.50			 	 	15.0	LINEAR	THERMAL	EXPANSI	ON X10	DEG. F.	(CRD-C 12	5,126):				
	 	 	-	 	1.9		ROCK		 ,	RALLEL	ACROSS	0	N	AVER	AGE	
NO. 100		Ŧ														
NO. 100					0.3	1						i				
NO.200					0.3							-				
NO.200	1				2.78											
NO.200 - 200 ^(a) F.M ^(b)		(ь) с	RD-C	104			R:									
NO.200 - 200 ^(a) F.M. ^(b) cRD-	C 105				2.78	MORTA	Г	FINE AG	GREGATE			COARSE	AGGR	EGATE		
NO.200 - 200 ^(a) F.M. ^(b) (a) CRD-	C 105				2.78		Г	FINE AGO	GREGATE 9 MO.	12 MO.	3 MO.	COARSE 6 MC		EGATE MO.	12 MG	
NO.200 - 200 ^(a) F.M. ^(b) c) CRD-	C 105	(PANSIC	N AT I	00F, 7	2.76	MORTA	3 MO.	1		,	 				12 MG	
NO.200 - 200 ^(a) F.M. ^(b) (a) CRD- MORTAR- LOW-A	C 105 BAR E	KPANSIC MENT: MENT:	ON AT I	90 Na:	2.78 CRD	MORTA -C 123): IVALENT:	3 MO.	1		,	 	6 MC). 9	MO.		
NO.200 - 200 ^(a) F.M.(b) CRD- MORTAR- LOW-A HIGH- SOUNDNE	C 105 BAR EXALK. CEI	KPANSIC MENT: MENT: CONCR	ON AT I	90 Na: 90 Na: 90 Na: RD-C	2.78 CCRD O EQU	MORTA -C 123): IIVALENT: IIVALENT:	3 MO.	6 MO.	9 MO.	,	3 MO.). 9	MO.	12 M	
NO.200 - 200 ^(a) F,M ^(b) CRD- MORTAR- LOW- HIGH- SOUNDNE	C 105 BAR EXALK, CEI ALK, CEI SS IN AGG.	KPANSIC MENT: MENT: CONCR	ON AT I	90 Na: 90 Na: 90 Na: RD-C	2.78 CCRD O EQU	MORTA -C 123): IVALENT:	3 MO.	1	9 MO.	,	 	6 MC). 9	мо. -с D		

SOURCE NO. 17

BATON ROUGE SAND CO.

BATON ROUGE, LA

TATE:]	la.		INDE	X NO.:	5		AGGR				BY:	ΪŽ	VÉME S	3 255			
AT	30		LON	G.: !	9Ŏ		DATA	SHEET	DA	TE:				1958			
AB. SYME	OL NO	: NO	-25	S-3 (3–2	Job 6	001/37	0 TY	PE O	F M	ATERIAL	: :	Sand	and	Grav	el	
OCATION	East	Bat	on R	ouge	Par	ish ap	proxim	ately	16	mi	NE o	f	Bator	Rou	ge,	on	
bank o	of Ar	nite	Rive	r.													
PRODUCER	: Ba	ton	Roug	e Sai	nd C	o., Ba	ton Ro	uge, l	oui	sia	ına						
SAMPLED	BY:	Vew C	rlea	ns D	istr	ict Pe	rsonne	1									
TESTED F	OR:	ort	Alle	n Lo	ck												
PROCESSI	NG BEF	ORE TE	STING	1	Vone												
											·						
GEOLOGIC	AL FOR	RMATION	AND	AGE:													
																11	FINE
GRADING							TE:	ST RES	ULT	s J			3-6"	1 ½ - 3"	3-12	#4-3	4
SIEVE	3-6"	14-3"	3-17.	= 4-}"	FINE										(c)	(c)	
JIEVE.	J 0	12	4 12	•	AGG.		GR., SAT 5									1	12.62
6 IN.							ON, PER CE									2.7	0.7
5 IN.							ORGANIC IMPURITIES, FIG. NO. (CRD-C 121):										
4 IN.						SOFT PA	SOFT PARTICLES, PER CENT (CRD-C 130):										
3IN.							PER CENT LIGHTER THAN SP.GR. 40crd-c (29): 8.7										
2½ IN.							PER CENT FLAT AND ELONGATED (CRD-C 119,120): 0.6										
2 IN.							WEIGHTED AV. % LOSS, 5 CYC. MgSO ₄ ((c) ½ -1", "4-½) (CRD-C 115) 3.2 1.8										
l≱IN.				100			ABRASION LOSS (L. A.), %, (CRD-C 117):										
I IN.				95			UNIT WT., LB/CU FT (CRD-C 106):										
₹IN.		ļ		84			CLAY LUMPS, 70 (CRD-C 118):										
⅓ IN.		ļ		50		COAL AND LIGNITE, % (CRD-C 122):										-	
BIN.				18		SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):										+	
NO. 4		<u> </u>	<u> </u>	1		REACTIVITY WITH NOOH (CRD-C 128): Se, mM/L: Re, mM/L:										+	
NQ.8	<u> </u>	ļ	ļ	ļ	84 65	WODEAR	-MAKING F	PODERTIE	s (CB	D = C	1	IIVI/ L	1	L	<u> </u>	٠	ــــــــــــــــــــــــــــــــــــــ
NQ.16	ļ	ļ	ļ	 		MORTAR	III	NT DATE	3 (0,		, 110) Ave].	34	en_	7	DAYS	132	%
NO. 30		ļ	ļ	 	51 21	1 YPE	THERMAL	CYDANIC	ON Y	10.6	DEC 5	(()	D=C 12	5 (26):			
NO.50	ļ	 	 	<u> </u>		LINEAR	ROCK				LLEL				N	AVEF	RAGE
NO. 100	 	 	 	 	3	┨ ├	NOCK	, , , ,		, AIN				┼╌			
- 200	1	 	 			┨ ├───			-+					+			
F.M(b)				 	1.7	T								┼──			
(e) CRD-		(4) (<u> </u>		2.78	MORTA	٥.		-		ا			ــــــــــــــــــــــــــــــــــــــ			
(a) CRD-	·C 103	(6) (KU-C	104		MORIA	i i	FINE AG	GREGA	TE		\top		COARSE	AGGR	EGATE	
MORTAR -	BAR E	XPANSIC	N AT	00F, 7	(CRD	-C 123):	3 MO.	6 MO.	9 N		12 MO	. + :	MO.	6 MC		MO.	12 MO
10%-	ALK. CE	MENT:		% Na-	O EOU	IVALENT:	J ,	<u> </u>				+		 	-		
	ALK.CE					IVALENT:	<u> </u>			\neg		十		 			
SOUNDNI							1	<u> </u>	<u> </u>					FA	T HW	-cD	HD-CV
FINE					-7	COARSE A	GG:					DF	E 300				
FINE						COARSE A						DI	E 300				
PETROG		DATA	(CRD-	C 127):												``	
ĺ																	
																5.	
]																	
1																	
REMARK	s:															+	
L																	
												_					

GIFFORD-HILL, INC.

AMITE, LA

STATE:	LA	INDE	x NO.: ((su	pp1	1)		EGATE		TESTED							
LAT.:	30	LONG	s.: 90					SHEET.		DATE: (
LAB SYM	80L NO.:	NO	-35 \$	3-1	(3)	<u>C81</u>	1	7	YPE	OF MATE	RIAL:	Natur	al Sano	<u> </u>			
LOCATIO	и: 1 m	ile	North	of	Flul	er,	La., on	Tangi	<u>pah</u>	oa R	<u>lver</u>						
																	
PRODUCE	er: Ja	hnck	e Sei	rvice	es,	Inc.	Mitchel	1 Pit	, no	œ.	6111	ford -1-	ill Ind				
							· · · · · · · · · · · · · · · · · · ·										
	8Y:																
TESTED	FOR:																
USED AT	: W	est	Leve	e Hu	rric	ane P	rotecti	on Flo	odw	all							
PROCESS	ING BEF	ORE TE	STING:	None	e												
GEOLOG	ICAL FOR	MATIO	N AND A	GE:													
											1				T		
GRAD	ING ICRO	-C 103)	ICUM. %	PASSIN	G):	TEST RESULTS					3-6	5" 1 ½	3" 3-13	≈4-3"	FINE AGG.		
SIEVE	3-6"	1 1 -3"	3-1 ½"	=4- 1 "	FINE AGG.										2.64		
			ļ		AGG.		P GR, S.S.D.		+				0.4				
5 IN.			<u> </u>	<u> </u>	<u> </u>	 	PTION, % (CRE				 			_	10.4		
5 IN.	ļ		ļ	ļ	 		C IMPURITIE			-C 1211	+ =			+	+		
4 IN.	ļ	ļ	<u> </u>	 	 		ARTICLES, %				╂			+	+==		
3 IN.	<u> </u>			ļ	ļ		LIGHTER THAN SP GR (CRD-C 122)										
2 1 IN.	ļ		<u> </u>	ļ	 	1	AND ELONG								+		
2 IN.			ļ	ļ			~ LOSS, 5 CY										
1 ½ IN.	ļ		ļ	 	 	1	BRASION LOSS			145) GRA	DING_				+		
1 IN.	 	ļ		UNIT WT. LB/CU FT (CRD-C 106): FRIAB: F PARTICLES, 3 (CRD-C 142)													
3 IN.	 		 	 	 		FRIABLE PARTICLES, % (CRD-C 142)										
1 1N.	 			 	 		SPEC HEAT, BTU/LB/DEG F. (CRD-C 124)										
3 IN.		ļ		 	 	1	REACTIVITY WITH NOOH SC,MM/L:										
NO. 4		 	 	ļ	97	<u> </u>	CRD-C 128): Rc,mM/L:										
NO. 6	 		 	ļ	88	-											
NO. 16		ļ	-	 	177	1	T-MAKING PR							_	_		
NO. 30		 		╂	62		CEMEN						DAY	`L			
NO. 50		├ ──		ļ <u> </u>	23	LINEA	R THERMAL E	XPANSION,	MILL	1	1		1				
NO. 100	 	 	-		3	┨	ROCK	TYPE		PARAL	LEL	ACROSS	ON	AVE	RAGE		
NO. 200		 	┼──			┥ ├─				<u> </u>							
-200°a)	+	-	 -	├	0.2	-				ļ <u>.</u>							
F.M. (b)		1	<u> </u>		2.5	1				<u> </u>	1						
(e) CRD-	C 105	ibi Ci	RD-C 104			MOR	TAR:					T	COARCE	CCRECATE			
MORTAR	R-BAR EX	PANSIO	N AT 100)F. % (C	RD-C 12	31:	2 MO.	FINE AG			12 MO.	3 MO.	6 MO.	GGREGATE 9 MC.	12 MO.		
								5 MU.	9,	wo.	iz MO.	3 MO.	1 0	1.	1		
	ALK. CEN					IVALEN		 	 	-		+	1	 	1		
ļ	ESS IN C		TE (CBC-				1	<u> </u>					FAT	HW-CD	HD-CW		
	AGG.			0 -0,		RSE AG	g.					DFE 300	1	<u> </u>			
	AGG.					RSE AG						OFE300					
	RAPHIC	DATA (CRD-C 12	27):													
1																	
į			•	=													
1.																	
REMAR	KS:																
1																	
t																	

STATE:	La.	INDE	K NO.:	6	Rev 1		AGGRE	GATE	L			usai		<u> </u>				
•	20	1	00				I DATA	SHEET		DATE:	J	me 1	977					
LALL	BOL NO.:	7:0	57	G-9	and	S-5	51 app	TY	PE	OF MATE	RIAL:	Pit:	run					
	BOL NO.:	0	+ 61	de 0	£ 115	Hwy	51 app	rox. 2	.1	5 mic	s .\c	orth	of :	nters	ection	:		
LOCATIO	N: UI	i ea	21 27	1 0	11.1.6	1 1 0	(Mitche	hell F	112	nt #2	9)							
0	f La.	:://	. 10	In i	TUKE	T, 10	(11100	11 111		#201	5	0 0	0 V	196				
PRODUC	en: G	iffc	rd-lli	11 C	ο.,	inc.	(littile	11 117	111	" <u>"</u> ⁷ J	, ,		<u> </u>	,				
F	luker	, La	•															
SAMPLE	3 8Y:	Dame	s ն :	oore	;													
TESTED	FOR:	Vev	Orlea	ins [isti	ict												
USED AT																		
			<u>-</u>	Car	10701	- ed 01	er the	Vo. 4	51	eve !	oe Fo	re te	sti	nc.		i		
PROCES	SING BEF	ORE TE	STING:	36)	7314	*****	ne Torra	Ca (D)	cai	riel	Den	osits	an	<u> </u>				
GEOLOG	CAL FOR	MATIO	N AND A	se: t	1013	5 10061	ie iciia	ice (i)	. (1.)	.110)	DC ₁ /							
H	olloc	ene	Allu	/1 Um .							-				, ,			
GRA	ING ICRO	-C 103)	(CUM. %	PASSIN	G):		TEST	RESULTS	- [3-6	. .	1	11:11	24.3"	FINE		
	7				FINE		L				3-6	· '	7-3	4-1/2		AGG.		
SIEVE	3-6"	1 3-3"	4-1/2	24-4	AGG.	B111 K S1	GR, \$.5.D.	CRD-C 107.	1081	<u> </u>	T -			2.5	4	2.63		
	-	<u> </u>	 	 	 					<u> </u>	+-			2.3		0.3		
6 IN.	 		 	<u> </u>		 	TION, 5 ICRO				+			1		7		
5 IN.		`			ļ	ORGANI	C IMPURITIES	, FIG. NO.	CRD	-C 121)	-			0 3				
4 IN.	1				<u> </u>	SOFT P	ARTICLES, 7	(CRD-C 130)					0.2	1			
3 IN.	T				ļ	" LIGHT	LIGHTER THAN SP GR (CRD-C 122) 8.6 0.0											
2 1 IN.	1											1		0.5]			
							* FLAT AND ELONGATED (CRD-C 119, 120) U.5											
2 IN.			100	 	 		LA. ABRASION LOSS, % (CRD-C 117, 1+6) GRADING B 20.5											
1 } 17	1 IN 92 UNIT WT, LB/CU FT (CRO-C 106):																	
1 IN.	 	↓	ļ <u>-</u>	 	 		0 2 0 3											
₹ IN.			74		 	FRIABL	PRIABLE PARTICLES, TIONS 1927											
1 IN.			35	<u> </u>	<u> </u>	SPEC H	SPEC HEAT, BTU/LB/DEG F. (CRD-C 124)											
3 IN.	1		14	1	<u> </u>	REACT	REACTIVITY WITH NGOH SC,MM/L:											
NO. 4			1	T	100	1 "	(CRD-C 128): Rc.mM/L:											
NO. 8				1	39													
		+	+	1	76	1	R-MAKING PR			- 445								
NO. 15	_	├	 	+		1 20011	CEMENT							DAYS		_		
NO. 30		┼	 	 	111	TYPE_	CEMENT	r. RATIO:		DAYS	-	~~~		UATS.				
NO. 50		 		 			THERMAL E	X PANSION,	MILL	IONTHS/	DEG F.	(CRD-C	125, 12	5):				
NO. 100		<u> </u>			1	J	ROCK	YPE		PARAL	LEL	ACROS	is	ON	AVER	AGE		
NO. 200		<u> </u>	<u> </u>			J L				<u> </u>								
-200 ^(a)					0.5	1 1												
F.M.15	5				2.6	\$							1					
		م حسال دهاداد				MORT	TAB:											
(a) CRD	-6 105	(8) C.	RD-C 104			1 1000	<u> </u>	FINE AGO	950	ATE		T		DARSE AG	GREGATE			
MORTA	R-BAR EX	PANSIC	N AT 10)F,% (C	RD-C 12	231:		T			12 MO.	3 MC		6 MO.	9 MO.	12 MO.		
							2 MO.	6 MO.	-	мо.	12 MU.	3 MC	" 	5 MO.	3 MU.	12 40.		
LOW	-ALK. CEI	KENT:		5 N	20 EO	JIVALENT	:	 								 		
HIGH	MALK. CE	MENT:		% N	20 EQ	JIVALENT	<u>: </u>	<u> </u>	L									
SOUND	NESS IN C	ONCRE	TE ICRD	C 40, 11	14):									F&T	HW-CD	но-см		
FIN	AGG.				CO	ARSE AGO	;					DFE 300						
E134	E AGG.				co	ARSE AGO	:					DFE:00						
	GRAPHIC	DATA	CRD-C 1	27):			<u> </u>											
1.2		•																
1																		
1																		
1																		
ĺ																		
1																		
·									<u></u>									
REMAR	₹ ⊀ \$:																	
		TAN	1 1	(D; _														
		11/7/4-	1-1	LTE	run	l												
1																		

DIXIE SAND & GRAVEL CO.

AMITE, LA

							Boucu !	Sebr T	ᆚᆃ							
STATE:	La.	INDE	x **0.: *	7			AGGR	EGATE				USAE				
LAT.:	30	LONG		70			DATA	SHEET		DATE:	31	l Aug	ust	1970		
1 40 624	420L NO	. NO	-31 5	-102	2). N	10-31	G-1(2)	т	YPE (DE MAT	ERIAL:	Natu	ral	Sand	& Che	rt
 	76 OC 110.	nonk	linto			Dit	15 mil	00 SM	of.	Fran	klini	-011	T.a	nn.	Highwa	v 16
LOCATI									<u></u>	- 1 6111					11.611111	, 2,
Wa	sning	ton	Paris	n,	149	KIZE,	Sec 1				. 0		<u></u>	1 0		
			Sanc	1 & (<u> </u>	er Co.	, Divi	sion o	C M	onro	e Sai	na a	Grav	ver C	<u>u.</u>	
	ite,															
	DBY: N															
	FOR: N															
USED A	r: I	ake	Ponto	hart	train	and	Vicini	ty; Hu	rri	cane	Flo	od Pr	ote	ction		
PROCES	SING BEF	ORE TE	STING:]	None.	•										
	SICAL FO			GF:												
GEOLOG	3icke i o															
			10:	DACCIN	c).		TEST	RESULTS	\neg		1			Γ	T	
GRAI	DING (CF	1 1057	100%. 5	PASSIN	61:		1	THE SOL 13			3-6	.	1 7-3"	3-13	#4-1"	FINE AGG.
steve	3-6"	13-5	3-1+"	24-2"	FINE AGG.										0 40	
<u></u>		1				BULKSP	GR, 5.S.D.	ICRD-C 107	, 109)					 	2.49	
6 IN.		<u> </u>				ABSORPT	ION, 3 (CR	D-C 107, 108	1):			_		ļ	3.0	0.7
5 IN.		1		L		ORGANIC	IMPURITIE	S, FIG. NO.	(CRD	C 121)		$=\downarrow$				
4 IN.						SOFT FA	RTICLES, T	(CRD-C 130	1					ļ		
3 IN.		1				% LIGHTE	R THAN SE	GR	(CRD	-C 122)				l		
2 in.								ATED (CRD								
2 IN.						1		C Masoa ICI			7					
1 in.		 		100	1	 		, 1 (CRD-C			TUNG			 		1
		┼──		98	 			ICRD-C 105		437 617	1			 		
1 IN.		 	 	85	 						+-			-	+	
in.		 	 		 			s, " ICRD-C						 		
2 IN.	-+	 		44	 			70EG F. (C				 -		 		
i IN.		 	<u> </u>	27	1	REACTIV	ITY WITH N	0011	s	c,mM/L				 	_	
NO. 4			ļ	1	96	(CR	D-C 128):		F	RC,MM/L	<u>: </u>	-		ļ		
NO. 8		<u> </u>	<u> </u>		82									J		L
NO. 16					70	MORTAR-	MAKING PR	OPERTIES	CRO-	C 116)						
NO. 30					57	TYPE	CEMEN	T, RATIO:		DAYS,_				DAYS		
NO. 50		1	l	<u> </u>	21	LINEAR	HERMAL E	XPANSION,	MILLI	ONTHS!	DEG F.	ICRD-C	25, 126	31:		
พอ้. 100					2		ROCK	TYPE		PARAL	LEL	ACROS	5	ON_	AVER	ACE
NO. 200	T															
-200(0)					0.3	1										ì
F.M. (b)		1	1	2.7												
	-C 105	d.co	D-C 104	1			-				·					
(a) CAU	-C 105	151 CA	D-C 104			MORTA	Ĭ	FINE AGO	DECA			Τ		ADSE AC	GREGATE	
MORTA	R-BAR EX	FANSIG	AT 100	F, 5 (CI	RD-C 12	31:					2.40	1 2 110				
							2 MO.	6 MO.	9 M	0.	2 MO.	3 MO	-+-	5 MO.	9 MO.	12 MO.
	ALK. CE					VALENT:	 					 -				
	HALK. CE					VALENT:	L	1				Ь				
SOUNDN	IESS IN C	ONCRET	E CRD-C	40, 11	4):							····		FAT	HW-CD	HD-CW
FINE	AGG.				COA	RSE AGG:					1	DFE 100				
FINE	AGG.				COA	RSE AGG:						DFE300				
PETRO	SRAPHIC	DATA :C	RD-C 12	71:												
1																
1																
1																
1																
															•	
								- 								
REMARK	45 :															
1																
ł																

SMITH SAND & GRAVEL

MT. HERMAN, LA

STATE: [a.	INDE	K 40.:	8				REGATE		O 6Y:		AENES			
AT.: 3			90				UNIA	SHEET				y 197		1701	
AB SYMB	OL NO.:	NO-	<u>41 G-</u>	<u>-1 -</u> 21	nd_S	-1		TY	PE OF MA	LERIAL:	<u>sa</u>	nd and	yra	AGT	
OCATION	· Sm	ith_	Sand	and	Grav	vel C	o., Mt.	Herman	, was	ningt	on	rarisi	1, <u>La</u>	<u> </u>	-
	To	wnsh	<u>ip 2</u> ,	, Rat	ige .	10 E;	Franki	inton P	<u></u>			1056			
RODUCE	e: Sm	<u>ith</u>	Sand_	and	Grav	vel_C	o., Bog	ue Chit	o_Riv	er, l	lwy_	mze—			
															7.7
AMPLEO	BY:	New_	Orlea	ans_l	nsr	Contr	ol Stru	ctura							Ţ
SEO AT:		вауо	7 RT	enver	nue_	LOBET	or sem	LILLE							
SEU AT:	···														
PROCESSI	NG BEF	ORE TE	STING:	-											
EOLOGIC				GE:											
													· · · · · · · · · · · · · · · · · · ·	· · · · · ·	
GRADI	NG (CRO	-C 103)	CUM. 7	PASSIN	G):		TEST	RESULTS		,	-6"	1 }-3-	1-11	#4.1°	FINE
SIEVE	3-6"	11.3-	1.1}"	s4-1"	FINE								ļ	 	
3.2.0					AGG.	BULKS	P GR. S.S.D.	ICRO-C 107,	(8)				ļ		2.63
6 IN.						Aeson	PTION, % (CR	D-C 107, 108):					-	2.5	0.5
5 IN.				<u> </u>	<u> </u>	1		s, FIG. NO. (C	RD-C 121	<u>'</u>				0.0	1
4 IN.					<u> </u>			(CRD-C 130)					 	*	0.0
3 IN.				<u> </u>	<u> </u>			- GR 2.0010		1			 	1.0	10.0
2 1N.		 		<u> </u>				ATED ICRO-C		. 1				3.2	2.5
2 IN,			ļ	 	-			C MgSOL ICRO			77	<u> </u>		18.1	+
1 IN.	-			 	 	 		s, % (CRD-C 1		RADING	-B		 	Hau	11
1 IN.		·		97				(CRO-C 1061:					 	1	
1 /n.				52				S, % (CRD-C 1 3/DEG F, (CR					 		
∮ (N.			 	25	 	1	IVITY WITH N		Sc.mM.						
3 IN.			-	2	98	1	CRD-C 128):		Rc.mM						
NO. 8		 		1-	84			ourities			21)			Colo	rlight
NO. 16		 		1-	70			OPERTIES IC							
NO. 30		 		1	53	TYPE		T, RATIO:			٦		DAYS.		<u> </u>
NO. 50					114	LINEA	R THERMAL E	XPANSION, MI	LLIONTH	S/DEG F	. (CRD	C 125, 126	i1:		
NO. 100					1		ROCK	TYPE	PAR	ALLEL	ACI	205	ON	AVE	RAGE
HO. 200				<u> </u>	0	↓ <u> </u>									
-200(e)		<u> </u>	ļ	1	0. 2	↓ _					<u> </u>				
F.M. (b)	L	<u> </u>	<u> </u>	2. 81	6.8	8					<u> </u>		<u> </u>		
(a) CRD-C	105	(b) CR	D-C 104			MOR	TAR:								
MORTAR-	BAR EX	PANSID	N AT 100	F, % (C	80-C 12	3):		FINE AGGR			- -		ARSE AG	GREGATE 9 MO.	12 MO.
							2 MO.	6 MO.	9 MO.	12 MO.	1	MU.	. mu.	7 MU.	1,5 = 0.
	LK. CEN					IVALEN.		 -			\dashv				1
SOUNDNE			F ICPO-				<u> </u>	<u> </u>					FAT	HW-CD	но-см
			S-1			ARSE AG	s: NO-41	L G-1			OFE;		9		
FINE A						RSF AG					DFE:				
		ATA IC	RD-C 127	": Gra				4 perce	nt ch	ert;	som	e of t	the ch	nert w	as .
chalc						-	·	=		-					1
				Sar	nd sa	mple	was 80	percent	quar	tz, I	15 p	ercent	cher	rt and	5
perce	nt s	ands	tone					Chalced							
sand.					•	J	•					•			
2011/4	•			Lo:	r-alk	ali d	cement s	should b	e soe	cifie	i be	f the	mater	cial i	.s (
			_1 -												· .
			ATA #												_ i
used	as c	oner	ete a	iggre	gave	•									- ,1

STATE:			X NO.:		8	و برچا	<u>14</u>		EGATE	-				41:7 E			
LAT.: 3	9 N	LONG	s.: 9	<u>0 3</u>					SHEET		DATE			1977			
LAS SYMB	CL NO.:	N	o. 57	G-	12,	S-8			т	YPE	OF MA	TERIAL	<u>-: Gr</u> :	avel.	, sand	& pit linton	run
LOCATION	w: On	N. 1	bank	of E	leauc	Ch	itto	Rive	er appi	cox	. 5	mil	es N	of	Frank	linton	,
10	Tire	+ F	. of	La	Hiev.	100	56.										1
PRODUCE	- 	5mi+1	b San	1 8	Grav	re1 (<u></u>	Rout	e 1, !	3ox	54	8. "	t. H	ermai	ı. La.		
PRODUCE)1.11 L	ii Juli	14. 11	(14 (4)	<u> </u>	30.,										
				11													
SAMPLED							• • •										
TESTED F	OR:	N	ew UI	<u>ucar</u>	<u>າຣ_ມາ</u>	SLT	ict										
USED AT:	Bay	<u>ou</u>	Bienv	<u>enue</u>	Cor	itro	1 St	ructi	ire								
PROCESS	NG BEF	ORE TE	STING:										. •				
GEOLOGI	CAL FOR	MATIO	N AND A	GE:	lio.	oce	ne a	lluy:	ial de	200	its	01	tne	Fogu	e Chit	o Rive	r.
GRADI	NG ICRD	-C 103)	(CUM. %	PASSIN	G):			TEST	RESULTS	- 1			3-6"	. 2 -	4-1	,, 2"	FINE
	3-6"		4.1	,"	FINE								3-3	1,2-3	4-1		AGG.
SIEVE	3-6"	17-3	4.,	-4-7	AGG.	BULK	SP GR	, s.s.D.	(CRD-C 107	108	1)				2.5	52	2.62
6 IN.						ABSO	RPTION	. % (CR	O-C 107, 108	1:					2.:	2	0.6
	· · · · ·		 		 	 			5, FIG. NO.		-C 121	, -				-	2
5 IN.					 										0.0	1	
4 IN.		 -	 	 	 	SUFT	FARII		GR 2.4	0		(2)	0 52	nd)	12.		0.1
3 IN.			 		 	1						1	- 50		3.		+
2 1 IN.			}	 	 				ATED (CRD			' 		 -	6.		4.9
2 IN.	<u> </u>	<u> </u>	100	<u> </u>	 	WT A	V % LOS	S, 5 CY	MgSO4 (CF	10-C	145)		- E	 	18.		17.0
1 ½ IN.		ļ		<u> </u>	ļ				, % (CRO-C		845) G	RADING	<u> </u>	ļ	13.	<u> </u>	
1 IN.		<u> </u>	89	ļ	ļ	UNIT	WT, LO	/CU FT	(CRD-C 106):				ļ		,	 -, -, -
₹ IN.		<u></u> .	59	L	ļ	FRIA	BLE PA	RTICLE	s, % (CRD-C	142)			ļ	0.)	1.7
1 IN.			22	<u> </u>	<u> </u>	SPEC	HEAT,	BTU/LE	DEG F. (C	RO-	C 124)			<u> </u>			ļ
1 IN.	<u> </u>	<u> </u>	12	<u> </u>		4	TIVITY	WITH N	ФОН	ļ	5C,MM/	<u>'L:</u>		<u> </u>			
NO. 4			5		96		(CRD-C	128):			RC,MM	/L:					
NO. 8					89												
NO. 16					82	MORT	AR-MAI	KING PR	OPERTIES	CRO	-C 116)					
NO. 30					70	TYPE	:	CEMEN'	T, RATIO:_		DAYS	5,			DAYS		
NO. 50	1				25	LINE			XPANSION,						25):		
NO. 100		 	1	 	4	1 [ROCK			T	ALLEL	T	ROSS	ON	AVE	RAGE
NO. 200	<u> </u>	 	 		I	1 -		NOCK.			1		 		1	7.5	
-200(a)	 	 	1	 	0.8	1 -			, 		1		 				
F.M. (b)	 -		 	 	2.4	1 -					┼		+		 		
	1	 	J.,	ــــــــــــــــــــــــــــــــــــــ		┥└─											
(a) CRO-C	105	(b) CF	RD-C 104			I MO	RTAR:										
MORTAR-	GAR EX	PANSIO	N AT 100	F, % (C	RD-C 12	3):	-		FINE AGO				-			GREGATE	T
				·				2 MO.	6 MO.	9	MO.	12 MC). 3	мо.	6 MO.	9 MO.	12 MO.
	LK. CEN				20 EQU				 								
HIGH-/	ALK. CE	MENT:		* NO	20 EQU	IVALE	NT:		ļ			<u> </u>					
SOUNDNE		NCRET	E (CRD-	C 40, 11											FAT	HW-CD	но-с w
FINE	AGG.				COA	RSE A	GG:						DFE	300			
FINE					-00/	RSE A	GG:					···	OFE	300		<u> </u>	<u> </u>
PETROG	RAPHIC	DATA (CRD-C 12	:7):													
İ																	
1																	
}																	
REMARK	<u>s:</u>																
			WAS-	1-1	(Gra	vel))										
			WAS-														
1			KAS-				1)				,						
ı							•									•	

SOURCE NO. 21
LOUISIANA INDUSTRIES
NEW ORLEANS, LA

STATE:	La	INDE						REGATE						VEMEZ		
LAT.: 3	0	LONG		0			1	A SHEET				9 Jai				
LAB SYM	OL NO.	NO	-47	G-1.	S-1				YPE	OF MA	TERIA	L:	Vatur	a1		
LOCATIO	N: - P	<u>it 10</u>	ocate	d at	Pri	ce. W	ashing	ton Par	ris	h, 1	а.					
																
PRODUCE	R:	Lou i	iana	Ind	ustr	ies,	New Or	leans,	La	<u> </u>						
					•											
SAMPLED						ict										
TESTED!		impi:	re Fl	oodg	ate	 										
USED AT																
		ODE #5	CTING:		Nor											
GEOLOG!					1101											
GEOLOGI	CALFO			<u>. </u>									·			
GRADI	NG (CRI	D-C 103)	(CUM. %	PASSIN	G):		TEST	RESULTS			$\neg \neg$				Ţ	FINE
				Г			L		نـــ			3-6"	1 ½-3"	\$ -1 ½"	*4-2"	AGG.
SIEVE	3-6"	15-3"	-1 g"	≈4-₹	AGG.	BULK SE	GR, S.S.D.	(CRD-C 107	, 108	3)					2.51	2.62
6 IN.						ABSORP	TION, % (CR	D-C 107, 10	3):						3.1	0.5
5 IN.							MPURITIE			D-C 1211				-]	-	
4 IN.							RTICLES, 7									
3 IN.						% LIGHT	ER THAN SE	GR	(CR	D-C 122						
2 1 IN.						% FLAT	AND ELONG	ATED (CRE	-C 11	19, 120)		<u></u>			- 	
2 IN.				<u> </u>	<u> </u>	WT AV %	LOSS, 5 CY	С мд504 (С	RD-C	115)				<u> </u>		
1 1 IN.		L		100		L.A. ABI	RASION LOS	5, % (CRD-C	117,	145) GF	RADING	<u> </u>				ļ
1 IN.		ļ	<u> </u>	96		UNIT WT	, LB/CU FT	(CRD-C 106):					-		ļ
3 114.		 		82		· · · · · · · · · · · · · · · · · · ·	E PARTICLE									 -
1																
		 		1 11	06	I	•	IOOH	- 1				 		-	
		 		 	82								<u> </u>			J
NO. 16		 	 	 	67	1	-MAKING PR					%		DAYS		•,
NO. 50		1.			17		THERMAL E									
NO. 100					1		ROCK			T		ACI		02	AVER	AGE
NO, 200																
-200 ^(a)					0.2		<u></u>									
F.M. (b)		<u> </u>	L		2,46	L				1		1				
(e) CRD-C	105	(b) CR	D-C 104			MORT	AR:									
MORTAR-	BAR EX	PANSION	AT 100	F. % (CF	ED-C 12:	3):	ļ	FINE AGO							GREGATE	
						 	2 MO.	6 MO.	9 !	мо.	12 MO	. 3	мо.	6 MO.	9 MO.	12 MO.
	LK. CEN					VALENT:		 				+				
SOUNDNE			F (CPD-			-ACCRI:	1	I	L	1	 .			F&T	HW-CD	но-с ж
FINE		Tenel	_ 10 104	0, 114		RSE AGG:						DFE:	-	, !		
FINE A						RSE AGG:						DFE;				
PETROGR		DATA (C	RD-C 12	7):		·						_				
REMARKS																
AEMARKS	•															
\mathcal{Q}_{-}	21															
C. (/) / / .	٠/_															

ENG FORM 6011-R

B & B GRAVEL CO.

BATON ROUGE, LA

STATE: 1	Γ.Δ	:NOE:	K NO.:			11		GATE			av: U				
LAT.: 30	0	LONG	90			l	DATA	SHEET			lovemb				
LAD SYMB	OL NO.:	No-	-59 G	-39,	S-2	5		тт	YPE C	F MATE	ERIAL: N	atura	1		
LOCATION	. In	sect	ions	65	<u>& 66</u>	, alon	g Amit	<u>e Rive</u>	er,	appı	ox 2	miles	east-	southe	ast
of Ha	tcher	svi]	lle,	<u>LA</u>											
PRODUCE	-B on	d B	Grav	<u>el C</u>	0.,	3415 C	Choctaw	Dr.	Bat	on I	<u>louge,</u>	<u>LA</u>	70806		
SAMPLEO															
		w O	clean	s D1	st A	ggrega	te Tes	τ							
USED AT:															
PROCESS!	NO 8756		ETING:									·			
				:: A	mite	River	Alluv	ium (lolo	cene	<u> </u>				
OLULUU.								=							
GRADI	NG (CRD	-C 103)	ICUM. S	PASSIN	G):		TEST	RESULTS				Π,	1,	#4-1/2	FINE
			<u> </u>								3-6"	1 1/2 - 3	3" 第-1号	74-7	AGG.
SIEVE	3-6"	1 ½ -3"	₹-1 ; #	-84-2-1	AGG.	BULK SP	GR, S.S.D. (CRD-C 107	108					2.53	2.63
6 IN.						ABSORPT	ION, 5 (CRD	-C 107, 108):					1.9	0.4
5 IN.						ORGANIC	IMPURITIES	, FIG. NO.	(CRD-	C 121)		-		-	2
4 IN.						SOFT PAR	TICLES, %	ICRD-C 130)					0.0	
3 IN.						% LIGHTE	R THAN SP	_{GR. 2.4} (CRD.	C 122)	(2.00	Sand	1)	8.7	0.0
2 1 IN.							ND ELONG							2.9	
2 IN.					<u> </u>		LOSS, 5 CYC							4.1	4.8
1 ½ IN.				100		L.A. ABR	ASION LOSS	% (CRD-C	117,4	49 GR/	OING B			19.9	
. 1 IN.				95	ļ		LB/CU FT							0.3	0.0
3 IN.		<u> </u>		79_	<u> </u>		PARTICLES							10.3	10.0
1 IN.			-	48			AT, BTU/LB				+	-			
1 IN.				29	100	1	ITY WITH N	OH		c,841L					
NO. 4				1-7	96	1CA	D-C 1281:				` 				
NO. 8				 	84		MAKING PR		·	C 1161					
NO. 16	-		 	 	77	1	CEMENT					** · · · · · · · · · · · · · · · · · ·	DAYS	1	
NO. 50			 	†	35		THERMAL EX						126):		
NO. 100					6		ROCKT	YPE		PARAL	LEL	ACROSS	ON	AVER	AGE
NO. 200					1										
-200 ^(a)					1.1	↓									
F.M. ^(b)			<u> </u>		2.10	4 L				L					
(a) CRD-0	105	(b) CF	10-C 104			MORTA	R:								
MORTAR-	-BAR EXI	PANSIO	N AT 100	F, % (C	RD-C 12	13):	<u> </u>	FINE AG	REGA	TE		······	COARSE A	GREGATE	<u> </u>
							2 MO.	6 MO.	9 %	10.	12 MO.	3 MO.	6 MO.	9 MO.	12 MO.
	LK. CEM					IVALENT:	 						-		
	ALK. CE					IVALENT:	<u> </u>	<u> </u>	l	1			FAT	HW-CD	HD-CW
SOUNDNE		NCRE	E ICRD-	C 40, 11		ARSE AGG:						FE300	 	1	1
FINE						ARSE AGG:						FE300	<u> </u>		
PETROG		DATA (CRO-C 12	27):			40.00								
1															
REMARK	is:														
					-										
1															

GIFFORD-HILL, INC.

ROSELAND, LA

STATE:	.A	INDE	x NO.:			/21	AGGRE	GATE			0 BY: [
	30	LONG		0			DATA	SHEET	\perp	DATE:	Nove	abei	197	7		
AR SYMB	OL NO.:	No-	57 G	-40.	S-2	6		T,	PE	OF MAT	TERIAL:	Nat	ural		-	
LOCATION	v: 0.1	mil	e Ea	st of	E U.	S: 51	, appro	эх 1.0	m	ile	North	1 01	the	inter	section	m
with]	LA Hw	y 10) in .	Arco.	la.	LA										
PRODUCE	R: Gi	ffor	d-Hi	11 C	o. (Plant_	No. 33) P. O	•]	Box	<u> 263, </u>	Ros	selano	1, LA	70486	<u> </u>
						·					·					
SAMPLED														····································		
		W UI	Lean	s Di	ST A	ggrega	te Tes									
USED AT:																
PROCESS	INC BEE	OPE TE	STING													
GEOLOGI	CAL FOR	MATIO	N AND A	GE: Ta	ngip	ahoa F	River A	lluviu	m	(Hol	ocen	e)				
-										-						
GRADI	NG ICRO	-C 103)	CUM. %	PASSING	3):		TEST	RESULTS			١,	6"	1 ½-3"	1_,1-	#4-II/	PINE
SIEVE	3-6"	11.3	2-1 j	%4÷1	F2/#								1,7-3	1,	┧	۸٥٥.
3,272	,				AGG.	BULK SP	GR, 5.5.D. (CRD-C 107,	108)				 		2.63
6 IN.			L			ABSORPT	ION, % (CRD	-C 107, 108	:				ļ		1.2	
5 IN.			<u> </u>				IMPURITIES			-C 1211				+	0.0	1
4 IN.	 		 			SOFT PA	RTICLES, %	2 40) l		12	00	Sand)	+	5.3	0.0
3 IN.	 	 	 		ļ		ER THAN SP							-	3.1	 ``
2) IN.	 	 					LOSS, 5 CYC						 	 	1.9	4.3
2 IN.	 		 	100		LA ASB	ASION LOSS	% (CRD-C	117.	++5) GI	RADING	A		1	24.4	
1 IN.	 	 		92			LB/CU FT (
in.				68		FRIABLE	PARTICLES	. % (CRD-C	142)					0.2	0.0
} IN.				35		SPEC HE	AT, BTU/LB	/DEG F. (C	RD-C	124)			ļ	 		
3 IN.				16		1	ITY WITH NO	ЮН	}	Sc,MM/	<u> </u>		<u> </u>	 	ļ	ļ
NO. 4	ļ	<u> </u>	<u> </u>	1			RO-C 128):			RC,mM/	<u> </u>		 			
NO. 5	<u> </u>	-	 	ļ	94	 							1			L
NO. 15	 	 	 			7	MAKING PRO							DAYS		*
NO. 30	+		 	╁	16		CEMENT									
NO. 100	+	 	├──	1-	1		ROCK			T	ALLEL		RC35	ON	AVE	AGE
NO. 200	1															
-500(a)					0.3											
F.M. ^(b)					2.4	Б <u></u>				<u></u>		L				
(a) CRO-	C 105	(b) C	RD-C 104			MORTA	AR:								·	
MORTAR	-BAR EX	PANSIC	N AT 10	OF, % (C	RD-C 12	:3):		FINE AGO				+			GREGATE	T
ļ							2 MO.	6 MO.	9	мо.	12 MQ.	+	3 40.	6 MO.	9 MO.	12 MO.
	ALK. CE					IVALENT:						\top				İ
SOUNDN	ESS IN C	ONCRE	TE (CRD	-C 40, 11	4):									FST	HW-CD	но-см
FINE	AGG.				co	ARSE AGG:						DFE	350			
FINE	AGG.				co	ARSE AGG:						DFE	323		<u> </u>	L
PETROG	RAPHIC	DATA (CRD-C 1	271:												
1																
														-		
												•				
REMARK	<5 :															
						•									<u> </u>	
ENG FORM		-														

SOURCE NO. 24

A-1 SAND & GRAVEL CO.

BATON ROUGE, LA

STATE:	LA.	INDE	x NO.:			/8		EGATE		TEST	O 9Y:	USA	LEWES			
LAT.: 30	0	LONG	90				DATA	SHEET		DATE	Nov	embe	er 19	77		
LAS SYMB	OL NO.:	No-	7 G-	41,	S-27			т								
LOCATION	v: Sc	uths	ide	of L	A 64	, app	rox 0.6	miles	e e	ast	of i	nte	csect	ion w	ith LA	
Hwy .																
					el C	0 7	460 Ind	ustria	1	Dr	Bat	on I	Rouge	. LA		

SAMPLED	av: I	ames	3 & M	oore												
						ppreg	ate Tes	t			· · · · · · · · · · · · · · · · · · ·				·	
USED AT:																
0320 711																
PROCESSI	NG BEE	198 78	STING.			·										
				or A	mite	Rive	r Alluv	rial De	חמי	site	(Ho	100	ene)			
020200			-						F.=					····		
GRADI	NG (CRD	-C 1031	CUM 3	DASSIN	G).		TEST	RESULTS	Т			····		T		
GAZOI	NG ICRD				m- —				لـــ		3.	5"	t ½-3"	1-13"	#4 II"	FINE AGG.
SIEVE	3-6"	1 1/2 - 3"	-1 · 1 · 1 · 1 · 1 · 1 · 1 · 1 · 1 · 1 ·	#4-1	FINE AGG.						+			 	2 /0	2.63
	, -						GR, 5.5.D.			,				 	3.0	
6 IN.						ABSORP	TION, % (CR	S-C 107, 108	1:					 	3.0	0.3
5 IN.						ORGANIC	IMPURITIES	, FIG. NO.	CRE	-C 121				 	1	2
4 IN.						SOFT PA	RTICLES, 5	(CRD-C 130	<u>} </u>		- (2	~~	31	 	0.0	
3 IN.						% LIGHT	ER THAN SP	GR 2.40	CRE	-C 122	12.	00	sand)	 	23.3	0.0
2 1 IN.				<u> </u>			AND ELONG			4 4	_			 	2.7	
2 IN.							LOSS, 5 CYC								7.1	1.2
1 ½ IN.				<u> </u>		L.A. AB	RASION LOSS	, % (CRD-C	117.	₩61 G!	RADING	<u>B</u>			18.9	
1 IN.				100		UNIT WT	. LB/CU FT	(CRD-C 106):					<u> </u>		
3 IN.				94		FRIABL	E PARTICLE	5, % (CRD-C	1421)					0.2	0.2
1 IN.				62		SPEC HE	AT, BTU/LE	/DEG F. (C	RD-C	124)				 		
3 IN.			<u> </u>	35	100	REACT	N HTIW YTIV	ФОН		SC,MM/	<u>L:</u>					
NO. 4				6	99	(0	RD-C 128):			RC,MM/	-		·			
NO. 8					96						L		<u> </u>	<u> </u>	<u> </u>	
NO. 15	<u> </u>				91	MORTAR	-MAKING PR	OPERTIES (CRO	-C 116)						
NO. 30				<u> </u>	84	TYPE	CEMEN.	r, RATIO:_		DAYS		- 5	· ,	DAYS		٧.
NO. 50			<u> </u>		38	LINEAR	THERMAL E	XPANSION,	HILL	IONTH	10EG F	(CRD	C 125, 12	6):		
NO. 100		<u> </u>		<u> </u>	6	4	ROCK 1	YPE		PARA	LLEL	ACI	oss	ON	AVER	AGE
NO. 200				<u> </u>	2					<u> </u>						
-200(0)	<u> </u>	L	<u> </u>		1.4	<u> </u>				<u> </u>						
F.M.(b)					0.94	l L				<u> </u>						
(e) CRD-C	105	(b) CR	D-C 104			MORT	AR:									
						•1.		FINE AGG	REG	ATE			cc	ARSE AG	GREGATE	
MORTAR-	BAR EX	PANSIO	4 A1 100	r, % (C)	404C 12.	a):	2 MO.	6 MQ.	9 (мо.	12 MO.	3	MO.	6 MO.	9 MO.	12 MO.
LOW-A	LK. CEM	ENT:		% Na	20 E QU	IVALENT:										
нібн-А	ALK. CE	MENT:		% No	20 EQU	IVALENT:										
SOUNDNE	ESS IN CO	NCRST	E (CRD-	C 40, 11	41:									F&T	HW-CD	но-сж
FINE	AGG.				COA	RSE AGG						OFE,	00			
FINE	AGG.				COA	RSE AGG						DFE:	100			
PETROGE	RAPHIC	DATA (C	RD-C 12	(7):												
												•				
1																
1																
REMARKS	S:						······································									
1																

SOURCE NO. 25

RED STICK SAND & GRAVEL CO.

BATON ROUGE, LA

*- : <u>-</u>	LA	**:05	2.30.			20	AGG	REGATE		TEST	ED BY:	US	AENE	S		
			5. 90				DAT	A SHEET	ĺ	CATE	No	vembe	r 19	77		
.45'599	.ec_ No.	No	-57	S-28					T Y P E	Q# 94	TERIAL	Nat	ural			
1047 C	os: Or	LA	Hwy	37,	appr	ox 3.6	miles	sout	1 0	f th	e in	terse	ctio	n wi	th LA	63
1																
* =======					G Co	., Bat	on Rot	ige, L	1							
<u> </u>			m Pi													
3475_E0																
TESTED	=c ≈: N€	w Or	lean	s Di	st A	ggrega	te Tes	st								
-SED AT	·;															
1																
	I'NS BEF			A.		D	. 13-11	477								
35003	CAL FO	RYATIO	A CHA K	GE: A	mice	Kivei	valle	y Allı	IVI	nm (Holo	cene)	······································			
						r :	7						<u> </u>			т
GRAD	INS ICRE	-C 103)	CUM. 5	PASSIN	(G):		TEST	RESULTS]		3	-6"	12-3	2-1±	*a-2"	FINE
SIEVE	3-6	1 1 2 - 3	₹-1 } "	=4-2	FINE AGG.											AGG.
			 	-	 			(CRO-C 10		·					- -	2.63
5 IN.			 	├				D-C 107, 10								0.3
5 'N.	 		 	 	 -			S, FIG. NO.)-C 121	3	=+:				1
4 IN.	 	 	 	-	-			(CRO-C 13						 		-
3 IN.	 	<u> </u>		 	 									 		0.0
2 IN.	 		 		 			ATED ICR								4.8
1 IN.	 	 		┼──	 			C MgSO4 (C						<u> </u>		4.0
1 IN.	 	 		 	 			S, % (CRO-C		145 5	RADING.					
2 IN.				 	 			(CRD-C 104								
) IN.	 	 	 	 	 			S. % (CRD-(-					-0.0
3 in.	 	 -			700	T	ITY WITH N									
NO. 4	i	 		 	99	1	7D-C 128):	1007	- 1	Sc,mw/ Rc,ny/		-+				
NO. 8	\vdash				96	101	-C 1207.		L	,,,,,,,,	-					
NO. 16	1		 	 	87	MORTAR	MAKING BE	OPERTIES						<u> </u>		J
NO. 30	1				74	1		T, RATIO:_				-		DAYS		
40, 50	1							XPANSION,								·•
NO. 100					2		ROCK				LLEL			ON	AVEF	
NO. 200	1				1			· · · · · · · · · · · · · · · · · · ·				7.5		<u> </u>	<u>^</u>	<u> </u>
-200'a,					0.4											
=, w. (b)					2.19	•										
101 CRD-0	105	(b) CR	D-C 104			MORTA	R:									
MORTAR	-RAB FY	PANSIO	4 AT 100	E * 1C	20-C 12	21.		FINE AG	REG	ATE			COA	RSE AG	GREGATE	
	-244 641	~.,,,,,	1 7 1 100	-, 4 (0)	10-0 12		2 MO.	6 MO.	9 N	10.	12 MO.	3 MI	o. 5	мо.	9 MO.	12 MO.
	LK. CEM			% No	20 EQUI	VALENT:	ļ									
HIGH-	ALK. CE	AENT:		% Na	20 EQUI	VALENT:	L	<u> </u>	L							
SOUNDNE		NCRET	E (CRD-C	40, 11		 								FAT	нж-ср	но-сч
FINE.						RSE AGG:		·				DFE 100				
PETROG		ATA 'C	:en-c :-	71.	COA	RSE AGG:	· · · · · · · · · · · · · · · · · · ·			<u> </u>		DFE300			<u> </u>	L
	APRIC .	,,,,	.KD-C 12													
														-	•	
1												•				
REMARK	S:			·											······································	
	EBR-1	L-1						•								
															•	
								_								

SOURCE NO. 26

RED STICK SAND & GRAVEL CO.

BATON ROUGE, LA

STATE:	7 A	INDE	x NO.:			2.)	AGGRI	EGATE				ISAEWES		
L=+. 30			90				DATA	SHEET		CATE: N	over	ber 19	77	
LAB SYM				4.2			L _	т	YPE :	OF MATER	IAL:	atural		
CCATIO	N: FE	edler	Pit											
							D							
PRODUCE	R: Rec	Sti	ck_S	& G	Co.	, Raro	n Roug	e, IA						
														
STAPLEC														
		w Or	lean	s Di	st A	ggreg	te Tes	t						
USED AT	:									<u></u>				
														
PROCESS				55. A	mito	Pivo	r Valle	37 A11,	773.	.m (Uc	100	220		
GEOLOGI	CAL FO	TOTTAMS	N AND A	GE: A	mrre	VTAE	r varie	y ALIC	VIU	im (no	1000	ille)		
				DASSIN	<u></u>	Γ	TEST	RESULTS	Т			1		VI /
GRAD	ING (CRE					1					3-6*	1 1/2 - 3"	· } }-1}"	4-
SIEVE	3-6"	13-3"	₹-1 1 "	1.4.1	AGG.							-		2.
				 	<u> </u>		GR, S.S.D.							
5 IN.				-		+	TION, 5 (CRO							2.
5 IN.			<u> </u>	-	 	1	IMPURITIES			C 121)			+	0.
4 IN.	 	 	 		 		RTICLES, 5							10.
3 IN.				 			ER THAN SP							1.
2 ! IN.		 	}	-	 		AND ELONG						 	
2 IN.	 			100			LOSS, 5 CYC				P			$\frac{5.}{19.}$
1 ½ IN.	 	 	 	98	 		RASION LOSS			H) GRAD	ING_D	=		+3.
: IN.	 			81			, LB'CU FT					_	+	0.
1 IN.	 			40	ļ		PARTICLES				 			
½ IN.	 	+		15	 	1	AT. BTU/LB							+-
₹ IN.	ļ	├	 	+	-	┪	VITY WITH N	нон	_ F	C,BM/L:				
NO. 4				 	ļ	(C	9D-C 128):		=	RE,MM/L:	 			
NO. 8	 	 	<u> </u>	 	ļ						L			
NO. 16	<u> </u>	1	ļ		 	-1	-MAKING PR					_		
NO. 30		 	-		-		CEMENT							
NO. 50	 			-	 	LINEAR	THERMAL E		MILLI				T	
NO. 100	 	 		+	+	┦ ├──	ROCKT	YPE		PARALL	EL	ACROSS	ON	
NO. 200		 	 	-	 	┥ ├──							 -	
-233 ^(a)	 		┼—	-	-	┨ ├──				<u> </u>	-+		 	
F.W. ⁽⁵⁾			<u></u>	1	<u> </u>	4				l	L		<u> </u>	
(4' CRD-	C 105	(b) CF	RD-C 104			MORT	AR:							
	-BAR FY	PANSIO	N AT 10	0F, % (C	RD-C 12	231:		FINE AGO					COARSE AC	
MORTAR							2 MO.	6 MO.	9 4	10. 12	MO.	3 MQ.	6 MO.	9 MC
MORTAR				N 814	120 EQL	JIVALENT		 						
MORTAR LOW-	ALK, CE					115/AI			1	3				
MORTAR LOW-	ALK. CE	MENT:		% NO		JIVALENT		L	-				EAT	
LOW-	ALK, CE ALK, CE	MENT:		% NO	4):)FF	F&T	H#-C
LOW- HIGH HIGHUCS	ALK. CE	MENT:		% NO	4): CO	ARSE AGG)FE ₁₀₈	F&T	HW-C

SOURCE NO. 27

RED STICK SAND & CRAVEL

BATON ROUGE, LA

STATE:	LA	INCE	(NO.:			20	AGGRE	GATE	T	ESTED	ey: U	SAEWE	S			
1.7 3	30	LONG	90					SHEET	o	ATE:	Nove	mber	197	/		
LAR SYMB	OL NO.:	No-	57 G-	-43				TY	PE O	PMAT	ERIAL:	Natu	ral			
LOCATION	. Da	vis	Pit													
								- T-		·						
PRODUCE	R: Re	d St	ick	5 & (. Co	., Bat	on Roug	ge, LA								
SAVPLED	BY: D	ames	& M	oore		Accros	ato To	- -								
TESTED	CR: N	ew U	riea	ns D	LSL	WARTER	ate Tes	, c								
USED AT:																
PROCESS GEOLOGI				ne. /	Amit	e Rive	r Vall	ey All	uvi	um ((Holo	cene))			
GEOCOGI	CAL FOR	MA 1 101	1 2110 21	<u> </u>												
GRADI	NG (CRO	-C 103)	CUM. 7	PASSIN	G):		TEST	RESULTS	\top		T			₹-1 } "	#4-1	FINE
			Г	#4-1	FINE		L				3-6	, ,	ž-3"	\$-1 \$		AGG.
SIEVE	3-6"	13-3	₹-1 } "	*4- 1 "	AGG.	BULK SP	GR, 5.S.D. (CRD-C 197.	103)						2.57	2
S IN.						ABSORPT	ION, % (CRD	-C 107, 1091	:						2.1	
S IN.							IMPURITIES			1211						
4 IN.						1	RTICLES, %							L	0.0	
3 IN.						% LIGHTE	R THAN SP	GR 2.40	CRO-	3 122)					8.1	
2 1 1N.							ND ELONGA								1.9	
2 IN.						WT AV %	LOSS, 5 CYC	Mg504 (CR	o-c 1	3'7					6.7	
1 ½ IN.				100		L.A. ABR	ASION LOSS	% (CRO-C	بد 117	45) GR.	ADING_			ļ	18.9	
1 IN.				96			LB/CU PT								0.3	
3 IN.				75		FRIABLE	PARTICLES	, 5 (CRO-C	1421					ļ	0.3	
1 IN.				23		SPEC HE	AT, BTU/LB	/DEG F. IC	RD-C	124)						
3 IN.				4		REACTIV	ITY WITH NO	юн	50	,mM/L				ļ		
NO. 4		L		1		(CF	RD-C 128):		R	C,MM/L					 	
но. в		<u> </u>	<u> </u>	ļ	<u> </u>									<u> </u>	ــــــــــــــــــــــــــــــــــــــ	1
NO. 16	ļ	<u> </u>	<u> </u>	 	<u> </u>		MAKING PR					•				_
NO. 30	<u> </u>	ļ		↓	 		CEMENT									
NO. 50	<u> </u>	<u> </u>			 	LINEAR	THERMAL E	KPANS: ON	\neg							
NO. 100	ļ		<u> </u>			┨ ├──	ROCK T	YPE		PARA	LLEL	ACROS	5	ON	AVER	AGE
NO. 200	 	 	┼		┼	┥ }			-							
-200 ^(a)	 	┼	 	┼	 -	┨ }			-							
F.M.(b)		<u> </u>	<u> </u>		ــــــــــــــــــــــــــــــــــــــ	┥ ┗━━										
(a) CRD-	C 105	(b) C	RD-C 104			MORTA	NR:	FINE AGO	REGA	TE		T	co	ARSE AG	GREGATE	
MORTAR	-BAR EX	PANSIO	N AT 10	of, % (C	RD-C 1	23):	2 MO.	6 MO.	9 M		12 MO.	3 MC		6 MO.		12 MO.
1 32	ALK, CE	MENT.		2 N	120 FO	JIVALENT:	 			$\neg \uparrow$			\top			
	ALK. CE					JIVALENT:										
			TE ICRD											F&T	ни-ср	но-см
	AGG.					ARSE AGG:						OFE 300	\Box			
	AGG.				co	ARSE AGG:						DFE 300				L
PETRO	RAPHIC	DATA (CR0-C 1	27):												
													•			
												:				
REMAR	K5:															
1																
ł																

LAMBERT GRAVEL CO.

ST. FRANCISVILLE, LA

STATE: IB.
LAS SYMBOL WORD-THE S. T(3), G-1(3) Job 6439 TYPE OF MATERIAL SAND AND GRAVEL LOCATION: Streambed of Bayou Sara. Plant located on Louisiana State Highway about 2 miles west of Baines, La. PRODUCER: Lambert Gravel Co., Baines, La. (formerly Afton Villa Gravel Co.) SAMPLED BY: Vicksburg District TESTED FOR: Columbia and Jonesville Locks and Dams PROCESSING BEFORE TESTING: None CEOLOGICAL FORMATION AND AGE: CHARLES FINE COLUMBIA BEFORE TESTING: None CEOLOGICAL FORMATION AND AGE: SIEVE 3-6" 15-3"
LOCATION: Streambed of Bayou Sara. Plant located on Louisiana State Highway about 2 miles west of Baines, Ia. Francisco Products: Lambert Gravel Co. Baines, Ia. Francisco Products: Lambert Gravel Co. Baines, Ia. Francisco Products: Lambert Gravel Co. Baines, Ia. Francisco Products: Lambert Gravel Co. Baines, Ia. Francisco Products: Lambert Gravel Co. Baines, Ia. Francisco Products: Lambert Gravel Co. Baines Baines Francisco Products: Lambert Gravel Co. Baines
PRODUCE INTERS WEST OF BAINES, IA. (FORMETLY Afton Villa Gravel Co.) ### PRODUCE Inters west Of Baines, IA. (FORMETLY Afton Villa Gravel Co.) ### PRODUCE Inters west Of Baines, IA. (FORMETLY Afton Villa Gravel Co.) ### PRODUCE INTERS WEST OF BAINES, IA. (FORMETLY Afton Villa Gravel Co.) #### PRODUCE INTERS WEST OF BAINES, IA. (FORMETLY Afton Villa Gravel Co.) #### PROCESSING BEFORE TESTING: NONE #### PROCESSING BEFORE ##### PROCESSING BEFORE
PRODUCER: Lambert Gravel Co., Baines, Ia. (formerly Afton Villa Gravel Co.)
SAMPLED BY: Vicksburg District TESTE FOR: Columbia and Jonesville Locks and Dams PROCESSING BEFORE TESTING: None
TESTE FOR: Columbia and Jonesville Locks and Dams
TESTE FOR: Columbia and Jonesville Locks and Dams
CEDIOGICAL FORMATION AND AGE: CRADING (CRD-C 103)(CUM. 70 PASSING): TEST RESULTS 3-6" 13-3" 13-3" 12-
GRADING (CRD-G 103)(CUM. 70 PASSING): SIEVE 3-6" 11-3" GRO GRO
GRADING (CRD-G 103)(CUM. 70 PASSING): SIEVE 3-6" 11-3" GRO GRO
GRADING (CRD-G 103)(CUM. 70 PASSING): SIEVE 3-6" 11-3" GRO GRO
SIEVE 3-6" 19-3" COARSE FINE FINE AGG.
SIEVE 3-6" 19-3" COARSE FINE FINE AGG.
SIEVE 3-6 11-3 GRAD GRAD GRAD AGG. BULK SP. GR., SAT SURF DRY (CRD-C 107,108): 2.55 2.54
SIN. ORGANIC IMPURITIES, FIG. NO. (CRO-C 12): 1.6 1.6
SIN. ORGANIC IMPURITIES, FIG. NO. (CRO-C 12): 1.6 1.6
ORGANIC IMPURITIES, FIG. NO. (CRD-C 121):
SOFT PARTICLES, PER CENT (CRD-C 130): 0.9 0.4
31N.
2½ IN.
21N.
1 10 100 100 ABRASION LOSS (L.A.), %, (CRD-C 117): 20.8* 1 10 97 97 Unit wt., LB/CU ft (CRD-C 106): 1 10 82 82 CLAY LUMPS, % (CRD-C 118) 0.04* 1 10 15 100 SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124): 10 15 100 SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124): 10 15 100 SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124): 10 10 15 100 SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124): 10 10 15 100 SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124): 10 10 15 100 SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124): 10 10 15 100 SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124): 11 10 15 100 SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124): 12 99 REACTIVITY WITH NOOH (CRD-C 128): Sc, mM/L 10 10 15 100 SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124): 10
1 IN.
\$IN. 82 82 CLAY LUMPS, 70 (CRD-C 118) 0.04* \$IN. 30 36 COAL AND LIGNITE, 76 (CRD-C 122):
\$ IN. 30 36 COAL AND LIGNITE, % (CRD-C 122);
\$\frac{1}{1}\text{N}\$. \$\frac{10}{15}\$ \frac{100}{100}\$ \text{SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):} \\ \text{NO.4}\$ \qua
NO.4 1 2 99 REACTIVITY WITH NOOH (CRD-C 128): Sc,mM/L Rc,mM/L: NO.8 NO.8 NO.8 NO.8 NO.90 14 LINEAR THERMAL EXPANSION XIO \$DEG. F. (CRD-C 125,126): NO.200 200(**) NO.200 200(**) NO.200 300(**) NO.200 400(**) NO.200 500(**) NO.200 600(**) NO.200 700(**) NO.200 800(**) NO.200 900(**) NO.200 100(**) NO.200 100(**) NO.200 200(**) NO.200 300(**) NO.200
NO.6 NO.16 76 MORTAR-MAKING PROPERTIES (CRD-C II6) TYPE_III_CEMENT, RATIO_3_DAYS, 110_75, 7_DAYS, 113 NO.50 14 LINEAR THERMAL EXPANSION XIO FDEG. F. (CRD-C 125,126): ROCK TYPE PARALLEL ACROSS ON AVERAGE 10.200 200 ⁶⁷ 0.2 F.M. D. (c) CRD-C IOS (b) CRD-C IO4 MORTAR-BAR EXPANSION AT 100F, 70 (CRD-C 123): NORTAR-BAR EXPANSION AT 100F, 70 (CRD-C 123):
NO.16 76 MORTAR-MAKING PROPERTIES (CRD-C 116) NO.30 57 TYPE III CEMENT, RATIO 3 DAYS, 110 7 DAYS, 113 NO.50 14 LINEAR THERMAL EXPANSION XIO 9DEG. F. (CRD-C 125,126): NO.100200 ⁶⁷ 0.2 F.M. ^(b) 2.65 (c) CRD-C 105 (b) CRD-C 104 MORTAP: MORTAR-BAR EXPANSION AT 100F, 70 (CRD-C 123): NO.200200 ⁶⁸ 200 ⁶⁹
NO.30 57 TYPE III CEMENT, RATIO 3 DAYS, 110 7, 7 DAYS, 113 NO.50 14 LINEAR THERMAL EXPANSION XIO FDEG. F. (CRD-C 125,126): NO.100 1 ROCK TYPE PARALLEL ACROSS ON AVERAGE -200 ⁽⁴⁷⁾ 0.2 F.M. D 2.65 (c) CRD-C 105 (b) CRD-C 104 MORTAP: MORTAR-BAR EXPANSION AT 100F, 70 (CRD-C 123): NO.30 7 DAYS, 110 7, 7 DAYS, 113 NO.50 14 LINEAR THERMAL EXPANSION XIO FDEG. F. (CRD-C 125,126): ROCK TYPE PARALLEL ACROSS ON AVERAGE MORTAR-BAR EXPANSION AT 100F, 70 (CRD-C 123): NO.50 14 LINEAR THERMAL EXPANSION XIO FDEG. F. (CRD-C 125,126): ROCK TYPE PARALLEL ACROSS ON AVERAGE ROCK TYPE PARALLEL ACROSS ON AVERAGE COARSE AGGREGATE
NO.50 14 LINEAR THERMAL EXPANSION X10 9 DEG. F. (CRD-C 125,126): NO.100 1 ROCK TYPE PARALLEL ACROSS ON AVERAGE NO.200 -200 O.2 F.M. D. O.2 F.M. D. O.2 (c) CRD-C 105 (b) CRD-C 104 MORTAP: MORTAR-BAR EXPANSION AT 100F, 70 (CRD-C 123): D. MO. C. MO.
NO. 100 1 ROCK TYPE PARALLEL ACROSS ON AVERAGE
NO.200200 ^(a) 0.2 F.M ^(b) 2.65 (c) CRD-C 105 (b) CRD-C 104 MORTAP: MORTAR-BAR EXPANSION AT 100F, 70 (CRD-C 123): NO.200 FINE AGGREGATE COARSE AGGREGATE
- 200 ^(*) 0.2 F.M. ^(b) 2.65 (c) CRD-C 105 (b) CRD-C 104 MORTAP: MORTAR-BAR EXPANSION AT 100F, 70 (CRD-C 123): 3 MO 0.100 CMB COMPANY COMPANY AGGREGATE
(c) CRD-C 105 (b) CRD-C 104 MORTAP: MORTAR-BAR EXPANSION AT 100F, 70 (CRD-C 123): THE AGGREGATE COARSE AGGREGATE
MORTAR-BAR EXPANSION AT 100F, 76 (CRD-C 123): THE AGGREGATE COARSE AGGREGATE
MORTAR-BAR EXPANSION AT 100F, 76 (CRD-C 123): FINE AGGREGATE COARSE AGGREGATE
EAT-WISHIN AT 100F, % (CRD-C 123):
3 MO. 6 MO. 9 MO. 12 MO. 3 MO. 6 MO. 9 MO. 12 LOW-ALK, CEMENT: % No. 20 EQUIVALENT:
HIGH-ALK, CEMENT: TO No 20 EQUIVALENT:
SOUNDAYED IN CONTROL OF THE PROPERTY OF THE PR
FINE ACC
FINE AGG.
PETROGRAPHIC DATA (CRD-C 127):
REMARKS: * Because of the similarity between the grading, specific gravity, absorption, soft particle percentage, and flat and elongated percentage,

STATE:		1	EX NO.:		1 Su	ppl#	AGO	GREGATE		TESTE	D BY:	US	AENES	3		
LAT.:	30 N	LON	.c.: 91	14			DAT	TA SHEET		DATE:		Junc	197	7		
LAB SYM	80L NO.	. NO). G-	13,	S-9				TYPE	OF MA	FERIA	. 7:	+			
LOCATIO	n: On	Вау	ou S	ara	vest	of La	. Ilwy	. 66 a	onro	ox . 2	. 5	$\frac{1}{2}$	c 11.	of.		
İI	iters	ecti	on w	ith	US 6	1							3	<u>U.</u>		
PRODUC	eri: L	anioc	rt G	rave	1 Co	., Inc	., P.O	O. Drav	ver	G. S	t.	Fran	cisvi	116	12	
													<u> </u>	410	1711	
SAMPLE	SY:		Dames	s & !	loor	9										
TESTED	FOR:		New (Orle	ans l	Distri	ct							·		· · · · · · · · · · · · · · · · · · ·
USED AT	:															

PROCESS						· · · · · · · · · · · · · · · · · · ·										
GEOLOG	EAL FOR	MATIO	N AND A	GE: P	leist	cocene	Terra	ace (Mo	ontg	omer	y) (depo	sits	and I-	oloce	ne
41	ILUVI	al o	eposi	its (or Re	your :	Sara.									
GRAD	ING (CRD	-C 103)	ICUM. %	PASSIN	G):		TEST	r RESULTS	;					2 11	,	FINE
SIEVE	3-6"	1 1 -3"	4-1"	=4- } -	FINE)-6°	1 ģ-3"	4-1'	R4-3"	AGG.
			7 1		AGG.	BULKSP	GR, S.S.D	. (CRD-C 10	7, 109)	_Ĺ			2.53		2.65
6 IN.			<u> </u>			ABSORPT	10N. % (CF	RD-C 107, 10	18):					1.7		.05
5 IN.			<u> </u>		ļ	ORGANIC	IMPURITE	ES, FIG. NO	. (CRD	-C 121)				·	-	2
4 IN.			 	<u> </u>	ļ	SOFT PAR	TICLES,	4 (CRO-C 13	0)					0.0		
3 IN.			<u> </u>			% LIGHTE	RTHANS	P GR 2.4	VCRD	-C 1221	(2.	00 s	and)	9.2		0.0
2 1N.			 			S FLAT	ND ELON	GATED (CR	3-C 11	9, 120)				0.3		0.0
2 IN.				<u> </u>		WT AV %	L055, 5 CY	C MgSO4 1C	RO-C	37	丄			*		*
13 IN.			100		ļ	L.A. ABR	ASION LOS	s, % /CRD-C	117.	145) GR	DING.			*		
T IN.			96		ļ	UNIT WY,	L8/CU FT	(CRO-C 10	5):							
₹ IN.			77			FRIABLE	PARTICLE	ES. % (CRD-	C 1421					0.1		5.5
3 IN.			31	 		SPEC HEA	T, BTU/L	B/DEG F. (CRD-C	124)						
			15 5	<u> </u>	700		TY WITH N	НО РН	5	C,MM/L	-			<u> </u>		
NO. 4			3		100 99	ICR	D-C 128):			RC,MM/L	4-			-	 	1
NO. 16					97									<u> </u>		
NO. 30					93			ROPERTIES								ļ
NO. 50					52	TYPE_	CEMEN	T, RATIO:		DAYS	- 0,5 75 (0.	3		DAYS,		
NO. 100					12	- THERE		XPANSION,	MILLI					5):		——¬
NO. 200					6		ROCK	TYPE		PARAL	LEL	ACR	oss	ON	AVE	AGE
200(a)					4.2											
F.M. (b)					1.51											
(0) CRD-C	105	(b) CR	D-C 104			MORTAR										
MORTAR-6								FINE AGO	REGA	TE		T		ARSE ACC	REGATE	
			1 1 100F	, % (CR	D-C 123	<u>"</u>	2 MO.	6 MO.			2 MO.	3 /		6 MO.	9 MO.	12 MO.
LOW-AL	K. CEME	NT:		% NO2	O EQUI	ALENT:										12.20.
HIGH-A	LK. CEM	ENT:		% NO2	O EQUI	VALENT:										
SOUNDNES		CRET	E (CRD-C	40, 114):	······································								FAT	HW-CD	HD-CW
FINE A					COAF	SE AGG:						DFE 30				
PETROGR		T . /C/	20.0102		COAF	SE AGG:						DFE 30	<u>. </u>			
- ETAOGA	APRIC DA		RU-C 127	<i>1</i> :												
																1
																I
														-		
													,			
																l
																İ
REMARKS:								·					~~ ~~~~ ~			
		WFL	-1-1	(F	it i	un)	(1) Ma	sonry	san	d						1
		WFL.	-1-2	. (P	it r	un) ateria										
		1 1	IJUCE	1016	n In	ateria	u for	test								-

SOURCE NO. 29
HOLLOWAY SAND & GRAVEL CO.
JACKSON, LA

			1		26	01 #	2 V0-	W 22	REGATI	- 1-	FSTF	0 0	·:	TICAT	Same			
STATE:				LX NO.	ZISOP	74	5.A.K.	ATAGG!	KEGAII Cuee	두┝	ATE					и. /	110	
LAT.:	30			iG.:	<u> 71</u>			DATA	SHEE		ALE:		<u> </u>	May 1	1902	Marci	<u> 63</u>	
LAB. SYN	ABOL NO	o.: NO-	<u>-1 S-</u>	·2(4)	and	_G	<u>-2(4</u>) Job	6426	TYPE	CF M	AATER	HAL: N	at. {	sand	and	Gra'	ve I
LOCATION		Pit o	on Th	omps	on's	_ C	reck	near	Jacks	on,	La	٠, '	T3S,	RIW	, Eas	t Fe	lic	lana
Par															**********			
PRODUCE		Holle	oway	Sand	and	G	rave	1 Co.	, Jack	son	, L	a						
										_								
SAMPLED) BY: 1	New (rlea	ins D	istr	·ic	t											
								g Yar	d									
PROCESS																		
33																		
CEOLOGIC	CAL SOS	IMAT IO	1 AND	AGF:		·												
JEULUGI	101																	
6545	G (CRD		165	70 000	SINC	Τ_			CT	5111 7	٠, ٦		-			#4	Ι	FINE
			· ++1·			1		I E	ST RE	JUL!	ر ا			3-6"	1 2 - 3"	X-11/2"	44-3	FINE AGG.
SIEVE	3-6"	11 - 3"	第-12	=4-3"	FINE	-	u ^-	C0	SURF DRY	((20	- (' (77 10	3):	 		2.54	1- (c)	2.62
ļ		 	 	-									-2-			2.54		0.5
61N.	 	 	· 	 	 				ENT (CRD						-		_	
SIN.	 	 	 	 	 	1			S, FIG. NO								+-	
ZIN.		<u> </u>		 					PER CENT				7 (20)		 	-	 	-
3 iN.	<u> </u>		<u> </u>	ļ		4			R THAN S					ļ 	 	 	 	
23 IN.	1				<u> </u>				ND ELONG					<u> </u>	<u></u>	<u> </u>	 	-
2 IN.	<u></u>	ļ			ļ	4			oss, 5 CYC				, •4 - ½)	(CRD-	C 115)	-	 	
IģIN.			100	<u> </u>					A.), %,			7):		<u> </u>			1	
LIN.			98		<u> </u>				FT (CRD-):			ļ	ļ	!	1	
₹1N.	\perp		86		L		CLAY LUMPS, % (CRD-C 118)											<u> </u>
å IN.		L	50						, % (CR					_		<u> </u>	 	-
3 IN			24		100				U/LB/DEG							<u> </u>	1	
NO. 4			2		98				NoOH (\perp	
NO.8					92	7			:			Rc	,mM/L:	L			上	
NO.16	1	1	1	T	85	мо	RTAR -	MAKING I	PROPERTI	5 (CF	RO - C	116))					_
NO.30	1	1	T	1	73	TY	PE	СЕМЕ	ENT, RAT	٥	D,	AY5,_		_ ⁹⁷ 9,		DAYS,		
NO.50	1		1	1	30	1			EXPANS									
NO. 1 CO	1	 	 	†	4	1 [ROCK			PARA			ROSS		N	AVE	RAGE
NO.200		 	 	†	-	1 }				 †			1		1			
- 200°°	<u> </u>	 	1	 	1.9	1				+			\top		1			
F.:3(6)		 	 	1	1.	, }				+			+		1			
(e) CRD-		(b) C	RD-C	104	2.18		MORTAR		_									
, 5,00.	د ٠٠٠٠					<u></u>	1		FINE AC	GREG	AT E				COARSE	AGGR	EGATE	
WORTAR .	-BAR E	KPANSIC	I TA M	00F, 7	cRD	- c	123):	3 MO.	6 MO.			12	MO 1					i2 MO.
; ; ; ; ;	Al w cr.	AF NIT		Ø70 11	0 50.	11374	FNT.	<u> </u>	J mo.	+					1	+-		
	ALK. CE			% No					 	+			-+		 			
ļ	-ALK.CEI			% No			CN1:		L							.	!	23-60
SCUNDN		CONCR	LTE (C	н С	40, 114										F & 7	- Inw	0	HD-CW
FINE							RSE AC							E 300	 			
	FINE AGG.							GG:					DF	E 300	1		1	
PETROG	RAPH!C	DATA	(CRD-	C 127):														
l																		
1																		
1																		
REMARK	s:									, - ,	,		<i>H</i> .	a. L.	-i-1 ·	10.5	weh.	auned
	Test	5 14	Man	ch 194	5 1	vdi	cated	That	the g	valit	ን "	or ;	ne n	,aTE1		ں س ے۔		,
1																		
ŧ																		

MT. VERNON GRAVEL CO.

MT. VERNON, LA

STATE:	La.		IND	EX NO.	3(rev.)	AGG	REGATI	TE.	STED BY	CR	ט							
STATE: Ia. INDEX NO.: 3 (rev.) AGGREGATE TESTED BY: CRD LAT: 30 LONG.: 91 DATA SHEET DATE: 27 Aug 1952 May 1969 LAB. SYMBOL NO.: NO-16 G-1, S-1 Job 6001/83 TYPE OF MATERIAL: Natural Sand & Gravel LOCATION: 6 Mi. SE of St. Francisville, Ia., 3 Mi. + from Mississippi River, 3																			
LAB. SYM	BOL NO	o.: NO	-16 (] 1,	S-1	Job 6	001/83	7	YPE OF	MATER	AL: N	atur	<u>al Sa</u>	nd &	: Gr	avel			
LOCATION	: 6	u.	SE of	st.	Fre	ncisv.	ille,	La., 3	Mi.	+ fro	m M	issi	ssipp	i Ri	ver	, 3			
Mi.	- Dow	nstr	eam (on Th	ompa	on Cr	eek fr	om U.	S. H	ighway	r 61	& 6	5.						
PRODUCE	e: Mt	. Ve	rnon	Pit	of b	it. Ve	rnon G	ravel	Co.										
SAMPLED	BY:	Pers	onne:	lof	Bato	n Rou	ge Fie	ld Off	ice										
TESTED	FOR:	Conc	rete	Aggr	egat	to Eva	luatio	n - Ba	you	Boeuf'	Loc	K							
PROCESSI	NG BEF	ORE T	ESTING:	Nor	10														
																			
GEOLOGIC	AL FOR	MATION	AND	AGE: 1	ral	10 10	rrace	- Quat	erna	гу									
	4					r							1 1		-1	FINE			
GRADING	(CRD-	- C 103)	(CUM.	76 PAS:	ING):		TE	ST RES	SULTS	ل		3-6"	1 1/2 - 3"	3-12"	#4X	AGG.			
SIEVE	3-6"	1 - 3"	3-15"	"4xk"	FINE AGG.	DU K 55	GR., SAT	TURE ORY	(6006	107.108				(c)					
											,.					02.61			
6 IN.							IMPURITIE						 		2.1	0.4			
5 IN.							RTICLES,								1 4	+			
4IN.							T LIGHTER				1291:		 		16.				
31N. 211N.							T FLAT AN						 		1.6				
2 IN.				<u> </u>			D AV. % LC					(CRD-	C 115)		-	+=			
ı≟ın.				100			LOSS (L				27	(01.0	1		17.	5			
1 (N.				99			., LB/CU F			<u>-</u>			-		-	1_			
₹IN.				84			IMPS, % (_	-			
⅓ IN.				41			COAL AND LIGNITE, % (CRD-C 122):												
ŽIN.			l	8			SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):												
NO. 4				1	93		REACTIVITY WITH NaOH (CRD-C 128): Se, mM/L: 573 99												
NO, 8				-	85	1	Re,mM/L: 136 31												
NO. 16					76	MORTAR-	-MAKING F	ROPERTIE	S (CRO	- C (16)									
NO. 30					60	TYPE_I	II_CEME	NT, RATIO	3 _	_DAYS,	112	_%,	7	DAYS,_	113	%			
NO.50					15	LINEAR	THERMAL	EXPANS	ON, XIO	∳DEG. F	. (CR	D-C 12	5,126):						
NO. 100					2	1	ROCK	TYPE	P	RALLEL	AC	ROSS	Of	4	AVE	RAGE			
NO.200					0.6														
~ 200 ^(a)					0.5						<u> </u>								
F.M.(b)	<u> </u>				2.71						<u> </u>		<u></u>	l					
(e) CRD-	C 105	(b) CF	D-C I	04		MORTA	R:												
MORTAR -	BAR E)	PANSIO	N AT I	00F. %	(CRD	-C 123):	L	FINE AG	GREGAT				COARSE						
							3 MO.	6 MO.	9 MO	. 12 M	0. 3	MO.	6 MO	. 9	мо.	12 MO.			
	ALK. CEN					VALENT:							<u> </u>						
	ALK.CE					VALENT:	<u> </u>							 					
SOUNDNESS IN CONCRETE (CRD - C 40, 114): F & T FINE AGG. COARSE AGG: DFE 300											1 1 2 1	HW.	-CD	HD-CW					
FINE			· · · · · · · · · · · · · · · · · · ·			COARSE A						E 300	 						
PETROGR		DATA (CBD-C	1271		COARSE A						- 300	<u> </u>						
		2 010 .	CND	. 1277.															
ł																			
]																			
REMARKS	s: Phu	sicol	+05+	P-05	, j+«	08 80	cterial	France	this.	S 0		-1-	1 5	- 44.	51				
Franci	sville	Casti	we Fie	16 5	bockoi	le (NO-	aterial 29-6-4	8) 5-4	(9)	uere si	mila	r to	those	of p	revia	usly			
teste	sam	ples.	_		,	•	,							•		3			
							··												

GIROD GRAVEL CO.

WOODVILLE, MS

STATE:	Miss.		IND	EX NO.	4(re	v 2)	I AC	GGRE	GATE	TEST	TED BY:	WES						
LAT.:	30		LO	NG.:	91		DA	TA S	HEET	DATE	: 20 k	forramha	× 105	6 M.	16.			
LAB. SYN	BOL N	o.: NC	-24	G-2(5) 1	ob 60	01/29	10	TYPI	OF	MATERIA	L: Pit	T. 153	, 114	4 146			
LOCATION	v: F	LAVOI	Sar	a Cr	opl	on Te	lend	Dian	+-+1		1 1	15 341	Kun_A	ggre	gare	Sano		
		Hoo	dud1	14	Wies	issip	Tanu	Plan	Latio	1, a	DOUE	15 M11	es II	om				
PRODUCE	D·					rasib	P1											
PRODUCE	~	Giro	d Gr	avel	Co.													
SAMPLED																		
TESTED	FOR:	014	Rive	r Co	ntro	l Str	uctur	·e										
PROCESS	ING BEF	ORE T	ESTING	<u> </u>	epar	ated o	over	No.	4 siev	ле,	sand	fracti	on te	sted	•			
USED	AT:	OLD	RIVE	ER L	<u>0~</u>	SILL	AND	OVE	RBA	NK	STR	CTURE	ES (957)	•			
<u> </u>																		
GEOLOGIC	CAL FOR	RMATION	AND	AGE:														
												······································						
GRADING						I	7	TEST	RESUL	TS						FINE		
	3-6"	·		(1)	FINE	1	<u> </u>			لت		3-6	1 1 2 - 3"	3 -15″ (c)	#4-3 (c)	AGG.		
SIEVE	3-6"	12-3"	- 1 출 T	XXXX	AGG.	BULK SE	P. GR. S	AT SURF	DRY (CR	D-C 1	107 108):		-	(0)	(0)	2.62		
SIN.	 				 				(CRD-C				 			-		
5 IN.					 		<u></u>		IG. NO. (C	<u>_</u>			1			0.7		
41N.						 										 		
					ļ				CENT (CR				1		!			
31N.				ļ	ļ	ļ			IAN SP. GR				1			1=		
2½ IN.				ļ		 			LONGATED				<u></u>			 		
2IN.												4 - ½) (CRD -	C 115)			3.2		
1 ½ IN.									,%, (CR		17):					1		
I IN.				98	<u> </u>				CRD-C IC	6):								
₹IN.				94		CLAY L	JMPS, 97	6 (CRD	-C II8):									
1 IN.				84		COAL AND LIGNITE, % (CRD-C 122):												
åIN.				75	-	SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):												
NO. 4				58	100	REACTIVITY WITH NOOH (CRD-C 128): Sc, mM/L:												
NO. 8				46	80													
NQ.16				36	62	MORTAR-MAKING PROPERTIES (CRD-C 116)												
NO.30				25		TYPE	IIICE	MENT.	RATIO	3 _0	AYS. 1	12%_	7	DAYS	114	~		
NO.50				6								(CRD-C 12						
NO. 100				2	3			K TYPE			ALLEL	ACROSS	CN	, T	AVERA	GE		
NO.200						 			· 		-		-	` +				
- 200 ^(a)					2 /					 			 			—— ·		
F.M(b)					2,4	<u>.</u>							 					
		(1) ==			3.0					L.,			<u></u>					
(e) CRD-	L 105	(b) CR	D-C 1	U4		MORTA	H:					 				····		
MORTAR -	BAR EX	PANSIO	N AT IC	OF, 70	(CRD-	C 123):			E AGGRE			-	COARSE		GATE			
							3 MC). 6	MO. 9	MO.	12 MO.	3 MO.	6 MO.	9 1	AO.	12 MO.		
LOW-A	LK. CEN	ENT:		70 Na ₂	O EQUI	VALENT:	ļ											
HIGH-	ALK. CEN	ENT:		% Na ₂	O EQUI	VALENT:						<u> </u>						
SOUNDNE	SS IN	CONCRE	TE (CF	D-C 4	10, 114):							F&T	HW-	CD	1D~CW		
FINE /	AGG.					COARSE A	GG:					DFE 300						
FINE A	AGG.					CCARSE A	ree:					DFE 300						
PETROGR	APHIC I	DATA (CRD-C	127):														
						* 	····				· · · · · · · · · · · · · · · · · · ·							
REMARKS	:			Phy	sical	test -	esults	ON-	materia	1 fr	om th	is source	c san	pled	from	the		
(1)	As r	ecei	ved.	Sim.	ilar +	those	of or	rg riek	sly test	pile	on 191	69 (NO-	246-4	(8) S-	(9) .	Were		
									3 ,03			•						

SOURCE NO. 32
BIG RIVER INDUSTRIES
BATON ROUGE, LA

STATE: [a.		INE	EX NO),:	5		_ AC	GREGAT	Έ	TES	TED BY	: W	ES					
LAT.: 3				NG.:	9	1		DA	TA SHE	ET	DAT	E: 27	De	c. 1	956				
LAB. SYN	ABOL N	o.: WI	<u> </u>	G-10), s-	•1	1, J	ob 76	24.0	TYPE	E OF	MATER	AL:	Grav	elite	:		• • • • • • • • • • • • • • • • • • • •	
LOCATIO		Bator																	
									· · · · · · · · · · · · · · · · · · ·										
PRODUCE	R:	Big I	lver	Inc	lustr	1	es.	Inc.											
						_	~~.		***************************************										
SAMPLED	BY:		J.F.J	T .															
TESTED	FOR:				·i on	•	nd W	ointe	nance		- 1 -	- 10							
PROCESS	ING BE			:	Ac r	-	cair	oy t.	om MBM	Sec	1	<u> </u>	0						
<u> </u>	····				NO 1	-	CETA	eu II	Om Mor	8 L	OCK	pile							
																			
GEOLOGI	CAL FO	MATIO	J AND	AGE:															
																			
GRADING	CRD	- C 103	CCIM	To PAS	SING):	Т									,			,	
						1		L.	EST RE	SUL	.TS	j		3-6"	$1\frac{1}{2} - 3''$	3-15C	dare	AGG.	
SIEVE	3-6"	11 - 3"	골-1늘*	Agg.	AGG.	F			-					 		(c)	A65.		
GIN.	-		 -	-		┿			T SURF DR): 					1.9	
}			<u> </u>		 	+			CENT (CR								17.9	16.	
51N.				<u> </u>	ļ	7			TIES, FIG. N								0	0	
41N.				ļ		-			S, PER CEN										
3IN.	ļ				L	-			TER THAN										
2 j IN.						+-			AND ELONG										
2 IN.						٧	EIGHTE	D AV. %	LOSS, 5 CY	. Mg	504 (c) ½ -1°, (4 - ½)	(CRD-	C (15)				
1 ½ 1N.						Δ	BRASIO	N LOSS	(L. A.),%,	(CRD)-C (17): GT	adi	ng C			30.5		
IIN.									U FT (CRD-										
ŽIN.						С	LAY LL	JMPS, %	CRD-C	18):								ļ	
1/2 IN.				100		c	COAL AND LIGNITE, % (CRD-C 122);												
₩1N.				63	100	5	SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):												
NO. 4				20			REACTIVITY WITH NOOH (CRD-C 128): So, MM/L:												
NO. 8				3	89	١							nM/L:						
NO.16				1	64	м	ORTAR-	MAKINO	PROPERTI	ES (C	RD-	C 116)		لـــــا	٠			<u> </u>	
NO. 30				1	41	т	YPE	CE	MENT, RAT	٥		DAYS		_%		DAYS		~	
NO.50									AL EXPANS										
NO. 100					18				K TYPE			ALLEL		ROSS	ON	1	AVERAC		
NO.200																N AVE		-	
- 200 ^(a)					12.6		 												
F.M.(b)					2.6		 		T										
(a) CRD-		(b) СR			2.0	t	MORTA	R:			L				L			الـــا	
						-			FINE AC	CREC	ATE				CARSE	ACCRE	CATE		
MORTAR -	BAR EX	PANSION	N AT 10	00F, 70	(CRD-	c	123):	3 MQ				1 12 140	1-		OARSE		·		
LOW-A	LK. CEN	FNT:		70 Na	O EQUI	\/A	I ENT.	3 100	. 1 6 MO.	9	MO.	12 MC	' 3	MO.	6 MO.	9 1	VO. 1	2 MO.	
	ALK.CEN											 				-			
SOUNDNE					O EQUI		CENT	<u></u>		L		<u> </u>							
FINE A		JONCHE	I L LCK	0-0-2											F&T	HW-	CDH	D-CW	
FINE A							ARSE A							300					
		ATA (-0,	ARSE A	GG:					DF	300					
PETROGRA	APHIC [AIA (CRD-C	127):															
																		1	
·																		1	
REMARKS:	:																		
						_												l	

SOURCE NO. 33
FELICIANA SAND & GRAVEL

JACKSON, LA

STATE:	La.		iN	DEX NO	:6 (rev)	AC	GREGA	TE	TES	TED B	Y: 1	ISART	AFC			
LAT.:	30		LC	NG.:	07		I DV.				n 61						
LAB. SY	MBOL N	10.NO-	-25 (-1.	G-1(a). G	-1(3)	, S-1(2 ackson	TYP	E QF	MATER	RIAL: T	- 	Sond	<u> </u>	C	
LOCATIO	N: A	pprox	dmat	elv	l mi	west	of J	ackson	' 9 9 -	-1(3	1000	+h	vau.	Sand	and	<u>Grav</u>	<u>гет</u>
												0110	<u>cas</u>	36 10	rk o.	<u>. </u>	
PRODUC	ER: Fe	elici	ana	Sand	and	Grave	el Co.	. Jacl	CSOT	ı T	.a						
								-3		<u>., .</u>							
SAMPLE	D BY:	New	Orle	ans :	Dist	rict		·· ·									
TESTED	FOR:	Port	All	en L	ock	and St	t. Fra	ncisvi	.11e	Ar	ticu	late	ed Co	ncrei	e Ma	ttre	
PROCES	SING BE	FOKE I	ESTING	:: G-1	and	G-1()	A) com	nbined	for	si	eve	anal	Vais	::	<u>, , , , , , , , , , , , , , , , , , , </u>	S-1	,00
<u>s-1</u>	and S	<u>3-1 (A</u>	.) co	mbin	ed f	or al	l test	Ss.					<i>y</i>	· · · · · · · · · · · · · · · · · · ·		&	
<u> </u>																S-1	
GEOLOG	CAL FO	RMATIO	N AND	AGE:										G-1		(2)	S-1
				<u>S-1 &</u>		·								(3)	G-1	Fine	(3)
GRADIN	G (CRD					1	1	EST R	SUL	_TS			3-6	#4	#1	Agg.	FINE
SIEVE	Spec										,		3-6	1-12	(c)	(c)	AGG.
	Limits				AGG.	BULK SF	P. GR., SA	T SURF DR	Y (CR	D-C	107,108):		2.55	2,55	2.62	2.64
61N.	For							CENT (CR								0,7	
5 IN.	G-18		1-12	Agg.	ļ			IES, FIG. 1								1	
4 IN.	G-1(A	}						, PER CEN							Q.Q.	3C	_
31N. 2½1N.	 					PER CEN	NT LIGHT	ER THAN	SP. GP	2.00	tcad-c	129):		12.7	0.47	1.0	0.0
	 		ļ					AND ELON					<u> </u>	1 !	7		
2 IN.	700	300	700			WEIGHTE	D AV. %	LOSS, 5 CY	C. Mg	so ₄ ((c) ½ -1",	*4-½)	(CRD-	C (15)	3.3	2.8	
I IN.	100 90-97		100					(L. A.),%			17):			ļi	17.6		
in.	90-91	95 83	94 77					FT (CRD		6):							ļ
jiN.	40-60		47		·····			(CRD-C E, % (CR									
ŽΙΝ.	70-00	31			100			TU/LB/DEC									
NO. 4	0-6	- J_	3					H NOOH (
NO. 8	0-0			83	79	REACTIV	***	n NOON (
NO.16				71		MORTAR	- MAKING	PROPERT	F \$ 10	. D.D		nM/L:					L
NO. 30			· · · · · · · · · · · · · · · · · · ·	57	17	TYPE]	[II CEN	ENT, RAT	 	3 ,	\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	113	-	7		108	
NO. 50				20	13	LINEAR	THERMA	L EXPANS	UON.	XIO 6	, DEC. E	(CDC	- ⁻ /9,	5 (25):	DAYS,		%
NO. 100				3	<u> </u>			TYPE			ALLEL		ROSS	0N	AVERA		
NO.200						-										AVERA	J
- 200 ^(a)				0.6	7.7									 	\dashv		
F.M(b)				2.72										 			
(e) CRD-	C 105	(b) CR				MORTA	R:					L		J			
1400740	545 54						<u> </u>	FINE AC	GREG	ATE				COARSE	AGGRE	ATE	
MORTAR -	BAR EX	- - -	AT IO	OF, 70	(CRD-	C (23):	3 MO.	6 MO.	9	мо.	12 MC	. 3	MO.	6 MO.		10. 12	2 MG
LOW-A	LK. CEM	ENT:		70 Na ₂ C	EOUIN	ALENT:		1	1			\top			+		
HIGH-A	LK.CEM	ENT:	•	o Na ₂ C	EQUIV	ALENT:		1				1-				-	
SOUNDNE	SS IN C	ONCRE	TE (CR	D-C 4	0, 114)	:								F&T	HW-	CD H	o-cw
FINE A	NGG.				c	OARSE A	GG:	***********		···		DFE	300		1	-	
FINE A	ige.				С	OARSE A	GG:					DFE	$\overline{}$		†		
PETROGRA	APHIC D	ATA (C	RD-C	127):													$\neg \neg$
																	1
																	1
																	l
																	1
EMARKS:	⅓	Met	hod (CRD-C	1 22). wit	h 2.4	0 spec	ifi	C ~	ל ליזוביו	.π. 1	ioui	d .			
						-,	2.7	- 5pcc		~ 5·	- C* A T (· J -	-444	⊶•			1
								_									ł

STATE:	La.	IND	EX NO.:		6 (Rev) AGGREGATI				TESTED BY: USAEWES									
	30 N				DATA SHEET DATE: June 1977													
LAB SY	90L NO.	<u>. NO.</u>	57	G-1	4-,	S-10				_			n • .	ın				
LOCATI	on: 0.	6 mi	iles	<u>S. o</u>	f La	. Hwy.	. 10 o	n Thom	pso.	n Cr	reek	, ap	rox.	0.5	niles			
<u>"</u>	. 01	Jack	uson,	La.														
PRODUC	ER:	reli	cian	a Sa	nd S	Grave	l Co.	, Jack	son	, La	1.							
}		D		1														
SAMPLE	BY: FOR:	You	0710	<u>a 40</u>	ore													
USED AT		11611	OTTO	ans	11156	rice												
3323 7	-																	
PROCES	SING BEF	ORE TO	ESTING:			···	· · · · · · · · · · · · · · · · · · ·								····			
GEOLOG	CAL FOR	RMATIO	A CHA M	GE:	Plei	stocen	e Teri	race (Pra	rie) d	enoci	te or	J 11-1				
а	lluvi	um						7.			-)	C1/031	cs ar	C HOL	ocen			
GRAD	ING ICRO	-C 103)	CUM. %	PASSIN	(G):		TEST	RESULTS	5		T		<u> </u>	T	T			
SIEVE	3-6"	1:-3-	4-1	24-2"	FINE	1	L					3-6"	1 1/2 - 3"	4-1	/ *4-}	FINE AGG.		
		.,	-4-1	1	AGG.	BULKSP	GR, S.\$.D	. (CRD-C 10	7. 108	,				2.5		2.62		
6 IN.						ABSORPT	10N, % (CF	10-C 107, 10	a1:					2.1	1	0.5		
5 IN.				L		ORGANIC	IMPURITE	ES, FIG. NO	. ICRO	-C 121	, -			1	-	1		
4 IN.						SOFT PA	RTICLES,	CRD-C 13	101					0.0	1	1		
3 IN.	 			<u> </u>	ļ			P GR 2.4(2.00	sand)			0.1		
2 j IN.	-		100		 			SATED ICR						2.5				
2 IN.			100	<u> </u>				C Mg504 10						*		4.8		
1 in.	-		99 97	<u> </u>		i		5, % (CRD-C		₩ 5) G	RADIN	5 B		19.8				
1 IN.			S4		 			(CRD-C 10						 	 			
1 IN.			50	<u> </u>		FRIABLE PARTICLES, % (CRO-C 142) 3,5 () C SPEC HEAT, BTU/LB/DEG F. (CRO-C 124)												
₹ IN.			32				ITY WITH N							┼				
NO. 4			1		100		D-C 128):	100H		c,mM/				 	 	+		
NO. 8					81		D-C 1257.		15	RC, mM/				 	 	+		
NO. 15					66	MORTAR-	MAKING PR	OPERTIES	(CBD-	C 1161			<u> </u>		<u> </u>			
NO. 30					45			T, PATIO:_					_	DAYS		_		
NO. 50					9	LINEAR T	HERMAL E	XPANSION,	M:LLI	ONTH	/DEG	F. ICRO-	C 125, 126):				
NO. 100					1		ROCK		1		LLEL							
NO. 200																		
-200 ^(a)					0.8							<u> </u>						
	L				2.95	L												
(e) CRD-C	105	(b) CRC	D-C 104		i	MORTA	t:											
MORTAR	BAR EXP	ANSION	AT 100F	. % (CR	D-C 123):		FINE AGO						RSE AGG	REGATE			
LCW-A	K. CEME	NT:		% No.	O FOUN	/ALENT:	2 MO.	6 MO.	9 M	^	12 MO	. 3	мо. е	мо.	9 MO.	12 MO.		
	LK. CEM					ALENT:				-	·	\dashv						
SOUNDNE	S IN CON	CRETE	ICRD-C	40, 114) :			<u> </u>				I		FAT	W.Co.			
FINE A	GG.				COAR	SE AGG:						DFE30	,		HW-CD	HO-CW		
FINE A	 				COAF	SE AGG:	-					OFE30						
PETROGR	APHIC DA	ATA (CF	RD-C 127):														
																1		
																1		
														-		1		
																ľ		
REMARKS:	· · · · · · · · · · · · · · · · · · ·	1.*	EL 7	7 (1				· · · · · · · · · · · · · · · · · · ·										
		*	FL 3-	:t: ':	ILC)	run)	•											
			u l		CHL	mater:	ial fo	r test	:									
																ļ		

NEW ORLEANS DISTRICT ENGINEERS

STATE:	La.		11	NDEX NO	: 7	7 AGGREGATE TESTED BY: USAEWES 91 DATA SHEET DATE: 4 Sept 1957												
LAT.:	30		L	ONG.:	91		DAT	A SHEE	T	DATE	:	4	Sept	1957	,			
LAB. SYM	BOL N	o.: N(ノームこ	5-2	Job	6001/	328	1	TYPE	OF	MATERI	AL:	Fine	Natı	ral	Sand	l	
LOCATION	1:	Sa	and	bar i	n Mi	ssissi	lppi R	iver a	t I	ree	Nig	ger	Poi	nt, v	ricin	ity	of	
mile	234	AHP																
PRODUCE	A:	Ne	ew (rlear	s Di	strict	Engi	neers										
							·											
SAMPLED						strict	Pers	onnel										
TESTED				Aller		k		******										
PROCESSI	NG EE	ORE T	ESTIN	ig: Nor	e													
								· · · · · · · · · · · · · · · · · · ·										
																		
GEOLOGIC	AL FO	MATION	N AND	AGE:														
CD4DU46	/600	C 100	166		2012												,	
GRADING		T				1	TE	ST RES	SUL	TS			3-6"	1 2 - 3"	3-15"	#4-3	FINE	
SIEVE	3-€"	11 - 3"	3-1	1 44 - 3"	FINE AGG.										(c)	(c)	AGG.	
6 IN.								SURF DRY				:					2.58	
SIN.								ENT (CRD-									1.9	
4IN.						 		ES, FIG. NO			<u> </u>						4	
31N.					 		<u>-</u>	PER CENT				20).						
2 1N.			 					ND ELONGA										
2 IN.			<u> </u>		 	 		oss, s cyc.					/				!	
1 ½ IN.				+	 			A.), %, (4-2)	(CRD-C	- 115)			1	
1 IN.						 		FT (CRD-0			, ,.							
₹ IN.								(CRD-C III		0).					 -			
į IN.								, % (CRD		122):								
₹IN.							SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):											
NO. 4				+			REACTIVITY WITH NaOH (CRD-C 128): Sa,mM/L:											
NO.8				1		Rc, mM/L:												
NO.16				1		MORTAR -	MAKING I	PROPERTIE	s (c	RD - C		1					^j	
NO. 30					100	TYPE	CEME	NT, RATIO			ArS		_ 9 7 _{6.}		DAYS		- %	
NO.50					100	LINEAR	THERMAL	EXPANSI	ON 2	X10 %	DEG. F.	(CRE)-C 125	5,126):				
NO. 100				1	83		ROCK				LLEL		ROSS	ON	AVERA	GE .		
NO.200							***************************************		\neg									
- 200 ^(a)					12.2			m. ma- v										
F.M. (b)					0.17													
(a) CRD-C	105	(b) CR	2-c			MORTAR	t:											
MORTAR - E	PAC FY	PANSIM		100E 0	(CDD-	C 1223		FINE AGO	REG	ATE		T	С	OARSE	AGGRE	GAT E		
				1001, 76	(CAD-	C 123).	3 MO,	6 MO.	9)	MO.	12 MQ.	3	MO.	6 MQ.	9 1	10.	2 MO.	
LOW-A	LK. CEN	ENT:		90 Na2	O EQUI	VALENT:					***************************************							
HIGH-A	LK, CEN	ENT:		% Na₂	O EQUIV	VALENT:						T						
SOUNDNES	S IN (CNCPE	7E (0	RD-C 4	10, 114):								F&T	нw-	СВН	D-CW	
FINE A						CARSE AC	G:					DFE	360					
FINE A						CARSE AC	G:					DF E	300			i		
PETROGRA	APHIC !	ATA (CRD-	C 127):														
																	1	
							,											
REMARKS:																	l	
WES EC																		

STATE:	La.		INE	EX NO.	AGGREGATE TES 91 DATA SHEET DAT				TESTED BY: USAEWES									
LAT.:	30		LO	NG.:	91		ril :	1961										
LAB. SYM	BOL N	o.: NO	-29	S-1.	G-1	Job	No. 6	392	TYPE	OF I	MATERIA	AL: N	at.	Sand	and	Gras	707	_
								Franc										·~
La.		y Ou.	<u>Jara</u>	OT G	1 0 15	Talle	au Ju	rian	12	V _L_L_L	ىد و ي	<u>a.</u>	110	Casu	<u> </u>	ive ye	HOK	<u>e</u>
	8: Ma	-+	Cno	3 (30	C4 E	<u> </u>	ville	т.									-
-	Ma	1.0111	Gra	AGT (<u>, O </u>	OL. P	rancis	ATTTE	<u>المار</u>	3.								
SAMPLED	BY:	More	0770	ona I)-i + -				····									
							0-	sting	D3.									_
PROCESSI	NG BEE	ORE T	FSTING	CISV.	<u> </u>	Macur	ess Ca	sting	PI	ant								_
I MOCESSI				MOI	16		····	···-										
GEOLOGIC				165:			· · · · · · · · · · · · · · · · · · ·											_
GEOLOGIC	AL FOR	MAI ION	AND	AUE.		 												
GRADING	(CPD:	- C 103	CCUM	97. DAS	SINC):		1										Term	
			· -	·		}	LIE	ST RE	SUL	TS			3-6"	1 ½ ~ 3"	3-12"	#4-3	FIN	
SIEVE	3-6"	1 1 - 3"	3-15	#4- <u>3</u> "	FINE AGG.	5.00												
}				├	-			SURF DRY				-				2.47		
61N.				ļ				CENT (CRD		-						1.9	0.6	
5 IN.				ļ				ES, FIG. N									<u> </u>	_
41N.				ļ	ļ			PER CENT				122				\ <u>.</u>	1	_
3IN.				ļ	ļ			R THAN S								0.5 7.1	144	-
2 N.				ļ				ND ELONG									ــــــ	
2 IN.				ļ				OSS, 5 CY				4-½)	(CRD-C	115)		L		
1½ IN.				100				L. A.), %,			7):						1=	_
I IN.				97			·	FT (CRD-		6):							<u> </u>	
₹IN.				82		CLAY L	JMPS, %											
½ IN.				43			D LIGNITE				1							
₹IN.				20		SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):												
NO. 4				2	98	REACTIV	REACTIVITY WITH NGOH (CRD-C 128): Sc, mM/L:											
NO. 8				<u> </u>	89	MORTAR-MAKING PROPERTIES (CRD-C 116)												
NO.16					79	MORTAR	-MAKING	PROPERTI	ES (C	RD-C	116)							
NO. 30								ENT, RATI							DAYS,_			è
NO.50					18	LINEAR	THERMA	- EXPANS	ION	X10 %	DEG. F.	(CRE)-C 12	5,126):				
NO. 100					2		ROCK	TYPE		PARA	LLEL	ACI	ROSS	01	ı	AVER	AGE	ĺ
NO.200															1			ĺ
- 200 ^(e)				0.4	1.3													
F.M.(b)					2,49	•												
(a) CRD-(C 105	(b) CR	D-C	04		MORTA	R:											
MORTAR -	BAD FY	PANSIO	N AT 1	00 E 97-	(Can-	C 1333:		FINE AC	GREC	SATE			(COARSE	AGGRE	GATE		
MORTAR -	DAN EX	PANSIU	N A1 (1	JUF, 4/6	CKD-	C 123).	3 MO.	6 MO.	9	мо.	12 MO	. 3	мо.	6 MO.	9	мо.	:2 M(٥.
LOW-A	LK. CEM	ENT:		% Na ₂	O EOU	VALENT:												
HIGH-A	LK.CEM	ENT:		% Na ₂	O EQUI	VALENT:												
SOUNDNE	55 IN (CONCRE	TE (C	RD-C	10, 114):								F&T	HW-	CD	4D - C	W
FINE A	AGG.					COARSE A	.GG:					DF	300					
FINE A	NGG.					COARSE AGG: DFE 3							E 300			i		
PETROGRA	APHIC I	DATA (CRD-C	127):														
1																		
1																		
REMARKS:	:																	_
L									_		_							

RIVER MATERIALS

BAIN, LA

STATELOU	isia	ina	IND	EX NO.:	9						ED BY:	USAEWE	S			
.AT.:					91				SHEE			30 June				
AB. SYME	OL NO	:: NO-	295-	3G-3	Job	Ŋ	To. 6	001/69)3 T	YPE OF	MATERIAL	·Natura	ıl sa	nd &	gra	<u>vel</u>
OCATION	Mis	s. R	iver	Mi1	e 24	9	AHP,	near	head o	of Pro	fit I	sland				
PRODUCER	Riv	er M	ater	ials	. Ba	ir	ıs. L	a								
SAMPLED	BY: Ne	w Or	lean	s Di	stri	сt	-									
TESTED F	OR:St	. Fr	anci	svil	le C	as	sting	Field	1							
PROCESS	NG BEF	ORE TI	ESTING	Non	e											
SEOLOGIC	AL FOR	MATION	AND	AGE:												
													·····			
GRADING	(CRD	- C 103)	(CUM.	70 PAS	SING):			TE	ST RES	ULTS		3-6"	1 = 3"	3-15	#4 - 1	FINE
SIEVE	3-6"	14-3"	3-11-	#4 - 3"	FINE	L									(c)	AGG.
SIEVE	3-0	12 3	4 '2	4	AGG.	-			SURF DRY							2.6
6 IN .						A	BSORPT	ION, PER C	ENT (CRD-	C 107,10	15):				1.6	0.5
51N.						4			S, FIG. NO							3
4 IN.								4	PER CENT				ļ	ļ	0.0	
31N.									R THAN SP						11.1	
2 1 N.						1			ND ELONGA		<u></u>		<u> </u>	ļ	2.5	
ZIN.						ユ						- ½) (CRD -	C 115)	ļ		2.5
1 ½ 1N.						A	BRASION	LOSS (L	A.), %, (CRD-C	17)				17.9	
FIN.				100					FT (CRD-C			_	ļ			4 11
3 IN.				92		-			(CRD-C !!					ļ	0.28	0.3
1 IN.				49		_1			, % (CRD							0.1
åiN.				21					U/LB/DEG.						<u> </u>	
NO. 4				0	95	P	EACTIV	TY WITH	иаон (с	RD-C 12	8): Sc,m	M/L:	<u> </u>			
NO. 8	: !			<u> </u>	83	L					Rc, mt	M/L:	ļ	<u> </u>	<u>:</u>	
NO. 16					71				PROPERTIE							
NO. 30					56							16_%_		DAYS,	104	<u>~</u>
NO.50					11	ŀ	INEAR	THERMAL	EXPANS:	ON XIO	∲DEG. F.	(CRD-C 12	5,126):			
NO. 100					0.2			ROCK	TYPE	PAR	ALLEL	ACROSS	<u> </u>	N	AVER	AGE
NO.200			<u> </u>		-								<u> </u>			
- 200 ^(a)	<u> </u>				0.1								ļ			
F.M.(b)	<u> </u>	<u> </u>		<u> </u>	2.84								<u> </u>			
(+) CRD-	C 105	(b) CI	RD-C	104		L	MORTA	R:								
MORTAR -	BAR E	XPANS!O	N AT I	00 E . %	o (CRD	- c	123):		FINE AG	GREGATE	· · · · · · · · · · · · · · · · · · ·		COARSE			
				,				3 MO.	6 MO.	9 MO.	12 MO.	3 MO.	6 MC). 9	MC.	12 MO.
	KLK. CE						LENT:		ļ		 	 	<u> </u>			
HIGH -	ALK.CE	MENT:		% Na	O EQU	IVA	LENT:	l			<u> </u>	1	 			
SOUNDNE		CONCR	ETE (C	RD-C	40, 114			<i></i>					F & T	ьw	-00	HD-CW
FINE							ARSE A					DFE 300				
FINE	AGG.					cc	ARSE A	.cc:				DF E 300	L	L_		
PETROGR	APHIC	DATA	(CRD-	C 127):												
REMARKS	s:															

SOURCE NO. 37
BIG RIVER INDUSTRIES
ERWINVILLE, LA

STATE:	IA		INDE	X NO.:	10		AGGF	EGATE	: <u> </u>	TESTE	D BY:	S		abora	tory	7	
LAT.:	.30		LON	G.: 9	1		DATA	SHEE									
LAB. SYM	BOL NO	.: 1	1587	- 58	8			Т	YPE	OF N	ATERIA	L: M	anu.	Lt.	It.Ag	gre	gate
			ie U	S. E	Light	av 19	0, 1/2	mile	W.	Erv	invi	11e	. Ia	•			
,																	
PRODUCE	R: R1	e R1	ver]	Indus	trie	s. Er	winvil	le. La									
		<u> </u>	, ,,,														
SAMPLED	BY:																
		Mf es	inai	oni 1	est	Facil	ity -	Eng (IAS/	1) 1	573						
PROCESS																	
GEOLOGI	CAL FOR	MATION	AND	AGE:	11u	vial D	eposit	- Rec	ent	t As	¿e						
-																	
GRADING	G (CRD	- G 103	(CUM.	7o PASS	SING):	<u> </u>	TE	ST RES	SUL	rsl			"		3 .1"	3	FINE
				,		1.	لتت						3-6	1 2 - 3"	(c)	(c)	AGG.
SIEVE	3-6"	11/2 - 3"	3-17.	*4-3 "	AGG.	BULK SP	GR., SAT	SURF DRY	(CRD	-C 1	07,108)						1
SIN.	 						ION, PER C										OK
51N.	+			-			IMPURITIE										
4 IN.	 		 				ARTICLES,										T-
	3 IN. PER CENT LIGHTER THAN SP. GR(CRD-C 129): 2½ IN. PER CENT FLAT AND ELONGATED (CRD-C 119,120):																
	2 IN. WEIGHTED AV. % LOSS, 5 CYC. MgSO ₄ ((c) ½ -1, *4-½) (CRD-C II5) 2.9 15																
<u> </u>	2 IN. WEIGHTED AV. % LOSS, 5 CYC. MgSO ₄ ((C) ½ -1', *4-½) (CRD-C II5) 2.9 15 1½ IN. ABRASION LOSS (L. A.), %, (CRD-C II7):																
	1½ IN. ABRASION LOSS (L. A.), %, (CRD-C 117): — 1 IN. UNIT WT., LB/CU FT (CRD-C 106): Loose Dry 36 41.5																
₹ IN.	 	 	-	100	 		JMP3, % (y			0	1
in.	 	 	 	99	<u> </u>		ND LIGNITE			22):				_			-
₹IN.	1	 	1	68			HEAT, BT				C 124):						
NO. 4	+	 	 	11	100	REACTIV	TY WITH	NaOH (RD-	C 128	3): Sc,r	nM/L:		İ			
NO. 6	 		 	2		7						nM/L:					
NO.16	 	 	1		51	MORTAR	-MAKING	PROPERTIE	s (c	RD -	C 116)				·		
NO. 30	+	 	_				CEME						_%		DAYS,_		%
NO.50	1	1	 		18	LINEAR	THERMAL	EXPANS	ION	X10 9	DEG. F.	(CR	D-C 12	5,126):			
NO. 100	,	1		1	13	1	ROCK				ALLEL			0	N	AVER	AGE
NO.200	5	† –				1											
- 200	4)	†	1	1		1											
F.M.	2	 	 			1 🗀											
(e) CRD	-C 105	(b) C	RD-C	104	1	MORT	AR:										
							T	FINE AG	GREC	SATE		T		COARSE	AGGR	EGATE	
MORTAR	-BAR E	XPAN5!C	N AT I	00F, %	cRD	-C 123):	3 MO.	6 MO.	9	мо.	12 M). 3	MO.	6 MC). 9	MO.	12 MO.
LOW-	ALK. CE	MENT:		% Na;	O EOL	IVALENT:	1										
HIGH	-ALK.CE	MENT:				IVALENT:											
SOUNDA	ESS IN	CONCR	ETE (C	RD-C	40, 114	ş):								F&1	нм	-co	HD-CW
FINE	AGG.					COARSE	AGG:					DF	E 300				
FINE	AGG.					COARSE	AGG:					DF	E 300				
PETROG	RAPHIC	DATA	(CRD-	C 127):													
					•												
1																	
l																	
1																	
1																	
REMAR	ks: A	ddit	iona	1 te	st r	esulta	: Loss	on i	gni	tio	n: no	ne;	sta	inin	g (V	isua	1
meth	od):	tigh	t; p	opou	ts:	none;	and dr	ying	shr	ink	age @	10	00 da	ys:	0.04	%	
1			_			-		_			-						

SOURCE NO. 38

GREAT RIVER CORP.

TUNICA, LA

.							med S	ept 19	71					_,		
TATE]		1946-15.3	<i>/</i>	-11			AGCRE	CATE	•	FSTED			USA	EWES	·	
^1 3 0		LONE	91					SHEET					ch_19			
Albaniania		NO-	29 G	5(6)				T \				<u>'it</u>	Run_S	and &	Gray	<u>e1</u>
OCATION	" Mil	e 29	2.7 1	HJ. C	n E	st ban	k, lijs	sissi	<u>ppi</u>	Rive	<u>r</u>					
RODUCE	R: CY	eat '	Rive	CO:	pora	tion,	Tunica	1, La.								

AMPLED	EA:	USAE	<u> </u>	T	\iota	rict; e		tion w	200	velor	ed					
ESTED F			viel				Vern	L. K.:IIIQ	44.44	J. Serie 24.4.						
SED RT.		O FYI	V. d. Sie.de	<u> </u>	24.J											
PROCESS	NG BEF	ORE TE	STING:		ihed	gradat	ion									
EDLOGI	CAL FOR	MATIO	4 AND A	5E:												
											1				1	[
GRADI	NG ICRE	-C 103)	(CUM. %	PASSIN	G):	Ĺ	TEST	RESULTS			3-6"	.	x mxm	3 -1 1 "	44-3 W	FINE
SIEVE	Pit	15-3"	2-15"	÷4-3"	FINE AGG.						 	-			2.56	2.63
<u> </u>	Run							CRD-C 107,			 	-			1.0	0.4
6 IN.								. FIG. NO.		C 121)		=†				0
5 IN. 4 IN.								ICRD-C 130								
3 IN.						% LIGHTER	R THAN SP	cp 2.40	CRD-	C 122)					11.1	2.0
2 1 IN.								ATED (CRD-			ļ				12.1	2 0
2 IN.				<u> </u>	ļ	WT AV %,L	oss, 5 CYC	Mg504 (CF	D-C 1	1151 B1	gra	din	<u>s</u>	<u> </u>	$\frac{ 3.1 }{ 20.7 }$	3.0
1 1 IN.	100		<u> </u>	100	ļ			. * ICRD-C		GE) GRA	DINS	13 -			2007	
1 IN.	100	 	 	99	ļ	CICY	Le/CU FT	(CRD-C 106 C: s, % (CRD-C	118	37	 		8.9	 	 	
3 IN.	85			59				COEGF. (C			1					
3 IN.	77	-	 	36		REACTIVI				c,mM/L:						<u> </u>
NO. 4	64	1		0	100	ICR	D-C 126):			Rc,mM./L.:						
NO. 8	56				87						1			<u> </u>		ــــــــــــــــــــــــــــــــــــــ
NO. 16	50		<u> </u>		78	1 1000000000000000000000000000000000000		OPERTIES :						-		
NO. 30	Z; 3	<u> </u>	↓	 	67			T, RATIO:								
NO. 50	19 13		 -	+	29			XPANSION,		PARAL	1	ACR		ON	AVE	RAGE
NO. 100	4		-	 	1 20	4	ROCK	TYPE		FARAL			000			
-200(a)	3.8	 	1	1												
F.M. (b)	3.8	1		6.7	2.2					<u> </u>						
(e) CRD-	C 105	(b) C	RD-C 104	-		MORTA	<u> </u>									
MORTAR	-BAR EX	PANSIC	N AT 10	0F. % (C	RD-C 12	23):		FINE AG	Τ				J	ARSE AG	GREGATE 9 MO.	12 MC
							2 MO.	6 MO.	9 1	мо.	2 MO.	+ 3	мо.	5 MO.	ş mo.	1 12 110
	ALK. CE					JIVALENT:	-	 								
	ESS IN C		TE ICRD				l							F&T	HW-CD	но-с
	AGG.					ARSE AGG:						DFE3	00			
FINE	AGG.				CO	ARSE AGG:			,	-1		DFE3	°°	1-007	dense	che
PETRO	RAPHIC	DATA '	CRD-D 1	271:957	% ot	each g	gravel	Size	15	cheri	. wii.	Part	icle:	shap	es wei	. с. с
1100		4	rani.	dal r	th	CILDITAL	inded (edges	and	corr	iers.	. :	some o	OT CII	e cuer	
chal	cedon	ic.	The	san	d is	largel	y che	rt in	siz	es re	etair	ned	on N	o. 8	sieve	and
large	ely q	uart	z in	size	es si	maller	than :	No. 16	si	eve.						
									,					1 +	<u>+,</u>	
REMAH	KS: 🕉	Fit	run	samp	le s	eparate	ed ove	r No.	۷ ₊ 8	ieve	and	ph	ysıca	r ces	is rui	ı on
		coar	se a	nd f	ıne	fractio	ons.									

SOURCE NO. 39
FELICIANA SAND & GRAVEL
JACKSON, LA

STATE:	10	INDE	(NO.:				AGGRE	GATE	7	TESTED	BY:	USΛ	EWES			
	50 N			1 W				SHEET		DATE:	June	19	77			
					5							N 7	1	Grave	1	
LAB SYMB	OL NO.:	e+ 1	ank	of B	avol	Sara	, 1 mil	e E. o	f S	Sligo	Roa	d a	pprox	. 4.3	miles	;
11		+ 1	manc	iewi	110	Ta.										
٠٠٠٠	or E	lici	ana	Sand	8 C	ravel	Co., J	ackson	, I	La.						
PRODUCE	H: 1°C	. 110.	Lana	<u> </u>												
SAMPLED	5v. T	ame	£ 11	oore												
		/	1-1-0	ne D	ietz	ict										
HEED AT	Por	rt A	llen	Lock	and	l St.	Francis	ville	Ar1	ticul	ated	C	ncre	te Mat	tress	
	sting															
	NC BEE	OF TE	STING:													
GFOLOGI	CAL FOR	MATIO	AND A	e: P	leis	tocen	c Terra	ce (Mo	nt	goner	y) d	lepo	<u>osits</u>	and H	oloce	ne
	luvi															
	NG (CRD		(CUM. %	PASSIN	G):		TEST F	RESULTS			3-6'	.	1 1.3"	4-1"	#4- ² "	FINE
 1					FINE	1	L						. 2-3			AGG.
SIEVE	3-6"	1 - 5"	4-1"	*4-1	AGG.	BULK SP	GR, S.S.D. (CRD-C 107,	108)					2.53		<u> </u>
6 IN.						ABSORPT	TION, % (CRD	-C 107, 108)	:					1.7		
5 IN.					<u> </u>	ORGANIC	IMPURITIES	, FIG. NO. I	CRD.	-C 121)		_]		1==		
4 IN.		 		 		SOFT PA	RTICLES. 5	CRD-C 130						0.0		
						% LIGHT	ER THAN SP	GR 2.4(CRD	-C 122)				12.0		
3 IN.		 			1		AND ELONGA							1.3	<u> </u>	
2 IN.	 	 		T .	1		LOSS, 5 CYC							*		<u> </u>
1 1 IN.		 	100	ऻ ──॓	 	L.A. ABS	RASION LOSS	. CRD-C	117, 4	445) GRA	DING_	<u>A</u>		21.5		
1 IN.		 	95	 			. LB/CU FT								<u> </u>	<u> </u>
1 IN.			72				PARTICLES							0.0	<u> </u>	
1 IN.		 	21	1	 		AT, BTU/LE								1	<u> </u>
3 IN.	 		3	1			VITY WITH N		- 1	SC,MM/L:			<u> </u>		<u> </u>	<u> </u>
NO. 4	 	 	1-	1	1	, ic	RD-C 128):		Ţ	RC,MM/L				1	<u> </u>	
NO. 8		`			—	 								<u> </u>		<u> </u>
		\vdash	 	1		MORTAS	-MAKING PR	OPERTIES (CRO	-C 116)						
NO. 16	 	$\dagger -$	 	1			CEMENT					- 7		DAYS,		
NO. 50	1	1					THERMAL E									
NO. 100	 				1	7 [ROCK	YPE		PARAL	LEL	AC	ROSS	ON	AVE	RAGE
NO. 200	 	1	1	1		7										
-200 ^(a)	1	1			T	7				<u> </u>						
F.M.(b)	┪	1	1			7							1			
	C 105	th) C	RD-C 104			MORT	AR:									
								FINE AGO	REG	ATE		┷	Ç.	DARSE AG	SREGATE	
MORTAR	R-BAR EX	PANSIC	N AT 10	UF,% (C	.KU-C 1	£31:	2 MO.	6 MO.	9	мо.	12 MO.	4	мо.	6 MO.	9 MO.	12 MO.
LOW-	ALK, CE	MENT:		% N	020 EQ	UIVALENT	:		<u> </u>			4-				
	-ALK. CE			% N	020 EQ	UIVALENT	<u>:</u>	<u> </u>	<u> </u>						·	
SOUNDN	ESS IN C	ONCRE	TE (CRD	-C 40, 1	14):									FAT	HW-CD_	но-см
FINE	AGG.				cc	ARSE AGG	:					DFE	300			+
FINE	AGG.				c	DARSE AGG	:					OFE	300			
PETRO	RAPHIC	DATA	CRD-C 1	27):												
1																
														•		
1														-		
1																
1																
REMAR	KS: ,	KEL_	4-1	Wasl	red	gravel)									
							l for t	test.								
1																

SOURCE NO. 40
RADCLIFF GRAVEL CO.

RICHTON, MS

STATE: M	LONG.:				1 (reval2	AGGF	REGATE		TESTE	D 8Y:	WES						
LAT.: 3	1				88		DATA	SHEE	T	DATE:	3 F	,ep	48					┙
LAB. SYM	BOL NO	: S/	ND-1	G-11				1	YPE	OF N	ATERIAL	.: G	rave	1				
LOCATION																		٦
				· ·														٦
PRODUCES	a: De	deli	PP Gy	'ava	Co.	Ric	hton, l	diss.										٦
FRODUCE	·· Ita	4011		4101		,,	202,								****			ヿ
CAMBI ED	8V: 1	Not 9	Ch ore	•														ᆌ
SAMPLED					aale													ᅥ
PROCESSI					JUCK													ᅱ
					. 1.1	a. A=	2 10-1	الم المان		7,	965-	4	FI.		- Ci	- /10	1120	\dashv
O2ED	AT:	Mil.	.on57	., br	40 KJ	9 7	B, Mol	, A			JO - 1	<u> </u>	= 1911	LAL	اعرط	a.LI	101)	ᅥ
																		ㅓ
GEOLOGIC	AL FOR	MATION	AND	AGE:								<u> </u>	·					\dashv
						г											FINI	ᅱ
GRADING							TE:	ST RES	SUL	TS			3-6"	1 = 3"	3-15"	#4-3	AGG	- 1
SIEVE	3-6"	14-3"	3-14"	* 4−¾″	FINE	<u> </u>									(c)	(c)	1	4
3,2,0		.,		•	AGG.		. GR., SAT										-	\dashv
61N.						ABSORPT	ION, PER C	ENT (CRD-	·C 10	27,108	3):					<u> </u>		{
SIN.						ORGANIC	IMPURITIE	S, FIG. NO). (CR	D-C	151):					_		_
4 IN.						SOFT PA	ARTICLES, F	PER CENT	(CR)-C	30):						二	_
31N.						PER CEN	IT LIGHTER	R THAN S	P. GR		CRD-C I	29):			Ĺ		1	_
2½ IN.						PER CEN	T FLAT AN	ND ELONG	TED	(CRD-	-C 119,1	20):				<u> </u>		
2 IN.						WEIGHTE	D AV. % LC	55, 5 CYC	. MgS	50 ₄ ((c)) ½-1°, *.	4-날)(CRD-0	115)			1_	
i≟iN.						ABRASIO	N LOSS (L	. A.),%,	(CRD	-C II	7):						_	
I IN.							., LB/CU F										T	
₹1N.			 				JMPS, % (1	
JIN.			-			1	ND LIGNITE			122):							_	
	 		-	-			HEAT, BT				C 124):				 	 	_	
BIN.				-			TTY WITH					34/1:			 	 	+-	_
NO. 4			 		 	1					Rc,m					 		
NO. 8		<u> </u>	ļ		 	MOSTAR	-MAKING F	POPERTIE	5 (0	BD - (L	·			
NO, 16	ļ	<u> </u>		 	ļ								6 7		DAVS			2_
NO. 30			ļ				СЕМЕ								.0413,			-
NO. 50		ļ	ļ		ļ	LINEAR	THERMAL		ION						. 1	A) 45-4	2455/	7
NO. 100			<u> </u>		<u> </u>	┨	ROCK	TYPE		PARA	ALLEL	ACR	1055	°	N	AVE	RAGE	-
NO.200			<u> </u>	<u> </u>	ļ]								ļ				4
- 500 _(a)	1		<u> </u>] [<u> </u>				ļ				1
F.M. (b)	1			<u> </u>		1 L				<u> </u>					1			١
(a) CRD-	C 105	(ы) с	RD-C	04		MORTA	AR:											
					(600			FINE AG	GRE	SATE				COARSE	AGGRE	EGATE		
MORTAR-	-BAR EX	(PANSIC	N A! I	001, %	5 (CRD	-C 123):	3 MO.	6 MO.	9	MO.	12 MO	. 3	MO.	6 MC). 9	MO.	12 M	IO.
LOW-	ALK. CEN	ENT:		% Na₂	O EOL	IVALENT:												
HIGH-	ALK.CE	MENT:		% Na;	O EQL	IVALENT:			1			T			T			
SOUNDNE	ESS IN	CONCR	ETE (C	RD-C	40, 114	:):								F 8 1	HW	-CD	HD-C	w
FINE	AGG.					COARSE A	AGG:					DFE	300					
FINE						COARSE	AGG:					DFE	300		\neg			
PETROGE		DATA	(CRD-	127):	Th.		rel is	compo	500		enti	-11	r of	che	rt n	abbl	98.	
					TIT	ata za	bbles.	COmpo.	50U	imai	-alve	25%	, OI	the	enti	re s	emn'	1 -
MICH		Or a	monn	o Di	_uua 	About	t 22% o	e +re			ooly o is		- OI	4 AP	W102	me a	nd.	
CONSI	BUS O	ı po	rous	сте	T U .	About	<i>LL</i>	I CHO	- 584 	mbre	- 15			u 01	hus	57 °		•
817 gn	CTA E	orou	is cn	ert.	OM,	ST OI	the ch	ert 1	3 I	1 De-	-grai	р Пас	qua	.F 020	dala.	BUM teet	.0 0.	L 7
							Chalc					IIO MI	n to	D0	GATA	PALT	ous.	ту
react	ive w	rith	the :	mino	r al	Kalles	of po	rtian	a c	eme	nt.							
1																		
1																		
REMARK	s:																	
1																		

SOURCE NO. 41
RICHTON SAND & GRAVEL CO.
RICHTON, MS

STATE: Miss.	INDE	X NO.	2		AGG	REGATI	TES	TED BY:	WES &	SAD			
LAT.: 31	LON	G.:	88			SHEE			1948	& 19	53		
LAB. SYMBOL NO.:						٦	YPE OF	MATERIA	ı: Gra				
LOCATION: On Thom	son	Cre	ek .	l mile	South	of R	chtor	, Mis	s. Sec.	6, 1	Chi	, R	9 W.
in Perry Count	ty, l	Miss.	•					 					
PRODUCER: Richton				avel C	0. Ri	chton	Miss	3.					
		mer						··i····					
SAMPLED BY:					·			 		· · · · · · · · · · · · · · · · · · ·			
TESTED FOR: Bayou	Coc	odri	e Dr	ainage	Struc	ture	& Bro	okley	AFB				
PROCESSING BEFORE TE	STING:												
GEOLOGICAL FORMATION	AND A	AGE:	Ple	istoce	ne Dep	posits							
GRADING (CRD-C 103)(CUM. 9	o PASS	SING):		TE	ST RES	SULTS		3-6"	1 1 - 3"	3-11"	* 4 - 2 4	FINE
SIEVE 3-6" 11-3"	3_11"	ma = 3"	FINE							1,2	(c)\$	(c) ¹	AGG.
SIEVE 3-6" 12-3"	4 ¥2	4	AGG.	BULK SP	GR., SAT	SURF DRY	(CRD-C	107,108):			2.58		
5 IN.						ENT (CRD					1.4		
51N.				CRGANIC	IMPURITE	S, FIG. NO	CRD-C	. 121):					1
4IN				SOFT PA	ARTICLES,	PER CENT	(CRD-C	130):					
31N.				ļ		R THAN S							
2 1N.						ND ELONGA							
2 IN.									4-½)(CRD-		56)	
1 ½!N.	100			ABRASION	LOSS (L	A.),%,	CRD-C	17): 17A	" Gradi	ng1	1.8		
I IN.		99				FT (CRD-				ļ			ļ
3 IN.		94		 		(CRD-C II							
½ IN.		69	ļ	 		, % (CRD							\
₹ IN:		38				U/LB/DEG							
NO. 4	1	8		REACTIV	ITY WITH	NaOH (RD-C 12						
NO.8				ļ				Re,m	M/L:				
NO.16				3		PROPERTIE			_				_
NO. 30											DAYS,_		
NO.50				LINEAR				,	(CRD-C 12	01		AVERA	255
NO. 100					ROCK	TYPE	PA	RALLEL	ACROS5	- Or	`	AVERA	
- 200 ^(a)				┨						 			
- 200"1 F.M(b)			-	┨						 			
			L	1	<u> </u>					<u> </u>	<u>_</u>		
(a) CRD-C 105 (b) CR	0-0-1	04		MORTA	1	FINE AG	CDECATE			COARSE	AGGRE	CATE	
MORTAR - BAR EXPANSION	AT IC	OF, 70	(CRD	-C 123):	3 MQ.			12 MO					12 MO.
LOW-ALK, CEMENT:		70 Na-	O FOII	IVALENT:	- INIO.	1	3 14:0.	1.2 1.50		1	+		
HIGH-ALK.CEMENT:				IVALENT:		 		1	1	 	+-		
SOUNDNESS IN CONCRE					L	<u> </u>	<u> </u>	<u> </u>		FET	HW-	CD	HD-CW
FINE AGG.	_ (0		<u> </u>	COARSE A	AGG:				DFE 300		1		
FINE AGG.				COARSE A					DF E 300	 	<u> </u>		
PETROGRAPHIC DATA (CRD-C	127):	The	samo	Le con	sisted	of 8	3% che	rt & 1'	7% qu	artz.	. A	bout
25% of the to	tal	samp	le i	s por	ous ch	ert, 2	2% is	vuggj	chert	and	36% :	is d	
chert, polish	ed a	nd n	on-a	bsorpi	tive.	Chalc	edony	which	h has l	oeen	show	1 to	b e
reactive with	the	min	or a	lkalid	es of p	portla	nd ce	ment w	ras iden	atifi	ed i	a all	l
three types of							ebble:	s are	blocky	or i	rreg	ılar	,
with re-entra	nt c	urve	s bu	tafe	ew a re	flat.							
•													
ł													
REMARKS: * Tests	cond	iucto	ed by	y the	SAD fo	or Broo	okley	AFB d	uring l	953.			

SOURCE NO. 42
UNDERWOOD SAND & GRAVEL
RICHTON, MS

STATE:	MS	INCE	x 50.:				_5_	AGGR	EGATE			O 9Y:		AEWE			
LAT.:	31		88						SHEET					<u>ly 7</u>			
	BOL NO.:								-								
LOCATIO	on: Pi	t lo	cated	1 0.7	7 mi	le	es Eas	st of I	Highwa	/ 1	5, 8	appro	xim	atel	y 2.8	miles	
								. 98 i]
PRODUC	ee: Un	derw	ood S	Sand	and	(Grave	1 Comp	any, B	οx	370	, Ric	hto	n, M	s.		
SAMPLE	BY:	Dame	s and	i Mod	ore												
TESTED			Orlea			ri	ict										
JSED AT																	
<u></u>																	
PROCESS	SING BEF	ORE TE	STING:														
GEOLOG	ICAL FOR	MATIC	N AND A	GE:	Hol	0	cene .	Alluvi	um								
GRAD	ING (CRD	-C 103)	foum. 5	PASSIN	G):	Γ		TEST	RESULTS	T		<u> </u>				Τ	
						1		L				3	-6"	1 2-3	· \$-1}	4-1"	FINE AGG.
SIEVE	3-6"	1 1 -3"	₹-1 }*	4-1'	AGG.	h.		GR, S.S.D.	/CRD-C 107	108						2.55	2.63
	 				 	+-		ION, % (CR								2.3	0.3
6 IN.			ļ			1									_		1
5 IN.	1		 	 	 	Т		IMPURITIE			-C 121	<u>-</u>				0.0	
4 IN.	 		 	-	-			TICLES, 5				()	20 6	22.27	+	7.4	0.0
3 IN.	-		 	 		+		R THAN SP				<u> </u>	<i>5</i> 0 3	aila)	+	1.2	0.0
2 1 IN.	-		<u> </u>	 	 	+-		ND ELONG						 		1.6	7 3
2 IN.			ļ		<u> </u>			LOSS, 5 CY									3.2
1 ½ IN.	<u> </u>		<u> </u>	100		7		ASION LOSS			. ` G!	RADING.	В_			17.9	
1 IN.	 		L	99	ļ	Ľ	UNIT WT,	LB/CU FT	(CRD-C 106	1.2				<u> </u>		+ -	
₹ IN.			ļ	88	ļ <u>.</u>	Ľ	FRIABLE	PARTICLE	s, % (CRD-C	1-21		—				0.1	0.1
₹ IN.			ļ	48	<u> </u>	Ŀ	SPEC HEA	AT, BTU/LE	DEG F. (C	₹ ⊃- C	124)			ļ			
3 IN.	<u> </u>			15		ا	REACTIV	ITY WITH N	•ОН	- 1	Sc,mM/	<u> </u>		<u> </u>			
NO. 4			ļ	1	96	ļ	ICR	D-C 128):			R¢,mM/	L:		ļ			
NO. 8	1				80	L		·,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				L_		<u> </u>			<u> </u>
NO. 15			<u> </u>		66]	MORTAR-	MAKING PR	OPERTIES	CRD	-C 116)						
NO. 30					40	1	TYPE	CEMEN.	T, RATIO:_		DAYS			·	DAYS		
NO. 50				<u> </u>	8]	LINEART	HERMAL E	XPANSION,	WILL	ONTH	S/DEG F	. (CRD	C 125,	26):		
NO. 100					1	1		ROCK	TYPE		PARA	LLEL	ACI	2205	ON	AVER	AGE
NO. 200					<u> </u>]							<u> </u>				
-200'a!			T		0.1	7											
F.M.(b)					3.10	1											
(0) CRO-	C 105	(b) CR	10-C 104		<u> </u>	1	MORTA	R:									
									FINE AGO	753	ATE		T		COARSE AC	GREGATE	
MORTAR	R-BAR EX	PANSIO	N AT 160	F, % (C)	RD-C 12	3)	:	2 MO.	6 MO.	9 9	vo.	12 40.	3	MO.	6 MO.	9 MO.	12 MO.
LOW-	ALK. CEM	ENT:		% No	*O EOU	110	ALENT:										
	-ALK. CE					•	ALENT:	1				••••					
	ESS IN CO		F (CR)-	C 40 11	<u> </u>	_			+						FAT	HW-CD	но-сж
	AGG.			, , ,		\R	SE AGG:						DFE:				
-	AGG.						SE AGG:						DFE				
	SRAPHIC I	DATA (CRD-C 12	7):												*···	~~~~~~
1																	
	*														-		
ļ																	
1																	
																	
PEMAR	<s:< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></s:<>																
			PER-J	-1													
1																	

SOURCE NO. 43

AMERICAN SAND & GRAVEL

HATTIESBURG, MS

STATE:	Miss	•	INDE	X NO.:	<u> </u>	ev.)	AGGR	EGATE	.	TESTE	BY: D	duch A	LOST	10 0	T. A. •	
						W	DATA	SHEET		DATE:	10	Augus	1901			
LAB. SYM	BOL NO	: 12	2-1 (C. A	.)			T\	PE	OF M	ATERIAL:	Natur	T A T	TART	-	
LOCATION	For	rest	Co.	Nż,	NWŻ,	Sec.	33, T	SN, RI	<u>311,</u>	SE.	, NW	4, Net	01 1	oule	R.,	
Sec.	33,	T5N,	R137	ĭ, S∌	, SE	SW.	& S	S S S	法	<u>Se</u>	c <u>. 8,</u>	T5N.	R13W			
PRODUCE	R: Am	erio	an Se	nd &	Gra	vel Co	Hat	ttisbu	rg.	Mi	88					
	Co	mmer	cial													
SAMPLED	BY:	Fran	k Pis	ford	. Co	nstruc	stion]	nspec	to	. K	eesle	r AFB,	<u> Mias</u>			
TESTED	FOR:	Kees	ler A	FB.	Miss	and	Pearl	River	_14	ock_						
PROCESS	ING BEF	ORE TE	STING:													
USED	AT: /	111. C	onst	, Kee	slev	AFB	Miss	(1961))							
GEOLOGI	CAL FOR	MATION	AND	AGE: N	ot i	ndicai	ted									
					INC)	<u> </u>	T ==	T 056	1.14	Te l			T			FINE
GRADING	G (CRD-						1 6 3	ST RES	<u> </u>	13		3-6	" i ½ - 3"	(c)	#4-3° (c)	AGG.
SIEVE	3-6"	1 2 - 3"	3-15"	# 4− ³ ″	AGG.		GR., SAT S							2.57	2.55	2.64
61N.							ON, PER CE							1.0	1.3	0.2
SIN.	T						IMPURITIE						<u> </u>			1
4IN.						SOFT PA	RTICLES, F	ER CENT	(CR	D-C 1	30):					
31N.	1					PER CENT	T LIGHTER	THAN SP	.GR	(CRD-C 12	9):			4.1	
2 1N.	†						T FLAT AN								L	$oxed{oxed}$
2IN.	 						AV. % LO							1.72	5.62	2.08
1 ½ IN.			100				LOSS (L): "A"	Grad	•	19.4	17.7	1
I IN.	1		97	100		UNIT WT.	., LB/CU F	T (CRD-C	10	6):						<u> </u>
3 IN.	 		81	79			MPS, % (<u></u>		1
₹IN.	1		44	41			D LIGNITE						1=			1
3 IN.			20	15			HEAT, BT									\perp
NO.4	1		1	1	100	REACTIVI	TY WITH	NoOH (C	RD-	-C 158): Sc,mi	M/L:			650	145
NO. 8	1				94	1					Rc, m	W/L:		150	144	24
NO.16					83	MORTAR-	MAKING F	PROPERTIE	s (CRD - C	: 116)	.=				
NO. 30							CEME							DAYS,		%_
NO.50					9	LINEAR	THERMAL	EXPANS	ON	XIQ 9	DEG. F.	(CRD-C	25,126):			
NO. 100	5				1		ROCK	TYPE		PARA	LLEL	ACROSS	°	N	AVER	AGE
NO.200] [ļ						
- 200] [
F.M.	ы				2,57					<u> </u>						!
(a) CRD	-C 105	(P) C	RD-C	104		MORTA	R:									
	040 5	VOANIEIC	N AT /	005 97	- (cen	-C 123):		FINE AG	GRE	GATE			COARSE	AGGR	EGATE	
L							3 MO.	6 MO.	9	MO.	12 MO.	3 MO.	6 M). 9	MO.	12 MQ.
<u> </u>	-ALK, CE					IVALENT:	 		_			 				
	-ALK.CE				·	IVALENT:	<u> </u>		<u> </u>			<u> </u>	F&	HW	-co	HD-CW
	VESS IN	CONCE	ETE (C	RD-C	40, 112			 				DF E 300	+			
	AGG.					COARSE A						DF E 300	+			
	AGG.		(222				hic ar							<u> </u>		• •
to l sand free chal	be condaton	ny wi	ed of In g osses nich	oner ener	rt (al, ooth	86%), the pe	quartz bbles ces.	are so), lbs	quai ingui t pe	rtzite lar te bble	e (3%) o subr s are	and ebruro oqro	a t d, h sed	race ard, of	of
REMARI	KS:				-											

SOURCE NO. 44

AMERICAN SAND & GRAVEL

HATTIESBURG, MS

AT:: Miss	INDF	x NO.:	2/0	n 1		AGGR	EGATE		ED BY:	A 211	EWES			
	LONG		<u>z (sur</u> 89	דעי.	7/		SHEET				and J	an 70)	
B SYMBOL NO				9) at	nd (50	`	т.	YPE OF MA						
CATION: Se	c 13	TAN	. R1	3W . 1	forres	t Coun	tv. 2.	9 mi N	E of	Hat	tiesb	urg.	Miss.	
OCATION. DE	<u> , </u>	2711	,	··· , . ·	01100			·						
RODUCER: A	meric	an S	and a	and (rave1	Compa	nv. 22	nd Ave	. На	atti	esbur	g. Mi	SS.	
RODUCER. 22	illor 10					<u> </u>			<u></u>					
AMPLED BY:	USAE	WES												
ESTED FOR:	USAE													
SED AT:			(Lab	orate	ory st	ock sa	ind)							
			·											
ROCESSING BE	FORE TE	STING:	None	9										
EOLOGICAL F			GE:											
		····											S-1(4	9) S-1
GRADING (CF	RD-C 103)	CUM. %	PASSIN	G):		TEST	RESULTS				.1	, ,,"	Fine	FINE
	1	3-1 ½"	Fin	FINE					3	-6"	1 ½ -3"	7-17	Agg	AGG.
IEVE 3-6"	1 2-3"	1-17	Agg	AGG.	BULK SP	GR, S.S.D.	(CRD-C 107.	108)						2.63
6 IN.	1		\$49	(50)	ABSORPT	ION, % (CR	D-C 107, 108	1:					0.5	0.4
5 IN.					ORGANIC	IMPURITIE	S, FIG. NO.	CRD-C 121	, -					
4 IN.	1				SOFT PAR	RTICLES, %	(CRD-C 130)		T				
3 IN.					% LIGHTE	R THAN SP	GR	CRD-C 12)					
2 1 IN.					% FLAT A	ND ELONG	ATED (CRD-	C 119, 120						
2 IN.					WT AV %	LOSS, 5 CY	C Mg504 (CR	D-C 115)						
1 ½ IN.					L.A. ABR	ASION LOSS	s, % (CRD-C	117, 145) G	RADING_				_	
1 IN.					UNIT WT,	LB/CU FT	(CRD-C 106)	:						L
3 IN.					FRIABLE	PARTICLE	s, % ICRD-C	142)		_		<u> </u>		1
1 IN.					SPEC HEA	AT, BTU/LE	B/DEG F. (C	RD-C 124)				ļ		<u> </u>
3 IN.				l	REACTIV	17 Y WITH N	нов	Sc,mM	'L:					
NO. 4			98	98	(CR	D-C 128):		RC,RM	/L:			ļ	_	<u> </u>
NO. 8			90	88								<u> </u>	<u> </u>	1
10. 16			72	74	MORTAR-	MAKING PR	OPERTIES (CRD-C 116	,					1
NO. 30			50	53	TYPE	CEMEN.	T, RATIO:	DAY:	S			DAYS,		3
NO, 50			23	26	LINEAR T	HERMAL E	XPANSION,	HLLIONTH	S/DEG F	. (CRD-	C 125, 126	5):]
0. 100			4	7	L	ROCK	TYPE	PAR	ALLEL	ACF	oss	ON	AVE	RAGE
0. 200		ļ		-	 									
200(0)				1.2										
м. ^(b)		<u> </u>	2.62	2.55	L					L		<u> </u>		
	(b) CF	D-C 104			MORTA	R:								
		N AT 100	F, % (CF	RD-C 12:	3):	-	FINE AGG						GREGATE	,
0 CRD-C 105	XPANSIO					2 MO.	6 MO.	9 MO.	12 MO.	3	MO.	6 MO.	9 MO.	12 MO.
0 CRD-C 105	XPANSIO													1 1
ORTAR-BAR E	EMENT:				VALENT:					-				<u> </u>
ORTAR-BAR E	EMENT:				IVALENT:									
ORTAR-BAR E LOW-ALK. CE	EMENT:		% Na	20 EQU	IVALENT:							F&T	нж-со	но-сw
ORTAR-BAR E LOW-ALK. CE HIGH-ALK. C OUNDNESS IN	EMENT:		% Na	20 EQUI 4): COA	RSE AGG:					DFE3		F&T	нw-со	но-сw
O CRD-C 105 MORTAR-BAR E LOW-ALK, CE HIGH-ALK, C	EMENT:		% Na	20 EQUI 4): COA	IVALENT:					DFE ₃		F&T	нw-со	HO-CW

SOURCE NO. 45

AMERICAN SAND & GRAVEL

HATTIESBURG, MS

STATE:	MS	INDE	K NO.:			2	AGGRE	EGATE	Т	TESTEC	BY:	USA	EWES	3		
	31	LONG		89				SHEET		DATE:		Jul	y 77	7		
					G-2	21, S-1	9	TY	/PE	OF MAT	ERIAL:	Nat	ural			
LOCATION	10	rite	locat	ted o	eff (Glendai	e koad	appro	xi	mate	ly l	.0 п	ailes	Nort	h of	
LOCATION	N	IS H	i ohw:	av 42	. NI	v of Ha	ttiesb	urg P	an	ts A	, B,	F			<u>-</u>	
PRODUCE	<u>.</u> Δ	meri	can S	Sand	and	Gravel	Compa	iny, Ha	itt	iesb	urg.	Ms				
PROSUCE	H: 1															· · · · · · · · · · · · · · · · · · ·
SAMPLED	5w. T	anes	and	Moor	e						·					
TESTED F		ew 0	rlea	ns Di	str	ict									·	
USED AT:	- UA.								·							
USED AT:																
										-,		-				
GEOLOGIC				CE. F	olo	cene A	luviur	n of Bo	CWC	e Ri	ver				. 	
GEOLOGIC	CALFO	HMA 10	AND A	<u> </u>									~			.,,
	(0.0)	D-C 103)	four 7	DASSIN/	21.		TEST 6	RESULTS			<u> </u>	1,	C 20	T	1	S-15
GRADI	NG ICR										3-	p. 1	G-20 4-1"	3-13"	G-21	FINE AGG.
SIEVE	3-6"	4-1"	-1 } "	G-21 4-1"	FINE.				400		+		2.52	+		2.62
	<u> </u>	4-1		4-1	-		GR, S.S.D. (+		$\frac{2.52}{1.8}$	- 	1.7	0.4
6 IN.							ON, % ICRD				+=	<u> </u>		 	 	1.00
5 IN.				-			IMPURITIES			-C 121)	+-		0.0	 	0.0	1.00
4 IN.							TICLES, 5				 		3.0		14.0	0.0
3 IN.		ļ		ļi		 	R THAN SP						$\frac{3.0}{1.2}$		1.0	1
2 1N.							NO ELONGA						4.0		4.6	3.1
2 IN.	<u> </u>	 				+	oss, s cyc						9.0		18.0	
1 1 IN.	<u> </u>	100		100			SION LOSS			145) GR	ADING_	1	3.0		10.0	
1 IN.	ļ	99	ļ <u>.</u>	99			LB/CU FT I						0.1		0.1	0.2
1 IN.		85	ļ	93	ļ		PARTICLES						0.1		10.1	
1/2 IN.	ļ	51		64			T, BTU/LB				-					+
1 IN.	ļ	27		34		1	TY WITH NO	юн	t	Sc.mM/L			·			
NO. 4	<u> </u>	3		7	97	(CR	D-C 123):			RC,MM.'L			· · · · · · · · · · · · · · · · · · ·		 	
NO. 8	<u> </u>	1	<u> </u>	<u> </u>	85	ļ					!					ــــــــــــــــــــــــــــــــــــــ
NO. 16	<u> </u>		<u> </u>	 	74	7	MAKING PRO									_
NO. 30	ļ		<u> </u>		55		CEMENT									
NO. 50	-		ļ		19	LINEART	HERMAL E	XPANSION,	MILL	IONTHS	DEGF					
NO. 100	<u> </u>	_	ļ		2	┥ ├──	ROCK T	YPE		PARA	LEL	ACR	oss	ON	AVE	RAGE
NO. 200	 		ļ		—	┩ ├				 						
-200(a)	↓			-	 	┨ ├										
F.M.(b)	<u> </u>		<u> </u>		<u> </u>	┨ └──						L		L		
(e) CRO-	C 105	(p. c:	RD-C 104			MORTA	R:									
MORTAR	-BAR E	KPANS!O	N AT 10	0F. % (C	RD-C 12	23):		FINE AGO				+-		OARSE AG	S MO.	1
							2 MQ.	6 MO.	9	мо.	12 MO.	+-3	MO.	6 MO.	3 MO.	12 MO.
	ALK. CE					JIVALENT:	 		-	+		+				1
		EMENT:				JIVALENT:	L	L						FAT	HW-CD	HD-CW
SOUNDNI		CONCRE	TE (CRD	-C 40, 11										- 41		1.13-2.**
FINE						ARSE AGG:		<u> </u>			-	DFE ₃				1
PETROG		DATE:	CBD-C •	271.	co	ARSE AGG:						J- 51	40		L	
PETROG	RAPHIC	DATA	CHO-C I	2/):												
															,	
1						•										
1																
REMARK		20	D1	+ Λ		FOR-1-	_1									
1		G-20				FOR-2-										
		5-21				FOR-3-										
1		3-15	L Tau	Lr		LOK-3-	-1									

SOURCE NO. 46
UNDERWOOD & BUILDERS
MOBILE, AL

STATE:	Miss	•	IND	X NO.:	3	-	AGGF	REGATE		TESTE	D BY:	5	SAD					1
LAT.:	31°		LON	iG.:	890		DATA	SHEE	T	DATE:		. ;		ne l				إ
LAB. SYM	BOL NO): <u>1</u>	47/4	26. 4	129			T	YPE	OF N	ATERIAL	:]	Natu	ral	Sand	& G	rave	년
LOCATION	: 7	mile	s wa	st of	Bes	umont	, Miss	., on	La	urel	Road	, 1	and	3/4	mile			
202	th a	n ar	haho	TOR	to.	nit.]
PRODUCER	a: Un	derw	pood	Build	lers	Suppl	у Со.,	Mobi.	le,	Ala	l •]
						F-4			<u> </u>									٦
SAMPLED	BY:	Mr.	Corr	Wav.	Bro	okley	AFB											٦
TESTED			okle															٦
PROCESSI																		٦
. 1002331	327			<u>.</u>														٦
															·····			7
GEOLOGIC	AL FOR	MATION	AND	AGF:									:					1
SEVEUGIC	,AL FOR							·							····			7
GRADING	(CBD-	C 103	CCUM 4	70 PA S	SING):	r	TE	ST DE	2) 11	Tel		Т			#4		FINE	1
GRADING							[12	ST RES	JUL	., 3			3-6"	1 1 - 3") (c)	#4-	AGG	- 1
SIEVE	3-6"	1 1 - 3"	Z-12"	#4-3"	AGG.	Bull K ep	. GR., SAT S	LIRE DEV	(CPF	0-0-10	7 (0A):	-				·	2.6	-1
			<u> </u>		<u> </u>		ON, PER C								2.56	 		
6 IN.				 			IMPURITIE					-+			1.5	 	0.2	\dashv
51N.			<u> </u>									+			 		+	_
4 IN.			 	 	<u> </u>	1	ARTICLES, F					9).				 	_	
3IN.			ļ	ļ	<u> </u>									 	ļ		+	4
2½ IN.			ļ			· · · · · · · · · · · · · · · · · · ·	T FLAT AN								 			-
2 IN.			7.60	ļ	<u> </u>		D AV. % LO					- 2)(CRD-0	115)			+	_
I ½ IN.			100	ļ			N LOSS (L				7):			<u> </u>			-	_
I IN.			96		<u> </u>		., LB/CU F			6):					<u> </u>	ļ		
골 IN.		L	84				JMPS, 970 (+	_
Į≀N.			39				D LIGNITE					_			==	-	-	_
訁N.			12				HEAT, BT					.				<u> </u>		
NO. 4			3		98	REACTIV	TY WITH	NaOH (RD-	C 128): Sc,m	U/L:				1		
NO. 8					92	<u> </u>					Rc, mi	NL:		<u> </u>	<u> </u>	<u> </u>		
NO, 16					82	MORTAR	-MAKING F	ROPERTIE	5 (0	RD-C	: 116)							
NO. 30					65		CEME								DAYS,_		7	•
NO.50	Ī	I			21	LINEAR	THERMAL	EXPANS	ON	X10 %	DEG. F.	(CRD	-C 12	5,126):				
NO. 100			T		3		ROCK 1	TYPE		PARA	LLEL	ACF	oss	0	N	AVE	RAGE	
NO.200																		
- 200 ^(a)																		
F.M.(b)	1				2.4	1				1								
(a) CRD-		(b) CI	RD-C	104		MORTA	AR:											
							1	FINE AG	GRE	GATE		Т		COARSE	AGGRE	GATE		_
MORTAR -	BAR EX	PANSIC	N AT I	00F, %	CRD	-C 123):	3 MO.	6 MO.	9	MO.	12 MO.	3	MO.	6 MC). 9	MO.	12 M	ο.
LOW-	ALK. CE	MENT:		% Na:	O EQU	IVALENT:									1	1		
	ALK.CE					VALENT:	1		 			T						
SOUNDNE						 	<u> </u>			·				F & 7	нw	-co	HD-C	w
FINE						COARSE A	AGG:					DFE	300		\neg			
FINE						COARSE							300		_			
PETROGE		DATA	(CRD-	127):														
	11194	2																
-																		
1																		
!																		
1																		
1																		
1																		
<u></u>																		
REMARK:	5:																	
L																		

SOURCE NO. 47
HAMMITT & GREEN, INC.
FOXWORTH, MS

Issued Sept 1975 STATE: MISS. INDEX NO.: 4 TESTED BY: **AGGREGATE USAEWES** 89 DATA SHEET LAT.: 31 LONG.: DATE: April 1975 LAB SYMBOL NO .: VICKS-60 G-1, S-1 TYPE OF MATERIAL: Natural LOCATION: Marion County, Miss., about one mile from Foxworth on the bank of Pearl River. Pit across the river from Columbia, Miss. PRODUCER: Breland and Sons, Foxworth, Miss. Now Known as Hammitt & Green, Inc SAMPLED BY: Vicksburg District TESTED FOR: Muddy Bayou Bridge Structure USED AT: PROCESSING BEFORE TESTING: GEOLOGICAL FORMATION AND AGE: GRADING (CRO-C 103) (CUM, % PASSING); TEST RESULTS 1 1-3" 3-1+" #4-1° -1 j" SIEVE 11-3-#4-3" 2.51 2.64 BULK SP GR. S.S.D. (CRD-C 107, 108) 3.3 0.4 ABSORPTION, % (CRD-C 107, 108): S IN. ORGANIC IMPURITIES, FIG. NO. (CRD-C 121) 0.0 4 IN. SOFT PARTICLES, % (CRD-C 130) 3 IN. % LIGHTER THAN SP GR_____ (CRO-C 122) * 18.5 | 0.0 2 IN. % FLAT AND ELONGATED (CRD-C 119, 120) WT AV % LOSS, 5 CYC MgSO4 (CRD-C 115) 5.9 2.7 2 IN. 100 19.8 1 IN. L.A. ABRASION LOSS, T (CRD-C 117, 145) GRADING 96 1 IN. UNIT WT, LB/CU FT (CRO-C 106): I IN. 82 FRIABLE PARTICLES, % (CRO-C 142) 46 Į IN. SPEC HEAT, BTU/LB/DEG F. (CRO-C 124) 20 in. REACTIVITY WITH NOOH 97 NO. 4 (CRD-C 128): 87 NO. 8 74 NO. 16 MORTAR-MAKING PROPERTIES (CRD-C 116) NO, 30 56 CEMENT, RATIO:___ LINEAR THERMAL EXPANSION, MILLIONTHS/DEG F. (CRO-C 125, 126): 14 NO. 50 5 NO. 100 ROCK TYPE PARALLEL ACROSS AVERAGE NO. 200 1.7 -200(4) F.M. (5) 2.66 (e) CRO-C 105 (b) CRD-C 104 FINE AGGREGATE COARSE AGGREGATE MORTAR-BAR EXPANSION AT 100F, % (CRD-C 123): 2 MQ. 6 MO. 9 MO. 12 MO. 6 MO. 12 MO. LOW-ALK, CEMENT: % NOZO EQUIVALENT: % NezO EQUIVALENT: SOUNDNESS IN CONCRETE (GRO-C 40, 114): FST HW-CD HD-CW FINE AGG. COARSE AGG: DFE100 FINE AGG. COARSE AGG: OFE 300 PETROGRAPHIC DATA (CRD-C 127):

REMARKS:

^{*} CRD-C 122 (Sp Gr used to float lightweight pieces)
 Coarse aggregate = 2.40
 Fine aggregate = 2.00

SOURCE NO. 48

AMERICAN SAND & GRAVEL

HATTIESBURG, MS

								Issued	Sept	197	7 5							
STATE:	Miss	INDI	EX NO.:	5					REGATE			D 8Y:	US.	AEWES				
LAT.:	31		is.: 89					DAT	A SHEET		DATE	eb.	19	75			**********	············
LAB SYM	BOL NO.	: (IL-2	G-2						TYPE	OF MAT	ERIA	-:		***			
LOCATIO	ON:	Hat	ties	hure	Mi	S	3											
PRODUC	ER: AII	erio	an S	and	& Gr	a	vel (,				
SAMPLE	D BY:														····			
TESTED		I	abor	ator	y St	O	ck											
USED AT	:																	
																		
PROCESS																		
GEOLOG	ICAL FU	RMA I I O	N AND A	GE:							·····						·········	
GRAD	ING (CR	D-C 1031	CUM. %	PASSIN	G):	Τ		TEST	RESULTS			7			T	1		T
	T	7	Т	1	1	1							⊬6 **	1 1/2-3"	2-13	"	*4-1"	FINE AGG.
SIEVE	3-6"	1 2-3"	-1 · "	*4-4	AGG.	-	ULK SP	GR. 5.5.0	(CRD-C 10	7. 108	:)	+				\dashv	2,56	
6 IN.	 			†		+-			D-C 107, 10		<u></u>	1				$\neg \tau$	1.9	
5 IN.						+-			S, FIG. NO.		O-C 1211	1=				=†		
4 iN.						Т			(CRD-C 13		3 0 14.7	1				1		
3 IN.						Т			P GR		O-C 122)	T			1	\top		
2 1 IN.						97,	FLAT	AND ELONG	ATED ICR	0-Ç 11	9, 120)							
2 IN.							T AV %	LOSS, 5 CY	C MgSO4 (C	RO-C	115)							
1 ½ IN.	<u> </u>					Ŀ	.A. ABR	ASION LOS	S, % (CRD-C	117,	145) GRA	DING						
1 IN.	<u> </u>			ļ		يا	INIT WT,	LB/CU FT	(CRD-C 10	5):		\perp				_1		<u> </u>
3 IN.	ļ			100		F	RIABLE	PARTICLE	S, % (CRD-	142)						\perp		
1 IN.	 			63		Т-			B/DEG F. (CRD-C	124)	-				\dashv		
₹ IN.	-		<u> </u>	35		┦ "		HTIW YTI	наон		Sc,mM/L:					+		ļ
NO. 4	 		 	3		╀	(CF	D-C 128):			RC,mM/L:	+-	<u></u>			+	<u> </u>	ļ
	-	<u> </u>	 	 		+												<u> </u>
NO. 16	 	 	 	 		٦.			OPERTIES						71AVE			%
NO. 50		 		†		1			XPANSION,							1		·············
NO. 100								ROCK			PARAL			oss	ON		AVER	AGE
NO. 200						1												
~200 ^(a)																		
F.M. (b)																		
(a) CRD-C	105	(b) CR	D-C 104			L	MORTA	R:										
MORTÁR-	BAR EXF	PANSION	AT 100	F, % (CF	D-C 12	3):			FINE AG	GREG	ATE		—		DARSE AC	GRE	GATE	
								2 MO.	6 MO.	9 N	10. 1	2 MQ.	3	мо.	6 MO.	9	MO.	12 MO.
	LK. CEM						LENT:			-						-		
SOUNDNE	SE IN CO		E (CBO-	% Na			CENT:	L	<u> </u>							 		
FINE		NEREI	E ICHO	. 40, 114		28	E AGG:		·				DEE-		FAT	H"	W-CD	HD-CW
FINE A							E AGG:						DFE,					
PETROGE	RAPHIC	ATA (C	RD-C 12	71:										·y				
REMARKS																		
CEMARKS																		

SOURCE NO. 49

BLAIN SAND & GRAVEL

COLUMBIA, MS

STATE!	MS	IND	EX NO.:			Ъ	1 40	CDECATE		TESTE	0.84	110	A THE				
LAT.:	31	LON	G.:	89				AGGREGATE TESTED									
LAB SYMBOL NO.: NO-57 G-24, S-18																	
LOCATIO		Plant	100	ated	7, 3	mi 10	· Wast	of Ms	LJ2	E OF MA	ERIAL	: Na	itura	1			
	b of	Inte	7500	tion		h ui-i	nest	7 CE	nı.	gnwa)	43	appi	COXIM	atel	y 9 mi	les	
PRODUC	(line	Sec	rrou	WI C	n nigi	iway i	3, SE	OI O	Colum	bla,	, Ms	(FOR	D PL	NT)		
PRODUCER: Blain Sand and Gravel Company, Box 1001, Columbia, Ms.																	
		n _{o-}		- 3 14													
SAMPLE			ies a														
TESTED		New	UPI	eans	DIS	trict											
USED AT	•							····									
PROCESS	ING BEF	ORE TE	STING:														
SEOLOG	CAL FO	RMATIO	N AND A	GE:													
GRADING (CRO-C 103) (CUM. % PASSING): TEST RESULTS																	
GRAD	ING ICR	D-C 103)	ICUM. %	PASSIN	iG):]	TEST	RESULT:	,						Τ	T	
SIEVE	3-6"	11-3	1-17"	4-1	FINE						3-	6"	1 -3"	\$-1 } "	4-1"	FINE AGG.	
				7-1	AGG.	BULK SP	GR, 5.5.0	. (CRD-C 10	7, 108)	1				2 49	2.63	
6 IN.								RD-C 107, 10			1					0.3	
5 IN.								ES, FIG. NO		-C (21)	 					1	
4 IN;						1		GRO-C 13			_				0.0	 -	
3 IN.	Ι	1						P GR _2_			(b n	0 0	nd)			0.0	
2 1 IN.						1		GATED CR			4.0	<u> </u>	iiu)			0.0	
2 IN.	 					1		C Masos 10							1.4	7 0	
1 ½ IN.	 			100	-							R				3.0	
1 IN.	 			97	 	i .		\$, % (CRD-0		145) GR	DING_	<u>-</u>			20.3		
in.				81				(CRD-C 10							 		
1 IN.				50				ES, % (CRD-							0.2	0.2	
				32	<u> </u>			8/DEG F. '	<u>0-c⊊0</u>	1241					 	<u> </u>	
∄ IN.	<u> </u>				100	REACTIVITY WITH NOOH Sc, mM/L: .									<u> </u>		
NO. 4				1	100	TAGAME E.											
NO. 8	-			<u> </u>	86 79	<u> </u>										<u> </u>	
NO. 15				ļ		1		ROPERTIES									
NO. 30					70	TYPE	CEMEN	T, RATIO:	-	DAYS,_		7.		DAYS.			
NO. 50	<u> </u>				14	LINEAR	HERMAL E	XPANSION	MILLI	ONTHS/	DEG F.	(CRD-C	125, 126)	:			
NO. 100					1	 	ROCK	TYPE		PARAL	LEL	EL ACROSS			AVER	ASE	
NO. 200					0.7	 											
-200 ^(a)					0.3	l					.						
F.M. ^(b)	L			<u> </u>	2.5	<u> </u>				<u> </u>							
(e) CRD-C	105	(b) CR	D-C 104			MORTA	R:										
MORTAR-	BAR EXF	ANSION	AT 100F	f, % (CF	1D-C 123)):	<u></u>	FINE AG	REG	TE			COA	RSE AG	GREGATE		
<u> </u>							2 MO.	6 MO.	9 N	10. 1	2 мо.	3 MC). 8	MO.	9 MO.	12 MO.	
	LK. CEM			% NO;	O EQUI	VALENT:											
HIGH-A	LK. CEN	ENT:		5 NG;	O EQUI	VALENT:	l	<u> </u>									
SOUNDNE	SE IN CO	NCRETI	E ICRD-C	40, 114):									FAT	HW-CD	но-сж	
FINE A	GG.				COA	RSE AGG:						DFE 300					
FINE A	GS.				COA	RSE AGG:	·· · · · · · · · · · · · · · · · · ·					DFE300					
PETROGR	APHIC D	ATA (C	RD-C 127	'):						-							
PEMARKS																	
	M	AR-1	-1														
	* I	nsuf	ficie	ent h	date	rial f	or Tes	t									

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SOURCE NO. 50

BLAIN SAND & GRAVEL, INC.

MT. OLIVE, MS

STATE:	MS	IND	EX NO.:				AGGREGATE TESTED										
CAT.	31	LON		99				DATA SHEET EATE:			•	July 7		······································			
LAB SYM	30L NO.	No	-57	G-22	, S-	16			TYPE	OF MATE		Vatura					
LOCATIO	on: Pi	t lo	cate	d 2	mile	s west	of Pr	rentiss	, N	ıls			-=				
L						-								···			
PRODUC	ER: B1	ain	Sand	and	Gra	vel In	corpor	rated,	P.0). Box	278				***************************************		
	Mo	unt	Oliv	e, M	S												
SAMPLE	D BY:	Dame	s an	a Mo	ore							· · · · · · · · · · · · · · · · · · ·			······		
TESTED	FOR:	New	Orle	ans	Dist	rict											
USED AT	:																
																	
PROCESS	SING BEF	ORE TE	STING:														
GEO.OG	ICAL FOR	MATIO	A CHA H	GE:	Cit	ronell	e Form	nation	(P)	lio-Pl	eist	cene)					
GRAD	ING ICRO	-C 103)	(CUM. 3	PASSIN	G):		TEST	RESULTS	1		3-5"		, ,		FINE		
SIEVE	3-6"	1 -3"	₹-1 } "	l .	FINE						3-5-	1 2-3	2-1 2 2 − 1 2 2	4-1 1/	ZNGG.		
				4-1	1462''	BULK SP	GR, S.S.D.	(CRD-C 107	, 103					2.45	2.62		
5 IN.						ABSORPT	10N, 5 (CR	D-C 107, 108):					4.4	0.6		
5 IN.						ORGANIC	IMPURITIE	S, FIG. NO.	ICRO	-C 1213		-		-	h		
4 IN.				<u> </u>				(CRD-C 130						0.0			
3 IN.				ļ	<u></u>	3 LIGHTS	R THAN SE	o 2.40	ICRO	-C 122) (2.00	Sand)		26.6	0.0		
2 1N.						5 FLAT	NO ELONG	ATED (CRD	-c 11	9, 120)				4.2			
2 IN.				<u>.</u>			IT AV % LOSS, 5 CYC MgSO4 (CRD-C 137								4.9		
1 1/2 1%.				100		L.A. ABR	L.A. ABRASION LOSS, % (CRO-C 117,) GRADING A 26.8										
1 IN.				75		UNIT WT.	UNIT WT, LB'CU FT (CRD-C 106):										
1 IN.				36		FRIABLE PARTICLES, % (CRD-C 142									1.8		
½ IV.				10		SPEC HEAT, BTU/LB/DEG F. (CRO-C 124)											
114.				2	-	t	HTIW YT	нОв	3	c,mM/L:		 					
NO. 4				1	94	(CR	D-C 1281:		-	Rc,mM/L:		-			ļ		
NO. 5					87										1		
NO. 15	'			<u> </u>	78	MORTAR-	MAKING PR	OPERTIES !	CRC-	C 116)							
NO. 30					20	TYPE	CEMEN	T, RATIO:		DAYS		5,	DAYS				
NO. 50				 -		LINEAR T	HERMAL E	XPANSION,	MILL	ONTHS/DE	GF. ICP	D-C 125, 1	251:	 y	 ,		
NO. 150					1	 	ROCK	TYPE		PARALLE	<u> </u>	CROSS	ON	AVER	AGE		
NO. 200					2 0			···									
-200 ^(a)				 	2.7	Į								 -			
	<u> </u>			<u> </u>	2.7								L	L			
(a) C20-C	105	(b) CR	D-C 101			MORTA	?:					·					
MORTAR-	SAR EXP	ANSION	AT 100	. 5 (CF	10-C 123	1):	2.12	FINE AGG		O. 12		<u>_</u>		GREGATE			
1.07-1	LK. CEM			N N N N N N N N N N N N N N N N N N N	0.50		2 MO.	6 MO.	9 0	0. 12	мо.	3 MO.	\$ MO.	9 MO.	12 MO.		
	LK. CEM					VALENT: VALENT:		 									
SOUNDNE			E (CRD-C				·	·		L			F	M:: ==			
FINE			L IGIO-L	, ,,,		RSE AGG:						_	F&T	нж-со	HD-CW		
FINE			,,,			RSE AGG:						E300					
PETROGE		ATA (C	RD-C 127	7):								-300 1		L	·		
													•				
															į		
REVARKS	5:							"			*			· · · · · · · · · · · · · · · · · · ·			
}	TE	F-1-	,														
	JE	L-T-	. 7														
1											•						

SOURCE NO. 51

VICKSBURG SAND & GRAVEL

VICKSBURG, MS

STATE	Miss.	IND	EX NO.:	1	(rev.)	AGGREGATE TESTED BY: WES								
LAT	31.	LO	NG.:	90	DATA SHEET DATE: I VICKS-7 G-1 TYPE OF MATE						. 1948	3		
LAB. SYM	BUL NO.: V_{ϵ}	ICKS-	7 S-:	1 & '	VICKS-	7 G-1	τ	YPE	OF M	IATERIAL	Sand			
LOCATION	: On Bay	ou Pi	erre.	abo	ut 3 m	iles N	E of F	or	t Gi	bson,	Miss.			
PRODUCER Vicksburg Sand & Gravel Co., Vicksburg, Miss.														
	SAMPLED BY: TESTED FOR: Vicksburg Floodwall													
TESTED	FOR: Vic	ksbur	g Flo	oodw	all									
PROCESSI	NG BEFORE	FESTING	:											
GEOLOGIC	AL FORMATIO	N AND	AGE:		···-									
	(CRD- C 103					TE	ST RES	UL	TS		3-6"	15-3"	-11"=4	-3" FINE
SIEVE	3 - 6" 1+ - 3'	. 3_114	HA-3"	FINE								.,,	(c) (AGG.
SIEVE	3-6" 12-3	14 '2	1 4	AGG.	BULK SP.	GR , SAT S	(CRD		1½-3" } 2	•52	2.60			
6 IN.					ABSORFT	ION, PER C	ENT (CRD-	C 10	7,108): 		1	•5	0.5
51N.					ORGANIC	IMPURITIE	S, FIG. NO	. (CR	D-C 1	21):				_ 2
4 IN.						RTICLES, F						D	.0	
3IN.						T LIGHTER								
2111.		1				T FLAT AN							•2	
2 IN.					WEIGHTE	O AV. % LC	55, 5 CYC	MgS	0 ₄ ((c)	½ -1", "4	- ½) (CRD -	C 115) 4	•1	2,2
۱١٤ ال		100			ABRASION	LOSS (L	. A.),%, (* 2	4.3				
1.18.		1 84			UNIT WT., LB/CU FT (CRO-C 106):									
₹IN.		64			CLAY LUMPS, % (CRD-C 118)									
± 1N.		39			COAL AND LIGNITE, % (CRD-C 122);									
ĝIN.		20		_		SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):								
NO.4		3												131
NO.8				84						Rc, my	/L:		127	17
NO.16		Ī		62	MORTAR-	MAKING F	ROPERTIE	s (c	RD-C	116)		_		
NO. 30		:		21.	TYPE	II CEME	NT, RATIO	D	304	λΥS ,]]	2%,	<u>.5</u> c	AYS,	94
NO.50		į		5	LINEAR	THÉRMAL	EXPANSI	ON 3	XIC %	DEG. F. (CRD-C 12	5,125):		
NO.100		i		0.6		ROCK	TYPE		PARA	LLEL	ACROSS	ON	A	/ERAGE
NO.200		i		0.1								<u> </u>		
- 200 ^(a)		Ī										<u> </u>		
F.M(b)		Ī	T .	3-34										
(a) CRD-	C 105 (E) C	20-C	104		MORTA	R:								
WCOT NO.	BAR EXPANS	ON AT 1	005 87-	(CBD)	- C 122):		FINE AG	GREG	ATE			COARSE A	GGREGA	rΕ
NORTAN-	SWK EX-MIS:	3 × A, 1	007, 75	, tono		3 MO.	6 MO.	9	мо.	12 MC.	з мо.	6 MO.	9 MO.	12 MO.
LCW-4	ALK, CEMENT:		50 No5	O EQU	VALENT:								<u> </u>	
HIGH -	ALK.CEMENT:		% Na ₂	O EQU	VALENT:						<u> </u>			
SOUNDNE	SS IN CONC	EEE (C	RD-C	40, 114): 							F&T	HW-C	HD-CW
FINE	AGG.				COARSE A	.G G :					DFE 300			
FINE					COARSE A	GG:					DF E 300	<u> </u>	<u></u>	
PETROGR	AFHIC DATA	(CRD-	C 127):											
ļ														
1														
1														
ļ														
					·									
REMARKS	5÷													
* "	A" Gradi	ng.												
L														

SOURCE NO. 52

GREEN BROTHERS, INC.

CRYSTAL SPRINGS, MS

PRODUC	ER: GI	een	Brot	hers	Inc	., Cr	ystal	Plant Spring	s, N	s				· · · · · · · · · · · · · · · · · · ·	
	- F	1000		1/-											
SAMPLE: TESTED	FOR N	ames	and	OOM	re	<u> </u>									
USED AT		CW C	riea	ם פוו	ISCI	161								···	
	·									··					
PROCES!	ING BEF	ORE TE	STING:												
SEOLOS	CAL FOR	RMATIO:	N AND A	GE:	Citr	onelle	Form	ation	(Pli	o-Ple	istoc	ene)			
													**	· · · · · · · · · · · · · · · · · · ·	
GRAD	ING ICRO	-C 103)	ICUM. %	PASSIN	G):		TEST	RESULTS	3		3-5"		1 , ,	. T	FINE
SIEVE	3-6"	1 1 - 3"	3-13"	1-1"	FINE	ļ					3-9	13-3	· 13-13	4-1"	AGG.
			•	,-1··				. (CRD-C 10							2.64
5 IN.				-				RD-C 107, 10				<u> </u>		2.1	0.3
4 IN.						i		ES, FIG. NO.		C 121)				1 =	11
3 IN.								GRD-C 13			2 00 0	27.4		7.6	0.6
2 1 IN.								SATED CR			00 3	anu)	-	1.9	0.0
2 IN.						4		C MgSO4 (C							5.8
t 1 IN.				100				s, % (CRD-C			NG_A		1	17.8	
1 IN.				96		UNIT WT.	UNIT WT, LB/CU FT (CRD-C 105):								
I IN.				82		FRIABLE PARTICLES, 7 (CRD-C 142) 0.5 0.									0.3
₹ IN.				53 26			SPEC HEAT, BTU/LB/DEG F. (CRD-C 124)								
# IN. NO. 4				20	99	1	REACTIVITY WITH NOOH SC, MM/L:								
NO. 8					92	ICA	D-C 1281:		ĮR.	;,mM/L:	····				
NO. 15					84					l		L			L
NO. 30					68	TYPE		OPERTIES T, RATIO:_			=	_	DAYS,		_
NO. 50					13	LINEAR T		XPANSION							
NO. 160					1		ROCK .	TYPE		PARALLE	L ACF	eoss	ON	AVER	AGE
NO. 200					~ 4		•,	· · · · · · · · · · · · · · · · · · ·							
-200 ^(a)					0.4	,									
F.M. 161					2.4							1	·		
0) CRD-C	105	(b) CRO	-2 104			MORTAL	R:	5005.400		· · · · · · · · · · · · · · · · · · ·					
HORTAR-	BAR EXP	ANSION	AT 100F	, % (CR	D-C 123	i):	2 MO.	FINE AGO	9 MC		,	NO.	6 MO.	GREGATE	
LOW-A	K. CEMS	NT:		3 NO2	O EQUI	VALENT:							U.	9 MO.	12 MO.
HIGH-A	LK. CEM	ENT:		% NG 2	O EQUI	VALENT:									
SOUNDNE	S IN CO	CRETE	(CRD-C	40, 114):								FAT	HW-CD	но-сж
FINE A						RSE AGG:	· · · · · · · · · · · · · · · · · · ·				DFE	20			
FINE A		ATA ICE	10-C 127):	COA	RSE AGG:		·	· · · · · ·		DFE3	<u>, </u>		1	
•															
															I
							-						-		.
•															Į
															l
															- 1

SOURCE NO. 53

GREENE BROTHERS SAND & GRAVEL

GEORGETOWN, MS

STATE:	Miss. INDEX NO.: 2 (Rev) AGGREGATE TESTED BY: USAE WE									WES							
LAT.:	31	LONG.	90		DATA SHEET DATE: 24 June 1958												
LAB. SYM	BOL NO.: JO	b 6508	(See	F	emar]	ks)					AL:	Natu	ral S	and			
LOCATION	: Georget	own. I	lissis	31	ppi							nuou.	CAL L	/GIM			
					FF					·							
PRODUCER: Greene Brothers Sand and Gravel Company																	
The state of the s																	
SAMPLED BY: Waterways Experiment Station																	
TESTED			ivisi				711										
}	NG BEFORE TE		None	7,1	110	jecus											
			NOME			······································											
																	
GEDLOGIC	AL FORMATION	AND AGI		-			-							-			
				-													
GRADING (CRD-G 103)(CUM. % PASSING): TEST RESULTS										FINE							
				1			.51 KE	SUL	13			3-6" 12-3" 3	$\frac{3}{4} - 1\frac{1}{2}''$	#4 - 3	AGG.		
SIEVE	3-6" 13-3"	3-15" #4	-3" FINE AGG.	-	/ II K 80	CD EAT	SURF DR							(c)	(c)	1 700.	
6IN.															2	2.62	
SIN.				+-			ENT (CRD									0.5	
				+			ES, FIG. N									2	
4 IN.				- - -			PER CENT				203.						
3IN.				4-			R THAN S										
2½ IN.				+-			ND ELONG									 -	
2 IN.				-	WEIGHTED AV. % LOSS, 5 CYC. MgSO4 ((c) \(\frac{1}{2} - 1'', \(\frac{1}{4} - \frac{1}{2} \) (CRD-C IIS) 2.5										2.5		
I ₹ IN.				+-	ABRASION LOSS (L. A.), %, (CRD-C 117):											130	
IIN.				+-	UNIT WT., LB/CU FT (CRD-C 106):											110	
· · · · · · · · ·				+	CLAY LUMPS, 76 (CRD-C 118): 0.1												
½ IN.				+-	COAL AND LIGNITE, % (CRD-C 122):												
gIN.				SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):													
NO. 4			97	┨"	REACTIVITY WITH NOOH (CRD-C 128): So, mM/L:												
NO. 8			89	1	MORTAR-MAKING PROPERTIES (CRD - C 116)												
NO, 16			78				ENT, RAT				37.	1_	7		774	۱	
NO. 30			56	_										DAYS,_			
NO.50			16	┨┖	INEAR		EXPANS	SION							41.55		
NO. 100			3	4	<u> </u>	ROCK	TYPE		PAR	ALLEL	ACI	ROSS	ON		AVER	AGE	
NO.200				-	ļ												
- 200 ^(a) F.M. ^(b)			0.8	-													
			2.59	4	L				Ĺ				L				
(a) CRD-(C 105 (b) CR	D-C 104		L	MORTA	₹:											
MORTAR -	BAR EXPANSION	AT 100F	, % (CRD	- c	123):		FINE AC			T	+-		OARSE				
1.01/						3 MO.	6 MO.	9	MO.	12 MC	1 3	мо.	6 MO.	9 1	MO.	12 MO.	
	LK. CEMENT:		Na ₂ O EQU					 									
	ALK, CEMENT:		Na ₂ O EQU	-	LENI:		<u> </u>			<u> </u>	ــــــــــــــــــــــــــــــــــــــ			-			
	SS IN CONCRE	TE (CRD -											F & T	HW-	CD	HD-CW	
FINE A					COARSE AGG:							300		+			
FINE A				-	ARSE A	36,					Dr (300					
PETROGRA	APHIC DATA (C	-HD-C 12	7) =											ż			
·																	
																1	
																ļ	
BE.4.5	. 101			4.			_ 6	<u> </u>	. .	A= ::	4		074-	fus	- +1		
REMARKS	These source, e	result	s are	T.	ne av	rerage	S IOT	tes	175 177 1	on s	eve:	car s	anus al en	4 14 Tro	m Ul poit	.e	
which	represen	t only	one t	.0	et es	ich.	CO OT	OTC	-J -	ະພະເກີວ	C411		CII		Q****		

WES FORM 726 JAN. 1951

SOURCE NO. 54

GREENE BROTHERS SAND & GRAVEL

GEORGETOWN, MS

STATE:		•	INI	DEX NO.	<u> </u>	rev.)	AGC	REGAT	E	TESTE	D BY	USAE	WES			
LAT.:	31	· · · · · · · · · · · · · · · · · · ·	LO	NG.:	90		DAT	A SHE	T	DATE:	8	August	1960			
LAB. SYN	BOL N	o.: CR	ע 5-	14 (Job I	Vo. 65	08		TYPE	OF N	AATERI	AL: Na	tural	San	ıd	
LOCATION	ı: <u>7</u>	mile	s so	uth o	of Cr	rystal	. Spri	ngs, M	iss	, 0	n Hi	ghway	27			
-																
PRODUCE	R:	Gree	ne B	roth	ers S	Sand a	nd Gra	avel Co	٠.,	Geo	rget	own. M	iss.			
SAMPLED																
TESTED																
PROCESS	NG BEI	ORE T	ESTING	<u>:]</u>	Vone											
				· · · · · · · · · · · · · · · · · · ·			···									
																
GEOLOGIC	AL FO	RMATIC	U AND	AGE:									· · · · · · · · · · · · · · · · · · ·			
						·										
GRADING	(CRD	- C 103	(CUM.	% PA5	SING):		TE	ST RE	SUL	۲S		3-4	s" 1 ½ - 3'	3-14	" = 4-3	FINE
SIEVE	3-6"	1늘-3"	<u>-</u> 1 ± 4	#4-3"	FINE	 		SURF DRY						(c) °	(c)	AGG.
				ļ	700.	BULK SP	. GR., SAT	SURF DRY	(CRD	-C 10	7,108)			<u> </u>	ļ	2.62
				ļ	ļ	ABSON I	1014, 7 ER	CENT (CRO		7,100	٫.					D.5%
51N.				 				ES, FIG. NO							-	- [
4 IN.				ļ				PER CENT							<u> </u>	
3 IN.				 	ļ			R THAN S							1	
2 IN.				 	ļ			ND ELONG			<u> </u>			 	<u> </u>	
2IN.				 	ļ			oss, 5 cyc				4-1)(CRD	-C II5)	ļ	 	3.3
l ½ IN.			i					L. A.),%,):			ļ	-	
1 IN.				-				FT (CRD-):				ļ		-
IN.					<u> </u>			(CRD-C I							 	
⅓ IN.				 				E, % (CRD						-	-	-
gIN.				-				U/LB/DEG						ļ	<u> </u>	
NO. 4				-		REACTIV	ITY WITH	NaOH (RD-0	128)				ļ	-	
NO. 8				ļ	89						1	hM/L:		<u>. </u>		ـــــا
NO.16				ļ	77	ł		PROPERTIE				26 -	7		7.0	E _
NO. 30				-				ENT, RATI						_ DAYS,		2_%
NO.50				 		LINEAR		EXPANS								
NO. 100				 	1	 	ROCK	TYPE		PARAL	LLEL	ACROSS	- C	N	AVER	AGE
- 200 ^(a)					-	 	-									
F.M. ^(b)				 	0.3	ļ							_			
		(1) 55		<u> </u>	2.55	·										
(a) CRD-	C 105	(6) (-	(5-6-1	104		MORTA	R:	FINE 4.5	5556			-,			50.FF	
MORTAR -	BAR EX	PANSIO	N AT I	00F, 70	CRD-	C 123):	2 1/0	FINE AG					COARSE			
I OW-A	IK CEN	ENT:		97- N-	0 5011	VALENT:	3 MO.	6 MO.	9 1	10.	12 MO	. 3 мо.	6 MC). Jg	MO.	12 MO.
						VALENT:		 								
SOUNDNE								1	<u> </u>				FB	- 1444	- C D	HD-CW
FINE A		CONCR	(0)	KD - C .		COARSE A	cc.					DEE		- FW	-60	HD-CW
FINE A						COARSE A						DFE 300				
		DATA (CRD-C	127):				tan ir		lor	and		OMDOS	ed o	f bl	ocky
								lround								f the
								ined ar								
								rated								
								orous o								
								surfac								ample
								Chert -							_	•
								esent								
						•	•						-	-		
REMARKS	*	Ave	220	of r	Perio	ts of	five	sieve	2712	Tree						
	**							for sp				wit.v =	nd ah	sorn	tion	.
	~ ~	NV CI	ege	TOL	LWO	.es.s	eacn	TOT. ST	-CUL	1 1 C	gra	ATON G		P		-

GREENE BROTHERS, INC.

CRYSTAL SPRINGS, MS

STATE:	MS	INDE	X NO.:			3	AGGI	REGATE		TESTED	9Y: {	JSAEWES	 S		
LAT.:	31	LON		90			DAT	A SHEET	[DATE:		July 77			
LAB SYM	BOL NO.:	NO	-57	G-16	<u>, S-</u>	11			TYPE	OF MATE	RIAL:	(atura)	Sand	and G	ravel
LOCATIO	N: P1	ant	No.	l of	f Ha	rmony	Road a	pproxi	mat	ely S	.4 1	niles S	Southe	ast of	
<u> </u>	<u>Cr</u>	<u>yşta</u>	1 Sp	ring	s . M	s.									
PRODUCE	ER: Gr	een	Brot	ners	Inc	., Cry	<u>stal S</u>	prings	<u> </u>			··-			
SAMPLEO												······································			
TESTED		w Or	lean:	s Di	stri	ct	·								
USED AT	<u> </u>														
						·····				····					
PROCESS															
SEOLOGI	CAL FOR	MATIO	N AND A	3E: (Litr	<u>onelle</u>	Forma	tion (Pli	.o Ple	isto	cene)			
GRACI	ING (CRD	C 1031	/Cure =	DA 5544		Υ	TEST	DESIN TE			ı				T
GRAU	ING ICRO				·	ļ	1531	RESULTS			3-6"	1 } -3	r }-1}"	4-1 1/	2FINE
SIEVE	3-6"	1 1 -3"	₹-1 } " d	-1 :	7Z'						 				
- · · ·							GR, S.S.D.					-[2.55	7
6 IN.		<u>-</u>				 	ION, 5 ICR				 	_		1.9	1.0
5 IN.							IMPURITIES			C 1211	-			0.0	11.0
3 IN.										- 100 C	2 00	Sand)	_	6.5	0.0
2 1N.							NO ELONG					, <u>quito</u>		3.1	10.0
2 IN.							LOSS, 5 CY				-	_		6.8	6.3
1 ½ IN.				100			SION LOSS				INGA			22.7	
I IN.				77		r	LS/CU FT							1	
1 IN.				44			PARTICLE							0.1	0.2
½ in.				23		SPEC HEA	T. BTU/LE	3'DEG F. (C	RD-C	124)					
3 IN.				15		REACTIVE	TY WITH N	9 0H	s	c,mM/L:					
NO. 4				2	99	ICR	D-C 128):			Rc,mM/L:					
NO. 8					90										
NO. 16					82	MORTAR-	MAKING PR	OPERTIES	(CRD-	C 1161					•
NO. 30					65	TYPE	CEMENT	T, RATIO:_		DAYS,		" .	DAYS	· 	
NO. 50			ļ		11	LINEAR T	HERMAL E	XPANSION,	MILLI	ONTHS'D	EG F. (CRD-C 125,	126):		
NO. 100			<u> </u>	<u> </u>	1		ROCK	YPE		PARALL	<u> </u>	ACROSS	ON	AVE	AGE
NO. 200			ļ	ļ		∤									
-200 ^(a)		<u> </u>			0.5	<u> </u>							<u> </u>		
F.M. ^(b)			<u> </u>	<u> </u>	2.5	¥							l		
(a) CRD-C	105	(b) CR	D-C 104			MORTA	₹:								
MORTAR-	BAR EXF	ANSIO	AT 100	F. % (CF	RD-C 12	3):	2 MO.	FINE AGO		IO. 12		3 MO.	6 MO	GREGATE	r
1.00	- CF4			- 10	-0.501	DIAL ENT.	2 MO.	6 MO.	9 M	12	MQ.	3 MO.	6 MO.	9 MO.	12.95.
	LK. CEM					IVALENT:		<u> </u>							
SOUNDNE			E (CRD-C				<u> </u>	·		<u>-</u>	لـــــــــــــــــــــــــــــــــــــ		F&T	нм-со	но-сw
FINE						RSE AGG:						FE300			
FINE	AGG.					RSE AGG:						FE300			<u> </u>
PETROGE	RAPHIC E	ATA (C	RD-C 12	7):											
1													. -		
1															
1															
<u> </u>															
REMARK	5:														
1	CO	P-1-	-1												
			-												

TRAXLER GRAVEL CO.

UTICA, MS

STATE:	Miss.	IND	EX NC :	4(50	ו לוקיו	<u>) </u>	AG	GREGATE		TESTED	BY:	U	SAEV	JES			
LAT.	31	LO	NG.:	90			j DA	TA SHEET		DATE:	29						
LAB SY	ABOL NO	: <u>C</u> 1	<u>rd-s-</u>	13,(2)(3) <u>(5)(6</u>	(7),	CRD-G	-TYPE	OF MATE	RIAL	· Nat	ura 1	San	d a	nd C	ravel
LOCATI	ON: CI	ysta	al Sp	ring	s, M	iss., A	pprox	imatel [.]	7 1	mi fr	OM.	city	1 im	its	on	old	
H	1ghwa	y to	o Geo	rget	own	near J	uncti	on with	n Ro	oute 2	7						
PRODUC	ER: 1	rax	ler G	rave	1 Co	., Uti	ca, M	iss.									
SAMPLE			WES														
TESTED	FOR:	Blas	st-lo	ad g	ener	ator a	nd hi	gh-com	res	ssive-	str	engt	h co	ncre	te		
USED AT	·	USAF	EWES														
-				NT -													
	SING BEF			No	ne												
GEOLOG	ICAL FO	MA III	ON AND A	GE:													
GRAT	ING (CRE	-C 103	VCUM *	DARRIL		Г	TE6:	- DECU -									,
-	,		S-13				I ES	T RESULTS		G-24		13 S		S-1	- 1 .		S-13
SIEVE	1 .	1		1	1						(2		(3)_	(5		(6)_	(7)
6 IN.	(2)	(3)	(5)	(0)	10			. (CRD-C 10			7			2.6			2.62
5 IN.	 			 	 			RD-C 107, 10		2,6	0.	6 0	.6	0.6) <u>.4</u>	0.6
4 IN.	 	-	 	-				ES, FIG. NO		0-C 121)	1		1	+	= -		ļ
3 IN.	 	 	 	 	 			1 (CRD-C 13			-			-	+		
2 1 IN.	 -	 	 	 	 		ER THAN S	P GR		0-C 122)	-			+			ļ
2 IN.	 			 	 			C MgSO4 (C	-		-		3.4	 -	+		
1 1 IN.	!		 					S, % (CRD-0			1110		2.4	 	+		
1 IN.				<u> </u>				(CRD-C 10		1437 GRAD	T T			╁	-		
} IN.				-				ES, % (CRD-					• • • • • • • • • • • • • • • • • • • •	1			· · · · · · · · · · · · · · · · · · ·
1 IN.								B/DEG F. (\dashv		
₹ IN.	100	100	100		100		ITY WITH I			Sc,mM/L:							
NO. 4	99	96	98	100	97		D-C 1281:		г	Rc,mM/L:	·			1			
NO. 8	91	88	90	89	85						-				\neg		
NO. 16	77	77	80	77	70	MOSTAR-	MAKING PE	ROPERTIES	(CRD-	C 116)							
NO. 30	49	54	60	59	50	TYPE_I	II CEMEN	T, RATIO:	23	DAYS,	3	[%] ·	134	DAYS	i,	7_	
NO. 50		10	16	12_	9	LINEAR T	HERMAL E	EXPANSION,	MILLI	ONTHS/DE	GF.	(CRD-C	25, 126	i);			
NO. 100	1	1	5_	1	_1	<u> </u>	ROCK	TYPE		PARALLE	<u> </u>	ACROS	s	ON		AVER.	AGE
NO. 200											_		_				
-200 ⁽⁰⁾	0.3	0.4	4.5	0.3	0.7	-							_				
F.M.(b)	2.76	2.76	2.51	2.64	2.90)	··· · <u> </u>						ــلــــ				
(a) CRD-C	105	(b) CR	D-C 104			MORTA	₹:										
MORTAR-	BAR EXF	ANSION	1001 TA	F, % (CR	D-C 123) :		FINE AGO						ARSE AG	GREG	ATE	
1.0%-4	LK. CEM		·				2 MO.	6 MQ.	9 M	10. 12	мо.	3 MO	- -	MO.	9 M	°·	12 MO.
	LK. CEM					VALENT:		 				 	\dashv		·	\dashv	
SOUNDNE			E (CRO-C			· ACCAT.		<u> </u>				1					
FINE A						SE AGG:							+	F&T	HW-	30	HD-CW
FINEA						SE AGG:						DFE300	+				
PETROGR	APHIC D	ATA IC	RD-C 127	1:								300			L		
REMARKS	Grad	ling	of CR	0-5-	13(2)	- cum 5	6 passin	· ·									
	3/g No.	- iñ .	100 34		,		•	-									:
	No.		7														
ENG FORM						···											

SOURCE NO. 57

TRAXLER SAND & GRAVEL CO.

JACKSON, MS

STATE!	· MS	IND	EX NO.:	4	5.	# lage	2 00	CDECATE		750	750.00	USA	cocc			
_AT.:	31	LON		90		pp. w		GREGATE TA SHEET								
LAB SYM	BOL NO	.: NO	7-57	G-17	,					DAT			y 77			
LOCATIO	n: P	it lo	cate	d on	Rel	le Po	2d 2pp	roxima	TYP	E OF M	ATERIA	L: Na	tura	1	·····	
	C	rvsta	al Sp	ring	S N	ie ito	au app	TOXIBIA	Lei	y 0	.5 m	les	sout	h of		
פיסטים	ER: T	raxle	er Sa	nd a	nd C	ravel	Co	P.O. D		1	1202					
			-1 00	<u> </u>		Tavel	co.,	F.U. D	raw	er .	1292	, Jac	kson	, Ms		
SAMPLEC	BY: I)ames	and	Maa	70											
TESTED	FOR: I	Vew C	rlea	ne D	ictr	ict										
USED AT			1100	113 D	1361	100	·									
																
₽₹OCESS						·										
					C:+-	00011	. Fa	ation	(D1					·		
3=30031	CAC - D	TWATTO:	N AND A	GE: 1	CILI	onerre	Form	ation	(PI	10	leis	toce	ne)			
																
GRASI	NG ICR		(CUM. 5	Ţ			TES	T RESULTS	•			3-5"		, ,	4-1 1	20100
SIEVE	3-6*	1 1 - 3"	3-1 ¹ / ₂ "	4-1	17/20								12-3-	ã-1 2	- 1	AGG.
	,	ļ			^33.	BULK SP	GR, S.S.D	. (CRD-C 10	7, 103)					2.54	2.63
6 IN.				<u> </u>		ABSORP	TION, % (C	RD-C 107, 10	8):						2.2	0.4
5 IN.						ORGANIC	IMPURITE	ES, FIG. NO	. (CR	C 121	, [-			-	-	1.0
4 IN.						SOFT PA	RTICLES,	% (CRD-C 13	0)						0.0	
3 IN.						5 LIGHT	ER THAN S	P GR 2.4	OICRE	-C 122	(2.0	0 Sar	nd)		7.7	7.
2 1 IN.		 			L	1		GATED (CR						1	1.4	1
2 16.						WT AV %	L035, 5 C1	rc Mg504 (C	RO-C	137	,				4.6	4.4
1 ½ IN.				100		L.A. ABR	ASION LOS	S, % (CRD-0	117.	٠ ۵:	RADING	A		<u> </u>	21.7	
1 IN.				80		UNIT WT.	LB/CU F1	F (CRD-C 10	5).							—
3 IN.				52		FRIABLE	PARTICLE	ES, % (CRD-	3 142)				*****	Ì	0.2	0.4
1 in.				29		SPEC HE	AT, BTU/L	8/DEG F. (RD-C	124)				 	0.2	U.5
1 in.				18		REACTIV	ITY WITH I	NGOH	,	5C,mM,′1	L:			T		
NO. 4				2	97	(CR	10-C 1281:		,	7c,mM*	L:			1		1
NO. 8					83									1		1
NO. 15					67	MORTAR-	MAKING PE	ROPERTIES	(CRD-	C (16)			·····			
NO. 30					46	TYPE		IT, RATIO:_				5.		DAYS	.	
NO. 50					8	LINEAR T	HERMAL E	EXPANSION,	MILLI	ONTHS	DEG F					
NO. 100					1		ROCK				LLEL	ACRO		011	AVE	
NO. 200													-	0.4	- + ^V='	105
-200(0)									1							
=.m.(b)																
o CRD-C	105	(b) CRO	-C 104			MORTA	R:			<u>,</u>						I
WORT ARE	40.540							FINE AGO	REGA	TE		T		AR5F AG	GREGATE	
MORTAR-9	AR EXP	ANSION	AT 100F	. % (CR	D-C 123) :	2 MO.	6 MO.	9 M		12 MO.	3 M		6 MD.	9 MO.	12 MO.
LOW-AL	K. CEM	ENT:		% NG2	O EQUI	VALENT:		1					-	· · · · ·		12 =0.
HIGH-AI	LK. CEM	ENT:				VALENT:							_			
SOUNDNES	S IN CO	NCRETE	(CRD-C	40, 114):							·······		Fat	. HW-CD	ND-C
FINE A						SE AGG:						DFE 300	+	1		HD-CW
FINE A	3G.					SE AGG:						DFE300	$\neg \vdash$			
PETROGR	APHIC D	ATA (CF	RD-C 127):			····					100			<u> </u>	<u>' </u>
																I
																1
}																1
														-		I
İ																
																I
																Į
PEMARKS:												···				
																ļ
1	CO	P-2-	1													-
																1
ENG FORM																

GREENE BROTHERS SAND & GRAVEL CO.

CRYSTAL SPRINGS, MS

							Issued	. Sept	196	8							
1	Miss	IND	EX NO.:	_5_			AG	GREGATE		TE	STEDE	Y: U	SAFLIT	70			
LAT.: 3			NG.:	90			i DA	TA SHEET							-		
LAB SY	MBOL NO	<u>. Vi</u>	cks -	45	G-1,	G-1(2), s-	1	TYF	E OF	MATER	IAL - BT	(22	d Con-	
LOCATI	- Da	, Ou	TICTI	e or	eek,	5 n	i. E.	of Car	per	ter	. Mi	iss.	<u> </u>	COLICE .	aп	4 (1)	ve1
ļ	Sec	<u> 47, </u>	K DE	172	.N												
PRODUC	ER:GTE	en]	Broth	ers	Sand	and	Gravel	Co	Crv	sta	1 St	rine	s. Mi	66			
<u> </u>													~				
	DBY: V			Dis	tric	t											
	FOR: [
USED AT	r: New	Cor	icret	e Bu	<u>ildi</u>	ng											
ļ 																	
	SING BEF			No	ne				.								
GEOLOG	ICAL FO	RMATIC	N AND A	GE:													
ļ			1(2)			,								G-1(2)	G-1	S-1
GRAD	ING (CRE					1	TES.	T RESULT:	;			3-6"	ļ	- 1	,	1	i
SIEVE	3-6"	1 1 - 3	#4- 3/4"	#4-3"	FINE							3-0"	1 1/2 - 3'			*4-1"	FINE AGG.
			3/4"		AGG.	BULKS	P GR, S.S.D	. (CRD-C 10	7, 10	3)				2.	52	2.52	2.6
6 IN.	<u> </u>				ļ	ABSORE	TION, % ICE	RD-C 107, 10	8):							3.0	
5 IN.	<u> </u>		<u> </u>	Ļ	<u> </u>	ORGANI	C IMPURITE	ES, FIG. NO	. (CR	D-C 12	21)			-	_		1
4 IN.	ļ		ļ		<u> </u>		ARTICLES,						<u> </u>			0.0	
3 IN.	ļ				<u> </u>	4 LIGHT	ER THAN S	P GR2.40	CR	D-C 12	22)			15.	.0	15.0	0.1
2 1 N. % FLAT AND ELONGATED (CRD-C 119, 120) 1.5 Z 1 N. WT AV % LOSS, 5 CYC MgSO4 (CRD-C 115) 7.2 4.0																	
Z IN. WT AV % LOSS, 5 CYC MgSO4 (CRD-C 115) 7.2 4.0 1½ IN. 100 100 L.A. ABRASION LOSS, % (CRD-C 117, 145) GRADING 19.3																	
1; IN. 100 100 L.A. ABRASION LOSS, % (CRD-C 117, 145) GRADING 19.3																	
	-		-			UNIT WT	, LB/CU F1	(CRD-C 10	5):								
. in.	-		71			FRIAGL	E PARTICLE	ES, % (CRD-	C 142	1			<u> </u>			0.2	0.2
} IN.			36	51	<u> </u>	SPEC HE	AT, BTU/L	B/DEG F. (CRD	124)						ļ	
3 IN.			16	26		REACTI	HTIW YTIV	400н		Sc,mN	1/L:					<u> </u>	·
NO. 4			1	1_	99	(C	RD-C 128):			RC,m	1/L:					 	1
NO. 8					95								<u> </u>			<u> </u>	<u>i </u>
NO. 16				ļ	87		-MAKING P					_					
NO. 30							II CEMEN								<u>′s, _</u>	1,1.2	<u> </u>
NO. 50						LINEAR	THERMAL E		MILL	1			-C 125, 1	26):			
NO. 100	 				2		ROCK	TYPE		PAR	RALLEL	ACI	ROSS	ON		AVEF	43E
-2G0(a)	 				1.0	 -						+-					
F.M. (b)					2.42	 -	· · · · · · · · · · · · · · · · · · ·			-							—— <u>;</u>
(a) CRD-C		4			<u> </u>	<u> </u>				l							
			D-C 104			MORTA	AR:	FINE AG									
MORTAR-	BAR EXP	ANSION	AT 100F	, % (CR	D-C 123):	2 MO.	6 MO.	·	40.	12 M			OARSE A	_		
LCW-A	LK. CEME	ENT:		% NC:	O FOUR	VALENT:	L MO.	5 MO.	-	v.O.	12 M		MO.	6 MO.	+	9 MO.	'2 MO.
	LK. CEM					VALENT;	 	 	-						+-		
SOUNDNE	SS IN CO	NCRET	E (CRD-C				J				I			F&T	Τ.	HW-CD	
FINE A	AGG.		• • • • • • • • • • • • • • • • • • • •		COAF	RSE AGG:						DFE,			+	111-20	~ D-C#
FINE	GG.			***************************************	COAF	RSE AGG:						DFE ₃	-		1		
FETROGR	RAPHIC D	ATA (C	RD-C 127): Th	10 00	arca	aggreg	ata co	nte	112	a 1 1				ha		
a	spec:	ific	erav	rity	helo	w 2.4	0 and	40% pc	****	16 12	note:	2.0% rial	hy co	LIAL	11d	The	
Sŧ	ample	was	a ch	ert	grav	rel co	ntaini	ng 93%	cl	eri	5. 5	7 aus	rtz.	and	27		e11e
ne	eous	part	icles	, pr	inci	pally	clays	tone.	sil	tsi	tone	. cla	vev i	agglo	me	rates	
oc	oliti	c ch	ert,	and	sand	stone	•	, ,			- 4	,	.,-, .				,
			-														
									-								
REMARKS	:																

TRAXLER SAND & GRAVEL CO.

UTICA, MS

1	Miss		EX NO.:				A(GREGATE		TEST	EO BY	· US	AEWE	S			
LAT.: 3			NG.:	90			D/	ATA SHEET		DATE	::	3 N	ov.	1967			
LAB SY	MBOL NO	<u>v</u>	icks	-45	G-2				TY					al Gr	ave1		
LOCATI	ON: Bar	you !	Pierr	e, A	ppro	<u> </u>	i E.	of Car	per	iter,	Mis	ss.			*****		
PRODUC	ER: 1	Caxle	er Sa	nd a	nd C	ravel	. Co.,	Utica,	_Mi	iss.							
SAMPLE	D BY: T	TC A ET	TPC														
TESTED																	
USED AT					n												
		IEW L	OHCI	ele_	DULL	ding											
PROCES	SING BEF	ORE TE	ESTING:	Mon													
GEOLOG					=												
GRAD	ING (CR	D-C 103)	ICUM. To	PASSIN	(G):	1	TES	T RESULT	ς	T	\neg		1				
SIEVE			1	1 ,	T	1				}		3-6"	1 1/2 -	3 -1	." #4	- 3 "	FINE
PIEAE	3-6*	12-3.	₹-1 } "	=4-4	AGG.	BULKS	P GR SSI	D. (CRD-C 10	7 10	<u></u>							AGG.
6 IN.								RD-C 107, 10		61					- 2.		
5 IN.					1			IES, FIG. NO						_	2.	6	
4 IN.						1		% (CRD-C 1:		D-C 1211	-		 		+-		
3 IN.								SP GR2_40		0~ 1331	+				10		
2] IN.						ł		GATED (CR							12	<u>. 8</u> _	
2 IN.						1											
1 ½ IN.			100								ADING				_		
1 IN.	1½ IN. 100 L.A. ABRASION LOSS, % (CRD-C 117, 145) GRADING 1 IN. 86 UNIT WT, LB/CU FT (CRD-C 106): 2 IN. 55 FRIABLE PARTICLES, % (CRD-C 142)																
i IN.						FRIABL	E PARTICL	ES, % (CRD-	C 142	1					7		
} in.			23			SPEC HE	EAT, BTU/L	B/DEG F.	CRD-	C 124)					+-		
₹ IN.			12			REACTI	VITY WITH	ноон		SC,MM/L							
NO. 4			3			(C	RD-C 128):			Rc,mM/L							
NO. 6																	
NO. 16								ROPERTIES									
NO. 36						TYPE_	CEMEN	T, RATIO:_		DAYS,		<u> </u>		DAY			%
NO. 50						LINEAR	THERMAL	EXPANSION,	MILL	IONTHS/	DEGF	. (CRD-	C 125, 1	26):			
NO. 100						ļ	ROCK	TYPE		PARAL	LEL	ACR	oss	ON		VERA	GE
-200 ^(a)							 			ļ				ļ			
F.M. (b)						 				 							
(e) CRO-C						<u> </u>				<u> </u>				L			
		(b) CRD			l	MORTA	R:					1					
MORTAR-E	BAR EXP	ANSIÒN	AT 100F	, % (CR	D-C 123	١;	2 MO.	FINE AGO		T				OARSE AC			
LOW-AL	K. CEME	NT:		5 NO.	O FOUN	ALENT:	2 MO.	6 MO.	9 1	10.	2 MO.	3 1	<i>1</i> 0.	6 MO.	9 MO.		12 MO.
HIGH-A	LK. CEM	ENT:				ALENT:	†	 				 				-+	
SOUNDNES	S IN CON	CRETE	(CRD-C	40, 114):		- 										
FINE A	GG.				COAR	SE AGG:						DFE30	_ +	FAT	HW-CD	+	HD-CW
FINE A					COAR	SE AGG:						DFE30				\dashv	
FETROGRA	APHIC DA	ATA (CR	D-C 127)	:													
															*		
		·							_								
REMARKS:									-						· · · · · · · · · · · · · · · · · · ·		
							·										
IG FORM	5011-R																

BLAIN SAND & GRAVEL CO.

MT. OLIVE, MS

STATE:	· MS	כאו	EX NO.:				AG	GREGATE		TE	STED	BY:	ICAE	IEC			
LAT.:		LCA		90			DA	TA SHEET			T <u>E</u> :		July				
LABSY	VBOL NO]	VO-57	' G-3	19, 5	-14	 		TYF				1-4	1			
LOCATI	on:	Pit :	locat	ed c	n Be	lle R	oad ap	proxim	ate	ly	1 m	ile	outh	01	+ -	c	
	(Cryst	tal S	prir	igs (South	Pit)	<u>*</u>					Journ	eas		<u> </u>	
PRODUC	ER:	Blair	ı San	d ar	id Gr	avel	Co., M	t. Oli	ve.	Ms							
SAMPLE	D BY:	Dames	and	Moc	re						··						
TESTED	FOR:	vew C	<u>)rlea</u>	ns D	istr	ict											
USED AT	T:																
					· ·											· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
PROCES	SING BEF	ORE TE	STING:														
GEOLOG	ICAL FO	RMATIO	A GUA N	GE:	Citr	onelle	e Form	ation	(P1	io-	Ple	istoc	ene)	**********			
								· .						****			
GRAD	ING ICR					ļ	TES	T RESULTS	•				Τ.	T		1,,	
SIEVE	3-6"	11-3.	₹-1 \$" ·	4-1	72"							3-6"	12-	3"	a -1 a	4-1 1/	AGG.
···	ļ	-			100.	BULKSF	GR, S.S.D	. (CRD-C 10	7, 108	3)]					2.54	2.64
6 IN.	 			ļ		ABSORP	TION, % (CE	RO-C 107, 10	8):								0.3
5 IN.	 			<u> </u>	 	ORGANIC	IMPURITE	ES, FIG. NO	CR	O-C 12	1)		I=			1===	1
4 IN.		ļ			ļ			5 (CRD-C 13								0.0	
3 IN.	ļ			<u> </u>	ļ	5 LIGHT	ER THAN S	P GR 2 . 41	CR)-C 12	21	2.00	Sand				0.0
2 1N.	 				 -	% FLAT	AND ELON	GATED ICRI)-C 11	9, 120						0.1	
2 IN.	-			100		WT AV %	LOSS, 5 CY	C MgSO4 IC	RD-C	137							5.1
1½ IN. 99 L.A. ABRASION LOSS, % (CRD-C 117,) GRADING A 19.0																	
					<u> </u>	UNIT WT.	LB CU FT	ICRD-C 10	5);								
3 IN.				53		FRIABLE	PARTICLE	ES, % (CRD-	142							0.5	1.0
⅓ IN.				24		SPEC HE	AT, BTU/L	B/DEG F. (RD-C	.1241			ļ				
in.				12		REACTIV	ITY WITH I	НООН	1	Sc,mM	<u> </u>		<u> </u>				
NO. 4				1		(CR	(D-C 128):			₹6,87	<u> L:</u>		<u> </u>				
NO. 8					92								<u> </u>				
NO. 16					84 66			ROPERTIES									
					12			T. RATIO:_					,		AYS,		
NO. 50					1	LINEAR		XPANSION,	MILLI	ONTH	S'DEG	F. (CRO	-C 125,	1261:			
10. 700					-		ROCK	TYPE		PARA	ALLE	- AC	ROSS	<u> </u>	DN.	AVER	\GE
-200 ^(a)														├			
F.M.(b)								······································						 			
o) CRD-C	105	(b) CRD			—									<u> </u>			
						MORTA	R:	FINE AGO									
ORTAR-	BAR EXP	ANSION	AT 100F	. % (CR	D-C 123):	2 MO.	6 MO.	9 M		12.14	_ -				REGATE	
LOW-A	LK. CEMS	NT:		% NO ₂	O EQUIN	ALENT:		1		-	12 M	<u>. </u>	мо.	6 MO		9 MO.	12 MO.
HIGH-A	LK. CEM	ENT:				ALENT:						_			+		
OUNDNE	55 IN CO	CRETE	ICRO-C	40, 114):									Fat	. +	HW-CD	HD-CW
FINE A	GG.				COAR	SE AGG:						DFE	 	- 41	-		HU-CW
FINEA	GG.				COAR	SE AGG:						DFE,			\neg		
ETROGR.	APHIC DA	ATA (CR	D-C 127):												J	
																•	- 1
																	- 1
																	ļ
																	ļ
																	l
																	Ì
																	.
EMARKS:																	
	COT)-4-1															1
	COF	-4-1															1

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SOURCE NO. 61

BLAIN SAND & GRAVEL CO.

MT. OLIVE, MS

STATE:		INC	EX NO.						REGATE		TES	TED 9	Y: US	AEWES	3		
LAT.:	31	LON		90				DAT	A SHEET		DAT	E:	Ju	ly 7	7		
LAB SYM	90L NO.	NC	-57	G-18	, S-	13	,				OFN	ATER	IAL:	Natur	ral		
LOCATIO	on: Pi	t lo	cate	d on	Bel	le	Roa	d appi	roxima	tel	y 1	mil	e So	uthe	est of		
	Cr	ysta	1 Sr	ring	s (N	or	th P	it)								·	
PRODUC									int Ol	ive	Ms						
																	
SAMPLE	BY:	Dame	s an	d Mo	ore			······································									
TESTED						ri	ct			·····							
USED AT																	····
PROCESS	ING BEE		e 7 1 11 2 .														
				(itro	na	110	Format	ion (21:	D 1	1030	• • • •				
020200	CAC FOR	MA 110	N ANL	- C	1010	116	110	TOIMAL	.1011 (1	110	J-F]	Leis	Loce:	nej			
6245	ING (CRD	C 1001	40			_		T						·			
GAAD	THE ICAD	-C 103)	ICUM.	PASSIN	IG1:	1		1551	RESULTS				3-6"	1 1/2 - 3		4-1 1,	STINE
SIEVE	3-6"	1 1 -3"	2 -1 }	4-1	1.22	<u> </u>	<u> </u>										1
				<u> </u>		В	JLK SP	GR, S.S.O.	ICRO-C 10	г, тса	:					2.56	2.64
6 IN.	 			ļ		AE	SORPT	10N, % (CR	D-C 107, 10	2:						1.5	0.4
5 IN.	<u> </u>			ļ		OF	RGANIC	IMPURITIE	S, FIG. NO	:CR0	-C 121)		<u> </u>		-	1
4 IN.				<u> </u>		sc	FT PA	RTICLES, 5	(CRD-C 13	0,						0.2	
3 IN.				<u> </u>		75	LIGHTE	R THAN SE	-62.40	. 080	-C 122	2) (S	and :	2.00)		4.7	0.0
2 1 IN.						7,	FLAT A	ND ELONG	ATED (CR	-C 11	9, 120	,				1.6	
2 IN.						wı	r AV 5	LOSS, 5 CY	C MgSO4 (C	RD-C	137					2.6	3.9
1 1 IN.				100					5, % (CRO-C			RADIN	g Å			19.8	1
1 IN.				87		UN	NIT WT,	LB/CU FT	(CRD-C 10	3.							
3 IN.				42		FF	RIABLE	PARTICLE	S, 5 (CRD-	: 142)				1		0.5	0.5
1 IN.				18		SP	EC HE	AT, BTU'LE	8/DEG F. (CRD-C	124)				1	1	
in.				9				TY WITH N			sc,mM/	'L:					
NO. 4				1	98	t		D-C 128):		Г	RC, m.M.						t
NO. 8				 	85					<u>1·</u>	,,	-				 	1
NO. 15				-	75							<u>_</u>		<u> </u>			Ъ
NO. 30				\dagger	59	1			OPERTIES T, RATIO:_								_
NO. 50				 	12				XPANSION		•				DAYS		
NO. 100				 	1	١	TEAR !								T		
NO. 200				+-	 			ROCK	TYPE		PAR	ALLEL	AC	ROSS	ON	AVER	AGE
-200(a)				 	0.3				······································				+		 		
F.M. (b)				 	2.7										ļ		
				<u> </u>	2.7	1					L				L		
(4) CRD-C	105	(b) CRI	D-C 104				MORTA	₹:									
MORTAR-	BAR EXP	ANSION	AT 100	F. % (CF	RO-C 123	3):			FINE AG						· · · · · · · · · · · · · · · · · · ·	GREGATE	
								2 MQ.	6 MO.	9 %	0.	12 M	2.	MO.	6 MO.	9 MO.	12 MO.
	LK. CEME				20 EQUI					 					·		
	LK. CEM				O EQUI	VAL	ENT:	L	L	L			i_				ļl
SOUNDNE	***************************************	CRET	E (CRD-	C 40, 114											F&T	нж-со	но-с»
FINEA					. COA	RSE	AGG:						DFE	300			
FINEA					COA	RSE	AGG:						DFE	300			
PETROGR	RAPHIC D.	ATA (C	RD-C 12	7):													i
															•		
																	,
1																	-
																÷1	
REMARKS	:				· · · · · · ·												
																	ļ
l	C)P-3	-1														İ

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ST. CATHERINE GRAVEL CO.

NATCHEZ, MS

STATE:	Miss	CNI	EX NO.:	****		T	AG	REGATE		TESTED	av: USA	EVEC			
LAT.:	31		NG.:	91				TA SHEET		DATE:	June	<u> 6955</u> 1077			
LAB SYN	480L \O.	. N	o. 57	7 G-3	. S-	-1			TYPE	- 05		D:+	123		
LOCATIO	on: NO:	rth	of US	Hwy	61	approx	· 4.5	niles	KE	of N	tchez	Me.	on S		
Са	ither:	ine	Creck		······································							,	011 3		
PREDUC	ER:	St.	Cath	erir	ie Gr	avel (.o., N	atchez	, M	s.		 			
									-						
SAMPLE	D BY: [)ame:	s & 💥	oore											
TESTED	FCR:	Ne	w Orl	eans	Dis	trict					··				
USED AT	·: 01	d R	iver	Low	Si11	and C	verbo	nd Str	uct	ures (grave	only	1 10	57-48	
<u>Vi</u>	<u>ualia</u>	i Mar	<u>t Cas</u>	ting	Fie	ild, Ba	iyou C	ocodri	e. D	rainag	e Štri	icture	(19	49. 51	-55)
PROCESS	SING SEF	ORE TO	ESTING:	<u>Sep</u>	arat	<u>ed ove</u>	r the	No. 4	si	evo be	fore	testin	g		
GEOLOG	ICAL FOR	MATIO	N AND A	ge: F	lood	Plair	Allu	vium (l	lo1	ocene)			-3		
GRAD	ING (CRE	-C 103)	CUM. %	PASSIN	G):		TEST	RESULTS					4 -	1	FINE
SIEVE	2-5"	12-3"	4-1%		FINE		·				3-6"	13-3	1-1	/2 =4-1-	AGG.
			1 1/2		AGG.	BULK SP	GR, 5.5.D	(CRD-C 10	7, 108)			2.5	5	2.62
6 IN.						ABSORPT	10N, 7 /CF	J-C 107, 10	8):				1.7		0.7
5 IN.	'					ORGANIC	IMPURITIE	S. FIG. NO.	ICRE)-C 121)				-	1
4 IN.	ļ					SOFT PAR	TICLES,	CRD-C 13	0)				0.0		
3 IN.			ļ			3 LIGHTE	R THAN S	- 52 <u>2.4</u> (CRO)-C 122)	-2.00	sand)	7.2		0.1
2 1 IN.						S FLAT A	NO ELONG	ATED (CRD	-C 11	9, 120)			0.3		
2 IN.			100			WT AV 5	LOSS, 5 CY	C MgSO4 (C)	RD-C	37,			3.3		4.9
1 1 IN.			98			L.A. ABR	SION LOS	S. 7 ICRD-C	117,	GRAD	NG A		22.0		
1 IN.			86			UNIT WT.	LB.'CU FT	ICRD-C 106):						
∄ IN.			66			FRIABLE	PARTICLE	S, % (CRD-0	142)				0.2		2.7
} ≀N.			44			SPEC HEA	T. BTU/L	E DEG F. (C	RD-C	124)					
} IN.			25			REACTIVI	TY WITH N	нор	-	SC,MM/L:					
NO. 4			1		100	(CR	D-C 128):			Pc,mM/L:			<u> </u>		
NO. 9					83							<u> </u>	<u> </u>		<u> </u>
NO. 16					72			CPERTIES							
0E.0N					51			T. RATIO:_					DAYS.		
NO. 50			<u> </u>		11 5	LINEAR T	HERMAL E	XPANSION,	MILLI	ONTHS/DE	G F. (CRD-	C 125, 125	·:		
NO. 100					3	, -	ROCK	TYPE		PARALLE	L ACF	CSS	CN	AVER	AGE
NO. 200					1 7										
-200 ^(d)					4.3 2.78	·									
		<u> </u>			2.70	L									
(a) CRO-C	105	(b) CR	D-C 104		لـــــــــــــــــــــــــــــــــــــ	MORTA	l:								
MORTAR-	BAR EXP	ANSION	1 AT 100F	. % (CR	D-C 123):	2 MO.	FINE AGG						GREGATE	
LOW-A1	LK. CEME	NT:		* No.	0.50	VALENT:	2 M.O.	6 MO.	9 M	12 1	MO. 3	MO. <u>«</u>	¥0.	9 MO.	12 MO.
	LK. SEM					VALENT:							+		
SOUNDNE			E (CRD-C										Far	uw.c=	
FINE A						RSE AGG:					DFE ₃₀			HW-CD	HD-CW
FINE A	GG.					RSE AGG:				·	DFE				
PETROGR	APHIC D	ATA (C	RD-C 127	1:							J. 230	.9			
															- 1
							*								
															1
											•				j
															. [
REMARKS	:						· · · · · · · · · · · · · · · · · · ·								
			ADA-:	3-1	(Pi	t Run)									ł
•															1
															į.

STATE:]	Miss.		IN	EX NO.:	1	(rev)	I AG	GREGA	r F	TES	TED BY	CE	רוי	T.TOC			
LAT.:	31		ĮŁO	NG.: 9	7		I DAT	'A SHE	FT	Inat	F 20	Tool	7	OLO			
LAB. SYN	ABOL N	o.: V]	CKS-	7 G-4	(3)	VICK	S-7 S-	5	TYPE	OF	MATER	Al: C	<u> </u>	7 <u>47</u>	C	3	
LOCATION	v: St	• Ca	ther	ine C	ree	k. NE	of Na	tchez			WATER OF	<u> </u>	Tav	er «	Sam	1	
							<u> </u>								·		
PRODUCE	R: St	. Ca	ther	ine G	rav	el Co	Nat	chez,	Mie	_							
							.,	~		5.							
SAMPLED																	
TESTED	FORVi	dali	a Ar	ticul	ate	d Con	crete	Mattre	00	Cas	+120	V	- 77	: 3 . 7 .	. 7		
PROCESS	ING BEF	ORE T	ESTING	:					55	Vas	orrig	Idiu	٧ و	LUEL.	Lde L	icl.	
USEO A	IT: O	LDG	WER	2 1 014	511	1 4 1	O OVE	RBAN	- V				- /-				
7	1957	-58). 1/10	ALIA 6	TAN	CAST	W E	- D - B	<u> </u>	IR	0610	KF.2	<u>(a</u>	KHVE	:40	NLY	<u> </u>
GEOLOGIC	CAL FOR	MATION	AND	AGE: 1		PE E	0000	ALL A	700		CODH	IE T	JK H	INAC	75 3	TR	CT-
					7 0	NE	CODWA	356 A	עעי	NH	LKWM	7 BH	() DC	E (1)	47-5	<u>: راد</u>	<u>55).</u>
GRADING	(CRD-	C 103)	(CUM.	70 PASSI	NG):	T	TF	EST DE	CLII	T.C.	T						T
				, , , , , , , , , , , , , , , , , , , 		1		EST RE	SUL	. 1 3	j	3	3-8"	1 2 - 3"	$\frac{3}{4} - i \frac{1}{2}''$	#4-	FINE
SIEVE	3-6"	12-3"	3-15"	#4- <u>3</u> "	AGG.	BULK SI	CR SAT	SURF DRY	((CBI)-C	103 100).	-			(c)	(c)	AGG.
6IN.				 				CENT (CRD							2.57		2.62
51N				 				ES, FIG. N							1.4		D.4
41N.				 				PER CENT				<u> -</u>					- 2
3IN.				 		+		ER THAN S				20).					
2 1N.								AND ELONG									
2 IN.			100					.055, 5 CY			4	- 1					
1 ± 1N.			94	 -	<u> </u>			L. A.),%,				4- <u>2)(</u> C	RD-C	: 115)			2.9
I IN.			69			 			·		17):						ļ
3 IN.			70					FT (CRD-		5);							
į IN.			17	-			'	(CRD-C I									
≧IN.			7														-
NO. 4			i		00			NaOH (1
NO. 8					91	REACTIV	TIT WITH	NOUH (_HD-	C (2)							262
NO.16						MODTAR	- MAKING	PROPERTI	- 6 / 6	20	Rc,m	M/L:	1				63
NO. 30								ENT, RATI				. אדו	_	7		7.0	O -
NO.50								L EXPANS							DAYS,		9%
NO. 100					-	CINCAR	ROCK	···	ION .								
NO.200					-7	 	ROCK) TFC		PAR	ALLEL	ACRO	33	01		AVER	AGE
- 200 ^(e)					, O	l	7.10										
F.M.(b)			i		1.45	,		·									
(e) CRD-C	105	(b) CB	D-¢ 10		•47	MORTA											
(0) 0110		10,01				MORTA	1	FINE AG	CDCC	AT E				04005	10005		
MORTAR - 8	BAR EXF	ANSION	01 TA 1	0F, % (CRD-	C 123):	3 MO.	6 MO.			12 MO.	+			AGGREG		
LOW-AL	LK, CEM	FNT:		70 Na ₂ O	FOLU	VA! ENT.	3 MO.	6 MO.	9 1	viO.	:2 MU.	3 N	10.	6 MO.	9 1	10.	12 MO,
	LK.CEM			70 Na ₂ 0					 -		ļ					-+	
SOUNDNES							<u> </u>	<u> </u>			L	.i			 	_	
FINE A					<u> </u>	COAPSE A	66:							F&T	HW-		HD-CW
FINE A						COARSE A						DFE 30			 		
PETROGRA		ATA (C	PD-C	127)				7		-		DFE 30					
of br	own, tone,	red,	yel Irtzi	lowis te, a	h b nd	rown, quart	and a z were	a cle a few we e noted	rhit l•	e p	ebble roxin	es. natel	A f	ew p	ebble f the	es d e	up of
bepore	es aç	pear	fre	sh ar	nd d	ense	and th	ie remai	nde	r	are w	ıggy.	, po	rous	, and	d	
crack	ed.												•		•		
REMARKS:						***************************************											
······································																	,

UNKNOWN PRODUCER

STATE:	La.			INDEX N	o.: 2	(rev.)	A	GGREGA	TE	TESTED B						
LAT.:	31_		- 1	LUNG.:	oı		I DA	TA SHI	EET	DATE: 30	Jan	ne 10	WES OAR			
LAB. SY	MBOL	NO.:]	VO-2	2 S-2	& NO)-2 G-	ソ		TUDE			~	7 & C		1	
LOCATIO	N: G	illie	um (Chute	near	Kemp	e Ben	d - Mi	le 37	8 A H	P	Jane	4 66 6	rave	<u> </u>	
I												•				
PRODUCE	R:															
 										·····						
SAMPLE											······					
TESTED	FOR:	Vide	lia	. Arti	cula	ted Co	oncre	te Mat	ress	Casti	ng 1	ard.	Vid	alia	. I.a	
PROCESS	ING BE	FORE	EST	NG:												
											'					
5501.05													·			
GEOLOGIC																
GRADING	41:	VIDE	LIA	CAS 4. % PAS	TING	FIEL		48-19-								
			T		1		LΤ	EST RE	SULT	s		3 - 6"	1 1 - 3"	3 .16	,	FINE
SIEVE	3-6	11 - 3"	3-1	½"=4- <u>3</u> "	, FINE	ļ						3-6	12 - 3	(c)	(c)	AGG
61N.		 	 		1	BULK SP	. GR , SA	T SURF DR	Y (CRD-	C 107,108):			2.64		2.6
51N.			 		 			CENT (CR						1.4		0.6
41N.					 			IES, FIG. N								5+
31N.		 	 		 			, PER CEN						0.0		T
2½ IN.			<u> </u>		 -			ER THAN								_
2 IN.					-			AND ELONG						7.6		
1 ± 1N.			99		-	WEIGHTE	D AV. %	LOSS, 5 CY	C. MgSO	· ((c) ½ -1", •	4-12)	(CRD-C	115)	1.2		2.3
I IN.			87					(L. A.),%,						21.6		
3 IN			60	┪				FT (CRD-								
in.			28	+	 			(CRD-C								
gin.			11	 				E, % (CR								
NC.4			1		97			TU/LB/DEC								
NO. 8				+	86	REACTIVE	11 T WILL	n Nach (CHD-C	<u> </u>						
NO.16					68	MORTAR -	MAKING	PROPERTI	rs (CDD		M/L:		i			
NO. 30				 -	32	TYPFII	I CEM	ENT, RATE	. 3	DAYE	96	_	7		108	ł
NO. 50			·-··	 	4	LINEAR	THERMA	L EXPANS	ION X C	SOEC F	(655	- 5,		DAYS,		%
NO. 100				 -	0.3			TYPE		ARALLEL		Ross	0N		AVEDA	
NO.200					0.1				-+			.033	0.4		AVERA	OE
- 200 ^(a)				†				······································						-	····	
F.M.(b)					3.03	;										
e) CRD-C	105	(b) CR	D-C	104		MORTAR	₹:	*				i		<u>-</u>		
IORTAR 8	AD FY	DANISION		205 =	(620			FINE AG	GREGAT	E	Т	C	DARSE	AGGREC	ATE	
					TCHD-	C 123): F	3 MO.	6 MO.	9 MO.	12 MO.	3	MO.	6 VO.			2 MO.
LOW-AL	K, CEM	ENT:		% Na2	O EQUIN	ALENT:					1-			 		
HIGH-A				% Naz							1			1	_	*
CUNDNES	S IN C	ONCRE	7E (C	RD-C 4	0, 114)	:							F&T	HW-	о н	D-CW
FINE A					C	CARSE AC	G:				DFE	300		 		
FINE A						OARSE AC	G:				DFE	300				
ETROGRA	PHIC D	ATA (C	AD-0	127):												
EMARKS:												 -				
																- 1
ES FO	DM 7	36		1051												

ST. CATHERINE SAND & GRAVEL CO.

NATCHEZ, MS

STATE:MISS.	IN	DEX NO	.: 8		AG	GREGAT	Ε	TES	TED B	/:	WES				
LAT.: 31		DNG.:	91		DAT	A SHE	ĖΤ	DAT	E:	IO V	ay l	957			
LAB. SYMBOL NO.:	ICKS-	16 S-	·1. (;-1 Jo	b 600	1/313	TYP	E OF	MATER	LIAL: N	27 1	21 60	-1 6		
LOCATION: Nato	hez.	Miss.	(St	. Cat	herine	Bar,	D.	lou	Mate	- ho-	\	a1 36	illu &	Gra	ivel
						- Duz,	DG	TOW	Naci	liez					
PRODUCER: St.	Cathe	rine	Sand	and	Grave:	I Co									
	<u> </u>		00	and	Grave.										
SAMPLED BY: 1/1	ckehu	re Di	etri	ct Po	rsonne	. 1							 -		
									, ,						
PROCESSING BEFORE	TESTING	- COI	lone.	XIM S.	Lures	Used :	in /	Art:	lcula	ted	Con	crete is an	Mat	res	8
	1231111	<u>. h</u>	lone					rie		cri Pi	-mbr	18 41		-850	urg
															
CEOLOGICAL FORLAR															
GEOLOGICAL FORMAT	ION AND	AGE:				· · · · · · · · · · · · · · · · · · ·									
															
GRADING (CRD-C I	03)(CUM.	% PAS	SING):	1	TE	EST RE	SUL	.TS			3-6"		3 .1"	30	FINE
SIEVE 3-6" 12-	3" 3-14	-4-XX	FINE							. 1	3-0	1 1 - 3"	(c)	1-17	ZAGG.
		1-1/	2 ^{AGG.}	BULK SF	. GR., SAT	SURF DRY	(CRI	D-C	107,108):		İ			2.6
61N.				ABSORPT	TION, PER	CENT (CRD	-C 1	07,10	8):					2.1	0.6
51N.				ORGANIC	IMPURITI	ES, FIG. N	O. (CF	D-C	121):						3
41N.	1			SOFT P	ARTICLES,	PER CENT	(CR	D-C	130): ,	22					
31N.	1			PER CEN	IT LIGHTE	R THAN S	P. GR	2,4	(CRD-C	(89):				2 0	2.0
2½ IN.				PER CEN	T FLAT	AND ELONG	ATED	(CRD	-C 119,	120):					12.0
2 IN.						.0ss, 5 cyc					CBD - C	7 115		_3	
(1 N.	<u> </u>	100				L. A.), %,				7 2/	CRD-C	113)			
I IN.		84				FT (CRD-			.,,.			-		20.3	
3 IN.	- 	55				(CRD-C I		.,,							
į IN.								122).							
2 IN.		25				E, % (CRE									<u> </u>
NO.4	+	12	~			U/LB/DEG						<u> </u>			
		2		REACTIV	IIY WIIH	NaOH (JRD-	C 121							
NO. 8			91							nM/L:					
NQ 16			84			PROPERTIE			-						
NO. 30			58			ENT, RATI							DAYS,		%
NO.50			13	LINEAR	THERMAL	_ EXPANS	ION .	X10 9	DEG. F.	(CRD	-C 125	5,126)			
NO. 100			2		ROCK	TYPE		PAR	ALLEL	ACF	oss	ON		AVERA	GΕ
NO.200	<u> </u>														
- 200 ^(e)			0.4												
F.M. ^(b)			2.54												\neg 1
(a) CRD-C 105 (b)	CRD-C	104		MORTA	R:										
MODTAR - RAD EVENIE	(ON AT 1		(cnn	c		FINE AG	GREG	ATE			C	OARSE .	AGGREG	ATE	
MORTAR - BAR EXPANS	JON AL 1	001, 76	(CRD-	C 123).	3 MO.	6 MO.	9	MO.	12 M). 3	MO.	6 MO.	9 M	D. 1	2 MO.
LOW-ALK, CEMENT	:	% Nc2	O EQUI	VALENT:								·	1		
HIGH-ALK.CEMENT		% Na2	D EQUIT	VALENT:										\neg	
SOUNDNESS IN CONC	RETE (C	RD-C 4	0, 114):		'						F&T	HW-C	р н	D-CW
FINE AGG			' (OARSE A	GG:					DFE	300				
FINE AGG.				COARSE A	GG:					OFE			1	_	-
PETROGRAPHIC DATA	(CRD-C	127)=									300 1				-
															l
															1
															-
															İ

REMARKS:															
															ļ

F & C ENGINEERING CO.

(CONTRACTOR)

STATE:			IN	IDEX NO			A	GGF	REGAT	Ε	TES	TED BY	· US	AEWE	S			
LAT.:	31			ONG.:	9]	<u> </u>	I DA	ATA	SHER	-T	DAT	F :	7.0	31	705	7		
LAB. SY	MBOL N	10.: N	0-24	S-1	S-1	(2) J	ob 6	003	/341	TYPE	OF	MATER	IAL:	Bar	Sand	(Fi	ne)	
LOCATIO	N:	M	ile	306,	Rt E	Bank,	Miss	. F	≀.									
PRODUC	ER:	<u> </u>	&C E	ngine	erir	ng Co.	- 0	ld	River	· Cc	nt	rol F	roje	ect.	Con	tract	tor	
SAMPLE		N	ew 0	rlear	ıs Di	.stric	t Per	rsc	nnel									**
TESTED			ow S	ill a	ind C	verba	nk S	tru	cture	s,	010	d Riv	er (Cont	rol 1	Proje	ect	
PROCESS	SING BE	FORE	TESTIN	G:None	9													
GEOLOGI	CAL FO	RMATIO	N AND	AGE: H	ecen	t												
COADIA	- /					····										,	,	
GRADIN	G (CRD	- C 103)(CUM.	% PAS	I	-	L	TES	T RE	SUL	rs		-				- Table 20	FINE
SIEVE	-5-0-	4=5	-		FINE AGG.									(a)		(c)	==	2) 66
	(a)_	(b)	(c)	(2)	7.00.	BULK SF			URF DRY				— -		2.63			1
6 IN .		 	ļ		ļ				NT (CRD				0	.9_	0.7	1.0	1.1	
5 IN.		-	┼			 			, FIG. NO					3	2	4-	3	
4 IN.	 	 	 	 		 			ER CENT						ļ	ļ	ļ	
3 IN.		<u> </u>	-			 			THAN SE			·						
2 1 N.		 	 	 					ELONGA				i.		<u> </u>			<u> </u>
2 IN.	 	 	 			WEIGHTE							4-날)(CRD-	C 115)		· 	
1 ½ 1N.		 	 	+					A.),%.(17):			-			1
1 IN.		 	 	 					(CRD-C):						<u> </u>	-
1 IN.	-		-	 -					RD-C II		221						: :	
\$1N.	 		 	+				<u>_</u>	% (CRD									
NO. 4	 		├	+					LB/DEG.									
NO. 8			├			REACTIV	***	161	Nach (C	.KD-C	. 120	<u> </u>						
NO. 16	-	<u> </u>	-	-		MORTAR	MAKINI	C PE	OPERTIE	5 (0)	20 - 4		nM/L:		<u> </u>		L	
NO. 30	100	100	7.00	7.00						-		•		6 7.		DAVS		%
NO.50		100							EXPANSI							DAYS,_		
NO. 100		9	24	100				K T				ALLEL		oss	T 01	, T	AVER	AGE
140,200	1-13	- 3	24	1 30		 				\dashv			7.0		-			
- 200 ^(e)	7 8	0.7	5 (4.1		-				-					 			-
F.M(b)	1 -0			0.50		l 									 -			
o) CRD-						MORTA	R:								J			
······································									INE AGO	GREGA	ATE		T		COARSE	AGGRE	GATE	
HORTAR -	BAR EX	PANSIO	N AT I	00F, %	(CRD-	C 123):	3 MC	5.	6 MO.	9 N	10.	12 MC). 3	MO.	6 MO.	. 9	vo.	12 MO.
LOW-	ALK. CER	ENT:		% Naz	D EQUI	VALENT:		\top									1	
HIGH -	ALK, CEN	MENT:		% Naz	O EQUIV	VALENT:		_										
OUNDNE	SS IN	CONCR	ETE (C	RD-C 4	0, 114):									F&T	HW-	CD	HD-CW
FINE	AGG.				(COARSE A	GG:						DFE	300			i	
FINE	AGG.					COARSE A	GG:						DFE	300				
PETROGR	APHIC	DATA (CRD-	127):	Not	te: ((a)	Upp	er er	nd o	\mathbf{f}	pit,	Sam	ple	No.	1 NO	-24	S-1
						(ddle d									
							(c)	Lov	ver er	nd d	of :	pit,	Sam	ple	No.	3 NO	-24	S-1
						(additi									
									nbine									
REMARKS	12																	

SOURCE NO. 66
ST. CATHERINE SAND & GRAVEL CO.

NATCHEZ, MS

STATE:			EX NO.:	10 (supp	1 6)		GREGATE		TE	STED B	Y: U	SAEW	ES		
LAT.	31		۱G.:	9 1				TA SHEET		DA	TE:	T.,	1	069		
LABSY	VEOL NO	· NO	-24 G	-10	(8)_	VICKS.	-33 S-	1(3) C	79E	E OF	MATER	IAL: N	atur	al gra	ave1	
	т	L 2 C	zuar	Grov	eur	eek P	lant	Noor U	ach	• -	4	362 -		RIW, 1	rvel C7N, 3.	1 mi
PRODUC	****			<u></u>	V	110 04	<u>. Auziii</u>	5	M 1	58.						
1		lla_l	arne	rine	San	d and	Grave	1 Co.,	Na	ıtch	ez,	Miss	•			
SAMPLE	D BY	Vict	sbur	o Di	etri	c t										
TESTED	FOR:	Vick	csbur	o Di	<u>stri</u>	ct										
USES ±1	· Jor	esvi	lle	Lock	and	Dam					· · · · · · · · · · · · · · · · · · ·			····		
PROCES	SING BEF	CRE T	ESTING:	Non	e											
GECLOS	CAL FO	PWATIO	N AND A	GE:												
													· · · · · · · · · · · · · · · · · · ·			
. GPAD	ING ICRE)-C 1C3)	ICUM. %	PASSIN	(G):		TES	F RESULTS	;				Ι,	Τ,		FINE
SIEVE	3-6"	7 -3	₹-1 } "	≥4. } "	FINE							3-6"	1 1/2 -	3" 2-1	#4-3	AGG.
			ļ	ļ	AGG.	BULKSP	GR, S.S.D	. (CRD-C 10	7, 10	B)					2.57	2.62
6:	ļ			ļ		ABSORPT	TION, % (CF	RD-C 107, 10	8):					1	1.7	0.8
5 🔨.						ORGANIC	IMPURITH	ES, FIG. NO	(CR	D-C 12	1)					
£ :N.				 	 			(CRD-C 13								
3 N.				 		ľ		P GR					<u> </u>			
2				 				SATED (CR))		<u> </u>			
1								C MgSO4 (C					 			
1				100	<u> </u>			S, % (CRD-C		145) G	RADIN	G				+
} ~.				96				ES. % (CRD-		`			——			
· · · · · ·				64				B/DEG F. K					-			
{ · .				38			ITY WITH N		1	St.mM	/L:					1
NO. 4				3	. 96		D-C 128):		ı	Rc,mM		· · · · · ·				
NC. 9					80											
NO. 15					69	MORTAR-	MAKING PR	OPERTIES	(CRD	-C 116)					
NO. 30					_54	TYPE.	CEMEN	T, RATIO:_		DAYS	5,			DAYS	5,	
NO. 50					_28	LINEAR T	HERMAL E	XPANSION,	MILL	IONTH	S/DEG	F. (CRD	C 125,	126):		
NO. 166					3		ROCK	TYPE		PAR	ALLEL	ACE	ROSS	ON	AVE	RAGE
NO. 200										 -		+		 		
F.V. 5					1.3					-		+		-		
(a) C=D-C	105	(b) CR(i		2.70		<u></u>			1				J		
					1	MORTA	<u> </u>	FINE AGO	RFG	ATF				CARSE AC	GREGATE	
MORTAR-E	BAR EXP	ANSION	AT 100P	, % (CR	D-C 123):	2 MO.	6 MO.		MO.	12 MC), 3	мо.	6 MO.	9 MO.	12 MO.
LCn-AL	K. CEME	NT:		% N02	O EQUI	ALENT:										
+- 5A	LK. CEM	ENT		% NO2	O EQUIV	/ALENT:										
SOUNDNES	5 IN CO	CRETE	(CRD-C	40, 114):									F&T	нж-со	HD-CW
FINEA					COAR	SE AGG:						OFE3	00			
PETROGR.		ATA CI	20-€ 127	1.	COAR	SE AGG:						DFE ₃	<u> </u>		L	
				••												
REMARKS:													-			
																·
NG FC#W									,							

R. L. HENSLEY & SONS

WASHINGTON, MS

. STATE	MS_	1.5.5	F 1.0.:			/0	AG	GREGATE		TES	TEO BY	US	A DEFE			
	31		. 5 9	1			DA	TA SHEET		DAT	E	Nove	nher	1977		
LA9 5 / M	SOL NO	No-	-57 G	-44,	S-2	9			TYP	EOF	447201	ar NY.		_ 1		
L004*+0	on: S	outh	side	of	US H	wy 84,	appr	ox 2.5	mi	165	820	t of	+ h a		rsectio	
<u> </u>	W Y O	UL U	70.	Wasii	LIILEL	On a ric)									
PRODUS	ga:	R. L.	. Hen	sley	& S	ons,]	nc.,	P. O.	Box	13	0, W	ashir	igtoi	a, MS	39190	
SAMPLE	sey:]	Dames	s & M	loore		······································		······································								
						Aggres	ate T	est								
USED AT							<u>,</u>								····	
										•						
PROCESS																
GEOLOGI	CAL FO	RMATIC	N 4 N D A	GE: P	asca	goula	& Hat	tiesbu	rg	For	natio	ons (Mio	ene)		
GRAD	ING (CR	D-C 103)	CLM. T	PASSIN	151:	T	750	T RESULTS								1
	1		1-17			1	153	I KESULI	<u>`</u>			3-5"	 ₹-3	r]]-1	4-1/	FINE
SIEVE	3-6*	15-3	1-13	=4-2	AGG.	BULKSD	GB SED	. (CRD-C 10						_		AGG.
6 IN.		 	 	†		1		RD-C 107. 10		9)					2.57	2.62
5 IN.		†	i	 				ES, FIG. NO					<u> </u>		0.9	0.6
4 IN.	_	1		T	\vdash	1		ES, FIG. NO		D-C 12	1)					2
3 IN.				1	 	3 LIGHTS	R THAN	= GR 2.4	0,		, (1)	00 c	and		0.0	100
2 1 IN.			İ	1		1		GATED (CR	~			00 3	a110)	<u>'</u>	0.7	0.0
2 IN.				100	ļ ~~~~			C MgSO4 (C			'				*	3.9
1½ in.		1	 	96	 			55, 7 (CF: D-C				A			21.4	3.9
I IN.				79		1		(CRD-C 10		G	RADING				21.4	
} IN.				57		1		ES, % (CRD-							0.4	0.6
1 IN.				36		i		9/DEG F. (- 0.4	10.0
2 IN.				24		1	TY WITH			SC, mM/						
NO. 4				1	100		D-C 128):		- 1	RC, MM/						ļ
NO. 8					94					re, mm/	-					
NO. 15					86	VORTARA	MAKING 9	ROPERTIES								<u> </u>
NO. 30					74	TYPE		T. RATIO:_							_	
NO. 50					13	LINEAR T		EXPANSION.						DAY:	·	
NO. 100					6		ROCK			1	ALLEL	1			1	
NO. 200					5			<u></u>			16666	ACR	:035	0.0	AVER	AGE
-200(a)	~				4.7											
F.M. ^(b)					2.2	7						 				
(0) CRO-C	105	(b) CR	-5 104			MORTAR	₹:									
MORTAR-9	IAR EXF	ANSION	AT 1008	f. % (CR	D-C 123			FINE AGO	REGA	ATE		1	с	OARSE AC	GREGATE	
						<u></u>	2 MO.	6 MO.	9 N	10.	12 MO.	3 :	ча.	6 MO.	9 MO.	12 MO.
LOW-AL	K, CEM	ENT:		% No.	O EQUI	VALENT:										
HIGH-A	LK. CEM	ENT:		% NO2	o Edn.	VALENT:										
SOUNDNES	SINCO	NCRETE	E CRD-C	40, 114	1:									F&T	ни-со	но-см
FINE A	GG.				COAF	SE AGG:						OFE37	,			-
FINE AC					COAF	RSE AGG:						DFE 37	0			
PETROGRA	APHIC D	ATA (C	RD+C 127	'):												
																1
																
REMARKS:	T				.										÷	
*	Inst	IIIIC	lent	mat	eria	1 for	test.									İ
																}
		·														[
ENG FORM	6311-R															

SOURCE NO. 68

LAKE PEARL SAND & GRAVEL

MARKSVILLE, LA

STATE:			EX NO.		11	AG	GREGAT	E	TES	TED BY	· [JSAEW	ES			~
LAT:	31		NG.:		92	DAT	A SHE	ET :	DATE	ε: ັ	17 T	Decem	her 1	959		
LAB. SYN	MBOL NO.: NO.	-24 S	3-1,	G-5	Job	6358		TYPE	OF	MATER	IIAL: N	Vat.	Sand	and	Gra	vel
LOCATION	n: Ward-3,	, Avc	yell	es F	arish	ı, La.	, Lot	No.	1,	Bool	c A-	-17,	Page	513.	ap	nrox
9 acr	es. Bound	ded N	: Pub	olic	Road.	S Lal	ke Boar	d. !	ΞĴα	osept	ı Ma	aveau	x. ;;	Feli	×).	ucote
PRODUCE	R: Lake re	earl	Sand	l and	Grav	rel Co	.,	~		hal	Î wa	ay be	tween	Hes	rer	and
	<u> </u>	ille,	La.							Mar	is ur	a, L	a <u>.</u>	4	<u> </u>	Gira
SAMPLEC	BY: New (ict						10	<u>ــ ويا</u>	<u> </u>			
TESTED	FOR: Old F	River	· Nav	rigat	ion I	ock										
PROCESS	SING BEFORE T	ESTING	Gra	ded	bv si	eve si	erarat	ion								
					<u> </u>	<u> </u>	Jour wo.	LU.1								
	·															
GEOLOGI	CAL FORMATION	N AND	AGE:													
																
GRADING	G (CED-C 103))(CUM. 1	75 PAS	SING):	T		CCT DE	6111	70			1	T T			FINE
	1	7	1	T	1	['	EST RE	SUL	.15	l		3-6"	1 2 - 3"	3-12"	#4-3	FINE
SIEVE	3-6" 12-3"	355	#4-3"	FINE AGG.			- 5::25 DD	1460				+	 	(c)	(c)	AGG.
6 IN.	- nist	aded	 	 			SURF DRY):	 -				52.62
	 				 		CENT (CRD		<u> </u>			 	1		1.8	0.7
5!N.	ļ	<u> </u>	<u> </u>				IES, F.G. N									- 0
41N.	<u> </u>	<u> </u>		<u> </u>	1		, PER CENT			"		1		!	0.0	
3:5.	 			<u></u>			ER THAN S					1			€.2	-×-
2 2	ļ'			İ			AND ELONG								0.3	
210.							LOSS, 5 CYC				■4-½)(CRD-	C 115)		2.2	7.8
1월 :N.		100					(L. A.),%,								7.9	
EIN,		96		·			FT (CRD-					 	1			1
<u>3</u> :N.		66	100	1	CLAY L	UMPS, %	(CRD-C I	18)		***************************************		1	-		0.7	,†
į V		17	26		+		E, % (CR		122);			 	!!	i		-0.0
₹ . N.		5	+				T				: (5-7)	(G-5	7		1.0
NO.4	: -	ĭ	2				H NaOH (557	<i>)</i>		+
NO.8	1			94	1						mM/L:	+	1.53			+
NO.:6						- MAKING	PROPERTI	FS (C	RD-			1 -0	11.33			
NC 30	 						ENT, RATI				91	en	7 .	0 A V Q	85	67.
NC.50	 		 				L EXPANS							JATO	_ >_>	
NO. 100					1	ROCK			,				,			
NC.200	 			4	I	RUCK	TYPE		PARA	ALLEL	AC	.ROSS	ON		AVER	AGE
- 200 ^(a)	 			, -	I —			i	 -		┼		 			
F.M(b)				3.0	I						 		ļ			
	<u> </u>			2.38	į L				<u> </u>		<u> </u>		<u> </u>			
(a) C3D-(C 105 (a) CR	D-C 10	34		MORTA	R:										·
MORTAR -	BAR EXPANSION	N AT 10	0F. %	(CRD-	C 123):	ļ	FINE AG	GREG	ATE		\perp		OARSE	AGGRE	SATE	
						1 3 MO.	6 MO.	9	MO.	12 MC). 3	мо.	6 MO.	9 1	10.	12 MQ.
	ALK. CEMENTS				VALENT:		<u> </u>									
HIGH-A	ALK.CEMENT:		70 Na ₂ () EQUIV	VALENT:	1										
SOUNDNE	SS IN CONCRE	TE (CR	D-C 4	0, 114):								F&T	HW-	CO	HD-CW
F NE A	AGG.			-	COARSE A	GG:					DF	E 300				
FINE A					COARSE A						DF	E 300		i	-	
PETROGRA	APHIC DATA (C	CRD-C	127):	Sa	nd is	clear	i, unst	air	ned,	, hig	hly	rour	nded,	qua:	rtz	with
some (chert, mo	stly	in	size:	s lar	ger th	an No.	, 16	5.	Cont	ain	s a f	ew i	gneor	บราส	and
scft 1	brown par	ticl	es,	also	some	fragi	le par	tic	les	of	100	sely	ceme	nted	·sa:	nd
grains	S.		-			•	-			•		- ,			-	104
G:	ravel is	abou	t 58;	% de:	nse, 1	28% fr	racture	ed.	and	8%	por	ous (hert	witi	- 6	1
misce.	llaneous	cons	titu	ents	most.	ly qua	irtz.	Gra	vel	was	תנו מנו	stair	ed w	i+h ;	. ບ, ຂ ນຳ	ide ide
ange /	of shapes		-			-0 -1		٠		. "	Ce	Suca.	.cu	T 71.	ي د	.uc
		•														
25:14246						• • •										
REMARKS:	" * Lig	htwe:	ight	pre	ses, s	specii	ic gra	.vit	у і	ess	tha	n 2.0	00 pe:	r cer	:t -	- 0.0.

SOURCE NO. 69
RIVER SAND & STONE

GOLCONDA, IL

STATE	111.		IND	EX NO.:	<u> </u>		1.00	DEC	TE	TEST	ED DV.	ORB Lat	20==+	0=14	-	
	370 N										7-2		JUIA	,01 10	,	
				iG.:	88	M.	UAI	× 311					3 7 4			
	MBOL NO								TYPE	OF	MATERIAL	Crush	פע גי	mest	one	
LOCATI	on: She	tler	<u>vill</u>	.e, I	11.											
PRODUC	ER: P.	R. F	rown	Sto	40 C	0., G	olcond	la, I	11.	N	ow Riv	er San	<u>ک ب د</u> ہ	tone		
SAMPL	ED BY: 1	la La	Wren	66.	Unio	ntown	Flood	Con	trol	Off	ice					
	FOR:															
	SING BEF				<u> </u>											
								.								
CEOLO	CICAL FO	PLANTION	ANID	ACE:	W		<u> </u>		4			······································				
GEOCO	SICAL FOR	WAT ION	AND	AGE.	4014	wec*	WJ RR J'E	sibb	180							
												· ·				1
GRADI	NG (CRD	- C 103)	(CUM.	70 PASS	SING):	1	TE	ST	RESUL	TS		3-6"	1 1 - 3"	3-15"	#4-3°	FINE
SIEVE	3-6"	14-3"	3-14"	=4-3"	FINE								1			AGG.
					AGG.	BULK SP	. GR., SAT	SURF I	DRY (CRI)-C	107,108):			2.68		ļ
6IN.						ABSORPT	ION, PER	CENT (C	RD-C I	07,10	8):			0.4		
SIN.						ORGANIC	IMPURIT	ES, FIG	. NO. (CF	D-C	121):					
41N.	1					SOFT P	ARTICLES,	PER C	NT (CR	о-c	130):					
3IN.		 -		<u> </u>		PER CEN	T LIGHT	R THA	N SP. GR.		(CRD-C 12	9):				1
2 IN.			 -			PER CEN	T FLAT	AND ELC	NGATED	(CRD	-C 119,12	0):	(1)			
2 IN.		 				WEIGHTE	D AV. PER	CENT	LOSS, 5	CYCL	ES MaSO	(CRD-C		5.0	5.0	†
1 ± IN.		 				+	N LOSS (T	0.2		1
I IN.				-		 								-	1	
		 	 	ļ			LB/CU						}	27.3	-	
3 IN.							JMP3, %						ļ		-	
⅓!N.		ļ		ļ			ND LIGNIT									
åIN.							HEAT, B						.		ļ	
NO. 4						REACTIV	ITY WITH	H NaOH	(CRD-	C 12	8): Sc,ml	1/L:	ļ		ļ	
NO. 8			<u> </u>			<u> </u>					Re,mh	1/L:	<u></u>		<u> </u>	<u> </u>
NO.16		<u> </u>		1		MORTAR	- MAKING	PROPE	RTIES (C	RD-	C 116)					
NO. 30)			1		TYPE	CEM	ENT, R	AT IO	t	DAYS,	90	DAYS,			
NO.50) [LINEAR	THERMA	L EXP	NOISNA	XIO S	DEG. F.	(CRD-C 12	5,126):			
NO. 10	0					1	ROCK	TYPE		PAR	ALLEL	ACROSS	O	v	AVER	AGE
NO.20	0					1					i					
- 200	(a)					1							1			
F.M	ъ			 		1 -							†			
(a) CB	D-C 105	(b) CF	10-C I	04	<u></u>	MORTA	R:			L	L	·····	1			
(0) 5		(0) (1)					T	FINE	AGGREC	ATF		i .	COARSE	AGGRE	GATE	
MORTA	R-BAR EX	PANSIO	N AT I	00F, 97c	(CRD	-C 123):	3 MO.				12 MO.					12 MO.
	ALK CEA	AENT!		07. N.	o Fou	WALENT.	3 ***0.	+	" "	MO.	12 110.	3 MO.	0 200			IZ MO.
	-ALK.CEI -ALK.CEI								-+-		 	 		-		
							<u> </u>				<u> </u>	L		+		
	NESS IN						D E	. B					FAT	HW-	-CD 1	4D-CM
FINE	AGG	AUSE	a tur	AT.		COARSE A	GG: P.E	B-1	MIT			DFE 300	61			
	AGG.					COARSE A	GG: P.F	.br	WIZ.			DFE 300	55			
	GRAPHIC					- 3			- 30	- I	64					
										7º 8	or ter	mediu	m-gra	inec	•	
SOX	ewha t	arg	TITEC	eous	001	itic	Limes	cone.								
ļ																
1																
1																
DEMAN	KG:			-												
neman	KS: (1)	AST	:- Ç88													
	St	one r	g Joi	rade	a •											



STATE:	Illi	nois	IND	EX NO.	<u>3(su</u>	PP	<u>(#1)</u>	AGG	REGAT	Ε	TESTE	D BY:	ORI) La	bora	tori	28		
LAT.:	37 N		LO	VG.:	_88	W		DATA	SHEE	T	DATE:		VON.	emb	er l	965			
LAB. SYM	BOL NO	o.: 6	6111	- 2						TYPE	OF M	ATERIA	L:	Led	ge Re	ock			
LOCATION	: Sh	etle	rvil	le, 1	1111	10	is												\Box
	17-	+	C+ a				/12	1	* 0	70		0							
PRODUCE								merty	F. R.	BE	own	Quar	ry)						
		w R																	
SAMPLED				ille		_					72.	A 1 2 -							
TESTED					. & I	<u>) ·</u>				TOT	/66.	346L							
PROCESSI																			
Lab	orat	ory	Crus	ned															\dashv
GEOLOG!C	AL FOR	MATION	I AND	AGE:	Lec	lg	es 5	. 6						-					
										Le	dge	No.			···-	5	6		$\neg \neg$
GRADING	(CRD-	- G 103	CUM.	7o PA55	ING):	Г		1 75	ST RE									1	FINE
		·		·					יין וכ	30 L	لك		- 1	3-6"	1 1 - 3"		#4-	1	AGG.
SIEVE	3-6"	1 1/2 - 3"	3-15"	*4− ₹″	AGG.	В	JLK SP.	GR., SAT	SURF DRY	(CRI	D-C 10	7,108):	-			(c) 2.64	2.6	_1_	
BIN.						A	SORPT	ION, PER	ENT (CRD	-C 1	07,108):				0.8	0.5	Т	
SIN.						Oi	RGANIC	IMPURITE	ES, FIG. N	D. (CF	RD-C I	21):	1					-1	
4IN.						s	OFT PA	RTICLES,	PER CENT	(CR	D-C 13	10):						1-	
3IN.					-				R THAN S				29):				Γ.	1-	
2½ IN.						PE	R CEN	T FLAT A	ND ELONG	ATED	(CRD-	C 119,1	20):				i	1	$\neg \neg$
2IN.						w	EIGHTEI	D AV. % L	oss, 5 CYC	. Mg	504 ((c)	± -1", ₩.	4-1)(CRD-C	: 115)	0.6	0.8	1	
I₫IN.						_			A.), %,							35	28	\neg	
I IN.						-			FT (CRD-			******						+	
∄IN.						CI	AY LU	MP3, %	(CRD-C !	18):	~~~~							+	
in.						c	DAL AN	D LIGNITE	, % (CR) - C	122);		1.						$\neg \neg$
₹IN.						-			U/LB/DEG			124):	- 1					十	
NO. 4									NaOH (+	
NO. 8									•			Rc,m					-	+	
NO,16						м	ORTAR-	MAKING	PROPERTI	S (0	RD - C					L	l		
NO. 30						·			ENT, RATI					97.		DAYS,_			~_
NO.50		-				-			EXPANS									_	=
NO. 100		-						ROCK			PARAL		ACR		Or	<u>, </u>	AVE	RAGE	_
NO.200														<u> </u>	 	-+			- 1
- 200 ⁽⁴⁾																			\dashv 1
F.M ^(b)											ļ							—	
(a) CRD-		(b) CE	D-C I	04			MORTA	P ·			L				1				-
,-, -,,,			'						FINE AG	GREC	ATE				CARSE	AGGRE	GATE		
MORTAR -	BAR EX	PANSIO	N AT K	00F, %	(CRD-	·c	123):	3 MO.	6 MO.			12 MO.	1	мо.	5 MO.			13	MO.
LOW-A	LK CEL	ENT:		70 Na-	D EQUI	VΑ	LENT:	3 410.	- MO.	-			+-		- MO.	+			
	LK.CEN			70 Naz					 		-+		+-			+-			
SOUNDNE			~						<u> </u>	<u> </u>					FET	HW-	-CD	HD	-cw
		Leb.				_	ARSE A	GG: Y	edge 1	70	5		DFE:	300					
		Lab.					ARSE A		edge !			,	DFE		70.0				
PETROGR											<u> </u>				<i></i>		1		
Ledg.		te: Dar	cture k gr	d, d eyis	ense h ye	1	hard	i, tou sh bro	m grai gh wit wn ool exture	h :	subco Lo li	n c ia inest	oida cone	.1 fr	recti	ire.		εi	ned
REMARKS	:																		

STATE:	111	inois	IND	EX NO.	<i>3(</i> se	PPL#2)	AGG	REGAT	Ε	TESTE	D BY:	ORI) La	bora	tori	28	
LAT.:	37	N	LON	₩G.:	88	W	DATA	SHEE	T	DATE:	N	over	nber	196	5		
LAB. SYM	BOL I	٧٥.:	6611	3-4							ATERIA						
LOCATION	4 :	Shetl	ervi	lle.	111	inois											
PRODUCE	B:	Wateo	n St	OUE (hiar	rv	Now	Dile	S	1 6 1	C I						
7110000		, a c 5 c		<u> </u>	(541.		1000	KIVEF	201	•	stone						
SAMPLED	514	Toute		- D4													
TESTED						<u> </u>		/10	1/6	()/	<i>(-)</i>						
					ע			(10	1/0	6.34	נים						
PROCESS																	
Labo	orat	ory C	rusn	ea													
GEOLOGIC	CAL FO	DRMATIO	DIA P	AGE:	L	edges	7 & 8										
												Lec	ige	No.	7	8	
GRADING	(CR	D-C 103)(CUM. 1	% PAS	sing):		TE	ST RE	SUL	TS				11-2"	2_11"		FINE
		" - "		3"	FINE	1	<u> </u>					1	3-6	, 5 - 3	(c)	(c)	AGG.
SIEVE	3-6	" 11 -3"	2-12	-4-7	AGG.	BULK SP	. GR., SAT	SURF DRY	(CRE	-C 10	7,108):				2.73	2.6	56
SIN.	T	1	1				TION, PER C								0.3		
51N.	† —	1				 	IMPURITE			<u> </u>							_
4IN.	 	 	<u> </u>	 			ARTICLES,										
31N.		+	 	 			IT LIGHTE					9):				 	
2 IN.	 -	+	 	 			T FLAT A									 	
	 	 	 												. 2	0	
2 IN.	ļ			<u> </u>	<u> </u>		D AV. % L					1- 2) (c	CRD-C	115)			3
l∄IN.	<u> </u>		<u> </u>	 			N LOSS (L				· .				16	27	
I IN.			<u> </u>	ļ			r., LB/CU			5):						ļ	
₹IN.	<u> </u>		<u> </u>	<u> </u>			JMPS, 70									<u> </u>	
⅓ IN.	ļ	<u> </u>	ļ	<u> </u>	ļ		ND LIGNITE										
IN.	<u> </u>		ļ	<u> </u>			HEAT, BT									<u> </u>	
NO. 4			<u> </u>	ļ	ļ	REACTIV	HTIW YTH	NaOH (CRD-	C 128): Sc,m	M/L:				<u> </u>	
NO.8		1		l		<u> </u>					Rc, m	M/L:		L			
NO.16		1			<u> </u>	4	-MAKING										
NO. 30						TYPE	CEME	ENT, RATI	0	D	YS,		⁷ y		DAYS,_		%
NO.50	l				İ	LINEAR	THERMAL	EXPANS	ION .	X10 %	DEG. F.	(CRD	-C 12	5,126):			
NO. 100							ROCK	TYPE		PARA	LLEL	ACR	055	0	4	AVE	RASE
NO.200																	
- 200 ^(a)	1	7				1									$\neg \tau$		
F.M.(b)		1				1											
(a) CRD~	C 105	(b) C	RD-C I	04		MORTA	R:							J			
 						L	T	FINE AC	GREC	ATE		1		COARSE	AGGRE	GATE	
MORTAR -	BAR E	EXPANSIO	TA M	00F, 70	(CRD	-C 1S3):	3 MO.	6 MO.	_	γ-	12 MO.	13	MO.	6 MO			12 MQ.
LOW-	ALK C	MENT:		70 Na	O FOU	IVALENT:		1	-			+-		•	 		
		EMENT:				IVALENT:	 	 	 			+			+		
		····					<u> </u>	Ь				ــــــــــــــــــــــــــــــــــــــ		- · ·	1212	- C D	40-CH
SOUNDNE												DEE		F&T			HD-CW
FINE			Stan			COARSE A	GG: Led	ige No	<u></u>			DFE DFE		74.7			
FINE			Sta		<u> </u>	COARSE	GG: Led	ge No	. 8			DF E	300	77.3			
PETROGR																	
Ledg		ar ac : Da	gilla id i	sceou nsolu rowni	s, : ble sh :	lithog resid	e grai raphic lue pri	in to incipa	ext: lly	qua	Dei rtz.	nse,	, he	rd,	toggi	a, 3	
REMARKS	S:							······································						<u>,,,</u> ,		,	

					3(s	17P1 #3	AGG	REGAT	ε	TEST	ED BY:					ries	1
LAT.:	37 N				88	W	DATA	SHEE						ber :			
LAB. SY		NO.:		15-6					TYPE	OF	MATERIA	r: I	edg	e Ro	ck		
LOCATIO	ON:	Shetl	ervi	lle,	111	inois								.,			
PRODUC	ER: W	atson	Sto	ne Qi	arr	У	Now	River	San	d F	Stone						
																	
SAMPLE	D BY:	Lou	isvi	lle I)ist	rict											
TESTEC	FOR:	Uni	onto	wn L	& D		(10	1/66.	346	L)		******		·			
PROCES	SING B	EFORE T	ESTING	:		****											
Labo	rato	ry Cr	ushe	d								·····					
							·										
GEOLOG	ICAL F	ORMATIO	AND	AGE:	Led	ges 9	& 10										
											Le	dge	No.		9	10	
GRADIN	NG (CR	D-C 103	(CUM.	70 PAS	SING):	T	TE	ST RE	SUL	TS		- - -T			3		FINE AGG.
	Τ	,, -,,		3//	FINE	1	L				i		3-6	12-3	7 - 12 (c)	(c)	AGG.
SIEVE	3-6	" 12-3"	2-12	4- 4	AGG.	BULK SF	GR., SAT	SURF DRY	(CR	D-C I	107,108):				2.62	2.6	7
61N.	1		<u> </u>				TION, PER C								1.0		
5 IN.	1					CRGANIC	IMPURITE	S, FIG. N	D. (CF	2D-C	121):	1-					-
4 IN.						SOFT P	ARTICLES,	PER CENT	(CR	o-c	130):						-
3IN.						PER CEN	T LIGHTE	R THAN S	P. GR.		(CRD-C 1	29):					
2½ IN.	1					PER CEN	T FLAT A	NO ELONG	ATED	(CRD	-C :19,1	20):					1
2 IN.						WEIGHTE	D AV. % L	oss, 5 CYC	. Mg	504 ((i) ½ -1°, «,	4-1)(0	CRD-C	: 115)	0.8	1.6	1
1 ½ IN.						7	N LOSS (~							31	26	
I IN.						UNIT WI	r., LB/CU	TT (CRD-	C 10	6):							
N.						CLAY L	JMPS, %	(CRD-C I	18)-								1
½ IN.						COAL A	ND LIGNITE	, % (CR) - C	22):		-					-
₹1N.						SPECIFIC	HEAT, BT	U/LB/DEG	. F. (CRD-	C 124):						
NO. 4						REACTIV	TY WITH	NoOH (CRD-	C 12	8): Sc,m	M/L:					
NO.8		1				1					Rc,m	M/L:					
NO.16						MORTAR	-MAKING	PROPERTI	S (0	RD-	C 116)						
NO. 30						TYPE	СЕМ	NT, RATI	o	t	DAYS,		979,		DAYS,_		
NO.50						LINEAR	THERMAL	EXPANS	ION	XIO 9	DEG. F.	(CRD	-C 12	5,126):			
NO. 10	0] [ROCK	TYPE		PAR	ALLEL	ACR	os s	Ol	4	AVEF	LAGE
NO.20	- 1					l L											
- 200						J L											
F,M.	6)																
(a) CRD	-C 105	(P) CI	D-C I	04		MORTA	R:										
MORTAR	- BAR I	XPANSIO	N AT I	10 F %	(CRD	-C 123):		FINE AG	GREC	SATE			Ċ	OARSE	AGGRE	GATE	
				, , , , , , , , , , , , , , , , , , ,			3 MO.	6 MO,	9	мо.	12 MO.	. 3	MO.	6 MO.	. 9	MO.	12 MO.
LOW	-ALK. CI	MENT:	•	70 Na₂	O EQU	IVALENT:											
HIGH	-ALK.C	EMENT:		70 Na ₂	O EQU	VALENT:											
SOUND	ESS IN	CONCR	ETE (CF	RD-C	10, 114):								F&T	HW-	-CD	HD-CW
	AGG.	200				COARSE A	GG: Le	dge No	ٔ ه د	9		DFE;	000	73.8			
		Lab.			<u> </u>	COARSE A	ιcα: Le	dge No		10		DFE	300	77.2			
1 .		DATA															
Ledg	<u>e 9</u> :	a.	Ligh	it ol	ive	gray	ooliti	c lime	est	one.	. Ve	ry d	ens	e, ha	ard a	and	tough
1							ure wi										_
l		ь.					ay, fi	ng gra	ain	ed o	oolit:	ic 1	ime	stone	2. I)ens	e,
				and													
Ledg	e 10	: а.	Dan	k ol	ive	brown	, coar	se gra	ine	ed o	cryst	allí	ne :	limes	stone	. wi	th
			abu	indan	it do	lomit	ic sea	ms and	1 00	ccas	siona.	l th	in a	argil	lace	90us	
•			gea	ims.	77.	acid	insolu	ble re	esio	due,	. Dei	nse,	har	cd, t	ough	۱.	
ļ																	
REMARK	હઃ																
1																	
L																	

AGGREGATE DATE STED BY: ORD Laboratorie DATE DATE DATE DATE: November 1965	FINE
NB. SYMBOL NO.: 66117 TYPE OF MATERIAL: Ledge Rock NO.: 5hetlerville, Illinois RODUCER: Watson Stone Quarry Now River Sand ! Stone RODUCER: Watson Stone Quarry Now River Sand ! Stone RODUCER: Watson Stone Quarry Now River Sand ! Stone RODUCER: Watson Stone Quarry Now River Sand ! Stone RODUCER: Watson Stone Quarry Now River Sand ! Stone RODUCER: Watson Stone Quarry Now River Sand ! Stone RODUCER: Watson Stone Quarry Now River Sand ! Stone RODUCER: Watson Stone Quarry Now River Sand ! Stone RODUCER: Watson Stone Quarry Now River Sand ! Stone RODUCER: Watson Stone RODUCER: Watson Stone Quarry Now River Sand ! Stone RODUCER: Watson Stone RODUCER: Sand Stone RODUCER:	'i
ODUCER: Watson Stone Quarry Now River Sand 1 Stone MMPLED BY: Louisville District STED FOR: Uniontown L & D OCCESSING BEFORE TESTING: Aboratory Crushed COLOGICAL FORMATION AND AGE: Ledge 12 Ledge No. IZ STRADING (CRD-C 103)(CUM. 70 PASSING): SIEVE 3-6" 1½-3" 2-1½" 14-2" FINE AGG. BULK SP. GR., SAT SURF DRY (CRD-C 107,108): ABSORPTION, PER CENT (CRD-C 107,108): 51N. ORGANIC IMPURITIES, FIG. NO. (CRD-C '21): 41N. 31N. PER CENT LIGHTER THAN SP. GR. (CRD-C 129): PER CENT LIGHTER THAN SP. GR. (CRD-C 119,120): 21N. VISIGHTED AV. 78 LOSS, 5 CYC. Mg804 (C) 2-1", *4-½) (CRD-C 115) 1.4 VISIGHTED AV. 78 LOSS, 5 CYC. Mg804 (C) 2-1", *4-½) (CRD-C 115) 1.4 VISIGHTED AV. 78 LOSS, 5 CYC. Mg804 (C) 2-1", *4-½) (CRD-C 115) 24 VISIGHTED AV. 78 LOSS, 5 CYC. Mg804 (C) 2-1", *4-½) (CRD-C 115) 24	'i
MPLED BY: Louisville District Sted For: Uniontown L & D (101/66, 346L)	'i
STED FOR: Uniontown L & D	'i
Mappled By: Louisville District STED FOR: Uniontown L & D (101/66, 346L)	'i
Cological Formation and age: Ledge 12 Ledge No. 12	'i
Cological formation and age: Ledge 12 Ledge No. 12	'i
Comparison Com	'i
Laboratory Crushed Ledge 12 Ledge No. 12	'i
Ledge No. 12	'i
CRADING CRD-C 103 CUM. 70 PASSING): TEST RESULTS 3-6" 1½-3" ½-1½" 44-2" FINE AGG. BULK SP. GR., SAT SUFF DRY (CRD-C 107, 108): 2.70	'i
TEST RESULTS 3-6" 1½-3" 2-1½" 4-2" FINE AGG BULK SP. GR., SAT SURF DRY (CRD-C :07, 108): 2.70	'i
TEST RESULTS 3-6" 12-3" 3-12" 4-3" FINE	'i
SIEVE 3-6" 1\frac{1}{2}-3" \frac{2}{2}-1\frac{1}{2}" \frac{4}{2}" \frac{1}{4}\frac{2}{4}" \frac{1}{4}" \frac{1}{	AGG
SIEVE 3-6" 1½-3" 2-1½" 44-3" AGG. BULK SP. GR., SAT SURF DRY (CRD-C :07,108): 2.70 61N. ABSORPTION, PER CENT (CRD-C :107,108): 0.4 51N. CRGANIC IMPURITIES, FIG. NO. (CRD-C :21): 0.4 41N. SOFT PARTICLES, PER CENT (CRD-C :20): 0.4 31N. FER CENT LIGHTER THAN SP.GR. (CRD-C :29): 0.4 2½ IN. PER CENT FLAT AND ELONGATED (CRD-C :19,120): 0.4 21N. V.EIGHTED AV. % LOSS, 5 CYC. MgSO ₄ ((c) ½-1', #4-½) (CRD-C :15) 1.4	-
61N. ABSORPTION, PER CENT (CRD-C 107, 106): O.4 51N. CRGANIC IMPURITIES, FIG. NO. (CRD-C '21): 41N. SOFT PARTICLES, PER CENT (CRD-C '30): 31N. FER CENT LIGHTER THAN SP.GR. (CRD-C :29): PER CENT FLAT AND ELONGATED (CRD-C :19,120): V.EIGHTED AV. % LOSS, 5 CYC. MgSO ₄ ((c) ½ -1', %4-½) (CRD-C :15) 1.4	
CRGANIC IMPURITIES, FIG. NO. (CRD-C '21): 41N.	
SOFT PARTICLES, PER CENT (CRD-C 130): 31N.	
31N. FER CENT LIGHTER THAN SP.GR(CRD-C !29):	-
2½ IN. PER CENT FLAT AND ELONGATED (CRD-C:19,120): V.EIGHTED AV. % LOSS, 5 CYC. MgSO ₄ (C) ½-1', #4-½) (CRD-C:1/5) 1, 4 CONTROL LOSS (L.A.) 70 (CRD-C:7): 24	1
ZIN. V. EIGHTED AV. % LOSS, 5 CYC. MgSO ₄ ((C) \(\frac{1}{2}\)-1°, #4-\(\frac{1}{2}\)(CRD-C 11S) 1.4	-
100 (CRD-C 7)	\
ABRASION LOSS (L. A.), %, (CRD-C 7)	
	-,
I'IN. UNIT WT., LB/CU FT (CRD-C 106):	
\$1N. CLAY LUMPS, % (CRD-C 118):	+
IN. COAL AND LIGNITE, % (CRD-C 122):	
IN. SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):	
NO.4 REACTIVITY WITH NOOH (CRD-C 126) Sc, mM/L	-,
NO.8 ReyMM/L	
NO.16 MORTAR-MAKING PROPERTIES (CRD-C 116)	_
NO.30 TYPE CEMENT, RATIO DAYS, DAYS, DAYS,	
NO.50 LINEAR THERMAL EXPANSION XIC 9DEG. F. (CRD-C 125,126):	
NO. 1CO ROCK TYPE PARALLEL ACROSS ON AVE	.= UE.
NO.20C	
- 200 ^(c)	
F.M.(D)	
(a) CRD-C 105 (b) CRD-C 104 MORTAR:	
FINE AGGREGATE COARSE AGGREGATE	
MORTAR-BAR EXPANSION AT 100F, % (CRD-C 123): 3 MO. 6 MO. 9 MO. 12 MO. 3 MO. 6 MO. 9 MO.	12 M
LOW-ALK CEMENT: % No 20 EQUIVALENT:	
HIGH-ALK, CEMENT: % No 20 EQUIVA LENT:	
SOUNDNESS IN CONCRETE (CRD-C 40, 114): F&T HW-CD	HD-C
FINE AGG. Lab. Standard COARSE AGG: Ledge No. 12 DFE300 79.8	
FINE AGG. COARSE AGG: DFE 300	
PETROGRAPHIC DATA (CRD-C 127):	
a. Dark, olive gray dolomitic limestone. Dense, fine to medium grained	į
enveralling highly dolomitic limestone.	
is a second of the contract of	1 0
b. Moderate to dark to dusky yellowish blown bollete limescone. Median	
coarse grained, dense, hard and tough.	
coarse grained, dense, hard and tough.	
coarse grained, dense, hard and tough.	
coarse grained, dense, hard and tough.	
coarse grained, dense, hard and tough.	
coarse grained, dense, hard and tough.	
coarse grained, dense, hard and tough. REMARKS:	<u></u>

STATE:	1111	nois	INDE	X NO.:	3(su	PPL \$5)	AGGR	EGATE	TEST	ED BY:	ORD May 1	Labs	•		
AT.:	37	N	LON	G.: 2	381	<u> </u>	DATA	2000	DAIL	•	ridy +	700		11/	
AB. SYME	OL NO	.: ი	R-66	194				TY	PE OF	MAIERIAL	- Led	ge Ko	CK 1	F14	
OCATION:	:	Shet	lerv	<u>ille</u>	<u>, 11</u>	linois	I R	iver !	2 4	> torre	·6)				
RODUCER	:		Wat	son	Ston	e Comp	any								
		.	44	11.	D4 = t	-1 a t	C of E								
		Lou	1871	TIE .	U18L	rict,	C of E	<u> </u>	(10	1/66.	3891.)				
PROCESSI		OBC TO			WII L	OCKS C	L Dam								
HUCESSII	NG BEF	UKE TI													
GEOLOGIC	AL FOR	MATION	AND	AGE:			Ledge	No. 1	4						
															
GRADING	(CRD-	C 103)	(CUM.	70 PAS	SING):			T RES			3-6	" ½ - 3"	3-15	" " 4-3	FINE AGG.
215115	2 . "	14-3"	2-11"	m4-3"	FINE		GR., SAT S				_	7 1½-3" 2.69	(c)	(c)	7
SIEVE	3-0	13-3	4-12	-	AGG.	BULK SP.	GR., SAT S	SURF DRY	CRD-C	107,108):		0.41	0.4	6 0 7	-
SIN.							ION, PER CI					U.41	0.4	0.7	.
5 IN.							IMPURITIE:				-	+	-	 -	1
41N.				<u> </u>		SOFT PA	RTICLES, F	THAN SO	GR.	(CRD-C I	29):	+		+	1
319.							T FLAT AN					+	 	+	1
2 IN.			<u> </u>	 							4-1/2)(CRD	-C 115)	1	2.40	
2 IN.				 			LOSS (L						28.3		
1 IN.				 	 		., LB/CU F								
3 IN.			 	† 	1		JMPS, 970 (
⅓IN.		-		1		COAL AN	D LIGNITE	, % (CRD	-C 122):					1=	
₹IN.		 				SPECIFIC	HEAT, BT	J/LB/DEG.	F. (CRD	-C 124):		_	<u> </u>		
NO. 4		 				REACTIV	TTY WITH	NaOH (C	RC-C 12				 		
NO. 8						<u>]</u>					nM/L:				
NO, 16					<u> </u>	MORTAR	-MAKING	PROPERTIE	s (CRD-	- C 116)	OT.		DAYS		%
NO. 30		<u> </u>	<u> </u>	ļ	<u> </u>	TYPE	CEME	NT, RATIO	ON Y10	ONTS,		25.126):			
NO.50		-	<u> </u>			LINEAR	ROCK				ACROSS		ON	AVE	RAGE
NO. 100		 	-	- 	-	┨ ├──	HOCK								
- 200 ^{(a}		 	 	╁━-	 -	┥├──			_						
F.M(b)		 	┼	-	+	┨ ├──									
(e) CRD-		(р) С	RD-C	104		MORT	AR:								
								FINE AG	GREGATE					REGATE	
MORTAR	-BAR E	XPANSI	TA MC)-C 153):	J 1410,	6 MO.	9 MO.	12 M	D. 3 MO.	6 M	10. 9	MO.	12 MO.
LOW-	ALK. CE	MENT:				JIVALENT:		ļ				-	\dashv		
·	ALK.CE					JIVA LENT :		1	L			FB	- 1	w-cD	HD-CW
SOUNDN	ESS IN	CONC	ETE (CRD - C	40, 11			2422	17.		DFE 300	6.			
	AGG.	7.05	C+	a a		COARSE		edge 🕯	14		DFE 300				
PETROG	AGG.					COMMOR	~~~								
Calc Dold fa Foss High	caren miti mirly milif mly D	ite c Li eve erou olom	- gr gtho n te s Li itic	ayis grap xtur mest Lim	h re hic ed. one esto llow	Limest - mode ne - c ish fi	erate y olive g ine gra	dium l rellowi græy ve ined d	ight sh br ry fi lense	brown ownis ine gr & har	ish gr h ained				
REMARK	·\$:	·· <u></u> · · · · · ·													

LAS SOURCE NO. 10800 TYPE OF MATERIAL LOCATION Shetlerville, Ill., mile 896 on Ohio River	
LAM STABLE NO. LUOUU	
Shetlerville, Ill., mile 896 on Ohio River	
River Sand and Stone Co., formerly Watson and Brown Qu	arry
SAMPLED BY.	
TESTED FOR Blytheville AFB	
DSEC A- Blytheville, AFB, Contract 69-0186, Paving	
PROCESS NG BEFORE TESTING	
JECLOS CAL FORMATION AND AGE	
TECT DECLUTE	
GRADING (CRD-C 103) (CUM. * FASSING! TEST RESULTS 3-6" 11-3" 4-1" 24-3"	FINE AGG.
SIEVE 3-6 13 2-1; P4-3 FINE AGG. BULK SP. GR. S.S.D. (CRD-C 107, 108) 2.70 2.6	
0.5.0.7	
ABSORPTION, 1 CFD-C 107, 1081: 0,5 0,7	
5 %. ORGANIC IMPURITES, FIG. NO. (CRO-C 121)	
30 000 0.0	
Tr 2.0	
2: A FLAT AND ELEGIA ESTICADO TIS, 1201	
2 04 28.1 25.1	
/1 100	1
0 00	
1150	
NO. 4 (CRD-C '28 NC. mm. L.)	
WC. 5	
NO. 15 MORTAR-WAKING PROPERTIES (CROSC TIT) NO. 30 TYPE CEVENT, RATIO: DAYS, %, DAYS,	
NO. SC LINEAR THERMAL EXPANSION MILLIONTHS/DEG F. (CRD-C 125, 126):	
	ERAGE
NO. 200	
-200 ¹⁰ 0.1 0.5	
F.M.(b	
(e) CRD-C 105 (b) CRD-C 104 MORTAR:	
MORTAR-BAR EXPANSION AT 100F, ~ (CRD-C 123):	E
2 MO. 6 MO. 12 MO. 3 MO. 6 MO. 9 MO. 12 MO. 6 MO. 9 MO.	12 MO.
LOW-ALK, CEMENT. 7: NG2O EQUIVALENT:	
MIGH-ALK, CEMENT: ": Ne2O EQUIVALENT:	
SOUNDNESS IN CONCRETE (CPD-C 40, 1141): FAT HW-CD	HD-CW
FINE AGG. COARSE AGG. OFE 300	
FINE AGG COARSE AGG: PETROGRAPHIC DATA ICRD-C 127: 72% buff-gray to light gray, moderately hard, lithe	praphic
to very fine-grained, slightly fossiliferous, very slightly stylolitic	ind
partly oolitic LIMESTONE.	
	v+ 1 vz
25% medium gray, moderately hard, fine-grained, partly oblitic and slight	ıtıy
fossiliferous LIMESTONE.	
3% medium gray, soft, very fine-grained, argillaceous LIMESTONE.	
!	. cof+
Seven percent of the particles were partly coated with black, moderately	SOLL,
waxy shale to 1/16" thick.	
REMARKS	

SOURCE NO. 70

REED CRUSHED STONE

GILBERTSVILLE, KY

			,														
STATE:	Ky.		INDE	X NO.:	<u> 11 (</u>	<u>(r</u>	ev)		EGATE			BY:	USAE				
LAT.:	37		LON		88		L		SHEE					ov 19			
LAB. SYMI	BOL NO							46	τ.	YPE C	of M	ATERIAL:	Ripr	ap st	one		
LOCATION	:	Gi	lber	tsvi.	lle,	K	у.										
PRODUCER	₹:	Re	ed C	rushe	ed St	to	ne C	0.									
SAMPLED	BY:	Na	shvi	lle l	Dist	ri	ct P	ersonr	nel								
TESTED	FOR:							ructur									
PROCESSI	NG BEF																
USED	0.7.	Maw	nhie			20 1	204										
VSE U	71.	العالا	PUS			7											
GEOLOGIC	AL FOR	MATION	AND	AGE:													
GRADING	(CRD	- C 103	(CUM.	7o PASS	ING):	Γ		TE	ST RES	SULT	s		1 2 6"	1 1 2 - 3"	3 1	" = a = 3	FINE
	· · · · · ·			1				ــــــــــــــــــــــــــــــــــــــ			ت		3-6	12-3	(c)	(c)	AGG.
SIEVE	3-6"	1 2 - 3"	3-17,	#4 - 3"	AGG.	BU	LK SP.	GR. SAT	SURF DRY	(CRD-	C 10	7,108):					
	 	ļ ———		1					ENT (CRD-							1	
6 IN .	 -	 -							s, FIG. NO				1				
5 IN.	<u> </u>	-		 					PER CENT				1				
4 IN.	 			 					R THAN SE):				1
3 IN.		ļ	 						ND ELONGA							-	1
2½ IN.				 					ss, 5 CYC					C 115)			1
2 IN.				 -					A.), %, (1	1			;
I∮IN.				 		+			T (CRD-					 		·	;
1 IN.	ļ	 		 		1			CRD-C II					 	-		
₹ IN.		ļ	 						,% (CRD		2):			 			-
±1N.		ļ	 						U/LB/DEG.			(24):		+	 		!
를 IN.	ļ	ļ			ļ				NaOH (//:	+		-	+
NO. 4		ļ				┦**	CACTIVI	IT WILL	Naon (c	, NO C	. 120,	Rc, mM					1
NO. 8	<u> </u>	ļ	ļ	 		-			PROPERTIE	s (C)	- C				l		
NO.16	ļ	ļ	ļ	 		i							6 77		DAYS,		
NO. 30									NT, RATI								
NO.50			ļ	<u> </u>	 	- -	NEAR						ACROSS	0	N.	AVES	AGE
NO. 100	 	ļ	<u> </u>	ļ	ļ	-	ļ	ROCK	TYPE		PARA	LLEL	ACROSS	+		+	
NO.200				-	 _	4										 	
- 2000			Ĺ	 		4										 	
F.M. b	1	<u> </u>	<u> </u>	<u> </u>	<u> </u>		L									1	
(e) CRD-	-C 105	(ь) с	RD-C	104		1_	MORTA	R:						COARSE	ACCT	REGATE	
MORTAR	-BAR E	XPANSI	ON AT	100F. 7	(CRD	- c	123):	<u> </u>	FINE, AG	,		13 110	3 110	· · · · · · · · · · · · · · · · · · ·		MO.	2 MO.
								3 MO.	6 MO.	9 '	nO.	12 MO.	3 MO.	- MC	, g	.v: U.	Z MO.
	ALK. CE			% Na					 								
	-ALK.CE			% Na			LENT:	<u> </u>	1	L	1		L			W = C 2	4D-C#
SOUNDN	ESS IN	CONCE	ETE (C	RD-C	40, 114								DE E	F &	- HV	v - C D	HD-CW
FINE	AGG.						ARSE A						DF £ 300	 			
	AGG.						ARSE A						DFE 300				
PETROG	RAPHIC	DATA	(CRD-	C, 127):)-C 13								
1									v at F	ailı	re,	cm		1 - ma		- 0	
	_							Plane					llel				
Samp	<u>le</u>	_			uctu	ra		akness				Stru	ctura		ıkne:		
		<u>]</u>	<u>.</u>	<u>2</u> 5			<u>3</u> 8	4	Avg.		<u></u>		2	3			<u>/ Z • </u>
1		6	5						6		7		7	8		7	
2		7	7	7			5	_	6	_	3	-	6	7		3	
3		_	?	10			14	-	11	_	10 7	1	.0	6 9		9	
4		17		9			11	_	L2				8				
REMARK	s: S	amnle	- A -	Thi	s is	r	epre	sente	d by t	est	san	ples	1 and	2. л	redi	um to	coar

REMARKS: Sample A - This is represented by test samples 1 and 2, medium to coarse grained, slightly stylolitic limestone. Sample B - Represented by test samples 3 and 4, fine grained, slightly fossiliferous, shaly, lithographic limestone. Fresh break will produce methane wes form 726 JAN. 1951

STATE:	KY		INDE	X NO.:	11(50)	opl)(re	V)	4GGR	EGATE	7	TESTE	D BY:	SW	D					_
LAT.:	37			G.:			To	ATA	SHEET	r [DATE:				962,	Ju	ve 6	4	
LAB. SYME).: I	C-18	580 -	- 01	1765	0).	994	9 T	YPE	OF M	ATERIAL	-: C	rush	ed S	tone			
LOCATION			C:15	207 -	<u> </u>	e, Ke	n+13	OKY	.l										٦
LOCALION	·		GIIU	ET CB	(111)	E INC	1100	CILY											7
			D 3	<u> </u>	. 1 3	C+	- 0												7
PRODUCER	···		Reea	Crus	snea	Stor	e c	0.				,							ヿ
	***		7 11 1	7 70	1- '	D2 =====													7
SAMPLED						Distr													ヿ
TESTED !					RIV	er L&	<u>10 1</u>	. & <u>2</u>											7
PROCESSI	NG BEF	ORE TO	ESTING:																ᅥ
																			一
																			ㅓ
GEOLOGIC	AL FOR	MATION	AND	AGE:															ᅱ
																	Τ	FIN	=
GRADING	(CRD-	C 103)	(CUM.	70 PASS	ING):	1		TES	T RES	SUL	TS		1	3-6"	1 1 2 - 3"	3-12"	#4-3	AG	i
	"		3 1 **	3"	FINE				URF DRY							(c)	(c)	1	<u>-</u>
ZIEVE	3-6	15-3	3-12	-4-4	AGG.	BULK S	P. GR	, SAT S	URF DRY	(CRD)-C 10	07,108):			2.67				
6IN.						ABSOR	PTION,	PER CE	NT (CRD-	C 10	07,108	3):			0.6	0.6	0.8	<u> </u>	
5 IN.						ORGAN	IC IMP	PURITIES	, FIG. NO	. (CR	D-C	121):						<u>·</u>	
41N.						SOFT	PART!	CLES, P	ER CENT	(CRI	D-C 1	30):				0.0			
31N		100	 						THAN SE				29):						
2 1N.									D ELONGA							5.3		<u> </u>	
		72	100						SS, 5 CYC					(CRD-	C 115)		2.5	;	
21N.		24	1	 												27.6		T-	-
1 ½ IN.	3 96 ABRASION LOSS (L.A.), %, (CRD-C 117): 1 37 100 UNIT WT., LB/CU FT (CRD-C 106): 6 01 CLAY LUMPS, % (CRD-C 118)															1			
110.		1		T	<u> </u>						 -				<u> </u>		 		
∦IN.		<u> </u>	6	91					% (CRD		122):					-	-		_
1/2 IN.		!	1-1-	49	ļ	1						C 134):		<u> </u>	 		†	+-	_
BIN.			1_1_	24	ļ	SPECIF	IC HE	AT, 5	NaOH (. r . (C 131	0 1247			00	1.0	122	+	
NO. 4	<u> </u>	<u>i </u>	ļ	2	 	REACT	IVIT Y	WITH	NAOH (C	.×0-	120		M/L:		29				
NO. 8		1	!	ļ		<u> </u>							1017 [.	<u> </u>	188	125	160	<u>'</u>	
NO. 16		1		ļ					ROPERTIE					_		DAVE			97 _
NO. 30		1	1		<u> </u>	TYPE_		CEME	NT, RATI	<u> </u>		AYS,				_ DAYS,_			
NO.50		!		<u></u>		LINEA			EXPANS	ION	X10 9	DEG. F.	(CR	D-C 12	1 26)				٦.
NO. 100	l		}			J			TYPE		PAR	ALLEL	AC	ROSS	Ran	ge	AVE		-
NO.200		i	1] [_	Lim	esto	ve		<u> </u>				1.6-	3.3	_2.	L	4
- 2000	×						Che	rt			<u> </u>					6.3			4
F.M(b	1					7 🗔					<u> </u>		Ĺ	Wto	1 AV	<u></u>	2.5	5	ال
(a) CRD	-C 105	(P) C	RD-C	104	-	MOR	TAR:												
							\Box		FINE AG	GRE	GATE				COARSE	AGGR	EGATE		
MORTAR	-BAR E	XPANSIC	DN AT	100F, 7	o (CRE)-C 123	3	MO.	6 MO.	9	MO.	12 MC). 3	MO.	6 M	o. 9	MO.	12 1	40.
LCW-	ALK. CE	MENT:		% Na	O EQ	JIVALEN'	r :								1				
	ALK.CE					JIVA LEN													
SOUNDN									····	<u> </u>					F &	T HW	- C D	HD-	cw
							AGG	: 77	88-11	Ten	n=/\/	ran	DF	£ 300	40				
	AGG.	<u>- دد</u>	90-0			COARSI			88-11	(39)	PIJ	rwj		E 300	170				
	2 4 20 11 5	D. T.	(CDD -	C 1273								<u>-</u>			·				
PETROGI	RAPHIC	DAIA adam	- + o 7 -	t 277		focci	lif	erous	s, sty	را م [.]	lit.i	c. v	erv	fin	e-gr	aine	d cr	ush	ed
Gra	mericani	oder	# 06T	y liau	. وغا	10221	3 m .	thic	ness	fre	om F	nairl	ine	to	1/32	inc	h an	đ	
LIMES	TONE	. 5	CATO	TTOES	ch.	ale	<u>ላጉ</u>	Out I	40 per	ירם יבי	nt. c	of th	e 1	imes	tone	had	ас	oar	se
were	comp	osea	01 :	THUE	2 5110	a	770	wer.	y foss	. 11	ifer	COUS							
grain	ied a	ppea	rance	e bec	aus	E 1.6	was	VEI,	y 1035			. 00.0							
REMARK	S: 17+	her T	lests	CON	ducti	d in	190	64 90	ue re	sul	45 5	imilai	10	thos	re al	hove.			
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1																			

Tssued Sept. 1973

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STATE:	(y	INDE	х мэ.]]	L(sup	pl.2	2c	orr.) AGGR	EGATE	L			USAEV				
LAT.: 37	7	Love	8	8	-			DATA	SHEET	- 1	DATE	14	Janua	ry]	L966		
LAB SYM				2(2)	\ . T	a b	661.7									estone	
							:00/1	L						10116	اللمام مام رياه		
LOCATIO	N: U	IIDe	rtsv	TTTE	, va	•										····	
PRODUCE	R:	Reed	Cru	shed	Sto	ne	Co.	, Gilbe	ertsvi.	ше	<u>N</u>	у•					
SAMPLED	BY:	Memp	his l	Dist:	rict												
TESTED	FOR:	St.	Fran	cis l	Pump.	in	g Fla	ant and	d Flood	lga	te,	Mem	his l	Dist:	rict		
USED AT																	
			c= a/c-1	C			3-4-0	sieve	ed acc		- h	o o o o mi	had				
				-	rate	<u>u</u> _	11100	STEVE	SINCS	-ai	<u> </u>	CLOM					
GEOLOG:	CAL FOR	RMAT C	V AND A	GE.													
								γ								7	
GRAD	ING ICRE	-C 1031	(CLM. "	PASSIN	G):			TEST	RESULTS	╝		3.	6"	1 ½ -3"	3-1-7	#4-1"	F \ E 453.
SIEVE	3-6"	13.5	3-1 - 7	e4-3	FINE												-33.
3,5 45	3-0	.,	47		AGG.	8	< 5=	GR, S.S.D.	CRD-C 107,	1081		_ :				2.68	
6 IN.	1			1		4	6 55654	ON, 1 (CRE	o-C 107, 108):		1				0.7	
	 					+-		VPURITIES			wC 121						
5 IN.		 	<u> </u>	 	 -	T											
4 IN.	 -		ļ			_		CLES,							 	 	
3 IN.	<u> </u>	ļ	ļ	 		T		THAN SP				-			 	-	
2 1 1N.	ļ	<u> </u>	1	 	<u> </u>	1:		NO ELONG	ATED (CRD-	C 11	9, 120				 		
2 IN.	<u> </u>	<u> </u>	i	ļ	ļ	10	- 41	_DSS, 5 CYC	MgSO4 (CR	D-C	1151				ļ		
1 ½ IN.			<u> </u>	<u> </u>		1.	.A. 259	SION LOSS	. ~ (CRD-C	117,	145) G	RAD NG_			ļ		i
1 IN.			<u> </u>	1		U	ς - A+.	LB CU FT	(CRD-C 106	:							
3 IN.			1	100	l	F	9 45 5	PARTICLE	s, % (CRD-C	142)							
1/2 IN.				67		s	PES -EA	4T, BTU.'LE	DEG F. C	RD-C	124)				ļ		
3 IN.	İ			3/1				TYWITH N		- 1	Sc,mM/	L:	1.				
NO. 4	 	 	1	0	1	1		D-C 1281:		Ī,	Rc,mM/	/L:					
		 	-	1	 	+-											
NO. 8	 		-	+	 	+		.									
NO. 16		┼	 		 	٦.		VAKING PR					~		5445		
NO. 30	 	 -		 	┼──		~= <u></u>		r, RATIO				".		CAYS		
NO. 50		 	 	<u> </u>	 	4 -	NE	-ERMAL E	XPANSION,	AIL L	TONTH	S/CEG F	. (CRD-C	125, 126	5):		 -
NO. 100		<u> </u>	<u> </u>	_	<u> </u>	4		ROCK	YPE		PARA	ALLEL	ACRO	ss	CN	AVER	AGE
NO. 200			<u>i </u>			4					—		ļ				
-200(a)			1			_							<u> </u>				
F.M. (b)							L				1		<u> </u>				
(a) CRD-	C 105	(b) m =	D-C 104			1	VORTA	= ;									
10000	3							T	FINE AGG	REG	ATE		T	ÇO	ARSE AG	GREGATE	
MORTAR	-DAR EX	PANE C	\ AT 10	CF, * ∙C	RD-C 12	33		2 MO.	6 MO.	91	мо.	12 MO.	3 M	5.	6 MO.	9 MO.	12 VC.
1.5	ALK. CE	4547		~ 1.10	20 EQL			-					1				
	ALK. CE				20 EQ			 					1				
								<u> </u>	L						FAT	HW-CD	-:-c 4
	ESS IN C														1.7	HITCO	
FINE	agg. M	EM-20	5 <u>S</u> -	-1(2)			E ASG.	comt	pinatio	n ·	R		DFE 300		41		
FINE	AGG.						E 495			_			DFE300				
								dolor									
cher	t. A	bout	14%	of t	he s	sai	elcm	was fi	ine-gra	in	ed o	carbo	nate	rock	wh:	ile th	е
								-graine									
rema	THOS	r wa	2 11160	1 L (1):1-	- 00 (.0.	#1 9 C -	-grazii	1 /							_1	
of t	he f	ine-	grai	ned T	nate	ria	al by	y CRD-C	; 146 d	iid	no	tind	icate	por	centi	aı	
read	t.i vi	t.v.	hut.	it. wa	ร รไ	. 01	wlv e	expansi	ive and	l t	here	efore	shou	ild r	not b	e perm	itted
Ł																	
to t	oecom	e a	majo:	r cor	nstii	tu	ent o	of the	mater	Lal	•						
REMARK	(S: #		-26 (
		NO-	24	G-3(2) 40	7%											
1 .																	

Issued Sept 1971 TESTED BY: ORD Lab. Kv. AGGREGATE STATE: INDEX NO. 11 (SUPP 3) August 1970 N370 DATA SHEET DATE: LONG .: W88' TYPE OF MATERIAL: Crushed Stone LAB. SYMBOL NO.: 70133-4-4A LOCATION: Gilbertsville, Ky. PRODUCER: Reed Crushed Stone Co. SAMPLED BY: 101/71.301L TESTED FOR: Uniontown L&D PROCESSING BEFORE TESTING GEOLOGICAL FORMATION AND AGE: 70133/134/134a FINE GRADING (CRD-C 103)(CUM. To PASSING) TEST RESULTS #4-3 AGG. (c) 3-6" 15-3" 3-15" =4-3" SIEVE BULK SP. GR., SAT SURF DRY (CRD-C 107,108): 270 2.68 ABSORPTION, PER CENT (CRD-C 107, 108): 0.51 0.59 615 70133 CRGANIC IMPURITIES, FIG. NO. (CRD-C 121): 51N SOFT PARTICLES, PER CENT (CRD-C 130): 411 70134 PER CENT LIGHTER THAN SP. GR (CRD-C 129) 31N 7034a 38.7 PER CENT FLAT AND ELONGATED (CRD-C 119,120): 17.d 2½ N. WEIGHTED AV. % LOSS, 5 CYC. MgSO4 ((c) 1/2 -1", #4-1/2) (CRD-C 115) 2 'N 43.9 ABRASION LOSS (L. A.), %, (CRD-C 117): 11.28.6 (in UNIT WT., LB/CU FT (CRD-C 106): LIN. 3.0 21,6 CLAY LUMPS, % (CRD-C 118) 3 IN 1.9 3.3 83 COAL AND LIGNITE, % (CRD-C 122); ½ i∧ SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124): 31 8.8 REACTIVITY WITH NOOH (CRD-C 128): Se, mM/L: NC 4 0. Rc, mM/L: NO. 8 MORTAR-MAKING PROPERTIES (CRD - C 116) NO. IE _DAYS,__ __CEMENT, RATIO__ NO. 30 LINEAR THERMAL EXPANSION X10 9DEG. F. (CRD-C 125,126): NO.50 ACROSS AVERAGE PARALLEL ROCK TYPE NO. 100 NC.200 - 200^(a) F.M(b) 8.888.147.07 (a) CRD-C 105 (b) CRD-C 104 MORTAR: COARSE AGGREGATE FINE AGGREGATE MORTAR-BAR EXPANSION AT 100F, % (CRD-C 123): 3 MO. 6 MO. 9 MO. 12 MO. 12 MO. 3 MO. 6 MO. 9 MO. LOW-ALK, CEMENT: To Na20 EQUIVALENT: HIGH-ALK, CEMENT: TO NOZO EQUIVALENT: F&T HW-CD HD-CW SOUNDNESS IN CONCRETE (CRD-C 40, 114): DF E 300 COARSE AGG: FINE AGG. COARSE AGG FINE AGG. 134 Lab Symbol 134A PETROGRAPHIC DATA (CRD-C 127): 83% 81% 83% Limestone-Med. Gray, Hard & tough Shaly Limestone-Dark Gray, Dense, 9% 5% 9% Mod. Hard Dol. Limestone-Med. Gray, Dense, 6% 3% 10% Mod. Hard & tough Chert & Cherty Shaly Limestone OGray, 4% 5% 2% Dense, Hard REMARKS:

TESTED BY: USAEWES 11 (suppl.4) AGGREGATE STATE: DATA SHEET 15 April 1973 DATE: LONG. LAT.: LAB SYMEOL NO. MEM-31 G-1, G-1(2), G-1(3), MS-1 TYPE OF MATERIAL: Crushed limestone PRODUCER: Reed Crushed Stone Co. Gilbertsville, Kentucky SAMPLED BY: TESTED FOR: Huxtable Pumping Plant Memphis District USED AT: none PROCESSING BEFORE TESTING: GEOLOGICAL FORMATION AND AGE: G-1(2) G-1 G-1(3) MS-1 G-1(2) G-1 G-1(3) MS-1 TEST RESULTS GRADING (CRD-C 103) (CUM. % PASSING): 3-6" 1 1 -3" 3-1-1 1 -3 1-17" #4-1 SIEVE 2.68 2.69 2.68 2.60 BULK SP GR, S.S.D. (CRD-C 107, 108) 0.6 0.5 0.8 2.6 ABSORPTION, % (CRD-C 107, 108): 6 IN ORGANIC IMPURITIES, FIG. NO. (CRD-C 121) 100 SOFT PARTICLES, % CRO-C 130) 92 T LIGHTER THAN SPIGR_____ (CRD-C 122) 2 1 T FLAT AND ELONGATED (CRD-C 119, 120) 23 100 WT AV % LOSS, 5 CYC MgSO4 (CRD-C 115) 2 (%. L.A. ABRASION LOSS. 7 (CRD-C 117, 145) GRADING_ 2 95 1 } IN. 33 100 0 UNIT WT, LB/CU FT 'CRD-C 106): 1 IN. 3 IN. 90 FRIABLE PARTICLES, % (CRD-C 142) 53 SPEC HEAT, BTU'LB DEG F. (CRD-C 124) 1 IN. J. Sc,mM/L: 31 REACTIVITY WITH NOCH į in. CRD-C 1281: RC,MM/L: NO. 4 100 NO. 8 MORTAR-MAKING PROPERTIES (CRD-C 116) NO. 15 CEMENT, RATIO NO. 30 LINEAR THERMAL EXPANSION, MILLIONTHS/DEG F. CRD-C 125, 126): 39 NO. 50 28 AVERAGE PARALLEL ROCK TYPE NO, 100 NO. 200 18.2 -200(0 F.M. (b) 1.98 MORTAR (b) CRD-C 104 COARSE AGGREGATE FINE AGGREGATE MORTAF-BAR EXPANSION AT 100F, % (CRD-C 123): 9 MO. 12 MO 3 MO. 6 MO. 2 MO. 6 MO. 9 MO. % NOZO EQUIVALENT: LOW-ALK, CEMENT: HIGH-ALK, CEMENT: " NO20 EQUIVALENT: HD-CW SOUNDNESS IN CONCRETE (CRD-C 40, 114): DFE 300 COARSE AGG DF€300 COARSE AGG PETROSPADHIC DATA CRD-C 127): REMARKS

SOURCE NO. 71
WILLIAMS STONE QUARRY
ROSICLARE, IL

STATE:]		ois	INDE				-					ORD L		tori	es	
LAT.:				G.:	88 W	<u> </u>	DAL	A SHEE				May 1				
LAB. SYM								<u> </u>	TYPE	OF N	MATERIAL	Crus	nea :	cone	!	
LOCATION	4:]	Rosid	lare	. Il	line	is										
PRODUCE	R:	W111:	lams	Stor	ie Qu	arry										
SAMPLED																
TESTED	FOR:	Uni	onto	n Lo	cks	& Dar	n	(101/	65.	398X)	<u> </u>				
PROCESS																
Labora	tory	cru	shed	for	fine	er siz	es									
GEOLOGI	CAL FOR	MATION	AND	AGE:	1	edges	s A, B	, C rej	res	ent	ed.				<u> </u>	
													,			7
GRADING	G (CRD-	- G 103)	(CUM.	70 PAS	SING):		TI	EST RE	SULT	S		3-6"	1 1 - 3"	3-12"	#4-3	AGG.
CIEVE	3-5"	14 - 2"	3-11"	ma = 3"	FINE			SURF DRY						(c)	(c)	1 200.
SIEVE	3-0	2 3	4 '2	- 4	AGG.	BULK S	GR., SAT	SURF DRY	(CRD	-C i	07,108):		2.6	β	2.6	
BIN.						ABSORP	TION, PER	CENT (CRD	-C 10	7,10	3):		0.7		0.6	∔
51N.								IES, FIG. N							-	
41N.								PER CENT							 	1
31N.		100						ER THAN S							ļ	
2½ IN.		98						AND ELONG					<u> </u>	<u> </u>	 	
2 IN.		74										1-1)(CRD-	C 115)		3.3	'
۱غ ۱N.		36						(L. A.), %,			7):		<u> </u>	27	 	1
I IN.		5						FT (CRD-		;): 			ļ		 	
₹ IN.	1	3]				(CRD-C I					 	ļ	∔	
⅓ IN.	1	2						E, % (CRI							1==	
åIN.						SPECIFI	C HEAT, B	TU/LB/DEC	. F. (C	CRD-	C !24):				 	
NO. 4						REACTI	VITY WIT	н маон (CRD-	C 128	3): Sc,m	M/L:	 		 	-
NO. 8											Rc,m	M/L:	<u> </u>		<u> 1</u>	
NO.16					<u> </u>			PROPERTI								_
NO. 30	Ι					TYPE_	CEN	KENT, RAT	10	c	AYS,			DAYS,_		
NO. 50					<u> </u>	LINEAR	THERMA	L EXPANS	SION 2			(CRD-C 12				
NO. 100					L		ROCK	TYPE		PAR	ALLEL	ACROSS	°	2	AVEF	LAGE.
NO.200					<u> </u>								 			
- 200 ^{(c}	1] [
F.M.Cb	• •				L] [1			1		
(a) CRD	-C 105	(ь) с	RD-C	04		MORT	AR:									
	- BAD 5	PANEIO	N AT 1	005 97	- (CBD	-C 123):		FINE A					COARSE			
MORTAN	- 544 62	VI MINO					3 MO.	6 MO.	9	MO.	12 MO.	3 MO.	6 M). 8	MO.	12 MO.
LOW-	ALK, CEI	MENT:		970 Na	O EQU	IVALENT			<u> </u>			ļ	ļ			
HIGH-	ALK.CE	MENT:		% Na;	O EQU	IVALENT	<u> </u>		<u></u>		<u>L</u>	<u> </u>	ļ			
SOUNDN	ESS IN	CONCR	ETE (C	RD-C	40, 114):							F&	HW	-CD	HD-CW
FINE	AGG.	Labo	rato	ry S	td.	COARSE	AGG: W	illiam	s	St	one	DFE 300	 			
FINE	AGG.					COARSE	AGG:					DFE 300	<u> </u>	_ــــــــــــــــــــــــــــــــــــــ		
PETROG																
86% h	ard,	toug	h, d	ense	lim	eston	e, 7%	hard,	tou	gh,	dolo	mite,				
6% s	hale	or s	haly	lim	esto:	n e, 1 °	% soft	, weat	her	ed j	parti	cles.				
1																
1																
							•									
REMARK	cs:															
1																

STATE:	<u> 111.</u>		INDE	X NO.:	211	(أجمع ن	AGGI	REGAT		TESTED	BY:	ORD:	<u>.</u>			
	37		LON	iG.:	88		DATA	SHEE	T	DATE:	J	une	1968			
LAB. SYN).: (6826					٦	YPE	OF MA	TERIAL	Li	mesto	ne	CA	
LOCATION	v: R	osi	clar	e	[11:	inois										
		- m -														
PRODUCE	R: W	<u>i11</u>	iams	Qua	arr	/ - L	edges	A' a	nd	Α"						
SAMPLEC	BY:	Lou	isvi	lle	Dis	stric	t.									
TESTED																
PROCESS												101/	68.35	3 L		
GEOLOGI	CAL FOR	MATION	AND	AGE:												
														,		
GRADIN	G (CRD	- C 103)	(ССМ. °	7o PASS	ING):		TE	ST RE	SUL	rs		3-6	" 1 1 - 3"	3-14"	#4-3	FINE
SIEVE	3-6"	14 - 3"	3 _ , _ e	me-3"	FINE		GR , SAT							(c)	(c)	AGG.
3,200		'2 3	4 '2	7 4	AGC.	BULK SP	GR , SAT	SURF DRY	(CRD	-C 107	,108):		2.68			
6IN.						ABSORE	10 4, -ER C	CAD COND		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		_	0.5	<u> </u>	<u> </u>	
5 IN.							MPURITIE						-			•
4 !N						1	ARTICLES,								ļ	1
3!N.						1	T LIGHTE									-
2 ½ · N .		97	!			<u> </u>	T FLAT A							2	<u> </u>	
2 IN.		57					D = . % 🕳						-C 115)	0.4	ļ	
5 N	<u> </u>	20				ABRASIO!	4 LOSS (U	A.), %,	(CRD	-C 117)	: "A	"		29	ļ	
LIN.	I IN. 3 UNIT WT., LB/CU FT (CRD-C 06):														<u> </u>	<u> </u>
∄:N.	1	2	İ											L	·	-
1 1 N €				<u> </u>			C LIGNITE	<u> </u>							-	
₹IN.			<u></u>				-EAT, BT					<u> </u>			ļ	
NO. 4	<u> </u>	Ĺ				REACTIV	TY WITH	NaOH (RD-	C (28):	Sc,mM	I/L:			-	
NO. 8											Rc,mM	/L		<u> </u>	<u> </u>	
NO.15						.1	- WAKING									_
NO.30	<u> </u>		<u> </u>				CEM							DAYS,_		
NO.50						LINEAR	THERMAL		ION .							
NO. 100)					 	POCK	TYPE		PARAL	LEL	ACROSS	- 0	N	AVER	AGE
NC.200	1	<u> </u>				↓ :										
- 200		<u> </u>														
F.M.		8.77		<u> </u>		'										
(a) CRD	-C 105	(ъ) С	RD-C	C4		MORTA	R.					г				
MORTAR	- BAR EX	(PANSIC	N AT I	00F, %	(CRD	-Ç 123)		FINE AC				-	COARSE			. 2 . 1/0
							3 MO.	6 MO.	9	мо.	2 MO.	3 MO	6 MC). 9	MO.	, 2 MU.
<u> </u>	ALK, CEI					IVALENT.	ļ		-			 	 -			
	-ALK.CE					VALENT:	<u> </u>	<u> </u>	<u> </u>			<u> </u>		r 1007	-co	HD-CW
	ESS IN	CONCR	ETE (C	RD-C 4	10, 114							DEF	F&	- Inw		.10 - CW
	AGG.					COAPSE A						DFE 300		-		
	AGG.	D.T.	(600			COARSE	400:					DF E 300			1	
1	RAPHIC															
На	ard 1	nonw	reatl	ne d	lim	estor	ne	979	%							
Mo	oder	atel	y we	eath	ere	d lim	nesto	ne 29	%							
									%							
"	1															
DELLAS																
REMARK	. 3.															
1																
L																

		_				2)	issued		.gy	TECTER	ev. OI	RD Lab			
STATE:			x NO.: 2		supp	2)		EGATE Sheet	-						
LAT.: 3			.: 88 ⁰				שות			DATE: N	ovemb	er 197			
LAB SYME				1126	<u> </u>			т	YPE	OF MATER	RIAL: (rushed	Lime	stone	
LOCATION	N: Ro	sicla	are												
PRODUCE	R: W	<u>illi</u>	ams (<u>uarı</u>	<u>ies</u>										
															
SAMPLED	BY:					et Co	f E Per	csonne							
TESTED F	OR:	Smi	<u>thlar</u>	id L	D					-,					
USED AT:															
												····			
PROCESS	ING BEF	ORE TE	STING:												
GEOLOGI	CAL FOR	RMATION	AND A	GE:									<u></u>		
						,	,				1	·		Υ	
GRADI	NG (CR	-C 103)	(CUM. %	PASSIN	G):]	TEST	RESULTS			3-6"	1 1/2 - 3"	3-12"	#4-3"	FINE
SIEVE	3-6"	1 1 - 3"	3-12"	#4-3"	FINE								ļ.,	ļ	AGG.
7 1n	69.4	1,5-5	4,		AGG.	BULK SP	GR, S.S.D.	(CRD-C 107,	108)		2.70			2.74	2.69
6 IN.	39.4					ABSORPT	10N, % (CR	-C 107, 108):		0.28	0.53	0.41	0.49	1.29
5 IN.	37.4						IMPURITIES			-C 121)		-			
4 IN.	26.0						RTICLES, %								
3 IN.	7.0.7					 	ER THAN SP			-C 122)					
2 1 IN.						1	AND ELONG								
2 IN.	 	95.0			1		LOSS, 5 CYC						Ţ	8.21	
1 ½ IN.	 		91.4				ASION LOSS				ing B			27.9	
1 IN.	-	~	20.2				LB/CU FT				T				
1 IN.	 	1.2		89.	,		PARTICLE								
1 IN.		1.04		45.	1		AT, BTU/LE			124)					
3 IN.		-			05	7	TY WITH N		- 1	Sc,mM/L:			T		
		 			29	7	RD-C 128):		-	Rc,mM/L:					
NO. 4	-			-3.5	129.	1	(5.0 /20//						1		
NO. 8		-		 	┪	†	MAKING PR	ODEDIJES (CBD	C 116)			-		
NO. 16	 			 		7	CEMEN					_ %,	DAYS,		%
NO. 30	 	 		-	1							RD-C 125, 12	6):		
NO. 50	†			†		1	ROCKI	-		PARALL	- 1	ACROSS	ON	AVEF	RAGE
NO. 100	<u> </u>	 	-	 		1	NOCK.								
-200(a)	 	 		-	1	1									
F.M. (b)	\vdash	<u> </u>		 	1	1 🖯									
	<u> </u>			<u> </u>		MORTA				4					
(6) CRD-0	105	(b) CR	D-C 104			MORTA	T	FINE AGG	REG	ATE		cc	ARSE AG	GREGATE	
MORTAR	BAR EX	PANSIO	N AT 100	F, % (C	RD-C 12	23):	2 MO.	6 MO.			MO.	3 MO.	6 MO.	9 MO.	12 MO.
	UK CE.	AE NIT ·		% N/4	120 FO	JIVALENT:	1								
	ALK. CE					NVALENT:	†			-					
SOUNDNE			E (CPD-										F&T	HW-CD	HD-CW
	AGG. N			,		ARSE AGG:	Will:	iame			D1	E 300	72 1		
FINE		CWLU	W 1.1			ARSE AGG:	YY					FE 300	, <u> </u>		
PETROG		DATA (RD-C 12	27):											
Th	na e a	mn1a	e cor	nefet	- of	vervi	no amoi	inte o	FА	ence	hard	i, ooli	tic 1	imesto	ne.
												nese sa			
												ally re			
u _p	,	<i>) 10</i> G	-6	Lacci	, u.s	LIMCBC	one an	a up c	, _	% POC	C11 C X(11 1 1 C	acciv	c cher	٠.
1															
															
REMARK	5:														
	•														
1															

SOURCE NO. 72
RIGBY-BARNARD STONE QUARRY
CAVE-IN-ROCK, IL

STATE:	Illin	ois	INDE	X NO.:	22			REGAT					RD L		tori	es.	
	37 N		LON		88	W	DAT	A SHEE					ay 1				
LAB. SY	MBOL NO			3-4-					TYPE	OF N	TAN	RIAL:	Crus	hed S	tone		
LOCATIO	N: (Cave	-in-F	lock,	11	linois											
PRODUC	ER:	Rigs	by-Ba	rnar	d St	one Q	uarry										
	D BY:		-							100							
	FOR:				ks {	2 Dam			101	/65.	. 39	8X)					
PROCES	SING BEF	ORE TE	STING:														
					7 -	1 1			on t	<u> </u>							
GEOLOG	ICAL FOR	MAI ION	AND	AGE:	Lei	iges r	α 1	repres	enc	Eu			· · · · · · ·				
CRADIN	G (CRD-	C 103)	(CUM 9	7o PASS	ing):	1	1 7	ST RE	SHE	TS							FINE
GIGADIII				1			<u> </u>			لت			3-6"	(½ - 3"	4 - 1 ½ (c)	(c)	AGG.
SIEVE	3-6"	15-3"	3 -12"	#4- <u>3</u> "		BULK SP	. GR., SAT	SURF DR'	(CR)-C 10	07,1	08):		2,61	2.6	2.	69
6IN.	1				· · · · · · · · · · · · · · · · · · ·			CENT (CRE						1.6			
5IN.	 					·		IES, FIG. N				:					-
4 IN.								PER CEN									1
3IN.		100				3		ER THAN									
2 in.		96				PER CEN	IT FLAT	AND ELONG	ATED	(CRD	- C	19,120):	<u> </u>		20		
2 IN.		66						LOSS, 5 CY				1, 4-1	(CRD-	C 115)		5.8	-
1 ½ IN.		28	100					(L. A.), %.			7):		<u> </u>		29	<u> </u>	
IIN.		4	49														
3 IN. 2 11 91 CLAY LUMPS, % (CRD-C 118):																	
Į IN.			3 43 COAL AND LIGNITE, % (CRD-C 122):													-	
gin.			2	16									<u> </u>	ļ		· •	
NO. 4	ļ			4		REACTIV	TTY WIT	H NoOH	CRD-	·C 128	—					 	+
NO. 8								PROPERT	F 6 (4			ic, mM/L	1	<u> </u>		<u>!</u>	
NO.16		<u> </u>		ļi		4							97.		DAYS		€2
NO. 30		<u> </u>	ļ		 	TYPE	THERM	MENT, RAT	SION	XIO 6	VDEC	, r (CE	- '%	5.126):			
NO.50		ļ		 		LINEAR		TYPE	31014	PAR			CROSS	0	N I	AVE	RAGE
NO.10		 				┨├──								-			
- 200	1	 		 		1		··		-				1			
F.M.					-	┨├──				 				 			
)-C 105	(P) Ci	3D-C 1	04	L	MORTA	AR:										`
						<u> </u>	T	FINE A	GGRE	GATE				COARSE	AGGRE	GATE	
MORTA	R-BAR EX	KPANSIO	N AT I	00F, %	CRD	-C 123):	3 MO.	6 MO.	9	MO.	12	MO.	з мо.	6 MC	. 9	MO.	12 MO.
LOW	-ALK, CE	MENT:		% No 2	O EQL	IVALENT:											
HIGH	-ALK.CE	MENT:		% No 2	O EQL	IVALENT:											
SOUND	NESS IN	CONCR	ETE (C	RD-C	40, 114	1):								F&T	HW	- C D	HD-CW
FINE	AGG. I	abor	ator	y Sto	d.	COARSE		ligsby-	Bar	nar	d		FE 300	ļ			
	AGG.					COARSE	AGG:					D	FE 300	<u></u>		i	
1	GRAPHIC																.~
#4-	<u>3/4"</u> :			-				mestor	ıe,	4%	sha	ale o	r sha	aly l	ımes	tone	e, 2%
3						partio		1	<u>.</u>				<u> د</u>		1.69	_1_	!
3/4	3/4"-1 1/2": 52% moderately hard & tough calcareous sandstone, 46% shaly calcareous sandstone or shale, 1% hard, tough limestone, 1%																
						odiiUS1	rouse (ı sud.	٠-,	1/0	rid l	u, L	ougn	TIME	PLOU	ا وت	L /a
111	weathered. 1 1/2"-3": 72% hard, tough, limestone, 26% hard, tough, dolomite, 1% hard,																
1	tough limestone with internal argillaceous seams, 1% weathered																
	limestone.																
REMAR	KS:		Tines	COME	•												
	=																
1																	

						Is	sued S	ept 1	71								
STATE:	III	•	INDE	x NO	2(50	199)	AGGR	EGATE	ľ	TESTE	D BY	' :	ORD	Lap.			
LAT	370		LON		880		DATA						mber				
LAB. YM	BOL NO	.:711	29-	711:	3.3				(PE	OF N	AATER	HA_:	Crusl	<u>ned I</u>	<u>im∈</u>	<u>esto</u>	ne
LOCA ICN	· Ca	ve-i	n-R	ock													
PROULLE	e Ri	gsby	7-Ba	rna	rd C	uarry	7										
					<u> </u>												
SAMPLED	ev N	ash	/ill	e D	istr	ict	of	E Per	so	nne	1_						
TESTED		Sm:	ithl	and	L&I	<u> </u>											
PROCESS	ING BEF	ORE TE	STING														
L											 -						
GEOLOGIC	CAL FOR	MATION	AND	AGE													
							T										FINE
GRADING		,					TES	T RES	UL	IS			3.6	. 1 - 3"	(c) (c)	#4-}"	AGG.
SIEVE	3-€	15-3"	3-15"	n4-3"	FINE		GR , SAT S	UDS DRY	(CB)) n (1)	07 + 3	s):	10 66	2.672			2 58
7 in.	36.1					t	ON, PER CE						2.00	0.661	26	n 05	3 05
GIN.	9.0						IMPURITIES						10.79	0.000			7.00
5 IN.	1.0	ļ		<u> </u>		1	RTICLES, F						- +				-
4 IN	<u> </u>	ļ		<u> </u>			LIGHTER					c .29	; 	1			-
31N	<u> </u>	 				PER CENT	FLAT AN	D ELONGA	TEL	= = (, 85	· -	9,120):	11	11	11	19
5 !N		-		 	 	1	AV. % LO									6.3	+
21N		63.8		 		ABRASION	L035 (L	A.), %	CRI			Ā		1 .		26.7	
1 ± 1N		14.7		 	 		, LB/CU F				. –		-				
1 IN.	-	1.3	74.2 16.7	02	 		MPS, % (-						
JIN				27			D LIGNITE			:22).				1!			
31N	+	-		5.7			HEAT, BT				~ ;	1)					
NO. 4	 	1		0.9	<u> </u>	REACTIVE	TY WITH	NaOH (RD-	C 12	8) 15	, nM.	え				
NO. 6			201	10.0	20.	1						والمراجع وأنا				<u> </u>	
NO.16	-	 -	 	 	 	MORTAR-	MAKING F	ROPERTIE	S (C	RD-	CIIS	;					
NO 30	+	 		1	1		CEME								DAYS,_		~
NO.50	1	 		<u> </u>		LINEAR	THERMAL	EXPANS	ic×	хо	*DEG	F (RD-C 12	25,126):			
NO. 100		 					ROCK	TYPE		PAR	ALLE		ACROSS	07		AVER	AGE
NC.200	0	 		†	· .									ļ			
- 200	-1	1		1						1				-			
F,M(I		1	1		T					L		_ 』_		ــــــــــــــــــــــــــــــــــــــ			نــــــ
	-C 105	(b) C	RD-C	104		MORTA	.R :			<u></u>							
					. (CBC	- (123).		FINE AC	GRE	GATE				COARSE			
MORTAR	R-HAH E	XPANSIC	N AI	1007, -7	0 (CAD	-C 123)	3 MO.	6 MO.	9	M O.	112	<u> </u>	3 MO.	6 40.	5	MO.	2 40.
LOW	- ALK. CE	MENT:	7	70 Na	20 EO	JIVALENT:		L					ļ	 	-		
I	-ALK.CE					JIVALENT:	<u> </u>		<u> L</u> _		<u>. </u>		l		- 	-66	HD - CW
SOUND	NESS IN	CONCE	ETE (C	RD-C	40, 11									FET		-60	H0-CW
FINE	AGG.	New	own				GG: Rig	sby-Ba	rņá	ard			○FE 300	71.4	+		
	AGG.					COARSE A	AGG:						DF E 300	<u> </u>	!	<u>;</u>	
ሞኩ	GRAPHIC e sa	mp]e	es c	ons	ist	of va	rying	g amo	un	ts	of	de	nse,	hard	i pa	arti	.cles
of	001	itio	: Li	mes	tone	Fos	ssili:	Eerou	S	Lin	ae s	ton	ne, D	olow:	1110	5 T-1	.me-
e+	one	and	San	dst	one.	Abo	out 19	% to	10	% c	ÞĒ	eac	h sa	mple	COI	nsis	ts
of	mod	erat	elv	ha	rð t	o mod	derate	ely s	of	t s	s 1. 1.	tу	to A	rgil.	lace	eous	5
	mest.				- '			-									
1 11	es C	.0116	•														
REMAR	KS:																
1								-									

SOURCE NO. 73

DENNY & SIMPSON STONE CO.

CAVE-IN-ROCK, IL

						77	T	4660	EGATE	7	FSTE	BY:	OR	n I.a	bora	tori	28	1
STATE:	11:	lino	is	INDE	X NO.:	43		AGGR	SHEET	1	ATE	Any	-11	196	5			
LAT.:				LONG		88 V		DATA								Stone		
LAB. 5Y									TY	PE (OF M	ATERIAL	<u>. </u>	Crus	neu	SCOIL		
LOCATIO	N:	Eli	zab	ethto	own,	111:	lnois											
BBONK.	FD:	Der	nv i	C Sir	mpsor	St	one Co	mpany										
- KODOC		Der			7													
			•	1 1	lle I	11.00	rict										-	
SAMPLE									71	01/	165	392X	7					
TESTEC					wn Lo	CKS	& Dam			<u> </u>	05.							
PROCES	SING	BEFO	RE TE	STING:														
		•																
GEOLOG	ICAL	FORM	ATION	AND	AGE:			_										
CRADII	vc (CRD-	G 103)	(CUM. °	70 PASS	ING):		TE	ST RES	ULT	s			"	1 ½ - 3"	3 _ 11"	m4 - 3 1	FINE
GRADII	13	, <u></u>											1	3-6	12-3	*(c) 2	(c) ¹	AGG.
SIEVE	3	-6"	1 - 3"	3-15"	#4-3"	AGG.	DI # K 60	CR SAT S	SURF DRY (CRD	-C 10	7.108):			2.71	2.70	2.7	0
							LOCCOCT	ON PER C	ENT (CRD-	C 10	7.108);				0.6	0.4	
6 IN.					 												J.,	1
5IN.									s, FIG. NO.						-		 	1
41N.							SOFT PA	RTICLES, F	ER CENT	CRD	-C 1	30):					 	+
SIN.	_		100						R THAN SP.								1 , ,	+
2 1 IN.	_		88						ND ELONGA						3_	6	11	
2:1	-+-		44				WEIGHTE	D AV. % LC	oss, 5 CYC.	MgS	O4 ((c)	½ - 1", ".	$4 - \frac{1}{2}$	(CRD-	C (15)		0.5	<u>'</u>
				100	 				A.),%,(22	<u> </u>	
₹ 1N.		-+			7.00				T (CRD-C									
1 IN.			1_		100				CRD-C 11		<u> </u>							
ŽIN.	 j			6	84				, % (CRD		22):				 		1	-
½ .N.				1	40	ļ	COAL AN	D LIGHTIE	, -10 (CRD	- (500.	- 124)		 	\vdash	 	-	+
₹:N.	<u>. L</u>				15_		SPECIFIC	HEAT, BT	U/LB/DEG.	(31/2		 	-	8	+	+
NO.4					1	<u> </u>	REACTIV	ITY WITH	NaOH (C	KU-	C 128					260	 	-
NO.8	1				1	<u> </u>						Rc,n	IM/L	1	ا	1200	.1	
NO.15					1				PROPERTIE									_
NC. 3	0			1			TYPE	CEM	ENT, RATIO		0	AYS,		_%		_DAYS,_		
NO.5							LINEAR	THERMAL	EXPANSI	ON	XIO 5	DEG. F.	(CR	D-C 12	25,126):			
NO. I				 	+	1	1	ROCK	TYPE		PARA	ALLEL	AC	ROSS		N	AVEF	AGE
NO.2				+	 	+	┨ ├──											
					 	+	┨ ├──				<u> </u>							
- 20					 	┼	┨ ├						_		1			
F.M			<u></u>	<u> </u>	ــــــــــــــــــــــــــــــــــــــ		4				L							
(e) CF	D-C	105	(P) C	RD-C	104		MORTA	AR:							COARSE	ACCE	FCATE	
		EY	DANISI	TA MC	1005 9	o (CRI)-C (23):		FINE AG	,								12.140
MORT	KIK - 1:	SAR EA	PANSI)N 71	1001, 1			3 MQ.	6 MO.	9	мо.	12 MC).	3 MO.	6 M	0. 9	MO.	12 MO.
10	W-AL	K. CEN	ENT:		% Na	20 EO	JIVALENT:						_		<u> </u>			
HIC	H-AI	LK.CEN	AENT:		% Na	20 EQ	JIVA LENT :						\perp		<u> </u>			
I				ETE (C	RD-C	40. 11	4):	····							F &	T HW	/-CD	HD-CW
	IE A				ry St			AGG: Den	ny & S	im	oson	 l	D	FE 300				
	E A		1200		. , 31		COARSE		<u></u>				D	FE 300	T			
				(600	C 127					#4.	-3/4	[1]	3/4	11-1	1/2"		1 1/	2"-3"
J. Par. Hi	CGRA	PHIC	DATA	(CKD-	C 127)	•				μ-τ	5/	-	<u> </u>					
						_				,	0 /. 97			0 A97			94	97
Me	diu	m to	CO	arse	cry	stal	iine l	imesto	ne		34%			80%			フサ	70
							raphic	, high	ily		-~			Λ9/				or
					stone					Ţ	5%		Ţ	9%			_	%
Su	rfe	ce v	rea t	here	d li	nest	one				1%			1%			1	%
İ																		
														i				
-													_)				
REMA	KKS:	•																
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STATE: III. INDEX NO.: 28 AGGREGATE TESTED BY: OI DATA SHEET DATE: June																		┙
LAT.:	37		LON	IG.:	88													
LAB. SYM		D.: 6	826	4-26	55			T	YPE	OF I	MATERIA	L	ime	esto	ne C	Α		
LOCATION	: C	ave	- i	n -	Roc	k, I	llino:	is										
																		_
PRODUCE	2 :	Denr	ıy &	Sin	npsc	n #	2 Qua	arry										\Box
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SAMPLED	BY:	Loui	svi	lle	Dis	tric	E											
TESTED	FOR:	Lock	<u>د ه</u>	Dam	52													_
PROCESSI																		
											10	$1/\epsilon$	8.	353	<u>L</u>			
	-																	_
GEOLOGIC	AL FOR	RMATION	AND	AGE:														_
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GRADING							TE	ST RES	SUL	rs		-	3-6"	1 = 3"	3-14"	#4-3	FINI	
eleve	2-6"	11.3"	3 _ 1 1 4	m/ = 3"	FINE		GR, SAT							ii	(c)	(c)	AGG	3.
SIEVE	3-6	15-3	7-15		AGC.	BULK SP	GR , SAT :	SURF DRY	(CPD	-C 1	07,108):				2.69			
6IN.						ABSCRPT	ION, PER C	ENT (CRD-	-C 10	7,10	8):				0.5	0.3		
5 IN.						CRGANIC	IMPURITIE	S, FIG. NO). (CR	o-c	12i):						1	
41N.							ARTICLES, F										1-	_
3+N.							T LIGHTER											_
21 IN.						4	T FLAT AN								2	4		
2 IN.							D AV. % LC						CRD-			0.4		
I IN.														 	25	L		_
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3 87 CLAY LUMPS, % (CRO-C (18)														ļi				
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₹1N.				8			HEAT, BT									ļ	<u> </u>	
NO. 4		<u> </u>		1		REACTIV	ITY WITH	иаон (IRD -	C 128				<u> </u>		<u> </u>	1-	
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NO 30			L	<u></u>	<u> </u>		CEME								DAYS,_			<u>ہ</u>
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NO. 100				<u> </u>		 	ROCK	TYPE	- 1	PAR	ALLEL	ACR	055	10	-	AVER	AGE	-
NC.200				ļ										<u> </u>				1
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(e) CRD-	C 105	(P) C	RD-C	04		MORTA	R:					-,						
MORTAR -	BAR E	KPANSIO	N AT	೦೦೯. ಇ	cRD)	-C 123):		FINE AG	,					COARSE				
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SOUNDNE						~==		F&T	HW	- C D	HD-C							
FINE						COARSE A						DEE						
FINE						COARSE A						DFE	300	L				
PETROGE	RAPHIC	DATA	CRD-C															
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REMARK	ə :																	
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LAB SYMB	OL NO.:	711	<u> 17-7</u>	<u>1121</u>					TY	PE	OF MAT	ERIAL	Cr	ushed	Limes	tone	
LOCATION	v: Ca	ve-Ir	-Roc	k													—
PRODUCE	R: D	enny	& S1	mpso	n Qu	ar	ry_			—							
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			nland			<u>. L</u>	0 01	. 11 101	DOME								
TESTED F		JILLEI	ITAIIG	LGL													
USED AT:																	
PROCESS	ING BEF	ORE TE	STING:														
GEOLOGI				SE:													
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GRADI	ING (CRE	-C 103)	(CUM. %	PASSIN	G):			TEST	RESULTS			;	3-6"	1 1/2 - 3"	3-1 ¹ / ₂ "	#4-1"	FINE AGG.
SIEVE	3-6"	1 1 - 3"	3 -1 ½"	#4-3"	FINE							 _		0 71	2 71	2 72	2.68
					AGG.			GR, S.S.D. (2.73 0.48	
	79.8			<u> </u>				ION, % (CRD				+ 5	.14	0.42	0.54	0.40	0.00
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2 IN.		 -	98.8]	 	1	A ABR	ASION LOSS	% (CRD-C	117,	145) GR	ADING	_A_			21.6	
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3 IN.	 	 		166.4				PARTICLES								ļ	
1 IN.	 	1		23.		SPI	EC HE	AT, BTU/LB	/DEG F. (C	RD-C	124)				-		
3 IN.						RE	ACTIV	ITY WITH N	вон	Ŀ	Sc,mM/L	-:-		ļ		+	
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NO. 16		ļ		<u> </u>	_	МО	RTAR-	MAKING PR	OPERTIES (CRD	-C 116)				DAYS		%
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NO. 100	 	-	\vdash	+	+	-	-	ROCK	YPE		FANC	<u> </u>					
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									FINE AGO					c		GREGATE	1
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HIGH	-ALK. CI	EMENT:		% N	020 EQ	AVIL	LENT:		<u> </u>	<u> </u>					F&T	HW-CD	HD-CW
SOUNDN	ESS IN C			-C 40, 1				Danny	-Simps	on			DFE	8	35.4	nw-cb	110-011
	AGG.	Newt	OWII				AGG:	Denity	DIMPO				DFE	-			
	GRAPHIC	DATA	CBD-C 1	271:		ARSE	AGG:							300 1			
A t	bout ough	96% par	to 9	8% o es o dera	f oc	li:	tic oft	ple co limest partic	one, f les of	os: a	sili rgil	fero lace	ous : eous	limest limes	cone a stone	nd do make	lomiti up 1%
t	o 2% % to	of e	each	samp	le.	P	oter	itially	react	iv	e ch	ert	mak	es up	the r	remain	ing
REMAR	KS:											<u>_</u>					

SOURCE NO. 74

THREE RIVERS ROCK CO.

SMITHLAND, KY

STATE:	Ку.		INDE	X NO.	<u> 29</u>		AGGF	REGATE	TE	STE	D BY:		<u> </u>	ימט.			
LAT	379)	LON	G.	88	30	DATA	SHEE									
LAB. SY	MBOL NO		196-	711	00			т т	YPE O	F M	ATERIA	r: C	rus	hed	Lin	<u>nest</u>	one
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PRODUC	ER:	Th	ree	Riv	ers	Rock	Co.										
<u> </u>																	
SAMPLE	D AY	N7	h 1 2 3	10	Die	trict	C. 0	f E.	Per	sc	nne	1					
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₹1N-	1		14.7			CLAY LU	MPS, 976 (CRD-C II	9)						<u> </u>	ļ	
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	I-ALK.CE					IVALENT:	L	l	<u> </u>					-		- 6 5	HD-CW
SOUND	NESS IN	CONCR	ETE (CI	RD-C										F & 1			nu-CW
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	AGG. T						GG: Mel							81.9			
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ROCK TYPE PARALLEL ACROSS CN AVERAGE D. 100	NO. 30															
Details (b) CRD-C 104 MORTAR. CRD-C 105 (b) CRD-C 104 MORTAR. CRTAR-BAR EXPANSION AT 1005 5 (CRD-C 123) LOW-ALK, CEMENT Nojo EQUIVALENT MOJO EQUIVALENT MICH-ALK, CEMENT Nojo EQUIVALENT (#4=3/4") FINE AGG. Lab. Std. coarse agg Rivers Ouarry CFE, 200 T3%; FINE AGG. to Arse agg Defence 127: Material consists of a composite of stone from Ledges 7A, 7B, and 7C of this quarry.	NO. 50		Ĭ	1			LINEAR	HERMAL E	XPANSION	MILLI	01145/0	EG F. 19	RD-C 125.	125		 ;
DETAR-BAR EXPANSION AT 100F 1. CRO-C 1231 LOW-ALK. CEMENT - M070 EQUIVALENT HIGH-ALK. CEMENT N090 EQUIVALENT HIGH-ALK. CEMENT N090 EQUIVALENT FINE AGG. Lab. Std. coarse agg 3 Rivers Ouarry CFE 100 FINE AGG. COARSE AGG 3 Rivers Ouarry CFE 100 FINE AGG. COARSE AGG TOFF 100 ETRICGRAPHIC DATA CRD-C 1271 Material consists of a composite of stone from Ledges 7A, 7B, and 7C of this quarry.	NO. 10	,	<u> </u>	1	Ц	ļ		ROCK	TYPE		PARALL	EL	ACROSS	- c>	AVE	PAGE
MORTAR. DETAR-BAR EXPANSION AT 1005 C. CRD-C 1231 LOW-ALK. CEMENT HIGH-ALK. CEMENT NB30 EQUIVALENT HIGH-ALK. CEMENT NB30 EQUIVALENT FINE AGG. LOW-ALK. CEMENT NB30 EQUIVALENT FINE AGG. COARSE AGG 3 RIVERS OUBTRY FINE AGG. FINE AGG. LOBASE AGG FINE AGG. COARSE AGG FINE AGG. LOBASE AGG FINE AGG. LOBASE AGG FINE AGG. LOBASE AGG LOBAS	NO. 200	<u> </u>	ļ	<u> </u>		 	┥ ├──								_	
TORTAR-BAR EXPANSION AT 100F * CRD-C 1231 THE AGGREGATE 2 MO. 6 MO. 9 MO. 12 MO. 6 MO. 9 MO. 12 MO	-200'	_+	 		 	-	 							-		
THE AGG. Lab. Std. coarse agg Coarse agg Rivers Ouarry cfe. 200 Hoch Strength Data cross of a composite of stone from Ledges 7A, 7B, and 7C of this quarry.	F.M.		<u> </u>	ــــــــــــــــــــــــــــــــــــــ		ــــــــــــــــــــــــــــــــــــــ	┧ ┗──			1				<u></u>		
DETAR-BAR EXPANSION AT 1005 N. CRD-C 1231 ZMO. 6 MO. 9 MO. 12 MO. 6 MC 9 MO. 12 MO. LOW-ALK. CEMENT N030 EQUIVALENT MIGHALK. CEMENT N030 EQUIVALENT DUNDNESS IN CONLECTE ICRO-C 40, 1141 FINE AGG. Lab. Std. coarse AGG FINE AGG. COARSE AGG ETREGSPAPHIC DATA CRD-C 1271 Material consists of a composite of stone from Ledges 7A, 7B, and 7C of this quarry.	ISI CR	D-C 105	(b) C	PD-C 104			1 MORTA	R	FINE AC	GRECA	TE			CCARSE AG	GREGATE	
HIGH-ALK.CEMENT NogO EQUIVALENT (#4=3/4") For MWCD HDC- PINE AGG. Lab. Std. coarse agg DFE 102 FINE AGG. Coarse agg DFE 102 FINE AGG. Coarse agg DFE 102 Material consists of a composite of stone from Ledges 7A, 7B, and 7C of this quarry.	MORTA	R-BAR EX	PANSIC	N AT 10	of 5.10	RD-C 12	231	2 MO.	T	T		мо.				12 00
HIGH-ALK, CEMENT No. O EQUIVALENT. SUNDNESS IN CONCRETE ICRO-C 40, 1141 FINE AGG. Lab. Std. COARSE AGG. 3 Rivers Quarry CFE, 200 73% FINE AGG. COARSE AGG DFE, 300 ETROGRAPHIC DATA CRO-C 1271 Material consists of a composite of stone from Ledges 7A, 7B, and 7C of this quarry.		(A) K CS	MENT.		- N	020 EOL	NVALENT	 	1							
FINE AGG. Lab. Std. coarse AGG 3 Rivers Quarry cfe, 100 Towns AGG before Traces and the coarse AGG before Traces and the coarse AGG before Traces and the coarse AGG before Traces and the coarse AGG before Traces and the coarse AGG before Traces and the coarse and the coarse agg																
FINE AGG. Lab. Std. COARSE AGG. 3 Rivers Ouarry CFE,200 73% FINE AGG. COARSE AGG DFE,200 PFE,300 PFE,				E ICRO						1+	1-3/	1")			HW-CD	HD-C -
EINE AGG. COARSE AGG ETREGGRAPHIC DATA CAD-C 1271 Material consists of a composite of stone from Ledges 7A, 7B, and 7C of this quarry.					_		ARSE AGG	3 Riv	ers (7 11	cry	- ,	FE)20	73%		
Material consists of a composite of scone from Ledges 7A, 7B, and 7C of this quarry.			المرتضية.			č o	APSE AGG						FE3ce	L	L	1
Ledges 7A, 7B, and 7C of this quarry.	PETRO	GRAPHIC	DATA	CRD-C !	271.	+ 0	of a	COMPO	site	of	sto	ne i	From			
		Mate			70 70	229	70.0	f thi	s qua	arr	٧.					1
*MgSo ₄ grading as per CRD C-3 100% passing 1½" agg.		Leage	es .	Α,	16,	anu	70 0		.5 94.		2 -					
*MgSo ₄ grading as per CRD C-3 100% passing 1½" agg.																
*MgSo ₄ grading as per CRD C-3 100% passing 1½" agg.																
*MgSo ₄ grading as per CRD C-3 100% passing 1½" agg.																
*MgSo ₄ grading as per CRD C-3 100% passing 1½" agg.																
*MgSo ₄ grading as per CRD C-3 100% passing l½" agg.																
*MgSo ₄ grading as per CRD C-3 100% passing 1½" agg.																
54 54445 1	MEMAR	*MaS	0, 0	grad	ina	as	per C	RD C-	-3 10	0%	pass	ing	1½"	agg.		
			4		,		-									

SOURCE NO. 75

WESTLAKE QUARRY

NEELY'S LANDING, MO

STATE: M	ю.		× 50.:				AGGR	EGATE SHEET		TEST:	FD 8Y:		ISAEWE	S		
LAT. 3	37	LONG	i	89			DATA 1(2)_C	311661		DATE	Jı	Ly.	x Sept	1968		
LAB SYME	SOL NO.	VIC	KS-48	3_G-J	L(A-F	<u>:), G=</u>	1(2)_C	793	YPE	OF MA	TERIA	Lir	eston	e Lede	ge Ruc	k
LOCATION	N: Mis	<u>s. R</u>	iver	Mile	<u>= 71</u> ,	.5 - /	1,6 abo	ove mo	ıth	OI	Uni	O K	ıver,	NE 1/4	, SW	1/4.
Sec	28,	_T33	N. R	L4E		1								\		
PRODUCE	R. We	st L	ake (Quar:	CY.	Neely'	s Land	ing, M	Q.,	_to	ld 1	sarr	err Qu	arry)		
																
SAMPLED																
TESTED F													1 04			
							orks, l	Missis	si	ppi	Rive	er,	and St	one u	ıke	
						ippi R										
							for Ri									
GEDLOGI	CAL FOR	RMATIO	A CHA P	GE:	Baile	ey For	mation	Midd	<u>le</u>	pev	onı	ın A	ge			
						Γ	T	RESULTS	\neg				1	G-1	G-1	i
GRADI	NG ICRE	(-C 103)	ICUM. 5	PASSIN	(G):		1531	RESULTS				3-6"	1 1 2 - 3	(A-F)	1 -	FINE AGG.
SIEVE	3-6"	1,-3	3.17	=4-3	FINE AGG.	<u> </u>					-+		+		2.74	
	<u> </u>			 	-	1	GR, S.S.D.						+			
6 N.	ļ	ļ		<u> </u>		ABSCRPT	ION, CRE	D-C 167, 108): 				 	1.1	0.3	
5 %.	!	<u> </u>		<u> </u>	<u> </u>	CREANIC	IMPURITIES	S, FIG. NO.	(CRE	0-C 12:			+	+	+==	
4 . ٧.	!	!		!	<u> </u>	SCET PA	RT CLES.	CRC-C 130)				-	+	+	
3 .N.		<u> </u>			-	- LIGHT	ER THAN SP	GR	ICRE	o-c :22				·	 	
2							AND ELONG	ATED ORD	-C 11	9, 120					 	
2 •	<u> </u>	<u> </u>	<u> </u>		1	WT AV	LOSS, 5 CYC	C Vg\$O± (CF	RD-C	137				3.8	3.7	!
, N.	İ	1				L.A. ABR	ASION LOSS	. · 370-C		145 3	= ADIN	s			31.7	+
4 142	<u> </u>	<u> </u>				UNIT WT.	LB CU FT	ç≈3-c <u>l</u>	07					163	170.7	
. N.		<u> </u>		<u></u>	1	FRIABLE	PARTICLE:	s≃o-c	142	1					ļ	·
∳ ∿ .				T		SPEC HE	AT, STU LE	DES F. C	RD-C	124					-	<u> </u>
į., N.,		· 	L	<u> </u>		REACTIV	TY WITH N	ac+		Sc,m	-		ļ		<u> </u>	·
NO. 4						(CF	RD-C 1281:			Rc,m∨	-				ļ	:
NC. 8															1	<u> </u>
NO. 16					1	MORTAR	MAKING PR	OFERTIES	CRD	-c · · s						
NC. 30						TYPE	CEMEN	T. PAT10:_		DA			·	SAYS,		
NO. 50						LINEAR	THERMAL E	XPANSION,	MILL	10NT-	S DEG	F. CR	D-C 125, 12	26		
NO. 130		1				1	ROCK	rype		Pi=	LEL		CROSS	٥N	ANSE	AGE
NO. 200						1										
-200 at				1		1 [_					
F.V. b		Ī		T	T											
,9) C=D-C	105	ib) CR	D-C : 64			MORTA	۱P:									
				_		<u> </u>		FINE AGO	REG				C (CARSE AGO	REGATE	
MORTAR-	-BAR EX	-ANSIQI	N AT 100	»+, * ′C 	# D+C 12	.s::	2 MO.	6 MO.	9	MO.	2 M	о.	3 MO.	6 MO.	9 MO.	12 MO.
LCM-A	LK. CE	ENT:		- No	20 EQU	IVALENT:										
HIGH-	ALK. CE	VENT:		" No	20 EOU	IVALENT:	1					- !				
SOUNDNE	ESS IN CO	CNCRET	E (CRO-	C 40, 11	٤١;									F6+	н w- СБ	но-с ж
FINE	AGG.				CCA	RSE AGG:						DF	300			
FINE	AGG.				CCA	RSE AGG:						CF	320			
PETROG	RAPH.C	DATA «C	:RD-C 12	Tie.												

MgSO4 loss, 140 lb/cu ft min. unit wt. G-1(2) CRD-C 144 resistance to freezing and thawing, loss - 5.3% of original weight.

¹⁴⁰ F354 F011.0

Issued Sept 1975 TESTED BY: USAEWES INDEX NO.: 17 (Suppl.) STATE: MO. **AGGREGATE** DATE: Nov. 73 **DATA SHEET** LAT.: 37 LONG. TYPE OF MATERIAL: Limestone Ledge Rock LAB SYMBOL NO.: STL-31 G-1 LOCATION: Miss. River mile 71.5 above mouth of Ohio River, NE 1/4, SW 1/4 Sec. 28, T33, R14 PRODUCER: West Lake Quarry & Materials Co., Neeley's Landing, Mo. St. Louis District SAMPLED BY: St. Louis District, Repair to Revetments & dykes Lower Miss. River. TESTED FOR: USED AT: PROCESSING BEFORE TESTING: As required for riprap test GEOLOGICAL FORMATION AND AGE: Bailey Formation, Middle Devonian Age Rip-TEST RESULTS GRADING (CRD-C 103) (CUM. " PASSING): 1 1 - 3" 3-1rap 1 2 -3 2-13 ×4-1" SIEVE 2.65 BULK SP GR, S.S.D. (CRD-C 107, 108) 0.4 ABSORPTION, % (CRO-C 107, 108): ORGANIC IMPURITIES, FIG. NO. (CRD-C 121) 5 IN. SOFT PARTICLES, * (CRD-C 130) 4 IN. ". LIGHTER THAN SP GR_____ (CRD-C 122) 3 IN. T FLAT AND ELONGATED (CRD-C 119, 120) 2 ; IN. WT AV 1 LOSS, 5 CYC MgSO4 (CRD-C 115 2 IN. L.A. ABRASION LOSS, CRD-C 117, 145 GRADING 1 ½ IN. 165.1 1 IN. UNIT WT, LB/CU FT CRD-C 106): FRIABLE PARTICLES. * CRO-C 142 1 IN. SPEC HEAT, BTU'LE DEG F. 'CRD-C 124 1 IN. SC.MM L REACTIVITY WITH NOOH 3 IN. RC.mM/L (CRD-C 128): NO. 4 6.07 Freeze-Thaw, (CRD-C 144)% Loss NO. B MORTAR-MAKING PROPERTIES (CRD-C 116) NO. 15 DAYS. TYPE____CEMENT, RATIO:___ NO. 30 LINEAR THERMAL EXPANSION, MILLIONTHS/DEG F. (CRD-C 125, 126): NO. 50 AVERAGE PARALLEL ACROSS NO. 100 NO. 200 -200^(a) F.M. (b) (a) CRD-C 105 (b) CRD-C 104

			FINE AG	GREGATE			COARSE A	SGREGATE	
MORTAR-BAR EXPANSION AT	100#, % (CRD-C 123):	2 MO.	5 MO.	9 MO.	12 MO.	3 MO.	6 MO.	9 MO.	12.45
LOW-ALK. CEMENT:	* NO2O EQUIVALENT:				<u> </u>		ļ	<u> </u>	ļ
HIGH-ALK, CEMENT:	" NG2O EQUIVALENT:		<u> </u>		<u> </u>		ļ	<u> </u>	
SOUNDNESS IN CONCRETE IC	RD-C 40, 114):						FA.	HW-CD	-5-3-
FINE AGG.	COARSE AGG:					DFE 300			<u> </u>
FINE AGG.	COARSE AGG:					DFE 300	l	<u> </u>	<u>i</u>
PETROGRAPHIC DATA (CRO-	C *27):								

REMARKS: *There were 7 slabs tested for freeze-thaw. One slab was completely disintergrated after 15 cyles and this slab was not included in the 6.07 loss for the other six slabs.

SOURCE NO. 76
WESTLAKE QUARRY
GRAY'S POINT, MO

STATE:	Mo.	NDE	x %0	18				EGATE	7	ESTED	∍Y: U	SAEWE	S			
LAT.	37 N	Lone	. 8	9W				SHEET					13 Dec			
LAB SY	ECL NO.	STL	-23	G-1	G-1	(3)	C793	т	YPE 0	FMATE	RIAL:	Limes	tone R	iprar	S	tone
							ove mou									
Se	c 22.	T30	N, R	14E												
PRODUC	ER We	st L	ake	Quar	ry.	Gray's	Point	Mo.								
SAMPLE	D BY: S	t. L	ouis	Dis	tric	t										
TESTED	FOR: S															
USED AT	r: R	evet	ment	, Re	gula	ting W	orks, l	<u>Missis</u>	sip	oi Ri	ver					
																
							or tes									
GEOLOG	CALFO	RMATIO	× 4 % 2 A	GE: P	latt:	in For	mation	, Ordo	vic:	ian A	ge					
							·				T					
GRA:	- ·G (C#3	3-C 1031	/5.44. Y	PASSIN	G):		TEST	RESULTS			3-6"	1 1/2	-3 3-1	G-1	ı	F NE AGG.
SIEVE	3-6"	17-3	3 7	=4-3	FINE						<u> </u>				_	
		<u> </u>	·		AGG.	BULKSP	GR, S.S.D.	CRD-C 107,			ļ			2.		
€ IN.	1	1	<u>!</u>	!	1	ABSORPT	10N, 1 (CRE	-C 107.						0.:	ر	
5 'N.	1	· 			i +	ORGANIC	MPURITIES	, FIG. NO.	CRD	2 121)	1					
4 19.			<u> </u>	 	 	SOFT PAI	RTICLES,	ICRD-C 130	:					-+-		
3 /N.	!	1	·	-		LIGHTE	R THAN SP	GR	CRO-	(122)	ļ					
2 1 IN.				<u> </u>	<u> </u>	- FLAT	ND ELONG	ATED ICRD	C ::9	, 120)	-					
2 15.	2 1N. WT AV 1 LOSS, 5 CYC MgSO4 CRD-C137 0.4 15 IN. 1 L.A. ABRASION LOSS, 1 ICRD-C 1451 GRADING 30, 8 172.0															
1) IN. 1 L.A. ABRASION LOSS, * (CRD-C 145* GRADING 30, 8 172.0																
172.0																
) in.	· ·	ļ		<u> </u>	ļ	FRIABLE	PARTICLES	s, * ICRD-C	1421		-					
; IN.		<u> </u>	,	-	 -	1	AT, BTU/LB		RD-C	124)	-			-+-		
; .N.		 				REACTIV	ITY WITH N	оон	-	c,mM/L:	 			i		
NO. 4	<u> </u>	 	:	 		:CF	ID-C 128):		R	c,mM'L:	+	`				
NO. 8		ļ	 	 	 						ــــــــــــــــــــــــــــــــــــــ					<u> </u>
NO. 16	_	ļ	i	 	!	7	MAKING PR									
NO. 30		`	!		 		CEMENT							75		
NO. 50		-		+	 	LINEAR	THERMAL E	XPANSION I	MILLI							
NO. 100			<u> </u>	+		┨ ┡───	ROCK	YPE		PARALL	EL.	ACROSS	ON		AVER	AGE
NO. 200		-	; 		-	┥├──							- i			
-200 a		 		 	+	┨ ├──					-+					-
F.M. b		ــــــــــــــــــــــــــــــــــــــ	1	٠	٠	┨ ┗━━	··									
at CRD	-C 105	:p, ¢=	RD-0 104			MORTA	R:					Γ	COARSE			
VORTA	F-BAR EX	PANSIC	N 4 T 10	SF, 110	RD-0 12	:31:	2 MO.	FINE AGO	SM		2 MO.	3 MO.	6 MC.			· 2 v 9,
						HVALENT:	2 MO.	a MC.	3 ;•-					1	_	
	-ALK. DE' ALK. DE					IVALENT:	 					 	 	1		
	NESS IN C		r = -=-					<u> </u>	<u></u>				FAT	HW-C	D	-c-c%
	456.	- 1002				ARSE AGG:						DFE 300		T		
	2 4 G G .					ARSE AGG:						DFE 300				
	G=4=- C	DATA	C# Z + 2 ·	27 :			Compo	sition	1, P	erce	nt '	* Mo	re gra	y col	ore	d than
			Co	onsti	tuer	t	G-1		1(3	_			STL-2		-	1
D.	ark G	ray,	Ver	y Fir	ie-Gr	ained	3	5			•		e piec			1
	live (2	1%	•				ive gr			
0	live (Gray	, Me	iium-	Grai	ned	2	2*	*			-	ained			
	live (1	04	ילר ז'כי							f Fine
	with (23 G-1(
į																ot chare
i																-23 G- 10
HEWAR	4 5															on∃ pie
								-					STL-2	3 G-1	•	
_	RD-C	344	Re.	cieta	nce	to fre	ezing	and th	nawi	ng p	erce	nt				1

CRD-C 144. Resistance to freezing and thawing percent loss for material 25 percent of original with 40.6 (G-1), 0.9 (G-1(3)).

							I	ssued	Sept 1	96	59						 7
STATE: M	0	INDEX	NO.:	18 (Supp	1		AGGRE	EGATE	L	TESTED	BY:	USA	EWES			
LAT.: 3		LONG.	- 0	9	·			DATA	SHEET		DATE:	7 J	anu	ary 19	968		
LAT.: O	0. 110	CTT	-23 0	_1(2) (181	<u> </u>		TY	PE	OF MATE	RIAL:	Cru	shed 1	.imesi	one	
LAB SYMB	OL NO.:	<u> </u>	<u>-25 0</u>	46	· Abo	277	the	mouth	of th	10	Obio	Rfx	er	West	Side o	o f	
LOCATION	: KI	ver r	Div	40.	NE	1	//. c	W 1/4	nroiec	• + 4	ed sec	22	T	30N 1	R14E		
						_+/		W 1/3	projec	ظماء			-,				
PRODUCE	R: We	st La	ake C	uarı	<u>ry</u>												
SAMPLED	BY: S	t. Lo	ouis	Dist	rict												
TESTED F																	
USED AT:	K	askas	<u>skia</u>	Nav:	igat:	Lor	1 Loc	k and	Dam								
PROCESS	NG BEF	ORE TES	TING:	None	<u> </u>												
GEOLOGIC	CAL FOR	MATION	AND AC	e:]	Plati	tiı	ı For	mation	ı								
							-			_							
GRADI	NG (CRC	-C 103)	CUM. %	PASSIN	G):			TEST F	RESULTS					. 1	3/4-1½"	#4-3"	FINE
	SIEVE 3-6" 11/2-3" 3/4-12" 84-3" FINE AGG. BULK SP GR, S.S.D. (CRD-C 107, 108) 2.70 2.69 2.70																
SIEVE	3-6"	1 1/2 - 3"	3 -1 ½"	#4-3		<u> </u>		CB 55D /	CPD-C 107.	108	1)			2.70	2.69	2.70	
					-	1						 			T	1 -	
6 IN.					<u> </u>	+-						+			-		
5 IN.	4 IN. 100 SOFT PARTICLES, % (CRD-C 130) 1.1 0.3 0.0 3 IN. 85 % LIGHTER THAN SP GR (CRD-C 122)																
4 IN.	4 IN. 100 SOFT PARTICLES, % (CRD-C 130) 1.1 0.3 0.0 3 IN. 85 % LIGHTER THAN SP GR (CRD-C 122) 1.1 5.6 4.2 2½ IN. % FLAT AND ELONGATED (CRD-C 119, 120) 1.1 5.6 4.2																
3 IN.	3 IN. 85 % LIGHTER THAN SP GR(CRD-C 122) 2½ IN % FLAT AND ELONGATED (CRD-C 119, 120) 1 / /																
2 1 IN.	2½ IN.																
	2 in. 35 100 wt AV % Loss, 5 CYC MgSO4 (CRD-C 115) 1.4 1½ IN. 6 97 L.A. ABRASION LOSS, % (CRD-C 117, 145) GRADING 31.5 29.6 23.3																
2 IN. 35 100 WT AV % LOSS, 5 CYC MgSO4 (CRD-C 115) 1.4 1½ IN. 6 97 L.A. ABRASION LOSS, % (CRD-C 117, 145) GRADING 31.5 29.6 23.3																	
2 IN. 35 100 L.A. ABRASION LOSS, % (CRD-C 117, 145) GRADING 31.5 29.6 23.3 LIN. 2 41 100 UNIT WT, LB/CU FT (CRD-C 106):																	
2 IN. 35 100 WI AV & COS, V (CRD-C 117, 145) GRADING 31.5 29.6 23.3 1½ IN. 6 97 L.A. ABRASION LOSS, % (CRD-C 117, 145) GRADING 31.5 29.6 23.3 1IN. 2 41 100 UNIT WT, LB/CU FT (CRD-C 106):																	
3 IN.		1	7	56	 	+		T, BTU/LB				T					
1/2 IN.		—			+	7		TY WITH N			Sc,mM/L:						
3 IN.		1 1		34	+	∤ "'			uon		Rc,mM/L:	+-					
NO. 4	<u> </u>			8		+	(CR	D-C 128):			KC, mw/ C.	+-				T	
NO. 8					 	+-								1			·
NO. 16				<u> </u>				MAKING PR					_		5445		•
NO. 30		ļ	<u> </u>	<u> </u>				CEMENT									
NO. 50	<u> </u>	<u> </u>		<u> </u>	1	_ ∟	NEAR T	HERMAL E.	XPANSION,	41L	LIONTHS/	DEG F	. (CRD	-C 125, 12	6):		
NO. 100	Γ.					1		ROCK T	TYPE		PARAL	LEL	AC	ROSS	ON	AVE	RAGE
NO. 200				L									ļ. —				
-200 ^(a)			T	Ī			L										
F.M. ^(b)	1					7											
(d) CRD-(- 104	(h) co	D-C 104				MORTA	R:									
						-			FINE AGG	RE	GATE			cc	ARSE AG	GREGATE	
MORTAR	-BAR EX	PANSIO	N AT 100)F,% (C	RD-C 1	29):		2 MO.	6 MO.	9	мо.	2 MO.		мо.	6 MO.	9 MO.	12 MO.
	N	MENT.		% NI	020 EQ1	JIVA	LENT:										
	ALK. CE				020 EQ												
			- 1000												F&T	HW-CD	но-см
SOUNDN		UNCRET	S-3	(5)	90%	A B C	E 400:	STL-2	3 G-1/	21			DFE	300	64		
FINE		TL-1	9 s-	$\frac{1}{(2)}$	10%	ARS	E AGG:	<u> </u>	<u> </u>	<u>- /</u>			DFE				
FINE		DAT: :		271:	co	ARS	L AGG:		Compo	g i	tion,	Po	rce				
PETROG	HAPHIC						1-1	/2 3 i			$\frac{1-1/2}{1-1/2}$				- 3/4	in.	
+	ima		titu	ent			T_T	72 3 1 64	<u> 5/</u>		53	711	<u>.</u> .		35		
	imest Mott]		ense	Do1	omit	۾		16			31				9		
1 1	Dense	Dol	omit	e wi	th			9			3			_	Ź		
ļ i	Weath	iered	Che	rt							_						
1 (Chert	:y			_			2			3				1		
	Coars					,		5			6				5 7		
	Light				edde	ed.		4 TR			4 TR				1		
1	Weatl	erec	, 50	T.L.				TIX			111						
REMARK	(S:,		04 1	imaa	+022		e 200	tentia	117 20	20	tive	an	d e1	101111	he ef	ther	testeđ

STATE: M	o.	INDEX	(NO.:	8(5	uppl.	2)			GATE	ŀ	TESTE			SAEWE			
LAT.: 3	7	LONG	.:	89					SHEET					h 196			
LAB SYMB	OL NO.:	STL-	-23 G	-1(4	ــــــــــــــــــــــــــــــــــــ	CC10	2		Τ'	YPE	OF MAT	ERIAL	Cr	ushed	Line	stone	
LOCATION	: 46.5	_r:i1	les a	bove	Liou	th o	of (Ohio R	iver.	W.	<u> 310</u>	تننىء	SS.	Rive	er NE	1/4,	
SW	1/4	pro	iecto	d sc	ctic	n_2	'ـــو2	T30N,	R14E,	Κi	ភទបរ	ck I	.edg	<u>c_</u>			
PRODUCE	R: Vie	stla	alte O	uari	y, 0	iray.	<u>'s</u>	Point,	_Mo								
	·····								-								
SAMPLEO			ouis											····			
TESTED F			ouis					, ,									
USED AT:	N.	esk	askila	2 13:33	1960	1011	ΡÛ	ck and	<u> </u>								
PROCESSI			- TIME:	200	:0b	- 0.4		· · · · · · · · · · · · · · · · · · ·	.,								
							Jor	ation	1								
GEOEGG	- ALTON			10.													
GRADI	NG ICRD	C .03)	(CUM. %	PASSIN	G1:			TEST	RESULTS	T			-	. 1	2-1 ±	#4-3"	FINE
		$\overline{}$	• • •	Γ,	FINE		L	<u>.</u>				J 3	-6"	1 ½-3"	4-17	14-1	AGG.
SIEVE	3-6"	15-3	2 -1 3 "	=4-3	AGG.	BULK	SP (3R, S.S.D.	CRO-C 107	•08)					2.37	-
6 IN.						ABSO	RPTI	ON, 7 (CRD	-C 107, 108):						0.3	
5 IN.						ORGA	NIC 1	MPURITIES	, FIG. NO.	CRE	O-C 1211					 	
4 IN.						SOFT	PAR	TICLES,	CRD-C 130	١						-	
3 IN.						· LIG	HTER	THAN SP	GR	CRE	o-C 122	-		ļ		-	
2 ½ +N.				L		- FL	AT AI	ND ELONG	TED CRD	·C 11	9, 120			 			
2 IN.					<u> </u>				MgSO4 CF							- 	
1 ½ IN.				<u> </u>					등 (CRD-C		145 GR	ADING.		 		 	
1 IN.				 	<u> </u>	 	<u>_</u>		CRD-C 106					-		 -	+
ž IN.			ļ	 		+			(DECE :			+		 			
1 IN.				+	 			TY WITH N	OEG F. C	- 1	Sc,mvi i						1
; in.				+	 	1		o-C 1281:		- 1	RC,mM.			T			
NO. 4				 	† — —	<u> </u>							········				
NO. 16				†		MORT	AR-N	AKING PR	OPERTIES	CRE	-C 116)					•	
NO. 30						7			r, RATIO:_				•	·,	DAYS		<u> </u>
NO. 50						LINE	ART	HERMAL E	XPANSION.	MILL	IONTHS	DEGF	. (CRE	-C 125, 1	261:		
NO. 100			<u> </u>	<u> </u>	ļ	1 -		ROCK	YPE		PARA	LLEL	AC	ROSS	ОИ	AVEF	RAGE
NO. 200				↓	 	⇃⇂					 		 		 		
-200 ^(a)	ļ		ļ	<u> </u>	ļ	┨									ļ. ———		
F.M. (b)	<u> </u>		<u> </u>	<u></u>	<u> </u>	┥┖-					<u> </u>				J		
(e) CRD-C	105	th CR	D-C 1C4			МО	RTAF	<u> </u>					$\neg r$		OARSE AG	CRECATE	
MCRTAR-	BAR EXF	ANSIO	N AT 100	DF. 5 (C	RD-C 12	:3):		2 MO.	FINE AGO		MO.	.2 MO		mo.	6 MO.	9 MO.	12 MQ.
	LK. CEM			~	20 EQU		NT.	2 MO.	6 MO.	3	1410.	2 140		,,,,,	<u> </u>		
	ALK, CE				20 EQL					_							
SOUNDNE			E CRD	C 40. 1	4):					4					F&T	HW-CD	-5-0*
	AGG.					ARSE A	GG:	STS-23	G-1(4	.)			DFE	300	63		ļ
FINE	AGG.				ÇC.	RSE A	GG:						DFE	300		L	<u>i. </u>
PETROG	RAPHIC	ATA (
			Cons	titu	ents				<u>Co.</u> .	0ىر.	<u> غايد ت ا</u>	on,	NO.	Lori	icles	9 /0	
1			23 (201)			۰,۰								85			
]			llovi	_			use							05 11			
			ght g ayish				nse							3			
			zk gr											TR			
			cella											1			
			ather										,	00			
REMARK	S:							Total	-					00			
1																	

STATE.		INDE	× NO.:	18(3	امور		3	AGGI	REGATE	-	TESTE:		' ــــــــــــــــــــــــــــــــــــ	USAEV	VES		
LATO	37	LONG	 	89					SHEET		DATE:			il 1			
LAB SYM									1	YPE	OF MAT	ERIAL	Cr	ushe	d Lime	estone	
									above	t t	he mo	uth	o£	the	Ohio,	NE 1/4	٠,
SW 1/																	
PRODUC	ER: V	est	Lake	Qua	rry	and	1 Ma	itería.	ls Co.,	<u>G</u> :	ray's	Po	int,	Mo.			
SAMPLE																	
TESTED							. T.	ock and	I Dom								
USED AT	: -	\as Ka	iskla	Nav	Igat	101	1 60	ock and	1 Dan								
				No	20												
PROCESS	· · · · · · · · · · · · · · · · · · ·					SW.	ick	Ledge									
GEOLOG	CAL FOR	WATIO	N AND A	GE:				- Leage									
GRAD	ING ICRE	-C :031	IC IN .	PASSIN	G1:			TEST	RESULTS	\neg		\top	<u>_</u>		1	1	
	Ţ	,										3.	-6"	1 1/2 - 3	3-17"	#4-3"	FINE .
SIEVE	3-6"	1,-3	3 -1 1/2	=4-4	FINE AGG.		K 5 P	GP 557	(CRD-C 107	108		 		2.53	2.5	3 2.58	
6 in.	1			 					D-C 107, 105			+		0.5		0.7	
	-			 					5, FIG. NO.		-5 131	1=		-			
5 IN.	 	100	<u> </u>	 	<u> </u>				-CRD-C 130			\top			1		
3 IN.		86		<u> </u>					GR		-C 122						
2 1 IN.	 	_		-					ATED CRO								
2 IN.	1	33	100						C MaSO4 CF								
1 } iN.		5	95			L.A	, ABR	ASION LOS	S. CRD-C	117,	145 GR	D.NG_	В			39.0	
1 IN.		1	51	100		1			(CRD-C 106								
3 iN.		1	8	95		FRI	ABLE	PARTICLE	S, " (CRD-C	142							
1 1N.			2	59		SPE	C HE	AT, BT1	B'DEG F. C	RD-C	124						
3 IN.	<u> </u>	<u></u>	1	34		RE	ACTIV	TY WIT- N	:00н		Sc,mM L						
NO. 4			1	2			(CR	PD-C 123			Rc.mM. L				_		
NO. 8						_											<u> </u>
NO. 16	ļ					мо	RTAR-	MAKING PE	OPERTIES	CRD	-C 116)						
NO. 30	 			<u> </u>	ļ	TY	PE	CEVEN	T, RATIO:_		DAYS.			·	DAYS		
NO. 50	_			ļ		LIN	EAR	THERMA E	XPANSION	MILL	ONTHS	DEG F	(CRD	C 125, 1	261:		 -,
NO. 100	 		ļ	 		┨		ROCK	TYPE		PARAL	LEL	ACF	ROSS	ON	AVER	AGE
NO. 200	 			 		1 }											
-200 G	┼		 		 	┥┝					 						
	<u>.l</u> .	<u> </u>	1	<u> </u>	<u> </u>	L					1			1			
(a) CRD-0	105	/b: CR	D-C 104				ORTA	R:					T				
MORTAR	BAR EX	PANSION	AT 100	F, ~ (CF	RD-C 12	3):		2 MC.	FINE AGO			12 MO.	١,	мо.	6 MO.	GREGATE 9 MO.	12 MO.
100-0	LK. CEM	ENT:		. Na	20 EQU	IVA I	ENT:		0 1110.1				+-	1	0 1110.	3	TE MO.
	ALK. CE				20 EQU			 					1				
SOUNDNE	ESS IN CO	NCRET	E (CRO-	2 40, 114	\$):			 							FAT	HW-CD	HD-CW
FINE	AGG.				COA	RSE	AGG:						DFE3	00			
FINE	AGG.				COA	RSE	AGG:						DFE3	00			
PETROG	RAPHIC	DATA IC	RD-C 12	71:													
1																	
1																	
REMARK				.,													
TEIRA TE	-																
L																	

STATE	MO	INDE	NO.	J	9_			REGATE		TEST	ED BY:		SWD				
LAT.	37	LON	G.	89			DAT	A SHEET		DATE	<u> </u>		Sep	69			
LAB SY	MBCL NO	.:		1080	0				rype	0F M	ATERIAL	:	Crus	hed L	im	eston	e
LOCAT	ION.			West	Lak	e Quan	rry, I	11mo,	Mo.	, 0	ld Hv	ту 6	l an	d Mis	s.	Rive	r
PRODU	CER:	U 1e	s+ 1	ake	Qve	vrv	Grays	Point									
		X_3															
SAMPLE	ED ØY:																
TESTER	FOR:																
USED A	τ:			Blyt	hevi	11e A1	FB										
																 	
PROCE	SSING BEI	FORE TE	STING:														
GEOLO	GICAL FO	RMATIO	N AND A	GE													
GRA	DING (CR	D-C 1031	€CUM. T	PASSIN	G1:		TEST	RESULTS	I			-6"	11.3	. 2-13		*4-}"	FINE
SIEVE	3-6"	12.3	2-13	.4.	FINE	<u></u>	<u> </u>					-	,,	4.17	_		AGG.
-					AGG.	BULK SP	GR, S.S.D.	(CRD-C 10	, 108)				2.	71	2.70	
6 IN.						ABSORPT	ION, 5 (CR	D-C 107, 10	91:					0.	3	0.4	
S IN.			L	<u> </u>	ļ	ORGANIC	IMPURITIE	S, FIG. NO.	ICRE	-C 121	<u>,, =</u>				_		
4 IN.				ļ	ļ		RTICLES. 1						ļ. <u></u>	0.0			
3 IN.		<u> </u>				~ LIGHTE	R THAN SP	GR_2_0	CRE	-C 122	21		ļ <u>.</u>	0.9		0.0	
2 1 1 1 1 1 1 1 1 1 1 1 1		-	-	ļ			ND ELONG				,			2.	4	3.6	ļ
2 IN.		ļ	100	<u> </u>	ļ		LOSS, 5 CY								_	00 0	
1 } IN.		 	91	1.00	ļ		ASION LOSS			145) G	RADING	3 2 .	8	29.	4	23.8	
9 IN.	+	 		100			LB/CU FT								-		
3 IN.		┼	3	93			PARTICLE								-		
1 IN.	+	┼		52			AT, BTU/LI						 		-		
3 IN.		-	1	27	 	1	ITY WITH N	I COH	- 1	SC,RM					-		
NO. 4		╁		1		ICR	D-C 128):	T.W		RC,RM	<u> </u>			_	\dashv		
NO. B	_	+	 	+		 							L				1
NO. 16		┼──		 	 	1	MAKING PR CEMEN					~		DAY			•
NO. 50	1	_		 	 		THERMAL E								11.00		
NO. 100	7	 		†		1 -	ROCK			1	ALLEL		ROSS	ON		AVER	AGE
NO. 200						1											
~200 ^(a)			0.5	0.7		1											
F.M.(b)		1				1											
's) CRC	C 105	(b) CR	D-C 104			MORTA	M:										
MORTAE	T-BAR EX	PANSIO	4 AT 100	e * 100	n-r 12	1 1.	<u> </u>	FINE AG	REG	ATE				COARSE A	gg r	EGATE	
							2 MO.	6 MO.	9 1	иO.	12 40.	3	MO.	6 MO.	L	9 MO.	12 MO.
LOW-	ALK. CEN	ENT:				IVALENT:						┷			1		
HIGH	-ALK. CE	MENT:		% NG	O EQU	VALENT:	L	<u> </u>			L				╀		
SOUNDN	ESS IN C	DNCRET	E (CRD-	2 40, 114				····						FST	+	HW-CD	но-см
	AGG.					RSE AGG:						DFE;	00		╀		
	AGG.	DATA (C	BD-C 12	71:	COA	RSE AGG:		·				DFE	100		<u></u>		
85% 1	mediu	m to	dark	gra	у, г	redom	inantl	y hard	, 1	ith	ogra	hic	to	very	fi	ne-gr	ained
							ly fra							-		_	
1 ~	-	•				_	nic an						rous	LIME	ST	ONE.	
	-							_									
							of th										
			tely	soft	, wa	ixy sha	ale to	1/16"	th	ıck	. So	ome	calc	ite c	oa	tings	
were	note	d.															
REMARK	(\$:														-		

SOURCE NO. 77

SOUTHERN RIVER ROCK

PERRYVILLE, MO

							Iss	ued Se	ot. 19	73							
STATE:	Mo.	INCE	x 40.:	20 (Supr	5Ī			EGATE		TEST	D BY:	US	AEWES			
LAT.: 37	7	LON	5	89				DATA	SHEET		DATE			ch 19			
		STI	~28	G-3(/	() ai	nd	G-3	(B)	Ŧ	YPE	OF MA	TERIA	L: Le	dge F	lock		
LOCATIO	∾: Se	c. 1	1. R	12 1	E. T	3	5 N.	Perry	Count	у,	Mo.	(ne	ear F	led Ro	ck, Mo	.)	
	Gi	bbar	Qua	rry l	Vo.L		Mile	94.5,	Miss.	Ri	ver						
PRODUCE								. Mo.					iece	5			J
			River				***				В	3 0	iece	5	•	•	
SAMPLED						- -								-			
Terren	FOR: T	Agril	atin	a Mo.	rbe rte	T	OUIOT	Miss.	River		St.	T.011	is Di	stric	t		
		eg u.	a ciii	<u> </u>	LAU	-	ONCI	14.000	10.101	<u>, </u>							
USED AT:						_											
																	
PROCESS					רם	-+	+ +	Format	ion M	4 20	17.0	020	ord of	an Ac	'P		
GEOLOGI	CAL FO	MATIO	N AND A	GE:	FL	<u>a (</u>	0111	TOTHAC	LUII F.	<u> </u>	176	014	0 4 1 0 3		edge	Rock	
	15-5		ICUM. %		-1.	_		TEST	RESULTS	1		G:	מנוסיי	Group		B	
GRADI	ING ICAL	PE 1031	ICOM. %	PASSIN	G):					لــ		<u> </u>	A	B	4	"	i 1
SIEVE	3-6"	1 -3-	2-13"	£4-₹"	FINE AGG.	-								2.80	1	2.74	
	!					-		GR, S.S.D.						0.5	 	0.6	
6 IN.	<u> </u>							ION, 5 (CRE					0.6	0.5	-	10.0	
5 IN.	<u> </u>		ļ			01	REANIC	IMPURITIES	5. FIG. NO.	CRD	-C 121				+==	+	├──┤
4 IN.						\$0	PT PAR	TICLES, 5	ICRD-C 130	1						+	
3 IN.						Ψ,	LIGHTE	R THAN SP	GR	(CRD	-C 122				 		├
2 IN.	1					-,	FLAT A	ND ELONG	ATED ICRD	-C 11	9, 120)						
2 IN.			<u> </u>			w	TAV	LOSS, 5 CYC	Mg504 (CF	ю-с	115)				 	4	
1 ½ IN.	1½ IN. L.A. ABRASION LOSS, % (CRD-C 117, 145) GRADING																
1 IN.			<u> </u>			u	NIT WT.	LB/CU FT	CRD-C	.07	<u> </u>	_1	<u>73.2</u>	174.	-	170.7	
in.	IN. FRIABLE PARTICLES, % (CRD-C 142)																
1 IN.						Si	EC HEA	T, STU/LE	DEG F. (C	RD-C	1241				<u> </u>		
3 IN.	IN. SPEC HEAT, BTU/LB/DEG F. (CRD-C 124)																
NO. 4															<u> </u>		
NO. 8						Г											
NO. 16				T		м	ORTAR-	MAKING PR	OPERTIES	CRD-	-C 116)						
NO. 30	<u> </u>					7		CEMENT			DAYS	•			DAYS,		
NO. 50 ·						L	NEAR T	HERMAL E	XPANSION,	MILLI	ONTH	'DEG	F. (CRD	-C 125, 12	6):		
NO. 100		1				1		ROCKT	YPE		PARA	LLEL	AC	ROSS	0.0	AVER	AGE
NO. 200	 		†			1											
-200(4)	 	 		1		1											
F.M. (b)	 	 		1	<u> </u>	1											
(e) CRD-C		46.00	D-C 104	4		1	MOSTA	R·									
						_		Ĭ	FINE AGO	REG	ATE			c	ARSE AG	GREGATE	
MORTAR-	BAR EX	PANSIC	N AT 100	F. % (C)	RD-C 12:	3):		2 MQ.	6 MO.	9 1	40.	12 M	o. 3	MO.	6 MO.	9 MO.	12 40.
LOW-A	LK. CEN	EN-		", NO	20 EQU	IVA	LENT:										
	ALK. CE				20 EQU												L
SOUNDNE	ESS IN C	DNCSET	E (CRD-	C 40, 11	4):										F&T	HW-CD	45-CW
FINE	AGG.				COA	RS	E AGG:						DFE	100			
FINE	AGG.				COA	RS	E AGS:						DFE	300	l		
						D	olomi	itic li	mesto	ne	and	dol	omit	е			
		Tes	ts co	nduc	ted	i	n acc	cordanc	ce wit	n C	RD-0	շոհե	Met	hod o	f Tes	ting S	tone
for F	Resis	tanc	e to	Free	zine	, ;	and I	Thawing	g gave	th	e fo	ollo	wing	resu	lts:		
	wo	•	•			2			,	۱v.	% 1	Nt.	Loss	Afte	r 20 (Cycles	
l	2 mi	2979	(on	מנוכ) ST	Τ.	-28 (3-3(A)	•				1	4.2			
	3 mi	eces	(pre	oup F	s) si	L	-28 0	3(A)					5	0.4			
Grand	i Av.	:All	בים ל	Leces	STI		20 G-	(A) (T)						5.9 0.3			
			2 p	Leces	STI		20 G-	-3(B)						ر. ن			
PEMARK			mr n	2 6	261		Dan	22245	70220	1.	dee	o f	Cibb	יים יוב	י ליינים	#4, ma:	rked
	* .	A- 5	TL-20 R Ll- 6	<u>. −</u> 0 ¢	-(A)c	•	re51.6	esenus	TOMET.	76	~ge	-	0100	C.A. W.U	~~~ <i>y</i> /	, -, -, -, -, -, -, -, -, -, -, -, -, -,	
					3(B)-		Repr	esents	upper	10	edør	of	Gib	bar C	יייי יו בוו	#4, m	arked
1			ב תופ	7	/					- `	60			~~. •	~arry	11 و μ-11	ETVECT

STATE:	10.	INDE	X NO.:	50 (Sup	ol.) ´	AGG	REGATE		TEST	TEO BY:						
LAT.:	37	LON	3.	89			DAT	A SHEET		DAT	E: .	May	<u> 1965</u>				
LAB SYM	BOL NO.:	ST	<u>19</u>	G-1				<u> </u>	TYPE	OF M	ATERIAL	: 611	Rock	Cor	e		-
LOCATIO	N: Se	C.	ا والا	R 12	Ε,	L 35 N	, Perr	y Cour	ıty.	_Mi	ssou	ri, r	near]	Red	Roci	۲.	
Mis	souri			_(C:	bba	r Quar	ry # 14)		.,							·
PRODUCI	ER: SC	uth	ern l	River	. Ro	ck Co.	, 30x	33, Pe	rry	vil	le, l	lisso	ouri				
ļ																	
	BY: St																
		ska	<u>skia</u>	Rive	er,	Illino	is, Na	<u>vigati</u>	.on	Imp	rove	nent					
USED AT													 				
Proce	essing	Be.	fore	Test	ing	: Sele	cted p	ieces	saw	œd,	crus	shed	& pro	ces	sed	to	meet
					ripr	<u> - qe</u>	<u>- (6n</u>	Rock (core	≥)	,						
GEOLOGI	CAL FOR	MATIO	A ONA P	GE:													
<u>-</u> _						1	1		r			т		1	_		r
GRAD	ING ICRD	C 103)	CUM. S	PASSIN	G):	ł	TEST	RESULTS						Lim			
SIEVE	3-6"	1 1 -3"	3-15°	*4-2"	FINE AGG.									sto			
				 	-	1	GR, S.S.D.							2.69			
6 IN.						t	10N, % (CR							0.	+	1.7	
5 IN.						1	IMPURITE			-C 121	1	-			- -		
4 IN.							RTICLES, T					· ·		-	+		-
3 IN.					<u> </u>	1	ER THAN SE							 			
2 1 IN.	 					 	ND ELONG				2				+		
2 IN. WT AV % LOSS, 5 CYC MgSO4 (CRD-C 115) 11 IN. L.A. ABRASION LOSS, % (CRD-C 117, 145) GRAD NG 28.5 30.9														-			
13 IN. LA ABRASION LOSS, % (CRD-C 117, 145) GRADING 28.5 30.9 1 IN. UNIT WT, LB/CU FT (CRD-C 107). 167.6167.00														 			
1 IN. UNIT WT, LB/CU FT (GRO-C 107). 167,6167.00														 			
1 IN.						1	AT, BTU/L								-		
in.						T			1	1247			see	be	Low		
NO. 4						CRD	C- 1	44	ŀ	·							
NO. 8						ļ								 	\dashv		
NO. 16						MORTAR.	MAKING PR	OBERTIES	(C PD		`			L			
NO. 30						1	CEMEN					5.		DAYS	s		
NO. 50							HERMAL E				•						
NO. 100							ROCK				ALLEL	ACR		ON		AVER	AGE
NO. 200																	
-200 ^(a)																	
F.M. (b)																	
(e) CRD-C	105	(b) CRI	D-C 104			MORTA	R;										
MORTAR	BAR EXP	MEION	AT 1006	: * (CB	m-c 12	a).		FINE AG	REG	TE			COA	RSE AC	GREC	SATE	
							Z MQ.	6 MO.	9 14	ю.	12 MO.	3 N	10. 6	MO.	9 N	10.	12.40.
LOW-A	LK. CEME	NT:		% NO2	O EQU	VALENT:								·····			
HIGH-A	LK, CEME	NT:		7, NO2	O EQU	VALENT:		l	<u> </u>								
SOUNDNE	SS IN CON	CRETE	CRD-C	40, 114):									F&T	HW.	CD	H5-C#
FINE A					COA	RSE AGG:						DFE ₃₀	•		<u> </u>		
FINEA					COA	RSE AGG:						DFE30	•		L		 -
CRD	C-144		_											m -			
_							dance									z St	one
for	Resis	tano	ce to				Thawi										
				N	0. I	Pieces	_	Av.	% W	t.	Loss	Aite	r 20	Cvc]	Les	_	
Tim	eston	۵				3					35.4	ı					
		_															
Dol	omite					3					12.7	•					
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REMARKS	:																
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											-						

Issued Sept. 1973 STATE: MO. TESTED BY: USAEWES AGGREGATE DATA SHEET 89 May 1965 LONG. DATE: LAT.: 37 LAB SYMBOL NO.: STL-19 G-1 TYPE OF MATERIAL: Crushed limestone LOCATION: Sec. 11, R 12 E, T 35 N., Perry County, Missouri, near Red Rock, Missouri Gibbar Quarry #4 PRODUCER: Southern River Rock Co., Box 33, Perryville, Missouri SAMPLED BY: St. Louis District TESTED FOR: Kaskaskia River, Illinois, Navigation Improvement Processing Before Testing: Crushing and separation into sizes for use as Concrete Aggregate at WES GEOLOGICAL FORMATION AND AGE: Plattin limestone, Middle Ordovician Age GRADING (CRD-C 103) (CUM. % PASSING): TEST RESULTS 1-11 *4-1" AGG. SIEVE 1-3 2-13" 24-2" 2.70 2.71 2.71 BULK SP GR, S.S.D. (CRD-C 107, 108) 6 IN. 1.5 1.2 ABSORPTION, % (CRD-C 107, 108): S IN. ORGANIC IMPURITIES, FIG. NO. (CRD-C 121) 100 0.0 0.0 0.0 4 IN. SOFT PARTICLES, % (CRD-C 130) 95 " LIGHTER THAN SP GR _____ (CRD-C 122) 3 IN. 6.1 5.3 6.6 3.0 2 IN. % FLAT AND ELONGATED (CRD-C 119, 120) 38 100 2 IN. WT AV % LOSS, 5 CYC MgSO4 (CRD-C 115) 95 30.8 34.6 24.8 1 ½ IN. L.A. ABRASION LOSS, % (CRD-C 117, 145) GRADING 32 100 1 IN. UNIT WT, LB/CU FT (CRD-C 106): 95 ₹ IN. FRIABLE PARTICLES, 5 (CRD-C 142) 1 IN. SPEC HEAT, BTU/LB/DEG F. (CRD-C 124) 2 38 3 IN. REACTIVITY WITH NOOH Sc,mM/L: 2 NO. 4 (CRD-C 128): Rc,mM/L: NO. 8 NO. 16 MORTAR-MAKING PROPERTIES (CRD-C 116) NO. 30 _ CEMENT, RATIO:_ LINEAR THERMAL EXPANSION, MILLIONTHS/DEG F. ICRD-C 125, 1261: NO. 50 NO. 100 PARALLEL AVERAGE NO. 200 -200(a) F.M. (b) (a: CRD-C 105 (b) CRD-C 104 MORTAR FINE AGGREGATE COARSE AGGREGATE MORTAR-BAR EXPANSION AT 100F, % (CRD-C 123): 2 MO. 5 MO. 9 MO. 12 MO. 3 MO. 12 MQ. LOW-ALK. CEMENT: NO20 EQUIVALENT: HIGH-ALK. CEMENT: " NO20 EQUIVALENT: SOUNDNESS IN CONCRETE (CRD-C 40, 114): FAT HW-CD HD-CW COARSE AGG: DFE 100 FINE AGG. COARSE AGG: PETROGRAPHIC DATA (CRD-C 127): Dolomite and dolomitic limestone PEMARKS:

SOURCE NO. 78

BUSSEN QUARRIES

ST. LOUIS, MO

Issued Sent. 1973 INDEX NO.: 1 (SUDD1.3) TESTED BY: USAEWES AGGREGATE DATE: September 1972 DATA SHEET 38. LONG. 90W TYPE OF MATERIAL: Ledge Rock LAB SYMBOL NO.: STL-25 G-2(A)+(E)+(C) LECATION: Mear Jefferson Barracks, d/s of J.B. Bridge, Sec. 12, Than, R6E, St. Louis Co., Missouri PRODUCER: Bussen Quarries, Inc., 5000 Bussen Rd., St. Louis Co., Missouri SAMPLED BY: St. Louis District 7 pieces (Ledge 1) 7 pieces TESTED FOR: Lock and Dam 25 (Replacement) (Ledge .3) C 8 pieces (Ledge li) USED AT: PROCESSING BEFORE TESTING: GEOLOGICAL FORMATION AND AGE: Ledge 1- St. Genevieve Formation, Mississippian Age Ledges 3 and 4- St. Louis Formation, Mississippian Age GRADING (CRD-C 103) (CUM. 5 PASSING): TEST RESULTS Ledge Rock 1 = 3 1-15 24-1" SIEVE 2.69 2.65 2.68 BULK SP GR, S.S.D. (CRD-C 107 0.3 0.8 0.5 ABSORPTION, % (CRD-C 107, E IN. ORGANIC IMPURITIES, FIG. NO. (CRD-C 121) 5 IN. 4 IN. SOFT PARTICLES, 7 (CRD-C 130) 3 IN. TELIGHTER THAN SP GR. FLAT AND ELONGATED (CRD-C 119, 120) 21 IN. WT AV - LOSS, 5 CYC MgSO4 (CRD-C 115) 2 IN. L.A. ABRASION LOSS, 5 (CRD-C 117, 145) GRADING 1 1 IN. 167.6 165.1 156.1 107 UNIT WT, LB/CU FT (CRD-C FRIABLE PARTICLES, % (CRD-C 142) 2 m. 1 in. SPEC HEAT, BTU'LB/DEG F. (CRD-C 124) 3 .N. REACTIVITY WITH NOOH Sc.mM/L: (CRD-C 128): Rc,mM/L: see below CRD-C 144 NO. B MORTAR-MAKING PROPERTIES (CRD-C 116) .. CEMENT, RATIO:_ NO. 30 LINEAR THERMAL EXPANSION, MILLIONTHS/DEG F. (CRD-C 125, 126): ACROSS AVERAGE PARALLEL ROCK TYPE NO. 200 -200'0' F. W. (b) 151 CRD-C 164 FINE AGGREGATE COARSE AGGREGATE MORTAR-BAR EXPANSION AT 160F, % (CRD-C 123): 2 MO. 6 MO. 9 MO. 12 MQ. 6 MO. 9 MO. 12 MO. LOW-ALK. CEMENT: " NOZO EQUIVALENT: HIGH-ALK. CEMENT: 5 NO20 EQUIVALENT: SOUNDNESS IN CONCRETE (CRO-C 40, 114): FAT HW-CD HD-CW DFE 300 FINE AGG. FINE AGG. COARSE AGG: DFE 300 FETROGRAPHIC DATA CRD-C 127 All seven samples from Ledge 1 were dense, chert-free, lithographic limestone with a few thin shale seams. Four samples from Ledge 3 were chert-free, scale-free lithographic limestone; the other three samples from Ledge 3 were cherty, lithographic limestone. The samples from Ledge 4 were made up of pieces of medium-grained chert-free limestone and two pieces of lithographic limestone with 2 in. thick layers of medium-grained limestone Remarks: Tests conducted in accordance with CRD-C lab Method of Testing Stone or resistance to freezing and thewing gave the following results: Av. Percent Weight Loss

1.1 26.2

30.9

ENG FORM 6011-R

7 pieces STL-26 G-2(A)

7 pieces STL-26 G-2(B) 7 pieces STL-26 G-2(C)

COLUMBIA QUARRY CO.

DUPO, IL

STATE]	11.)	INDE	X NO.	O(RE	V.#2)	AGG	REGATE	: L	TESTE	D 8Y:	ORD	Lab	orat	orie	В	
LAT.:	38°	N		LON	G.:	900	W	DATA	SHEE	<u> </u>	DATE:	9-2	-47					
LAB. SY												ATERIAL						
LOCATH	DN:	Pls	nt a	t Kr	ause	, Il	1. 2.	5 mi. N	E of	باه	amb	ا عند	1. (Colu	mbia	QUEY	My No	,1)
																	•	
PRODUC	ER:	Col	umbi	a Qu	arry	Co.	, St.	Louis	Mo.	C	omne	ercia	1 Qu	arr	Υ			
SAMPLE	D E	Y:R.	В.	Lorc	h, C	orps	of Er	gineer	rs Pad	uca	h, j	Ky.						
								Cache,										
PROCES																		
GEOLOG	JIC A	FOF	MATION	AND	AGE:													
USE	A	T:	CHA	N-0	F·R	ocks	Lock	No. 2	7 694	7-5	(08							
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	\top			3-15"	3"	FINE								0	,, ,	4- '8	- 4	AGG.
SIEVE		9-6"	15 -3"	2-19	-4-2	AGG.	BULK SP	. GR., SAT	SURF DRY	(CRD	-C i	07,108):				2.61		
BIN.	\top						ABSORPT	ION, PER C	ENT (CRD	C 10	7,106	3):				1.9		
51N.							ORGANIC	IMPURITIE	S, FIG. NO). (CR	D-C	121):	-		_			•
4IN.	-†-						SOFT P	ARTICLES,	PER CENT	(CRE)-¢ +	30): -						
31N.							PER CEN	T LIGHTE	R THAN S	GR_	(CRD-C	29):					T
2 IN.	+						PER CEN	T FLAT A	ND ELONG	TED	(CRD	-C 119,1	20):		/23			7
ZIN.	-+-						WEIGHTE	D AV. PER	CENT LOS	5, 5	CYCLE	S Mg50	CRI	D - C	115):	4.2	9.4	
1 ± IN.			 	100				N LOSS (L								27		T
I IN					100			LB/CU										
IN.				10			CLAY LI	JMPS, 70	CRD-C I	8):								
in.				5				ND LIGNITE			122):						-	-
1 IN					34			HEAT, BT				C 124):			——		1	1
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NO. 8	+		 	 			1					Rc,m				<u> </u>	 	1
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NO.50			 					THERMAL										
NO. 11			├	ļ	 		1	ROCK				ALLEL	ACRO		Το	N	AVE	AGE
NO.2	-+-		 			 	┨ ├								 			
- 20			 	 	 	 	┫ ├──								·			
F.M			 	7 00	c 60		┨┝──								†			
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(8) Ch	<i>D</i> -C	103	(6)(1	1	FINE AC	GREC	SATE		Т		COARSE	AGGR	EGATE	
MORTA	R - 8	AR E	XPANSIO	N AT I	00F, 70	(CRD	-C 123):	3 MO.	6 MO.	,		12 MO	-	MO.				12 MO.
		4 CE	MENT		97. N.	A . E O !	IVAL ENT.		0 MO.	-	W.O.	12	+-			-		
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				ETE (C									DFE;				-60	HD-CN
FIN	E A						COARSE	4GG:										
FIN	E A	36					COARSE	NG 0:		0:			_ DFE		<u> </u>		14-0	- +
PETRO	GRA	PHIC	DATA	(CRD-C	127):	, 5 08%	med.	-hard,	gray	าสา	ine-	grai	دے رد د۔	rys	Call	ine .	rj	s cone
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por	•	s 1	imes	tone	8%	med a	phard	, fine	-grain	, (rye	TALL:	ine .	1 1 m	es to	30 W	ıun,	thin
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che	ert	y l	ines	tone.	•													
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q	lar	гy	indi	cates	ah	ighe	r % o	f poor	stone	•								

WES FORM 726

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	ING BEF				S L	CK NO	<u> </u>									
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SIN.	 	3.00		 				PER CENT				 	0.4	0.0	1-	コ
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31N.	 	97	 	 	<u> </u>			ND ELONGA		-C 119,120):	1	7-26	12-21		
2 IN.	 	3	 	 	 			ss, 5 CYC.				C 115)	1.7	6-14	5.	0
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IN.	1		3					CRD-C III						-	 	-
in.			0.4			COAL AN	D LIGNITE	, % (CRD	-C 122);			 	ļ 		-	
3 IN.			C	31		SPECIFIC	HEAT, BT	U/LB/DEG.	F. (CRD-	C 124): .				 	┼	\dashv
NO. 4				3	+	7	ITY WITH	NaOH (C	RD-C 12			┼	 	+	+	\dashv
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NO, 16		<u> </u>	 	 	76.2	MORTAR	TTT CEN	ENT, RATIO	3 (CRU-	DAYS 1	15 %	7	_ DAYS.	121		2
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- 200		+	-	+	10.2			ous		-5.4	4.1-5.	22.7	-5.0	3.5-	5.2	
F.M.		+	+	+	2.60											
(a) CRD	-C 105	(ь) с	RD-C	104		MORTA	AR: 4	.4								_
					. // 00	-C 133):		FINE AG	GREGATE		ļ		E AGGF			_
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	AGG.			us sa		-UNITED		LINES CO				1201				
חסו	itic	foss	171 <i>f</i>	erou!	a lin	neston	e: 65%	; poro	us or	weath	ered a	rgil	lace	ous		
lim	est.on	e: 2	1%:	cheri	tv a	rgilla	ceous	limest	one:	14%; c	lay ir	ı ins	olub	±e		
res	idue	is m	ontm	oril.	lono	id. C	ore (S	TL-2 G	-2(3)): De	nse pa	irth	shal	y: 8	4%;	
por	ous a	rgil	lace	ous:	5%;	stylo	litic	cherty	: 2%;	dense	mott]	led:	9%;			
sha	le: l	.ess	than	1%.	•	-										
•																
									0 0/5	\ <u>~</u> -	72\		<u> </u>	-2/5	۲.	
REMAR	KS: S	ampl	es t	este	d in	cluded	STL-2	G-2,	G-2(2), G-2	(3), (2-2(4 Pact:	نا وزد محمد	-4(3 5000	/j	nd
comm	ercia	d cr	ushe	a st	one;	Labor	atory	crushe	EL STO	ne and	manu	Lact	TT CA	9 OIL	, a	** 10et
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LAT.:	38		LON	G.:	90]	DATA 353	SHEE		DATE:	J	une	195	9			
LAB. SYME	BOL NO).: S	TL-2	G-2	(7)	Job 6	353	· T	YPE	OF M	ATERIAL	Li	mest	one	Cor	<u> </u>	l
LOCATION	:	Kra	use.	Ill	inoi	s, 2.5	mi. N.E	of Co	lum	bia	III.						
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SAMPLED	BY:	St.	Lou	is D	istr	ict											
TESTED I			t Si														
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GEOLOGIC	AL FOR	MATION	AND	AGE:	,												
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2½ IN.							T FLAT AN							L	5	17	
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NO, 8				<u> </u>		<u> </u>					Rc,m	M/L:		<u> </u>	ــــــــــــــــــــــــــــــــــــــ		
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- 200 ^(*)		1		1	<u> </u>	┨ ├──				ļ				+		 	
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(e) CRD-	C 105	(Р) С	RD-C	104		MORTA	R:					-1		CO+C		DECATO	
MORTAR -	-BAR E	XPANSI	ON AT I	00F. %	o (CRD	-C 123):		FINE AG			1	+-		COARSE			
							3 MO.	6 MO.	9	мо.	12 MQ.	+3	MO.	6 M	0. 9	MO.	12 MO.
LOW-						IVALENT:		 				+-					
	ALK.CE					IVALENT:		L	<u> </u>		<u></u>				- 	W-CD	HD-CW
SOUNDN		CONCE	ETE (C	RD-C	40, 114									F&	- H	W - C D	no-cw
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	AGG.					COARSE A	AGG:					- 01	E 300				L
PETROGI	RAPHIC	DATA	(CRD-	C 127):													
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1																	
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			<u></u>														
REMARK	s:																
1																	
1																	

			1112	C Y NO.	10/0	PPL.#3)	A C C C	FCATO	. 1.		O 84.	HICARL	ES			· · · · · · · · · · · · · · · · · · ·
			INDI	G.: 9(10(30	PFL." 37	DATA	CHCC		ATE	Q 81.	Anril	1966			
LAT.:	38								-							
LAD. SYS	MOL N	STL	<u>-2 G</u>	<u>-2(8)</u>	<u>& A(</u>	B(1-1	<u>/2-in.</u>	-3-in.	YPE	OF K	MAT ERIAL	' Lin	eston	<u>e</u>		
LOCAT O	N: 2	.5 mi.	NE	of Co	lumb	ia, III.	at Ko	-ause	III.					·		
																
PRODUCE	a: Col	umbi	<u>a Qu</u>	arry	No.	1, Co	lumbia	<u>, 111:</u>	no:	s						
SAMPLED																
TESTED	FOR: C	helb	yvil	le Re	eser	voir,	Aggreg	ate ar	ld]	Rip	Rap :	Cests				4.1
						ts run					of 50) perc	ent S	TL-Z	<u>. G-2</u>	(A)
_''นฺวฺวฺ	<u>er le</u>	dge"	and	50%	STL	-2 G-2	(B)- "1	ower :	Led	<u> :e''</u>			<u> </u>			
GEOLOG:C	AL FOR	MATION	AND	AGE:			 									
	~~~~												<del></del>		<del></del>	T
GRADING	(CAD	-C 103)	(CUM.	70 PASS	SING):		TE	ST RES	ווט	S		3-6	1 - 3	2-14	-4-	FINE
SIEVE	3-6"	11-3"	3-14"	w4-3"	FINE	BULK SP.								(c)	(c)	AGG.
		•			AGG.	BULK SP.	GR., SAT S	URF DRY	(CRD	-C 10	07,108):		2.66			
6 IN.	<u> </u>					ABSORPTI	ON, PER CI	ENT (CHO-	C 10	7,100	3):		10.9		<del> </del>	-!
51N.	<u>'</u>					ORGANIC	IMPURITIE	s, FIG. NO	. (CR	o-c	121):		_	-	: ==	-
4 IN.							RTICLES, F						0.0			
3IN.		100				PER CENT	LIGHTER	THAN SE	. GR_		CRD-C 12	9):			-	
2 ½ IN.	1	_		1			FLAT AN						4.3	ļ		
ZIN.		59					AV. % LC					- ½) (CRD	-C 115)			
l≟IN.		9				ABRASION	LOSS (L	. A.), %, \	CRD	-C 11	7):		28.0	<u> </u>	_	
I IN.						UNIT WT.	, LB/CU F	T (CRD-	106	;):					_	
åin.						CLAY LU	MPS, 70 (	CRD-C II	8):							
∮IN.						COAL AN	D LIGNITE	, % (CRD	-C 1	22):			_	<del> </del>	1	-
BIN.				ļ		<u> </u>	HEAT, BT						1			<u> </u>
NO. 4				İ		REACTIVE	TY WITH	И∙ОН (С	RD-	C 120	3): Sc,m	٧./L:				
NO. 8	i			i		1					Rc, m	M/L:		<u> </u>		<u> </u>
NO. 16	Ì						MAKING F		-		-					
NO. 30						TYPE	CEME	NT, RATI		0	AYS,	—^১-		DAYS		
NO.50				1		LINEAR	THERMAL	EXPANS	ION .	K10 9	DEG. F.	(CRD-C	125,126):			`
NO. 100	1						ROCK	TYPE		PAR	ALLEL	ACROSS		)14	AVE	AGE
NO.260	1															-
- 200 ^{(e}																
F.M.	5															
(-) CRO-	-C 105	(P) CI	AD-C	104		MORTA	R:									
	040.5				/cno	- C + 223		FINE AG	GREC	ATE			COARSE	AGG	REGATE	
MORTAR	- BAH L	APANSIC	I IA M	001, 7	S (CHD	-C 123):	3 MO.	6 MO.	9	мо.	12 MO.	3 MO	. 6 M	0. 9	MO.	12 MO.
LOW-	ALK, CE	MENT:		₹70 Na;	0 EQU	IVALENT:										
HIGH-	ALK, CE	MENT:		70 No.	O EQU	IVALENT:										
SOUNDN	ESS IN	CONCR	ETE (C	RD-C	9005 H4	):							FL	T H	V-CD	HD-CW
FINE	AGG.	Comb:	inati	ino.		COARSE A	cc: 50%	G-2(A)	, 50	% G-	2(B)	DFE 200	85			
FINE	AGG.					COARSE A	cc:					OF E 300				
PETROG	RAPHIC	DATA	(CRD-	C 127):												
	- 12 TH					blend						.= 85V	811.2	• <b>द</b> -ट		יגדע

19% STL-15 S-1(B)(2), and 6% STL-15 S-3. STL-15 S-1 (B)(2) is "buckshot" from Hanfland Sand Co. that was received for another project. It was necessary to use a portion of this material in order to get the required gradation.

WES FORM 726 JAN. 1951

TATE:	ŢIJi	nois	INDE	X NO.:	10 (50	op!	#4)	AGG	REGATE SHEE	TES	TE	BY:	(an)	ORDI	967	,		
					200 M			DATA	SHEE	YPE OF	F.	ATERIAL	<u> </u>	ואפו	ed.	Lime	sto	ne
	ABOL NO				,	_		·		TPE OF		MI ENING	·· C;	Lusi	ieu	20 2211/		
OCATIO	N: K	rau	se,	Ill	lnoi	.8											·········	
			·		4	_			•••									
RODUCE	R: CC	Lum	01a	Lim	estc	m	e C	ompan	<u>y</u>	1/68	,	2117	<u>.                                    </u>					
									10	1/00	•	<u> </u>						
AMPLE						-	<del>,</del>	<del>]</del>										
ESTED				AFB			ino	18										
ROCESS	SING BEF	ORE TI	STING	T ===	Nor	18	<u> </u>	22_69	-C-00	13.	~	hica	an	Di	stri	cŧ		
			COI	LLA	CC 1	ישני	<u></u>	23-00	,-C- 00				-5-					
			ANID	ACE:					<del>,</del>	<del></del>								
EOLOG	CAL FOR	MAIION	AND	AGE.				····										
COADIN	G (CRD	C 1033	(CUM S	7. DASS	SING):	_		TE	ST RES	ULTS	Т		T					FINE
GRADIN	1							1 -	31 763	OLIJ	ل		- 1	3-6"	1 2 - 3"	축 - 1 ½ " (c)	#4-3	AGG.
SIEVE	3-6"	12-3"	3-12"	<b>*</b> 4−₹″	FINE AGG.	ALI	IK SP	GR SAT	SURF DRY	CRD-C	10	7,108):					2.6	1
# 1 N	+					-			ENT (CRD-								1.1	
SIN.	+								s, FIG. NO				-					T
41N.	+	<del>                                     </del>							PER CENT									1
31N.	╂								R THAN SE				29):				0	1-
2 IN.	+	<del>                                     </del>		<del>                                     </del>					ND ELONGA								19	
2 IN.	+ -	<del>                                     </del>		<del>                                     </del>					055, 5 CYC					CRD-	115)			
1 ½ IN.		-		<del>                                     </del>		1			A.), %, (									
I IN.		├──		<del> </del>		٠.			FT (CRD-									
∄IN.		<del>                                     </del>		86					(CRD-C II			<del>,</del>					0	
IN.	+	ļ		42	1				, % (CRD		);					_		
ŽIN.				19		SF	ECIFIC	HEAT, BT	U/LB/DEG.	F. (CRE	)-0	124):						
NO. 4	+	<del> </del>		2	<u> </u>				NaOH (				M/L:					Ι
NO. 8	1	1		1		1 N	iate	erial	Pass	ing	20	) (P-c,S	<b>Ý</b>	re			0.4	<u> </u>
NO. 16	+	1	<del> </del>	<del>                                     </del>	<b></b>	M	ORTAR	-MAK!NG	PROPERTIE	S (CRD	- 0	(116)						
NO. 30	1		1			17	/PE	CEM	ENT, RATI	o	_D	AYS,		_ ₇₈ ,		DAYS,_		
NO. 50						LI	NEAR	THERMAI	LEXPANS	ON XIO	9	DEG. F.	(CRE	-C 12	5,126):			
NO. 10	0					1		ROCK	TYPE	P/	ARA	LLEL	ACI	ROSS	0	N	AVER	AGE
NO.20	0	1													<u> </u>			
- 200	(6)														<u> </u>			
F.M.	ь	1		6.93	3	]												
(a) CRE	-C 105	(P) C	RD-C	104		1	MORTA	AR:										
	- BAD -	VDARICIO	N AT .	00E ~	- (CBC		123):		FINE AG	GREGAT	E		4			AGGRI		
WUK I AF	R-BAR E	~FAN310	//4 A1 /					3 MO.	6 MO.	9 MO	-	12 MO	. 3	MO.	6 M	D. 9	MO.	15 WC
LOW	-ALK. CE	MENT:		% Na				<del></del>			_		4-		<del> </del>			
HIGH	-ALK.CE	MENT:		% Na	O EQU	IVA	LENT:	<u> </u>	<u> </u>	<u></u>								
SOUND	NESS IN	CONCR	ETE (C	RD-C	40, 114	1):									F&	t HW	-CD	HD-CV
FINE	AGG.						ARSE /							E 300	<del> </del>	-		
	AGG.					co	ARSE A		<del></del>					E 300	1.70-2	ah+		
	GRAPHIC								aggre	_				ру	wei	_		
Ε	ense	, h	ard,	cr	ysta	11	lin	e lim	eston	e	_			-	98.			
	haly													-	0.			
	Shale										-				0.			
_	hert	-													٥.	5		
_	- LICT F	=																
																		77 -
REMAR	KS: 7	Cesd	ed i	in a	CCO	rđ	anc	e wit	h CE-	806	. 0	1,	L5 .	May	64.	D	. J.	. Ke
	_																	

						Is	ssued 8	Sept 1	97	L							
STATE:	LL		INDE	X NO.:	10(5	uppi.	5AGGR	EGATE		TESTE	D BY:	M	RD L	abora	story	<u>'</u>	
LAT.: 3	8°N		LON	G.:	90°W		DATA	SHEET		DATE:		<u> A</u>	ugus	1 197	70		
LAB. SYME	BOL NO	.: 70	)/211						PE	OF M	ATERI	AL: C	rush	ed L	imes	one	
LOCATION	: Se	c. 10	), T1	S, R	10W,	St. C	lair (	County									
PRODUCER	: Co	lumb	ia Qu	arry	; Ea	st St.	Louis	اا! ر	•								
SAMPLED	ay Om	aha [	)istr	ict													
TESTED (	FORSC	ott /	AFB,	Aire	raft	apror	n repa	<u>ir                                    </u>									
PROCESSI	NG BEF	ORE TE	STING:														——
												····					
GEOLOGIC	AL FOR	MATION	AND	AGE:													
				<u> </u>						- 1							FINE
GRADING							TES	ST RES	UL	TS			3-6"	$+\frac{1}{2}-3''$		#4-1°	AGG.
SIEVE	3-6"	13-3"	⊋ - ; ½ °	<b>-4-</b> 1"	FINE						7 109	٠			(c)	(c)	
					7.00.		GR., SAT S					,-				1.3	
6IN.							ON, PER CE									1	
51N.					ļ											0.6	
41N.		ļ				SUFT PA	RTICLES, P	THAN CE	ردادا	2.07	CRD-C	129):		!	<del></del>	0.6	
31N.							FLAT AN									1.4	
2 1N.			ļ				AV. % LO						(CRD-	C (15)	(1)	0.4	<del>                                     </del>
2 IN.		<del> </del>					LOSS (L					~ 2/	(2)	1		24.8	-
1 ½ IN.	<u> </u>	<del> </del>		100			, LB/CU F						\ <u>-</u>	<del> </del>			
IIN.				95		1	MP3, % (							<u> </u>		0.0	1
<del></del>				52			D LIGNITE.			122);					_		1
₹1N.	<b></b>			23			HEAT, BT				124)	:		1			
NO. 4		1	<del> </del>	5	-	REACTIVE	TY WITH	NaOH (C	RD-	C 128	): Sc,	mM/L	-		<b></b>		<u> </u>
NO.8		<del> </del>		1		1	•					mM/L					
NO.16	<del> </del>	<del>                                     </del>		<u> </u>	<del> </del>	MORTAR-	MAKING F	ROPERTIE	s (c	RD-	116)		<del></del>				
NO. 30		<del>                                     </del>	<del> </del>	<del>                                     </del>	<del> </del>	TYPE	CEME	NT, RATIO		0	AYS,		_~,		DAYS,		%_
NO.50	-	-	<del> </del>	<del>                                     </del>			THERMAL										
NO. 100		1	<b></b> -	<b>†</b>	<del>                                     </del>	1	ROCK '	TYPE		PARA	LLEL	AC	ROSS	С	N	AVER	AGE
NO.200	<del>                                     </del>	<del>                                     </del>		<u> </u>	<del> </del>	1											
- 200 ^{(a}	1	1		0.5	1	1											
F,M(b.				6.76	5	1											
(e) CRD-		(ы) с	RD-C	104		MORTA	R:										
	- DAC C	VDALIE!	N AT .	005 -	- (CDC	-C 133).		FINE AG	GRE	GATE				COARSE	AGGR	EGATE	
MOR! AR	- DAR L	APANSIC	7N A1 1	00F, -7	8 (CAU	-0 1237	3 MO.	6 MO.	9	MO.	12 N	10.	3 MO.	6 M	D. 9	MO.	12 MO.
	ALK, CE					IVALENT:											·
HIGH-	ALK.CE	MENT:		% Na	O EQU	IVALENT:					L						
SOUNDN	ESS IN	CONCR	ETE (C	RD-C	40, 114									F &	HW	'-CD	HD-CW
FINE	AGG.					COARSE A							E 300	<del> </del>			
FINE						COARSE A	'cc:					Di	FE 300	<u> </u>			
PETROGI	RAPHIC	DATA	(CRD-	C 1273													
						-											
REMARK		•	ASTM Gradi											<u>,,</u>			

STATE:	ILL		IND	EX NO.	10(s	upp 6	AG	GREG	ATE	TEST	ED	BY:	MRD	La	bora	torv	·	
LAT.:	38°N			VG.:			DAT	A SI	HEET	DATE	:		Aug	us 1	197	4		
	MBOL N	0.: 7		7A&B			<u></u>		TY	PE OF	MA	TERIAL	. (1	ne k	- Lo	imas	+000	
LOCATIO	· · · · · · · · · · · · · · · · · · ·		4/10	W No	1	(Krau	2 (02	112 22	- 2	5 mi	1	ME	3.F C	بجد	ieu i	Imes	LOII	<u> </u>
											•	NE C	31 0	310	ппота			
						OW, S												
PRODUCI	ER:	_Col	umbi	a Qu	arry	Co.;	Dupo	, 11	lino	is								
<u></u>																		
SAMPLE	D BY:	C	maha	. Dis	tric	t												
TESTED	FOR:	S	cott	AFB														
PROCES	SING BE	ORE T	ESTING	:														
L																		
GEOLOG	CAL FOR	RMATION	AND	AGE:														
													***********			A	В	
GRADIN	G (CRD	- C 103)	(CUM.	To PASS	ING):		Ť	EST	RESU	JLTS			Π_		1 ½ - 3"	3 .15		FINE
	1		3	3.0	FINE	1		···			i		3.	- 6	15-3	(c)	(c)	AGG.
SIEVE	3-6	13-3	2-12	-4-2	AGG.	BULK SF	. GR., SA	T SURF	DRY (	CRD-C	107,	108):						1
6IN.	T					ABSORP	FION, PER	CENT (	CRD-C	107,10	a):						[	T
SIN.	T	1	T			ORGANIC	IMPURI	TIES, FI	G. NO. (	(CRD-C	12	1):	1-					·
41N.	1					SOFT P	ARTICLES	S, PER C	ENT (	CRD-C	130	):	$\neg$			0.0	0.0	,
3!N.	+			1			IT LIGHT	<del></del>					9):				0.0	
2 1N.	1		<del> </del>			PER CEN	T FLAT	AND EL	ONGAT	ED (CRD	-c	119,12	0):				2.0	
ZIN.	+			<del>                                     </del>		<del> </del>	D AV. %							D - C	115)	2.0	40	<del>' </del>
1 1 IN.	<del> </del> -	-	1 00			+	N LOSS						2/(-		,		<u> </u>	+
1 IN.	+	<del> </del>	100	100	-		r., LB/C				.,,-		+					+
3 IN.	<del>- </del> -	<del> </del>	67	100 91			UMPS, %											
<del> </del>	+	-	8	-			ND LIGNI									0.2	0.2	4
1 1N.	+	-	1	51		<del> </del>						124):						+
3 IN.	<del> </del>	ļ	1	28			HEAT,											+
NO. 4	+		ļ	4		REACTIV	TILT WIT	IH NOU	אט) חנ	D-C -2	- 1							<del> </del>
NO.8	+		<del> </del>			MODIAN	-MAKING	- BROBE	DTICE	(600-		Rc, mM	7		L		<u> </u>	1
NQ.16	<del> </del>					4						-	_			B 4 1/0		_
NO. 30	+		ļ				CE				-					DAYS,		
NO.50	<del> </del>		ļ	<b> </b>		LINEAR	THERM		PANSIO						<del>,</del>			
NO. 100	<del></del>	<del>  </del>		<u> </u>		<b> </b>	HOCI	K TYPE		PAR	ALL	.EL	ACROS		Of	`	AVER	*GE
NO.200						<b> </b>	<del></del>								ļ			
- 200						ļ												
F.M.	——	<u> </u>	<u> </u>			ļ L		<del></del>							L			
(e) CRD	-C 105	(P) CE	D-C I	04		MORTA	AR:											
MORTAR	-BAR EX	(PANSIO	N AT I	00F. 7a	(CRD	-C (23):		FINE	AGGF	REGATE	,				OARSE	AGGRE	GATE	
				······			3 MO	), 6 1	MO.	9 MO.	12	MO.	3 M	0.	6 MO.	. 9	MO.	12 MO.
LOW-	ALK. CEI	MENT:		70 Naz	O EQU	IVALENT:	ļ				<u> </u>		ļ					
	-ALK.CE	~				VALENT:	<u> </u>				L		<u> </u>					
SOUNDN	ESS IN	CONCR	ETE (C	RD-C 4	10, 114	):									F&T	HW-	-CD	HD-CW
FINE	AGG.	· · · · · · · · · · · · · · · · · · ·				COARSE	AGG:						DFE 30	•				
FINE	AGG.					COARSE	AGG:						DFE 30	•				
PETROG	RAPHIC	DATA (	CRD-C	127):	Del	eteri	ous M	ater	ials			15	74/1	67A	Ī	74/1	67B	
1					S	hale							0	. 2	_	C	.2	
1					М	ateri	al fi	ner 1	than	No.	20	00	0	.1		C	.6	
1						lay-i						-	No				ne	
1						hert,			Acc	than	, ,	2.40	No				1.1	
1						layst							AU.	.10			• *	
1					C		one, stone		COILE	anu/	Ų1	•	No	ne		No	ne	
					c	haly .				20001	10		1401	10		14.0		
							and/o stone		2111		43		0	. 7		C	.4	
REMARK	s:																	
1	T	ested	lin	acco	rdan	ce wi	th CE	806	.01	Guide	e S	Spec.	•					
L																		

RIVERVIEW STONE & MATERIALS

ST. LOUIS, MO

Issued Sept. 197	Issued	Sept.	1973
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								13300	tu bep						· · · · · · · · · · · · · · · · · · ·	·····
STATE:	<b>%</b>	INDE	× NO.:	2և (։	מסנופ	1.		AGGRI	EGATE	L	TEST	ED BY:	USAEWES			
LAT.: 3		LONG		OW				DATA	SHEET		DATE		Septemb	er 197	2	
LAB SYME	CL NO.:	STL	-26 (	7-1					т	Y DE	OF MA		Ledge R			
LOCATIO	N: Ne	w Ha	lls	Ferm	v Ro	ad	at l	/issou	ci Riv	er.	St	. Lou	is Coun	ty, Mo	.,	
NE 3	, Se	c. 3	3. T	.8N.	R6E											
PRODUCE						nd	Mate	rials	Co.							
			<u>, , , , , , , , , , , , , , , , , ,</u>	D 00.			1100									
SAMPLED	av. S	t., T.	ouis	Dis	t.mi.c	ŧ.										
							eplac	ement)	5							
USED AT		00110	4.14	20				, , , , , , , , , , , , , , , , , , , ,								
USED AT																
PROCESS																
GEOLÓGI					C+	T		Forms:	tion	Mi c	ei e	cinni	an Age			
GEOLOGI	LAL FOR	MATIO	ANDA	JE.	D U o	اساد	ours	TOTMA	01011	ni o	313	SIPP	an Ago			
	NG ICRE	-C 100:	ICUE -	BAFFIT	G1:	Ι_		TEST	RESULTS					Leds	re	i
GRADI	NG ICRE	-0 1031		- ASSIN										Rock	. 1	
SIEVE	3-5"	1 🕏 - 3	3-1 <del>1</del>	=4- ¹	FINE AGG.	-		GR, 5.\$.D. (				_		2.62		
						_								1.8		<del>                                     </del>
5 IN.	<u> </u>					+		ON, " ICRD							-	<del>                                     </del>
5 IN.						_		MPURITIES			-C 121	<del>}-  </del>			<del>                                     </del>	
4 IN.					├	_		TICLES, 1						_		<del> </del>
3 IN.				ļ <u> </u>				R THAN SP							+	<del> </del>
2 1 IN.				<del> </del>	ļ	$\mathbf{T}$		ND ELONG							<del></del>	<del> </del>
2 IN.					ļ	_		oss, 5 CYC								<del> </del>
1 1 IN.				ļ	ļ	_		SION LOSS.				RADING_	<del></del>	12/2		<del> </del>
1 IN.				<u> </u>	Ļ	u	HT WT.	LB/CU FT	CRO-C	1	07			163	۲	<del> </del>
. in.					Ļ	FF	RIABLE	PARTICLES	, 5 CRD-C	1421						<del> </del>
in.						SF	EC HEA	T. 8TU 'L8	'EEG F. 'C	FD-C	124)		<del></del>			<del> </del>
3 IN.						FE	EACTIVE	TY WITH NO	-c	5	c,mM/	'L:			<del></del>	<del> </del>
NO. 4		<u> </u>		<u> </u>		1		D-C 1281:		F	RC, MM.	/L:				<del> </del>
NO. 8		<u>L</u>		ļ	ļ	↓_	CRD	<u>-C 144</u>						see be	LOW	J.,
NO. 16				<u> </u>	<u> </u>	-		AKING PRO								
NO. 30			ļ		<b></b> -	_										<del></del>
NO. 50	ļ	<u> </u>	L	1	ļ	ا ا	NEAR T	HERMAL E	KEANSION	#1 L L 1	CNTH	S'DEG F	(CRD-C 125,	126):		
NO. 100		1			<del> </del>	-		ROCK	YPE		PAR	ALLEL	ACROSS	ON	AVE	RAGE
NO. 200	<u> </u>	1-	ļ	<u> </u>	-	4							<del> </del>	<del> </del>		
-200(a)	ļ			<u> </u>	-	1	<u> </u>								-+	
F.M. (b)	<u> </u>	<u>i</u>	<u> </u>		<u></u>	1	L				<u> </u>			L		
(e) CRD-0	105	(b) CR	D-C 164			<u>L</u>	MORTA	7:						<del></del>		
MORTAR	BAR EX	PANSIO	N AT 100	F, 5 (C	RD-C 12	9):		2 MO.	FINE AGO	REG		12 MO.	3 мо.	6 MO.	R MO.	12 MG.
LOW-A	LK. CEN	ENT:		* No	20 EQL	EVA	LENT:									
	ALK. CE				20 EQL											
SOUNDNI			E :CRD-	C 40, 11	41:									F&T	HW-CD	HD-CW
FINE						ARSI	AGG:						DFE 300			
FINE							E AGG:						DFE300			
<u> </u>																

Fine-grained and lithographic limestone; some pieces contained a few thin shale seams, no chert was seen.

remarks: Ten pieces received marked R.Q.5-5 from Ledge 5. Seven pieces were tested in accordance with CRD-Clu4 Method of Testing Stone for Resistance to freezing and thawing; after 20 cycles of test, average percent loss was 5.1.

STATE:	Mo.		IN	DEX NO	. 2	.1		1 40	GREGA		Tree		DV.						
LAT.	38			NG.:	4	0			TA SHE	CT	123	5160	BA:	USA	EWES	1050			
LAB. SYN		0: 0			_		- (2	1 07	A SIL	<u> </u>	IDAT	F:		5 Janu	lary .	1959			
LOCATIO	N: 172 -	<del>5</del> 5		<u>U G-</u>	4 0	0	0 634	44		TYP	E OF	MA	TERIAL	Limes	stone	Led	ge	<u> </u>	k_
	. 100	r oi	_//ew	нат.	IS F	eı	ry	Road a	and at	the	Mc Mc		Rive	r; St.	Lou:	<u>is C</u>	oun	Ly,	
Mo.	1AG T	74,	Sec .	<u>33, `</u>	1.48N	<b>.</b>	HOE									_			
- HODOCE		HJ.V	ervi	ew St	tone	_ 6	and I	<u>Materi</u>	als Co	•					····				
SAMPI ED	nv.		<del>_</del>			-													
SAMPLED	EOD.	St.	<u>ron</u>	1s <u>U</u>	<u>lstr</u>	10	t												
PROCESS	W.C. 055	St.	Lou	is_F	rood	_	rote	ection	Proje	<u>ct</u>									
PROCESS	ING BEF	J./A	ESTING	· G-41	(a)	Ü	senci	1 1) a	ind G-4	(B)	<u>(E</u>	en	<u>ch 2</u>	) comb	pined	and	cri	<u>ısh</u>	ed
to pa	ıss ⊥	-1/2	<u>-in.</u>	siev	/е, ⁻	<u>tr</u>	en s	epara	ted in	to	siz	es	No.	4 - 3	3/4 in	ı. aı	nd .	<u> 3/4</u>	_
1-1/2																			
GEOLOGIC	AL FOR	MATION	AND	AGE:										<del></del>					
						_													
GRADING					<del></del>	-1		T	EST RE	SUL	.TS			3-6"	1 1 - 3"	3-11"	-4-	ş. F	INE
SIEVE	3-6"	( - 3"	3-15"	*4- <u>3</u> "	FINE	L										(c)	(c)		AGG.
<b></b>					AGG.	B	ULK SF	P. GR., SAT	SURF DR	Y (CR	D-C	107,	108):		2	.67	2.6	7	
SIN.						1	BSORP	TION, PER	CENT (CRE	-C 1	07,10	08):				8	0.9		
SIN.						10	RGANIC	IMPURIT	IES, FIG. N	O. (CI	RD-C	121	):					-	
41N.						s	OFT P	ARTICLES	, PER CEN	CR	D-C	130)	):·		2	.7	1.3	]-	
3IN.						P	ER CEN	IT LIGHT	ER THAN	SP. GR.		(CR	)-C  29	):				_	
2 t IN.						_			AND ELONG						4	.4	10.	7	
ZIN.									LOSS, 5 CY				۱, *4-	<u></u> })(CRD-0	C 115) 2	. 9	5.	3	
i in.			100			A	BRASIO	N LOSS	(L. A.),%,	(CRD	-C 1	17):				8.9	24.	1-	
I IN.			40			U	NIT WI	r., LB/CU	FT (CRD-	C 10	6):								
₹ IN.			8	100		c	LAY L	JMPS, %	(CRD-C	18):								T	
1/2 IN.			_ 1	69		c	OAL AN	D LIGNIT	E, % (CR	5-c	122):							-	
₹1N.			1	39		5	PECIFIC	HEAT, B	TU/LB/DEC	. F. (	CRD-	C I	24):					$\top$	
NO. 4			0	3		R	EACTIV	TY WIT	H NaOH (	CRD-	C 12	8): 5	ic,mM/	ر <u>ا:</u>				T	
NO.8						l						,	Rc, mM/	'L:				1	
NO.16						м	ORTAR	-MAKING	PROPERTI	ES (C	RD-	C III	6)						-
NO. 30						т	YPE	CEN	ENT, RAT	0	{	DAYS	,	•%		DAYS,_			_%
NO.50									L EXPANS										
NO. 100								ROCK	TYPE		PAR	ALL	EL ,	ACROSS	ON		AVER	AGE	٦
NO.200																			7
- 200 ^(a)			-			l													$\neg$
F.M.(b)													$\neg \vdash$						7
(a) CRD-0	105	(b) CR	D-C 1	04			MORTA	R:	·					***					
									FINE AC	GREC	SATE				OARSE	AGGRE	GATE		
MORTAR -	BAR EXF	PANSION	AT IO	0F, 70	(CRD-	·¢	(23):	3 MO.	6 MO.	9	MO.	12	MO.	3 MO.	6 MO.	9	vo.	12	MO.
LOW-A	LK. CEM	ENT:	-	70 Na ₂ (	D EQUI	٧A	LENT:		1					1		1			
HIGH-A	LK.CEM	ENT:	-	70 Naz(	D EQUI	VA	LENT:								···				
SOUNDNES	55 IN C	ONCRE	TE (CR	D-C 4	0, 114	):		<del></del>							F&T	HW-	CD	HD-	cw
FINE A	GG.	STL-	10 S	-1 a	nd (	co	ARSE A	GG: ST	L-10 G	-4				OFE 300	79	1			
FINE A				2(12	<u> </u>		ARSE A							OFE 300		· · · ·			
PETROGRA	APHIC D							Aror	oroxima	ate	Per	r C							
		Dens	e Li	mest	one					96				•					
		-		mest						4									
			<b>.</b>																
REMARKS:	:													<del></del>					

SOUTHERN RIVER ROCK CO.

PERRYVILLE, MO

									Sept 1				_		<del> </del>		
STATE.	Mo.	INDE	X NO.:	291	Sur	pρ	1.)	Rip	Rap		TEST	ED 8Y:		US	ae We	S	
38	N	1.000	: .	on L	7			DATA	SHEET	Γ	DATE		_	30	JUNE	1970	>
LAB SYMB	OL NO.:	VTC	KS-39	G-1	(3)	Α	+ B			YPE	OF MA	TERIA	. L	edge	Rock	enevie	
LOCATION	. Men	efee	Ouai	TV.	Bric	:k	eys,	Misso	uri, S	ec	24,	R7E	, T	39N,	Ste. C	enevie	ve
Count	V. M	0	1/2 ti	nı 50	V OI	B	Tlcke	eys. M	ο.								
PRODUCE	R:	Gibb	ar Bı	rothe	ers.	Ī	nc. 7	Souther	rn River	Ro	k)A	- 3	pc	wea	thered		
		Perr	yvil1	le. N	10.						В	- 5	pc	3 Unw	eather	ed	
SAMPLED			<del></del>			-							•				
TESTED F								*	<u></u>								
USED AT:								r 0&M									
		Jone			<u> </u>	=											
PROCESSI	NG BEF	ORE TE	STING:														
				I	(1mm	ew.	ick 1	limest	one. M	idd	1e	Ordo	vic	ian			
GEOCOGR			1,210,21				LUK .	- 201000	<u> </u>		<del>,,</del> -				ge Roo	:k	
GRADI	NO ICOL	-C 104)	(CUM. %	DASSIN	G):	_		TEST	RESULTS	1		Т		T		Ť	
- UNADA	NO 1010													A		В	<u> </u>
SIEVE	3-6"	13-3"	2-1 ÷	84- <u>3</u> "	FINE AGG.	-		GR, S.S.D.	(CBD-C 107	108				2.5	5	2.63	1
'6 IN.					-			ON, % (CR				_		2.4		0.9	
						_						<del>,                                    </del>		<del> </del>		- <del> </del>	1
5 IN.				<del>                                     </del>	<del> </del>	_		IMPURITIES			121	<del>'  </del>		<del> </del>	1	1	1
4 IN.				<u> </u>	<del> </del> -			TICLES, %				, +		+		+	<del>1</del>
3 IN.				<del> </del>	<del> </del>			R THAN SP						+		+	1
2) IN.		<del> </del>			<del> </del>			ND ELONG				<del>' -</del>		1.	5	0.4	4
2 IN.					-	_							1	38.		35.	
1 1 IN.								SION LOSS			145) G	RADING		158.		163.	
1 IN.		ļ	<u> </u>			_		LB/CU FT						130.	7	103.	-
in.						<del> </del>		PARTICLE						+	-		
<del>]</del> w.		<del> </del>			<del> </del>	Т-		T, BTU/LE		$-\tau$		_		+		-	+
3 IN.			<u> </u>	<b> </b>		R	_	TY WITH N	чон	_ h	SC,MM/			<del> </del>		+	
NO. 4			ļ	ļ	<del> </del>	-	(CR	D-C 128):			Rc.mM/	/1:	<del></del>	<del> </del>			<del> </del>
NO. 8		<b>!</b> -		<u> </u>		-		<del>,</del>									1
NO. 16		<u> </u>	ļ	<b></b>	ļ	1		AKING PR									
NO. 30			ļ			1		CEMEN.							DAYS	<del></del>	
NO. 50	L			-		-	NEAR T	HERMAL E	XPANSION,	MILL	ONTH	S/DEG	F. (CR	D-C 125, 1	26):	<del></del>	<del></del>
NO. 100		ļ	ļ	<u> </u>	ļ	1		ROCK	YPE		PAR	ALLEL	A	ROSS	ON	AVE	RAGE
NO. 200			]	ļ	ļ	-					<del> </del>		+		<del> </del>		
-200 ⁽⁸⁾		<u> </u>	ļ		<u> </u>	-	ļ				<del> </del>		+		<del> </del>		
F.M. (b)	l	L	<u> </u>	L	<u> L</u>	-	L				ــــــــــــــــــــــــــــــــــــــ		ــــــــــــــــــــــــــــــــــــــ		<u> </u>		
(8) CRD-C	105	(b) C=	D-C 104				MORTA	3:					-		·		
MORTAR-	BAR EX	PANSIC	AT 100	F, % (CI	RD-C 12	3):			FINE AG							GREGATE	1
					<del></del>			2 MO.	6 MO.	9 1	иO.	12 MC	<del>'-  -</del>	3 MO.	6 MO.	9 MO.	12 MO.
	LK. CEN				20 EQU	_							-+-				<del> </del>
HIGH-A	LK. CE	MENT:		* NO	20 EOU	IVA	LENT:		l	<u> </u>	l						<del> </del>
SOUNDNE	SS IN CO	NCRET	E (CRD-	40, 11	4):										F&T	HW-CD	HD-CW
FINE	GG.				COA	RS	E AGG:							300	<del></del>		<del> </del>
FINE			·		COA	RS	E AGG:						OF	300		L	1
PETROGR	RAPHIC	DATA (C	RD-C 12	7):													
																,	
1																	
1																	
1																	
<b>!</b>																	
REMARKS	i:							*** - *	hazas		nn1 -	, 1/r	 ??				
	A	- Te	pres	ents	upp	eı	pit	, weat	nered	عاد د	ubre	= , M;	MT.	,			
ł	В	- I.e	pres	ents	TOM	eı	pit	, unwe	athere	:U	sami	, וע	ric.	4			

			γ			<u> </u>	ssued	5000	=건,								
STATE:	liss	ruri_		EX NO:	27(	KEV.)	AGG	REGAT	E	TESTE	D 64:	_118	aeme	S			
LAT .	3S		150	· <u>··</u> <u>·</u> · ·	0		DATA	SHEE		DATE:		دانــ	<u>y_19</u>	65			
LAU SYM	JUL N	Vi	cks=	35.G:	-1(2	)			1 156	OF N	AT ERIA	<u>.                                    </u>	rusl	ed_1	ines	Lone	<u> </u>
	->->	-24.	<i>ـــانـــا</i>		<u>r_39</u>	_XSt	c_Ger	review	e_C	ount	<u> </u>	iss	Quri	اللب	<u>lmi</u>	le_s	<u> </u>
Brick	G A S	عدين	eout.	<u> </u>													
PHODUCE		25191	-Czń	shed.	Sto	ze_co.	Inc	La-Pa-	Q <u>.                                    </u>	Box.	387.	Na	shvi	110.	Ten	n	
5 A 14 D1 CD	150i	ther.	, K.u	er Ke	ock C	ره)				<del></del>							
SAMPLED	5r. C	سلستا	ರ್ಚ;ತ	Dist	tric	<u>t</u>											
PROCESS	NG BEI	CORE TO	SKLA	_K2.Y.		111120	is <u>N</u>	ivicat	ion	ומר	royc	men	<u> </u>				·
					SOLD	g and	separa	iting	<u>lnc</u>	0_51	zes.						<del></del>
<del></del>						<del></del>							<del></del>				
GEOLOGIC	AL FO	MAT O	AND	AGE: T	Z i nem	sui ck	limes	tone '	447	410	Ordio		100	100			
	<del></del>				<u> </u>	3WICK	Lines	LONG,		are	0140	VIC	7011	A); U			
GRADING	(CRD)	- C 103)	(CUM.	70 PAS	SING)	<u> </u>	TE	ST RE	SUI	TSI							FINE
	_			,,,	FINE	1	ــــــــــــــــــــــــــــــــــــــ	J		رت		1	3-6"	1 5 - 3"	(c)		AGG
SIEVE	3-6	115-3	3-13	74-4	AGG	OULK SP.	GR , SAT	SURF DRY	(CR	)-C 10	7,108):			2,62			<del>-</del>
6 IN.							ION, PER C							1.0			7
SIN.						CRGANIC	IMPURITE	S, FIG. NO	(Cr	D-C I	21):						-1
41N.		100		·			RTICLES,							7.1	7.2	9.8	1
314.		9.5				PER CEN	LIGHTE	R THAN S	P. GR	(	RD-C I	20):		1	4_4_	1	1-
2} IN.						<u> </u>	T FLAT A							1.9	2.7	0.8	
≥iN.		38	_100				D AV. % LO					4 - 1/2)	(CAD-	C 115)		6.8	
1 \$ !N.	·	5	95			<del></del>	LOSS (L				<u>)</u> .			43.8	51.2		
i IN.	<del></del>	2	32	100		4	., LB/CU I			s ).							
Ž 174.			5	_95			MPS, 70 (							·	·-···		
\$ 18.							D LIGNITE									<u> </u>	
ZIN.			2	_38			THEAT, BT									<u> </u>	
NO 4		<u> </u>		2		REACTIV	ITY WITH	иоон (с	RD-	C 126							
NO.6						<u> </u>					Reim	M/L:				<u> </u>	ل
NQ 16	<del></del>					<b>.</b> .	MAKING I				•						
NO 30							THERMAL						<u>-~,</u>		DAYS,		~
NO. 100						LINEAN	ROCK		ION					<del>,                                    </del>			
10.200							- NOCK	1175		PARA			2033	40		AVER	ACE
- 200 ^(w)														<del> </del>			
F.M(6)		<del> </del>		<u> </u>		<del>                                     </del>								<del> </del>			
(=) CRD-		(b) C=	5-C I	0.4	L	MORTA	R:	<del></del>		L				L			
								FINE AG	GREC	ATE		T-		SCAPSE	AGGR	CATE	
- RATROM	BAR EX	(PANSIO	AT IC	OF, 70	(CRD)	-C 123):	3 MO.	6 MO.	•		12 40.	13	MO.	6 MO.		<del></del>	12 MO
LOW-A	LK. CEN	ZENT:		To No.	O EQU	WALENT:			-	1		+			Ť	- 1	
HIGH-	ALK.CE	4ENT		70 Ne.	O EGU	VALENT:						十			<del>                                     </del>		
SOUNDNE	35 Hi	CONCE	TE (C)	10-C 4	0, 114	):		<del> </del>	<u> </u>	ــــــــــــــــــــــــــــــــــــــ	<del></del>			FET	HW	-co	HD-CY
FINE A		رج حرب الم	5-3( 5-1	4)			cc: AIC	VC-35	C- 1	(2)	·	OF (	300	81	1	$\neg \dagger$	
FINE	AGG.					COARSE A	cc:						300		Ī.		
PETROGR	APHIC	DATA (	CAD-C	127):													

WES FORM 725 JAN. 1951

REMARKS:

STOLLE QUARRY, INC.

DUPO, IL

									Depo.											
STATE:	ILL			EX NO.			A	GGF	REGAT	E	TEST	ED								
LAT.		<u> </u>			90°	W	DA	TA	SHEE				/	<u>Au</u>	gust	1970	)			
LAB. SYM	BOL N	o.: 70	/184						. 1	YPE	OF	MA'	TERIAL	: (	crust	hed L	imes	ston	e	
LOCATION					IN.	R10W.	St.	CI												
																	····			
PRODUCE	R: St	olle	Ouar	rv.	Inc.	: Dupo	. I	ii:	,											
				-,-																
SAMPLED	BY:	Omat	na Di	stri	ct							-								
TESTED	FOR:					aft a	oron	re	pair											
PROCESSI	ING BEF						T. A.													
GEOLOGIC	AL FOR	OITAMS	AND	AGE:											,					
GRADING	(CRD	- C 103	(CUM.	70 PAS	SING):		$\neg$	TE:	ST RES	SUL	TS.				2.64	1 1 - 3"	3 14		, F	INE
61516	3-6"	.1	3 .1"	1.	FINE										3-6	15-3	(c)	(c)	1	AGG.
SIEVE	3-6	7 -3	7-12		AGG.	BULK SP.	GR., 5	SAT S	URF DRY	(CR	D-C I	07,	108):					2.6	8	
61N.						ABSORPT	ION, PE	ER CE	NT (CRD-	C I	07,10	8):						0.8		
SIN.						ORGANIC	IMPUF	RITIES	s, FIG. NO	. (CI	RD-C	131	):						-[	
4 IN.						1		·····	ER CENT									0.0	Ŀ	
3 IN.						PER CEN	T LIGI	HTER	THAN SE	GR,	2.0	(CR	D-C 129	9):				0.0	F	
2½ IN.						<del> </del>			D ELONGA					ــــــــــــــــــــــــــــــــــــــ				6.3		
2 IN.						WEIGHTE	D AV.	% LO	SS, 5 CYC	. Mg	50 ₄ ((c	) ‡	-1°, *4	- <u>날</u> )	(CRD-	C (15)	(1)	4.4	$\perp$	
í in.						ABRASION	LOS	s (L	A.), %,	CRE	)-C II	7):			(2)			27.	<u>5</u> ·	
I IN.				100		<del></del>	<del> </del>		T (CRD-		6):.					!		ļ	$\perp$	
₹ IN.				93		<del> </del>	<u>-</u> _		CRD-C !!							ļ		0.0	1	
1 IN.		<u></u>	ļ	42	ļ	<del> </del>			% (CRD									1	_	
gin.	<u> </u>		<u> </u>	17	L				VLB/DEG.							ļ			_	
NO. 4				2		REACTIV	TY W	тн	NaOH (C	RD-	-C 128	ŀ				<u> </u>		<del> </del>	4	
NO.8	<u> </u>			1_1_									Rc,mV	!/L:		<u> </u>	<u> </u>			
NO.16			<u> </u>			Į.			ROPERTIE	-			•							
NO. 30	ļ		<u> </u>	<b></b>		<del></del>			NT, RATI								DAYS,			_~
NO.50		1		ļ		LINEAR			EXPANS	ON	+		<del></del>							
NO. 100	ļ	<u> </u>	<u> </u>		<u> </u>	<b> </b>	RO	CK T	YPE		PAR	ALL	.EL	AC	ROSS	0	7	AVE	*AGI	
NO.200	<b></b>	ļ	<u> </u>	1							<del> </del>					<del>                                     </del>				$\dashv$
- 200 ^(a)	<u> </u>	ļ		0.5		<b> </b>					ļ		-			-				$\dashv$
F.M.(b)	<u> </u>	<u> </u>	<u></u>	6.87	<u> </u>						<u> </u>					<u> </u>				
(e) CRD-	C 105	(P) C	35-C	04		MORTA	R:		FIA: : -		C 4 = -			T -	<del></del>		4000			
MORTAR -	BAR EX	(PANSIO	N AT E	00F, 70	(CRD	-C 123):			FINE AG			T		+		COARSE			,	
1000	A1 W CC-	458171	~ <del></del>	672 - N	0 500	IVAL ENT:	3 N	NO.	6 MO.	9	MU.	12	z MO.	3	MO.	6 MC	·   9	MU.	12	MO.
	ALK. CEI					IVALENT:				-		1		-						
	ALK.CE					IVALENT:	L							<u></u>		FET		-CD	ur.	-cw
SOUNDNE		CONCR	E : E (C	KD-C 4	<u>-</u>	COARSE A	cc.							DE	F 225		<del> ""</del>		-10	
FINE			<del></del>			COARSE A									E 300		+			
PETROGR		DATA 4	CRD-	1273		COMMOE A									- 300	ــــــــــــــــــــــــــــــــــــــ		لـــــــل		
FE ROOM	AF THE	~~·^ '	(CAD-	- 1213																
ļ																				
REMARKS	5: (7	) AS	TM C	88					<del></del>											
			adin		1															

STATE:	_ILL		INE	EX NO.: 3	35	(Suppl	AG	GREGA	TF	TES	TED BY	: 1	MRD I	abor	ator	37	<del></del>
LAT.:	38°N		LO	NG.: 9	1000	1	DAT	A SHE	ET	DAT	E:	<del></del>	lugus			<u></u>	
LAB. SYM	BOL NO	),;	74/1	48A&B					TYF	E OF	MATER	IAI :	Carre	had	7:		
LOCATION	۷:					TIN,	D1 ON	. C+	03.		<u> </u>		TII	med	11me	Ston	<u>e</u>
		· · · · · · · · · · · · · · · · · · ·	<u> </u>	10 0	17,	, AAN	NION	; St.	UL	air	Coun	ty,	111,	·			
PRODUCE	R:		Can	C+-	77.	. 0		\	- 3 3	<del></del>	<del></del>						
		·	vasp	61-2 CO	110	e Quar	ry; L	upo,	111	<u> 1001</u>	.S			•	·		
SAMPLED	BY:		O 1	- D: 4							<del></del>						
TESTED				<u>a Dist</u> t AFB	rı	;t	<del></del>										
PROCESS						<del></del>			<del></del>				<del></del> -				
		UNE !	LJIING	·											<del></del>		
<b></b> -				<del></del>							·						
GEOLOGIC	- AI - E00			465.				<del></del>									
<del>JCCCOGIC</del>	-AL FOR	MAI IUN	AND	AGE:				·									
GRADING	(600-	C 1023	· · · · · ·	70 PASSIN											A	В	
- Granding	CCC	G 103)	(COM.	1		-	LT	EST R	ESU	LTS	}		3-6"	14-30	3-15	ma . 3	FINE
SIEVE	3-6"	1 - 3"	3-15"		INE						,			1,2-3	(c)	(c)	AGG.
<b>A</b> 133				<b> </b>		BULK SP.	GR., SAT	SURF DR	Y (CF	D-C	107,108	): 					
6 IN.						ABSORPTK											
SIN.						ORGANIC											
41N.						SOFT PAR									0.1	0.9	
31N.						PER CENT										one	<del></del>
2 1N.						PER CENT										7.8	
2IN.			100			WEIGHTED	AV. % (	.oss, 5 cy	C. Me	504 ((	÷-1°, €	4-1	(CRD-	115)	- 1 - 0		
1 1 IN.			99			ABRASION	LOSS (	L. A.),%	(CR	D-C	17):						-
I IN.				100		UNIT WT.,	LB/CU	FT (CRD	-C 10	06):							
₹IN.			3	82		CLAY LUM	1P3, %	(CRD-C	118):						0.1	0.1	<del>                                     </del>
JIN.			1	29		COAL AND	LIGNIT	E, % (CR	D-C	122);							<del> </del>
BIN.			1	9		SPECIFIC I	HEAT, B	TU/LB/DE	. F.	(CRD-	C (24)						<del> </del>
NO.4			1	2		REACTIVIT	Y WITH	NaOH (	CRD	-C 121	8): Sc,r	nM/L:					
NO. 8			1	2							Rc, n	M/L:					
NQ.16					]	MORTAR - N	MAKING	PROPERT	ES (	CRD-	C 116)						
NO. 30						TYPE	СЕМ	ENT, RAT	10	£	AYS,		- ⁷ 4		DAYS		~
NO.50						LINEAR T	HERMAI	EXPAN:	SION	XIO 9	DEG. F.	(CR	)-C 12!	5,126):			
NO. 100							ROCK			<del></del>	ALLEL		ROSS	OA	,	AVERA	GE
NO.200										<b>i</b>							-
- 200 ^(e)																	<del>- </del>
F.M.(b)							***************************************									····	
(., CRD-C	105	(b) CR	D-C 10	4.		MORTAR:				<u></u>		`					
MORTAR - £	RAD FYD	ANSION	AT IO	05 60 60	-00			FINE AC	GRE	GATE		$\top$	C	OARSE	AGGRE	GATE	
			A1 10	or, 78 (C	- UND-	123).	3 MO.	6 MO.	9	MO.	12 MO	. 3	MQ.	6 MQ.	7	<del></del>	2 MO.
LOW-AL	LK. CEME	NT:	•7	% Na ₂ O E	EOUIV	ALENT:						1				-	
HIGH -A	LK.CEME	NT:	9	6 Na ₂ O E	QUIV	ALENT:					*******	1-		·		<del>-  -</del>	
SOUNDNES	S IN CO	ONCRE'	TE (CR	D-C 40,	114)	:			•		·····			F&T	HW-	CD H	D-CW
FINE A	GG.				C	DARSE AGO	S:	_				DFE	300		<b>†</b>		(
FINE A					С	OARSE AGO	3:		·			DFE	300		1	$\neg \vdash$	<u> </u>
PETROGRA	PHIC DA	ATA (C	RD-C	127): ]	Del	eterio	ns Ma	teria	٦ د		7	4/1	484		74/14	OR	
				-		hale	40 110	TOI TO			- 4	No		-	Nor		
						ateria	7 6:.	-an 41	-	No	200						
									αN	NO.	200		•5		0.		-
						lay-ir			n 4			No			Nor		Į
					(i)	hert,	Tess	tnan	2.4	_sp.	, gr.	No	ne		Non	ie	İ
					Ü	laysto		nuasto	ne	and,	or	•			37 -		
					C1	silts			77-	<b>.</b>		No	ne		Non	i.G	- 1
	····				ن 	haly a		argi	ттg	ceot	72	າ	. 3		1.	7	.
REMARKS:																4	
	Te	sted	in	accord	lan	ce with	h CE	806.0	1 G	uide	Spe	c.					

MARKHAM & BROWN, INC.

DALLAS, TX

TATE: MO		INDEX	· NO.:	37 (	sup	_		AGGRE	GATE	L		D BY:					
AT.: 38	N	LONG	901	I .					SHEET								
AB SYMBO	. NO.:	ST	L- 2	3 G-:	L(A)	*	(B)		<u></u>	PE C	OF MA	TERIAL:	Led	ge Ro	CK		
	160	Di ***	on Co	met	mict.	nr	s Ons	rrv. l	<u> Mile l</u>	39_	Mis	s. R	iver	3 m1	Tes i	pstrea	m Wo
Bricke	ys,	140.	, NE	2 5	3C.	<u></u>	and r	W + Se	ec. 10	<u>, T</u>	39N	_ R7	E, S	te. C	enev	eve Co	- MO
RODUCER:					1, I	nc	•										
	Da	llas	, Te	xas								<del></del>	¥=-	7 pie 7 pie	ces		
AMPLED B	v St	<u>مت</u> .	uis	<u>Dist</u>	<u>rict</u>				inni D				_H	1 DIE	ces		
ESTED FO	R: Re	gula	ting	WOT	KS L	OW	er m	122122	TDDT V	<u> 1. V C</u>	. T.						
SED AT:				<del></del>													
ROCESSIN		DE TE	STING			_		<del></del>									
SEOLOGICA	A FOR	MATIO	AND A	se: Pl	atti	n	Form	ation,	Ordov	ici	an	Age					
JEOLOGIC:													Le	edge	Rock		
GRADIN	CRD	-C 103)	ICUM. 5	PASSIN	G):	Г		TEST	RESULTS	$\neg$						_	
		. 1	3-13"		FINE									A	<del> </del>	В	
SIEVE	3-6"	17-3	4-17		AGG.	81	JLK SP	GR, 5.5.D.	CRD-C 107					2.57		2.71	
6 IN.						A	SORPT	ON. 7 ICRE	-C 107.					3.0		0.3	
5 IN.				ļ		01	RGANIC	MPURITIES	, FIG. NO.	CRD	-C 121	<del>,   -</del>			+	-	
4 IN.						+		TICLES, %					· · · · · · · · · · · · · · · · · · ·	<del> </del>	+		
3 IN.		<u> </u>		-	<del> </del>	+		R THAN SP					<del></del>		<del></del>		-
2 1 IN.			<b> </b>	<del> </del>		1		ND ELONG				-					
2 IN.		<b> </b>	<del> </del>			+-		.0\$5, 5 CYC						<del> </del>	+		-
1 è IN.		<del> </del>		<del> </del>	<del> </del>	<del></del>		SION LOSS			145) G	RADING		160.	<del>,  </del>	168.8	\$
1 IN.				<del> </del>	<del> </del>	+-		PARTICLES						1000	+	1	
1 IN.		<del> </del>	<del> </del>	<del> </del>	<del>                                     </del>	+		T, BTU/LE						1			
1 IN.			<u> </u>	+		1	EC MER	. ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,								
NO. 4			1	<del>                                     </del>		1											
NO. 8						1	CRD	- C 14	14					see	belo	W	
NO. 15						м	ORTAR-	MAKING PR	OPERTIES	CRD	-C 116	)					
NO. 30						] -	YPE	CEMEN	T, RATIO:_		DAY	5		·	DAYS		
NO. 50			İ	1	<u> </u>	۱.	NEAR T	HERMAL E	XPANSION.	MILL	ONTH	S/DEG	F. (CRD	-C 125, 1	26):	<del></del>	
NO. 100		<u> </u>	<u> </u>	<del> </del>	ļ	4	ļ	ROCK	YPE		PAR	ALLEL	AC	ROSS	ON	AVER	RAGE
NO. 200		<del> </del>			<del> </del>	4	<u> </u>				├		+			<del></del>	
-200- ³³			<del> </del>	<del> </del>		-	-	<del></del>					<del></del>		<del></del>		
F.M. ^(b)			<u> </u>	<u> </u>	ــــــــــــــــــــــــــــــــــــــ	4	L				<u> </u>		<u> </u>			<del></del>	
(e) CRD-C	CS	(b) C#	10-C 104			_	MORTA	<u> </u>	FINE AG	erc	A7E				CARSE AC	GREGATE	
MORTAR-B	AR EX	PANSIO	N AT 16	#. 5 €C	RD-C 12	23):		2 MO.	6 MO.		MO.	12 MO	.   ,	мо.	€ MO.	s MO.	12 MC.
LOW-AL	K. CEN	MENT:		t N	20 EQL	IIV A	LENT:										
HIGH-AL					20 EQL												
SOUNDNES	5 IN C	CNORE	E ICRD	C 40. 11	٤):										FAT	HW-CD	HD-CY
FINE A	is.				co	ARS	E AGG:						DFE	300		ļ	
FINE A	G.				CO	ARS	E AGG:						DFE	300			<u> </u>
Resist	anc eces	e to - SI	free L-28	ezin G-l	(A)			ng gav		fo	110	wing Loss 34.0	res	ults:	_	one fo	r
7 pie	eces	⊷ Sī	L-28	G-1	(B)							5.8	•				
REVARKS:	A E	- Re	pres	ents ents	Led Led	ge ge	3, 1 4, 1	Pit 2,	marke marke	d N	1B-1 1B-2		· · · · · ·				-

		т		==					Sebe T	<del>7 / ,</del>		- av		11	SAFI	ISS.	
STATE M			k NO.:			_		K1P DATA	Rap SHEET							IE 197	
LAT.: 3		LONG		OW												2 197	-
LAB SYME	OL NO.:	ST	<u> </u>	G-1(	A) +		(B)		T.	PEC	F MA	TERIA	L: L	eage	KOCK		
LOCATIO	M: Mo.	Rive	er Co	nstr	ucto	rs	<u>Qua</u>	rry, m	ille i	2 5	1155	3. K	nzz	, <u>) m</u>	iles i	pstrea	<u>un</u>
								NW 1/4	Sec 1	υ,	135	JN.	K/E.	Ste.	Gene	vieve (	<u>. O. 11</u>
PRODUCE						I	ıc.					<u> </u>		750	a Maa	thered	
			as, 1			_										weather	red
SAMPLED								<del></del>						- 1 P	cs ou	WEALTIE	.60
TESTED !								· OEM									
USED AT:		rowe	r Mis	8138	TUD		TAGE	. 0041								<del>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</del>	
PROCESS	BEE	ORE TE	STING						<del> </del>								
GEOLOGI					Reat	+	in fo	rmatio	on. Or	lov	ici	an					
GEOLOGI	CAL FO				ICC CO.			72.110.0.2	J.1.					Ledge	Rock		
GPAC:	ING (CR	D-C 103)	(CUM. %	PASSIN	G):			TEST	RESULTS	T					T		
	I I			Г				L						A		В	
SIEVE	3-6"	12-3"	₹-1 <del>}</del> "	*4- <del>1</del>	FINE AGG.	B	ILK SP	GR, S.S.D.	CRD-C 107,	106)				2,52		2.59	
6 IN.	<del>                                     </del>			<del></del>		$\vdash$		ON, % (CRE				_		3.9		2.4	
	<del>                                     </del>	<del>                                     </del>			<del>                                     </del>	Η-		IMPURITIES			C 1211	,  -				I 1	
5 IN. 4 IN.	-	<del>                                     </del>			1	1		TICLES, 7									
3 IN.	1	<del>                                     </del>				-		R THAN SP			C 122	,	,				
zł IN.	1				1	_		ND ELONG									
2 IN.	<del>                                     </del>					w	T AV % L	.oss, 5 CYC	Mg504 (CF	o-c	137			9.1		5,6	
1 1 IN.	1							SION LOSS					<u>. 1</u>	41.7	<u> </u>	31.6	
I IN.						υ	NIT WT,	L9/CU FT	(CRD-C 1	07				157.0	<u> </u>	161.4	
∄ IN.	1					F	RIABLE	PARTICLES	, % (CRD-C	142)							
₹ în.						51	PEC HEA	T. BTU/LE	/DEG F. (C	RD-C	124)			ļ	<del> </del>		
I IN.					<u> </u>	R	EACTIV	TY WITH N	вон	5	c,mM/	<u>L:</u>		<u> </u>	<del> </del>		<del> </del>
NO. 4						L	(CR	D-C 128):	.,	F	tc,mM/	<u>'L:</u>		ļ			
NO. 8						$\perp$								L			L
NO. 16		<u> </u>		<u> </u>	<u> </u>	м	ORTAR-I	MAKING PR	OPERTIES	CRD-	C 116)	)					
NO. 30				<u> </u>	<del> </del>	+		CEMEN.						·	DAYS		<del></del>
NO. 50	<u> </u>	<u> </u>	<u> </u>	ļ	<u> </u>	۱-	NEAR T	HERMAL E	XPANSICN,	HILLI	ONTH	S/DEG	1	i i			
NO. 100		<del> </del> -	<b></b>	<del> </del>	-	-	<u> </u>	ROCK 1	YPE		PAR	ALLEL	AC	ROSS	ON	AVER	AGE
NO. 200	<del> </del>	<del> </del>		<del> </del>	<del> </del>	-	<b></b>									_	
-200 ^(a)	-		<del> </del>	-	+	-							+				
F.M. (b)			<u> </u>	1	ــــــــــــــــــــــــــــــــــــــ	┨	L				L						
(6) CRD-	C 105	(b) CF	D-C 104			<u> </u>	MORTA	<del>R:</del>	FINE AGO	050	. T E		T		DARSE AG	GREGATE	
MORTAR	-BAR EX	PANSIO	N AT 100	F. % (C	RD-C 12	3):		2 MO.	6 MO.	9 6		12 M	10.	мо.	6 MO.	9 MO.	12 00.
		WENT.		9 N	20 EQL		I FNT:										
	ALK. CE				20 EQL												
			E (CRD-					<del> </del>							FAT	нж-св	но-с*
	AGG.					\RS	E AGG:						DFE	300			
	AGG.		····				E AGG:						DFE	300			L
		DATA (	CRD-C 12	27):									-				
l																	
İ																	
REMAR		A .	Pa					des -	narkad	w_'	1						
		n = :	repre	sent	s u	P	- 1e	dge, π	arked	M='	2						
1 .		ט ־ ט	vebre	SEUL	-5 IC	,wt	בי ב	יישבי וו	101 VCU	**-	- •						

SOURCE NO. 84
WESTLAKE QUARRY
BRIDGETON, MO

							ssued	Sept.	<del>. 9/</del> /							
STATEMI	ssou	INDE	K NO.: 1	38				GATE		TESTED						
LAT.: 3	88	LONG	90				DATA	SHEET		DATE:						
LAB SYMB	OL NO.:	STL	-19 (	3-2									ushed			
LOCATION	ı: Se	c 17	, R 9	) E,	T 3	8 N, St	e. Ger	<u>nevieve</u>	e C	ount	y . M	iss	ouri,	at Li	lttle	
Ro	ck, l	Miss	ouri													
				Quari	cy a	nd Mate	rials	Co.	Зох	206	, Ta	uss	ig Roa	ad, Bi	idget	on,
	ssou				-								_			
SAMPLED			Louis	Dis	stri	ct										
						avigati	ion Im	roveme	ent							
USED AT:																
3020 A1.																
PROCESS	ING REE	DE TE	STING:	Crus	shin	g and s	separat	ing i	ıto	siz	es					
						Genevi						่อบร	s lime	estone	. Mer	amec
						ppian A				<del>- a - 4</del>					<del>,</del>	
	NG (CRD							RESULTS			T				• "	FINE
GRADI	NG ICRD										3-4	5"	1 ½-3"	3-1 ±"	#4-=="	AGG.
SIEVE	3-6"	1 1/2 - 3"	3/4-1 1/7"	#4-3"	FINE AGG.			CBD-C 107	100		1		2 69	2.67	2 67	
				<u> </u>	<b> </b>		GR, S.S.D.				+-	-		0.8	1	
6 IN.						<del></del>	ON, % (CRD				+		0.0	<u> </u>	1.0	
5 IN.					<u> </u>	7	IMPURITIES			C 121)	+		2.0	2 6	2.8	
4 IN.		100	, <u> </u>		ļ		TICLES, %				+		2.9	3.6	4.8	
3 IN.		95			1	<del></del>	R THAN SP				+		40 0	1/ 0	4/ 7	<del> </del>
2 in.						% FLAT A	ND ELONG	TED (CRD-	C 115	9, 120)	+		*9.3	14.0		
2 IN.		38	100				_0SS, 5 CYC				<u> </u>		20.0	-	13.4	<b></b>
1 ½ IN.		5	95			L.A. ABRA	SION LOSS	% (CRD-C	117, 1	145) GRA	DING_		30.2	38.1	29.8	<del> </del>
1 IN.		2	32	100		UNIT WT,	LB/CU FT	(CRD-C 106)	<u>:</u>							ļ
3 IN.			5	95		FRIABLE	PARTICLES	, % (CRD-C	142)		+-			ļ	<b> </b>	
1/2 IN.						SPEC HEA	T, STU/LB	/DEG F. (C	RD-C	124)	┷			<del> </del>	ļ	
3 IN.			2	38		REACTIV	TY WITH N	юн	9	c,mM/L:	4		<u> </u>		<b> </b>	<b></b>
NO. 4			1	2	Ī	(CR	D-C 128):		F	RC,MM/L	4		<u> </u>		<u> </u>	<u> </u>
NO. B	<b></b>														<u> </u>	<u> </u>
	1	<del>                                     </del>	<u> </u>			MORTAR-	MAKING PR	PERTIES (	CRD-	C 116)						
NO. 16	<b>-</b>			$\vdash$		7	CEMENT					%		DAYS, .		%
	$\vdash$			1			HERMAL E							):		
NO. 50	-	<del>                                     </del>		1	1	1	ROCK	YPE		PARAL	LEL	ACI	ROSS	ON	AVEF	AGE
NO. 100	+	$\vdash$	<del>                                     </del>	<del>                                     </del>		1		<del></del>								
NO. 200	+	<del> </del>	+	1	1	1										
-200 ^(a)	+	<del> </del>	<del>                                     </del>	+	†	1				<del>                                     </del>						
		<del></del>	L	ــــــــــــــــــــــــــــــــــــــ		<del>ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا </del>	<del></del>									
(e) CRD-(	C 105	(b) CF	D-C 104			MORTA	r: 	FINE AGG	REG	ATE		T	CO.	ARSE AGG	REGATE	
MORTAR	-BAR EX	PANSIO	N AT 100	)F,%(C	RD-C 1:	23):	2 MO.	6 MO.			12 MO.	9		6 мо.	9 MO.	12 MO.
							2 MU.	O MO.	·	-		+-				
	ALK. CEN					IVALENT:	<del>                                     </del>			-+		+				
	ALK. CE					JIVALENT:	<u> </u>	L						FAT	HW-CD	но-см
SOUNDN	ESS IN C	TL-5		Ç 40, 11 (4)			OFF 5					DEE			55	1
FINE	AGG. Š	řī_í	9~s=	<u> </u>		ARSE AGG:	STL-19	) G-2				DFE		_80		
FINE					co	ARSE AGG:						DFE	300	L		·
PETROG	RAPHIC	DATA (	CRD-C 1	27):												
1																
1																
REMARK	cs:															
*	Poo	r pa	rtic.	le si	hape	resul	ted fro	om tes	tin	g cr	ushe	d c	ores.			
1		-			_											

						ssuea 8				O . TT 100			
ATE MO.	, NOEY	( •.c	<u> 38</u>	(sup	pl.)	AGGRE	GATE HEET	TESTE		SAEWES	· · · · · · · · · · · · · · · · · · ·		
			90			DATAS			May 1				
AB SYMBIL NO.	STL	<b>-</b> 19 0	-2					PE OF VAT	EPIA- Lir	restone	core	447 -	Doole
Se	c. 1	9. R	9 E,	T	38 N, S	Ste. Ge	neviev	e Cour	ty, Mi	ssouri	at Li	rcre	nock
RODUCES M	ie <b>s</b> t	Lake	Quai	ry	and Mat	cerials	Coop	BOX 20	6, Tau	551g 1u	Jaugus	<u> </u>	
Missou	ıri		Quar	rry	#5								
AMPLES BY	t. L	<u>ouis</u>	Dist	tric	<u>t</u>		• • • • • • • • • • • • • • • • • • • •	T	*******	+			
ESTED #13 }	<u>(a ska</u>	skia	Rive	er,	Illino	Ls, Nav	igatio	u Tubi	OVERIER				
SED AT							<del></del>						
				-1		oved c	mished	7 & 77 TO 38 F	cessed			<del></del>	
ROCESS 3 BE =	ST BEC	ST:NGO	ro	CK C	01.62 2	aweu, c		a pro	1 S+ T	ouis I	imesto	ne.	
EOLOG DAL FO	PMATIO	AND AC	3E:	Ste	Gene	vieve i	Age	lie air	T. 00. 1	imesto	ne		
Merame	c gr	oup,	Mad	are	Missis	TEST E	ESULTS					ρ0 <del>-</del>	Fine
GRAD NO 1090	1	1-1-j		GI: FINE		12377			Dense	Shaly	tie cea		agg.
SIEVE 3-5"	17-3	7-17	24-1	AGG.	BULK SP	GR, S.S.D.	CRD-C 107.	:08		2.67	1		<del> </del>
6 IN.	1				<del></del>	ON, " (CRD			0.3	0.2	2.2	0.2	ļ
5 IN.	i				ORGANIC	MPURITIES	, FIG. NO.	0 = 0 - C 1211		1			
4 IN.	1				SOFT PAR	TICLES, T.	CRD-C 130				ļ		+
3 IN.					* LIGHTE	R THAN SP	GR	SPD-C 122	·	<del></del>	<b>├</b> ──	<b> </b>	┼
2½ IN.	Ī				FLAT A	ND ELONGA	TED 'CPO-	0 119, 120		-	<del> </del>		┼
2 (N.	1	1			WT AV ~ (	_0SS, 5 CYC	MgSO: CR	0-0 115)		<u>ا</u>	20 3	01. 0	<del> </del> -
1 ½ IN.		1							1. EED VG33	131.0	3001	24.9	-
1 IN.					UNIT WT.	LB/CU FT (	crd-c 10	7	_ 167•1	146.	1 - 7 - X	076	9-
3 IN.	<u> </u>			<b>↓</b>					7/4*	11/ 72	1 2/ 22	13/02	<del> </del>
1 1%.	1		<u> </u>	↓	SPEC HEA	AT, BTU'LS	DEG F. C	95.0 124		<del></del>	<del> </del>	-	+
3 IN.					٠ ـ	1 1				+	h-7 ov		+
NO. 4	<u> </u>	<u> </u>			CRDC	<u>;-144</u>				see	below	-	+
NO. 8			<u> </u>	<del> </del>	<del> </del>								
NO. 15	1	<del> </del>	<del> </del>	-		MAKING PR				_	DAYS.		
NO. 30	+	<del> </del>	+	+		CEMENT			S DES F. (CF	20-0 125, 12			
NO. 50		<del> </del>	+		LINEAR			1		CROSS	٥١.	AVE	RAGE
NO. 100	<del>-                                    </del>	+	+	+	<del></del>	ROCKT	YPE			0.000			
NO. 200	<del>-                                    </del>	<del> </del>		+	┥ ├──								
-200 ^{:q}	<del></del>	+	+		┥ ├──								
F.M. 5	_i	<del></del>	1		MORTA								
(a) CRD+C 135	.p. C	RD-C 104			1 MORTA	T .	FINE AGO	RESATE		c	DARSE AGO	REGATE	
MORTAR-B13 E	XFANSIS	ON AT 10	0F,~∜0	CRD-C 1	23):	2 MO.	6 MO.	9 MQ.	12 MO.	3 MO.	6 MO.	9 MO.	12 M
LOW-A_K. 05	EVENT		* N	020 EQ	UIVALENT:								+
HIGH-A_ < C					UIVALENT:		1						+
SOUNDNESS V											FAT	HW-CD	HD-0
FINE AGS.					ARSE AGG:				0.6	E 300			+
FINE AGG.				c	ARSE AGG:		<del>Man</del> or-		D ²	E320	na C+	ne fo	<del></del>
Tests	con	ducte	d ir	acc	cordanc	e with	CHD:C	rifft we	thod of	resti	• ug ಎぃ	nie i	,1
Resista	nce t	to fr	eezi	ng a	nd that N	wing ga	es in	Av. Pe	rcent W	t. Los	s Aft	er 20	Cycl
_ •.					-	3				6.8	;		
Dense Li										9.0	١.		
Shaly Li: Soft Wea	mest( +b~~	ンロピ コイ エキ	mee+	one.		3 3 3				2.8	} `		
Soft weat			WES 0	O110		3				0.2			
OOTITE T	Tilles	00116				_							
I													
REMARKS. *	Tho	בלמוות	r to	t.he	left	is the	heigh	t of t	he blow	v at fa	ilure	in c	m.,
			+ ~ ~	crt m	さんせいけつ し	weakn	ess an	U 0116	TIMITORY	00 0110	0		the
perpendi height o	f th	e blo	DITO	aral	lel to	the s	tructu	ral we	akness	of th	e samp	ole.	

SOURCE NO. 85
WESTLAKE QUARRY
ST. LOUIS, MO

							I	ssued	Sept 1	971							
STATE: N	o.	INDE	K NO.:	39					EGATE		ESTE		USAEV				
LAT.: 3	R	LONG	i, · (	90				DATA	SHEET		ATE:	Sep a	nd Oc	:t (	59		
LAB SYMB	OL NO.:	STL-	23 G	-2 aı	nd G	-2	(2) (	CHOL ar	nd C85	PE C	FMAT	ERIAL:	Ledge	Ro	ock		
LOCATION	· Mis	s. R	. Mi	le 1	44 A	bos	re Mo	outh of	E Ohio	ST.	13.	Sec 2	5, T	+ON	R6E		
PRODUCE	R:Wes	t La	ke Q	uarr	y an	<u>d 1</u>	late	rials (	Co., St		<u>Loui</u>	s, Mi	ssou	<u>ri</u>			
SAMPLED	BY: S	t. L	ouis	Dis	tric	<u>t</u>						·					
TESTED F	OR: S	<u>t. L</u>	ouis	Dis	tric	t_											
USED AT:	R	egul	atin	g Wo	rks,	S	t. L	ouis D	istric	<u> </u>							
PROCESSI	NG BEF	ORE TE	STING:	As r	equ1	re	I IO	r test	8 Ordo	ud o	1 an	Age	·····				
GEOLOGIC	CAL FOR	MATIO	A CHA P	GE: P	TWEE	1n	FOR	nation	, or do	VIC	7011				G-2	G-2(2	7
			44			_		TEST	RESULTS	$\top$		1	П.			Ledge	
GRADI	NG (CRD	-C 103)	ICUM. 5	PASSIN				1231	NE30E 13	ل		3-6"	'   1	<del>]</del> -3"		Rock	
SIEVE	3-6"	1}-3	3-15	=4-1	FINE AGG.	-		GR, \$.S.D.	CRD-C 107	108)		+			2.68	2.70	
6 IN.				<del> </del>		<del></del>		ION, TICRE							0.5	0.8	•
				-	<del> </del>	<del>-</del>		IMPURITIES			C 121)		_				
5 !N. 4 IN.					<del> </del>	1		TICLES.									
3 IN.						_		R THAN SP			C 122)						
2 in.						<del></del>		ND ELONG									
2 IN.						w1	AV		MaSOA (CF	0-c <b>X</b>	<b>36)</b> 1.	37*			1 .	3.3	
1 2 IN.						<u> </u>	A. APR	ASION LOSS	. % (CRD-C	117, 1	45) GR	ADING 1	**			34.4	<u> </u>
1 IN.						15	UT WT.	LB'CU FT	CRO-C XX	: 10	7				16/.0	168.2	
in.				ļ	ļ	-		PARTICLES							<del> </del>	<del> </del>	
1 1N.	ļ			ļ	ļ			T, BTU/LE		- 1			$\dashv$		<del> </del>	<del> </del>	<u> </u>
- } .:N.				ļ		4 = 5		TY WITH N	оон		c,mM/L				<del> </del>	<del> </del>	<del> </del>
NO. 4			<u> </u>		ļ	<u> </u>	CR	D-C 128):		F	ec,mM/I				+	<del> </del>	
NO. 8	<del> </del>	<u> </u>	-		+	+									J	<del></del>	ــــــــــــــــــــــــــــــــــ
NO. 16	<del> </del>	<del> </del>		┼	┼	-		MAKING PR					7.		DAYS,		
NO. 30	<del> </del>		┼	<u> </u>	+-			HERMAL E									
NC. 50				+	<del>                                     </del>	7 -	<u> </u>	ROCK			PARA		ACROSS	- 1	ON	AVEF	AGE
NO. 100		├	<del> </del>	†		-		NOCK .			7.1.1.						
-200(a)	<u> </u>	<del>                                     </del>		1		1											
F.M. (b)	<u> </u>			1	1	1								$\perp$			
(a) CRD-0	105	(b) CF	1D-C 104			1	MORTA	R;									
					PD				FINE AGO	REGA	TE .			co	ARSE AGG	REGATE	
MORTAR	-MAR EX	PAN510	N A 7 101	J= , 7€ (C				2 MO.	6 MO.	9 N	·o.	12 MO.	3 MO.		6 мо.	9 MO.	12 40.
LON-A	LK. CE	ENT:			o2C EC.			ļ					<del> </del>	$\perp$			
HIGH-	ALK. CE	MENT:		~ N	O2C EC.	. V A	LENT:	<u> </u>	<u> </u>	L			L				
SOUNDNE	ESS IN C	ONCRET	E CRD	C 40, 1	14):										FAT	HW-CD	HD-CW
FINE	AGG.				20	ARS	E AGG.						DFE 300				ļ

* Samples broken with hammer to pass a 3-in. sieve and be retained on a 2-in. sieve sample weights G-2 3022g G-2(2) 4100 g. Amounts of splitting, crumbling, cracking, or flaking during tests not above normal.

** Samples prepared by breaking with a hammer.

CCARSE AGG:

FINE AGG.

PETPOGRAPHIC DATA (CRD-C 127);

SOURCE NO. 86 CHARLIE BUSSEN QUARRY

STE. GENEVIEVE, MO

							I	ssued S	Sept.	197	'3							
STATE.	Mo.	INDE	K NO.:		40			AGGRE	GATE		TESTE	BY:	USA		,			
LAT.:	38	LONG	9	90					SHEET		DATE:			1965				
LAB SYNE	OL NO.:	STL	- 19	G-	(A)	,	4(B)	, 4(c)	, 4(D)	YPE	OF MAT	ER:AI	L	edge	Rock			
LOCATIC	N: Sec	. 12	R	RE.	ጥ 3	8	N. S	te. Ge	nevi e <b>v</b>	e (	Count	.v.	Miss	ouri				
						<b>-</b>	43.A. E.											
PRODUCE	n: (	harl	ie R	1956	n On	o r	TV.	Ste. G	enevie	ve.	Mis	รรดา	ıri					
	New																	
SAMPLED	=v S+	T	nii s	ni st.	rict.	ve.	Co.						<del></del>					
TESTED	FOR KS	skas	kri a	Rive	r. T	11	inoi	s, Nav	igatio	n :	Impro	ove	ment					
USED AT:		Lonar			- , -													
USED AT								<del>,</del>										
				יייפו	v st	on	e- s	electe	d piec	es	saw	ed.	crus	shed &	proc	ess	ed	
PROCESS	NG BEF	UNE IE	STING A	S	alem	T	imes	tone,	Merame	C E	grou	0.	Middl	Le Mi	ssissi	ppi	an	
GEOLOGIA	CALPOA		A MAD AC	, E. J						<u> </u>			24 (	3.20	G-3C	C-3	C (	3- 3D
		- 1071	45.114.5	D 4 F 5 1 1 1	<u></u>	_		TEST	RESULTS	1								
GRAD:	NG ICRD	-6 1031	TCUM. 5	PASSIN	$\overline{}$			153,	(E30E 13			ىد	eage	reag	Spai	De	ns	Prend.
SIEVE	3-6"	1 - 3	3-13"	≈4-3 °	FINE AGG.	_		an	CED 5.105	100		+		2 (1	2.61	124	٥٠ ۲٦	2.62
					<b></b>			GR, 5.5.D.							1 .			
6 IN.	ļ					-		ION, % ICRD			<del></del>	+-	1.6	Ua7	1.5	- <u> </u> -		0.7
5 IN.					ļ	ÖF	GANIC	IMPURITIES	. F:G. NO.	CRD	-C 121)	+			+	+=		
4 (%,	!	L				sc	FT PAR	TICLES,	CRO-C 130	)					<del> </del>	-		
3 1%.	1	<u> </u>				-	LIGHTE	R THAN SE	GF	CRD	-C (22)	-			+	+		<del> </del>
$2\frac{1}{2}$ . \( \cdot \).						-	FLAT A	ND ELONGA	TET CRD	C 11	9, 120)	-			+	+		<del> </del>
2:5.						w.	AV -	LOSS, 5 CYC	MgSO4 (CR	D-C	115)				<del></del>	+		000
1 ½ 1N.						<u>L.</u>	A. ABR	ASION LOSS,	7 CRD-C	117.	145) GR	ADING	26.6	2/107	28.5	28.	4,	28.9
1.88.						U:	NIT WT.	ASION LOSS,	ca:-c10	7_		_ 1	62.6	L64.5	162.	OLO2	0	163.
ž 16.						T	onapi	ness (C	RD-C	132	<u>)</u> :		/9*	9/9*	7/7*	97	0*	7/8*
∳ IN.						SF	EC HE	AT, BTU'LB	DEG F. (C	RD-C	124)	_				┿		
∦ is.												<u> </u>				+		
NO. 4						L	C:	RD C-11	1/1					see	belo	W		<del> </del>
NO. 8														<u> </u>		Ц		<u></u>
NO. 16						M	ORTAR-	MAKING PRO	PERTIES (	CRD.	-C 116)							
NO. 30						7	YPE	CEMENT	. RATIO:_		DAYS,				DAYS.			<del></del>
NQ. 50	ì					J L	NEAR T	HERMAL E	(PANSION,	MILL	ONTHS	/DEG	F. (CRD	-C 125, 12	(6):			<del></del> -
NO. 166						]		ROCKT	YPE		PARA	LLEL	ACI	ROSS	ON		VES	RAGE
NO. 200													<u> </u>					
-200°°						]										_ _		
F.M. 5						1												
(0) CRE-0	C 105	-6 СБ	D-C 104			1	MORTA	R;										
					DD-C 1-	31:			FINE AGO	REG	ATE			C	DARSE AG	GREGA	TE	·
MORTAP	-BAR EX	PANSIO	N AT 100	F, F (C)	-U-C 12	31:		2 MO.	6 40.	9 1	мо.	12 M	o. 3	мо.	6 MC.	9 MC	٠	12 MO.
LON-A	LK. CEN	MENT:		* No	20 EQU	IVA	LENT:			L								<del></del>
	ALK. CE			*. N6	20 EQU	IVA	LENT:			<u></u>							<u></u>	
SOUNDN	ESS IN C	ONCRET	E ICRD-	C-40, 11	41:										F&T	нм-с	<u> </u>	но-см
FINE	AGG.				co	RS	E AGG:						DFE	300				<del> </del>
FINE	∔GG.				co	RS	E AGG:			<del></del>		<u>.                                    </u>	DFE	300			<u> </u>	<u>L</u>
Tes	ts co	onduc	ted	iņ a	ccor	ďą	nce	with C	ΈD Č-j	<u>.44</u> .	Met	hod	of t	testi:	ng sto	ne .	101	r
Resis	tance	e to	iree	zng	ano	τ	nawı	ng gav Av. Pe	e the	10.	TTOM:	Trig	162					
Ledge		nesto	one	NO.	Pie	ce	5	AV. PE	rcent		• 4	00 /	RI UE		90101	•		
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SOURCE NO. 87

SOUTHERN RIVER ROCK

PERRYVILLE, MO

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AV	AVE	RAGE
GGREGAT	REGATE	
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нw-ср	HW-CD	HD-0
ни-со	HW-CD	H0-0
5		AVE

BUSSEN QUARRY

GLEN PARK, MO

	AGGREGATE DATA SHEET TESTED BY: USAEWES  DATE: 38 LONG: 90 DATA SHEET DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DA														
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LOCATIO	<u>n: On</u>	<u>e mi</u>	le f	rom 1	Miss:	Lssipp	1 Rive	r near	<u>G</u> 1	en Pa	rk. 1	10.			
PRODUCE	R: Bu	ssen	's "	Glen	Par	c" Qua	rry							<u> </u>	
							·							<del>- ·</del>	
SAMPLED	BY: St	. Lo	uis ]	Dist	rict										
		egul	atin	g Wo	rks ·	- Miss	issipp	1 Rive	<u>r</u>						
USED AT				<del></del>									<del></del>	·	
PROCESS					77.5		la East	- t l - =							
GEOLOG	CAL FOR	MATIO	AND A	GE:	KI	mmsW1C	k Form	ation			· · · · · · · · · · · · · · · · · · ·				
	ING ICRD	C 1021	form -	DASSIN	<b>6</b> 1.	·	TEST	RESULTS	Т	<del></del>		1		Rip-	T
GRAD	NG ICRE	-0 1031	ICOM. 3	- A331N	1						3-6"	1 1 2 - 8	· }-1}"	rap	FINE AGG.
SIEVE	3-6"	1 1 - 3	-1 + "	*4-}"	FINE AGG.	٧	GR, S.S.D.	/CDD C 107	100			<del></del>		2.54	[
					<del> </del>		TION, % (CRE				<del> </del>	<del>- </del>		1.9	<del>                                     </del>
6 IN.	<del> </del>				<del> </del>		MPURITIES			-C 1211		-	= ==	1==	
5 IN.	<del> </del>			-	<del> </del>		RTICLES, %			1217					
4 IN.	<del> </del>	ļ		-	$\vdash$		ER THAN SP			I-C 1221		1		1	<del></del>
3 IN.	<del> </del>	<del></del>			<del>                                     </del>		AND ELONG					1	1		
	<del>                                     </del>			-	<del> </del>		LOSS, 5 CYC					1		<del>                                     </del>	
2 IN.			<del></del>	<del>                                     </del>	<u> </u>		RASION LOSS				ING			1	
1 IN.	<del>                                     </del>	<del> </del>	<b></b>	<del>                                     </del>	<del> </del>		, LB/CU FT				T -	_		158.	2
3 IN.	<u> </u>			1	1	T	PARTICLE			· · · · · · · · · · · · · · · · · · ·	1				-
'- IN.				1	1		AT, BTU/LE								
in.	1						TTY WITH N		$\neg$	Sc,mM/L:					
NO. 4						(6)	RD-C (28):			Rc,mM/L:					
NO. 8						Freez	e & Tha	w 20 c	yc.	les, a	vg %	loss		1.2	}
NO. 16							-MAKING PR								
NO. 30						TYPE	CEMEN.	T, RATIO:		DAYS,		<u></u>	DAYS,	-	
NO.,50						LINEAR	THERMAL E	XPANSION,	MILL	IONTHS/D	EG F. (C	RD-C 125,	1 26):		
NO. 108						i	ROCK	TYPE		PARALL	EL	ACROSS	ON	AVE	RAGE
NO. 200	<u> </u>			<u> </u>	1	l				<del> </del>	_		<del> </del>		—
-200 ⁽⁰⁾	<u> </u>			ļ	<u> </u>	<b> </b>							<b> </b>		
F.M. (b)	<u> </u>	L	<u> </u>	<u> </u>	<u> </u>	L		<del></del>		L			<u></u>		
(e) CRD-0	105	(b) C=	D-C 104			MORTA	R:				T				
MORTAR	BAR EX	PANSIO	N AT 100	F, 5 (C	RD-C 12	31:	2 MO.	FINE AGO			MO.	3 MO.	COARSE AG	GREGATE 9 MO.	12 MO.
LOW-A	LK. CEN	ENT:		* NO	20 EQU	VALENT:									
HIGH-	ALK. CE	MENT:		* NO	20 EQU	IVALENT:									
SOUNDNI	ESS IN C	NCRET	E ICRD-	C 40, 11	4):								FAT	нж-ср	HD-CW
FINE	AGG.				COA	RSE AGG:					DF	E300			ļ
FINE					COA	RSE AGG:					DF	E300			<u>L</u>
PETROG	RAPHIC	DATA (	RD-C 12	<del>?</del> 7):											

The rock was slightly porous medium—to coarse-grained pale yellowish brown fossiliferous limestone. The pores were due to void space in some of fossils in the rock. Calcite is the most abundant constituent with a minor amount of quartz. A bedding thickness of  $\geq 0.5$  ft, absence of shaly parting planes and general homogeneity of the material suggest that it will perform well as riprap.

Test conducted in accordance with CRD-C 144, Method of Testing Stone for Resistance to Freezing and Thawing

WESTLAKE QUARRY

ST. LOUIS, MO

<del></del>				<del></del>				ssued										
STATE:		_	EX NO.:	···				AGG	REGATE A SHEET		TES	TED BY:	USA	EWE	<u>s</u>			
LAT.:		LON		90		<del></del>									er 197			
LAB SYM	BOL NO.	STL	<u>-26 G</u>	-4 (A	<u>), G</u>	-4(	B)			TYPE	OF N	ATERIAL	<u>.: L1</u>	mes	tone L	edge	ero	<u>ck</u>
LOCATIO	n: GC	older	n Eag	le L	andi	ng,	CE	lhoun	Co.,	<u>111</u>	•••	NE 1/	4. S	ec_	1. T14	S, 1	3E	
		<del></del>							: <u></u>	-								<del></del>
PRODUC	en: We	st I	ake	Quar	ry a	nd	Mat	erials	Co.,	In	<u>c.</u>						<u>.                                    </u>	······································
						<del></del>		· · · · · · · · · · · · · · · · · · ·									,	
SAMPLET																		
		ock	and	Dam_	No.	26	(Re	placer	ment)	tor	R1	prap						
USED AT	:																	
				0		_ ,		1 3			- 4-			<b></b>	<del></del>			<del></del>
								ken de							ments.			
GEOLOG	CAL FO	RMATIO	N AND A	GE:	St.	Lou	15	Format	tion,	MIS	<b>315</b>	sippi	an A	ge				
								T ====	DEC: 1			—	т					<del></del>
GRAD	ING (CRE	D-C 1237	ICUM. 5	T	T			1231	RESULTS			ļ	. 1		G-4A		-4B	
SIEVE	3-5"	13-3	3-15"	*4-2"	FINE AGG.							_			2.6		2.65	<del>                                     </del>
	-	<del> </del>	-	<del> </del>				GR, S.S.D.		7)				<del></del>	0.5		).4	<del> </del>
6 IN.						-		TION, % (CR				<del>-   _</del>			- 0.5			<del> </del>
S IN.	<del>                                     </del>	<del>                                     </del>	-	<del>                                     </del>				IMPURITE			-C 12	1)			+==	+-		1
4 IN.	<del>                                     </del>	<del> </del>	<del> </del>	<del>                                     </del>	<del> </del>			RTICLES, ?								+		<del>                                     </del>
3 IN.	<del> </del>	<del> </del>	<del>                                     </del>	├				ER THAN SI							<del></del>	+-		<del> </del>
2 IN.	<del> </del>			<del> </del>								<u>"                                    </u>				+		<del> </del>
2 IN.			<del>                                     </del>	-	<del> </del>	1	···	LOSS, 5 CY				- LOUNG				+-		<del> </del>
1 IN.	<del> </del>	<del>                                     </del>	<del>                                     </del>	<del>                                     </del>	$\vdash$			LB/CU FT				I I			166.	1 16	5.7	
2 IN.	<b></b>	<del>                                     </del>			<del>                                     </del>	1		PARTICLE							100.	7		<del>†</del>
IN.	<b></b>		<del>                                     </del>		<del>                                     </del>			AT, BTU/L								+-		
å IN.						1		ITY WITH N			Sc,mM							
NO. 4			T					10-C 128):		- 1	RC, MM		·					
NO. 8						Fre		and 7	-	Se	e N	ote.				$\top$		
NO. 16						MOR	TAR-	MAKING PR	OPERTIES	(CRD	-C 116	5)						
NO. 30						1		CEMEN					<u> </u>	_	DAYS			*-
NO. 50						LINE	AR 1	THERMAL E	XPANSION	MILL	ONTH	15/DEG F	. (CRD-	125,	126):			
NO. 100								ROCK	TYPE		PAR	ALLEL	ACR	oss	ON		AVER	AGE
NO, 200													<u> </u>			_		
-200 ^(a)										•								
F.M.(b)	<u> </u>	<u> </u>	<u></u>	<u> </u>	<u> </u>	L		· · · · · · · · · · · · · · · · · · ·					<u> </u>		<u> </u>			
(e) CRD-C	105	(b) c=	D-C 104			МС	RTA	R:	<del> </del>									
MORTAR-	BAR EXF	PANSICH	N AT 100	F. % (CF	10-C 12	1):			FINE AG	GREG	ATE				COARSE AG	GREG	ATE	
								2 MO.	6 MO.	9 1	10.	12 MO.	3 1	40.	6 MO.	9 M	<u>.                                    </u>	12 MO.
	LK. CEM				O EQU			<del></del>	<del> </del>	<del> </del>								
	LK. CEN				O EQUI	VALE	NT:	L	L	ļ		<u> </u>						
SOUNDNE		NCRET	E ICRO-C	40, 114									<del></del>		FAT	HW-C	D	HD-CW
FINE A						RSE A							DFE					
FINE A						RSE A						,,	DFE		6 m ·			
NOTE:								lance v ig and										
									Ave	Per	rce	nt Wt	Los	s At	fter 2	) Cy	rc1e	2 <b>S</b>
	e	. <b></b>		p 53	COMT	00		444										
			es (G										9. 24.					
	o p	Tec€	es (G	E-2)	STL	-26	<u>-ني</u>	-4(B)					44.	O				
REMARKS	ia.								<del></del>									-
	G-4	(A)	Lede	e GE	-1 -	Se	lec	ted pi	leces	Eroi	n s	ix ro	ck (	marl	ced GE	-1)		
			_					ted pi										

WAYNE B. SMITH

LOUISIANA, MO

Issued Sept. 1973

AGGREGATE

TES

STATE:		INDE	X NO.:	1	ļ			EGATE	TEST	ED BA:		USAI		
.ат.: 3	9	LONG	s.: 91	L			DATA	SHEET	DATE	:	<u> 21. Harc</u>	<u>h 1972</u>	<u> </u>	
AB SYME	30L NO.:	ST	L-20	S-4							Coarse			
OCATIO	N: On	Mis	sissi	กกเ	Rive	r. SW	1/4. 5	SW 1/4.	Sec	17, R	6W, T54	N. Pil	ke Cour	ıty,
		Lsso										-		
RODUCE				mith	(Sm	ith Sa	and Co.	. )						
		yille	и. с	, L C.	- 75									
AVELED	ey: S	S+ 1	Louis	Dis	tric	:t								
	FOR: (													
USED AT		,	<u> </u>	<u> </u>										
0000 711														
	ING BEF	DOC TE	STING	No	ne									
						d from	n Miss:	iccinn	Rive	r				
GEOLOGI	CAL FOR	MA 110	N AND A	GE. D.	LEUKE	u IIU	n rilss.	LOSLDIV	. 11270			· · · · · · · · · · · · · · · · · · ·		
	ING (CRD	C 1031	ICUM =	DASSIN	G):		TEST	RESULTS		1				T
GRADI	INGICKO	-0 1037	100m. 1	1						3-	6" 1 1/2-1	9" .   국-1号	" =4- <del>3</del> "	AGG.
SIEVE	3-6"	1 3-3"	3-13	=4-1	FINE AGG.				100)	_				2.65
							GR, S.S.D.			_		_		0.5
6 IN.				<del> </del>	<del> </del>	<del> </del>	ION, % ICRE			-		_		1
5 IN.			<u> </u>	ļ	<del> </del>	ORGANIC	IMPURITIE:	S, FIG. NO.	CRD-C 121	)			<del></del>	+
4 IN.				<u> </u>	<u> </u>		RTICLES,						<del></del>	+
3 !N.			<b> </b>	<b> </b>	ļ	<del></del>	R THAN SP							0.0
2 1 IN.				<u> </u>	ļ	<del> </del>	ND ELONG						_	+
2 'N.			ļ		<u> </u>	WT AV %	LCSS, 5 CY	C'MgSG4 (CF	:5-c 137			_		3.6
1 🕯 114.					ļ	L.A. ADR	ASION LCSS	(CRD-C	117, 145) G	RADING_				
1 IN.				<u> </u>	<u> </u>	UNIT WT.	LB'CU FT	1CRD-C 106	:					
3 tt4.	1					FRIABLE	PARTICLE	s. % (CRO-C	1421				<del></del>	<del></del> -
⅓ 1N.						SPEC HE	AT, BTU 'LE	OEG F. C	RD-C 1241					+
3 IN.				1	100	REACTIV	TY WITH N	ФОН	Sc,mM	/L:				
NO. 4					98	ICS	RD-C 128):		Rc.mM	/L:				<del></del>
8.си					94						<u> </u>			
NO. 15			1		83	MORTAR-	MAKING PR	OPERTIES	CRD-C 116	, *				
NO. 30	1				54	TYPE I	I_ CEMEN	T, RATIC:_	7 DAY	s <u>. 115</u>		DAY	5,	<del></del> -
NO. 50				1	8	LINEAR	THERMAL E	XPANSION '	MILLIONTH	S DEG F	(CRD-C 125,	1261:		<del></del>
NO. 100					1		ROCK	TYPE	PAR	ALLEL	ACROSS	ON	AVE	RAGE
NO. 200												<del>                                     </del>		
-200(a)				T	0.9									
F.M. (b)	1		1	T	0.6	2						<u> </u>		
(a) CRD-0		1b) CF	1D-C 164			MORTA	R:							
								FINE AGO	PEGATE			COARSE A	GGREGATE	
MORTAR	-BAR EXI	PANSIO	N AT 100	)F. % (C	RD-C 12	3):	2 MO.	6 MO.	s MO.	12 MO.	3 MD.	6 MO.	9 MO.	12 MO.
L CW-A	ALK. CEM	ENT:		5 N	20 EQU	IVALENT:								<u> </u>
	ALK. CE					IVALENT:								
SOUNDN	ESS IN CO	NCRET	E CRD-	C 40. 11	14);					-		FAT	HW-CD	HD-CW
FINE				<del></del>		RSE AGG:					DFE303		T	
FINE	AGG.				COA	RSE AGG:					OFE 100			
PETROG	RAPHIC	CATA 1	CRO-C 12	27): <b>T</b> h	e sa	nd con	sisted				compor			
Qua	rtz							50%	Partly	, chal	.cedoni	cher	t was ;	presen
Aci	d Ign	eous	roc	ks a	nd s	andsto	ne	26%	in eac	ch sie	ve fra	ction		
Fel	dspar							15%						
Che	rt							5%						
Bas	altic	roc	ks					2%						
Mis	С							2%						
1														
L														
REMARK	^{cs:} * B	lend	of	STL-	20 S	-4 and	STL-1	3 S-1	to me	et F&T	: speci	ficati	ons (C)	RD-C 1
į													-	
l														

WAYNE B. SMITH

LOUISIANA, MO

								ssued	Sept									
STATE:	Mo.	INDE	x NO.:	6				AGGR	EGĀTE	- 1	TESTE	BY:	JIS	AEWES	3			
LAT.:	39N	LONG	5.: (	91W				DATA	SHEET	Γ	DATE:		Se	_ ກteml	er, ]	972		
					. \ +	1	<del>77</del>		7		OF MAT	FRIA	- To	daa	Rook			
LAB SYM		_211	-20_	للاحد	<u> </u>	<del></del>	<u>D)</u>	D:1		264				uşe 1				
LOCATIO	N: SW	, Se	c. 2	) <u>, T</u>	54N.	_ R	LW.	<u>Pike C</u>	ounty,	בנייו	.ssov	ırı						
PRODUCE	R: Wa	yne	B. S:	mith														
		•																
SAMPLED	BY: S	t. I	ouis	Dis	tric	t												
TESTED	FOR: F	emil	atin	o Wo	rks.	M	issi	ssippi	River									
USED AT		w <u>e</u> uz	<u>.u.,</u>	<u> </u>														
USED AT																		
														•				
PROCESS	ING BEF	ORE TE	STING:			_						•	•					
GEOLOG	CAL FOR	MATIO	AND A	GE:	Burl	in	gton	Forma	tion,	MILS	55155	sipi	olan	Age				
								<del>,</del>				,			Ledge	Rock	т	
GRAD	ING (CRE	-C 103)	(CUM. 5	PASSIN	G):			TEST	RESULTS			İ	į		1	!		
		41	3-15"	3"	FINE	]									A			
SIEVE	3-6"	17-3	a-17	-4-2	AGG.	9:	JLK SP	GR, S.S.D.	(CRD-C 107						2.63	2.64	.	
6 IN.	<u> </u>			<del>                                     </del>		<del></del>		ION, 1 ICRE							0.9	0.8		
				<del> </del>		i						+_			.			
5 IN.					<del> </del>	7		IMPURITIES			-0 1211				<del></del>	<del>                                     </del>	+	
4 IN.				-		1		RTICLES, %							<del></del>		+	
3 IN.								R THAN SP							+		-+	
2 1 IN.						1-	FLAT A	NS ELONG	ATED (CRD	-C 11:	9, 120)	+				<del> </del>	+	
2 IN.								LCSS, 5 CYC									+-	
1 ½ IN.						<u> </u>	A. AER	AS:ON LOSS	, % (CRD-C	117.	145) GR	ADINO	·			<del></del>	<u> </u>	
1 IN.	1 IN. UNIT WT, LE CU FT (CRD-C 107 163.8 164.5																	
3 IN.																		
1/2 IN.																		
3 IN.						= 9	EACTIV	TY AITH N	он		Sc,mM/L							
NO. 4	1					1	'CR	G-C 1281:		Γ,	RC,MM/L	.:						
NO. B							RD_C	: 144						see	bel	ow .		
			<del> </del>	t	<del> </del>	_		VAKING PR	00507155		C 116)						,	
NO. 16	<del> </del>		<del> </del>	<del> </del>	<del>                                     </del>	7		SEMEN					97.		DAYS			
NO. 30	<del> </del>		<del> </del>	-		1		THERMAL E										
NO. 50	<del> </del>	<del> </del>			<del> </del>	_	NEAR .											
NO. 100	<del> </del>			<del> </del>	-	4	<b></b>	ROCKI	YPE		PARAL	LEL	ACI	ROSS	ON	AVE	RAG	
NO. 200	ļ	ļ		<del> </del>		-	<u> </u>						+			_		
-200(a)	<u> </u>	ļ	ļ	<u> </u>	<del> </del>	4	<u> </u>						-					$\dashv$
F.M.(b)	<u> </u>	<u> </u>	<u>L</u>		<u> </u>	4	<u> </u>				<u> </u>							
(a) CRD-0	105	(b) CR	D-C 104			1_	MORTA	R: .										
MORTAR	RAPEV	PANSIO	N AT 100	F. + 10	RD-C 12	3.:		<u></u>	FINE AG	REG	ATE			ç	CARSE AG	GREGATE	<del></del>	
L	JAN EX			. ,				2 VO.	6 MO.	9 1	10.	12 MC	). 3	мо.	6 MO.	9 MO.	12	MO.
LOW-A	LK. CEN	ENT:		", NO	20 EC.	N/L	LENT:										1_	
HIGH-	ALK, CE	MENT:		- No	20 EQL	11.74	LENT:	<u> </u>									4	
SOUNDNI	ESS IN CO	NCRET	E (CRD-	C 40, 11	4):										F&T	HW-CD	н	D-CW
FINE	AGG.				CC		E AGG:						DFE:	100			1	
FINE					CC	4 RS:	E AGG:						DFE	100			T	
PETROG		DATA .	Donne					ned, cl	nertf	ree	lim	est						
				-													_	_
Rema	rks:	The	seve	n pi	Lece	SI	were	teste	d in a	cco	rdan	ce	with	CRD-	·C 144	. Meth	od	of.
Teat	na c		for	Rec	cto	ne e	a to	freez	ing an	d t	hawi	ne:	aft.	er 20	cvcl	es of	te	st,
									Gari			b <b>)</b>			- e, ·			•
avera	age p	erce	nt lo	oss 1	vas .	Ι.	(•											
1																		

A- Represents Ledge 1, marked Smith Quarry, upper ledge B- Represents Ledge 2, marked Smith Quarry, lower ledge

FLORIDA ROCK CORP.

NAPLES, FL

Issued Sept 1975

COADING	· /cen	C 1031	(CUM. %	BASSIN		er	ock,	,	RESULTS	L. A. years						
	1-6"		1-1 1 "	=4-1	FINE			L			3-6~	1 1/2 - 3	3-13	#4~ ³ "	AGG.	
SIEVE 3	-6"	13-3	1-17	-4-1	AGG.	Bu	LK SP	GR, S.S.D.	10RD-0 107.	108;	2.54	4		<del> </del>		
6 IN.					ļ	AB	SORPTI	ON ICR	o-c :07, :08	):	1.9					
5 IN.										CRO-C 1211	+			+	<del> </del>	
4 IN									CRD-C 130			<del></del>	+			
									ATED CRD	CRD-C 122	+	+	<del>                                     </del>	1	<del>                                     </del>	
ZIN WT AV 5								_OSS, 5 CYC		D-C 115)	1					
1) IN. L.A. ABRASION LOSS, 7 (CRD-C 117, 145) GRADING A-24																
1 IN.						UNIT WT, LB/CU FT (CPC-C 106):										
3 IN.						FR	IABLE	PARTICLE	s, % 020-0			<del></del>	ļ			
⅓ IN.					<u> </u>	SPEC HEAT, BTU/LB/DES F. CRO-C 124)  REACTIVITY WITH NGOH Sc,mm/L:										
3 IN.			<del> </del>	-	ļ —	RE			<b>90</b> P	Sc,mM/					<del> </del>	
NO. 4			<b></b> -		<del> </del>	╁	ICR	D-C 128):		Rc.mm.	L: .	_	_		<del> </del> -	
NO. 30 NO. 50 40. 100 10. 200 -200 ^(a)						<del></del>			T, RATIC: DAYS.  XPANS ON VILLIONTHS  TYPE PARAL		DEG F. K	CRD-C 125,	DAYS	AVE	RAGE	
F.M. ^(b)			<u> </u>	<u> </u>	<u> </u>								1			
O) CRD-C I	05	(b) CR	D-C 104			<u> </u>	MORTA	<u>R:</u>				,	COARSE AG	COECATE		
AORTAR-BA	AR EXF	ANSIO	N AT 100	F, % (C	RD-C 12	31:		FINE ASSREGATE  2 MO. 5 VO. 9 MO.				3 MO.	6 MO.	9 MO.	12 MO.	
LOW-ALF	CEM	FNT:		% NO	20 EQ	IIVA	ENT:	1	1		12 MO.					
HIGH-AL					20 EQ											
SOUNDNESS	IN CO	NCRET	E (CRD-	C 40, 11	4):								FAT	HW-CD	но-см	
FINE AG	G.				co.	RSE	AGG:					FE 300				
- ME AG					co.							FE300		1		

SOURCE NO. 93

FLORIDA CRUSHED STONE

BROOKSVILLE, FL

Issued Sept 1969

STATE:	Fla.		INDE	x NO . [	Suppl	., rev	3) A	GGR	EGAT	ε	TESTE	D BY:	S		Labo			
LAT.:	28		LON				DA	TA	SHEE	Τ.	DATE		J		ary			
LAB. SY	ABOL NO	: LA7	06-7	08								TERIAL						
LOCATIO	N:Gav	Pit.	Tak	e Stat	e R	oad 5	O W	est	fron	Br	ooks	vill	e,Fl	a.,	turn	rig	ht or	1
State	Road	1 485	(Co	bb Roa	d)	to Pl	lant	, S	-1/2	ο£	N-1/	/2, S	ec.	٥,	T225	, RI	9E	
PRODUCI	R:Fla.	Crus	hed	Stone	Co.	,Camp	Co	ner	ete P	rod	ucts	s, Br	ooks	vil	le,	Flor	ida	
			cial							2	mi	N	f B	rook	suille			
SAMPLE	D BY:																	
TESTED	FOR: C1	oss	Flor	ida Ba	rge	Cana	11											
	SING BEF																	
USED	AT . 7	" 5/2	- In	glis Loc	k (1	1966 -	-	). c	\$S FI	a.(	967	<del>- )</del>	. Rod	ma	n Dai	m CF	BC(19	67-
	5.6	316	Bride	e CFB	c (	1967)	Moss	s Blu	ff Loc	k ci	FBC(	1968-	)					
GEOLOG	CAL FOR	MATION	AND	AGE:														
GRADIN	G (CRD-	C (03)	(CUM °	To PASSIN	G):			TES	T RE	SUL	TS			5 "	11 - 3"	3 - 11	•4-3°	FINE
-	1			3,, 6	NE		L									(5)	(c)	AGG.
SIEVE	IEVE 3-6" 11-3" 4-12" 44-3" FINE						GR,	SAT 5	URF DRY	(CR	)-C +C	7,108):			2.52	2.49	2.55	
51N.						ABSORPTION, PER CENT (CRD-C 107, ICE)											1.9	
SIN.	1					ORGANIC	IMPU	RITIES	, FIG. N	0. (CF	3D - C	2+):						
AIN		100				SOFT PA												
31N.		98				PER CEN	T LIG	HTER	THAN S	P. GR.	(	CPD-C 12	9):					
2 1N.	1					PER CEN	T FL	AT AN	D ELONO	ATED	(CRD)	119,12	20):				<u> </u>	
2 IN.	-	46				WEIGHTE	D AV.	% LO	SS, 5 CY	C. Mg	SO ₄ ((¢)	÷ -1", "4	4 - ½) (C	RD-0	C 115)	13		<u>'</u>
tá IN.	1		100			ABRASIO	V LOS	S (L.	A),%,	(CRC	-C 1.7	'⊃ ''A''	'Grac	ding	g(	34		
1 IN	1	1	36	100		UNIT WT	., LB/	CU F	T (CRD-	C 10	6);					<u> </u>		
3 IN.				99		CLAY LU	JMPS,	<b>%</b> ((	CRD-C	118)					· -			
1 IN.	1			76	COAL AND LIGNITE, % (CRD-C 122);													
3 IN.				43		SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C :24):										<u> </u>	<u> </u>	!
NO 4				6		REACTIVITY WITH NOOH (CRD-C 128): 5c, mM/							M/E			<u> </u>		
NO. B		1		3 Rc,mM/L														
NO.16						MORTAR	- MAKI	NG P	ROPERT	ES (	RD - C	: 116)	_					
NO. 30	<del> </del>		<u> </u>			TYPE		CEME	NT, RAT	10	D	AYS,		⁷ 9,		DAYS,		a)¢
NO. 50	1	1		1 1		LINEAR	THER	MAL	EXPAN	SION	X10 %	DEG. F.	(CRD-	C 12	5,126)			
NO. 10	0			1 1			R	OCK T	YPE		PARA	LLEL	ACRO	055	0	2	AVERA	GE
NO.20	0		-															
- 200	(0)		1															
F.M	ы		1															
(e) CRE	-C 105	(P) C	PD-C	C4		MORTA	AR:											
				00F.70(	CDO-	C +33)			FINE A	GGRE	GATE				COARSE	AGGR	EGATE	
MORTA	(- DAR E	APANSIC					3	MO.	6 MO.	9	мо.	12 MO.	3	MO.	6 MC	). <b>9</b>	MO.	2 MO.
LOW	-ALK. CE	MENT:		% Ne 20											<u> </u>		<del></del>	
HIGH	-ALK.CE	MENT:		% No20	EQUI	VALENT:	<u> </u>									<del>+</del>	ocati	
SOUND	NESS IN	CONCR	ETE (C	RD-C 40	<del>'</del>										F B.		XXXXXX	
	AGG. T					COARSE		Gay	Pit	L.S	•	<del></del>	DFE		64	<u>-∦</u> ≥	9 <b>-81</b> - 7 <b>-</b> 81-	<u>;</u>
FINE	AGG. I	ake	Wale	S		COARSE	AGG:						OFE	300	66		<del></del>	
ez.de	adkac M	ammo	th P	lant		11	11	н	**	**			11		42		7 <b>-</b> 81-	
	" P	lammo	th S	andlan	d	11	11	11	11	11			11		57 64	(2	7 <b>-</b> 81-	
"			San			11 11	11 11	11	11 11	11			11		54 52		9-81- 8-81-	
**			e Sa			11	11	11	11	**			11		75 45	\ \{2	9-81	.~ {
, ,			in S myrn			11	**	11	11	**			11		40		9-80-	
. "	" }	tna tru	m Ha	11		11	11	11	17	11			. "		40	(2	9 <b>-</b> 81-	. )
Petro	graph	ric D	ata	(CRD-C	12	7):	The	gu	arry	roc	k is	com	pris	ed	ot 3	176 1	ight	tan,
		·n fi	20 0	rained limes	14	mesto	ne,	40%	whit	e.d	ense	e,IOS itic	cher	.reī	lime	stor	is colle	$\frac{100}{10}$
<del></del>		ous, v	uggy	111162	LUI	·c, JP	++	ace	amou	nte	of	disc	rete	- cr	ert	part	icle	3.
REMAR	KS:						LL	400	الاست									-
1																		
L																		

																Y - 1		í
STATE:	Fla.		INDE	X NO.	<u>1 (1</u>	lev.	3))	AGGR	EGATE	- L	TESTE	D BY:	SAD T	es ti	ng.	lab.	•	
LAT.:	28° 1	1	LON	G.:	82°	W		ATA	SHEE	T	DATE:	18_	June	1952	1	<u>471                                    </u>		
LAB. SY	ABOL NO	.: 10	1/135	6 (0	<b>Λ</b> Δ				7	YPE	OF N	ATERIA	∟: Cru	shed	. Li	mes	tone	
LOCATIO	N: Co.	<u> </u>	1. 7	T T	228	₽.	101	7. H	erman	do	Co.	. Bro	oksvi	lle.	F	la.		
7	. 300	3 · U	<u>æ 1.</u>		. 11 .		110	<del>1 0 0</del>	00									
<del>/-</del>	ni N	. 0+	Bros	K & V	LL CT -	en C	<u>. د ب</u>	Page	Jensel 1	10	ות		lant	Owne	70.	Cam	<del></del>	
PRODUCE	R. FI	pride	Cru	a ve a	Sto	THE C	0.	Broc	ksvil		1 4	<u></u>	24110	<u> </u>			E	
Co	ncret	Roc	k Co	•		Com	mer	DIRT										
SAMPLE		-																
TESTED	FOR:	MacDi	11 A	FB														
PROCESS	ING BEF	ORE TI	STING:	Cr	ushi	ng s	ınd	<u>sizi</u>	ng by	pro	<u>oduo</u>	er				<del></del>		
USED	AT:	M.I.	Const	ł M	e Dill	AFE	3.F	la. (1	951-2	);	m,	I. Cor	151.	Tine	cas	ne 1	AFB	
<u> </u>		Fla.	. (19	51-5	). m	c Dil	I AF	R.F	1a. U	959	1)	FOUR !	Zivers	BASI	کند	1971	<u> </u>	
GEOLOG	CAL FOR	MATION	AND	AGE:	Tamp	a Fm		dioce	ne Ag	8	7						<u>-</u>	
320200					<u> </u>	<u></u>	* • •		**************************************									
654511	G (CRD	C 103	COM S	7- PASS	ING):	ſ-		TE	ST RES	SLIL.	TST							FINE
GRADIN	T (CKD	0.103	(00	4	OOII	<b>b</b> •		<u></u>	J! !\C.				3-	6" 15	3"	(c)	=4-3° (c)	AGG.
SIEVE	3-6"	13-3"	3-15"	w4-3"	XXX				SURF DRY	(686		02 1083	<del></del>		<del>-</del>			
	1				grad	BULK	5P. GR	, SAI 3	ORF DIG	(0,0							2.55	<del>  </del>
61N.						1-050		,			,					1.2	ـ لم و ي	
518.				i		CRGAN	HC IM	PURITIE	s, FIG. NO	). (CP	D-C	121):		1=				
4 IN.									ER CENT						_			
3IN.	1								THAN S						$\perp$			
2 1 IN.	+								D ELONG									
2 IN.	+	<del>                                     </del>	100		100	WEIGH	TED A	V. % LO	55, 5 CYC	. MgS	504 ((C	) <u>}</u> - (°, •.	4 - ½) (CR	)-C 115	) 1	2.38	\$	
<u> </u>	+	<del> </del>			200	ARRAS	JON L	oss (L	. A.), %,	(CRD	-C II	7): It A	n prac	al		35.0	5	T
I ji IN.		<del> </del>	76	300	50	145117	MAZT I	B /CIL F	T (CRD-	<u> </u>	6):			-	-			1
I IN.	<b>_</b>			100	79	UNII	., .	/	600-6		···				-+		-	1
₹1N.		ļ	2		48	CLAY	LUMP	3, 70	CRD-C I						_+		<del></del>	
jin.			1	55	28	COAL	AND I	LIGNITE	, % (CRC	) <del>- C</del>	122):			4-	-			┼──┤
₹IN.	1			32	16	SPEC	FIC HE	EAT, BT	J/LB/DEG	. F. (	CRD-	C 124):					ļ	<del>  </del>
NO. 4												1						
NO. 8						1						Rc,~	M/L:				<u> </u>	
NO.16						MORT	AR - MA	AKING F	ROPERTI	<b>S</b> ((	RD-	C 116)						1
NO. 30	<del></del>	<del> </del>	<del> </del>	1		TYPE		СЕМЕ	NT, RATI	٥		AYS,			1	DAYS,_		%
NO.50		<del> </del>	<del> </del>	<del> </del>	<del>                                     </del>	LINE	AR TH	ERMAL	EXPANS	ION	X10 9	DEG. F.	(CRD-C	125,12	6):			
<del></del>	<del></del>	┼	1	<del> </del>					TYPE						ON		AVER	AGE
NO. 10		<del> </del>			<del> </del>			tone			<del> </del> -			-			2.	8
NO.20		<del></del>	<del> </del>	ļ	┼		11400	сопо										_
- 200		<b></b>	ļ	↓	<del> </del>	┨ ├─-												
F.M.		1	<u> </u>		<u> </u>	┨┖					1							
(a) CRI	-C 105	(b) C	RD-C	104		MOI	RTAR:											
					/enn	-6 13	, L		FINE AC	GRE	GATE			COA	RSE	AGGRE	GATE	
MORTA	R-BAR E	XPAN510	N AT	00F, 47	ם (כאט	-6 12.	3, [3	MO.	6 MO.	9	MQ.	12 MC	). 3 M	D. 6	MO.	9	MO.	12 MO.
LOW	-ALK. CE	MENT:		% No	,0 EQL	IVALEN	IT:			1							1.	
	-ALK.CE			% No														
1									L	ــــــــــــــــــــــــــــــــــ			<u></u>	F	8 T	HW	-CD	HD-CW
	NESS IN	84		KD-C	40, 11.		E AGO		84/5				DFE 30		74	<del></del>	-+	
	AGG.		·						84/5				DFE 30		77		-+	
	AGG.		/2				E AGO											
PETRO	GRAPHIC	DATA	(CRD-	C 127)	Pet	rogr	aphi	ke oi	amina	t10	n o	r tne	rock	ano	ws	.J	. mr	<del>0</del> A
lime	stone.	. Tr	e li	mest	one	is w	hite	e, fc	ssili	rer	ous	, and	line	-gra	.1116	3Q •	The	
maio	nine	sral	cons	titu	ent	is o	alc	ite w	rith v	ery	mi	nor a	mount	8 OI	30	Brt	z an	<b>a</b> .
kaol		_																
		In	ener	al.	the	rock	is	fres	h, de	nse	, m	odere	tely	hard	, 8	ind i	appe	ars
to be	e dur	able.	. le	ss t	han	1% c	f th	16 88	mple	is	com	posed	of c	ha lo	edo	onio	ohe	rt.
1		'		-	-				-									
1																		
1																		
<b> </b>																		
REMAR	KS:	Grad	ing s	เร นธ	ed, i	n ge	nor	ete I	19 <u>48</u> 8	for	Car	1AVer	al Han	bor	Pr	odec	t	
1	<b>4 7</b>	TABE	.s 30	TITI (10)	<del>∪o</del> u.	4)	0 4 OTE		-020 1	. • .	- 0.1						-	

SOURCE NO. 94

FLORIDA ROCK INDUSTRIES, INC.

JACKSONVILLE, FL

# Issued Sept 1963

STATE:	Fig.		IND	X NO.:	2 (re	v.#3)	AGGI	REGAT		TEST	D BY	SA	D Ia	borst	OTY			
	28				32			SHEE	T	DATE:	2		v 19	19			i	
LAB. SYN	BOL NO	).: <u>8</u>	1./1.					1	YPE	OF N	MATERI	AL:	Crus	hed I	imes	tone	او	
LOCATION	N: E			e of:	S-A	Almereri 1	le, Fl											
G		M.J.# "	HQC-W	N-107.	<b>D1. T</b> (		-				g							
PRODUCE	R: 1	210-4	30 1	46.0	<b>D</b>	due te	Corpor	m ti dn	R	ey of	rawi'	110	Plo	ride				
<del> </del>			eroi		سبت	HOU VO	TANKA BUKA	32 24 36										
SAMPLEC	BY:	LON								··								
TESTED				7 77.	-2-	P1 -	eida &	No oDd	11 /	PR								
PROCESS					COUR	F. F. LU	CIUA G	MAY WAL										
					A. D	.II AF	B. Me	D.II	\FB	. F	۱۵.	(195	53-6	). ρο-	brick	AFR	Fle	
(10.50	- 27	<b>T</b> .		0	. 1	(1	957);	m.c.	. Δ	ER	Ela	(10	(58)	· Mr. I	Till A	FR F	-10	
GEOLOGI	CAL FOR	A POP	SOD.	AGE:	EE,	19 00)	_Ines	ALL Diva	and l	196	2)	· # 0	FIA	(196	2)	<del> ,</del> .		
<del></del>						11211	<u>, +mesi</u>	ON MITP	OLL	<u> </u>	نولك	- He	2					
GRADING	G (CRD-	C 103	CUM.	70 PASS	ING):	TEST RESULTS								. ]			FINE	
	<del></del>			1		1		J		ت:			3-67	1 1 - 3"	(c)	(c)	AGG.	
SIEVE	3-6"	15-3"	3-15"	*4-3"	AGG.	BULK SP. GR., SAT SURF DRY (CRD-C 107,108):										2.4	4	
61N. ABSORPTION, PER CENT (CRD-C 107, 108):											2.5							
SIN.		ļ		ORGANIC IMPURITIES, FIG. NO. (CRD-C 121):														
	4IN. SOFT PARTICLES, PER CENT (CRO-C 130):											-						
31N.	+						ER CENT LIGHTER THAN SP. GR. (CRD-C 129):											
<del></del>	PER CENT FLAT AND ELONGATED (CRD-C 119,120):										1							
2 IN.	<del> </del>	<u> </u>	WEIGHTED AV. % LOSS, 5 CYC. MgSQ4 ((C) \( \frac{1}{2} - 1', \frac{4}{2} \) (CRD-C 115)										0 80	<u> </u>				
<del></del>	<del> </del>	<b></b> -					ABRASION LOSS (L. A.), %, (CRD-C 117):									6.2		
1 IN.	<del> </del>	<del> </del>				<del></del>	UNIT WT., LB/CU FT (CRD-C 106):									٥٠٤	+	
3 IN.	<del> </del>			200		CLAY LUMPS, % (CRD-C 118):									<del> </del>			
1 IN.	<del>- </del>		<del> </del>	100 84		COAL AND LIGNITE, % (CRD-C 122);										<del>                                     </del>		
3 IN.	+			52												<del> </del>		
NO. 4	+			-		SPECIFIC HEAT, BTU/LB/DEG. F. (CRD-C 124):  REACTIVITY WITH NoOH (CRD-C 128): Se, mM/L:									<del> </del>			
NO.8	+		<del> </del>	32		Re,mM/L:									+			
NQ.16	+		<del> </del>	8		MORTAR	-MAKING	PROPERTI	5 (0	BD-			<u></u>		1			
NO.30	+	<del> </del>				-1							~.		DAYS,		%	
NO.50	+		<del> </del> -	-			CEME											
NO. 100	. <del> </del>	-				1	LINEAR THERMAL EXPANSION XIO POEG. F. (C							01	<u>.                                      </u>	AVER	AGE	
NO.200	<del></del>	-	<del> </del>			HOCK TYPE PARACLEL						-		<del>                                     </del>	<del>`</del>			
- 200		<del> </del>		<del> </del>		┨ ├──	····					-		<del> </del>				
F.M(6		<del> </del> -				┫ ├──						+		<del> </del>	<del></del>		$\overline{}$	
		(1) 51		<u> </u>		1						i		1				
(e) CRD	-6 103	(6)(	(D-C)	-		MORTA	T -	FINE AC	COE	ATE				COARSE	ACCRE	TATE		
MORTAR	-BAR E	PANSIC	N AT I	00F, %	CRD	-C 123):		FINE AC	т		T	<del>.   .</del>		1				
104-	A1 K CE	45NT.			0.50	DAL ENT.	3 MO.	6 MO.	-	MO.	12 M	<del>.</del>	мо.	6 MO.	. 9 1	NO.	12 MQ.	
<b></b>	ALK. CE					IVALENT:	<del> </del>	<del> </del>	<del> </del>									
	-ALK.CE					IVALENT:		<u> </u>	L		L		<del></del>	F&T	HW-		HD-CW	
	ESS IN		E 1 E (C	RD-C 4				A						<del></del>	HW-			
	AGG.					COARSE							E 300	65				
	AGG.		600	1073		COARSE	AGG: BL	/4				Ur	E 300	79		!_		
PETROG			•		_										_			
							e fair											
							sample										te,	
							s which											
							s of t			•	Tue	ma t	eria.	LIN	Remar	W.T.		
18	8 CTO	ang an	ic al	heer	8 60	oe r	ather	uurkbi	٠.									
1																		
							•											
	<u>.                                    </u>	<del></del>	<del></del>	<del> </del>				<del></del>									<del></del>	
REMARK	٥٠																	
1																		

# LAKE PONTCHARTRAIN, LA, AND VICINITY AND MISSISSIPPI RIVER - GULF OUTLET, LA SEABROOK LOCK

#### EXHIBIT D

PHOTOGRAPHS OF CONCRETE AGGREGATE SOURCES

DEPARTMENT OF THE ARMY
WATERWAYS EXPERIMENT STATION, CORPS OF ENGINEERS
VICKSBURG, MISSISSIPPI

FOR

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA

#### EXHIBIT D

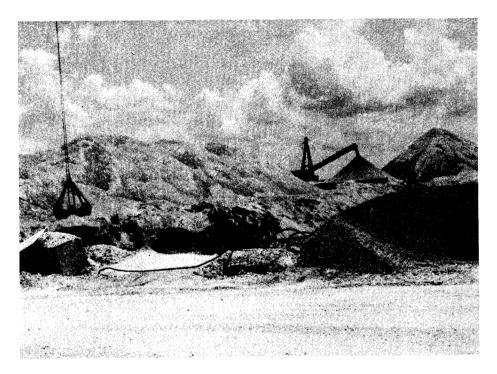
## PHOTOGRAPHS OF CONCRETE AGGREGATE SOURCES

#### General Index

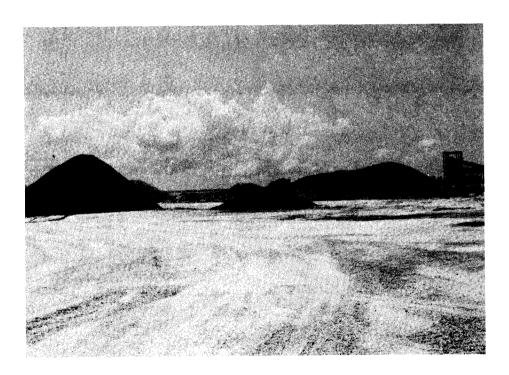
1. <u>General</u>. Photographs of the working faces and quarrying operations of a number of producers in the vicinity of the construction site of the Seabrook Lock Complex are presented in Exhibit D.

# 2. Table of Contents

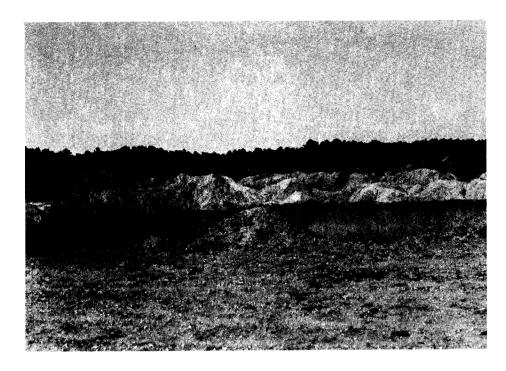
		Source, Location	Page
No.	1	Ratcliff Sand Co., Mobile, AL	D2
No.	18	Gifford-Hill, Inc., Fluker, LA	D3
No.	20	Smith Sand & Gravel Co., Mt. Hermon, LA	D4
No.	22	B & B Gravel Co., Bluff Creek, LA	D5
No.	23	Gifford-Hill, Inc., Arcola, LA	D6
No.	25	Red Stick Gravel Co., Baywood, LA	D7
No.	28	Lambert Sand & Gravel Co., Baines, LA	D8
No.	43	& 45 American Sand & Gravel Co., Hattiesburg, MS	D9
No.	47	Hammitt & Green Inc., Columbia, MS	D10
No.	49	Blain Sand & Gravel Co., Columbia, MS	D11
No.	52	Green Brothers, Inc., Brookhaven, MS	D12
No.	55	Green Brothers, Inc., Crystal Springs, MS	D13
No.	57	Traxler Sand & Gravel, Crystal Springs, MS	D14
No.	60	& 61 Blain Sand & Gravel Co., Crystal Springs, MS	D15
No	66	St. Catherine Sand & Gravel Co., Natchez, MS	D16



Dredging Operation



Concrete Aggregate Stockpiles
Source No. 1, Ratcliff Sand Co.
Mobile, AL



Strip Mining Operation



Close-Up of Working Face
Source No. 18, Gifford-Hill, Inc.
Fluker, LA



Dredging Operation

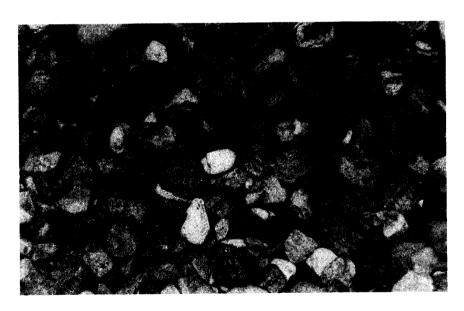


Working Area

Source No. 20, Smith Sand and Gravel Co. Mt. Herman, LA



Dredging Operation

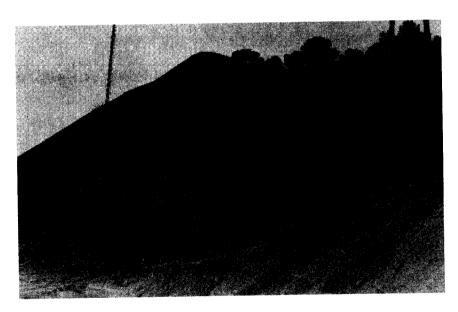


Coarse Aggregate Stockpile

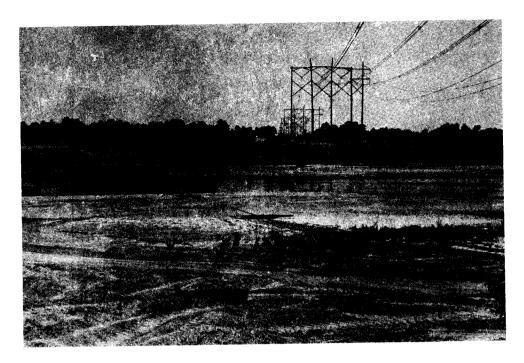
Source No. 22, B and B Gravel Co. Bluff Creek, LA



Fine Aggregate Stockpile



Coarse Aggregate Stockpile
Source No. 23, Gifford-Hill, Inc.
Arcola, MS



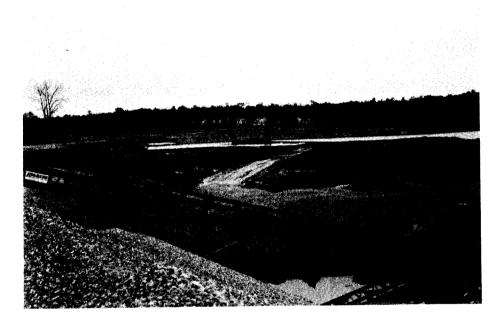
Dredging Operation



Coarse Aggregate Stockpile
Source No. 25, Red Stick Gravel Co.
Baywood, LA



Dredging Operation



Stockpiles

Source No. 28, Lambert Sand and Gravel Co. Baines, LA

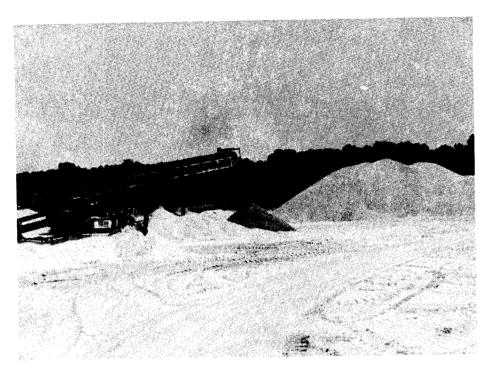


Pit Area



Concrete Aggregate Stockpiles

Source Nos. 43 and 45, American Sand and Gravel Co. Hattiesburg, MS

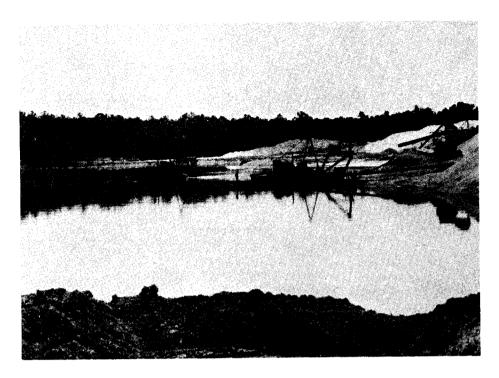


Pit Area



Concrete Aggregate Stockpiles

Source No. 47, Hammitt and Green Inc. Columbia, MS



Dredging Operation



Concrete Aggregate Stockpiles

Source No. 49, Blain Sand and Gravel Columbia, MS



Pit Area



Concrete Aggregate Stockpile

Source No. 52, Green Brothers, Inc. Brookhaven, MS



Coarse Aggregate

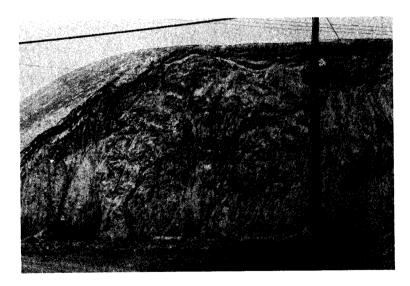


Fine Aggregate

Source No. 55, Green Brothers
Crystal Springs, MS

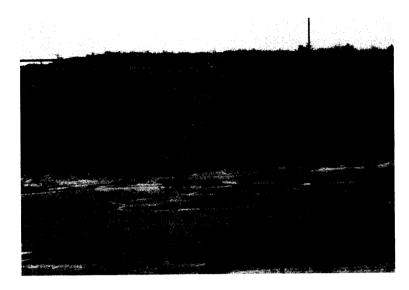


Working Face

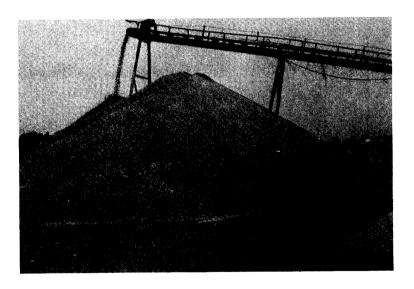


Aggregate Stockpile

Source No. 57, Traxler Sand and Gravel Crystal Springs, MS



Working Face

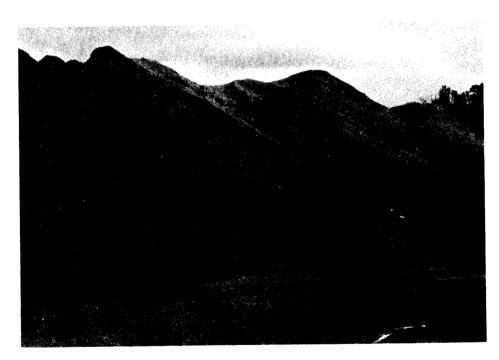


Aggregate Stockpile

Source Nos. 60 and 61, Blain Sand and Gravel Crystal Springs, MS



Strip Mining Operation



Working Face

Source No. 66, St. Catherine Sand and Gravel Co. Natchez, MS

# LAKE PONTCHARTRAIN, LA, AND VICINITY AND MISSISSIPPI RIVER - GULF OUTLET, LA SEABROOK LOCK

## EXHIBIT E

PHOTOGRAPHS OF AGGREGATE SERVICE RECORDS

DEPARTMENT OF THE ARMY
WATERWAYS EXPERIMENT STATION, CORPS OF ENGINEERS
VICKSBURG, MISSISSIPPI

FOR

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA

#### EXHIBIT E

## PHOTOGRAPHS OF AGGREGATE SERVICE RECORDS

#### General Index

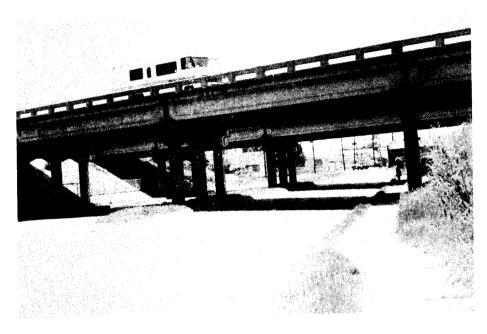
1. General. Photographs are presented of concrete structures containing aggregate from a number of the aggregate sources being considered as suppliers of concrete aggregates for use in the construction of the Seabrook Lock Complex.

## 2. Table of Contents

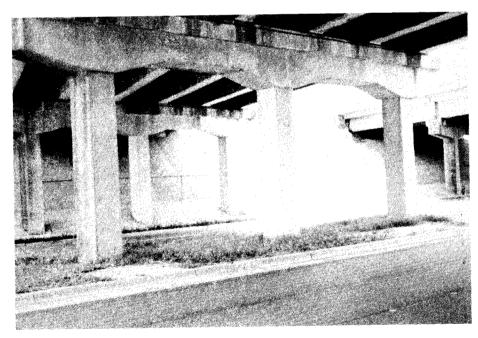
Subject, Location, Source	Page
I-10 & Virginia St. Overpass, Mobile, AL, Radcliff Sand	E2
Grand Gulf Nuclear Power Plant, Grand Gulf, MS, Louisiana Industries	E3
I-55, Manchac, LA, Gifford-Hill, Inc.	E4
Morganza Control Structure, Morganza, LA, Red Stick Gravel Co.	E5
Atchafalaya River Bridge, Simmesport, LA, Lambert Sand & Gravel	E6
I-59 & Hwy 49 Overpass, Hattiesburg, MS, American Sand & Gravel	E7
Hwy 35 Bridge at Pearl River, Columbia, MS Hammitt & Green	E8
I-20 & I-220 Bypass Bridge, Jackson, MS, Green Brothers	E9
I-220 & Hwy 49 Overpass, Jackson, MS Blain Sand & Gravel	E10
Jonesville Lock & Dam, Jonesville, LA, St. Catherine Gravel Co.	E11

## SOURCE NOS. 1 AND 2

Ratcliff Sand Co. furnished the aggregate used in constructing the Virginia Street Overpass of Interstate 10, Mobile, AL. In service approximately 10 years, the aggregate shows no sign of deleterious reactions or chert popouts.



Service Record of Ratcliff Sand Co.

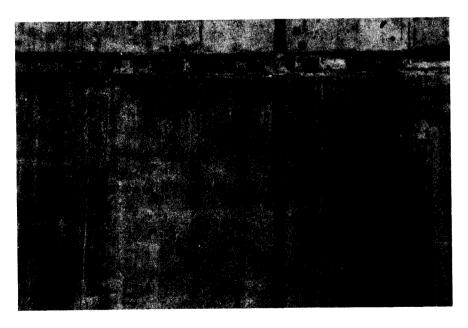


I-10 Virginia Street Overpass, Mobile, AL

Louisiana Industries has furnished concrete aggregate to several large projects in southern Mississippi and Louisiana. These include the Nuclear Power Station at Grand Gulf, MS, now under construction.



Service Record of Louisiana Industries

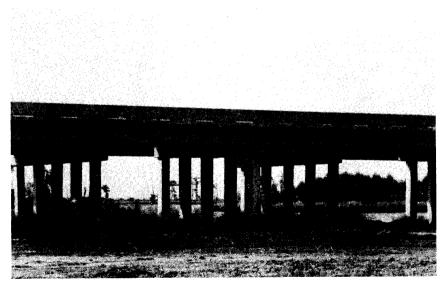


Close-Up of the Reactor Wall Grand Gulf Nuclear Power Plant

Gifford-Hill, Inc. has furnished concrete aggregate used in the construction of I-55 near Manchac, LA. The roadway is still under construction at the present and thus for reveals no sign of deleterious reaction or chert popouts.



Service Record of Gifford-Hill, Inc.

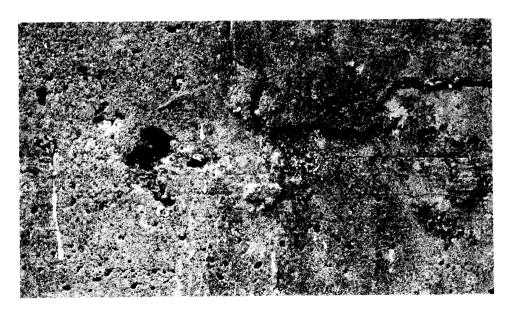


I-55, Manchac, LA

Red Stick Gravel Co. in Baywood, LA has furnished aggregate to various projects including portions of the Corps of Engineers' Morganza Control Structure. The concrete revealed weathered surfaces and worn surfaces due to the velocities of the water. The concrete appeared to be still in good condition.



Service Record of Red Stick Gravel Co., Baywood, LA



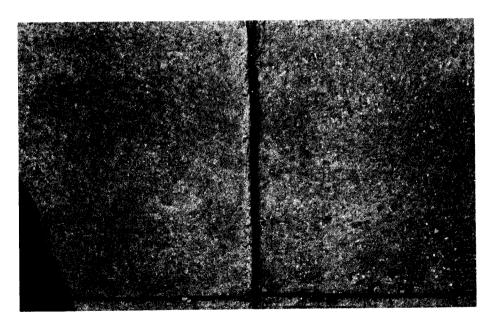
Close-Up of Concrete Wall

Morganza Control Structure, Morganza, LA

Lambert Sand and Gravel Co. furnished the aggregate used in the construction of the Louisiana Highway 1 Bridge over the Atchafalaya River at Simmesport, LA. The aggregate shows no sign of deleterious reaction or other undesirable properties.



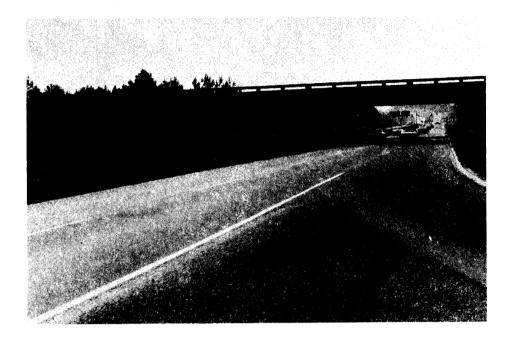
Service Record of Lambert Sand and Gravel Co.



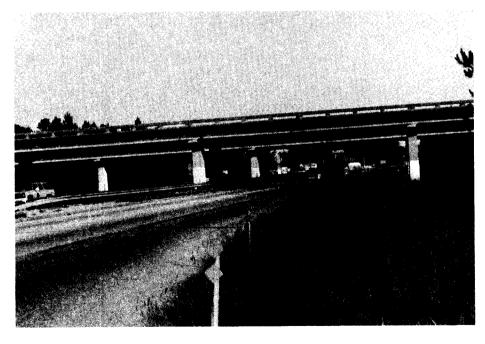
Close-Up of the Substructure
Atchafalaya River Bridge
Simmesport, LA

# SOURCE NOS. 43 AND 45

American Sand and Gravel furnished the concrete aggregate used in the construction of the I-59 Overpass over Highway 49. In service approximately 15 years, the aggregate shows no sign of deleterious reaction or other undesirable properties.



Service Record of American Sand and Gravel

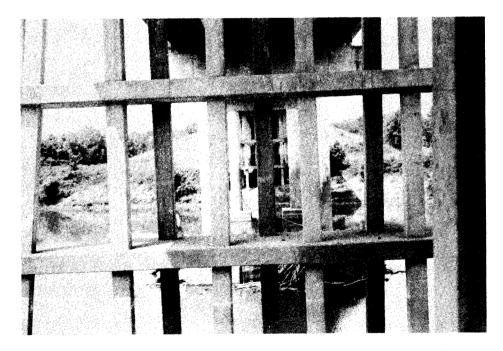


I-59, Highway 49 Overpass, Hattiesburg, MS

Hammitt and Green, Inc., furnished the concrete aggregate used in the construction of the Highway 35 Bypass Bridge over the Pearl River. After approximately 8 years in service the aggregate shows no sign of deleterious reactions or other undesirable properties.

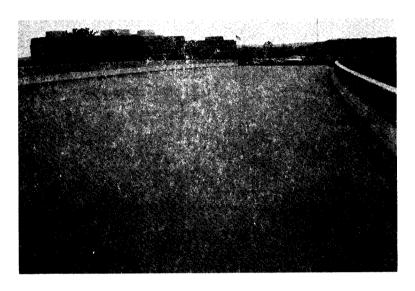


Service Record of Hammitt and Green, Inc.



Highway 35 Bridge Over Pearl River, Columbia, MS

Green Brothers has provided concrete aggregate to the Mississippi State Highway Department in their construction of several bridges and highways in central Mississippi. The I-20 - I-220 Bridge was constructed in 1969 as a bypass north of Jackson, MS. To this date, it has not been open to public traffic and therefore shows no visible signs of wear on the pavements or on the guide walls. But what is significant is the number of porous chert popouts that occurred all along the surfaces of both pavements and walls, most of which possibly occurred during the winter of 1976-77.



Service Record of Green Brothers



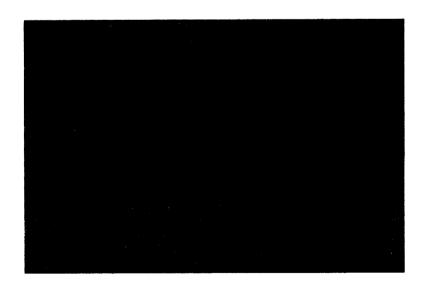
Close-Up of a Porous Chert Popout I-20 - I-220 Bypass Bridge

#### SOURCE NOS. 60 AND 61

Blain Sand and Gravel has supplied concrete aggregate to many bridges of the Mississippi Highway Department in the Jackson, MS, area. Among these were the recently constructed I-220 Bypass and the four laneing of U. S. Highway 49 from Jackson to the Big Black River. The bridges on the new U. S. Highway 49 have not been open to the public and therefore show no wear or weathering.

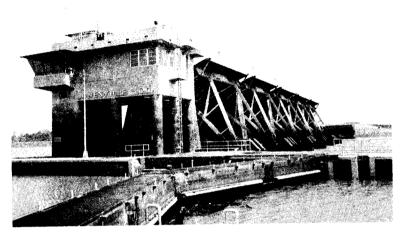


Service Record of Blain Sand and Gravel

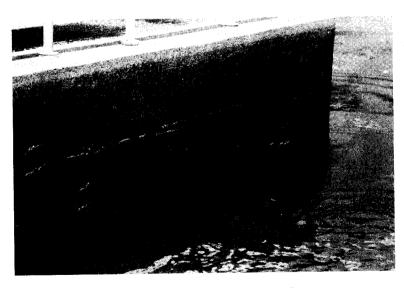


Close-Up of Substructure U. S. Highway 49, North of Jackson, MS

St. Catherine Gravel Co. has furnished concrete aggregate to several Corps of Engineers projects such as the Jonesville and Columbia Locks and Dams, and the Old River Lock. The concrete at the Jonesville Lock and Dam showed signs of weathering and of the effects of water velocities on the guide walls. There was some minor surface cracks but none due to the aggregate.



Service Record of St. Catherine Gravel Co., Natchez, MS



Interior Lock Guide Wall

Jonesville Lock and Dam, Vicksburg District

## LAKE PONTCHARTRAIN, LA, AND VICINITY AND MISSISSIPPI RIVER - GULF OUTLET, LA SEABROOK LOCK

#### EXHIBIT F

PHOTOGRAPHS OF STONE SOURCES

DEPARTMENT OF THE ARMY
WATERWAYS EXPERIMENT STATION, CORPS OF ENGINEERS
VICKSBURG, MISSISSIPPI

FOR

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA

#### EXHIBIT F

## PHOTOGRAPHS OF STONE SOURCES

#### General Index

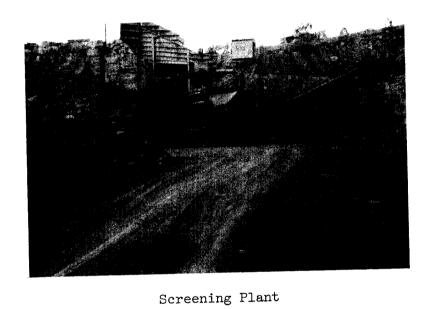
1. <u>General</u>. Photographs are presented of the working faces and quarrying operations of a number of the stone sources being considered as suppliers of large aggregate and riprap for use in the construction of the Seabrook Lock Complex.

## 2. Table of Contents

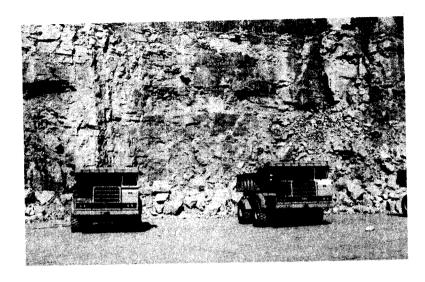
Source, Location				
No.	74	Three Rivers Rock Co., Smithland, KY	F2	
No.	75	Westlake Quarry, Neely's Landing, MO	F3	
No.	78	Bussen Quarries Inc., Jefferson Barracks, MO	F4	
No.	87	Southern River Rock Co., Perryville, MO	F5	



Working Face



Source No. 74, Three River Rock Co. Smithland, KY

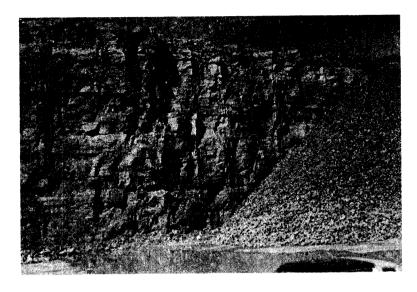


Working Face



Working Face

Source No. 87, Southern River Rock Co. Perryville, MO



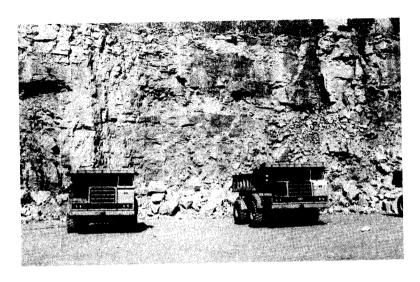
Working Face - Clipper Ledge



Working Faces - Three Ledges

Source No. 78, Bussen Quarries Inc.

Jefferson Barracks, MO



Working Face



Working Face

Source No. 87, Southern River Rock Co. Perryville, MO

# LAKE PONTCHARTRAIN, LA, AND VICINITY AND MISSISSIPPI RIVER - GULF OUTLET, LA SEABROOK LOCK

EXHIBIT G

PHOTOGRAPHS OF STONE SERVICE RECORDS

DEPARTMENT OF THE ARMY
WATERWAYS EXPERIMENT STATION, CORPS OF ENGINEERS
VICKSBURG, MISSISSIPPI

FOR

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA

#### EXHIBIT G

## PHOTOGRAPHS OF STONE SERVICE RECORDS

## General Index

1. <u>General</u>. Photographs are presented of stone in service as riprap for riverbank stabilization for a number of the sources being considered as suppliers of large aggregate and riprap for use in the construction of the Seabrook Lock Complex.

## 2. Table of Contents

Subject, Location, Source		
Protection Stone, Kentucky Dam, KY, Three Rivers Rock Co.	G2	
Riprap Stone, Neely's Landing, MO, Westlake Quarry	G3	
Slope Protection, Cliff Cove, MO, Bussen Quarries		
Riprap Stone, Chester, IL, Southern River Rock	G5	

Riprap from this source was used for bank protection at Kentucky Dam. The material has been in service for 10-15 years and very little damage from freezing and thawing is evident.



Service Record of Three Rivers Rock Company

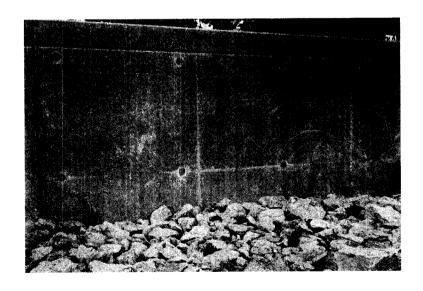


Close-Up of Bank Protection Stone
Kentucky Dam, KY

Riprap from this source has been in service as shown below for 10-20 years. There is evidence of moderate freezing and thawing damage but the material is still providing adequate protection.

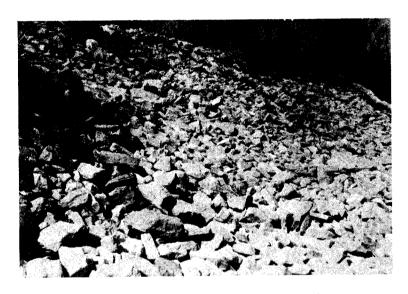


Service Record of Westlake Quarry (Neely's Landing, MO)



In Service Aggregate and Riprap Stone Miss. River Dike and Floodwall

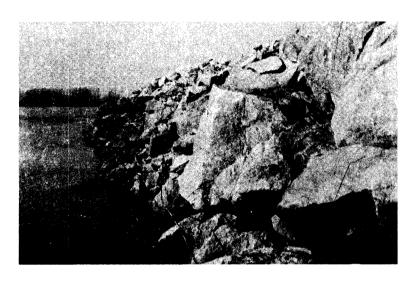
Riprap from this source has been in service on the west of the Mississippi River near Cliff Cave, MO, for approximately 20 years. There is some damage from freezing and thawing evident but the material is still affording adequate erosion protection.



Service Record of Bussen Quarries

Miss. River Slope Protection, West Bank Cliff Cave, MO

Riprap from this source has been utilized for bank protection in the Mississippi River near Chester, IL, for approximately 20 years. Only minimal damage from freezing and thawing is evident.



Service Record of Southern River Rock Co. Perryville, MO



Close-Up of Riprap Stone

Dikes - Mississippi River Bank Protection Chester,  ${\tt IL}$ 

# LAKE PONTCHARTRAIN, LA, AND VICINITY AND MISSISSIPPI RIVER - GULF OUTLET, LA SEABROOK LOCK

#### EXHIBIT H

CONSTRUCTION PLANT INVESTIGATION

DEPARTMENT OF THE ARMY
WATERWAYS EXPERIMENT STATION, CORPS OF ENGINEERS
VICKSBURG, MISSISSIPPI

FOR

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA

#### EXHIBIT H

#### CONSTRUCTION PLANT INVESTIGATION

#### General Index

General. Production requirement for the concrete is determined by the size of the largest block taking into consideration the criteria that no uncooled concrete is to be left uncovered for more than 1 hr. The largest block(s) requiring continuous placement are located in the lock gate bay slabs. However, the concrete placed in this portion of structure represents 15 percent of the total concrete volume in the project. The concrete placed in the lock walls represents approximately 40 percent of the total estimated concrete in the project. Therefore, the plant capacity, based on the largest block size (approximately 54- by 48- by 12-ft) in the lock chamber walls, should be 96 cu yd/hr. The lift height for the uncooled concrete shall be 5 ft.

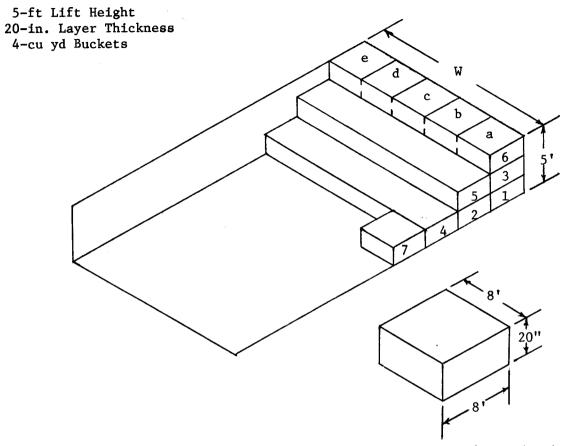
## Stepped Placement Sequence:

Page

Plant capacity for 5-ft lift, 20-in. layer thickness

H-2

## STEPPED PLACEMENT SEQUENCE



Consolidated 4-cu yd pile

## PLANT CAPACITY

Lift Height  $-\frac{5}{20}$  ft Layer Thickness  $-\frac{20}{20}$  in.

Bucket Size - 4 cu yd

	Required Plant	Capacity, cu yd/hr
Width of Placement, ft	Cooled Concrete	Uncooled Concrete
_	2	16
8	8	16
16	16	32
24	24	48
32	32	64
40	40	80
48	48	96
56	56	112
64	64	128
72	72	144
80	80	160
88	88	176