



### SECTION 00010

Delete pages 00010-3 and 0010-4 in their entirety and substitute the attached revised pages 00010-3 and 0010-4 therefor.

### MAIN TABLE OF CONTENTS

Change the existing Titles of Sections 02078, 02381, 02731, 11285, 13120, and 15002 to “Separator Geotextile”, “Riprap”, “Access Road”, “Sluice Gates and Hoists”, “Gatehouse”, and “Installation Of Steel Drawdown Pipe” respectively.

### SECTION 01100

Page 15, subparagraph 15., subparagraphs (a)(1), (a)(2), and (a)(3): Delete “For AMTRACK – Aggregate Limit - \$12,000,000 for the term of the policy.”

### SECTION 02242

Page 5, paragraph 1.5. Add the following new subparagraph as:

“(13) The Contractor’s attention is directed to the soil boring logs and resulting data contained herein. These data from the soil borings indicate that some of the soils which require dewatering have grain sizes less than 0.10 millimeters in diameter. Soils having grain sizes such as these may require extra effort such as vacuum assistance to provide the required head reductions.”

### SECTION 02320

1. Page 1, paragraph 1.2. Delete this paragraph in its entirety and replace with:

#### “1.2 MEASUREMENT AND PAYMENT

Measurement for structural excavation, structural backfill, granular fill, and the clay barrier layer will be made by the cubic yard, and quantities will be determined by the average end area method. The basis for the measurement will be cross sections of the areas to be excavated taken after clearing, grubbing, and vegetation removal operations and the theoretical design cross sections of the completed excavation and structural backfill, granular fill, and clay barrier layer placement, within the allowable tolerance specified. No allowance will be made for overdepth excavation or for the removal of any material outside the required slope lines unless that excavation is authorized by the Contracting Officer. “

2. Page 4, subparagraph 1.4(6)(a)1. Delete the third sentence and replace with “One Atterberg test shall be obtained from the sample material used for each control

compaction curve and one shall be obtained from the sample material used for every third in-place density test.”

3. Page 5, paragraph 2.1.1. Delete this paragraph and replace with the following:

“2.1.1 Structural Backfill

Structural backfill shall consist of earth materials naturally occurring or Contractor blended, classified in accordance with ASTM D 2487 as lean clay (CL), fat clay (CH), low plasticity silt (ML), high plasticity silt (MH), and sandy-clay (SC) containing no more than 30 percent of sand classified in accordance with ASTM D 2487, and not classified as unsuitable as described in paragraph 2.1.3. The Contractor’s blending operation must yield a fill of the above classifications having less than 1 percent (by volume) of other materials. “

4. Page 6, paragraph 2.1.3. Delete this paragraph and replace with the following:

“2.1.3 Unsuitable Materials

Materials, which are classified as unsuitable structural backfill, are defined as material containing organic matter, sticks, branches, roots, brick, concrete, rock, contamination by hazardous, toxic, or radiological substances, trash, other debris, or frozen matter.”

5. Page 9, paragraph 3.2.2. Delete the last sentence.

6. Page 11. Add the following new paragraphs after paragraph 3.3:

“3.4 COMPLIANCE SURVEYS

Prior to the Government’s final survey, the Contractor shall furnish plotted cross sections at intervals and locations corresponding to the Government’s original survey. Upon completion of suitable reaches of excavation and/or placement of structural backfill, select sand, or clay barrier material, the Contractor shall perform, plot and submit compliance cross sections surveys at a maximum of 100 foot intervals and all P.I.’s curve P.C.’s, P.T.’s, ground transitions and breakpoints. They shall be plotted by the Contractor on a minimum scale of 1-inch equals 10-feet horizontally and 1-inch equals 5-feet vertically with the theoretical design cross-section and allowable grade tolerances superimposed thereon.

3.5 QUANTITY SURVEYS

The Contractor shall provide plotted cross sections of all surveys for progress payments at a maximum of 100-foot intervals. Plot on same scale as specified in

paragraph 3.4. If 100-foot interval is too long, sections may, at the Contractor's option, be taken closer at no additional cost to the Government."

#### SECTION 02321

Page 1, paragraph 1.3.1. Delete the second sentence and replace with "Payment for depositing materials on the disposal embankment will be included in the contract unit price per cubic yard for "Excavation". "

#### SECTION 02381

Delete Section 02381 in its entirety and replace with the revised section 02381, attached. (All references to R400 riprap and Filter Stone have been deleted and grout mix proportions table have been revised.)

#### SECTION 02720

Delete Section 02720 in its entirety and replace with the revised Section 02720, attached. (Coating for CMP has been revised.)

#### SECTION 02731

Page 2, paragraph 1.3.2.2. Delete the first sentence and replace with: " Payment for initial surfacing of the Hwy. 61 access road and subsequent maintenance surfacing of the reservation area, the Hwy. 61 access road, and the West Irene Road access road, will be made at the contract unit price per cubic yard for "Surfacing". "

#### SECTION 03301

1. Page 6, paragraph 1.5.2. Delete this paragraph and replace with:

"1.5.2 Batch Plant Layout Drawings

Drawings showing the layout of the plant the Contractor proposes to use on the work shall be submitted by the Contractor for review. The drawings shall show the locations of the principal components of the construction plant; offices; shop and storage building; housing facilities, if any; and storage areas and yards which the Contractor proposes to construct at the site of the work and elsewhere. The Contractor shall also furnish for review drawings, in triplicate, showing the general features of his concrete batching and mixing plant; concrete conveying and placing plant; and when precooling of concrete is required, the cooling plant. The drawing shall appropriately show the capacity of each major feature of the plant including the rated capacity of the aggregate production plant in tons (2000 lb) per hour of fine and coarse aggregates; volume of aggregate storage; capacity of cement and pozzolan storage; rated capacity of the concrete batching and mixing plant in cubic yards per

hour; rated capacity of the concrete transporting and placing plant in cubic yards per hour; and when used rated capacity of plant for precooling of concrete. Drawings showing any changes in the plant made during design and erection or after the plant is in operation shall be submitted for review. ”

2. Page 6, paragraph 1.5.3. Delete this paragraph and replace with:

“1.5.3 Concrete Mixture Proportioning; GA

Concrete mixture proportions shall be determined by the Contractor, in accordance with the requirements in paragraph 2.2, and submitted for approval. The concrete mixture quantities of all ingredients per cubic yard and nominal maximum coarse aggregate size that will be used in the manufacture of each quality of concrete shall be stated. Proportions shall indicate the mass of cement, pozzolan and ground granulated blast-furnace (GGBF) slag when used, and water; the mass of aggregates in a saturated surface-dry condition; and the quantities of admixtures. The submission shall be accompanied by test reports from a laboratory complying with ASTM C 1077, which show that proportions thus selected will produce concrete of the qualities indicated. The submission shall provide information specified in paragraph 2.2.8, and if applicable, paragraph 2.2.6. Mix proportions, actual slump and actual air content and adiabatic heat rise shall be reported for each concrete cylinder used to develop the mix design. No substitution shall be made in the source or type of materials used in the work without additional tests to show that the quality of the new materials and concrete are satisfactory. Recommended mixtures for the Cavitation Concrete Overlay, the Abrasion Concrete Overlay, and the Mass Concrete, and the results of thermal studies are available upon request, at the New Orleans District. “

3. Page 9, paragraph 1.5.22. Delete this paragraph in its entirety and change the title of 1.5.22 to “Reserved”.

4. Page 11, paragraph 1.6.2. Delete subparagraph “d” in its entirety.

5. Page 12, paragraph 1.6.4. Delete this paragraph and replace with the following:

“1.6.4 Concrete

The Government will determine when concrete shall be sampled. The Contractor shall cast, protect and deliver concrete cylinders and determine slump and air content. The person conducting the tests shall meet the Concrete Field Testing Technician requirements contained in paragraph 3.7.1. Concrete shall be sampled in accordance with ASTM C 172. When cylinders are molded, slump and air content shall be determined in accordance with ASTM C143 and ASTM C 231, respectively. Test samples for each class of concrete shall be taken at least once every 8-hour shift nor less than once for each 1,000 cubic yards of mass concrete and not less than once every 8-hour shift or for every 150 cubic yards placed for cavitation resistant, abrasion

resistant, and all other concrete, whichever requires more samples. From each sample of mass concrete, eight 6-inch by 12-inch compression test specimens shall be made and from each sample of cavitation resistant, abrasion resistant, and other concrete, six 6-inch by 12-inch compression test specimens shall be made in accordance with ASTM C 31. Compression test specimens shall be cured while in the field in accordance with paragraphs 10.1, 10.1.1, 10.1.2, and 10.1.3 of ASTM C 31, except those used for accelerated strength testing of mass concrete in accordance with ASTM C 684, Method A, B, or C. If cylinders are not delivered to the testing laboratory within 24 to 48 hours after molding, they shall be submerged in a water tank provided by the Contractor, where the surrounding water temperature is maintained by the Contractor, where the surrounding water temperature is maintained at 73.4 plus or minus 3 degrees F. Cylinders shall be transported in accordance with ASTM C 31 (with cushioning material) and unloaded in the Government designated location. Compression testing will be performed by the Government in accordance with ASTM C 39. For mass concrete, two cylinders will be tested in accordance with ASTM C 684, two cylinders at 7 and 28 days for information, and two cylinders will be tested at 90 for acceptance. For cavitation resistant, abrasion resistant, and other concrete, two cylinders will be tested at 7 and 14 days, and two cylinders will be tested at 28 days (90 days is fly ash or slag is used)."

6. Page 15, paragraphs 1.7.3.1, 1.7.3.2, and 1.7.3.3. Delete these paragraphs in their entirety and replace with the following:

"1.7.3.1        Mass Concrete

The adiabatic heat rise of the mass concrete shall be 20 degrees F  $\pm$  5 degrees F at 3 days, 28 degrees F  $\pm$  5 degrees at 5 days, and 41 degrees F  $\pm$  5 degrees at 28 days. Because the duration of the Q-drum test is usually between 14 and 21 days, the values for the Q-drum test will be extrapolated out to 28-days from the test data.

1.7.3.2        Cavitation Resistant Concrete

The adiabatic heat rise of the cavitation concrete shall be 28 degrees F  $\pm$  5 degrees F at 3 days, 40 degrees F  $\pm$  5 degrees at 5 days, and 53 degrees F  $\pm$  5 degrees at 28 days. Because the duration of the Q-drum test is usually between 14 and 21 days, the values for the Q-drum test will be extrapolated out to 28-days from the test data.

1.7.3.3        Abrasion Resistant Concrete

The adiabatic heat rise of the abrasion resistant concrete shall be 21 degrees F  $\pm$  5 degrees F at 3 days, 29 degrees F  $\pm$  5 degrees at 5 days, and 42 degrees F  $\pm$  5 degrees at 28 days. Because the duration of the Q-drum test is usually between 14 and 21 days, the values for the Q-drum test will be extrapolated out to 28-days from the test data."

7. Page 17, paragraph 1.8. In the title shown as TOLERANCES FOR MISCELLANEOUS STRUCTURES (INCLUDING APPROACH AND SLOPE PAVEMENTS AND DRAWDOWN STRUCTURE MANHOLE). Delete “AND DRAWDOWN STRUCTURE MANHOLE” from title.

8. Page 19, subparagraph 1.8.1(6). Delete the 1<sup>st</sup> sentence and replace with “Surface finish tolerances as measured by placing a freestanding (unleveled), 10-ft straightedge for plane surface or curved template for curved surface anywhere on the surface and allowing it to rest upon two high spots within 72 hr after concrete placement.”

9. Page 20, paragraph 2.1.2. Delete this paragraph and replace with:

“2.1.2 Aggregates

Concrete aggregate shall be produced from the sources in Section 01100, General Provisions, entitled “Aggregate Sources”. Fine and coarse aggregates shall conform to the grading requirements of ASTM C 33 or LSSRB 1003.02. The quality of all aggregates shall conform ASTM C 33.”

10. Page 20, paragraph 2.1.2.1. Delete this paragraph and replace with:

“2.1.2.1 Nominal Maximum-Size Aggregates

The Nominal maximum-size coarse aggregate shall be 1-1/2 inches. The coarse aggregate for the mass concrete shall consist totally of crushed limestone. The coarse aggregate for the abrasion resistant concrete shall be a combination of natural chert gravel and crushed limestone. The concrete mixture proportion shall include three sizes of coarse aggregate: #4 to 3/4 inch crushed limestone (ASTM C 33, size 67); #4 to 1 inch chert gravel (LADOT, Grade A); and 3/4 to 1-1/2 inch crushed limestone (ASTM C 33, size #4). The coarse aggregate for the cavitation-resistant concrete shall consist totally of crushed limestone.”

11. Page 21, paragraph 2.1.3.1. Delete this paragraph and replace with the following:

“2.1.3.1 Air-Entraining Admixture

The air-entraining admixture shall conform to ASTM C 260 and shall consistently cause the concrete to have an air content in the specified ranges under field conditions.”

12. Page 35, paragraph 3.3.1. Beginning in the last line of this page, delete “The concrete shall not be dropped vertically more than 5 feet, except where a properly designed and sized elephant trunk with rigid drop chute bottom section is provided to prevent segregation and where specifically authorized.” and replace with “A properly designed and sized elephant trunk and rigid drop chute bottom section which will

prevent free-fall within the elephant trunk and rigid drop chute shall be used if concrete is to drop more than 5 feet. If concrete is to be placed through installed horizontal or sloping reinforcing bars, the concrete shall discharge into a pipe or elephant trunk that is long enough to extend through the reinforcing bars to within 5 feet of the placing surface.”

13. Page 36, paragraph 3.3.3. Delete the 2<sup>nd</sup> sentence in its entirety and substitute the following therefore: “When concrete is truck-mixed or when a truck mixer or agitator is used for transporting concrete mixed by a concrete plant mixer, the concrete shall be delivered to the site of work, and discharge shall be completed within 1-1/2 hours after introduction of the cement to the aggregates, except when the placement temperature exceeds 85 degrees F, a retarder shall be used and the placement completed within 45 minutes.”

14. Page 37, paragraph 3.3.5.3. Change “70 degrees F” to “85 degrees F”.

15. Page 39, paragraph 3.4.1.2. Delete the last sentence and replace with “The cavitation and abrasion resistant overlays shall be moist cured for the first 14 days, according to paragraph 3.5.2. A curing compound that is in accordance with paragraph 3.5.3 may be used for the remainder of the curing period.”

16. Page 40, paragraph 3.4.2. In the 3<sup>rd</sup> line, between the words “repaired.” And “All voids”, insert the following sentence: “If a membrane curing compound has previously been applied prior to the repair of defective concrete surfaces and/or prior to surfaces receiving a rubbed finish, the areas being repaired or receiving a rubbed finish shall be thoroughly cleaned by sand blasting or other approved method until all traces of the curing compound have been removed.”

## SECTION 15002

Page 8, paragraph 2.1.1.1. Delete the first sentence and replace with the following: “All steel pipe shall be API 5L, Grade B, Plain End, Seamless or Welded. Spiral welded pipe shall be permitted.”

## DRAWINGS

Delete Dwgs. 1/01, 2/11, 7/01, 7/02, 7/03, 7/04, 7/05, 7/06, 7/07, 7/08, 7/14, 7/14A, 7/14B, and 7/14C in their entirety and replace with revised attached drawings 1/01, 2/11, 7/01, 7/02, 7/03, 7/04, 7/05, 7/06, 7/07, 7/08, 7/14, 7/14A, 7/14B, and 7/14C.

### DWG. 1/05

PLAN. Column 1, Rows B & C; Column 2, Rows B & C; Column 3, Row C: On both sides of the channel, change all “30” R400 RIPRAP” callouts to “30” R1000 RIPRAP”.

DWG. 1/07

STA. 6+00.0D. Column 3, Row D; Column 5, Row D: On both sides of the channel, change all “30” R400 RIPRAP” callouts to “30” R1000 RIPRAP”. Also, change all “9” FILTER STONE ON GEOTEXTILE” callouts to “12” R90 RIPRAP ON GEOTEXTILE”.

DWG. 1/09

SECTION C. Column 3, Row B: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

SECTION A. Column 3, Row A: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

DWG. 1/10

CENTERLINE PROFILE. Column 5, Row A: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”.

DWG. 1/11

STA. 1+45.0U. Columns 2 & 3, Row D: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

STA. 0+69.0U. Column 5, Row C: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

STA. 0+40.0U. Columns 2 & 3, Row B: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

STA. 0+10.0U. Columns 2 & 3, Row A: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

DWG. 1/12

STA. 0+24.0D. Columns 2 & 3, Row D: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

STA. 0+88.0D. Columns 2 & 4, Row C: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

STA. 1+51.0D. Columns 2 & 4, Row A: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

DWG. 1/13

STA. 2+14.0D. Columns 2 & 4, Row D: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

STA. 2+24.0D. Columns 2 & 4, Rows C & D: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

STA. 2+45.5D. Columns 2 & 4, Rows A & B: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

DWG. 1/14

STA. 2+65.0D. Columns 2 & 4, Row D: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

STA. 2+77.0D. Columns 2 & 4, Row C: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

STA. 3+40.0D. Columns 2 & 4, Row A: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

DWG. 1/15

STA. 3+81.5D. Columns 2 & 4, Row D: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

STA. 4+20.0D. Columns 2, Row B: Change “30” R400 RIPRAP” to “30” R1000 RIPRAP”. Also, change “9” FILTER STONE” to “12” R90 RIPRAP”.

DWG. 2/05

DETAIL 1. Change “R400” to “R1000”. Also, Change “9” FILTER STONE” to “12” R90 RIPRAP”.

DETAIL 2. Change “R400” to “R1000”. Also, Change “9” FILTER STONE” to “12” R90 RIPRAP”.

DETAIL 3. Change “R400” to “R1000”. Also, Change “9” FILTER STONE” to “12” R90 RIPRAP”.

DETAIL 5. Delete “R400 OR” and “9” FILTER STONE (BENEATH R400) OR”.

DETAIL 6. Change “R400” to “R1000”. Also, Change “9” FILTER STONE” to “12” R90 RIPRAP”.

DETAIL 8. Change "R400" to "R1000".

DETAIL 9. Change "R400" to "R1000". Also, Change "9" FILTER STONE" to "12" R90 RIPRAP".

RIPRAP LEGEND. Item 5, change "30" R400 ON 9" FILTER STONE ON GEOTEXTILE" to "30" R1000 ON 12" R90 RIPRAP ON GEOTEXTILE".

DWG. 2/06

DETAIL 1. Columns 3 & 4, Row D: Add the following note: "NOTE: GEOMEMBRANE LIMITS EXTEND FROM STA. 0+24.0D TO STA. 3+81.5D (ADJACENT TO THE UNDERDRAIN SYSTEM)."

DWG. 2/12

SECTION B Column 4, Row B: Change "P-2, P-5; MH-6" to "P-2; MH-6R OR P-5; MH-6L".

DWG. 2/13

MANHOLE SCHEDULE. MH-4R: Change the location from "1+46D, 0+83R" to "1+46D, 0+78R".

DWG. 2/16

SECTION E. Column 2, Row A, Dimension Callout at Right Side of Detail: Delete "3'-0" FOR UPSTREAM GAGE" and "3'-6" FOR DOWNSTREAM GAGE" and replace with "3'-6"".

DWG. 3/05

NOTES. Add the following note: "13. THE DRAWDOWN PIPE SHALL BE IN PLACE AND BACKFILLED PRIOR TO CONCRETE PLACEMENT (INCLUDING 6" STABILIZATION SLAB) FOR MONOLITHS SI-2R AND SI-3R."

DWG. 3/27

SECTION A. Column 2, Row A: Add the following note: "NOTE: TOP 12" OF BASE SLAB IS CAVITATION RESISTANT CONCRETE."

DWG. 3/30

SECTION A. Column 2, Row A: Add the following note: "NOTE: TOP 12" OF BASE SLAB IS CAVITATION RESISTANT CONCRETE."

DWG. 3/33

SECTION A. Column 2, Row A: Add the following note: "NOTE: TOP 12" OF BASE SLAB IS CAVITATION RESISTANT CONCRETE."

DWG. 3/37

SECTION A. Column 2, Row A: Add the following note: "NOTE: TOP 12" OF BASE SLAB IS CAVITATION RESISTANT CONCRETE."

DWG. 5/03

FINISHED SECTION AT GATEHOUSE. Column 2, Row A: Add the following note: "NOTE: GEOMEMBRANE SHALL EXTEND A DISTANCE OF 9'-6" FROM THE FACE OF THE EAST AND WEST GATEHOUSE WALLS."

DWG. 5/11

SEEPAGE COLLAR LOCATIONS table. Columns 2 & 3, Row C: Delete the table in its entirety and replace with:

SEEPAGE COLLAR LOCATIONS		
COLLAR NO.	STA.	OFFSET
1	0+40.0U	0+70.5R
2	0+05.0D	0+87.0R
3*	0+45.0D	0+87.0R

\*SEEPAGE COLLAR @ SLURRY TRENCH PENETRATION

SECTION 00010 - BIDDING SCHEDULE

Flood Control, Amite River and Tributaries, Louisiana,  
Comite River Basin, Comite River Diversion Project,  
Lilly Bayou Control Structure, Phase II,  
East Baton Rouge Parish, Louisiana

Item	DESCRIPTION	Estimated Quantity	Unit	Unit Price	Estimated Amount
0001	Mobilization and Demobilization	01	LS		
0003	Batch Plant Mobilization and Demobilization	01	LS		
0003	Railroad Insurance	01	LS		
0004	Separator Geotextile	56,700	SY		
0005	Clearing and Grubbing	01	LS		
0006	Construction Dewatering	01	LS		
0007	Temporary Retaining Structures	01	LS		
0008	Excavation	1,439,000	CY		
0009	Structural Backfill	62,500	CY		
0010	Select Sand	14,800	CY		
0011	Clay Barrier Layer	14,000	CY		
0012	Disposal Area Drainage	01	LS		
**0013	Geomembrane	1,300	SY		
**0014	Deleted				
**0015	Riprap, R90	21,100	TON		
0016	Riprap, R200	12,000	TON		
**0017	Riprap, R1000	53,600	TON		
0018	Grouting Riprap	01	LS		
0019	Piling, Steel Sheet, PZ 27	6,804	SF		
0020	Piling, Steel Sheet, PZ 35	16,375	SF		
0021	Piling, Steel Sheet, PS 27.5	660	SF		
0022	Underdrain System	01	LS		

\*\* Denotes changes from the previous Bidding Schedule

SECTION 00010 - BIDDING SCHEDULE

Flood Control, Amite River and Tributaries, Louisiana,  
Comite River Basin, Comite River Diversion Project,  
Lilly Bayou Control Structure, Phase II,  
East Baton Rouge Parish, Louisiana

Item	DESCRIPTION	Estimated Quantity	Unit	Unit Price	Estimated Amount
0023	Lateral Drain System	01	LS		
0024	24-Inch Corrugated Metal Pipe	89	LF		
0025	36-Inch Corrugated Metal Pipe	72	LF		
0026	72-Inch Corrugated Metal Pipe	330	LF		
0027	Access Road	01	LS		
0028	Surfacing				
0028AA	First 3,085 CY	3,085	CY		
0028AB	All Over 3,085 CY	1,500	CY		
0029	Fencing and Gates	01	LS		
0030	Fertilizing, Seeding and Mulching	160	AC		
0031	Mass Concrete	01	LS		
0032	Abrasion Resistant Concrete	01	LS		
**0033	Cavitation Resistant Concrete	4,494	SY		
0034	Slope and Approach Pavement	8,662	SY		
0035	Miscellaneous Metalwork	01	LS		
0036	Staff Gauges, Upstream	2	EA		
0037	Staff Gauges, Downstream	2	EA		
0038	Tile Gauges	01	LS		
0039	Sluice Gates	2	EA		
0040	Gatehouse	01	LS		
0041	Foundation Instrumentation	01	LS		
0042	30-Inch Diameter Drawdown Pipe	01	LS		

TOTAL: \$

Award will be made as a whole to one bidder

\*\* Denotes changes from the previous Bidding Schedule

Section Table of Contents

SECTION 02381 - RIPRAP

---

- PART 1 GENERAL .....1**
- 1.1 SCOPE.....1
- 1.2 MEASUREMENT AND PAYMENT .....1
- 1.2.1 General.....1
- 1.2.2 Riprap .....1
- 1.2.2.1 Measurement .....1
- 1.2.2.2 Payment.....2
- 1.3 REFERENCES.....2
- 1.4 QUALITY CONTROL .....3
- 1.4.1 General.....3
- 1.4.2 Reporting .....3
- 1.5 SUBMITTALS.....3
- 1.5.1 Stockpiling Plan; GA .....3
- 1.5.2 Riprap Gradation; GA .....3
- PART 2 PRODUCTS.....4**
- 2.1 MATERIALS.....4
- 2.1.1 Riprap .....4
- 2.1.1.1 Gradation Testing of Riprap.....5
- 2.1.2 Sources and Evaluation Testing .....6
- 2.2 MVN STANDARD TEST METHOD FOR GRADATION OF STONE.....6
- 2.2.1 General.....6
- 2.2.1.1 Sample Selection .....6
- 2.2.1.2 Selection of Size for Separation .....7
- 2.2.2 Procedure .....7
- 2.3 GROUT .....8
- PART 3 EXECUTION.....8**
- 3.1 SITE PREPARATION .....8
- 3.2 FILTER LAYER PLACEMENT .....9
- 3.3 RIPRAP PLACEMENT .....9
- 3.4 GROUTING PLACEMENT .....10
- 3.4.1 Placement.....10
- 3.4.2 Maintenance .....10

## SECTION 02381 - RIPRAP

### **PART 1 GENERAL**

#### 1.1 SCOPE

The work provided for herein consists of furnishing all plant, labor, equipment and materials, and performing all operations in connection with stone placement in the intake channel, the outlet channel, all miscellaneous slopes and drainage features; and grouting of the riprap, as shown on the contract drawings, in accordance with these specifications.

#### 1.2 MEASUREMENT AND PAYMENT

##### 1.2.1 General

No separate measurement or payment will be made for furnishing inspection service, surveying, making reports and performing other services in connection with the Contractor Quality Control Inspection System, and site preparation including preparing and clearing the base. All costs in connection therewith shall be included in other items for which payment is to be made.

##### 1.2.2 Riprap

###### 1.2.2.1 Measurement

Riprap shall be weighed by the Contractor to the nearest 0.1 ton and the final quantity rounded to the nearest whole ton. Riprap shall be measured for payment by being weighed on approved scales before being placed in the work. The Contractor shall furnish the scales and shall weigh the riprap in the presence of the Contracting Officer, who will certify to the correctness thereof. Scales shall be of sufficient length to permit simultaneous weighing of all axle loads and shall be inspected, tested and sealed as directed by the Contracting Officer to assure an accuracy within 0.5 percent throughout the range of the scales. The scale's accuracy shall conform to the applicable requirements of NIST HB 44 and shall be certified as to accuracy by an acceptable scales company representative prior to weighing any riprap. The scales shall be located at the site of work. If commercial scales are readily available in close proximity (within 10 miles) of site of work, the Contracting Officer may approve the use of the scales. The Contracting Officer may elect to accept certified weight certificates furnished by a public weighmaster in lieu of scale weights at the jobsite. Quarry weights will not be accepted. Scales shall be checked and certified before hauling riprap and rechecked and recertified whenever a variance is suspected and after each 50,000 tons increment of riprap weighed under this contract. If the Contractor elects to stockpile riprap, he shall weigh the riprap immediately before placement by the method described in this paragraph.

#### 1.2.2.2 Payment

Payment for riprap will be made at the applicable contract unit price per ton for "Riprap, R90", "Riprap, R200", and "Riprap, R1000". Price and payment shall include all costs associated with constructing the required riprap, including furnishing, hauling, handling, testing, placing and maintaining the riprap, and all work incidental thereto, until final acceptance by the Contracting Officer. Deductions from payment in an amount considered equitable by the Contracting Officer will be made if the riprap is contaminated with soil, dirt, or refuse. No separate payment will be made for the stockpiling of riprap, and all cost in connection therewith shall be included in the contract unit price per ton for riprap.

#### 1.2.4 Grouting Riprap

No measurement will be made for grouting riprap. Payment will be made at the contract lump sum price for "Grouting Riprap". Price and payment shall constitute full compensation for furnishing all plant, labor, materials, and equipment for grouting the riprap as specified herein and as shown on the drawings.

### 1.3 REFERENCES

The following publications referred to thereafter by basic designation only, form a part of this specification to the extent indicated:

#### AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- |        |   |
|--------|---|
| C 127  | (2001) Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate           |
| C 136  | (1996) Test Method for True Specific Gravity of Refractory Materials by Water Immersion           |
| C 295  | (2003) Petrographic Examination of Aggregates for Concrete  |
| D 5312 | (1992) Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions |

#### NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

- |       |  |
|-------|--|
| HB 44 | (2002) NIST Handbook 44: Specifications, Tolerances, and other Technical Requirements for Weighing and Measuring Devices |
|-------|--|

## 1.4 QUALITY CONTROL

### 1.4.1 General

The Contractor shall establish and maintain quality control for all stone placement operations to ensure compliance with contract requirements, and shall maintain records of the quality control for all construction operations. All information pertaining to inspection and quality control shall be included in the quality control reports to be furnished to the Contracting Officer including, but not limited to, the following:

- (1) Submission of stone samples for quality testing, if from other than a listed source.
- (2) Inspection of materials before they are incorporated into the work to insure compliance with contract requirements.
- (3) Cleanliness of stone.
- (4) Gradation of stone.
- (5) Quantity of stone delivered and placed each day.

### 1.4.2 Reporting

The original and two copies of the records of inspection and tests, as well as the records of corrective action taken, shall be furnished to the Government daily. Format of the report shall be as prescribed in Section 01451, "CONTRACTOR QUALITY CONTROL".

## 1.5 SUBMITTALS

Government approval is required for all submittals with a "GA" designation". The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

### 1.5.1 Stockpiling Plan; GA

If the Contractor stockpiles the riprap onsite, then a stockpiling plan which depicts the stockpiling location and specifies his/her stockpiling and placement techniques shall be submitted for approval.

### 1.5.2 Riprap Gradation; GA

The Contractor shall submit each proposed gradation for the R90 riprap, R200 riprap, and R1000 riprap, respectively, to verify compliance with the requirements specified herein.

**PART 2 PRODUCTS**

**2.1 MATERIALS**

**2.1.1 Riprap**

All riprap stone shall be a hard, durable material as approved by the Contracting Officer. The sources from which the Contractor proposes to obtain the material shall be selected well in advance of the time when the material will be required. Stone shall be of a suitable quality to ensure permanence in the structure and in the climate in which it is to be used. It shall be free from cracks, seams and other defects that would tend unduly to increase its deterioration from natural causes. The inclusion of objectionable quantities of dirt, sand, clay and rock fines will not be permitted. Neither the width nor thickness of any piece shall be less than one third of its length. The faces of individual pieces of stone shall be roughly angular, not rounded in shape. Field stone, rectangular block stone, slabs, and rounded boulders will not be accepted. Gradation shall conform to the following tables:

**GRADATION I**

GRADATION I (R1000 = 2.5 FT THICK; and R1000 = 3.5 FT THICK)	
STONE WEIGHT IN LBS.	PERCENT FINER BY WEIGHT
1000 - 400	100
430 - 200	50
210 - 60	15

**GRADATION II**

GRADATION II (R200 = 1.5 FT THICK)	
STONE WEIGHT IN LBS.	PERCENT FINER BY WEIGHT
200 - 80	100
80 - 40	50
40 - 10	15

### GRADATION III

GRADATION III (R90 = 1.0 FT THICK)	
STONE WEIGHT IN LBS.	PERCENT FINER BY WEIGHT
90 - 40	100
40 - 20	50
20 - 5	15

#### 2.1.1.1 Gradation Testing of Riprap

The Contractor shall perform a gradation test or tests on all riprap at the quarry in accordance with paragraph 2.2. Gradation tests of riprap shall be accomplished at the quarry. Tests by weight shall be made by the Contractor in the presence of the Contracting Officer's Representative. The Contractor shall notify the Contracting Officer not less than 3 working days in advance of each test. In the event of nonavailability of the Government representative, the Contractor shall perform the tests and certify to the Contracting Officer that the stone shipped complies with the specifications. A minimum of one test shall be performed for each 50,000 tons, or fraction thereof, of stone having a 1000 pound top-size and 25,000 tons, or fraction thereof, of stone having less than a 1000 pound top-size, supplied to the Government from each source. Each test sample shall be representative of the stone being shipped and shall consist of not less than 15 tons of R90 and R200, and 50 tons of R1000, and shall be collected in a random manner which will provide a sample which accurately reflects the actual gradation arriving at the jobsite. Percentage determinations shall be made for each stone weight specified in paragraph 2.1.2. Gradation test data shall be recorded on MVN form 602-R "Gradation Test Data Sheet," a copy of which is shown at the end of this section. Failure of the test on the initial sample and on an additional sample will be considered cause for rejection of the quarry and/or quarrying process, and all stone represented by the failed tests shall be set aside and not incorporated into the work. Any additional test required because of the failure of an initial test sample will not be considered as one of the other required tests. If collected by the truckload, each truckload shall be representative of the gradation requirements. Certification and test results will represent stone shipped from the quarry and must be received by the Government representative before the stone is used in the work. The Contractor shall designate on the test from that portion (in tons) of the lot tested which is applicable to this contract. Any deviation from the reported tonnage shall be corrected on a revised gradation test form. The Contracting Officer may direct, under the Contract Clause in Section 00700, entitled "*Inspection of Construction*" (FAR

52.246-12), additional testing of stone furnished to the worksite if the stone appears, by visual inspection, to be of questionable gradation or quality. Refer to paragraph 2.2 for the gradation test method. The Contractor shall provide all necessary screens, scales and other equipment, the operating personnel, and shall grade the sample.

## 2.1.2 Sources and Evaluation Testing

Stone shall be obtained in accordance with the General Provision entitled "STONE SOURCES" (see Section 01100). If the Contractor proposes to furnish stone from a source not listed in "STONE SOURCES", the Government will make such investigations as necessary to determine whether acceptable stone can be produced from the proposed source. Satisfactory service records on work outside the Corps of Engineers will be acceptable. If no such records are available, the Government will make tests to assure the acceptability of the stone. The tests to which the stone may be subjected will include petrographic analysis, specific gravity, abrasion, unit weight, absorption, wetting and drying, freezing and thawing and such other tests as may be considered necessary by the Contracting Officer. The following guidance is provided for use by the Contractor in analyzing a source of stone not listed in "STONE SOURCES". Stone that weighs less than 155 pounds per cubic foot or has more than 2 percent absorption will not be accepted unless other tests and service records show that the stone is satisfactory. The method of test for unit weight and absorption will be ASTM C 127 except that unit weight will be calculated in accordance with note 5 using bulk specific gravity, S.S.D. Samples of stone from a source not listed in "STONE SOURCES" shall be submitted to the Contracting Officer for testing and acceptance prior to delivery of any stone to the site of the work. Samples shall consist of at least seven pieces of stone, roughly cubical in shape and weighing not less than 100 pounds each. All such samples shall be taken by the Contractor under the supervision of the Contracting Officer. The samples shall be shipped at the Contractor's expense to the Engineering Research and Development Center (ERDC), 3909 Halls Ferry Road, Vicksburg, Mississippi, at least 90 days in advance of the time of the placing of the stone is expected to begin. The tests will be conducted in accordance with applicable Corps of Engineers methods of tests and will be performed at the Engineering Research and Development Center (ERDC), Vicksburg, Mississippi. The cost of testing will be borne by the Government.

## 2.2 MVN STANDARD TEST METHOD FOR GRADATION OF STONE

### 2.2.1 General

#### 2.2.1.1 Sample Selection

The most important part of the test and the least precise is the selection of a representative sample. No "standard" can be devised; larger quarry run stone is best sampled at the shot or muck pile by given direction to the loader; small graded stone is best sampled by random selection from the transporting vehicles. If possible, all

parties should take part in the sample selection, and agree before the sample is run, that the sample is representative.

2.2.1.2 Selection of Size for Separation

It is quite possible and accurate to run a gradation using any convenient sizes for separation, without reference to specifications. After the test is plotted on a curve, then the gradation limits may be plotted. Overlapping gradations with this method are no problem. It is usually more convenient, however, to select points from the gradation limit, such as the minimum 50 percent size, the minimum 15 percent size, and one or two others, as separate points.

2.2.2 Procedure

- (1) Select a representative sample (See paragraph 2.2.1.1), weigh and dump on hard stand.
- (2) Select specific sizes (see example) on which to run "individual weight larger than" test. Procedure is similar to the standard aggregate gradation test for "individual weight retained".
- (3) Determine the largest size stone in the sample. (100 percent size)
- (4) Separate by "size larger than" the selected weights, starting with the larger sizes. Use reference stones, with identified weights, for visual comparison in separating the obviously "larger than" stones. Stones that appear close to the specific weight must be individually weighed to determine size grouping. Weigh each size group, either individually or cumulatively.
- (5) Subparagraph (4) will result in "individual weight retained" figures. Calculate individual percent retained (heavier than) and cumulative percent retained and cumulative percent passing (lighter than). Plot percent passing, along with the specification limits on ENG Form 4055 and fill-in and document test on MVN Form 602-R.

EXAMPLE GRADATION	
SPECIFICATIONS	
STONE WEIGHT IN LBS.	PERCENT FINER BY WEIGHT
400 - 160	100
160 - 80	50
80 - 30	15

EXAMPLE WORKSHEET				
STONE WEIGHT IN LBS.	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL % RETAINED	CUMULATIVE % RETAINED	CUMULATIVE % PASSING
400	0	0	0	100
160	9,600	30	30	70
80	11,200	35	65	35
30	8,000	25	90	10
Less Than 30	3,200	10	100	0

TOTAL	32,000 lbs.
-------	-------------

NOTE: Largest stone 251 lbs.

2.3 GROUT

Grout for riprap shall be composed of cement, sand, and water. Unless otherwise specified by the Contracting Officer the proportion by weight per cubic yard of grout is as follows:

Grout Materials	Wt. (lbs/cy)
Type I Portland Cement	880
Bentonite	30
Sand	1760
Water	720

**PART 3 EXECUTION**

3.1 SITE PREPARATION

All deteriorated structures, debris, vegetation and abandoned piling which lie within the template of the channel or interfere with construction shall be removed and disposed of in accordance with Section 01352 of these specifications. Areas on which filter layers and riprap are to be placed shall be graded and/or dressed to conform to cross sections shown on the contract drawings within an allowable tolerance of plus 2 inches and minus 4 inches from the theoretical lines and grades. Where such areas are below the allowable minus tolerance limit they shall be brought to grade by fill with earth similar to the adjacent material and then compacted to a density equal to the adjacent in place material. Immediately prior to placing the filter

layer, the prepared base will be inspected by the Contracting Officer and no material shall be placed thereon until that area has been approved.

### 3.2 FILTER LAYER PLACEMENT

Filter layers, composed of separator geotextile, R90 riprap, or R90 riprap in combination with separator geotextile shall be placed on the prepared base as described below, in accordance with the details shown on the contract drawings, and within the limits either shown on the contract drawings or staked in the field, to form a backing for the stone protection. Installation of separator shall be as specified in Section 02078 SEPARATOR GEOTEXTILE. Crushed stone shall be spread uniformly on the separator geotextile to the lines and grades as indicated on the contract drawings and in such manner as to avoid damage to the separator geotextile. Placing of crushed stone by methods, which tend to segregate the particle sizes within the filter layer will not be permitted. Any damage to the surface of the separator geotextile during placement of crushed stone shall be repaired before proceeding with the work. Compaction of material placed on the separator geotextile will not be required, but shall be finished to present a reasonably even surface, free from mounds or windrows.

### 3.3 RIPRAP PLACEMENT

Riprap shall be placed on the filter layers specified in paragraph 3.2 within the limits shown on the contract drawings. All riprap shall be placed by clamshell bucket, stone grab, or by some other method approved by the Contracting Officer that will not drop or cast the stone, but will release the stone in such a manner that they will be properly interlocked with the underlying or adjacent stones to resist displacement by wave action and provide a uniform and compact section that is a reasonably well-graded mass of rock with the minimum practicable percentage of voids and within the specified tolerance to the lines and grades shown on the drawings. Each stone shall be firmly set and well supported by underlying and adjacent stone. A tolerance of plus 4 inches or minus 2 inches from the slope lines and grades shown on the drawings will be allowed in the finished surface of the R90 and R200 riprap, and plus or minus 6 inches for R1000, except that either extreme of such tolerance shall not be continuous over an area greater than 200 square feet. The average tolerance of the entire job shall have no more than 50 percent of the tolerance specified above. No stone shall be dropped through air from a height greater than 3 feet and stones heavier than 500 pounds shall not be dropped from a height greater than 2 feet. The larger stones shall be well distributed and the entire mass of stones in their final position shall be graded to conform to the gradation specified in paragraph 2.1.2. The finished stone shall be free from objectionable pockets of small stones and clusters of larger stones. Placing riprap in layers will not be permitted. Placing riprap by dumping into chutes or by similar methods likely to cause segregation of the various sizes will not be permitted. Placing riprap by dumping it at the top of the slope and pushing it down the slope will not be permitted. No equipment shall be operated directly on the completed stone protection system. The desired distribution

of the various sizes of stones throughout the mass shall be obtained by selective loading of the material at the quarry or other source; by controlled dumping of successive loads during final placing, or by other methods of placement, which will produce the specified results. All dump trucks used in placing the riprap shall be equipped with bottom-hinged tailgates. The gate releasing mechanism shall be arranged so that it may be operated only from, at, or near the front of the truck. Rearranging of individual stones will be required to the extent necessary to obtain a reasonably well-graded distribution of stone sizes as specified above. The Contractor shall maintain the stone until accepted and any material displaced prior to acceptance and due to the Contractor's negligence shall be replaced at his expense and to the slopes, lines and grades shown on the contract drawings. The Contractor shall relocate any unsatisfactorily placed stone within the specified limits for payment or the weight of the stone so misplaced will be estimated by the Contracting Officer's Representative and the payment deductions shall be determined from this estimate and the bid unit price of the stone.

### 3.4 GROUTING PLACEMENT

#### 3.4.1 Placement

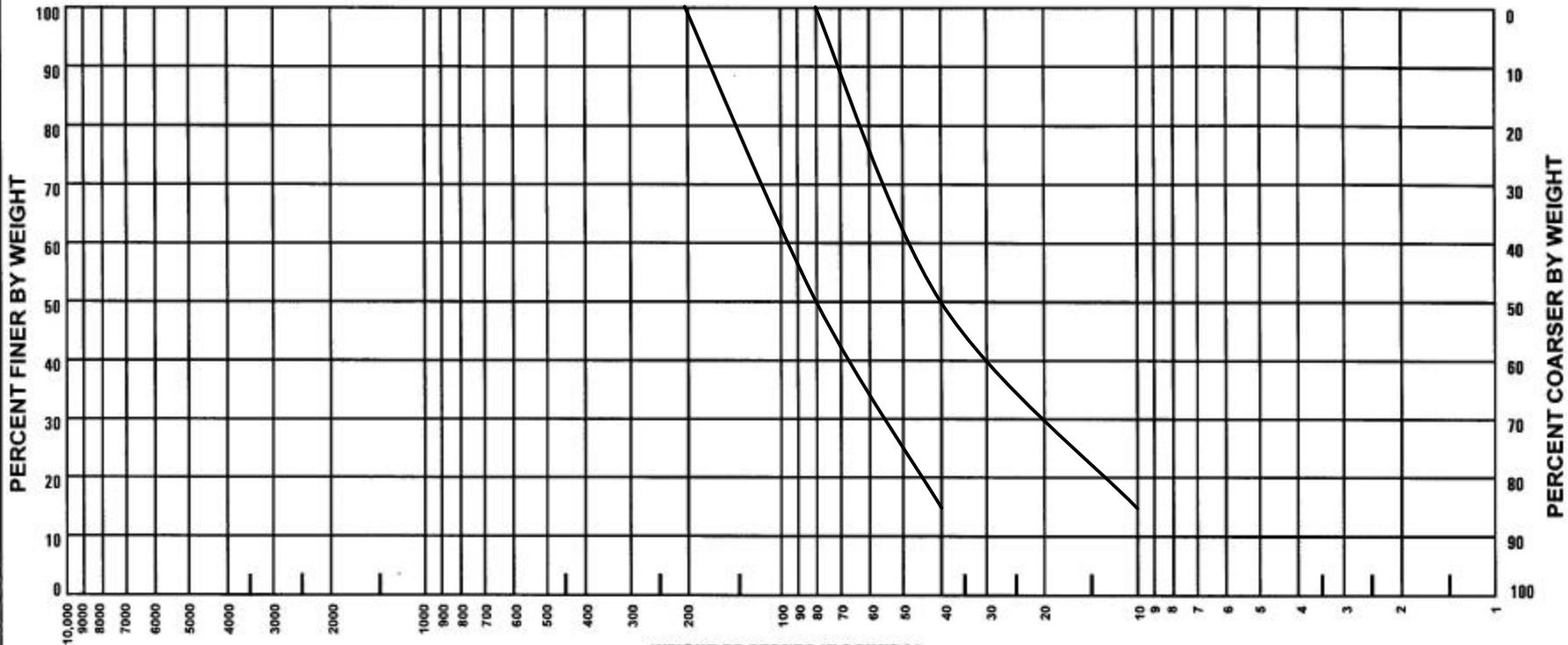
Prior to grouting, the stone and crevices shall be thoroughly cleaned by means of a high pressure water jet. Grout for riprap shall be placed by tremie method in order to prevent dispersing of the grout mixture. The grout shall be mixed in a concrete mixer to produce a mixture having a consistency which will permit gravity flow into the interstices of the riprap with the help of limited spading and brooming. The grout shall be used in the work within a period of 15 minutes after mixing. The entire grouting operation shall be continuous, without interruption, from start to finish. Retampering of grout will not be permitted. Riprap shall not be grouted when the ambient temperature is below 40 degrees F or above 85 degrees F unless approved by the Contracting Officer in writing; nor when, the grout, without special protection is likely to be subjected to freezing temperatures before final set has occurred. All surfaces of riprap shall be wetted prior to grouting. The riprap shall be grouted in successive longitudinal strips, approximately 10 feet in width, commencing at the lowest strip and working up the slope. Each batch of grout shall be dumped on the upper portion of the ungrouted part of the strip and worked into the voids between the stones and down the slope. Grout shall be brought to the place of final deposit by approved means, and in no case shall grout be permitted to flow on the riprapped surface a distance in excess of 10 feet. After completion of any strip as specified, no workman, nor any load, the grout shall be cured by keeping the surface continuously wet for a period of not less than 7 days. No workman, nor any load shall be allowed on the completed strip during the curing period.

#### 3.4.2 Maintenance

The Contractor shall maintain the grouted riprap until accepted, and any material displaced prior to acceptance and due to the Contractor's negligence shall be replaced at this expense and to the lines and grades shown on the contract drawings.



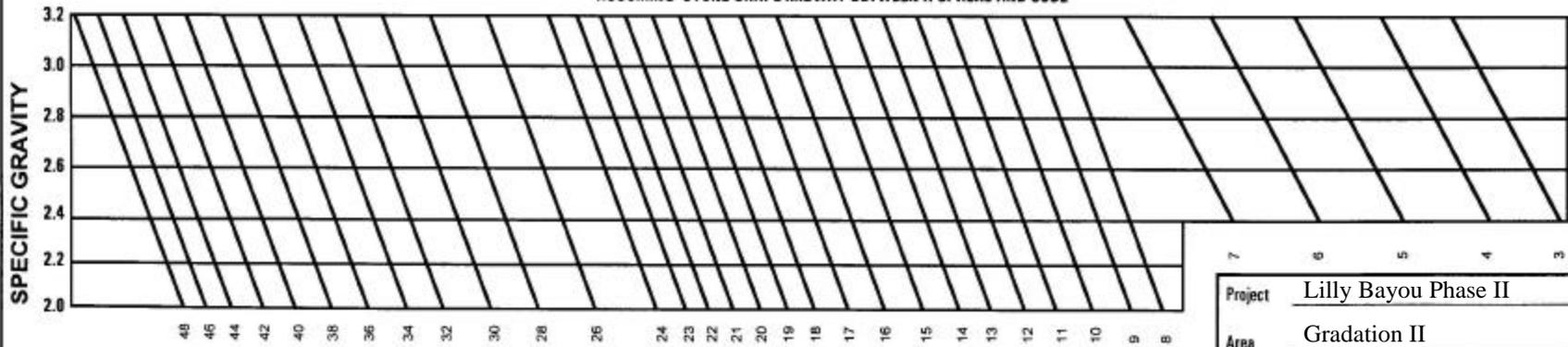




WEIGHT OF STONES IN POUNDS\*

SPECIFIC GRAVITY OF ROCK... 2.5 R200 Layer Thickness = 1.5 ft

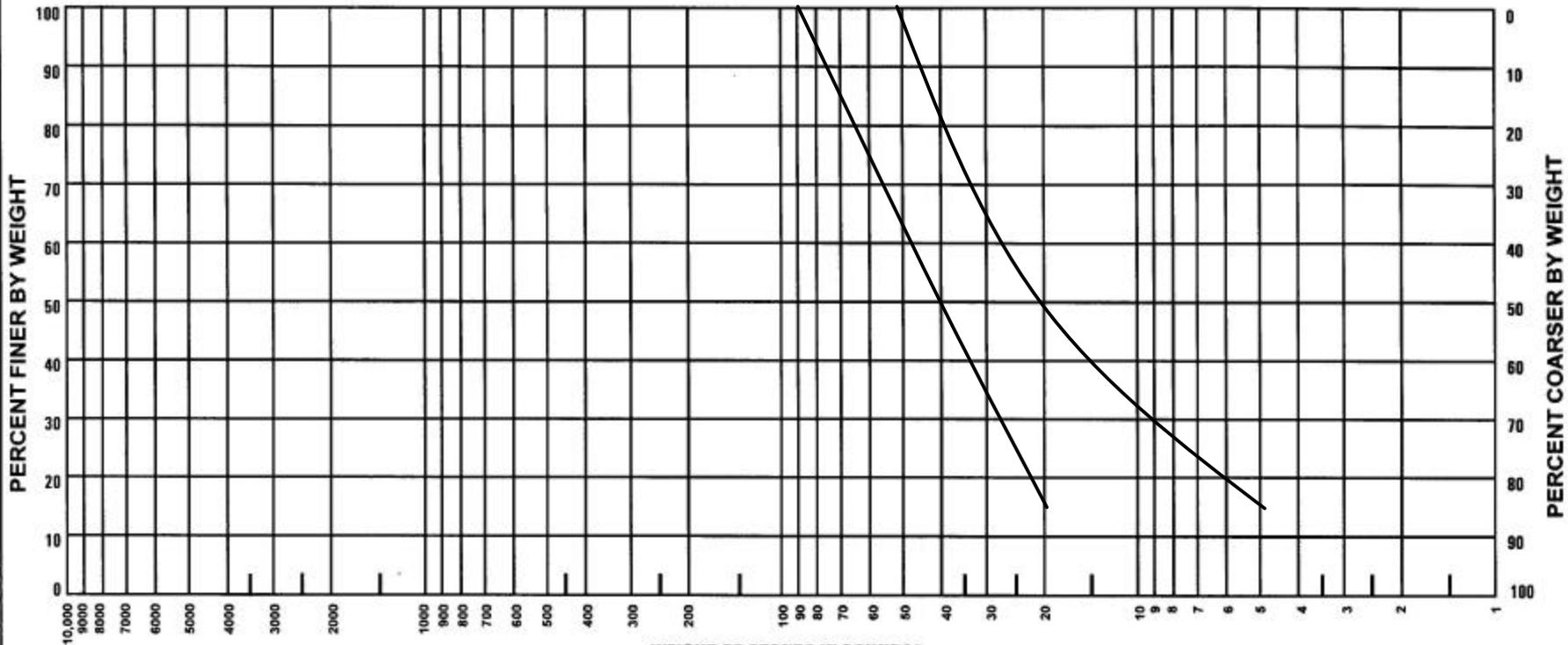
\*ASSUMING STONE SHAPE MIDWAY BETWEEN A SPHERE AND CUBE



Solicitation No. W912P8-04-B-0048 **SIZE OF STONE IN INCHES**  
 Amendment No. 0003  
 Page 28 of 37

Project	Lilly Bayou Phase II
Area	Gradation II
Date	10/6/03

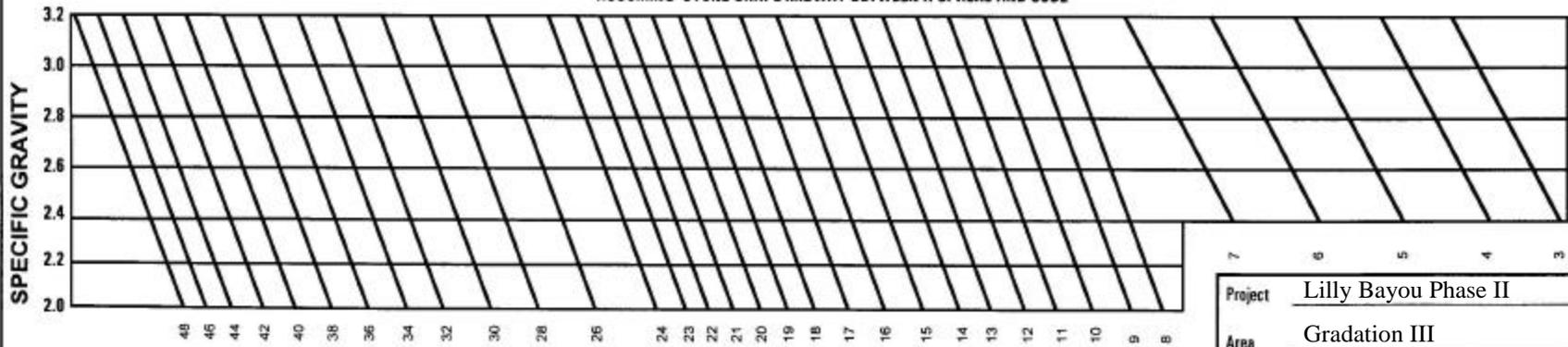
**RIPRAP GRADUATION CURVES**



WEIGHT OF STONES IN POUNDS\*

SPECIFIC GRAVITY OF ROCK... 2.5 R90 Layer Thickness = 1.0 ft

\*ASSUMING STONE SHAPE MIDWAY BETWEEN A SPHERE AND CUBE



Solicitation No. W912P8-04-B-0048  
 Amendment No. 0003  
 Page 29 of 37

Project	Lilly Bayou Phase II
Area	Gradation III
Date	10/6/03

**RIPRAP GRADUATION CURVES**

Section Table of Contents

SECTION 02720 - CORRUGATED METAL PIPE

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<b>PART 1 GENERAL .....</b>	<b>1</b>
1.1. SCOPE .....	1
1.2. REFERENCES .....	1
1.3. MEASUREMENT AND PAYMENT .....	2
1.4. QUALITY CONTROL .....	3
1.4.1 General.....	3
1.4.2 Reporting.....	3
1.5. SUBMITTALS .....	3
1.5.1 Shop Drawings; FIO .....	3
1.5.2 Samples; FIO.....	3
1.5.3 Certificates; FIO.....	3
1.5.4 Statements; GA .....	4
<b>PART 2 PRODUCTS.....</b>	<b>4</b>
2.1. MATERIALS AND WORKMANSHIP .....	4
2.1.1 Corrugated Metal Pipe.....	4
2.1.2 Flexible Plastic Gaskets.....	4
2.1.3 Coupling Bands .....	4
2.1.3.1 Criteria.....	5
2.1.4 Plastic Filter Cloth.....	5
<b>PART 3 EXECUTION.....</b>	<b>5</b>
3.1. LAYING AND JOINTING PIPE .....	5
3.1.1 Criteria .....	5
3.1.2 Pipe Joints .....	6
3.1.3 Base Preparation.....	6
3.1.4 Backfill and Compaction .....	6

## SECTION 02720 - CORRUGATED METAL PIPE

### PART 1 GENERAL

#### 1.1 SCOPE

The work covered by this section consists of furnishing all plant, labor, materials and supplies and performing all operations in connection with installing all corrugated metal pipe beneath the new access road at the locations shown on the drawings. This work shall be accomplished in complete and strict accordance with the specifications and the applicable drawings, and shall be subject to the terms and conditions of the contract.

#### 1.2 REFERENCES

The following publications of the issues listed below, but referred thereafter by basic designation only, form a part of this specification to the extent indicated by the references thereto:

#### AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARDS.

ASTM A 153	(2003) Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 760	(2001a) Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains
ASTM A 798	(2001) Installing Factory-Made Corrugated Steel Pipe for Sewers and Other Applications
ASTM C 443	(2002) Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
ASTM D 1056	(2000) Flexible Cellular Materials - Sponge or Expanded Rubber

#### AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS (AASHTO).

M 218	(2003) Steel Sheet, Zinc-Coated (Galvanized), for Corrugated Steel Pipe
M245	(2000) Corrugated Steel Pipe, Polymer Precoated, for Sewers and Drains

M246 (2000) Steel Sheet, Metallic-Coated and Polymer  
Precoated, for Corrugated Steel Pipe

LOUISIANA, DEPARTMENT OF TRANSPORTATION AND  
DEVELOPMENT (LDOTD) TESTING PROCEDURES MANUAL (TMP),  
VOLUME 2

TR 418 (1998)Moisture Density Relationships

LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES  
(LSSRB) 2000 EDITION, STATE OF LOUISIANA, DEPARTMENT OF  
TRANSPORTATION AND DEVELOPMENT (LDOTD).

701 Culverts and Storm Drains

701.05 Laying Pipe

701.06 Joining Pipe

1007.07 Polymer Coated Corrugated Steel or Aluminum Pipe  
and Pipe Arch

1007.09 Pipe Joints

1019.01 Geotextile Fabric

### 1.3 MEASUREMENT AND PAYMENT

The 24-inch, 36-inch, and 72-inch corrugated metal pipe installed in conjunction with the access road shall be measured for payment by the linear foot of pipe satisfactorily installed. Payment will be made at the applicable contract unit price for "24-Inch Corrugated Metal Pipe", "36-Inch Corrugated Metal Pipe", and "72-Inch Corrugated Metal Pipe ". Price and payment shall constitute full compensation for furnishing all plant, labor, materials, including but not limited to coupling bands, gaskets, geotextile fabric, base preparation, backfill, laying, placement and jointing, tests, and any other incidental work necessary for the proper installation of the pipe for the access road as specified herein, and as shown on the drawings. Payment will not be made for replacement of any items that were damaged due to Contractor fault or negligence. Measurement and payment for corrugated metal pipe associated with the disposal embankment drainage shall be as specified in Section 02321.

## 1.4 QUALITY CONTROL

### 1.4.1 General

The Contractor shall establish and maintain quality control for excavation and backfill, and installing the new pipe. The Contractor shall maintain records of his quality control for all construction operations and checking materials to be used including but not limited to the following:

(1) Checking construction operations and certifying compliance with applicable sections of the specifications.

(2) Checking materials to be used in installing the corrugated metal drain pipe, including plastic sealant. The Contractor shall certify that all materials are in compliance with applicable regulations.

### 1.4.2 Reporting

The original and two copies of these records and tests, as well as the records of corrective action taken, shall be furnished the Government daily. Format of report shall be as prescribed in Section 01451, "CONTRACTOR QUALITY CONTROL".

## 1.5 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The Contractor shall submit the following for approval by the Contracting Officer. Submittals shall be according to Section 01330 "SUBMITTAL PROCEDURES":

### 1.5.1 Shop Drawings; FIO

Complete detailed shop drawings showing the installation and backfilling procedures for the filter cloth and pipe shall be submitted for review.

### 1.5.2 Samples; FIO

Samples of the plastic filter cloth shall be submitted before starting the work.

### 1.5.3 Certificates; FIO

Certifications from the manufacturers attesting that materials meet specification requirements shall be submitted. The Contractor shall submit certificates showing the sleeve gaskets and plastic sealant complies with the contract specifications. The Contractor shall furnish the Contracting Officer a certificate showing the corrugated

metal pipe and connecting bands furnished are as specified. The certificate shall include as a minimum the following:

- (1) Test results, including chemical compositions, for the sheet manufacturer.
- (2) Test data from the producer.
- (3) Specified sheet thickness.
- (4) Specified coating thickness.
- (5) Hydrostatic Tests. The Type II pipe joint must pass the 5 psi- hydrostatic pressure test before being approved, in accordance with LSSRB Section 1007.09 (g).

#### 1.5.4 Statements; GA

The methods and equipment proposed for the excavation, installation, protection, completion, and backfilling of the corrugated metal pipe.

## **PART 2 PRODUCTS**

### 2.1 MATERIALS AND WORKMANSHIP

#### 2.1.1 Corrugated Metal Pipe

The corrugated metal pipe shall be galvanized steel, polymer coated pipe, fabricated in accordance with ASTM A 760 and AASHTO designations M-218, M-245 and M-246. The corrugated metal pipe shall be Type II Classification. The polymer coating shall be a minimum of 0.01 inches on the interior and exterior surfaces. The zinc coating shall be applied in accordance with the requirements of AASHTO specification M 218. The polymer coating shall be applied in accordance with the requirements of AASHTO specification M 245 and M 246. The corrugations for the culvert shall be 2-2/3" by 1/2", as specified in Table 4 of ASTM A 885. The individual lengths of culvert segments required shall be determined by the Contractor to provide the overall length of culvert specified. Each pipe segment shall be handled with lifting lugs, which have been attached to the pipe by the pipe manufacturer.

#### 2.1.2 Flexible Plastic Gaskets

Flexible plastic gaskets shall conform to LSSRB 1007.09 (c).

#### 2.1.3 Coupling Bands

Metal bands shall conform to LSSRB 1007.09 (a). The coating shall be the same as used on the conduit.

#### 2.1.3.1 Criteria

(1) Circumferential rods, lugs, bolts, and nuts shall be hot-dip galvanized after fabrication in accordance with ASTM A 153. The bolts shall be torqued to a minimum of 40 foot-pounds. Each bolt shall be checked for torque in the presence of the Contracting Officer prior to backfilling.

(2) After installation of connecting bands, the entire exterior of each joint assembly, including bands, rods, lugs, bolts and nuts shall be given the same polymer coating as that used for fabrication of the pipe.

#### 2.1.4 Plastic Filter Cloth

The fabric shall be so constructed that yarns will retain their relative position with respect to each other. Edges of fabric shall be finished to prevent the outer yarn from pulling away from the fabric. Seams providing 50%-80% of the fabric strength will be permitted. Fibers of other composition may be woven into the fabric for reinforcing purposes. Durability of these fibers must be equivalent to that of the fabric. The fabric shall conform to the requirements of LSSRB Section 1019.01(a), and (b) (1) Class D usage.

All other material shall be as indicated on the drawings or as specified in other sections of these specifications.

### **PART 3 EXECUTION**

#### 3.1 LAYING AND JOINTING PIPE

##### 3.1.1 Criteria

(1) All polymer precoated corrugated metal pipe to be installed beneath the new haul access road shall be in accordance with LSSRB Sections 701 and 1007.07. At the time of installation, the pipe shall be in good condition, free from dents or other defects. Pipe shall not be dropped to the ground, or be allowed to roll free down slopes. Any section of pipe that is damaged or becomes damaged in the course of the Contractor's operations, or that is not to line and grade shall be removed and replaced or re-laid, as required, at no cost to the Government.

(2) The pipe shall be laid with ends fully and closely joined and true to grade. The coupling bands shall lap an equal portion on each section joined, and the bands shall be drawn up tight to insure a watertight joint. Ends of adjacent pipe sections shall be spaced so that the corrugations of the coupling bands mesh with those of the pipe.

(3) Coupling band bolts and damaged areas of the coupling bands and pipes shall be recoated prior to backfilling.

(4) Laying shall be with separate sections joined firmly together, with the outside laps of circumferential joints pointing upstream, and with longitudinal laps on the sides. Part paved pipe shall be installed so that the centerline of bituminous pavement in the pipe, indicated by suitable markings on the top at each end of the pipe sections, coincides with the specified alignment of pipe.

(5) Pipe shall have a painted or otherwise applied label inside the pipe indicating sheet thickness of the pipe. Any unprotected metal in the joints shall be given the same polymer coating as that used for fabrication of the pipe. Interior coating shall be protected against damage from insertion or removal of struts or tie wires.

(6) Lifting lugs shall be used to facilitate moving pipe without damage to exterior or interior coatings. During installation, pipe or pipe arch shall be handled with care to preclude damage to the bituminous coating. Prior to placing of backfill, damaged areas of coupling bands and pipe shall be recoated with the same polymer coating used for fabrication of the pipe. Pipe whose coating has been damaged to such an extent that satisfactory field repairs cannot be made, shall be removed and replaced. Vertical elongation, where indicated, shall be accomplished by factory elongation. Suitable markings or properly placed lifting lugs shall be provided to ensure placement of factory elongated pipe in a vertical plane.

### 3.1.2 Pipe Joints

The pipe placed beneath the access road shall have a Type 2 pipe joint conforming to LSSRB Sections 701.06 (c) (2) and 1007.09. The joint shall be wrapped with geotextile fabric for a minimum of 12 inches wide on each side of the connecting band. The ends of the fabric shall be lapped a minimum of 10 inches. The edges and ends of the fabric shall be suitably secured for the entire circumference of the pipe.

### 3.1.3 Base Preparation

The bottom of the ditch to receive the pipe shall be graded to conform to the bottom and haunches of the pipe, compacted in such a manner as to form a firm and uniform surface. Where wet or otherwise unstable soil incapable of properly supporting the pipe, as determined by the Contracting Officer, is encountered in the bottom of the ditch, such material shall be removed to the depth required and replaced to the proper grade with sand or crushed stone, and compacted.

### 3.1.4 Backfill and Compaction

All backfill required to place the pipe shall conform to the applicable provisions specified herein, and in Section 02320. The backfill for the pipe shall be granular material conforming to the following gradation:

<u>U.S. Sieve</u>	<u>Percent Passing by Weight</u>
1/2"	100
No. 10	75 –100
No. 200	0 –10

The backfill material shall be brought up evenly on both sides of the pipe for its full length in layers not to exceed 12 inches in thickness. Each layer shall be compacted with hand-powered tampers to a density of 95% Standard Proctor before the next layer is placed. Density shall be determined in accordance with DOTD TR 418. Backfill material shall be thoroughly compacted below the haunches and 1 foot above the top of the pipe. Exposed slopes at the pipe ends shall be covered by at least 12 inches (compacted thickness) of cohesive plastic soil. Upon completion of installing the pipe, the access road shall be surfaced in accordance with Section 02731.