Appendix H. Opinion of Probable Construction Cost Memorandum

To	Coastal Protection and Restoration Authority of Louisiana (CPRA) Management and Staff		
From	Bob Beduhn, PE, HDR Mid-Barataria Sediment Diversion (MBSD) Project Engineer		
CC	Neil McLellan, Project Manager		
Date	July 8, 2014	Job No.	BA 153-01

RE: Base Design 30% Opinion of Probable Construction Cost

The purpose of this document is to record opinions of probable construction cost details for design features shown in 30% base design drawings. The proposed Mid-Barataria Sediment Diversion (MBSD) includes gated control structures, conveyance channel, and associated features for proposed sediment diversion system from the Mississippi River to Barataria Basin.

Base Design

An Opinion of Probable Construction Cost (OPCC) was developed for the base design of the MBSD. The base design is for a diversion complex with an approximate peak flow of 75,000 cubic feet per second (cfs) design; 300-foot bottom width channel; three open-channel inlets with 3 radial gates at the control structure; and, 7 radial gates at the back structure based on 30% base design drawings dated March 28, 2014. This base design is identified in subsequent value engineering references as Version 1.1.

The following documents were available for development of the 30% base design estimate:

1. Civil Plans 30%
2. Structural Plans 30%
3. Estimates developed by design task leads
4. Heavy Construction Systems Specialists HCSS estimating software 1401 for selected unique items.

Costs are current for the fourth quarter (Q4) of 2013. Unit costs and lump sum are bid-level pricing of a bidding contractor and include within each item of work labor; construction equipment; permanent and expendable materials; contractor overhead; and contractor profit. Derivation of costs used will be addressed further with the basis for group and/or individual items.

The following is quantity and cost basis for Version 1.1 base design estimate dated March 28, 2014, with subsequent revisions based on additional design analysis and changes through June 22, 2014.

Basis of Cost

1.2.00 Clear and Grub

This item includes costs to clear and grub the limits of construction. The quantity was developed by the design memorandum dated December 3, 2013. The cost is from this memorandum and based on best judgment for work included.

1.2.00 Contractor Haul Road

This item includes contractor constructed temporary roads and entrances designed by the contractor for access to the work and materials delivery. Roads would be positioned and permanently utilized for landside access along the conveyance complex. The quantities are conceptual from work concept as shown by design memorandum of December 3, 2013. The cost is best judgment for unit prices for work quantified and lump sum items.

1.3.00 Contractor Laydown

This item includes contractor temporary construction for frequently accessed areas such as offices and limited material storage. It is assumed to be a 20-acre, on-site tract developed and surfaced with aggregate for the mentioned purposes. The contractor is expected to fence the area for security and have adequate fences and gates.

- Item 1.3.03, Utility, includes bringing in temporary electric and developing a water supply for construction use in compaction, dust control, concrete missing, and related. This item includes work detailed by design memorandum of December 2, 2013, and concept areas shown on Sheet 46 of 30% base design drawings dated February 2014.

1.4.00 Permanent Utility

This item includes costs of extending municipal water to control structures at each end of the conveyance channel. It also includes costs of package sewage pump stations and a pressure force main to the Ironton Wastewater Treatment Facility. This item is based on 30% base design level. Electric service includes cost to develop electric drops at required locations along the diversion complex. Concept quantities and pricing are based on design memorandum of December 3, 2013.

1.5.00 Site Work

These items include costs for permanent fence and entrance gates to keep personnel and animals from unwanted entrance into the project site along the length of canal and security fencing for the structures.

- Item 1.5.01, Removals Levee to Levee, is the cost of removal of structures and obstructions, including existing levees, within the construction limits as required to construct the conveyance complex. This may include rip-rap, sheet pile, and other shoreline protection.
- Item 1.5.04, Storm Water Pollution Prevention Plan (SWPPP), includes cost of storm water pollution and prevention measures for the estimated project duration of 4 years. This includes silt fences, detention basins, temporary seeding installation, and maintenance. It also includes final disposition of installed features at the finish of the MBSD. Concept quantities and pricing are based on design memorandum of December 3, 2013.

1.6.00 Earthwork

Final quantities associated with earthwork pay items have been revised subsequently in accordance with final design edits.

- Item 1.6.01, Sand Fill West of Belle Chasse Highway (LA 23), 2 feet thick. Quantity and pricing from design memorandum of December 3, 2013.
- Item1.6.02, Temporary Setback Levee. Quantity from design memorandum of December 3, 2013, and cost is that used for imported clay levee embankment.

- Item 1.6.03, Mechanical Excavation of Pilot Channel. Quantity and scope from design memorandum of December 3, 2013. Pricing adjusted from memorandum to a lessor cost based on best conceptual estimate of work included.
- Item 1.6.04, Hydraulic Excavation of Channel. Quantity from design memorandum of December 3, 2013, and updated by spreadsheet of quantities June 2, 2014. Pricing based on recent bid results.
- Item 1.6.05, River Dredging. Quantity based on design memorandum of December 3, 2013, and pricing at high cost due to small quantity and work in the Mississippi River.
- Item 1.6.06, Levee Stabilized Clay. This item includes levee work quantified by design memorandum of December 3, 2013, and is cost of imported clay to build impervious levee, including portions of the stability berms within the levee footprint. Pricing adjusted from memorandum to a lower cost reflecting recent bid activity for similar work in area.
- Item 1.6.07, Surcharge Place and Partially Remove to Other. Quantity is based on design furnished spreadsheet of quantities March 28, 2014, revised June 2, 2014, which includes Preload Embankment Construction Grade Schedule required for Surcharge Embankment in the areas of wick drain placement. This embankment is placed within channel stations 44+00 to 145+00, left and right. Some material will be removed subsequently by mechanical grading and hydraulic dredging; whereas, some material will remain in place as stability berm embankment.
- Item 1.6.08, Additional Levee Embankment for Settlement. This item includes an allowance quantity to add material to any levees that have settled over time after the levee has been built to line and grade. This item includes imported clay material.
- Item 1.6.09, Control Structure Embankment. This item includes allowance quantity for placement of levee fill adjacent to the MBSD.

1.7.00 Structural and Geotechnical Structures

Final quantities associated with earthwork pay items have been revised subsequently in accordance with final spreadsheet edits dated June 2, 2014.

- Item 1.7.01 and 1.7.02, Cut-Off Steel Sheet Pile Walls and Insitu Mixed Slurry. Quantity based on spreadsheet from design dated March 28, 2014, which included piling for the Channel Guide Levee Seepage Cut-off and slurry cut-off wall. Unit cost pricing developed in detail by HCSS Estimate 1401A, which includes cut-off wall estimates.
- Item 1.7.03, Miscellaneous Sheeting and Shoring. This item includes an allowance for connections to reinforced concrete structures or other not identified construction.
- Item 1.7.04, Wick Drains. Quantity based on design furnished spreadsheet of quantities of March 28, 2014, which includes a revised Wick Drain Schedule. Drains are placed from channel stations 66+00 to 145+00 and both left and right. Spacing ranges from 6 feet to 8 feet center to center (C-C) with an estimated wick drain length of 60 feet. Pricing is based on probable subcontract cost reflecting the large number and total length.
- Item 1.7.05, Granular Blanket at Wick Drains. This item includes a 2-foot granular blanket required for wick and strip drain installation. This item is for location specific better quality granular filter material applied in addition to the dredge sand working layer quantity included in Item 1.6.01.
- Item 1.7.06, Relief Well. Based on direction of email dated February 5, 2014, and priced from best data conceptual.

- Item 1.7.07 through 1.7.09, Geotextile Fabric. Material type and quantities revised in accordance with final geotechnical design analysis and guidance and identified in spreadsheet dated June 2, 2014.
- Item 1.7.10, Perforated Strip Drain. This item includes temporary perforated polyvinyl chloride (PVC) drain pipe 10 inches as shown by mark-up Sheet 52 and 53, note 4, as included with email dated January 22, 2014. Alternate allows strip drains installed in granular filter bed attached to the wick drains. This system provides underdrains along existing ditches for unwatering insitu soils. Unit cost pricing is best judgment and includes install and decommission.

1.8.00 Revetment

- Item 1.8.01, Articulated Concrete Block (ACB) Armor Channel. This item includes ACB for stability berms and levee foreslopes, including armor transition section at top of trapezoidal channel slope, from 42+50 to 125+00. Cost included ACB with anchors, 2 layers of fabric, 12 inches of sand, and 12 inches of stone. Cost estimated using HCSS Estimate 1401A, Item 5010. Drawings and details in accordance with civil drawings. Work could be done in wet or dry conditions depending on contractor equipment and material delivery.
- Item 1.8.02, Armor Trap Channel Slopes. This item includes stone armoring of conveyance channel 42+50 to 125+00 and 122-foot slope lengths each side at a depth of 4 feet, which represents average depth of bank armor including launching toe. Cost estimates are shown in HCSS Estimate 1401A, Item 5100. Work is assumed to be completed in wet conditions with all material delivery by barge. Cost includes filter fabric below the stone with a factor of 1.6 tons per cubic yard for purchase of stone. Section is shown on civil drawings.
- Item 1.8.03, Sand Armor Channel Slopes. This item includes bank slope sand armoring (insitu dispersive clay filter layer) as shown in civil drawings. Material is assumed to be placed by hydraulic dredge with some finish underwater grading. Quantity used based on design memorandum of December 3, 2013.

1.9.00 Other Sitework

- Item 1.9.01, Site Drainage. This item includes permanent drainage structures and piping for site water control.
- Item 1.902, Aggregate Surface Roadways. This item includes final grading and surfacing of permanent top of levee roads and other maintenance roads. General grading assumed elsewhere.
- Item 1.9.03, Turf and Maintenance. This item includes site permanent seeding and maintenance through end of MBSD.
- Item 1.9.04, Security Fencing. This item includes fencing and gates to secure control structures from intrusion.
- Item 1.9.05, Instrumentation. This item is for piezometers, inclinometers, and other monitoring equipment for the construction period and any that will remain at completion of work.

1.10.00 Existing Utility Relocation

Allowances for known utilities requiring relocation are based on design memorandum of December 3, 2013.

2.1.00 Revetment Inlet Channel (in the dry)

- Item 2.1.01, System Extending into Revetment. This item includes upstream and downstream coffer cells perpendicular to river flow. There are areas within the river that will remain as permanent structure and areas landside of the MR&T Levee and toward the diversion structure that are temporary for in-the-dry construction. Layout is shown in civil drawings. Coffer cells quantities developed from layout and tables of Arbed (ArcelorMittal since 2007) Catalogue edition 2003. All sheet pile figured to a toe elevation of -67 to -70 feet and top elevation of +22 feet for in-the-dry construction. Sheet pile figured to be installed with top of sheets at minimum of +22 feet and if left as permanent pile, with top at height shown in profile. Piling section priced is ARBED AS 500-12.7. Take-off is based on total area of sheet pile installed including the closure arcs.

  Cells are required to be filled with material between natural ground line and top of cell. Material was not differentiated. Suggest a granular fill at lower area and capped with a larger stone to prevent scour. Pile in river with top below water levels cut off in wet to grade of profile. At this level of estimate, did not include salvage value of cut-off sheet pile and did not include cost of load-out, shipping, and other miscellaneous expenses. Differential costs assumed to be equal.

- Item 2.1.02, Coffer Cells Tremie Concrete Cap. Quantity includes tremied (that is, underwater) or placed (that is, above water) concrete coffer cell caps at finish grade elevation with base thickness assumed to be 5 feet. Coffer cells assumed to include Nelson studs that would anchor into permanent concrete cap for bracing purposes where coffer cells are to remain in place.

- Item 2.1.03, Controlled Flood System at Diversion Structure. Allowance included for a means to flood the un-watered geostructural coffer cells in the event of forecasted overtopping of the coffer cells. Concept would include a stop-log structure that could be pulled and concrete sluiceway to allow water into area with minimal damage from rushing water.

- Item 2.1.04, Armor Inlet Channel Slopes. Quantity from design memorandum of December 3, 2013. This item includes heavy armor or rip-rap to prevent scour along the walls of the coffer cells extending into the river. Pricing increased from that of the previously referenced memorandum to reflect cost of large armor. Stone will be placed in-the-wet and operation to include grading of bottom, possible fabric under stone or filter stone and then placing direct from barge to final position.

- Item 2.1.05, Dewatering Approach Structure. This item includes costs to dewater the approach cofferdam to allow construction in-the-dry of revetment inlet channel. Includes deep wells every third coffer cell for a total of 32 deep wells. Pumps are to run for 24 months and include cost of generator power supply to electric pumps. Outflow is assumed to discharge to the river without treatment.

- Item 2.1.06, Grout Stabilized Permanent Infill. Quantity based on stabilizing critical infill sections of coffer cells as required, improving infill stability where required. Pricing is from estimate 1421 dated June 15, 2014.

- Item 2.1.07, Rock Base under Structure. Quantity based on channel width of 160 feet and total length of 1,120 feet. Take-off depth of 5 feet was assumed. Drawing with mark-up shows depth of 5 feet dated January 22, 2013. Cost is based on HCSS Estimate 1401A, Item 6110.

- Item 2.1.08, Bearing Pile Approach. Subsequent geotechnical analysis concluded that neither compression nor tension piles were required for these control structures.

- Item 2.1.09, Concrete Approach Structure. Quantities from take-off of the 30% Structure Drawings. Pricing from HCSS Estimate 1401A, Item 4010.

- Item 2.1.10, Reinforcing Approach Structure. Quantity developed from concrete yardage of Item 2.1.09 and a factor of 160 pounds per cubic yard. Pricing included as same for other work groups. Estimate figured in HCSS Estimate 1401A, Item 4120.

2.2.00 Control Structure (in the dry)

Base estimate structure includes three radial gates. Structure is assumed to be founded on pipe pile described below. Estimate includes cost of concrete; metals for gates and other; mechanical and electrical; and a crane to hoist stop logs or other for maintenance. Included in the estimate are 45 stop logs allowing shutoff of flow and full upstream and downstream closure for dewatering of any one diversion structure gated channel.

- Item 2.2.01, Insitu Slurry Mixed Cutoff Wall at Diversion. Based on cut-off wall shown in 30% civil drawings. Wall is 4,500 feet in length and an average of 100 feet deep. Depth will require mixing in the trench with a slurry trench cutter attached to crane. Estimate of cost developed from HCSS Estimate 1401A and Item 1200.
- Item 2.2.02, Cellular Coffer at Diversion. This item includes 44 coffer cells as shown on 30% civil drawings. Coffer cells quantities developed from layout and tables of ARBED Catalogue edition 2003. All sheet pile figured to a toe elevation of -70 feet and top elevation top of sheets at -15 feet. Piling section priced is ARBED AS 500-12.7.
- Item 2.2.03 and 2.2.04, Phase 2B Riverside and Landside Cutoff Wall at Diversion. As shown on 30% civil drawings. Sheet pile is 120 feet in length. Cost estimate developed from HCSS Estimate 1401A and Item 1130 for 2.2.03 and 1140 for 2.2.04.
- Item 2.2.05, Transition Embankment to Structure. Allowance included for work to tie articulated bridge or geostructural component accommodating differential settlement between structure decks and embankment.
- Item 2.2.06, ACB Armor Diversion Structure. Quantity area from mark-up edit of March 7, 2014, page 3. Detail of placement shown and includes details. Section shows concrete block over 12 inches of sand over 12 inches of graded stone, all with anchors. Cost estimate from HCSS Estimate 1401A, Item 5010.
- Item 2.2.07, Dewatering. This item includes dewatering of the structure construction excavation and associated area and includes 2,300 linear feet of header with wells, pumps, and other associated work. Operated for 20 months and cost estimate from HCSS Estimate 1401A, Item 1300.
- Item 2.2.08, Pile Foundation. Quantities of pile from take-off of pile shown on sheet 2-24S506 dated November 2013. As shown, 621 piles with same spacing of 7.33 feet C-C. Piles are 24 inch by 3/8 inch thick wall. Estimated based on length of 70 feet and top 20 feet filled with concrete. Concrete and reinforcing infill included in cost of pile. All piling driven in-the-dry. Estimate for piling, including concrete, included in HCSS Estimate 1401A, BI 3100.
- Item 2.2.10, through 2.2.13; 2.3.01 through 2.3.06; 2.4.01 through 2.4.08; and, 2.5.01 through 2.5.02. Diversion Structure Quantities. All of these quantities and cost estimates were taken from MBSD Diversion Structure Cost 30% for quality control (QC) attached to email dated December 6, 2013.
- Item 2.5.03, Stop Log Crane. Added crane for hoisting stop logs at structures. Equipment estimated as rubber tired mobile crane to service both diversion and back structures.

2.6.00 Mechanical and Electrical Building Structure Diversion

This item includes cost of the building for electrical and mechanical systems required for operating equipment and other near the MBSD. Concept and cost provided by MBSD Diversion Structure Cost 30% for QC attached to email dated December 6, 2013. Added to the 30% costs are roof system and building mechanical and electrical costs. These latter costs are based on building area with assembly costs from Reed Construction Data RSMeans database.

2.7.00 Outlet Channel (in the dry)

All of these quantities and cost estimates were taken from MBSD Diversion Structure Cost 30% for QC attached to email dated December 6, 2013.

- Item 2.7.00, Outlet Channel Structure (In-The-Dry).
- Item 2.7.01, Pile Foundation. Quantity of pile based on take-off from sheet 2-24S506 dated November 2013. As shown, 230 piles at 7.33 feet C-C. Piles are 24 inches by 3/8 inch wall thickness. Length is 70 feet and top 20 feet is filled with concrete. Concrete and reinforcing infill included in cost of pile. All piling is assumed as driven in-the-dry. Estimate for piling including concrete included in HCSS Estimate 1401A, BI 3100.
- Item 2.7.02, Concrete. Quantity and cost estimate based on take-off from MBDS Diversion Structure Cost 30% for QC attached to email dated December 6, 2013.
- Item 2.7.02, Reinforcing Steel. Quantity and cost estimate from MBDS Diversion Structure Cost 30% for QC attached to email dated December 6, 2013.

2.8.00 Transition Structure (in the dry)

- Item 2.8.01, Transition Wall Sheet Pile. Includes piling at diversion structure levee transition to new structure as shown on sheet 51. Cost from HCSS Estimate 1401A, Item 6010. Pile in range of 60 feet in length.
- Item 2.8.02, Relief Platform at Control Structure. Take-off mark-up drawing dated January 13, 2014. Scope of this work is concrete with reinforcing steel and bearing piles. Detail is as shown with bearing piles 24 inches by 3/8 inch wall thickness, 120 feet in length. Concrete is all 3 feet thick with reinforcing added as incidental to the cost. Take-off area is 2 lengths of platform, 300 feet by 20 feet and 4 lengths of platform, 300 feet by 15 feet for a total area of 30,000 square feet. Cost is developed from HCSS Estimate 1401A and Item 6020.
- Item 2.8.03, Relief Platform at Back Structure. Take-off from mark-up drawing dated January 13, 2014. Scope of this work is concrete with reinforcing steel and bearing piles. Detail is as shown with bearing piles 24 inches by 3/8 inch wall thickness, 120 feet in length. Concrete is all 3 feet thick with reinforcing added as incidental to the cost. Take-off area is 2 lengths of platform, 300 feet by 20 feet and 4 lengths of platform, 300 feet by 15 feet for a total area of 30,000 square feet. Cost is developed from HCSS Estimate 1401A and Item 6030.
- Item 2.8.04, Pile Foundation. Pile quantities from take-off of sheet 2-24S506 dated November 2013. As shown, 527 piles with same spacing of 7.33 C-C. Pile is 24 inches by 3/8 inch wall thickness. Length is 70 feet and top 20 feet is filled with concrete. Concrete and reinforcing infill included in cost of pile. All piling assumed to be driven in-the-dry. Estimate for piling, including concrete, included in HCSS Estimate 1401A, BI 3100.

- Item 2.8.05, Concrete. Quantity and cost estimate from MBDS Diversion Structure Cost 30% for QC attached to email dated December 6, 2013.
- Item 2.8.06, Reinforcing Steel. Quantity and cost estimate from MBDS Diversion Structure Cost 30% for QC attached to email dated December 6, 2013.

2.9.00 Back Structure (in the dry)

- Items 2.9.16, 17, 18, 19, 21, 22, 23, and 26 quantity and costs are taken from Final Conceptual Cost Back Structure dated September 18, 2013. Costs are assumed unit costs with 30 percent contingency included. Back structure is not included in contractual scope of services; therefore, design not advanced beyond conceptual.
- Item 2.9.01, Double Wall Cofferdam at Back Structure. Quantity assumed as double sheetpile walls with interconnecting cross sheets to brace walls and create rectangular coffer cells.
- Item 2.9.02, Cellular Coffer at Back Structure. Quantity assumed as 50 feet average diameter coffer cells with tip elevation of -80 feet and top of 0 feet.
- Item 2.9.03, Controlled Flood System at Back Structure. Allowance is included for a means to flood the un-watered geostructural cofferdam in the event of forecasted overtopping of the cofferdam. Concept includes a stop-log structure to be pulled and concrete sluiceway to allow water into area with minimal damage from rushing water.
- Item 2.9.05 through 2.9.15, Quantities estimated based on 30% civil drawings and conceptual plans for back structure. Geostructural elements are pending inclusion in scope of services and detailed design analysis. Quantities were conceptually estimated for this memorandum.

2.10.00 Mechanical and Electrical Building Backstructure

This item includes cost of the building for electrical and mechanical systems required for operating equipment and other near the back structure. Concept and cost provided by MBSD Diversion Structure Cost 30% for QC attached to email dated December 6, 2013. Added to the 30 percent costs are roof system and building mechanical and electrical costs. These latter costs are based on building area with assembly costs from RSMeans database. This item is the same as item 2.7.

3.1.00 Pump Station

Quantities and pricing from recent estimate of nearly identical construction bid for nearby Wilkinson Pump Station. Take-off and estimate provided by pump station task lead.

4.1.00 Roadwork, Including Roadway Bridge

Quantities and pricing were provided by road task lead from LA 23 Roadway Construction Cost Estimate, dated September 10, 2014, Option 2. There were minor modifications with bridge costs raised from $120 per square foot to $140 per square foot. Estimated earthwork was added by cubic yard. Pricing is from Louisiana Department of Transportation and Development (LADOTD) database of historical bid prices. Bridges are conceptual with span lengths approximate. Base bid includes cost of bridge.

5.1.00 to 5.2.00 Railroad Trackwork and Grading

Quantities and pricing are from MBSD-Conceptual 1-LA 23 Alignment dated January 23, 2013, as provided by rail task lead.

5.3.00 Railroad Bridge

Quantities and pricing based on Concept Cost Estimate dated September 11, 2013, as provided by rail task lead. This includes base bid costs for a channel crossing with 245 feet through truss and adjacent span of 180 feet plate girders. Spans leading to the main bridge crossing are double cell box with 30 feet spans.

6.1.00 Added General Conditions

General contractor costs are based on direct cost total.

7.1.01 Other Project Costs

Same percentage factors were used for all alternates.

- Items 7.1.02, 03, 04 and 06 are Program Costs based on contract amount.
- Item 7.1.05 is an Allowance based on 25 percent of cost for unknowns at this level of design.

Opinion of Probable Costs

The detailed OPCC is attached in Attachment A. High-low quantity and cost contingency factors were applied to each unit item to weight construction and project costs based on risks and assumptions made for this level of design. Graphs illustrating cost distributions are attached in Attachment B.

Summary

The OPCC based on the detailed cost analysis is summarized in Table 1.

Table 1. Opinion of Probable Construction Cost summary

Description	Totals	Low range	High range
Total general civil	$180,786,332	—	—
Total diversion structure	$270,060,536	—	—
Total back structure	$165,154,001	—	—
Total pump station	$27,700,000	—	—
Total road	$24,753,103	—	—
Total railroad	$45,477,730	—	—
Total general conditions	$35,696,585	—	—
Total base construction cost	**$749,628,288**	**$602,997,500**	**$932,132,500**

Attachment A. Opinion of Probable Costs

MID BARATARIA SEDIMENT DIVERSION
30% OPINION OF PROBABLE CONSTRUCTION COST - 300' CHANNEL BOTTOM WIDTH
MARCH 28, 2014[1]

[1]FINAL QC EDITS MADE 06/23/2014

	DESCRIPTION	UNITS	UNIT COST	BASE ESTIMATE QUANTITY	AMOUNT	SUBTOTALS	TOTALS	QUANTITY COST & DOWN	QUANTITY COST & UP	QUANTITY & COST CONTINGENCY ESTIMATE RANGE LOW	QUANTITY & COST CONTINGENCY ESTIMATE RANGE HIGH
1.0.00	**CIVIL WORKS CHANNEL**										
1.1.00	**CLEAR & GRUB**										
1.1.01	Clear & Grub	Acre	$ 5,000.00	400.00	$ 2,000,000			30%	10%	$ 1,400,000	$ 2,200,000
	TOTAL CLEAR & GRUB						**$ 2,000,000**			**$ 1,400,000**	**$ 2,200,000**
										70%	110%
1.2.00	**CONTRACTOR HAUL ROAD**										
1.2.01	Highway Entrance	Ea.	$ 25,000.00	4.00	$ 100,000			30%	30%	$ 70,000	$ 130,000
1.2.02	Drainage	LS	$ 1.00	200,000.00	$ 200,000			30%	30%	$ 140,000	$ 260,000
1.2.03	Excavation-Embankment	Cu. Yd.	$ 10.00	108,000.00	$ 1,080,000			30%	30%	$ 756,000	$ 1,404,000
1.2.04	Geotextile	Sq. Yd.	$ 2.50	47,600.00	$ 119,000			30%	30%	$ 83,000	$ 155,000
1.2.05	Aggregate Surfacing	Cu. Yd.	$ 35.00	14,300.00	$ 500,500			30%	30%	$ 349,500	$ 651,500
1.2.06	Timber Mats	LS	$ 1.00	150,000.00	$ 150,000			30%	30%	$ 105,000	$ 195,000
	TOTAL CONTRACTOR HAUL ROAD						**$ 2,149,500**			**$ 1,503,500**	**$ 2,795,500**
										70%	130%
1.3.00	**CONTRACTOR LAYDOWN**										
1.3.01	Work Pad Preparation	Acre	$ 10,000.00	20.00	$ 200,000			30%	30%	$ 140,000	$ 260,000
1.3.02	Temporary Fence	Lin. Ft.	$ 35.00	4,000.00	$ 140,000			30%	30%	$ 98,000	$ 182,000
1.3.03	Utility	LS	$ 1.00	160,000.00	$ 160,000			30%	30%	$ 112,000	$ 208,000
	TOTAL CONTRACTOR LAYDOWN						**$ 500,000**			**$ 350,000**	**$ 650,000**
										70%	130%
1.4.00	**PERMANENT UTILITY**										
1.4.01	Water Lines	Lin. Ft.	$ 50.00	17,500.00	$ 875,000			30%	30%	$ 612,000	$ 1,138,000
1.4.02	Small Pump Station	Ea.	$ 33,000.00	3.00	$ 99,000			30%	30%	$ 69,000	$ 129,000
1.4.03	Sewer Force Main 3"	Lin. Ft.	$ 20.00	15,000.00	$ 300,000			30%	30%	$ 210,000	$ 390,000
1.4.04	Electric Service	Ea.	$ 2.00	100,000.00	$ 200,000			30%	30%	$ 140,000	$ 260,000
	TOTAL PERMANENT UTILITY						**$ 1,474,000**			**$ 1,031,000**	**$ 1,917,000**
										70%	130%
1.5.00	**SITE WORK**										
1.5.01	Removals Levee to Levee	Lot	$ 1.00	2,000,000.00	$ 2,000,000			30%	30%	$ 1,400,000	$ 2,600,000
1.5.02	Permanent Fence-Agricultural	Lin. Ft.	$ 10.00	22,000.00	$ 220,000			30%	30%	$ 154,000	$ 286,000
1.5.03	Gates	Lot	$ 1.00	120,000.00	$ 120,000			30%	30%	$ 84,000	$ 156,000
1.5.04	SWPP	Year	$ 2,000,000.00	4.00	$ 8,000,000			30%	30%	$ 5,600,000	$ 10,400,000
	TOTAL SITE WORK						**$ 10,340,000**			**$ 7,238,000**	**$ 13,442,000**
										70%	130%
1.6.00	**EARTHWORK**										
1.6.01	2' Sand Working Platform (or equivalent) West of LA23	Cu. Yd.	$ 15.00	830,000.00	$ 12,450,000			25%	25%	$ 9,337,000	$ 15,563,000
1.6.02	Temporary Setback Levee	Cu. Yd.	$ 28.00	150,000.00	$ 4,200,000			15%	20%	$ 3,570,000	$ 5,040,000
1.6.03	Mechanical Excavation Pilot Channel	Cu. Yd.	$ 12.00	1,026,000.00	$ 12,312,000			25%	20%	$ 9,234,000	$ 14,775,000
1.6.04	Hydraulic Excavation Trap Channel	Cu. Yd.	$ 8.00	2,633,000.00	$ 21,064,000			10%	20%	$ 18,957,000	$ 25,277,000
1.6.05	River Dredging	Cu. Yd.	$ 20.00	200,000.00	$ 4,000,000			25%	25%	$ 3,000,000	$ 5,000,000
1.6.06	Levee Clay Stabilized Clay	Cu. Yd.	$ 28.00	500,000.00	$ 14,000,000			15%	20%	$ 11,900,000	$ 16,800,000
1.6.07	Surcharge Place and Partially Remove to Other	Cu. Yd.	$ 8.00	963,000.00	$ 7,704,000			20%	20%	$ 6,163,000	$ 9,245,000
1.6.08	Add'l Levee Embankment for Settlement	Cu. Yd.	$ 28.00	100,000.00	$ 2,800,000			20%	20%	$ 2,240,000	$ 3,360,000

MID BARATARIA SEDIMENT DIVERSION
30% OPINION OF PROBABLE CONSTRUCTION COST - 300' CHANNEL BOTTOM WIDTH
MARCH 28, 2014[1]

[1]FINAL QC EDITS MADE 06/23/2014

	DESCRIPTION	UNITS	UNIT COST	BASE ESTIMATE QUANTITY	AMOUNT	SUBTOTALS	TOTALS	QUANTITY COST & DOWN	UP	QUANTITY & COST CONTINGENCY ESTIMATE RANGE LOW	HIGH
1.6.09	Control Structure Embankment	Cu. Yd.	$ 15.00	80,000.00	$ 1,200,000			20%	25%	$ 960,000	$ 1,500,000
	TOTAL EARTHWORK						**$ 79,730,000**			**$ 65,361,000**	**$ 96,560,000**
										82%	121%
1.7.00	**STRUCTURAL/GEOTECH STRUCTURES**										
1.7.01	Steel Sheetpile Seepage Cut-Off At Channel	Sq. Ft.	$ 36.35	25,800.00	$ 937,830			20%	20%	$ 750,000	$ 1,126,000
1.7.02	Insitu Mix Cutoff at Channel	Sq. Ft.	$ 18.12	216,200.00	$ 3,917,544			20%	20%	$ 3,134,000	$ 4,702,000
1.7.03	Misc. Sheeting and Shoring	Lot	$ 1,500,000.00	1.00	$ 1,500,000			40%	40%	$ 900,000	$ 2,100,000
1.7.04	Wick Drains	Lin. Ft.	$ 0.75	8,076,000.00	$ 6,057,000			25%	25%	$ 4,542,000	$ 7,572,000
1.7.05	Granular Blanket Wick Drains	Cu. Yd.	$ 15.00	91,000.00	$ 1,365,000			30%	30%	$ 955,000	$ 1,775,000
1.7.06	Relief Well - 60' Deep	Ea.	$ 7,500.00	28.00	$ 210,000			20%	20%	$ 168,000	$ 252,000
1.7.07	500 ppf Geotextile Fabric	Sq. Yd.	$ 1.75	930,234.00	$ 1,627,910			20%	20%	$ 1,302,000	$ 1,954,000
1.7.08	10,000 ppf Geotextile Fabric	Sq. Yd.	$ 5.75	139,822.00	$ 803,977			20%	20%	$ 643,000	$ 965,000
1.7.09	20,000 ppf Geotextile Fabric	Sq. Yd.	$ 6.75	353,344.00	$ 2,385,072			20%	20%	$ 1,908,000	$ 2,864,000
1.7.10	Perforated Strip Drain	Lin. Ft.	$ 20.00	56,500.00	$ 1,130,000			20%	20%	$ 904,000	$ 1,356,000
	TOTAL STRUCTURAL/GEOTECH STRUCTURES						**$ 19,934,332**			**$ 15,206,000**	**$ 24,666,000**
										76%	124%
1.8.00	**REVETMENT**										
1.8.01	ACB Armor Channel Stability Berm/Levee Foreslopes	Sq. Yd.	$ 136.58	250,000.00	$ 34,145,000			20%	20%	$ 27,316,000	$ 40,974,000
1.8.02	Armor Trap Channel Slopes	Cu. Yd.	$ 38.00	302,000.00	$ 11,476,000			20%	20%	$ 9,180,000	$ 13,772,000
1.8.03	Sand Armor Channel Slopes	Cu. Yd.	$ 15.00	202,500.00	$ 3,037,500			20%	20%	$ 2,430,000	$ 3,646,000
	TOTAL REVETMENT						**$ 48,658,500**			**$ 38,926,000**	**$ 58,392,000**
										80%	120%
1.9.00	**OTHER SITEWORK**										
1.9.01	Site Drainage Structures	Lot	$ 1,000,000.00	1.00	$ 1,000,000			30%	30%	$ 700,000	$ 1,300,000
1.9.02	Aggregate Surfacing Roadways	Lin. Ft.	$ 50.00	30,000.00	$ 1,500,000			30%	30%	$ 1,050,000	$ 1,950,000
1.9.03	Turf and Maintenance	Lot	$ 4,000,000.00	1.00	$ 4,000,000			30%	15%	$ 2,800,000	$ 4,600,000
1.9.04	Security Fencing	Lot	$ 500,000.00	1.00	$ 500,000			30%	30%	$ 350,000	$ 650,000
1.9.05	Instrumentation	Lot	$ 3,000,000.00	1.00	$ 3,000,000			30%	30%	$ 2,100,000	$ 3,900,000
	TOTAL OTHER SITE WORK						**$ 10,000,000**			**$ 7,000,000**	**$ 12,400,000**
										70%	124%
1.10.00	**UTILITY RELOCATION**										
1.10.01	Plaquemines Water	Lin. Ft.	$ 500.00	2,000.00	$ 1,000,000			30%	30%	$ 700,000	$ 1,300,000
1.10.02	Entergy Transmission & Distribution	Lot	$ 3,000,000.00	1.00	$ 3,000,000			30%	30%	$ 2,100,000	$ 3,900,000
1.10.03	Cable Communication	Lot	$ 1,000,000.00	1.00	$ 1,000,000			30%	30%	$ 700,000	$ 1,300,000
1.10.04	Shell Oil Pipeline	Lot	$ 1,000,000.00	1.00	$ 1,000,000			30%	30%	$ 700,000	$ 1,300,000
	TOTAL UTILITY RELOCATION						**$ 6,000,000**			**$ 4,200,000**	**$ 7,800,000**
										70%	130%
	TOTAL GENERAL CIVIL					**$ 180,786,332**					
2.1.00	**APPROACH-REVETMENT CHANNEL (IN-THE-DRY)**										
2.1.01	System Extending into Revetment	Sq. Ft.	$ 51.75	880,037.00	$ 45,541,915			15%	25%	$ 38,710,000	$ 56,928,000
2.1.02	Coffer Cells Tremie Concrete Cap	Cu. Yd.	$ 300.00	19,813.00	$ 5,943,900			15%	25%	$ 5,052,000	$ 7,430,000
2.1.03	Controlled Flood Systems at Diversion	LS	$ 500,000.00	1.00	$ 500,000			10%	25%	$ 450,000	$ 625,000
2.1.04	Armor Inlet Channel	Cu. Yd.	$ 38.00	250,000.00	$ 9,500,000			20%	20%	$ 7,600,000	$ 11,400,000

MID BARATARIA SEDIMENT DIVERSION
30% OPINION OF PROBABLE CONSTRUCTION COST - 300' CHANNEL BOTTOM WIDTH
MARCH 28, 2014[1]

[1]FINAL QC EDITS MADE 06/23/2014

	DESCRIPTION	UNITS	UNIT COST	BASE ESTIMATE QUANTITY	AMOUNT	SUBTOTALS	TOTALS	QUANTITY COST & DOWN	UP	QUANTITY & COST CONTINGENCY ESTIMATE RANGE LOW	HIGH
2.1.05	Dewatering-Approach Structure in Dry	Lot	$ 9,230,000.00	1.00	$ 9,230,000			20%	75%	$ 7,384,000	$ 16,153,000
2.1.06	Grout Stabilized Permanent Infill	Sq. Ft.	$ 41.48	139,416.00	$ 5,782,976			30%	30%	$ 4,048,000	$ 7,518,000
						$ 76,498,790					
2.1.07	Rock Base Under Structure	Ton	$ 37.52	60,480.00	$ 2,269,210			15%	20%	$ 1,929,000	$ 2,724,000
2.1.08	Bearing Pile Approach	Ea.	$ 18,280.00	-	$ -			30%	30%	$ -	$ -
2.1.09	Concrete	Cu. Yd.	$ 500.00	71,450.00	$ 35,725,000			15%	20%	$ 30,366,000	$ 42,870,000
2.1.10	Reinforcing	LB	$ 1.75	11,432,000.00	$ 20,006,000			15%	20%	$ 17,005,000	$ 24,008,000
						$ 58,000,210					
	TOTAL APPROACH-REVETMENT CHANNEL (IN-THE-DRY)						**$ 134,499,000**			**$ 112,544,000**	**$ 169,656,000**
										84%	126%
2.2.00	**CONTROL STRUCTURE (IN-THE-DRY)**										
2.2.01	Insitu Mixed Cutoff Wall at Diversion	Sq. Ft.	$ 18.12	412,500.00	$ 7,474,500			25%	25%	$ 5,606,000	$ 9,344,000
2.2.02	Cellular Cofferdam at Diversion	Sq. Ft.	$ 44.31	294,030.00	$ 13,028,469			15%	25%	$ 11,074,000	$ 16,287,000
2.2.03	Phase 2B Riverside Cutoff Wall at Diversion	Sq. Ft.	$ 35.36	108,900.00	$ 3,850,704			15%	25%	$ 3,273,000	$ 4,814,000
2.2.04	Phase 2A Landside Cutoff Wall at Diversion	Sq. Ft.	$ 35.54	36,750.00	$ 1,306,095			15%	25%	$ 1,111,000	$ 1,634,000
2.2.05	Transition Embankment to Structure	Ea.	$ 125,000.00	8.00	$ 1,000,000			25%	25%	$ 750,000	$ 1,250,000
2.2.06	ACB Armor Diversion Structure	Sq. Yd.	$ 136.58	30,000.00	$ 4,097,400			20%	20%	$ 3,278,000	$ 4,918,000
2.2.07	Dewatering-Transition	Lot	$ 3,389,828.00	1.00	$ 3,389,828			20%	75%	$ 2,712,000	$ 5,933,000
						$ 34,146,996					
2.2.08	Pile Foundation (Includes Reinforcing and Concrete)	Ea.	$ 10,640.00	621.00	$ 6,607,440			30%	30%	$ 4,625,000	$ 8,591,000
2.2.09	Structure Excavation & Dispose	Cu. Yd.	$ 16.13	254,630.00	$ 4,107,182			20%	20%	$ 3,286,000	$ 4,930,000
2.2.10	Concrete	Cu. Yd.	$ 600.00	29,455.00	$ 17,673,000			15%	20%	$ 15,022,000	$ 21,208,000
2.2.11	Reinforcing	LB	$ 1.75	5,870,000.00	$ 10,272,500			15%	20%	$ 8,732,000	$ 12,328,000
2.2.12	Backfill Within Cofferdam	Cu. Yd.	$ 16.64	50,926.00	$ 847,409			30%	30%	$ 593,000	$ 1,103,000
2.2.13	Concrete Traffic Barriers	Lin. Ft.	$ 60.00	700.00	$ 42,000			25%	25%	$ 31,000	$ 53,000
						$ 39,549,531					
2.3.01	Bearing Plate Assembly	LB	$ 5.00	36,000.00	$ 180,000			25%	25%	$ 135,000	$ 225,000
2.3.02	Gates	LB	$ 5.00	715,294.29	$ 3,576,471			25%	25%	$ 2,682,000	$ 4,472,000
2.3.03	Trunnion Girders	LB	$ 5.00	450,000.00	$ 2,250,000			25%	25%	$ 1,687,000	$ 2,813,000
2.3.04	Deck Falsework	Sq. Ft.	$ 50.00	14,200.00	$ 710,000			25%	25%	$ 532,000	$ 888,000
2.3.04	Trunnion Pin Assemblies	LB	$ 5.00	180,000.00	$ 900,000			25%	25%	$ 675,000	$ 1,125,000
2.3.05	Post Tensioned Anchorage	LB	$ 8.00	57,000.00	$ 456,000			25%	25%	$ 342,000	$ 570,000
2.3.05	Mechanical (Operating Equipment and Mechanical System)	LS	$ 2,000,000.00	1.00	$ 2,000,000			30%	30%	$ 1,400,000	$ 2,600,000
2.3.06	Conduits for Anchorage	Lin. Ft.	$ 25.00	2,400.00	$ 60,000			25%	25%	$ 45,000	$ 75,000
						$ 10,132,471					
2.4.01	Misc. Metal (Gate Slots)	Lin. Ft.	$ 600.00	546.00	$ 327,600			25%	25%	$ 246,000	$ 410,000
2.4.02	Misc. Metal (Stoplog Slots)	Lin. Ft.	$ 600.00	1,224.00	$ 734,400			25%	25%	$ 551,000	$ 919,000
2.4.03	Deck Hatches	Ea.	$ 3,000.00	4.00	$ 12,000			25%	25%	$ 9,000	$ 15,000
2.4.04	Ladders	Lin. Ft.	$ 80.00	120.00	$ 9,600			25%	25%	$ 7,000	$ 13,000
2.4.05	Railing/Handrails	Lin. Ft.	$ 85.00	1,000.00	$ 85,000			25%	25%	$ 63,000	$ 107,000
2.4.06	Slide Gates	Ea.	$ 16,000.00	6.00	$ 96,000			25%	25%	$ 72,000	$ 120,000
2.4.07	Electrical	LS	$ 1,500,000.00	1.00	$ 1,500,000			30%	30%	$ 1,050,000	$ 1,950,000
2.4.08	Misc. Conduits for Power, Lighting etc.	Lin. Ft.	$ 15.00	1,000.00	$ 15,000			25%	25%	$ 11,000	$ 19,000

MID BARATARIA SEDIMENT DIVERSION
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MARCH 28, 2014[1]

[1]FINAL QC EDITS MADE 06/23/2014

	DESCRIPTION	UNITS	UNIT COST	BASE ESTIMATE QUANTITY	AMOUNT	SUBTOTALS	TOTALS	QUANTITY COST & DOWN	UP	QUANTITY & COST CONTINGENCY ESTIMATE RANGE LOW	HIGH
						$ 2,779,600					
2.5.01	Stoplogs	LB	$ 3.50	897,517.84	$ 3,141,312			25%	25%	$ 2,356,000	$ 3,928,000
2.5.02	Stoplog Picking Beam	Ea.	$ 200,000.00	1.00	$ 200,000			30%	30%	$ 140,000	$ 260,000
2.5.03	Stoplog Crane (65T-RT Crane)	Ea.	$ 1,000,000.00	1.00	$ 1,000,000			30%	30%	$ 700,000	$ 1,300,000
						$ 4,341,312					
	TOTAL CONTROL STRUCTURE (IN-THE-DRY)						**$ 90,949,911**			**$ 72,796,000**	**$ 114,202,000**
										80%	126%
2.6.00	**M&E BLDG. STRUCTURE - DIVERSION**										
2.6.01	Concrete	Cu. Yd.	$ 600.00	216.00	$ 129,600			15%	20%	$ 110,000	$ 156,000
2.6.02	Reinforcing	LB	$ 1.75	40,000.00	$ 70,000			15%	20%	$ 59,000	$ 84,000
2.6.03	Roof System	Sq. Ft.	$ 10.00	3,000.00	$ 30,000			15%	20%	$ 25,000	$ 36,000
2.6.04	Architectural	Sq. Ft.	$ 15.00	3,000.00	$ 45,000			15%	20%	$ 38,000	$ 54,000
2.6.05	Man Doors	Ea.	$ 7,000.00	3.00	$ 21,000			15%	20%	$ 17,000	$ 26,000
2.6.06	Roll up Doors	Ea.	$ 15,000.00	1.00	$ 15,000			15%	20%	$ 12,000	$ 18,000
2.6.07	Louver Vents for Generator	Sq. Ft.	$ 150.00	40.00	$ 6,000			15%	20%	$ 5,000	$ 8,000
2.6.08	1000 Gal Diesel Double Containment Tank	Ea.	$ 20,000.00	1.00	$ 20,000			15%	20%	$ 17,000	$ 24,000
2.6.09	Building Electric	Sq. Ft.	$ 15.00	3,000.00	$ 45,000			15%	20%	$ 38,000	$ 54,000
2.6.10	Building Mechanical	Sq. Ft.	$ 15.00	3,000.00	$ 45,000			15%	30%	$ 38,000	$ 59,000
	TOTAL M&E BLDG. STRUCTURE						**$ 426,600**			**$ 359,000**	**$ 519,000**
										84%	122%
2.7.00	**OUTLET CHANNEL (IN-THE-DRY)**										
2.7.01	Pile Foundation	Ea.	$ 10,640.00	230.00	$ 2,447,200			30%	30%	$ 1,713,000	$ 3,183,000
2.7.02	Concrete	Cu. Yd.	$ 600.00	5,338.65	$ 3,203,188			20%	20%	$ 2,563,000	$ 3,845,000
2.7.03	Reinforcing	LB	$ 1.75	800,796.88	$ 1,401,395			20%	20%	$ 1,121,000	$ 1,683,000
	TOTAL OUTLET CHANNEL (IN-THE-DRY)						**$ 7,051,782**			**$ 5,397,000**	**$ 8,711,000**
										77%	124%
2.8.00	**TRANSITION STRUCTURE (IN-THE-DRY)**										
2.8.01	Transition Wall Sheet pile	Sq. Ft.	$ 36.26	91,362.00	$ 3,312,786			20%	20%	$ 2,650,000	$ 3,976,000
2.8.02	Relief Platform-Control Structure	Sq. Ft.	$ 308.55	30,000.00	$ 9,256,500			30%	30%	$ 6,480,000	$ 12,034,000
2.8.03	Relief Platform-Back Structure	Sq. Ft.	$ 340.41	32,400.00	$ 11,029,284			30%	30%	$ 7,721,000	$ 14,339,000
						$ 23,598,570					
2.8.04	Pile Foundation	Ea.	$ 10,640.00	527.00	$ 5,607,280			30%	30%	$ 3,925,000	$ 7,291,000
2.8.05	Concrete	Cu. Yd.	$ 600.00	9,191.18	$ 5,514,708			20%	20%	$ 4,412,000	$ 6,618,000
2.8.06	Reinforcing	LB	$ 1.75	1,378,677.08	$ 2,412,685			20%	20%	$ 1,930,000	$ 2,896,000
						$ 13,534,673					
	TOTAL TRANSITION STRUCTURE (IN-THE-DRY)						**$ 37,133,243**			**$ 27,118,000**	**$ 47,154,000**
										73%	127%
	TOTAL DIVERSION STRUCTURE					**$ 270,060,536**					
2.9.00	**BACK-STRUCTURE (IN-THE-DRY)**										

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	DESCRIPTION	UNITS	UNIT COST	BASE ESTIMATE QUANTITY	AMOUNT	SUBTOTALS	TOTALS	QUANTITY COST & DOWN	UP	QUANTITY & COST CONTINGENCY ESTIMATE RANGE LOW	HIGH
2.9.01	1A Double Wall Cofferdam at Back Structure	Sq. Ft.	$ 35.36	182,242.00	$ 6,444,077			15%	25%	$ 5,478,000	$ 8,057,000
2.9.02	Cellular Cofferdam at Back Structure	Sq. Ft.	$ 44.33	212,890.00	$ 9,437,414			15%	25%	$ 8,022,000	$ 11,798,000
2.9.03	Controlled Flood System at Back Structure	LS	$ 500,000.00	1.00	$ 500,000			15%	25%	$ 425,000	$ 625,000
2.9.04	2A Double Sheet Pile Wall at Back Structure	Sq. Ft.	$ 31.84	190,156.00	$ 6,054,567			15%	25%	$ 5,146,000	$ 7,569,000
2.9.05	2B-Double Sheet Pile Wall-Reuse at Back Structure	Sq. Ft.	$ 9.22	190,156.00	$ 1,753,238			15%	25%	$ 1,491,000	$ 2,193,000
2.9.06	Insitu Mixed Cutoff Wall at Back Structure	Sq. Ft.	$ 18.12	691,600.00	$ 12,531,792			25%	25%	$ 9,399,000	$ 15,665,000
2.9.07	Insitu Mixed Cutoff Wall at West Face Setback Levee	Sq. Ft.	$ 18.12	80,000.00	$ 1,449,600			25%	25%	$ 1,087,000	$ 1,813,000
2.9.08	Cellular Combi-wall Str Outfall Channel at Basin	Sq. Ft.	$ 40.38	823,920.00	$ 33,269,890			15%	25%	$ 28,279,000	$ 41,588,000
2.9.09	Outfall Channel Armor Stone	Cu. Yd.	$ 38.00	100,000.00	$ 3,800,000			20%	20%	$ 3,040,000	$ 4,560,000
2.9.10	ACB Armor @ Back Structure	Sq. Yd.	$ 136.58	50,000.00	$ 6,829,000			20%	20%	$ 5,463,000	$ 8,195,000
2.9.11	Dewatering-Back Structure	Lot	$ 3,316,214.00	1.00	$ 3,316,214			20%	75%	$ 2,653,000	$ 5,805,000
						$ 85,385,792					
2.9.12	Dewatering System (TBD)	Day	$ 15,600.00	270.00	$ 4,212,000			30%	30%	$ 2,948,000	$ 5,476,000
2.9.13	Earthwork	Cu. Yd.	$ 16.13	250,000.00	$ 4,032,500			30%	30%	$ 2,823,000	$ 5,243,000
2.9.14	Structural Backfill	Cu. Yd.	$ 16.64	89,763.00	$ 1,493,656			30%	30%	$ 1,045,000	$ 1,943,000
2.9.15	Driven Pipe Piles	Lin. Ft.	$ 152.00	104,890.00	$ 15,943,280			20%	30%	$ 12,755,000	$ 20,727,000
2.9.16	Concrete footing	Cu. Yd.	$ 295.15	19,116.00	$ 5,642,087			20%	30%	$ 4,514,000	$ 7,336,000
2.9.17	Concrete Wall & Piers	Cu. Yd.	$ 966.52	11,040.00	$ 10,670,381			20%	30%	$ 8,536,000	$ 13,873,000
2.9.18	Concrete Wing Wall, Slab, & Counterfort	Cu. Yd.	$ 417.05	5,205.00	$ 2,170,745			20%	30%	$ 1,736,000	$ 2,823,000
2.9.19	Concrete Bridge Deck	Cu. Yd.	$ 563.95	1,368.00	$ 771,484			20%	30%	$ 617,000	$ 1,004,000
2.9.20	All Steel Reinforcement	LB	$ 1.75	4,859,115.00	$ 8,503,451			20%	30%	$ 6,803,000	$ 11,056,000
2.9.21	Radial Gates	Ea.	$ 1,590,777.00	7.00	$ 11,135,439			30%	30%	$ 7,795,000	$ 14,477,000
2.9.22	Electric Gate Hoists	Ea.	$ 139,625.00	7.00	$ 977,375			30%	30%	$ 684,000	$ 1,272,000
2.9.23	Miscellaneous	Ea.	$ 12,444,477.00	1.00	$ 12,444,477			30%	30%	$ 8,711,000	$ 16,179,000
2.9.24	Flooding Structure	Ea.	$ 100,000.00	1.00	$ 100,000			30%	30%	$ 70,000	$ 130,000
2.9.25	Flood Cofferdam at Completion	Ea.	$ 50,000.00	1.00	$ 50,000			30%	30%	$ 35,000	$ 65,000
2.9.26	Riprap / Armoring	Sq. Ft.	$ 120.90	9,882.00	$ 1,194,734			20%	30%	$ 956,000	$ 1,554,000
						$ 79,341,609					
	TOTAL BACK-STRUCTURE (IN-THE-DRY)						**$ 164,727,401**			**$ 130,511,000**	**$ 211,026,000**
										79%	128%
2.10.00	**M&E BLDG. STRUCTURE - BACK STRUCTURE**										
2.10.01	Identical to Diversion Building										
	TOTAL M&E BLDG. STRUCTURE - BACK STRUCTURE						**$ 426,600**			**$ 359,000**	**$ 519,000**
										84%	122%
	TOTAL BACK STRUCTURE					**$ 165,154,001**					
3.1.00	**PUMP STATION**										
3.1.01	General Conditions (Included in Total Project Costs)	LS	$ -	-	$ -			15%	20%	$ -	$ -
3.1.02	Mobilization (Included in Total Project Costs)	LS	$ -	-	$ -			15%	20%	$ -	$ -
						$ -					
3.2.01	Earthwork	LS	$ 3,100,000.00	1.00	$ 3,100,000			15%	20%	$ 2,635,000	$ 3,720,000
3.2.02	Concrete	LS	$ 6,220,000.00	1.00	$ 6,220,000			15%	20%	$ 5,287,000	$ 7,464,000
3.2.03	Metals	LS	$ 880,000.00	1.00	$ 880,000			15%	20%	$ 748,000	$ 1,056,000

MID BARATARIA SEDIMENT DIVERSION
30% OPINION OF PROBABLE CONSTRUCTION COST - 300' CHANNEL BOTTOM WIDTH
MARCH 28, 2014[1]

[1]FINAL QC EDITS MADE 06/23/2014

	DESCRIPTION	UNITS	UNIT COST	BASE ESTIMATE QUANTITY	AMOUNT	SUBTOTALS	TOTALS	QUANTITY COST & DOWN	UP	QUANTITY & COST CONTINGENCY ESTIMATE RANGE LOW	HIGH
3.2.04	Masonry	LS	$ 30,000.00	1.00	$ 30,000			15%	20%	$ 25,000	$ 36,000
3.2.05	Wood-plastics	LS	$ 230,000.00	1.00	$ 230,000			15%	20%	$ 195,000	$ 276,000
3.2.06	Finishes	LS	$ 320,000.00	1.00	$ 320,000			15%	20%	$ 272,000	$ 384,000
						$ 10,780,000					
3.3.01	Specialties	LS	$ 40,000.00	1.00	$ 40,000			15%	20%	$ 34,000	$ 48,000
3.3.02	Furnishings	LS	$ 70,000.00	1.00	$ 70,000			15%	20%	$ 59,000	$ 84,000
3.3.03	Conveying System	LS	$ 140,000.00	1.00	$ 140,000			15%	20%	$ 119,000	$ 168,000
3.3.04	Plumbing	LS	$ 90,000.00	1.00	$ 90,000			15%	20%	$ 76,000	$ 108,000
3.3.05	HVAC	LS	$ 390,000.00	1.00	$ 390,000			15%	20%	$ 331,000	$ 468,000
						$ 730,000					
3.4.01	Mixed Flow Pumps	LS	$ 1,010,000.00	4.00	$ 4,040,000			15%	20%	$ 3,434,000	$ 4,848,000
3.4.02	Right Angle Gear Drives	LS	$ 510,000.00	4.00	$ 2,040,000			15%	20%	$ 1,734,000	$ 2,448,000
3.4.03	Diesel Engines	LS	$ 300,000.00	4.00	$ 1,200,000			15%	20%	$ 1,020,000	$ 1,440,000
3.4.04	Other Equipment	LS	$ 2,620,000.00	1.00	$ 2,620,000			15%	20%	$ 2,227,000	$ 3,144,000
						$ 9,900,000					
3.5.01	Process Integration Equipment	LS	$ 2,240,000.00	1.00	$ 2,240,000			15%	20%	$ 1,904,000	$ 2,688,000
3.5.02	Electrical	LS	$ 1,170,000.00	1.00	$ 1,170,000			15%	20%	$ 994,000	$ 1,404,000
3.5.03	Communications	LS	$ 2,880,000.00	1.00	$ 2,880,000			15%	20%	$ 2,448,000	$ 3,456,000
						$ 6,290,000					
	TOTAL PUMP STATION						**$ 27,700,000**			**$ 23,542,000**	**$ 33,240,000**
										85%	120%
	TOTAL PUMP STATION					**$ 27,700,000**					
4.1.00	**ROADWORK**										
4.1.01	Clearing and Grubbing	Sta.	$ 1,900.00	21.48	$ 40,812			20%	25%	$ 32,000	$ 52,000
4.1.02	Concrete Pavement Removal	Sq. Yd.	$ 15.55	22,915.85	$ 356,341			10%	15%	$ 321,000	$ 411,000
4.1.03	Asphalt Pavement Removal	Sq. Yd.	$ 3.00	13,365.83	$ 40,097			10%	15%	$ 36,000	$ 48,000
4.1.04	Earthwork	Sq. Yd.	$ 10.00	21,480.00	$ 214,800			20%	25%	$ 172,000	$ 269,000
						$ 652,051					
4.2.01	Base Course (Cement Treated Shell and Sand) (6" Thick)	Cu. Yd.	$ 42.00	7,245.70	$ 304,319			10%	15%	$ 274,000	$ 351,000
4.2.02	Asphaltic Concrete Base Course - Median Shoulder (6" Thick)	Ton	$ 82.00	859.81	$ 70,504			10%	15%	$ 63,000	$ 82,000
4.2.03	Asphaltic Concrete Base Course - Outside Shoulder (6" Thick)	Ton	$ 82.00	2,286.72	$ 187,511			10%	15%	$ 169,000	$ 217,000
4.2.04	Tack Coat	Gal	$ 6.00	7,672.64	$ 46,036			10%	15%	$ 42,000	$ 54,000
4.2.05	Asphaltic Concrete Wearing Surface - Shoulder Mix (1 1/2 " Thick)	Ton	$ 82.00	768.74	$ 63,037			10%	15%	$ 57,000	$ 74,000
4.2.06	Portland Cement Concrete Pavement (9" Thick)	Sq. Yd.	$ 65.00	23,946.90	$ 1,556,549			10%	15%	$ 1,401,000	$ 1,791,000
						$ 2,227,956					
4.3.01	Concrete Bridge Structure	Sq. Ft.	$ 140.00	121,303.98	$ 16,982,557			15%	15%	$ 14,435,000	$ 19,531,000
4.3.02	Steel Bridge Structure	Sq. Ft.	$ 200.00	24,300.00	$ 4,860,000			15%	15%	$ 4,131,000	$ 5,589,000
						$ 21,842,557					
4.4.01	Pavement Marking (4" Yellow)	Lin. Ft.	$ 0.50	8,592.31	$ 4,296			10%	15%	$ 4,000	$ 6,000
4.4.02	Pavement Marking (4" White)	Lin. Ft.	$ 0.50	8,592.31	$ 4,296			10%	15%	$ 4,000	$ 6,000
4.4.03	Pavement Marking (Broken White)	Lin. Ft.	$ 0.55	8,592.32	$ 4,726			10%	15%	$ 4,000	$ 6,000
4.4.04	Raised Pavement Markers	Ea.	$ 3.50	215.81	$ 755			10%	15%	$ -	$ 2,000
4.4.05	Hydro Seeding	Acre	$ 1,452.00	11.34	$ 16,466			10%	15%	$ 15,000	$ 20,000
						$ 30,539					

MID BARATARIA SEDIMENT DIVERSION
30% OPINION OF PROBABLE CONSTRUCTION COST - 300' CHANNEL BOTTOM WIDTH
MARCH 28, 2014[1]

[1]FINAL QC EDITS MADE 06/23/2014

	DESCRIPTION	UNITS	UNIT COST	BASE ESTIMATE QUANTITY	AMOUNT	SUBTOTALS	TOTALS	QUANTITY COST & DOWN	UP	QUANTITY & COST CONTINGENCY ESTIMATE RANGE LOW	HIGH
	TOTAL ROADWORK						**$ 24,753,103**			**$ 21,160,000**	**$ 28,509,000**
										85%	115%
	TOTAL ROAD					**$ 24,753,103**					
5.1.00	**RAILROAD TRACKWORK AND GRADING**										
5.1.01	Right of way acquisition	Acre	$ 6,000.00	19.56	$ 117,360			30%	30%	$ 82,000	$ 154,000
5.1.02	Clear and Grub (Light)	Acre	$ 15,000.00	7.61	$ 114,150			30%	30%	$ 80,000	$ 150,000
5.1.03	Remove track	TF	$ 55.25	500.00	$ 27,625			10%	15%	$ 25,000	$ 33,000
5.1.04	Power Pole Relocation	Ea.	$ 125,000.00	2.00	$ 250,000			30%	30%	$ 175,000	$ 325,000
5.1.05	Power Line Relocation	Lin. Ft.	$ 300.00	400.00	$ 120,000			30%	30%	$ 84,000	$ 156,000
5.1.06	R/W Fencing	Lin. Ft.	$ 5.00	5,375.00	$ 26,875			10%	15%	$ 24,000	$ 32,000
						$ 656,010					
5.2.01	Embankment	Cu. Yd.	$ 5.00	4,000.00	$ 20,000			30%	30%	$ 14,000	$ 26,000
5.2.02	Excavation	Cu. Yd.	$ 4.00	13,000.00	$ 52,000			30%	30%	$ 36,000	$ 68,000
5.2.03	Culverts Extensions	LS	$ 50,000.00	2.00	$ 100,000			30%	30%	$ 70,000	$ 130,000
5.2.04	Sub-ballast	Cu. Yd.	$ 30.00	2,500.00	$ 75,000			10%	30%	$ 67,000	$ 98,000
5.2.05	Track, 136 lb New CWR - GR. 5 Ties - Panel Construction (Includes 5,000 NT ballast per mile and surfacing)	MI	$ 1,082,256.00	1.62	$ 1,753,255			10%	15%	$ 1,578,000	$ 2,017,000
5.2.06	Surface track - 5 man surfacing gang 2 inch raise	MI	$ 19,250.00	1.00	$ 19,250			10%	15%	$ 18,000	$ 23,000
5.2.07	Insulated Joint Panels - 136# 40'	Ea.	$ 17,600.00	4.00	$ 70,400			10%	15%	$ 63,000	$ 82,000
5.2.08	Grade Crossing - full depth timber - new	TF	$ 243.75	48.00	$ 11,700			30%	30%	$ 8,000	$ 16,000
5.2.09	Seeding	Acre	$ 2,000.00	11.34	$ 22,680			10%	15%	$ 20,000	$ 27,000
5.2.10	Place Topsoil	Cu. Yd.	$ 10.00	1,550.00	$ 15,500			10%	15%	$ 14,000	$ 19,000
5.2.11	Public Crossing Signs - complete	XING	$ 2,183.00	2.00	$ 4,366			30%	30%	$ 3,000	$ 7,000
5.2.12	Private Crossing Signs - complete	XING	$ 651.00	1.00	$ 651			30%	30%	$ -	$ 2,000
5.2.13	Bumper Post	LS	$ 5,000.00	1.00	$ 5,000			10%	15%	$ 4,000	$ 6,000
						$ 2,149,802					
	TOTAL RAILROAD TRACKWORK AND GRADING						**$ 2,805,812**			**$ 2,365,000**	**$ 3,371,000**
										84%	120%
5.3.00	**RAILROAD BRIDGE**										
5.3.01	20" Diameter Pipe Pile	Lin. Ft.	$ 80.00	110,100.00	$ 8,808,000			30%	30%	$ 6,165,000	$ 11,451,000
5.3.02	Pile Conical Tip 20"	Ea.	$ 600.00	744.00	$ 446,400			15%	15%	$ 380,000	$ 514,000
5.3.03	Pile Splice 20"	Ea.	$ 300.00	2,331.00	$ 699,300			15%	15%	$ 595,000	$ 805,000
5.3.04	CIP Pile Cap	Cu. Yd.	$ 650.00	615.00	$ 399,750			10%	15%	$ 360,000	$ 460,000
5.3.05	Precast Abutment	Ea.	$ 12,000.00	2.00	$ 24,000			10%	15%	$ 21,000	$ 28,000
5.3.06	Reinforcing Steel	LB	$ 1.40	339,263.00	$ 474,968			10%	15%	$ 427,000	$ 547,000
5.3.07	Misc. Steel	LB	$ 3.25	570,000.00	$ 1,852,500			20%	20%	$ 1,482,000	$ 2,224,000
						$ 12,704,918					
5.4.01	CIP Pier Column	Cu. Yd.	$ 750.00	378.00	$ 283,500			10%	15%	$ 255,000	$ 327,000
5.4.02	CIP Pier Column	Cu. Yd.	$ 750.00	446.00	$ 334,500			10%	15%	$ 301,000	$ 386,000
5.4.03	Precast Bent Cap	Ea.	$ 9,000.00	213.00	$ 1,917,000			10%	15%	$ 1,725,000	$ 2,205,000
5.4.04	Dbl Cell Box Beam-30'	Ea.	$ 32,000.00	430.00	$ 13,760,000			10%	15%	$ 12,384,000	$ 15,824,000
5.4.05	Plate Girder-180'	LB	$ 2.60	1,720,000.00	$ 4,472,000			15%	15%	$ 3,801,000	$ 5,143,000

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MARCH 28, 2014[1]

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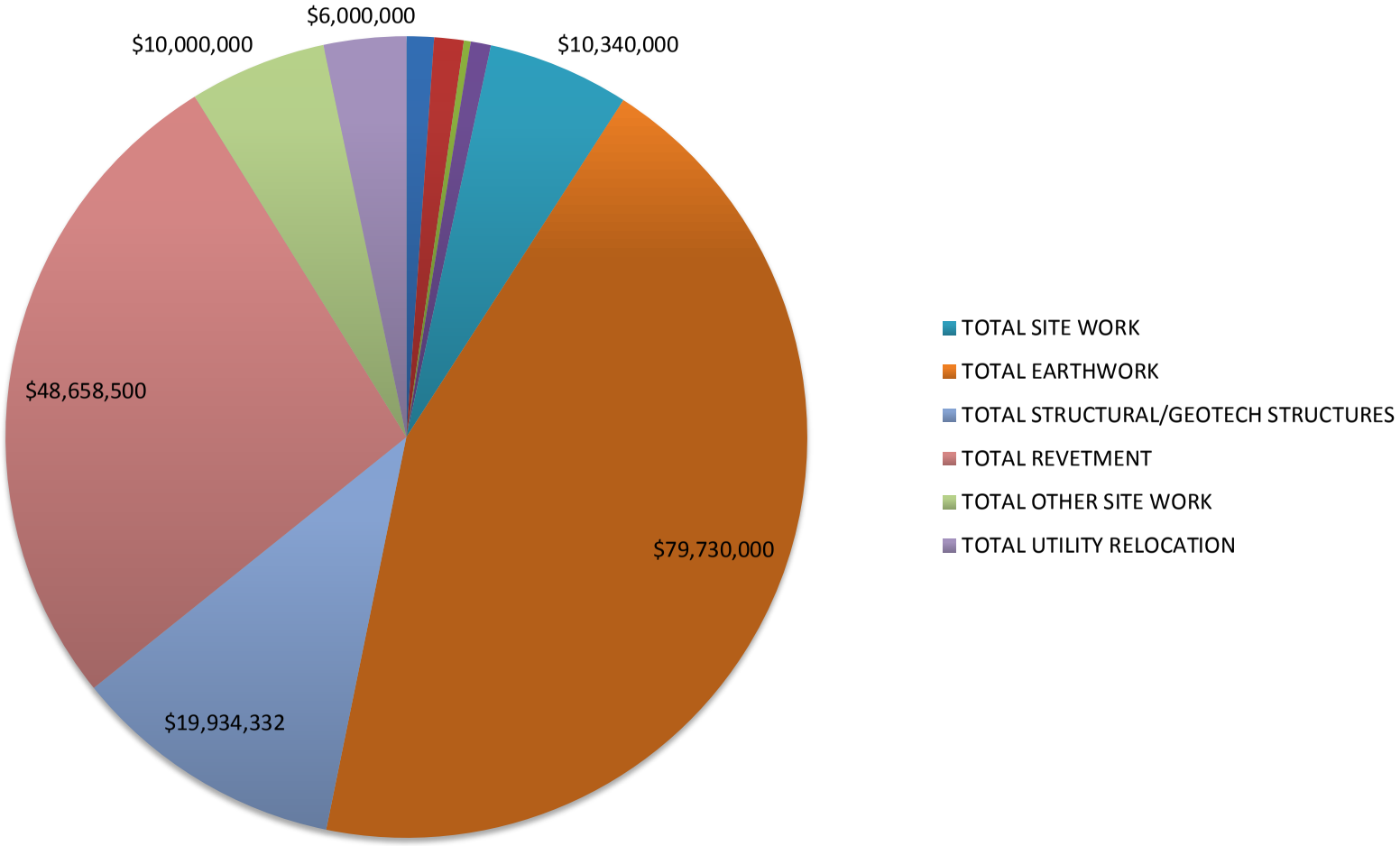
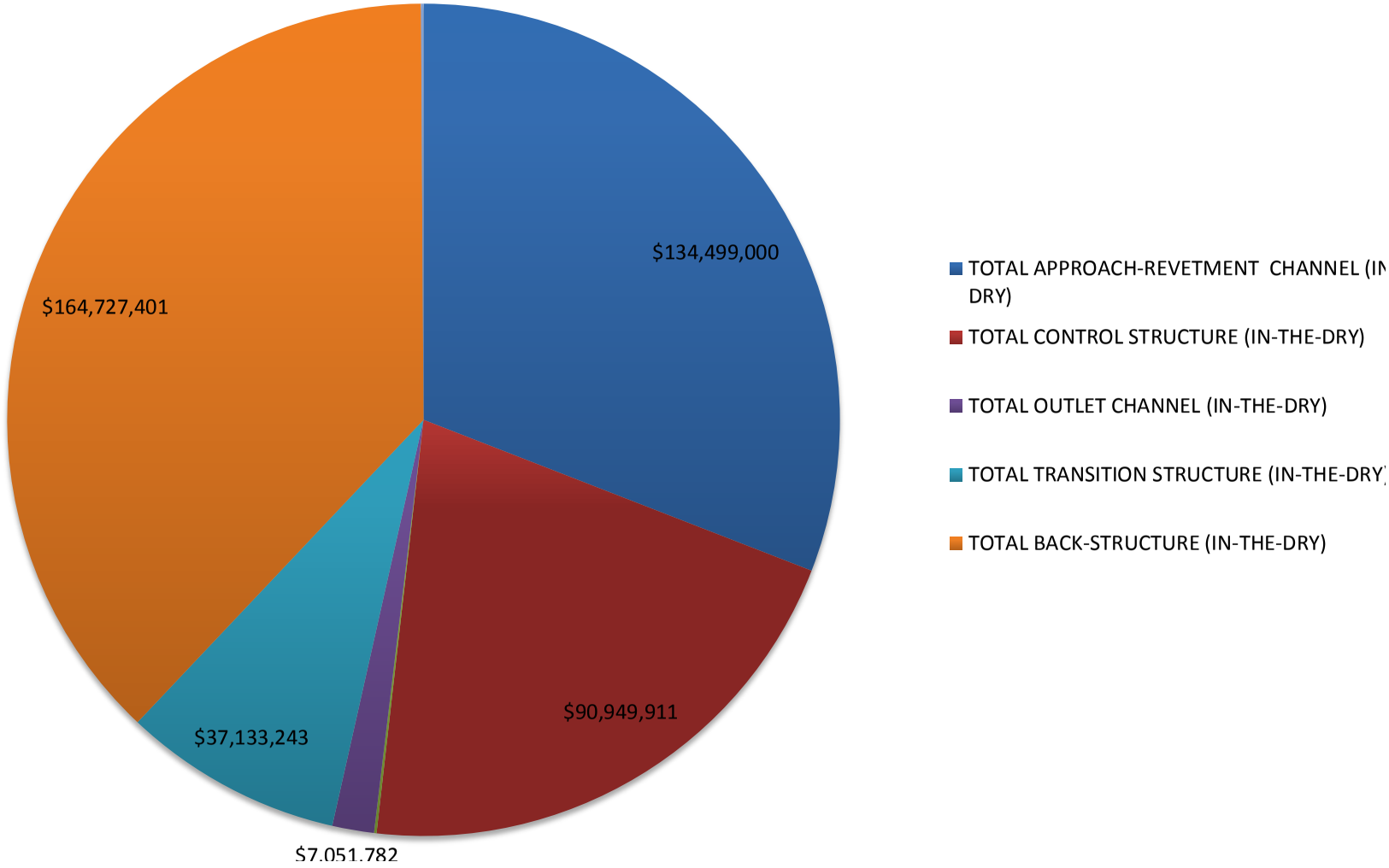
	DESCRIPTION	UNITS	UNIT COST	BASE ESTIMATE QUANTITY	AMOUNT	SUBTOTALS	TOTALS	QUANTITY COST & DOWN	UP	QUANTITY & COST CONTINGENCY ESTIMATE RANGE LOW	HIGH
5.4.06	Through Truss-245'	LB	$ 4.00	2,300,000.00	$ 9,200,000			15%	15%	$ 7,820,000	$ 10,580,000
						$ 29,967,000					
	TOTAL RAILROAD BRIDGE						**$ 42,671,918**			**$ 35,716,000**	**$ 50,494,000**
										84%	118%
	TOTAL RAILROAD					**$ 45,477,730**					
6.1.00	**ADDED GENERAL CONDITIONS**										
6.1.01	Misc. Insurance Hurricane And Builder's Risk Ins	LS	$ 713,931,702.42	1.00%	$ 7,139,317			20%	40%	$ 5,712,000	$ 9,996,000
6.1.02	Mobilization-Demobilization	LS	$ 713,931,702.42	3.00%	$ 21,417,951			20%	20%	$ 17,134,000	$ 25,702,000
6.1.03	Payment And Performance Bond	LS	$ 713,931,702.42	1.00%	$ 7,139,317			15%	15%	$ 6,069,000	$ 8,211,000
	TOTAL GENERAL CONDITIONS						**$ 35,696,585**			**$ 28,915,000**	**$ 43,909,000**
										81%	123%
	TOTAL GENERAL CONDITIONS					**$ 35,696,585**					
	TOTAL BASE CONSTRUCTION COST						**$ 749,628,288**			**$ 602,997,500**	**$ 932,132,500**
										80%	124%

Attachment B. Graphs

Civil Costs Distribution
300' Channel



Structure Costs Distribution
300' Channel



Project Costs Distribution
300' Channel