Volume 9: Turtle Pond

9.1 Executive Summary

St. Charles Parish tasked Principal Engineering, Inc. to complete the study of the Turtle Pond Drainage Area for the East Bank Master Drainage Plan. Principal Engineering performed analyses for 25-Year and 100-Year Design Storms (NOAA Atlas 14), and developed drainage improvement that:

1. 25-Year: Reduce the water surface elevations in the canals to one foot below top of the bank such that future internal drainage improvements may function to eliminate street flooding.
2. 100-Year: Lower water surface elevations in the canals such that direct structure flooding from the canals is eliminated and future internal drainage improvements may function to eliminate internal area structure flooding.

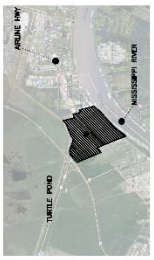
The recommended program consists of the 25-Year and select 100-Year improvements at major street crossings and railroad crossings.

Analysis used models built in EPA SWMM and AutoDesk's Storm and Sanitary Analysis. Existing flood-prone areas were identified in residential area south of CN Railroad between Pirate Drive and Riverbend Drive and Parish line Canal, as well as areas between CN Railroad and US HWY 61. The results of the existing conditions simulation illustrate the inadequacy of the drainage system for the design events.

The recommended improvements are grouped into phases and projects, building from the previous, in sensible order of construction, downstream to upstream.

Modeled improvements have been partitioned into executable projects with cost estimates provided. It is expected that the Parish will create an integrated priority list consisting of projects from all basins, constructed individually as funding becomes available. A summary of projects and costs is tabulated on the following pages by phase.

Recommended Program Construction Cost Estimation		
Phase	**Number of Projects**	**Cost**
Phase 1	5	$ 6,080,000.00
Phase 2	8	$ 9,202,388.80
Phase 3	6	$ 9,617,439.60
Phase 4	9	$ 1,251,975.00
Total	28	$ 26,151,803.40



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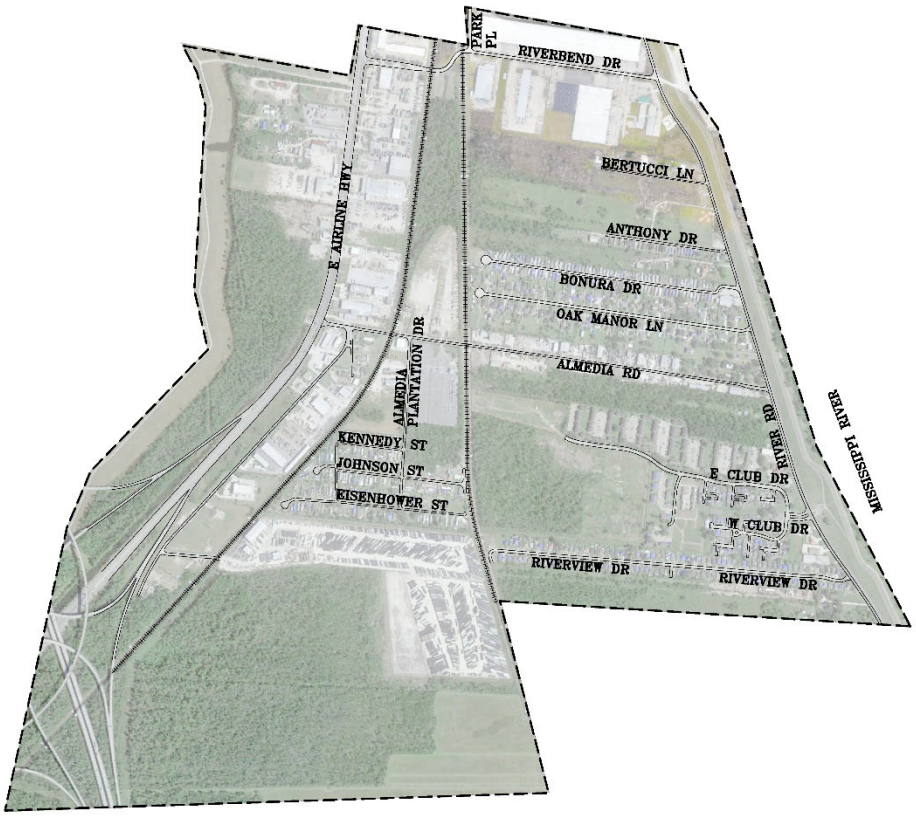
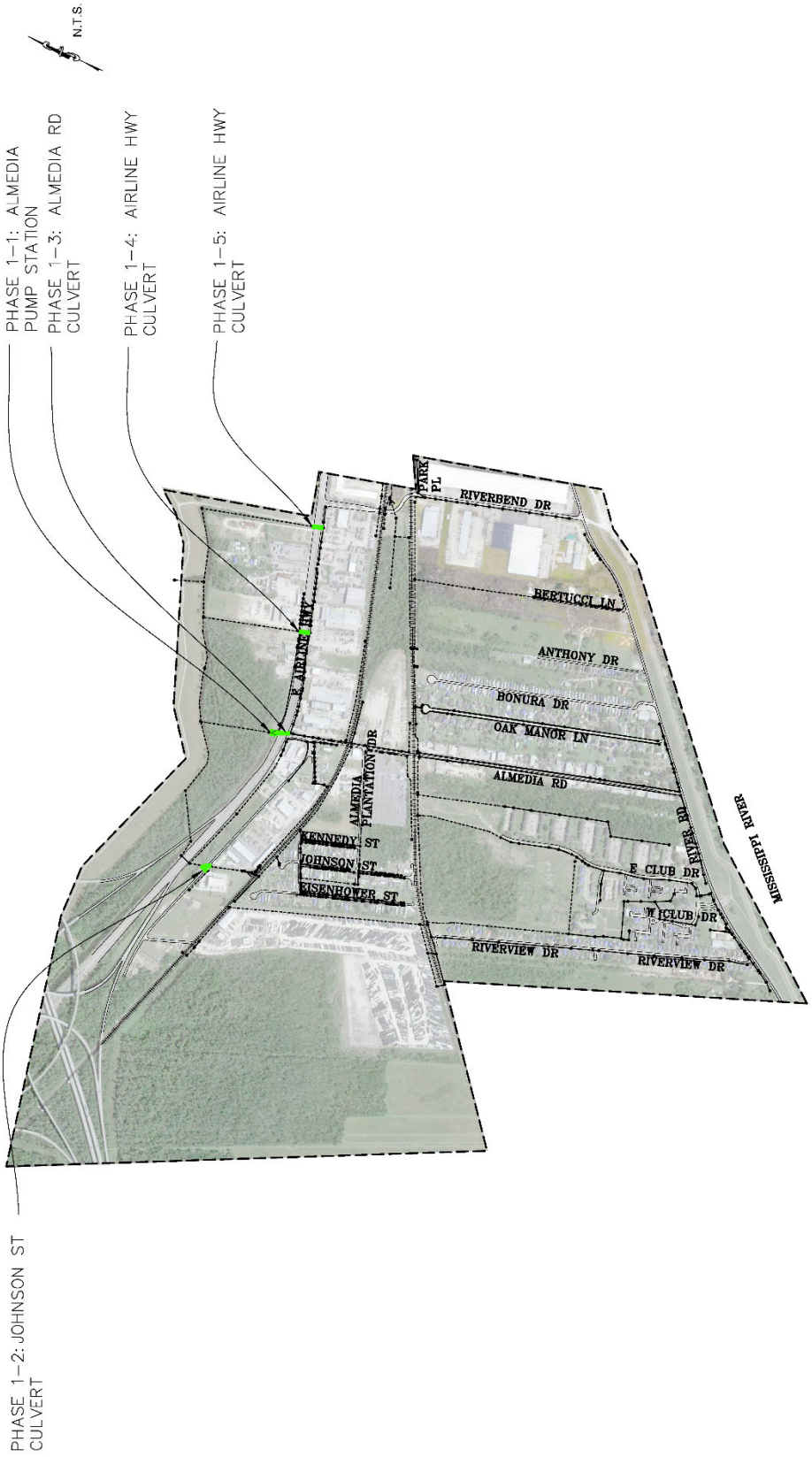


TURTLE POND WATERSHED

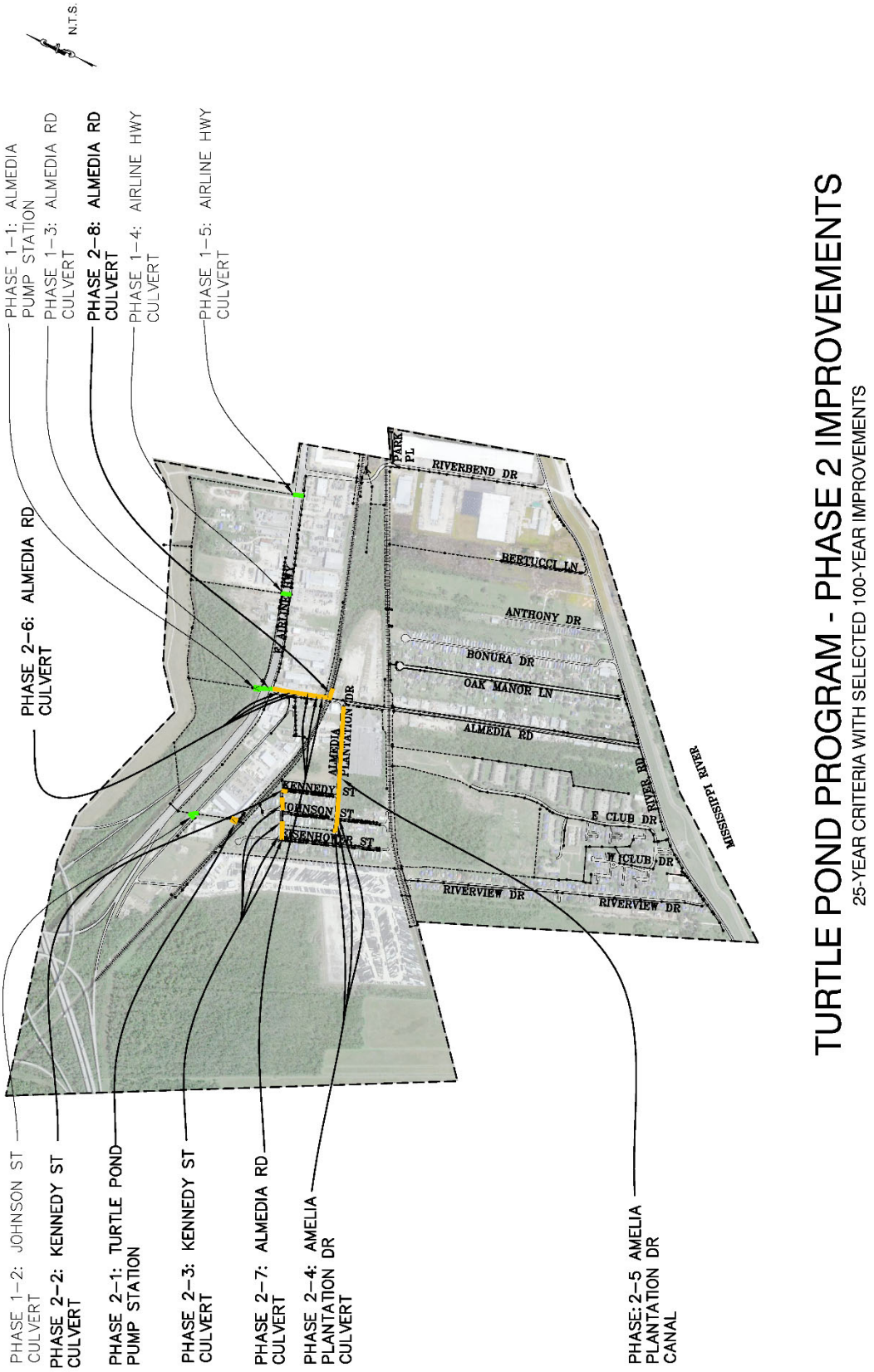
Phase 1 Projects and Construction Cost Estimates		
1-1: Almedia Pump Station Replace and Upgrade Upgrade Pump Station from 120 CFS to 200 CFS	$	4,400,000.00
1-2: I-310 Crossing at Johnson Street Required 2-72" RCP or Equivalent Approximately 80 Linear Feet	$	120,000.00
1-3: Crossing at Almedia Road and Airline HWY Required Jack and Bore 2-42" pipe Approximately 240 Linear Feet	$	780,000.00
1-4: Crossing at Airline HWY around Duhon Machinery Co., Inc. Required Jack and Bore 1-42" pipe Approximately 120 Linear Feet	$	390,000.00
1-5: Crossing Airline HWY around Fox Lane Required Jack and Bore 1-42" pipe Approximately 120 Linear Feet	$	390,000.00
Phase 1 Subtotal	**$**	**6,080,000.00**



TURTLE POND PROGRAM - PHASE 1 IMPROVEMENTS

25-YEAR CRITERIA WITH SELECTED 100-YEAR IMPROVEMENTS

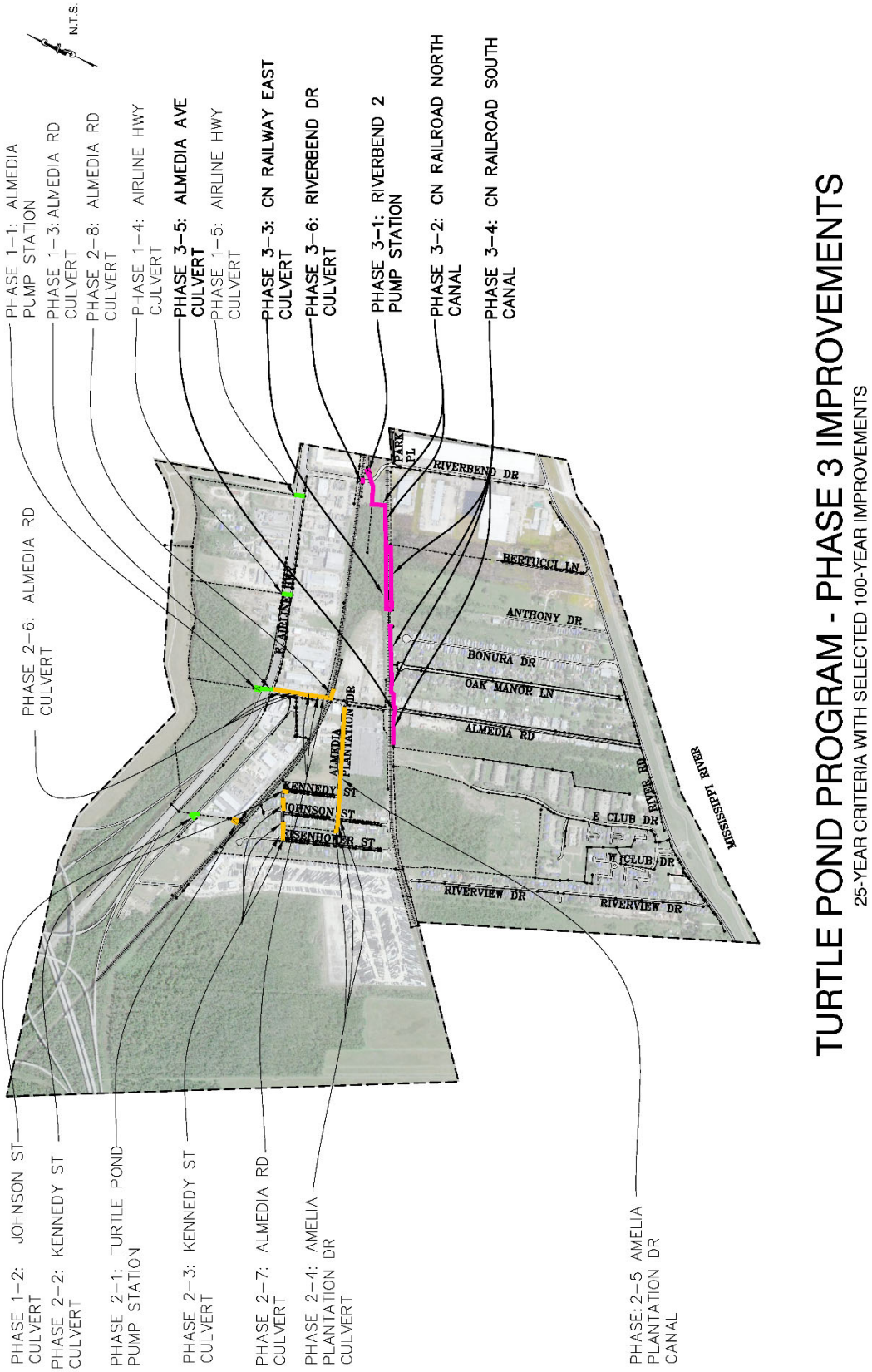
Phase 2 Projects and Construction Cost Estimates		
2-1: Turtle Pond Pump Station Replace and Upgrade Upgrade Pump Station from 86 CFS to 240 CFS	$	8,470,000.00
2-2: Required 84" RCP or Equivalent Along Kennedy Street Required 1-84" RCP Approximately 100 Linear Feet	$	170,000.00
2-3: Required 30″ RCP at Kennedy Street Required 1-30" RCP Approximately 220 Linear Feet	$	63,976.00
2-4: Required 42″ RCP at Amelia Plantation Drive Required 1-42" RCP Approximately 260 Linear Feet	$	125,132.80
2-5: Canal Widening Along Amelia Plantation Drive Canal Widening: 4' Depth, 10' Width Approximately 500 Linear Feet	$	27,300.00
2-6: Required 2-42″ RCP along Almedia Road Required 2-42" RCP Approximately 450 Linear Feet	$	216,576.00
2-7: Required 2-36″ RCP along Almedia Road Required 2-36" RCP Approximately 230 Linear Feet	$	87,538.00
2-8: Required 1-36″ RCP along Almedia Road Required 1-36" RCP Approximately 110 Linear Feet	$	41,866.00
Phase 2 Subtotal	**$**	**9,202,388.80**



TURTLE POND PROGRAM - PHASE 2 IMPROVEMENTS

25-YEAR CRITERIA WITH SELECTED 100-YEAR IMPROVEMENTS

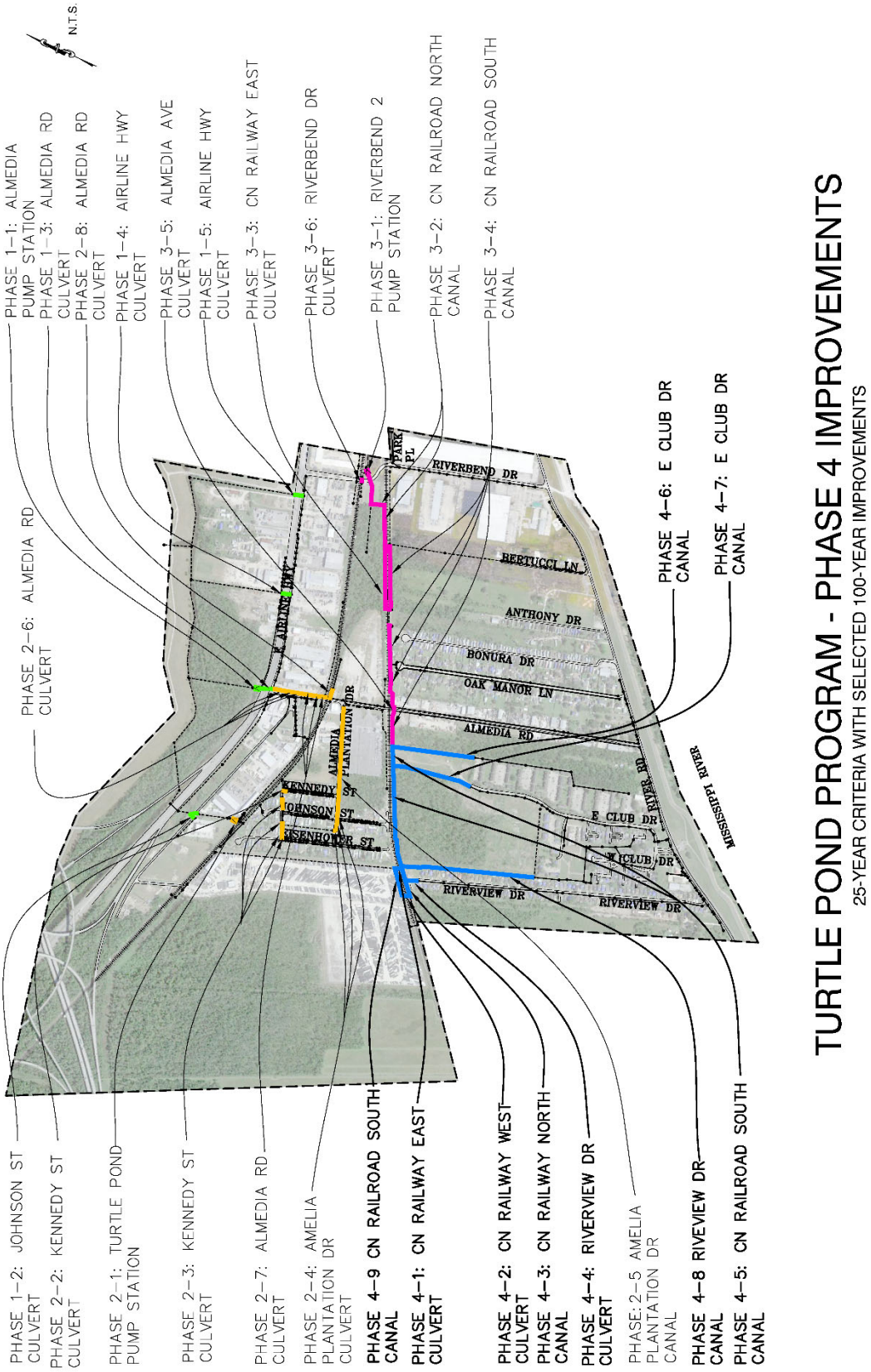
Phase 3 Projects and Construction Cost Estimates		
3-1: Riverbend 2 Pump Station Replace and Upgrade	$	7,920,000.00
Upgrade Pump Station from 96 CFS to 240 CFS		
3-2: Canal along CN Railroad (North) Widening	$	130,750.00
Canal Widening: 6' Depth, 10' Width Approximately 1600 Linear Feet		
3-3: CN Railway Crossing East of Bonura Drive	$	1,300,000.00
Required Jack and Bore 72" pipe Approximately 200 Linear Feet		
3-4: Canal along CN Railroad (South) Widening	$	116,000.00
Canal Widening: 6' Depth, 10' Width Approximately 1420 Linear Feet		
3-5: Required 60" RCP or Equivalent at Almedia Ave	$	117,000.00
Required 60" RCP or Equivalent Approximately 90 Linear Feet		
3-6: Required 42" RCP or Equivalent at Riverbend Dr	$	33,689.60
Required 42" RCP or Equivalent Approximately 70 Linear Feet		
Phase 3 Subtotal	**$**	**9,617,439.60**



TURTLE POND PROGRAM - PHASE 3 IMPROVEMENTS

25-YEAR CRITERIA WITH SELECTED 100-YEAR IMPROVEMENTS

Phase 4 Projects and Construction Cost Estimates		
4-1: CN Railway Crossing East of Riverview Drive Required Jack and Bore 1-72" pipe Approximately 80 Linear Feet	$	520,000.00
4-2: CN Railway Crossing West of Riverview Drive Required Jack and Bore 1-54" pipe Approximately 40 Linear Feet	$	184,000.00
4-3:Canal along CN Railroad (North) Widening Canal Widening: 4' Depth, 12' Width Approximately 720 Linear Feet	$	50,500.00
4-4: Required 48" RCP or Equivalent Along Riverview Drive Required 48" RCP Approximately 155 Linear Feet	$	108,500.00
4-5: Canal along CN Railroad (South) Widening Canal Widening: 5' Depth, 12' Width Approximately 1450 Linear Feet	$	127,000.00
4-6: E Club Drive Canal Widening Canal Widening: 4' Depth, 10' Width Approximately 980 Linear Feet	$	53,075.00
4-7: E Club Drive Canal Widening Canal Widening: 4' Depth, 10' Width Approximately 960 Linear Feet	$	52,300.00
4-8: Riverview Drive Canal Widening Canal Widening: 4' Depth, 10' Width Approximately 1880 Linear Feet	$	102,350.00
4-9: Canal along CN Railroad (South) Widening Canal Widening: 5' Depth, 12' Width Approximately 620 Linear Feet	$	54,250.00
Phase 4 Subtotal	**$**	**1,251,975.00**



TURTLE POND PROGRAM - PHASE 4 IMPROVEMENTS

25-YEAR CRITERIA WITH SELECTED 100-YEAR IMPROVEMENTS