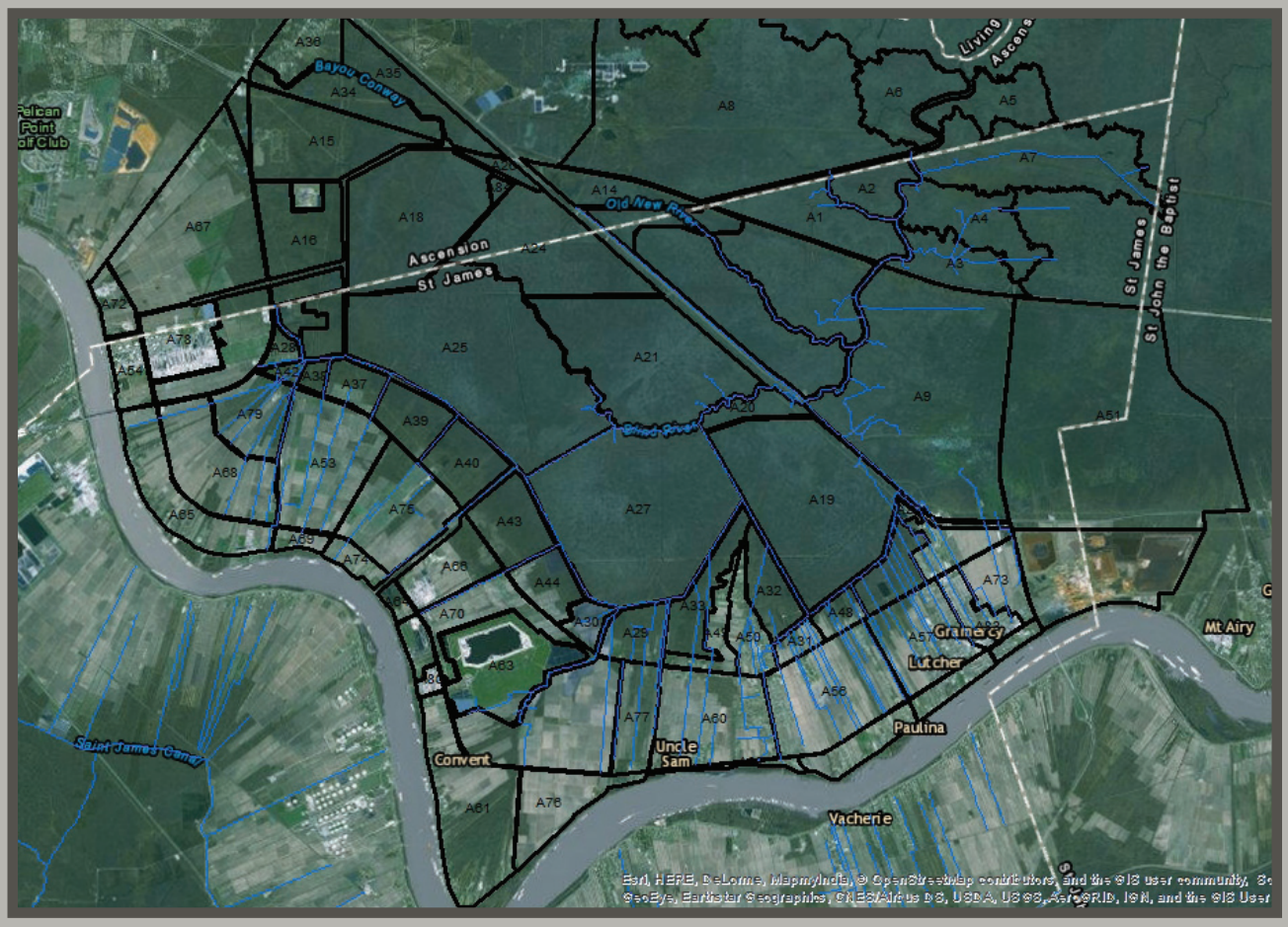
ST. JAMES EAST BANK MASTER DRAINAGE PLAN

Phases 2 & 3



Prepared for:

St. James Parish & Pontchartrain Levee District

Prepared by:

BKI BURK-KLEINPETER, INC.

ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

NOVEMBER

2016

Prepared for
St. James Parish and
Pontchartrain Levee District
5800 La. Highway 44
Convent, La. 70723

St. James Parish East Bank Master Drainage Plan Phase 2 & 3 Future Land Use Conditions And Drainage Improvement Study

Produced by
Burk-Kleinpeter, Inc.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 Canal Street
New Orleans, LA 70119-5994

Executive Summary:

Phase 1 of the St. James Master East Bank Drainage Plan has been completed. The goal of Phase 1was to establish a base condition for evaluation of Future Land Use flooding conditions (Phase 2) and ways to alleviate this future flooding with improvements to the gravity system (Phase 3). In addition to gravity drainage improvements, the study also examined pumping and levee requirements to protect from storm surge with a simultaneous rain event. Providing increased flood protection to the east bank of St James Parish including the communities of Gramercy, Lutcher, Paulina, St. Elmo, Grand Point, and Convent will allow the parish to protect the current citizens and encourage additional population growth. While the 50 year and 100 year rain events were modeled the main focus of the study is to determine the necessary major drainage improvements needed for the Parish to be protected from a 10-Year Rainfall Event under gravity conditions and to determine the impacts from greater storm events, storm surges and future land uses.

The east bank of St. James Parish consists of three distinct but interrelated areas. The first distinct drainage area is the land-basins between the Mississippi River Levee and the Canadian National Railroad. The runoff from this area is routed through culverts that run beneath the Railroad and into the land-basins between the railroad tracks and Louisiana State Highway 3125, the second distinct drainage area. Beneath La. 3125 are sets of La.D.O.T.D. culverts that convey the runoff from the land-basins South of La. 3125 to the Maurepas Swamp, the third distinct drainage area. These cross culverts were designed for a 50 year storm and were re analyzed in this report to ensure no additional cross culverts are needed. After the analysis was completed it was found that these cross culverts are still adequate for the future land use condition. Once this runoff reaches the northern basins above La. 3125 they are routed into the Blind River swamps connected to Lake Maurepas. What must be remembered is the entire St. James East Bank gravity drainage is controlled by the not only the rainfall amounts but more importantly the water surface elevation of Lake Maurepas and the adjoining swampland. Gravity Drainage improvements (upsizing culverts – dredging/widening drainage canals) will alleviate some of the flooding, these improvements will not completely solve the flooding issues when the lake water surface elevation is above elevation 2.0’ NAVD88. What the improvements will do is shorten the duration of flooding after a rain event and when a high lake water surface elevation begins to fall. The gravity drainage system will be more dynamic and expeditious in routing the water out of the populated areas and into the swampland.

The first step in improving the gravity drainage system on east bank of St. James Parish is to clearout existing drainage canals-ditches to their original geometry. This includes mowing the foliage that has grown in the channel as well as removing siltation and downed trees and shrubbery. Some regrading will be necessary to route the flow to the outfalls that are meant to convey this flow. Also, clearing out the blocked driveway culverts, La. 3125 lateral culverts and La. 3125 DOTD cross culverts so the runoff can be routed to the outfalls as originally designed. This maintenance work will be starting at square one for future drainage improvements and because of its lower monetary investment will give the Parish the most bang for its buck. Several

field visits were undertaken to document some of the maintenance issues the Parish must address to alleviate the flooding that is occurring. The report contains pictures and locations of required maintenance for the gravity drainage system of the Parish. The implementation of recommended improvements follows.

When analyzing the basins between the Mississippi River and the Canadian National Rail Line (CN), CN provided a list of all the culverts beneath the 20 miles of rail line along the East Bank of St. James Parish. The information contained the state plane coordinate locations, mile marker types and sizes of each culvert. The contributory drainage area for each culvert was determined and the Rational Method was employed to determine the runoff rates flowing to the culvert. Manning's Formula was then used to determine the capacity of that particular culvert and compared to the actual flow being routed to the culvert. For those culverts that are undersized, the analysis provided the proper sized culvert needed in that location. The Parish and CN Railroad will have to work together to create a culvert replacement program and how it can be funded. This has already been undertaken in the Belle Rue Subdivision where frequent flooding events have occured through the years. This report details the location of the undersized CN culverts and the culvert size that are required. The Parish should focus on those railroad culverts that drain populated areas first. BKI was not able to visually inspect every culvert on CN's list. A field visit to walk the line is advised to examine and field locate all the railroad culverts listed in CN's spreadsheet. This will take some coordination between CN and the Parish to get the proper personnel and procedures to safely walk the line. The analysis detailed 61 culverts with an approximate length of 2,088 feet that were undersized along the approximately 20 miles of CN rail line in St. James Parish East Bank. The approximate cost to replace or supplement these culverts is $150,026.

After analyzing the basins between the Mississippi River and the CN railroad tracks, the basins between the CN railroad tracks and La. 3125 were analyzed. In the same manner as the railroad culverts were analyzed, so too were the driveway culverts that make up most of the gravity drainage system on the east bank of the Parish. The Rational Method was used to calculate the runoff from contributory basins above each driveway culvert. This runoff rate was compared to the existing driveway culverts capacity using Manning's Equation. BKI field verified all driveway culverts in this area and a map was created showing the locations, types, sizes and condition of the driveway culverts. In addition, the map contains the culvert sizes needed to properly route the runoff into adjoining ditches and downstream driveway culverts. The 10 year rain event was used for this analysis so as to make the improvements affordable to the Parish. Designing for a large storm event is not usually affordable for local governments and can be cost prohibitive since these storms are less frequent. For larger rain events, additional conveyance in the streets is considered to be necessary-normal for greater than 10 year events, i.e. 25 yr. storm. During the field visits, several driveway culverts were noted to be silted in or crushed. These culverts were also displayed on the reference map. All total, there will were 61,000' of driveway culverts that need to be replaced for a total cost of $4,515,641. These costs and footages are broken down by street. When replacing these culverts the Parish should target the most flood prone areas working downstream to upstream so the flooding does not make flooding in downstream areas worse. It must be noted that in this total footage and cost the driveway culverts

between La. 3125 and the Lake Maurepas swamp are included. The replacement of these culverts should be relatively easy since most driveway culverts are topped with fill as opposed to asphalt concrete. The Parish may elect to do this work in house. In addition to the driveway culverts, lateral culverts that run parallel to La. 3125 were analyzed for proper capacity. The same method of analysis for the aforementioned driveway culverts was used. It was found that several of these lateral La. 3125 culverts were undersized and their intake and outfall ditches were in need of grading so as to route the flow from the driveway culverts to the La. 3125 cross culverts that were mentioned previously. While the La.3125 cross culverts are properly sized for a 50 year rain event, the lateral culverts-ditches that feed these cross culverts are undersized so a backflow condition exists even when Lake Maurepas has a low water surface elevation. In addition, the poorly graded lateral ditches causes the water from the lateral culverts to pond and not drain correctly. Currently, the Parish has embarked on replacing these undersized lateral culverts and regrading these ditches that run parallel to La. 3125 and feed the following canals Grand Point Ditch, Longview Ditch (Matherne's Market), Lutcher Canal, Woods Canal (First American Bank), Schoolside Ditch, David Canal and Ferrero Canal. Once these projects are completed the driveway culverts that feed these lateral culverts can be replace-upsized without flooding new areas or worsening the flooding in these areas near La. 3125, downstream. As more funding becomes available, the remaining lateral culverts can be upsized and the driveway culverts that feed these laterals can be replaced without worsening the flooding in these downstream areas near La. 3125.

The next and final area of interest is the land-basins north of La. 3125. This area includes the communities of Grand Point and Paulina. All the runoff from the previously mentioned areas flow though this area to Blind River and other parish canals where the runoff ends up in Lake Maurepas and its contiguous swamp. These areas are the most susceptible to flooding during high water surfaces from Lake Maurepas and rainstorms. These areas are low in elevation and are susceptible to water being impounded by both La. 3125 and Lake Maurepas. The driveway culverts in this area were also analyzed and included in the aforementioned analysis and cost estimate. A few projects, Longview Ditch to Humble Canal were analyzed under are under construction (BKI Project# NO.16.014 St. James Drainage Improvements). The routed runoff could be split to East Grand Point Canal to the east and to Grand Point Canal to the west to fully utilize their drainage capacities. The Parish is currently digging the ditch that splits this flow as well as upsizing the lateral Humble Road Culverts. While these improvements will help alleviate the flooding, during high water events in Lake Maurepas, the runoff simply cannot get out of the populated areas north of La. 3125.

As stated earlier, the gravity drainage system's effectiveness is subject to the water surface elevation of the Lake Maurepas outfall. While the gravity drainage improvements detailed in this report will help alleviate the flooding in the east bank of St. James Parish when the water surface elevation in Lake Maurepas is at a WSE of 2.0' NAVD88 or below, anything above this WSE will create a backflow condition where the runoff cannot be routed out of the system. What these gravity drainage improvements will do is alleviate the flooding when the lake WSE is below 2.0' NAVD88. It will also reduce the duration of the flooding when the lake is above 2.0 NAVD88 and begins to fall. The gravity drainage system will be more responsive in routing the runoff to

the outfall. Every parish in Southeast Louisiana that borders the Pontchartrain Basin as well as those parishes on the west bank has had to accept this condition. Parishes have to accept that the interior flooding is directly related to not only the rainfall event but the surge or WSE being seen at the outfall. When the outfall is high, no runoff can get out. The only solution to this condition is to construct levees, flood gates and pump stations to eliminate the backflow from high outfall WSE. The general operating procedure would be to keep the flood gates open until and under a gravity condition where the aforementioned gravity drainage improvements can efficiently route the runoff to the outfall. Once the Lake Maurepas WSE would be above 2.0'NAVD88 the basin would go into a pumped condition where the floodgates are closed and the pumps drain the basins behind it. It must be noted that the gravity drainage improvements list in this report are still necessary to efficiently feed the pump stations and alleviate the flooding. The interior drainage system improvements are needed for both a gravity and pumped condition. The proposed levee system while not completely detailed in this report can be viewed in the St. James-Ascension Storm Surge Protection Project, BKI Job# NO.15.035. The levee is approximately 8' high with subsequent lifts to 14' NAVD88 over the next 50 years, Pump Stations-Floodgates at Airline Canal 500 cubic feet/second(c.f.s.), Lateral 4 Canal 1000 c.f.s. and Latitude 3D Canal 1000 c.f.s.. Floodgates will be constructed along the levee alignment where canals exist but do not have a pump station. The levee heights are based upon a 100yr storm surge event calculated in the United States Army Corps of Engineer's (U.S.A.C.E.) Westshore Study and the pump stations are designed around a 10 year rain event. Included in this report are the results of the modeling effort for the 10, 50 and 100yr rain events, the future land use condition, Lake Maurepas WSE of 2', 3' and 4' NAVD88 both with and without the storm surge protection. The levee will be aligned on top of the existing spoil banks of the parish canals where the soil has already been compacted to a degree. The existing canals directly adjacent to and behind the levees will provide the connectivity-redundancy for the pumped condition. Throughout the course of this study BKI facilitated numerous suggestions as to how to alleviate the flooding and storm surge problems in the east bank of St. James Parish. As it relates to storm surge alternative designs we analyzed using Airline Highway and/or La. 3125 as levees. Another alternative was constructing a barge gate at Blind River near the Airline Highway Bridge. The idea was explored with a field visit to St. Mary Parish to see their barge gate. Another alternative was to put temporary PTO pumps at Woods Canal. These alternatives are detailed more extensively in the body of this report. The overall problem with these alternatives were:

1. They were not cost effective due to a limit amounted of protection of 6' to 8' NAVD88
2. Recirculation issues due to no existing levee to tie the structures back into.
3. State and Federal stipulations not to allow their highways to be used for flood protection
4. Some of the projects, i.e. Woods Canal only provided protection for a small portion of the community leaving other communities out of the protection and in some cases increasing the flooding in there are.

5. The Westshore Non Structural Flap Gate Project would only protect from a storm surge below 7'NAVD88. In addition, once these flap gates are closed any rainfall that occurs south of La. 3125 would be trapped and flood those areas while the areas north of La. 3125 would be inundated by storm surge.

In summary, the parish should implement a maintenance program for interior drainage to clear existing channels and culverts. As well as replacing damaged culverts listed in this report. The next step would be to upsize the La. 3125 Lateral Culverts and regrade their ditches to feed the La. 3125 cross culverts. After these downstream improvements are completed, the driveway culverts that are undersized should be replaced moving from La. 3125 south to the CN railroad. Then, the undersized CN railroad culverts should be replaced. All of these interior drainage improvements will help alleviate the flooding and also provide the infrastructure to maximize the benefits-capacity of the future levee-pump station project to reduce rain event flooding and backwater flooding from high Lake Maurepas WSE.

Table of Contents

SECTION	**Page No.**
1. Purpose	1
2. Canadian National (CN) Railroad Culvert Analysis	1-17
3. Driveway Culvert Analysis	18-150
4. La. 3125 Lateral Culvert (10yr) & La.D.O.T.D. Cross Culvert Analysis (50yr)	151-167A
5. N. of La. 3125 Maurepas Swamp Analyses & Hydrologic (HEC HMS) / Hydraulic HEC-RAS Future Condition (Land Use Models)	168-189
6. Conclusions	190-191

INDEX OF FIGURES **Page No.**

Figure 1 –Rational Method Formula 8
Figure 2 – Rational Method Regions Map/Intensity Curves-Equation 9-10
Figure 3 – Manning's Equation, Culvert Capacity 11
Figure 4–CN Railroad Culvert Map 15
Figure 5 – Deficient Driveway Culverts Maps 105-148
Figure 6 – La. 3125 Lateral Culvert (10yr) & La.D.O.T.D. Cross Culverts Analyses (50yr) Map 162
Figure 7 –April 25 Ponding Southside of La. 3125 163
Figure 7A – LA. 3125 Culvert Construction Map (East) 164
Figure 7B/C – LA. 3125 Culvert Construction Map (West) 166-167
Figure 8A – North Gramercy Field Visit Map 169
Figure 8B – North Gramercy Required Maintenance Photos 170-173
Figure 9 – Existing vs Future Land Use Zoning Map 175
Figure 10 – Future Land Use HEC RAS Schematic Map 179
Figure 11 – FLU 10 Yr. Inundation Lake WSE 2' Map 180
Figure 12 – FLU 50 Yr. Inundation Lake WSE 2' Map 181
Figure 13 – FLU 100 Yr. Inundation Lake WSE 2' Map 182
Figure 14 – FLU 10 Yr. Inundation With/Without Surge Protection Lake WSE 3' 184
Figure 15 – FLU 10 Yr. Inundation With/Without Surge Protection Lake WSE 4' 185
Figure 16 – FLU 50 Yr. Inundation With/Without Surge Protection Lake WSE 3' 186
Figure 17 – FLU 50 Yr. Inundation With/Without Surge Protection Lake WSE 4' 187
Figure 18 – FLU 100 Yr. Inundation With/Without Surge Protection Lake WSE 3' 188
Figure 19 – FLU 100 Yr. Inundation With/Without Surge Protection Lake WSE 4' 189

INDEX OF TABLES

	Table No.	Page No.
Canadian National Railroad Culvert Inventory	1.	2-7
Deficient Railroad Culverts/Recommendations	2A.	12-14
Railroad Culvert Replacement Cost Estimates	2B.	16-17
Deficient Driveway Culverts/Recommendations	3A.	19-54
Driveway Culvert Replacement Cost Estimates Breakdown	3B.	55-104
Driveway Culvert Replacement Cost Estimates by Street	3C.	149
La. 3125 Lateral Culvert (10yr) & La.D.O.T.D. Cross Culverts Analyses (50yr)	4A.	152-161
Lateral Improvement Estimated Construction Costs (East)	5A.	165
Lateral Improvement Estimated Construction Costs (West)	5B.	167A
HEC HMS Parameters ELU vs. FLU	6.	176-177

APPENDICES

	Appendix No.
HEC HMS Future Land Use: 10 Year Storm Hydrograph	1
HEC HMS Future Land Use: 50 Year Storm Hydrograph	2
HEC HMS Future Land Use: 100 Year Storm Hydrograph	3
CN Railroad Cross Culvert Analysis	A
Driveway Culvert Analysis	B
10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4' Bayou Des Acadie Maximum W.S.E.	C
10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4' Bayou Fusil Maximum W.S.E.	C1
10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4' Blind River Maximum W.S.E.	C2

APPENDICES **Appendix No.**

10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Bayou Conway Maximum W.S.E. C3

10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Crowley Ditch Maximum W.S.E. C4

10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Canal Eleven Maximum W.S.E. C5

10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Lateral 4 Canal Maximum W.S.E. C6

10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
East St. James Parish M-2A Canal Maximum W.S.E. C7

10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Latitude 3D Canal Maximum W.S.E. C8

10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Canal Nine Maximum W.S.E. C9

10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Old-New River Maximum W.S.E. C10

10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Romeville Canal Maximum W.S.E. C11

10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Airline Canal N. Maximum W.S.E. C12

10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Airline Canal S. Maximum W.S.E. C13

10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
East St. James Canal Maximum W.S.E. C14

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Bayou Des Acadie Maximum W.S.E. D

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Bayou Fusil Maximum W.S.E. D1

APPENDICES **Appendix No.**

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Blind River Maximum W.S.E. D2

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Bayou Conway Maximum W.S.E. D3

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Crowley Ditch Maximum W.S.E. D4

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Canal Eleven Maximum W.S.E. D5

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Lateral 4 Canal Maximum W.S.E. D6

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
East St. James Parish M-2A Canal Maximum W.S.E. D7

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Latitude 3D Canal Maximum W.S.E. D8

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Canal Nine Maximum W.S.E. D9

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Old-New River Maximum W.S.E. D10

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Romeville Canal Maximum W.S.E. D11

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Airline Canal N. Maximum W.S.E. D12

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Airline Canal S. Maximum W.S.E. D13

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
East St. James Canal Maximum W.S.E. D14

APPENDICES **Appendix No.**

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Bayou Des Acadie Maximum W.S.E. E

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Bayou Fusil Maximum W.S.E. E1

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Blind River Maximum W.S.E. E2

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Bayou Conway Maximum W.S.E. E3

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Crowley Ditch Maximum W.S.E. E4

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Canal Eleven Maximum W.S.E. E5

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Lateral 4 Canal Maximum W.S.E. E6

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
East St. James Parish M-2A Canal Maximum W.S.E. E7

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Latitude 3D Canal Maximum W.S.E. E8

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Canal Nine Maximum W.S.E. E9

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Old-New River Maximum W.S.E. E10

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Romeville Canal Maximum W.S.E. E11

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Airline Canal N. Maximum W.S.E. E12

APPENDICES **Appendix No.**

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Airline Canal S. Maximum W.S.E. E13

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
East St. James Canal Maximum W.S.E. E14

10 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Storage Areas A1-A85 Maximum W.S.E. F

50 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Storage Areas A1-A85 Maximum W.S.E. G

100 Yr. FLU W./W.O. Levee-Pumps; Lake W.S.E. 2',3',4'
Storage Areas A1-A85 Maximum W.S.E. H

1. Purpose:

The goal of the St James Master East Bank Drainage Plan is to provide improved flood protection to the east bank of St James Parish including the communities of Gramercy, Lutcher, Paulina, St. Elmo, Grand Point, and Convent. The goal of the study is to determine the necessary major drainage improvements needed for the Parish to be protected from a 10-Year Rainfall Event under gravity conditions and to determine the impacts from greater storm events. An additional improvement analyses was done to exam a pumped condition alternative.

The goal of the St James East Bank Master Drainage Plan is to evaluate the major drainage system infrastructure as it exists today and determine the extents of current flooding as a base condition, please see St. James East Bank Master Drainage Plan Phase 1. The study will then project the growth of the area twenty years into the future based upon the Parish's adopted land use maps to coincide with Parish's growth plan. Then, gravity and pumped systems will be evaluated to eliminate flooding for the 10 Year Storm Event and minimize flooding for higher storm events. Alternatives will be developed and prioritized based upon cost effectiveness of reducing flooding. The final goal of the Master Drainage Plan is to be adopted by the Parish as official Parish document to be used as guidance during the growth of the Parish.

It is important to develop the Master Drainage Plan prior to the USACE Internal Drainage Study. First, the existing conditions model could be used by the USACE to initiate their study and potentially be eligible as work-in-kind credit. Second, the Master Drainage Plan as an official Parish document will require the USACE to incorporate the Parish's flood reduction schemes into their study. The USACE will still not be able to improve conditions per their regulations, but they will be able to design their system to complement the Parish's Plan. Thirdly, any canal, culvert, or pump station required in the USACE Internal Drainage Study can be upscaled based upon the Master Drainage Plan by the Parish at the time of initial construction (the Parish will have to pay for the increased infrastructure) which will minimize the cost to the Parish compared to expanding these as existing items in the future.

2. Canadian National (CN) Railroad Culvert Analysis:

The east bank of St. James Parish consists of three distinct but interrelated areas. The first distinct drainage area is the land-basins between the Mississippi River Levee and the Canadian National Railroad. The runoff from this area is routed through culverts that run beneath the Railroad and into the land-basins between the railroad tracks and Louisiana State Highway 3125, the second distinct drainage area. CN provided BKI with an inventory spreadsheet of all their railroad culverts in the east bank of St. James Parish. The inventory included the size, type, location (mile marker & coordinates) and length. Please see Table 1. For the CN railroad culvert inventory spreadsheet.

Table 1: Canadian National Railroad Culvert Inventory

Func. Loc.	Sub	Track id	From	Sub name	Culvert Type	Culvert Number	Count	Number of Tracks	Number of Segments	Road Access	Depth of Fill, ft	Width, ft	Length, ft	Longitude	Latitude
BS00076824	373	1	395.57	BATON ROUGE	STE	1	1	1	1	UNK	6	3	24	-90.90688	30.12578
BS00076825	373	1	395.72	BATON ROUGE	STE	1	1	1	1	UNK	6	3	24	-90.90556	30.12391
BS00076827	373	1	395.84	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	40	-90.90461	30.12241
BS00076829	373	1	395.94	BATON ROUGE	STE	1	1	1	1	UNK	7	3	24	-90.90391	30.12099
BS00076830	373	1	396.02	BATON ROUGE	CON	1	1	1	1	NONE	7	3	32	-90.90353	30.12002
BS00076831	373	1	396.09	BATON ROUGE	CON	1	1	1	1	NONE	7	2.5	32	-90.90325	30.11903
BS00076832	373	1	396.26	BATON ROUGE	CON	1	1	1	1	NONE	7	2.5	32	-90.9026	30.11644
BS00076847	373	1	396.92	BATON ROUGE	STE	1	1	1	1	NONE	6	3	24	-90.90033	30.10721
BS00076848	373	1	396.96	BATON ROUGE	STE	1	1	1	1	UNK	7	3	24	-90.90021	30.10673
BS00076849	373	1	397	BATON ROUGE	CON	1	1	1	1	NONE	7	3	30	-90.90009	30.10616
BS00076850	373	1	397.08	BATON ROUGE	CON	1	1	2	1	NONE	7	2.5	32	-90.89979	30.10495
BS00076851	373	1	397.1	BATON ROUGE	CON	1	1	1	1	NONE	6	2.5	24	-90.89965	30.10445
BS00076852	373	1	397.12	BATON ROUGE	CON	1	1	1	1	NONE	7	2.5	32	-90.89954	30.10393
BS00076853	373	1	397.15	BATON ROUGE	STE	1	1	1	1	NONE	6	2	24	-90.89945	30.10354
BS00076855	373	1	397.21	BATON ROUGE	STE	1	1	1	1	NONE	6	2	30	-90.89935	30.10312
BS00076856	373	1	397.22	BATON ROUGE	STE	1	1	1	1	NONE	7	2	24	-90.89933	30.10301
BS00076857	373	1	397.24	BATON ROUGE	STE	1	1	1	1	NONE	7	3	24	-90.89923	30.10271
BS00076859	373	1	397.3	BATON ROUGE	CON	1	1	1	1	NONE	7	2.5	40	-90.89908	30.10223
BS00076864	373	1	397.65	BATON ROUGE	CON	1	1	1	1	NONE	7	2.5	24	-90.89787	30.09729
BS00076865	373	1	397.67	BATON ROUGE	STE	1	1	1	1	NONE	7	2	24	-90.89781	30.09697
BS00076866	373	1	397.68	BATON ROUGE	STE	1	1	1	1	NONE	6	3	24	-90.89767	30.09637
BS00076867	373	1	397.73	BATON ROUGE	STE	1	1	1	1	WALK	7	2	24	-90.89752	30.09571
BS00076869	373	1	397.76	BATON ROUGE	STE	1	1	1	1	WALK	7	2	30	-90.87748	30.09552
BS00076871	373	1	397.85	BATON ROUGE	CON	1	1	1	1	WALK	7	2.5	32	-90.89714	30.09538
BS00076872	373	1	397.87	BATON ROUGE	STE	1	1	1	1	WALK	7	2	24	-90.89698	30.09348
BS00514164	373	1	397.88	BATON ROUGE	CON	1	1	1	1	WALK	6	2.5	24	-90.89705	30.09409
BS00076873	373	1	397.89	BATON ROUGE	CON	1	1	2	1	WALK	6	2.5	24	-90.89692	30.09353
BS00076874	373	1	397.9	BATON ROUGE	CON	1	3	1	3	WALK	6	2.5	24	-90.89686	30.09329
BS00076874	373	1	397.9	BATON ROUGE	CON	1	3	1	3	WALK	6	2.5	24	-90.89686	30.09329
BS00076874	373	1	397.9	BATON ROUGE	CON	1	3	1	3	WALK	6	2.5	24	-90.89686	30.09329
BS00076876	373	1	397.94	BATON ROUGE	CON	1	1	1	3	WALK	6	2	32	-90.89682	30.09308
BS00076876	373	1	397.94	BATON ROUGE	CON	1	1	1	3	WALK	6	2	32	-90.89682	30.09308
BS00076876	373	1	397.94	BATON ROUGE	CON	1	1	1	3	WALK	6	2	32	-90.89682	30.09308
BS00076877	373	1	397.96	BATON ROUGE	CON	1	1	1	1	WALK	6	2.5	32	-90.89674	30.09272
BS00076878	373	1	397.99	BATON ROUGE	STE	1	1	1	2	WALK	7	3	36	-90.89676	30.0922
BS00076878	373	1	397.99	BATON ROUGE	STE	1	1	1	2	WALK	7	3	36	-90.89676	30.0922
BS00076879	373	1	398.02	BATON ROUGE	STE	1	1	1	1	WALK	6	2	24	-90.89652	30.0916
BS00076880	373	1	398.04	BATON ROUGE	STE	1	1	1	1	WALK	6	2	24	-90.89645	30.09129
BS00076881	373	1	398.07	BATON ROUGE	STE	1	1	1	1	WALK	6	3	24	-90.89633	30.09083
BS00076882	373	1	398.09	BATON ROUGE	STE	1	1	1	1	WALK	6	2	24	-90.89629	30.09064
BS00076883	373	1	398.1	BATON ROUGE	CON	1	1	1	1	WALK	6	2	32	-90.89621	30.09043
BS00076884	373	1	398.11	BATON ROUGE	STE	1	1	1	1	WALK	6	2	24	-90.89614	30.09023
BS00076885	373	1	398.13	BATON ROUGE	STE	1	1	1	1	WALK	6	2	24	-90.89614	30.09005
BS00076886	373	1	398.15	BATON ROUGE	STE	1	1	1	1	WALK	6	2	24	-90.89608	30.08973
BS00076887	373	1	398.17	BATON ROUGE	STE	1	1	1	1	WALK	6	2	24	-90.89598	30.08944
BS00076888	373	1	398.2	BATON ROUGE	STE	1	1	1	1	WALK	6	2	24	-90.89584	30.08883
BS00076890	373	1	398.23	BATON ROUGE	STE	1	1	1	1	WALK	6	2.5	24	-90.89571	30.08833
BS00076891	373	1	398.25	BATON ROUGE	STE	1	1	1	1	WALK	6	2	24	-90.89564	30.08808
BS00076894	373	1	398.35	BATON ROUGE	CON	1	1	1	1	NONE	6	3	32	-90.89545	30.08731
BS00076896	373	1	398.38	BATON ROUGE	STE	1	1	1	1	NONE	6	2.5	24	-90.89534	30.08687
BS00076897	373	1	398.43	BATON ROUGE	STE	1	1	1	1	NONE	6	3	36	-90.89523	30.08643

Table 1: Canadian National Railroad Culvert Inventory

Func. Loc.	Sub	Track id	From	Sub name	Culvert Type	Culvert Number	Count	Number of Tracks	Number of Segments	Road Access	Depth of Fill, ft	Width, ft	Length, ft	Longitude	Latitude
BS00076898	373	1	398.44	BATON ROUGE	CON	1	1	1	1	NONE	7	2	40	-90.89506	30.0857
BS00076900	373	1	398.48	BATON ROUGE	STE	1	1	1	1	NONE	6	3	24	-90.89489	30.08503
BS00076901	373	1	398.51	BATON ROUGE	CON	1	1	1	1	NONE	6	2.5	32	-90.89472	30.08456
BS00076902	373	1	398.54	BATON ROUGE	CON	1	1	1	1	NONE	6	2.5	32	-90.89456	30.0841
BS00076903	373	1	398.58	BATON ROUGE	STE	1	1	1	1	NONE	6	2	24	-90.89431	30.08358
BS00076904	373	1	398.6	BATON ROUGE	CON	1	1	1	1	NONE	6	2.5	32	-90.89418	30.08335
BS00076905	373	1	398.62	BATON ROUGE	STE	1	1	1	1	NONE	6	3	24	-90.89402	30.08307
BS00076906	373	1	398.63	BATON ROUGE	CON	1	1	1	1	NONE	6	2.5	32	-90.89395	30.08296
BS00076907	373	1	398.65	BATON ROUGE	STE	1	1	1	1	NONE	6	2	36	-90.89356	30.0824
BS00076910	373	1	398.71	BATON ROUGE	CON	1	1	1	1	NONE	6	2	24	-90.89313	30.08188
BS00076911	373	1	398.72	BATON ROUGE	CON	1	1	1	1	NONE	7	2.5	32	-90.89282	30.08156
BS00076912	373	1	398.75	BATON ROUGE	CON	1	1	1	1	NONE	6	2.5	32	-90.89246	30.08138
BS00076914	373	1	398.79	BATON ROUGE	CON	1	1	1	1	NONE	7	2	56	-90.89233	30.08113
BS00076915	373	1	398.82	BATON ROUGE	STE	1	1	1	1	NONE	6	2.5	48	-90.89161	30.08057
BS00076918	373	1	398.9	BATON ROUGE	CON	1	1	1	1	NONE	7	2.5	32	-90.89094	30.08011
BS00076921	373	1	398.96	BATON ROUGE	STE	1	1	1	1	WALK	6	2	36	-90.89023	30.07953
BS00076922	373	1	398.99	BATON ROUGE	CON	1	1	1	1	WALK	7	2.5	48	-90.88985	30.07924
BS00076923	373	1	399.02	BATON ROUGE	CON	1	1	1	1	WALK	7	2.5	48	-90.88957	30.07904
BS00076924	373	1	399.03	BATON ROUGE	STE	1	1	1	1	WALK	7	2	36	-90.88939	30.0789
BS00076925	373	1	399.04	BATON ROUGE	CON	1	1	1	1	WALK	7	2.5	48	-90.88921	30.07876
BS00076926	373	1	399.07	BATON ROUGE	CON	1	1	1	1	Y	7	2.5	48	-90.88884	30.07849
BS00514177	373	1	399.08	BATON ROUGE	STE	1	1	1	1	Y	7	2.5	48	-90.88867	30.07839
BS00076927	373	1	399.09	BATON ROUGE	CON	1	1	1	1	Y	7	2.5	48	-90.88869	30.07838
BS00076928	373	1	399.12	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	56	-90.88818	30.078
BS00076929	373	1	399.17	BATON ROUGE	CON	1	1	1	1	Y	8	2.5	48	-90.88756	30.07755
BS00076930	373	1	399.23	BATON ROUGE	STE	1	1	1	1	Y	7	3	48	-90.88683	30.0771
BS00076931	373	1	399.27	BATON ROUGE	CON	1	1	1	1	NONE	7	2.5	48	-90.8862	30.07673
BS00076932	373	1	399.3	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	48	-90.88585	30.07649
BS00076933	373	1	399.33	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	48	-90.8854	30.07638
BS00076933	373	1	399.33	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	48	-90.8854	30.07638
BS00076934	373	1	399.34	BATON ROUGE	CON	1	1	1	1	UNK	6	2	48	-90.88533	30.07633
BS00076934	373	1	399.34	BATON ROUGE	CON	1	1	1	1	UNK	6	2	48	-90.88533	30.07633
BS00076935	373	1	399.36	BATON ROUGE	CON	1	1	1	1	UNK	6	2	48	-90.88491	30.07621
BS00076935	373	1	399.36	BATON ROUGE	CON	1	1	1	1	UNK	6	2	48	-90.88491	30.07621
BS00076936	373	1	399.39	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	48	-90.88444	30.07606
BS00076936	373	1	399.39	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	48	-90.88444	30.07606
BS00076937	373	1	399.42	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	48	-90.8839	30.07592
BS00076937	373	1	399.42	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	48	-90.8839	30.07592
BS00076938	373	1	399.47	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	48	-90.8831	30.07577
BS00076938	373	1	399.47	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	48	-90.8831	30.07577
BS00076939	373	1	399.48	BATON ROUGE	CON	1	1	1	1	UNK	6	2	48	-90.88306	30.07575
BS00076939	373	1	399.48	BATON ROUGE	CON	1	1	1	1	UNK	6	2	48	-90.88306	30.07575
BS00076940	373	1	399.55	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	48	-90.8818	30.07561
BS00076941	373	1	399.62	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	48	-90.88068	30.07545
BS00076943	373	1	399.69	BATON ROUGE	STE	1	1	1	1	UNK	7	2	30	-90.8801	30.07532
BS00076944	373	1	399.73	BATON ROUGE	STE	1	1	1	1	UNK	6	2	30	-90.87887	30.07515
BS00076945	373	1	399.76	BATON ROUGE	STE	1	1	1	1	UNK	6	3	24	-90.87823	30.07508
BS00076945	373	1	399.76	BATON ROUGE	STE	1	1	1	1	UNK	6	3	24	-90.87823	30.07508
BS00076945	373	1	399.76	BATON ROUGE	STE	1	1	1	1	UNK	6	3	24	-90.87823	30.07508
BS00076946	373	1	399.79	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.87776	30.07498
BS00076947	373	1	399.83	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.87721	30.0749

Table 1: Canadian National Railroad Culvert Inventory

Func. Loc.	Sub	Track id	From	Sub name	Culvert Type	Culvert Number	Count	Number of Tracks	Number of Segments	Road Access	Depth of Fill, ft	Width, ft	Length, ft	Longitude	Latitude
BS00076948	373	1	399.87	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.87645	30.07479
BS00076949	373	1	399.91	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.87582	30.07472
BS00076950	373	1	399.96	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.8751	30.07464
BS00076951	373	1	399.99	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.87447	30.07454
BS00076952	373	1	400.06	BATON ROUGE	CON	1	1	4	1	UNK	6	3	75	-90.87341	30.07438
BS00076953	373	1	400.13	BATON ROUGE	CON	1	1	2	1	UNK	7	2.5	32	-90.87231	30.07427
BS00076953	373	1	400.13	BATON ROUGE	CON	1	1	2	1	UNK	7	2.5	32	-90.87231	30.07427
BS00076954	373	1	400.24	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.87035	30.07394
BS00076955	373	1	400.28	BATON ROUGE	CON	1	1	1	1	UNK	7	3	24	-90.8684	30.07377
BS00511788	373	1	400.28	BATON ROUGE	CON	1#	1	1	1	UNK	7	3	8	-90.8684	30.07377
BS00511789	373	1	400.28	BATON ROUGE	CON	2#	1	1	1	UNK	7	3	8	-90.8684	30.07377
BS00076957	373	1	400.49	BATON ROUGE	STE	1	1	1	1	UNK	8	3	24	-90.86841	30.07368
BS00076958	373	1	400.6	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	64	-90.86361	30.07303
BS00076961	373	1	400.79	BATON ROUGE	STE	1	1	1	1	UNK	7	3	24	-90.86136	30.07271
BS00076963	373	1	401.01	BATON ROUGE	STE	1	1	1	1	UNK	7	3	24	-90.85765	30.07217
BS00076966	373	1	401.28	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	40	-90.85321	30.07158
BS00076968	373	1	401.46	BATON ROUGE	STE	1	1	1	1	UNK	7	3	36	-90.85046	30.07045
BS00076969	373	1	401.52	BATON ROUGE	STE	1	1	1	1	UNK	7	3	24	-90.84966	30.06995
BS00076970	373	1	401.61	BATON ROUGE	STE	1	1	1	1	UNK	9	2.5	30	-90.84856	30.06918
BS00076971	373	1	401.68	BATON ROUGE	STE	1	1	1	1	UNK	8	3	24	-90.84763	30.06849
BS00076972	373	1	401.73	BATON ROUGE	STE	1	1	1	1	UNK	6	2	24	-90.84695	30.06802
BS00076973	373	1	401.76	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	40	-90.84618	30.06747
BS00076974	373	1	401.79	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	40	-90.84595	30.06734
BS00076975	373	1	401.81	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	40	-90.84529	30.06686
BS00076977	373	1	401.91	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.84467	30.06642
BS00076978	373	1	401.99	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	56	-90.84376	30.06592
BS00076979	373	1	402.06	BATON ROUGE	CON	1	1	1	1	UNK	7	2	32	-90.84314	30.06536
BS00076982	373	1	402.13	BATON ROUGE	CON	1	1	1	1	UNK	8	2.5	40	-90.84247	30.06487
BS00076983	373	1	402.17	BATON ROUGE	CON	1	1	1	1	UNK	8	2	32	0	0
BS00076984	373	1	402.23	BATON ROUGE	CON	1	1	1	1	UNK	8	2	32	0	0
BS00076985	373	1	402.4	BATON ROUGE	CON	1	1	1	1	UNK	9	3	36	-90.83891	30.06199
BS00076986	373	1	402.78	BATON ROUGE	CON	1	1	1	1	UNK	8	3	48	-90.83544	30.57558
BS00076987	373	1	402.92	BATON ROUGE	STE	1	1	1	1	UNK	8	3	36	0	0
BS00076988	373	1	402.96	BATON ROUGE	STE	1	1	1	1	UNK	8	3	24	0	0
BS00076989	373	1	402.99	BATON ROUGE	CON	1	1	1	1	UNK	9	2	32	-90.83324	30.05467
BS00076990	373	1	403.04	BATON ROUGE	STE	1	1	1	1	UNK	9	2.5	32	-90.83238	30.0535
BS00076992	373	1	403.08	BATON ROUGE	CON	1	1	1	1	UNK	7	4	32	0	0
BS00076993	373	1	403.14	BATON ROUGE	STE	1	1	1	1	UNK	6	2	24	0	0
BS00076994	373	1	403.18	BATON ROUGE	CON	1	1	1	1	UNK	7	3	24	0	0
BS00076995	373	1	403.22	BATON ROUGE	STE	1	1	1	1	UNK	8	2	30	0	0
BS00076996	373	1	403.26	BATON ROUGE	CON	1	1	1	1	UNK	8	2.5	32	0	0
BS00514184	373	1	403.28	BATON ROUGE	STE	1	1	1	1	UNK	8	2	30	-90.83023	30.05031
BS00076997	373	1	403.29	BATON ROUGE	CON	1	1	1	1	UNK	7	4	32	-90.83023	30.05031
BS00076998	373	1	403.36	BATON ROUGE	STE	1	1	1	1	UNK	7	3	24	0	0
BS00076999	373	1	403.42	BATON ROUGE	STE	1	1	1	1	UNK	7	3	24	0	0
BS00077000	373	1	403.48	BATON ROUGE	CON	1	1	1	1	UNK	7	3	30	0	0
BS00077001	373	1	403.54	BATON ROUGE	STE	1	1	1	1	UNK	7	3	24	0	0
BS00077002	373	1	403.61	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	0	0
BS00077003	373	1	403.65	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	0	0
BS00077004	373	1	403.71	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.8285	30.04536
BS00077005	373	1	403.78	BATON ROUGE	STE	1	1	1	1	UNK	7	2	36	-90.82835	30.04453

Table 1: Canadian National Railroad Culvert Inventory

Func. Loc.	Sub	Track id	From	Sub name	Culvert Type	Culvert Number	Count	Number of Tracks	Number of Segments	Road Access	Depth of Fill, ft	Width, ft	Length, ft	Longitude	Latitude
BS00077006	373	1	403.81	BATON ROUGE	CON	1	1	1	1	UNK	6	2	40	0	0
BS00077008	373	1	403.88	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	24	-90.82769	30.04259
BS00077009	373	1	403.92	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	40	-90.82754	30.04209
BS00077010	373	1	403.96	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	40	-90.82726	30.0411
BS00077019	373	1	404.6	BATON ROUGE	STE	1	1	3	1	UNK	9	3	36	-90.82458	30.03218
BS00077021	373	1	404.74	BATON ROUGE	STE	1	1	3	1	UNK	8	3	36	-90.8241	30.03064
BS00077022	373	1	404.75	BATON ROUGE	CON	1	1	3	1	UNK	6	2.5	48	-90.82402	30.03036
BS00077024	373	1	404.86	BATON ROUGE	CON	1	1	3	1	UNK	7	2.5	48	-90.82355	30.02883
BS00077025	373	1	404.89	BATON ROUGE	CON	1	1	3	1	UNK	6	2.5	48	-90.82343	30.02843
BS00077026	373	1	404.9	BATON ROUGE	CON	1	1	3	1	UNK	6	2.5	48	-90.82339	30.02826
BS00077027	373	1	404.95	BATON ROUGE	CON	1	1	3	1	UNK	7	2	40	-90.8232	30.02762
BS00077029	373	1	405.03	BATON ROUGE	CON	1	1	3	1	UNK	6	2.5	40	-90.82271	30.02611
BS00077031	373	1	405.06	BATON ROUGE	CON	1	1	3	1	UNK	6	2.5	48	-90.82263	30.02591
BS00077032	373	1	405.08	BATON ROUGE	CON	1	1	3	1	UNK	7	2.5	48	-90.82265	30.0257
BS00077033	373	1	405.09	BATON ROUGE	STE	1	1	1	1	UNK	8	2	48	-90.82256	30.0257
BS00077041	373	1	405.28	BATON ROUGE	STE	1	1	1	1	UNK	9	2	48	-90.82154	30.02416
BS00077042	373	1	405.29	BATON ROUGE	CON	1	1	1	1	UNK	8	2.5	48	-90.8213	30.02386
BS00077043	373	1	405.31	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	40	-90.82106	30.02364
BS00077044	373	1	405.34	BATON ROUGE	STE	1	1	1	1	UNK	8	2	24	-90.82095	30.02347
BS00077045	373	1	405.4	BATON ROUGE	CON	1	1	1	1	UNK	8	2.5	40	-90.82047	30.0231
BS00077046	373	1	405.45	BATON ROUGE	CON	1	1	1	1	UNK	8	2.5	40	-90.82006	30.0228
BS00077047	373	1	405.59	BATON ROUGE	CON	1	1	1	1	UNK	8	2.5	40	-90.81924	30.02227
BS00077048	373	1	405.61	BATON ROUGE	CON	1	1	1	1	UNK	8	2.5	40	-90.81847	30.02185
BS00077049	373	1	405.67	BATON ROUGE	CON	1	1	1	1	UNK	12	3	40	-90.81522	30.02091
BS00077051	373	1	405.79	BATON ROUGE	STE	1	1	1	1	UNK	12	4	36	-90.81393	30.02039
BS00077052	373	1	405.83	BATON ROUGE	STE	1	1	1	1	UNK	9	3	24	-90.81327	30.0209
BS00077053	373	1	406.08	BATON ROUGE	STE	1	1	1	1	UNK	9	3	24	-90.80837	30.02033
BS00077055	373	1	406.14	BATON ROUGE	CON	1	1	1	1	UNK	8	4	32	-90.8074	30.07026
BS00077057	373	1	406.2	BATON ROUGE	CON	1	2	1	1	UNK	9	3.5	32	-90.80641	30.02021
BS00514185	373	1	406.2	BATON ROUGE	CON	2	2	1	2	UNK	9	3.5	32	-90.80641	30.02021
BS00077058	373	1	406.27	BATON ROUGE	STE	1	1	1	1	UNK	8	3	24	-90.80515	30.02012
BS00077059	373	1	406.46	BATON ROUGE	STE	1	1	1	1	UNK	10	3	24	-90.80194	30.01988
BS00077060	373	1	406.67	BATON ROUGE	CON	1	1	1	1	UNK	10	2.5	32	-90.79865	30.01962
BS00077061	373	1	406.72	BATON ROUGE	CON	1	1	1	1	UNK	8	5	24	-90.79765	30.01955
BS00077062	373	1	406.92	BATON ROUGE	CON	1	1	1	1	UNK	10	5	30	-90.79314	30.01921
BS00077063	373	1	407.15	BATON ROUGE	STE	1	1	1	1	UNK	8	5	24	-90.79057	30.01901
BS00077064	373	1	407.35	BATON ROUGE	CON	1	1	1	1	UNK	11	4	48	-90.78718	30.01876
BS00077065	373	1	407.42	BATON ROUGE	STE	1	1	1	1	UNK	8	3	24	-90.78426	30.01855
BS00077066	373	1	407.76	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.78038	30.01886
BS00077068	373	1	407.94	BATON ROUGE	CON	1	1	1	1	UNK	6	2	40	-90.77748	30.01922
BS00077069	373	1	408.07	BATON ROUGE	CON	1	1	1	1	UNK	5	2.5	32	-90.77528	30.01936
BS00077074	373	1	408.24	BATON ROUGE	CON	1	1	1	1	UNK	4	2.5	40	-90.27086	30.01972
BS00077076	373	1	408.54	BATON ROUGE	CON	1	1	1	1	UNK	6	3	24	-90.76741	30.02003
BS00077077	373	1	408.82	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	24	-90.7631	30.0204
BS00077078	373	1	408.83	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	24	-90.76304	30.02043
BS00077079	373	1	409.07	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	24	-90.75857	30.02069
BS00077080	373	1	409.25	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	24	-90.75567	30.0209
BS00077081	373	1	409.31	BATON ROUGE	CON	1	1	1	1	UNK	0	2.5	32	-90.75471	30.021
BS00514186	373	1	409.39	BATON ROUGE	STE	1	1	1	1	UNK	8	3	24	-90.75339	30.02133
BS00077083	373	1	409.5	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	24	-90.75201	30.02129
BS00514187	373	1	409.78	BATON ROUGE	STE	1	1	1	1	UNK	8	3	42	-90.74725	30.02166

Table 1: Canadian National Railroad Culvert Inventory

Func. Loc.	Sub	Track id	From	Sub name	Culvert Type	Culvert Number	Count	Number of Tracks	Number of Segments	Road Access	Depth of Fill, ft	Width, ft	Length, ft	Longitude	Latitude
BS00514188	373	1	409.82	BATON ROUGE	CON	1	1	1	1	UNK	7	3	42	-90.74645	30.02173
BS00077086	373	1	409.89	BATON ROUGE	STE	1	1	1	1	UNK	7	2.5	24	-90.745	30.02185
BS00077087	373	1	409.95	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	24	-90.74409	30.02195
BS00077088	373	1	410.01	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	24	-90.74307	30.02201
BS00077091	373	1	410.19	BATON ROUGE	CON	1	1	2	1	UNK	6	3	58	-90.74012	30.02233
BS00077092	373	1	410.27	BATON ROUGE	CON	1	1	2	1	UNK	8	4	50	-90.73868	30.02242
BS00077096	373	1	410.39	BATON ROUGE	CON	1	1	2	1	UNK	6	2.5	40	-90.73685	30.02258
BS00077097	373	1	410.48	BATON ROUGE	CON	1	1	2	1	UNK	6	2.5	32	-90.73503	30.02276
BS00514189	373	1	410.8	BATON ROUGE	CON	1	1	2	1	UNK	6	3	58	-90.74012	30.02233
BS00514190	373	1	410.92	BATON ROUGE	CON	1	1	2	1	UNK	6	3	58	-90.74012	30.02233
BS00077106	373	1	411.03	BATON ROUGE	CON	1	1	2	1	UNK	6	2.5	80	-90.72834	30.02437
BS00077108	373	1	411.09	BATON ROUGE	CON	1	1	2	1	UNK	6	2.5	40	-90.71742	30.02481
BS00077111	373	1	411.2	BATON ROUGE	CON	1	1	2	1	UNK	7	2.5	56	-90.72595	30.02573
BS00514224	373	1	411.2	BATON ROUGE	STE	1	1	2	1	UNK	7	2.5	56	-90.72595	30.02573
BS00077113	373	1	411.29	BATON ROUGE	STE	1	1	2	1	UNK	7	2	36	-90.72459	30.02646
BS00514191	373	1	411.29	BATON ROUGE	STE	1	1	2	1	UNK	7	2	56	-90.72459	30.02646
BS00077114	373	1	411.3	BATON ROUGE	CON	1	1	2	1	UNK	7	2.5	32	-90.72449	30.02652
BS00077115	373	1	411.4	BATON ROUGE	STE	1	1	2	1	UNK	7	2	36	-90.72295	30.02728
BS00077117	373	1	411.48	BATON ROUGE	CON	1	1	2	1	UNK	7	2.5	32	-90.72189	30.02791
BS00077118	373	1	411.49	BATON ROUGE	CON	1	1	2	1	UNK	7	2.5	32	-90.7215	30.02813
BS00077119	373	1	411.51	BATON ROUGE	CON	1	1	2	1	UNK	7	2.5	32	-90.72075	30.02847
BS00077121	373	1	411.56	BATON ROUGE	CON	1	1	2	1	UNK	7	2.5	40	-90.72006	30.02905
BS00077122	373	1	411.61	BATON ROUGE	CON	1	1	2	1	UNK	6	3	40	-90.71958	30.02925
BS00077123	373	1	411.65	BATON ROUGE	CON	1	1	2	1	UNK	6	3.5	32	-90.71886	30.02962
BS00077124	373	1	411.67	BATON ROUGE	CON	1	1	1	1	UNK	6	3.5	32	-90.71857	30.02974
BS00077125	373	1	411.7	BATON ROUGE	STE	1	1	2	1	UNK	6	2	24	-90.71817	30.02995
BS00077126	373	1	411.72	BATON ROUGE	CON	1	1	2	1	UNK	6	3.5	32	-90.71788	30.03007
BS00077127	373	1	411.75	BATON ROUGE	CON	1	1	2	1	UNK	6	2.5	32	-90.71745	30.0304
BS00077128	373	1	411.77	BATON ROUGE	STE	1	1	2	1	UNK	6	2.5	32	-90.71715	30.03058
BS00077129	373	1	411.8	BATON ROUGE	CON	1	1	2	1	UNK	7	3	40	-90.71672	30.03059
BS00077130	373	1	411.85	BATON ROUGE	STE	1	1	2	1	UNK	6	2	24	-90.71628	30.03098
BS00077131	373	1	411.88	BATON ROUGE	BRI	1	1	2	1	UNK	6	2	26	-90.71578	30.03121
BS00077133	373	1	411.96	BATON ROUGE	STE	1	1	2	1	UNK	6	2	24	-90.71512	30.03163
BS00077134	373	1	411.99	BATON ROUGE	CON	1	1	2	1	UNK	7	3.5	40	-90.71468	30.03184
BS00077135	373	1	412.03	BATON ROUGE	CON	1	1	2	1	UNK	6	2.5	24	-90.71419	30.03209
BS00077136	373	1	412.06	BATON ROUGE	STE	1	1	2	1	UNK	6	2	30	-90.71344	30.03245
BS00077137	373	1	412.08	BATON ROUGE	CON	1	1	2	1	UNK	7	2.5	24	-90.7132	30.03263
BS00077138	373	1	412.1	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.71324	30.0327
BS00077139	373	1	412.13	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.71278	30.03298
BS00077140	373	1	412.15	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.71247	30.03305
BS00077141	373	1	412.17	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.71221	30.0332
BS00077142	373	1	412.23	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.7114	30.03364
BS00077143	373	1	412.26	BATON ROUGE	STE	1	1	1	1	UNK	6	2	24	-90.71095	30.03391
BS00077144	373	1	412.28	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.71066	30.03407
BS00077145	373	1	412.3	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.71037	30.03425
BS00077146	373	1	412.35	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.70962	30.03461
BS00077147	373	1	412.37	BATON ROUGE	STE	1	1	1	1	UNK	6	2	24	-90.70934	30.03477
BS00077149	373	1	412.44	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.70939	30.03532
BS00077150	373	1	412.45	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.70932	30.03537
BS00077151	373	1	412.46	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.70807	30.03548
BS00077152	373	1	412.48	BATON ROUGE	STE	1	1	1	1	UNK	7	1.5	40	-90.70787	30.0356

Table 1: Canadian National Railroad Culvert Inventory

Func. Loc.	Sub	Track id	From	Sub name	Culvert Type	Culvert Number	Count	Number of Tracks	Number of Segments	Road Access	Depth of Fill, ft	Width, ft	Length, ft	Longitude	Latitude
BS00077153	373	1	412.5	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.70759	30.03567
BS00077154	373	1	412.52	BATON ROUGE	STE	1	1	1	1	UNK	6	2	24	-90.7073	30.03592
BS00077155	373	1	412.54	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.70692	30.03613
BS00077156	373	1	412.57	BATON ROUGE	STE	1	1	1	1	UNK	6	1.7	24	-90.70655	30.03636
BS00077157	373	1	412.59	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.70629	30.03645
BS00077158	373	1	412.62	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.70589	30.03667
BS00077159	373	1	412.63	BATON ROUGE	CON	1	1	1	1	UNK	6	2	32	-90.7058	30.0368
BS00077160	373	1	412.64	BATON ROUGE	STE	1	1	1	1	UNK	6	2	24	-90.70553	30.0369
BS00077161	373	1	412.68	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.70506	30.03718
BS00077162	373	1	412.69	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.70498	30.03719
BS00077163	373	1	412.7	BATON ROUGE	STE	1	1	1	1	UNK	7	1.7	24	-90.70471	30.03738
BS00077164	373	1	412.73	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.70427	30.03761
BS00077165	373	1	412.74	BATON ROUGE	STE	1	1	1	1	UNK	6	2	36	-90.70414	30.03769
BS00077166	373	1	412.77	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.7038	30.0379
BS00077167	373	1	412.8	BATON ROUGE	STE	1	1	1	1	UNK	6	2	36	-90.70331	30.03814
BS00077168	373	1	412.81	BATON ROUGE	STE	1	1	1	1	UNK	6	3	24	-90.70322	30.03818
BS00077169	373	1	412.84	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.70281	30.03849
BS00514194	373	1	412.9	BATON ROUGE	CON	1	1	1	1	UNK	7	2	48	-90.70178	30.03892
BS00077172	373	1	412.98	BATON ROUGE	CON	1	1	1	1	UNK	7	3	48	-90.70078	30.03957
BS00077173	373	1	412.99	BATON ROUGE	CON	1	1	1	1	UNK	7	3	48	-90.70071	30.03958
BS00077174	373	1	413.05	BATON ROUGE	CON	1	1	1	1	UNK	5	2	48	-90.69974	30.04017
BS00077177	373	1	413.16	BATON ROUGE	STE	1	1	1	1	UNK	6	3	48	-90.6981	30.04086
BS00077178	373	1	413.19	BATON ROUGE	CON	1	1	1	1	UNK	7	3	84	-90.69767	30.04109
BS00077186	373	1	413.89	BATON ROUGE	STE	1	1	1	1	UNK	5	2	42	-90.68916	30.04581
BS00077187	373	1	413.92	BATON ROUGE	STE	1	1	2	1	UNK	6	3	48	-90.6889	30.04596
BS00077188	373	1	413.97	BATON ROUGE	CON	1	1	3	1	UNK	6	3	64	-90.68665	30.047
BS00077193	373	1	414.57	BATON ROUGE	STE	1	2	1	1	UNK	7	4	36	-90.67777	30.05215
BS00514201	373	1	414.57	BATON ROUGE	STE	2	2	1	1	UNK	7	4	36	-90.67777	30.05215
BS00077194	373	1	414.65	BATON ROUGE	STE	1	1	1	1	UNK	7	2	24	-90.67654	30.05284
BS00077195	373	1	414.66	BATON ROUGE	STE	1	2	1	1	UNK	7	2.5	32	-90.67647	30.05285
BS00514202	373	1	414.66	BATON ROUGE	STE	2	2	1	1	UNK	7	2.5	32	-90.67647	30.05285
BS00077196	373	1	414.74	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	32	-90.67542	30.05343
BS00077199	373	1	415.01	BATON ROUGE	CON	1	1	1	1	UNK	8	2.5	32	-90.67184	30.05441
BS00077200	373	1	415.17	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	32	-90.66932	30.05502
BS00077203	373	1	415.48	BATON ROUGE	STE	1	1	2	1	UNK	6	3	32	-90.66384	30.0558
BS00077206	373	1	415.6	BATON ROUGE	CON	1	1	2	1	UNK	6	2.5	32	-90.66055	30.05637
BS00077211	373	1	416.16	BATON ROUGE	CON	1	1	1	1	UNK	7	2.5	48	-90.65318	30.05725
BS00077215	373	1	416.33	BATON ROUGE	CON	1	1	1	1	UNK	6	2.5	48	-90.65034	30.05731
BS00077220	373	1	416.77	BATON ROUGE	CON	1	1	2	1	UNK	7	2.5	40	-90.64294	30.05757
BS00077221	373	1	416.9	BATON ROUGE	STE	1	1	1	1	UNK	8	3	36	-90.64075	30.05766
BS00077222	373	1	417.08	BATON ROUGE	CON	1	1	1	1	UNK	7	3	30	-90.63773	30.05777
BS00077223	373	1	417.28	BATON ROUGE	STE	1	1	1	1	UNK	7	4	24	-90.63441	30.05791
BS00077224	373	1	417.32	BATON ROUGE	STE	1	1	1	1	UNK	7	2.5	32	-90.63396	30.05793
BS00077225	373	1	417.34	BATON ROUGE	STE	1	1	1	1	UNK	7	2.5	32	-90.63333	30.05795
BS00077226	373	1	417.35	BATON ROUGE	STE	1	1	1	1	UNK	7	2.5	32	-90.63297	30.05796
BS00077227	373	1	417.37	BATON ROUGE	STE	1	1	1	1	UNK	7	2.5	32	-90.63208	30.05801
BS00077228	373	1	417.42	BATON ROUGE	STE	1	1	1	1	UNK	7	2.5	32	-90.63159	30.05803

The basins located between the Mississippi River and the CN railroad are much higher in elevation than the northern reaches of the parish towards Lake Maurepas. Typically, these near river basins drain well on their own and rarely flood. Using the culvert data supplied to us by CN, contributory sub basins were carved out for each culvert or culvert groupings, runoffs were calculated for a 10 year event using the rational method and Manning's Equation was used to determine the capacity of the existing culverts. If the culverts were found to be undersized, additional culverts were added to meet the runoff requirements generated from the rational method. After a brief description of the analyses methods used in this section, please see the Appendix A for the full analysis spreadsheet for every railroad culvert in the east bank of St., James Parish. Table 2A details the analysis of only the rail road culverts that were deemed to be insufficient. The idea is to add additional culverts beneath the railroad where needed instead of removing the existing undersized culvert and installing a larger culvert. It is much more cost effective to simply supplement the undersized culverts with additional culverts. Since BKI was not able to visually inspect all the culverts due to CN safety rules, it is recommended that parish officials and CN officials make arrangements to walk and survey the condition of the railroad culverts in Appendix A. For analyses purposes BKI assumed they were all in good condition and free of obstructions. Figure 4 shows the locations of the undersized railroad culverts including the mile marker, State Plane Coordinates and the additional culvert sizes and types needed to handle the flow. Table 2B lists the order of magnitude costs to jack and bore the additional culverts beneath the railroad. CN and St. James Parish may be able to join in together to share the roughly 1.4 million dollar cost of this project. Already in the Belle Rue subdivision additional railroad culverts have been installed to alleviate the flooding that is occurring behind the railroad tracks. Figure 2 below is the Rational Method Equation and an explanation of what each variable in the equation represents. One the runoffs were calculated, the next step in the analyses was to compute the existing culvert capacities and compare the two flows.

Q = CIA where
Q; is the runoff rate in cubic feet per second (c.f.s.)
C; Runoff Coefficient See Table 1
I; Intensity of the rain event taken from the Figure 3 curve or equation in inches per hr. (in./hr.)
A; is the area in Acres

Figure 1: Rational Method Formula

Figure 2: is the 10 year Intensity Duration Curve used in the rational method from the Louisiana Department of Transportation (La.D.O.T.D.) Hydraulics Manual.

Figure 2: Rational Method Regions Map

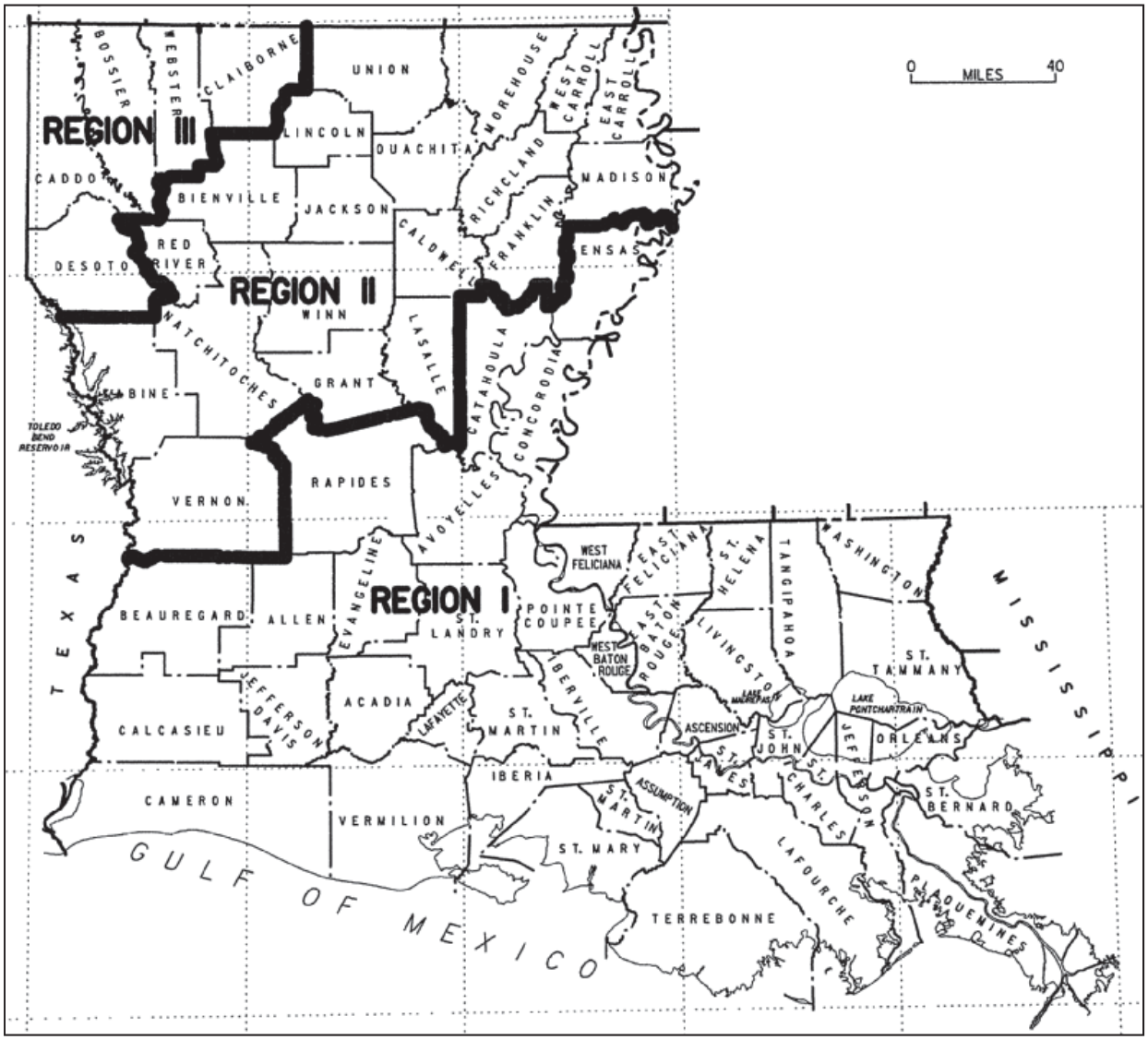


Figure 3.4-2 Louisiana Rainfall Regions

This map was developed by the Louisiana Transportation Research Center (LTRC). Use this map when determining the peak runoff by the NRCS and Rational Methods.

Figure 2: Rational Method Intensity Curve-Equation

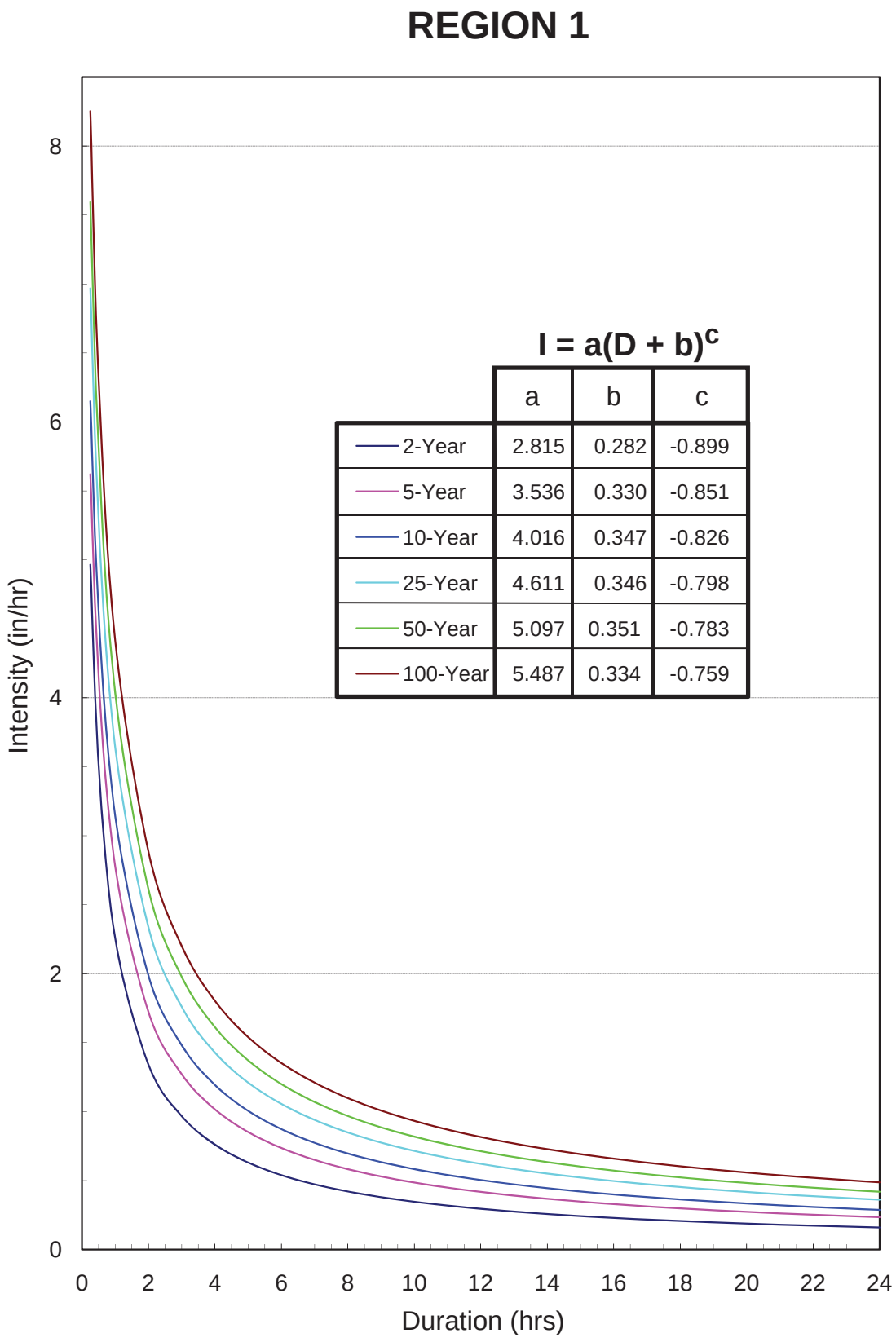


Figure 3.4-3 Region 1 Rainfall Intensity Curve (Rational Method)

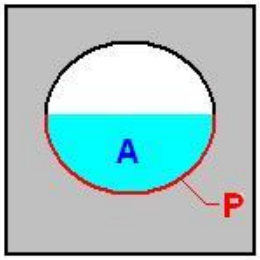
Figure 3 below is the Manning's Equation and an explanation of what each variable in the equation represents.

If you know the pipe material, size, and slope, then you can calculate the amount of water flowing in the pipe.

MANNING'S FORMULA

$$Q = A * 1.486/n * R^{2/3} * S^{1/2}$$

* **Q = Discharge (cu. ft./sec.)**
* **A = Cross-sectional Area of Flow (sq. ft.)**
* **n = Coefficient of Roughness**
* **R = Hydraulic Radius (ft.)**
* **S = Slope of Pipe (ft./ft.)**



Hydraulic Radius

$$R = A / P$$

* **R = Hydraulic Radius (ft.)**
* **A = Cross-sectional Area of Flow (sq. ft.)**
* **P = Wetted perimeter (ft.)**

EXAMPLE: For a 24-inch diameter RCP (Reinforced Concrete Pipe) flowing full at 1.7% slope:

A = 3.14 sq. ft.
P = 6.29 ft.
R = 0.50
n = 0.012
square root of 0.017 = 0.13

Q = 32 cu. ft./sec.

1 cubic foot = 7.48 gallons

Q = 239 gallons per second

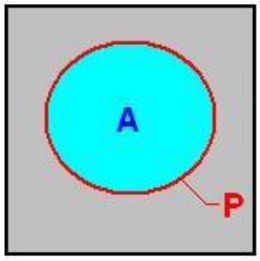


Figure 3: Manning's Equation, Culvert Capacity

From	Location (State Plane)		(C)	Area	Overland Length	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
Mile Marker	Y	X		(Acres)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
St. James Master Drainage Plan (Undersized Railroad Culverts)																						
397.3	582929.99	3418147.15	0.35	48.90	3040.0	0.02	670.00	116.0	22.3	138.4	1.79	30.70	6.25	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
																					34.51	
397.65	581134.94	3418536.58	0.35	90.18	3040.0	0.02	1070.00	116.0	35.7	151.7	1.68	52.98	10.79	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	42	3.50	0.012	0.0015	9.62	11.00	0.88	42.32	4.40
																					59.58	
397.73	580560.77	3418649.44	0.35	18.55	3040.0	0.02	115.00	116.0	3.8	119.9	1.99	12.90	4.11	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
																					13.93	
397.88	579972.20	3418800.31	0.35	27.60	3155.0	0.02	220.00	117.7	7.3	125.1	1.93	18.62	3.79	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
																					18.75	
398.65	575725.18	3419920.28	0.35	15.23	2880.0	0.02	145.00	113.6	4.8	118.4	2.00	10.68	3.40	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
																					11.01	
398.96	574685.52	3420977.48	0.35	17.23	3010.0	0.02	150.00	115.6	5.0	120.6	1.98	11.93	3.80	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
																					13.93	
399.69	573167.03	3424187.43	0.35	21.40	3030.0	0.02	210.00	115.9	7.0	122.9	1.95	14.62	4.65	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					19.03	
399.73	573106.75	3424576.71	0.35	21.00	2960.0	0.02	200.00	114.8	6.7	121.5	1.97	14.46	4.60	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					19.03	
400.13	572795.02	3426652.86	0.35	26.98	2450.0	0.02	350.00	106.6	11.7	118.3	2.00	18.93	3.86	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
2																					21.67	
400.24	572677.51	3427273.29	0.35	32.50	2270.0	0.02	310.00	103.5	10.3	113.8	2.06	23.43	4.77	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					26.77	
400.28	572618.18	3427890.31	0.35	49.60	2045.0	0.02	775.00	99.4	25.8	125.2	1.93	33.45	4.73	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
3																					37.57	
401.01	572050.28	3431292.90	0.35	47.71	1645.0	0.02	690.00	91.2	23.0	114.2	2.05	34.31	4.85	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					37.57	
401.28	571841.57	3432698.17	0.35	42.48	2000.0	0.02	690.00	98.5	23.0	121.5	1.97	29.26	5.96	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
																					34.51	
402.13	569415.79	3436105.71	0.35	36.56	1645.0	0.02	805.00	91.2	26.8	118.1	2.01	25.69	5.23	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					26.77	
402.4	568373.29	3437236.33	0.35	93.23	1780.0	0.02	1665.00	94.1	55.5	149.6	1.70	55.33	7.83	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
FAIL													NEW	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
																					56.11	
402.99	565719.07	3439041.56	0.35	55.00	1775.0	0.02	1230.00	94.0	41.0	135.0	1.83	35.15	11.19	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
																					37.57	
403.04	565294.78	3439315.48	0.35	38.84	1925.0	0.02	695.00	97.0	23.2	120.2	1.98	26.95	5.49	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					26.77	

From	Location (State Plane)		(C)	Area	Overland Length	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
Mile Marker	Y	X		(Acres)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
403.28	564137.68	3440000.75	0.35	75.17	2190.0	0.02	955.00	102.1	31.8	133.9	1.84	48.32	15.38	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	42	3.50	0.012	0.0015	9.62	11.00	0.88	42.32	4.40
																					51.84	
403.71	562339.97	3440556.00	0.35	51.54	2070.0	0.02	925.00	99.8	30.8	130.7	1.87	33.71	6.87	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
																					34.51	
403.78	562038.34	3440604.78	0.35	25.52	2040.0	0.02	350.00	99.3	11.7	110.9	2.10	18.73	5.96	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					19.03	
403.96	560792.50	3440955.16	0.35	88.85	2055.0	0.02	1565.00	99.5	52.2	151.7	1.68	52.19	10.63	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	42	3.50	0.012	0.0015	9.62	11.00	0.88	42.32	4.40
																					59.58	
404.6	557552.41	3441817.51	0.35	104.18	2365.0	0.02	1610.00	105.2	53.7	158.8	1.62	59.19	8.37	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
FAIL													NEW	42	3.50	0.012	0.0015	9.62	11.00	0.88	42.32	4.40
																					70.38	
404.95	555896.07	3442261.56	0.35	23.55	2690.0	0.02	285.00	110.6	9.5	120.1	1.98	16.35	5.20	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					19.03	
405.09	555198.74	3442467.19	0.35	23.64	2860.0	0.02	300.00	113.3	10.0	123.3	1.95	16.11	5.13	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					19.03	
405.28	554640.15	3442792.47	0.35	28.99	3040.0	0.02	300.00	116.0	10.0	126.0	1.92	19.45	6.19	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					19.03	
405.61	553804.45	3443767.75	0.35	46.96	3930.0	0.02	495.00	128.3	16.5	144.8	1.74	28.53	5.81	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
																					34.51	
405.67	553467.24	3444797.79	0.35	58.66	4940.0	0.02	500.00	140.3	16.7	157.0	1.64	33.61	4.75	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					37.57	
405.83	553466.40	3445414.91	0.35	94.94	5550.0	0.02	775.00	146.9	25.8	172.7	1.53	50.72	7.18	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
FAIL													NEW	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
																					56.11	
406.08	553266.19	3446966.52	0.35	128.67	7490.0	0.02	780.00	165.2	26.0	191.2	1.42	63.75	9.02	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
FAIL													NEW	42	3.50	0.012	0.0015	9.62	11.00	0.88	42.32	4.40
																					70.38	
406.27	553194.50	3447985.89	0.35	152.34	9020.0	0.02	485.00	177.7	16.2	193.8	1.40	74.71	10.57	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
FAIL													NEW	48	4.00	0.012	0.0015	12.57	12.57	1.00	60.43	4.81
																					88.49	
406.46	553111.92	3449002.14	0.35	232.54	11300.0	0.02	540.00	194.1	18.0	212.1	1.31	106.62	15.08	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
FAIL													NEW	54	4.50	0.012	0.0015	15.90	14.14	1.13	82.73	5.20
																					110.79	
406.67	553022.21	3450043.76	0.35	235.24	12115.0	0.02	380.00	199.4	12.7	212.1	1.31	107.85	21.97	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	60	5.00	0.012	0.0015	19.63	15.71	1.25	109.58	5.58
																					126.83	
407.94	552908.63	3456744.05	0.35	13.04	750.0	0.02	380.00	67.1	12.7	79.7	2.62	11.96	3.81	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
																					13.93	
410.48	554263.63	3470171.35	0.35	50.70	1350.0	0.02	1060.00	84.4	35.3	119.8	1.99	35.27	7.19	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
																					34.51	
411.03	554860.24	3472285.34	0.35	79.63	2400.0	0.02	930.00	105.8	31.0	136.8	1.81	50.41	10.27	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	42	3.50	0.012	0.0015	9.62	11.00	0.88	42.32	4.40

From	Location (State Plane)		(C)	Area	Overland Length	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
Mile Marker	Y	X		(Acres)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
																					59.58	
411.2	555358.81	3473039.04	0.35	36.06	2405.0	0.02	380.00	105.9	12.7	118.5	2.00	25.27	5.15	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					26.77	
411.29	555626.57	3473467.99	0.35	31.53	2375.0	0.02	325.00	105.3	10.8	116.2	2.03	22.41	7.13	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
																					26.77	
411.3	555648.56	3473499.52	0.35	31.53	2375.0	0.02	325.00	105.3	10.8	116.2	2.03	22.41	4.56	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
																					21.67	
411.4	555927.53	3473985.37	0.35	25.99	2280.0	0.02	290.00	103.7	9.7	113.3	2.07	18.79	5.98	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					19.03	
412.9	560196.81	3480661.09	0.35	16.16	1750.0	0.02	210.00	93.5	7.0	100.5	2.25	12.70	4.04	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
																					13.93	
413.05	560654.94	3481304.04	0.35	16.32	1705.0	0.02	260.00	92.5	8.7	101.2	2.23	12.76	4.06	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
																					13.93	
413.19	560993.14	3481957.13	0.35	60.34	1610.0	0.02	1610.00	90.5	53.7	144.1	1.74	36.79	5.20	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					37.57	
413.89	562724.64	3484640.02	0.35	53.02	1345.0	0.02	1610.00	84.3	53.7	138.0	1.80	33.35	10.62	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
FAIL													NEW	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
																					37.57	
413.97	563161.87	3485431.69	0.35	53.56	1225.0	0.02	1490.00	81.3	49.7	130.9	1.87	34.98	4.95	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					37.57	
415.01	565883.32	3490101.69	0.35	21.65	965.0	0.02	540.00	74.0	18.0	92.0	2.38	18.06	3.68	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
																					18.75	
415.17	566109.76	3490897.61	0.35	24.63	805.0	0.02	1045.00	69.0	34.8	103.8	2.20	18.93	3.86	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
																					18.75	
416.33	566977.83	3496897.01	0.35	35.64	790.0	0.02	1285.00	68.4	42.8	111.3	2.09	26.10	5.32	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
																					26.77	
416.77	567086.41	3499237.39	0.35	46.52	1570.0	0.02	1070.00	89.6	35.7	125.2	1.93	31.36	6.39	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
																					34.51	
417.08	567169.11	3500885.09	0.35	60.13	2690.0	0.02	510.00	110.6	17.0	127.6	1.90	40.00	5.66	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
FAIL													NEW	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
																					45.31	
417.42	567275.50	3502826.86	0.35	204.12	3595.0	0.02	1675.00	123.9	55.8	179.8	1.48	105.88	21.57	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
FAIL													NEW	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
																					21.67	

Mile Marker 397.3
3418147.15,582929.99
Add 30'-40" Class V RCP
$33514

Mile Marker 397.65
3418536.58,581134.94
Add 24'-42" Class V RCP
$30856

Mile Marker 397.73
3418649.44,580560.77
Add 24'-18" Class V RCP
$9360

Mile Marker 397.88
3418800.31,579972.20
Add 24'-12" Class V RCP
$3986

Mile Marker 398.65
3419920.28,575725.18
Add 36'-12" Class V RCP
$5979

Mile Marker 398.96
3420977.48,574685.52
Add 36'-18" Class V RCP
$14040

Mile Marker 399.69
3424187.43,573167.03
Add 30'-24" Class V RCP
$18418

Mile Marker 399.73
3424576.71,573106.75
Add 30'-24" Class V RCP
$18418

Mile Marker 400.13
3426652.86,572795.02
Add 32'-18" Class V RCP
$12480

Mile Marker 400.24
3427273.29,572677.51
Add 32'-24" Class V RCP
$19645

Mile Marker 400.28
3427890.31'572618.18
Add 30'-8" Class V RCP
$4911

Mile Marker 401.01
3431292.9,572050.28
Add 24'-24" Class V RCP
$14734

Mile Marker 401.28
3432698.17,571841.57
Add 40'-30" Class V RCP
$33514

Mile Marker 402.13
3436105.71,569415.79
Add 40'-24" Class V RCP
$24557

Mile Marker 402.4
3437236.33,568373.29
Add 36'-36" Class V RCP
$38223

Mile Marker 402.99
3439041.56,565719.07
Add 32'-36" Class V RCP
$33976

Mile Marker 403.04
3439315.48,565294.78
Add 32'-24" Class V RCP
$19648

Mile Marker 403.28
3440000.75,564137.68
Add 30'-42" Class V RCP
$38570

Mile Marker 403.71
3440556,562339.97
Add 32'-30" Class V RCP
$26811

Mile Marker 403.78
3440604.78,562038.34
Add 30'-24" Class V RCP
$22101

Mile Marker 403.96
3440955.16,560792.5
Add 30'-42" Class V RCP
$51427

Mile Marker 404.6
3441817.51,557552.41
Add 30'-42" Class V RCP
$46284

Mile Marker 404.95
3442261.56,555896.07
Add 30'-24" Class V RCP
$24557

Mile Marker 405.09
3442467.19,555198.74
Add 30'-24" Class V RCP
$29468

Mile Marker 405.28
3442792.47,554640.15
Add 30'-24" Class V RCP
$29468

Mile Marker 405.61
3443767.75,553804.45
Add 30'-30" Class V RCP
$33514

Mile Marker 405.67
3444797.79,553467.24
Add 40'-24" Class V RCP
$24557

Mile Marker 405.83
3445414.91,553466.40
Add 24'-36" Class V RCP
$25482

Mile Marker 406.08
3446966.52,553266.19
Add 24'-42" Class V RCP
$30856

Mile Marker 406.27
3447985.89,553194.5
Add 24'-48" Class V RCP
$36230

Mile Marker 406.46
3449002.14,553111.92
Add 24'-54" Class V RCP
$41604

Mile Marker 406.67
3450043.76,553022.21
Add 32'-60" Class V RCP
$62638

Mile Marker 407.94
3456744.05,552908.63
Add 40'-18" Class V RCP
$15600

Mile Marker 410.48
3470171.35,554263.63
Add 32'-30" Class V RCP
$26811

Mile Marker 411.03
3472285.34,554860.24
Add 80'-42" Class V RCP
$102854

Mile Marker 411.2
3473039.04,555358.81
Add 56'-24" Class V RCP
$34380

Mile Marker 411.3
3473499.52,555648.56
Add 32'-18" Class V RCP
$12480

Mile Marker 411.4
3473985.37,555927.53
Add 36'-24" Class V RCP
$22101

Mile Marker 411.29
3473467.99,555626.57
Add 56'-30" Class V RCP
$46919

Mile Marker 412.9
3480661.09,560196.81
Add 48'-18" Class V RCP
$18720

Mile Marker 413.05
3481304.04,560654.94
Add 48'-18" Class V RCP
$18720

Mile Marker 413.19
3481957.13,560993.14
Add 84'-24" Class V RCP
$51569

Mile Marker 413.89
3484640.02,562724.64
Add 42'-36" Class V RCP
$44594

Mile Marker 413.97
3485431.69,563161.87
Add 64'-24" Class V RCP
$39291

Mile Marker 415.01
3490101.69,565883.32
Add 32'-12" Class V RCP
$5315

Mile Marker 415.17
3490897.61,566109.76
Add 32'-12" Class V RCP
$5315

Mile Marker 416.33
3496897.01,566977.83
Add 48'-24" Class V RCP
$29468

Mile Marker 416.77
3499237.39,567086.41
Add 40'-30" Class V RCP
$33514

Mile Marker 417.08
3500885.09,567169.11
Add 30'-30" Class V RCP
$25135

Mile Marker 417.42
3502826.86,567275.5
Add 32'-18" Class V RCP
$12480

Figure 4:
CN RailRoad
Culvert Map
Page 15

Table 2B: ST. JAMES COST ESTIMATES FOR UNDERSIZED RAILROAD CULVERTS

From (mile)	Existing Culvert Type	Existing Culvert Size	New Culvert Type	New Culvert Size Class V (in.)	Length (ft.)	Unit Cost ($)	Cost Estimate ($)	Notes
396.92	Steel	36	Concrete	36	24	65.85	1580.40	First Culvert Area May Vary
397.15	Steel	24	Concrete	24	24	33.60	806.40	
397.3	Concrete	30	Concrete	42	40	81.31	3252.40	Near 1-70
397.65	Concrete	30	Concrete	48	24	112.00	2688.00	
397.67	Steel	24	Concrete	30	24	47.71	1145.04	
397.73	Steel	24	Concrete	30	24	47.71	1145.04	Longitude of 397.76 OFF
398.04	Steel	24	Concrete	24	24	33.60	806.40	
398.15	Steel	24	Concrete	24	24	33.60	806.40	
398.17	Steel	24	Concrete	24	24	33.60	806.40	
398.2	Steel	24	Concrete	24	24	33.60	806.40	
398.25	Steel	24	Concrete	24	24	33.60	806.40	
398.44	Concrete	24	Concrete	24	40	33.60	1344.00	
398.58	Steel	24	Concrete	24	24	33.60	806.40	
398.82	Steel	30	Concrete	30	48	47.71	2290.08	
398.96	Steel	24	Concrete	30	36	47.71	1717.56	
400.24	Concrete	30	Concrete	36	32	65.85	2107.20	
400.79	Steel	36	Concrete	36	24	65.85	1580.40	
401.01	Steel	36	Concrete	42	24	81.31	1951.44	
401.28	Concrete	30	Concrete	42	40	81.31	3252.40	
401.46	Steel	36	Concrete	36	36	65.85	2370.60	
401.61	Steel	30	Concrete	30	30	47.71	1431.30	
401.73	Steel	24	Concrete	24	24	33.60	806.40	
402.13	Concrete	30	Concrete	36	40	65.85	2634.00	402.17 & 402.23 do not have Latitude and Longitude (0)
402.4	Concrete	36	Concrete	48	36	112.00	4032.00	402. 92 & 402.96 do not have Latitude and Longitude (0); Latitude of 402.78 OFF
402.99	Concrete	24	Concrete	42	32	81.31	2601.92	402.92 & 402.96 do not have Latitude and Longitude (0)
403.04	Steel	30	Concrete	36	32	65.85	2107.20	403.08 & 403.14 do not have Latitude and Longitude (0)
403.28	Steel	24	Concrete	48	30	112.00	3360.00	403.18 & 403.22 & 403.26 do not have Latitude and Longitude (0)
403.71	Concrete	30	Concrete	42	32	81.31	2601.92	Previous 6 Culverts do not have Latitude nor Longitude (0)
403.78	Steel	24	Concrete	36	36	65.85	2370.60	403.81 does not have Latitude and Longitude (0)
403.96	Concrete	30	Concrete	48	40	112.00	4480.00	
404.6	Steel	36	Concrete	48	36	112.00	4032.00	
404.95	Concrete	24	Concrete	30	40	47.71	1908.40	
405.09	Steel	24	Concrete	30	48	47.71	2290.08	
405.28	Steel	24	Concrete	36	48	65.85	3160.80	
405.34	Steel	24	Concrete	24	24	33.60	806.40	
405.61	Concrete	30	Concrete	42	40	81.31	3252.40	
405.67	Concrete	36	Concrete	42	40	81.31	3252.40	
405.79	Steel	48	Concrete	48	36	112.00	4032.00	On top of 405.83 (ran the same area as 405.83)
405.83	Steel	36	Concrete	48	24	112.00	2688.00	On top of 405.79 (ran the same area as 405.79)

Table 2B: ST. JAMES COST ESTIMATES FOR UNDERSIZED RAILROAD CULVERTS

From (mile)	Existing Culvert Type	Existing Culvert Size	New Culvert Type	New Culvert Size Class V (in.)	Length (ft.)	Unit Cost ($)	Cost Estimate ($)	Notes
406.46	Steel	36	Concrete	78	24	237.50	5700.00	Large Forest Area by Rev Thomas Scott Street
406.67	Concrete	30	Concrete	78	32	237.50	7600.00	Large Forest Area by Rev Thomas Scott Street
407.42	Steel	36	Concrete	36	24	65.85	1580.40	
407.94	Concrete	24	Concrete	30	40	47.71	1908.40	
410.48	Concrete	30	Concrete	42	32	81.31	2601.92	Longitude of 410.8 OFF; Longitude of 410.92 OFF
411.03	Concrete	30	Concrete	48	80	112.00	8960.00	Longitude of 410.8 OFF; Longitude of 410.92 OFF; Longitude of 411.09 OFF
411.3	Concrete	30	Concrete	36	32	65.85	2107.20	
411.4	Steel	24	Concrete	36	36	65.85	2370.60	
411.85	Steel	24	Concrete	24	24	33.60	806.40	
411.88	Brick	24	Concrete	24	26	33.60	873.60	
411.96	Steel	24	Concrete	24	24	33.60	806.40	
412.06	Steel	24	Concrete	24	30	33.60	1008.00	
412.48	Steel	18	Concrete	18	40	19.71	788.40	
412.52	Steel	24	Concrete	21	24	28.00	672.00	
412.57	Steel	21 (20.4)	Concrete	21	24	28.00	672.00	
413.19	Concrete	36	Concrete	42	84	81.31	6830.04	Might suggest adding a culvert in between these two mile markers (413.19 & 413.89) instead of replacing both culverts
413.89	Steel	24	Concrete	42	42	81.31	3415.02	
416.33	Concrete	30	Concrete	36	48	65.85	3160.80	
416.77	Concrete	30	Concrete	42	40	81.31	3252.40	
416.9	Steel	36	Concrete	36	36	65.85	2370.60	
417.08	Concrete	36	Concrete	42	30	81.31	2439.30	
417.37	Steel	30	Concrete	30	32	47.71	1526.72	
417.42	Steel	30	Concrete	60	32	145.60	4659.20	Area may vary last culvert in St. James Parish
TOTAL					2088		150026.58	

3. Driveway Culvert Analysis:

The east bank of St. James Parish consists of three distinct but interrelated areas. The first distinct drainage area is the land-basins between the Mississippi River Levee and the Canadian National Railroad please see section above. The runoff from this area is routed through culverts that run beneath the Railroad and into the land-basins between the railroad tracks and Louisiana State Highway 3125, the second distinct drainage area. The gravity drainage infrastructure in this area consists drive way culverts and ditches that route the runoff in a perpendicular direction to Louisiana State Highway 3125 (LA. 3125). For the purposes of this reports we label this infrastructure "driveway culverts. The analyses began with multiple field inspections where all the driveway culvert on both sides of La. 3125 were inventoried. The data in this inventory includes the size, type, condition, length and location of the driveway culverts. In the same manner as the rail road culverts were analyzed, so to were the driveway culverts. The rational method, was employed to calculate the runoff from a 10 year rain event, see Figure 1 above. This runoff was compared to the calculated capacity of the exiting culvert using Manning's Equation, see Figure 3 above. If a driveway culvert was found to be insufficient the properly sized culvert was detailed and listed in the spreadsheet. This replacement approach to driveway culvert capacity was different than the supplemental culvert approach deemed to be most cost effective for the railroad culverts. Since the driveway ditches are small placing multiple culverts in them may prove to be difficult. Because most of the driveway culverts are topped with earthen ground pulling and replacing them can be done relatively easily. In fact, where some culverts are undersized in the more downstream areas, they could be used as replacement driveway culverts further upstream where smaller driveway culverts are need. Appendix B details the culvert analyses for every driveway culvert in the east bank of St. James Parish. Table 3A lists the driveway culvert analyses for the driveway culverts that were deemed insufficient or damaged and silted in. Figure 5 shows the plan view of where these under sized culverts can be found within the east bank of St. James Parish. The first page in the packet is a key for the entire east bank of St. James Parish. This key sheet tells the reader what page details the driveway culvert replacements in a particular area of the east bank of St. James Parish. and finally, Table 3B details the total replacement cost for the driveway culverts, 4.5 million dollars. Table 3C details the per street overall cost for driveway culvert replacement. The parish should perform the driveway culvert replacements in an orderly, not haphazard way so each sub basins drainage is improved before moving on to the next sub basin. Also, the driveway culvert replacements should proceed downstream to upstream so as to avoid shifting the location of the flooding or worsening the flooding in another inhabited part of the parish. By having parish workers replace the driveway culverts, the work can be completed as money and time becomes available. This work is relatively simple since the driveway culverts are mostly topped with soil.

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
St. James Master Drainage Plan																						
Cherry St. 15" (38')	0.35	5.95	100.0			0.02	1040.00	30.5	34.7	65.1	2.98	6.22	5.06	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
Plum Ave. 12" (64')	0.35	2.34	250.0			0.02	525.00	43.6	17.5	61.1	3.10	2.54	3.24	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Railroad Ave outfall @ Plum (82')	0.35	20.31	0.0			0.02	1655.00	0.0	55.2	55.2	3.30	23.49	5.91	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
UNDERSIZED													**NEW**	**36**	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
Railroad and W Millet 15" (32')	0.35	3.79	84.0			0.02	940.00	28.5	31.3	59.8	3.15	4.17	3.40	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED, 18"ok, 24"set by upstream													**NEW**	**24**	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
Hickory Lane 15" (88')	0.35	3.62	140.0			0.02	660.00	34.8	22.0	56.8	3.25	4.12	3.35	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
S Railroad W Elm 21" (34')	0.35	8.47	95.0			0.02	1455.00	29.9	48.5	78.4	2.65	7.86	3.27	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
UNDERSIZED													**NEW**	**24**	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
S Railroad @ Fir 15" (25')	0.35	3.87	90.0			0.02	1189.00	29.2	39.6	68.9	2.88	3.90	3.18	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED, 18"ok, 21"set by upstream													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
Fir Street 12" (8')	0.35	2.29	97.0			0.02	660.00	30.1	22.0	52.1	3.42	2.74	3.49	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Airline Avenue 24" (?)	0.35	4.64	160.0			0.02	1155.00	36.6	38.5	75.1	2.73	4.43	1.41	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK																						
W S David Drive 12" (33')	0.35	0.86	105.0			0.02	180.00	31.1	6.0	37.1	4.14	1.25	1.59	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W S David Drive 15" (270')	0.35	3.50	105.0			0.02	905.00	31.1	30.2	61.2	3.10	3.80	3.10	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W S David Drive first 15" (20')	0.35	2.20	105.0			0.02	610.00	31.1	20.3	51.4	3.45	2.65	2.16	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E S David Drive 30" (147.5')	0.35	3.26	133.0			0.02	615.00	34.1	20.5	54.6	3.33	3.79	0.77	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, LARGE																						
E S David Drive 36" (49')	0.35	4.14	133.0			0.02	855.00	34.1	28.5	62.6	3.06	4.43	0.63	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
OK, LARGE																						
E S David Drive 27" (?)	0.35	4.50	133.0			0.02	950.00	34.1	31.7	65.7	2.97	4.67	1.18	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK,LARGE, UNDERSIZED FOR UPSTREAM																						
W Railroad under David Drive 24" (88')	0.35	18.39	120.0			0.02	1050.00	32.7	35.0	67.7	2.91	18.74	5.97	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
UNDERSIZED													**NEW**	**36**	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
E Lawrence Street 48" (?)	0.35	47.84	50.0			0.02	1280.00	23.2	42.7	65.9	2.96	49.61	3.95	48	4.00	0.012	0.0015	12.57	12.57	1.00	60.43	4.81
OK																						
E Lawrence Street 8" (70')	0.35	0.80	132.0			0.02	225.00	34.0	7.5	41.5	3.89	1.09	3.12	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**12**	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
E Lawrence Street 12" (?)	0.35	1.35	132.0			0.02	375.00	34.0	12.5	46.5	3.65	1.73	2.20	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W Lutcher Avenue 12" (33')	0.35	2.29	165.0			0.02	510.00	37.1	17.0	54.1	3.34	2.68	3.41	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W Albert Street 18" (82.5')	0.35	2.13	90.0			0.02	460.00	29.2	15.3	44.6	3.74	2.79	1.58	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Albert Street 12" (72')	0.35	0.93	312.0			0.02	0.00	47.6	0.0	47.6	3.60	1.17	1.49	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
E Albert Street 15" (4.25')	0.35	2.10	312.0			0.02	305.00	47.6	10.2	57.7	3.21	2.36	1.93	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Albert Street 18" (84')	0.35	2.10	312.0			0.02	305.00	47.6	10.2	57.7	3.21	2.36	1.34	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W King Avenue 12" (3.5')	0.35	0.56	105.0			0.02	0.00	31.1	0.0	31.1	4.53	0.89	1.13	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W King Avenue 15" (13')	0.35	1.08	105.0			0.02	283.00	31.1	9.4	40.5	3.95	1.49	1.22	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W King Avenue and Railroad 18" (22')	0.35	2.47	105.0			0.02	690.00	31.1	23.0	54.1	3.34	2.89	1.64	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
S Railroad Driveway 8" (12.5')	0.35	0.30	75.0			0.02	0.00	27.2	0.0	27.2	4.83	0.51	1.45	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
OK																						
Railroad Outfall b/t Levy and Miles 24" (?)	0.35	2.50	105.0			0.02	700.00	31.1	23.3	54.4	3.33	2.92	0.93	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK																						
Exchange Alley 15" (23')	0.35	1.02	120.0			0.02	78.00	32.7	2.6	35.3	4.24	1.51	1.23	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
N Inez Street W of King third 12" (13')	0.35	2.06	120.0			0.02	375.00	32.7	12.5	45.2	3.71	2.68	3.41	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
N Inez Street W of King fourth 12" (18.5')	0.35	2.14	120.0			0.02	420.00	32.7	14.0	46.7	3.64	2.73	3.47	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
N Inez W of King Street 18" (30.5')	0.35	2.40	120.0			0.02	525.00	32.7	17.5	50.2	3.49	2.93	1.66	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
N Inez E of King Street 18" (28')	0.35	0.92	106.0			0.02	200.00	31.2	6.7	37.8	4.09	1.32	0.75	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
S Inez W of King Street (16')	0.35	1.49	107.0			0.02	450.00	31.3	15.0	46.3	3.66	1.91	1.08	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
W King S of Inez Street (13')	0.35	0.56	98.0			0.02	212.00	30.2	7.1	37.3	4.12	0.81	1.03	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W King N of Inez Street 12" (3.5')	0.35	0.70	60.0			0.02	410.00	24.9	13.7	38.6	4.05	0.99	1.26	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
W King N of Inez Street 15" (13')																						
OK,OVERSIZED																						
Outfall C/L King 24" (24.5')	0.35	7.22	140.0			0.02	570.00	34.8	19.0	53.8	3.36	8.48	2.70	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK																						
S Inez 18" (25')	0.35	3.19	107.0			0.02	450.00	31.3	15.0	46.3	3.66	4.09	2.31	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
W Central to Inez 12" (4.5')	0.35	1.21	85.0			0.02	215.00	28.6	7.2	35.8	4.22	1.79	2.27	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W Central to Inez 12" (12.5')	0.35	1.21	85.0			0.02	182.00	28.6	6.1	34.7	4.28	1.81	2.31	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W Central to Inez 21" (3.5')	0.35	1.21	85.0			0.02	113.00	28.6	3.8	32.4	4.44	1.88	0.78	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK																						
W Central to Inez 12" (27.5')	0.35	1.21	85.0			0.02	52.00	28.6	1.7	30.3	4.58	1.94	2.47	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
Outfall C/L King 18" (65')	0.35	7.22	140.0			0.02	1000.00	34.8	33.3	68.1	2.90	7.33	4.15	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK													**NEW**	**24**	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
W King (across railroad)15" (33')	0.35	0.81	55.0			0.02	270.00	24.1	9.0	33.1	4.39	1.24	1.01	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
W King 12" (4.5')	0.35	0.45	55.0			0.02	140.00	24.1	4.7	28.8	4.70	0.74	0.94	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W King 15" (24')	0.35	0.35	55.0			0.02	100.00	24.1	3.3	27.4	4.81	0.59	0.48	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E King (Across Railroad) 12" (28')	0.35	0.51	40.0			0.02	205.00	21.3	6.8	28.1	4.75	0.85	1.08	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
C/L King (Across Railroad) 24" (68.5')	0.35	7.31	65.0			0.02	1346.00	25.7	44.9	70.6	2.84	7.26	2.31	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK																						
Railroad Outfall Under R/R 36" (?)	0.35	11.47	65.0			0.02	1346.00	25.7	44.9	70.6	2.84	11.39	1.61	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
OK																						
Edge of House E of King 15" (23.5')	0.35	0.37	80.0			0.02	0.00	27.9	0.0	27.9	4.77	0.62	0.50	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
N Railroad Outfall from Central 12" (32.5')	0.35	1.39	140.0			0.02	214.00	34.8	7.1	41.9	3.87	1.88	2.40	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.00	1.23	3.93	0.31	2.72	2.21
W Central 12" (49')	0.35	1.28	140.0			0.02	160.00	34.8	5.3	40.1	3.97	1.78	2.26	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.00	1.23	3.93	0.31	2.72	2.21
W Central 15" (95.5')	0.35	0.95	140.0			0.02	54.00	34.8	1.8	36.6	4.17	1.39	1.13	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
W Central 10" (55')	0.35	0.45	140.0			0.02	0.00	34.8	0.0	34.8	4.28	0.67	1.24	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
N Railroad Under Central 24" (35')	0.35	1.01	140.0			0.02	245.00	34.8	8.2	42.9	3.82	1.35	0.43	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED ***																						
W Nichols (Front Corner of Shed) 21" (20.5')	0.35	6.11	266.0			0.02	0.00	44.7	0.0	44.7	3.73	7.99	3.32	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
UNDERSIZED													**NEW**	**24**	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
W Nichols (Back of Truck Lot) 36" (20.5')	0.35	9.11	266.0			0.02	265.00	44.7	8.8	53.5	3.36	10.73	1.52	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
OK, OVERSIZED																						
Nichols under R/R 30" (?)	0.35	14.70	260.0			0.02	871.00	44.3	29.0	73.3	2.77	14.24	2.90	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK																						
E Levy Gaudet 18" (56')	0.35	6.14	325.0			0.02	940.00	48.3	31.3	79.7	2.62	5.64	3.19	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**24**	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
E Levy Gaudet 18" (5.5')	0.35	6.08	325.0			0.02	925.00	48.3	30.8	79.2	2.63	5.60	3.17	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**24**	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
E Levy Gaudet 12" (4')	0.35	5.79	325.0			0.02	874.00	48.3	29.1	77.5	2.67	5.41	6.89	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Levy Gaudet 18" (4.5')	0.35	5.72	325.0			0.02	861.00	48.3	28.7	77.0	2.68	5.37	3.04	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Levt Gaudet 15" (17.5')	0.35	5.43	325.0			0.02	790.00	48.3	26.3	74.7	2.74	5.20	2.94	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Levy Gaudet 18" (16')	0.35	4.75	325.0			0.02	707.00	48.3	23.6	71.9	2.80	4.66	2.64	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Levy Gaudet 15/18" (17')	0.35	4.45	325.0			0.02	657.00	48.3	21.9	70.2	2.85	4.43	3.61	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Levy Gaudet 12" (13") (12.5')	0.35	4.28	325.0			0.02	625.00	48.3	20.8	69.2	2.87	4.30	5.48	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Levy Gaudet 15" (25')	0.35	4.09	325.0			0.02	579.00	48.3	19.3	67.6	2.91	4.17	3.40	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Levy Gaudet 15" (13')	0.35	3.87	325.0			0.02	525.00	48.3	17.5	65.8	2.96	4.02	3.27	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Levy Gaudet 10" (5.5')	0.35	3.83	325.0			0.02	517.00	48.3	17.2	65.6	2.97	3.98	7.30	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Levy Gaudet 15" (25.5')	0.35	3.70	325.0			0.02	487.00	48.3	16.2	64.6	3.00	3.89	3.17	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Levy Gaudet 15" (16')	0.35	3.55	325.0			0.02	460.00	48.3	15.3	63.7	3.03	3.76	3.06	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Levy Gaudet 15" (18.5')	0.35	3.35	325.0			0.02	418.00	48.3	13.9	62.3	3.07	3.60	2.93	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
E Levy Gaudet 15" (19')	0.35	3.27	325.0			0.02	390.00	48.3	13.0	61.3	3.10	3.55	2.89	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Levy Gaudet 15" (13')	0.35	2.99	325.0			0.02	305.00	48.3	10.2	58.5	3.19	3.34	2.72	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Levy Gaudet 12" (4.5')	0.35	2.83	325.0			0.02	307.00	48.3	10.2	58.6	3.19	3.16	4.02	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Levy Gaudet 15" (14')	0.35	2.81	325.0			0.02	268.00	48.3	8.9	57.3	3.23	3.18	2.59	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Levy Gaudet 12" (6')	0.35	2.80	325.0			0.02	265.00	48.3	8.8	57.2	3.23	3.17	4.04	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
													NEW	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
Crossdrain (E Levy Gaudet) (23.5')	0.35	3.02	325.0			0.02	0.00	48.3	0.0	48.3	3.57	3.78	4.81	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Levy Gaudet 15" (32.5')	0.35	1.02	83.0			0.02	0.00	28.3	0.0	28.3	4.74	1.69	1.38	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Levy Gaudet 12" (15") (17.75')	0.35	2.68	325.0			0.02	244.00	48.3	8.1	56.5	3.26	3.06	3.89	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Levy Gaudet 15" (37.5')	0.35	2.33	325.0			0.02	170.00	48.3	5.7	54.0	3.35	2.73	2.22	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Levy Gaudet 18" (98.5')	0.35	1.53	325.0			0.02	0.00	48.3	0.0	48.3	3.57	1.91	1.08	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Corseault (Outfall) 18" (62')	0.35	6.22	780.0			0.02	990.00	68.1	33.0	101.1	2.24	4.87	2.75	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
W Corseault 15" (75.75')	0.35	3.05	780.0			0.02	0.00	68.1	0.0	68.1	2.90	3.10	2.52	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Corseault (Cross Drain) 12" (17')	0.35	3.77	780.0			0.02	166.00	68.1	5.5	73.6	2.76	3.64	4.64	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Corseault 15" (9')	0.35	3.55	780.0			0.02	170.00	68.1	5.7	73.8	2.76	3.43	2.79	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Corseault 15" (16.5')	0.35	3.85	780.0			0.02	240.00	68.1	8.0	76.1	2.70	3.64	2.97	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Corseault 18" (17')	0.35	4.33	780.0			0.02	350.00	68.1	11.7	79.8	2.62	3.97	2.25	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Corseault 18" (5.5')	0.35	4.79	780.0			0.02	450.00	68.1	15.0	83.1	2.55	4.28	2.42	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Corseault 15" (4.5')	0.35	4.99	780.0			0.02	478.00	68.1	15.9	84.0	2.53	4.42	3.60	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Corseault 15" (19')	0.35	5.63	780.0			0.02	643.00	68.1	21.4	89.5	2.43	4.78	3.90	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Alexander 18"? (81.5')	0.35	7.47	500.0			0.02	875.00	57.2	29.2	86.4	2.49	6.50	3.68	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Alexander 21" (9')	0.35	7.09	500.0			0.02	820.00	57.2	27.3	84.6	2.52	6.26	2.60	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK																						
E Alexander 24" (17.5')	0.35	6.84	500.0			0.02	770.00	57.2	25.7	82.9	2.56	6.12	1.95	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Alexander 18" (80')	0.35	6.05	500.0			0.02	625.00	57.2	20.8	78.1	2.66	5.63	3.19	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Alexander 18" (39.5')	0.35	3.86	500.0			0.02	252.00	57.2	8.4	65.6	2.97	4.01	2.27	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Alexander 18" (7')	0.35	3.67	500.0			0.02	215.00	57.2	7.2	64.4	3.01	3.86	2.18	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Alexander 18" (36')	0.35	3.08	500.0			0.02	120.00	57.2	4.0	61.2	3.10	3.34	1.89	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Alexander 12" (20')	0.35	2.52	500.0			0.02	0.00	57.2	0.0	57.2	3.23	2.85	3.63	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Rome to W Rome Cross Drain 10" (21')	0.35	0.59	215.0			0.02	0.00	41.1	0.0	41.1	3.91	0.81	1.48	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
E Rome 12" (4.5')	0.35	1.26	215.0			0.02	225.00	41.1	7.5	48.6	3.56	1.57	2.00	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Rome 12" (30.5')	0.35	1.49	215.0			0.02	310.00	41.1	10.3	51.4	3.44	1.80	2.29	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Rome 12" (20.5')	0.35	1.57	215.0			0.02	340.00	41.1	11.3	52.4	3.41	1.87	2.38	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Rome 15" (48')	0.35	2.09	215.0			0.02	425.00	41.1	14.2	55.3	3.30	2.41	1.97	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Rome 15" (20')	0.35	2.39	215.0			0.02	521.00	41.1	17.4	58.5	3.19	2.67	2.17	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Rome 12" (16.5')	0.35	2.46	215.0			0.02	541.00	41.1	18.0	59.1	3.17	2.73	3.47	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Rome 12" (4')	0.35	2.71	215.0			0.02	640.00	41.1	21.3	62.4	3.06	2.91	3.70	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Rome 12" (61')	0.35	2.82	215.0			0.02	675.00	41.1	22.5	63.6	3.03	2.99	3.81	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Rome 12" (89.5')	0.35	3.12	215.0			0.02	775.00	41.1	25.8	66.9	2.93	3.20	4.08	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Rome 12" (12 11/15") (53')	0.35	3.39	215.0			0.02	865.00	41.1	28.8	69.9	2.85	3.39	4.31	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Rome 12" (104')	0.35	3.64	215.0			0.02	951.00	41.1	31.7	72.8	2.78	3.54	4.51	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Rome 12" (43.5')	0.35	3.94	215.0			0.02	1055.00	41.1	35.2	76.3	2.70	3.72	4.74	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Rome 12" (30')	0.35	4.06	215.0			0.02	1103.00	41.1	36.8	77.9	2.66	3.78	4.82	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Rome 12" (53.5')	0.35	4.42	215.0			0.02	1235.00	41.1	41.2	82.3	2.57	3.97	5.06	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Rome 12" (19.5')	0.35	4.73	215.0			0.02	1350.00	41.1	45.0	86.1	2.49	4.13	5.25	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Rome 24"?/30"? (18.5')	0.35	5.05	215.0			0.02	1465.00	41.1	48.8	89.9	2.42	4.28	1.36	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED (24")																						
E Rome Outfall (Crushed) ?" (?')	0.35	5.16	215.0			0.02	1505.00	41.1	50.2	91.3	2.40	4.33	#DIV/0!	0	0.00	0.012	0.0015	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!
REPLACE WITH 18"													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Rome 8" (134.5')	0.35	0.12	100.0			0.02	0.00	30.5	0.0	30.5	4.57	0.19	0.55	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
OK																						
W Rome 12" (3.5')	0.35	0.65	100.0			0.02	400.00	30.5	13.3	43.8	3.78	0.86	1.09	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Rome 10" (18.5')	0.35	0.79	100.0			0.02	480.00	30.5	16.0	46.5	3.65	1.01	1.85	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**12**	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
E Morgan Outfall Under R/R 24"? (?')	0.35	7.63	235.0			0.02	1553.00	42.6	51.8	94.3	2.34	6.26	1.99	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Morgan 24" (37.5')	0.35	6.67	235.0			0.02	1490.00	42.6	49.7	92.2	2.38	5.56	1.77	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK , OVERSIZED																						
E Morgan 18" (68.5')	0.35	4.88	235.0			0.02	1190.00	42.6	39.7	82.2	2.57	4.39	2.48	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Morgan ?" (38.5')	0.35	4.75	235.0			0.02	1146.00	42.6	38.2	80.8	2.60	4.32	2.45	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
REPLACE WITH 18"																						
E Morgan ?" (100')	0.35	4.33	235.0			0.02	1040.00	42.6	34.7	77.2	2.68	4.06	2.30	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
REPLACE WITH 18"																						
E Morgan 24" (21')	0.35	4.24	235.0			0.02	1020.00	42.6	34.0	76.6	2.69	3.99	1.27	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Morgan to E Morgan 12" (28')	0.35	4.06	235.0			0.02	970.00	42.6	32.3	74.9	2.73	3.88	4.94	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Morgan 18" (54')	0.35	3.75	235.0			0.02	885.00	42.6	29.5	72.1	2.80	3.67	2.08	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
E Morgan 18" (32')	0.35	3.66	235.0			0.02	850.00	42.6	28.3	70.9	2.83	3.62	2.05	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Morgan 18" (32')	0.35	3.36	235.0			0.02	770.00	42.6	25.7	68.2	2.90	3.41	1.93	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
W Morgan to E Morgan 12" (20')	0.35	2.99	235.0			0.02	635.00	42.6	21.2	63.7	3.02	3.17	4.03	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Morgan 12" (351')	0.35	1.15	235.0			0.02	220.00	42.6	7.3	49.9	3.51	1.41	1.80	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Morgan ?" (72')	0.35	0.51	235.0			0.02	0.00	42.6	0.0	42.6	3.84	0.69	0.87	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
REPLACE WITH 12"																						
E Morgan ?" (159')	0.35	0.78	200.0			0.02	265.00	40.0	8.8	48.8	3.55	0.97	1.23	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
REPLACE WITH 12"																						
E Morgan 18" (263.5')	0.35	0.34	200.0			0.02	4.00	40.0	0.1	40.1	3.97	0.47	0.27	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Morgan 18" (?)	0.35	0.13	200.0			0.02	0.00	40.0	0.0	40.0	3.97	0.18	0.10	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Nobile Outfall 36" (?)	0.35	16.73	500.0			0.02	1360.00	57.2	45.3	102.6	2.21	12.96	1.83	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
OK, OVERSIZED																						
W Nobile 12" (30.5')	0.35	6.24	570.0			0.02	1100.00	60.2	36.7	96.9	2.30	5.03	6.40	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
W Nobile 12" (20.5')	0.35	5.95	570.0			0.02	1025.00	60.2	34.2	94.4	2.34	4.88	6.21	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
W Nobile 12" (33')	0.35	3.38	570.0			0.02	335.00	60.2	11.2	71.4	2.82	3.33	4.24	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Nobile 12" (41')	0.35	2.41	570.0			0.02	55.00	60.2	1.8	62.1	3.08	2.59	3.30	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W Nobile ?" (19.5')	0.35	2.11	570.0			0.02	0.00	60.2	0.0	60.2	3.13	2.31	1.89	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
REPLACE WITH 15"																						
E Nobile 12" (25.5')	0.35	1.94	530.0			0.02	0.00	58.5	0.0	58.5	3.19	2.16	2.76	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Nobile 12" (30.5')	0.35	2.46	530.0			0.02	145.00	58.5	4.8	63.4	3.04	2.61	3.33	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Nobile 12" (22.5')	0.35	2.66	530.0			0.02	195.00	58.5	6.5	65.0	2.99	2.78	3.54	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Nobile 12" (30.5')	0.35	4.07	530.0			0.02	565.00	58.5	18.8	77.4	2.67	3.81	4.85	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Nobile 12" (30.5')	0.35	5.25	530.0			0.02	870.00	58.5	29.0	87.5	2.46	4.53	5.77	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Nobile 12" (20.5')	0.35	5.41	530.0			0.02	900.00	58.5	30.0	88.5	2.45	4.63	5.90	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Nobile 12" (23')	0.35	6.49	530.0			0.02	1075.00	58.5	35.8	94.4	2.34	5.32	6.78	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Nobile 12" (20.5')	0.35	6.82	530.0			0.02	1195.00	58.5	39.8	98.4	2.28	5.44	6.92	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
W Le Boukin 18" (18")	0.35	8.20	160.0			0.02	2070.00	36.6	69.0	105.6	2.17	6.23	3.52	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Le Boukin 12" (162.5')	0.35	0.31	150.0			0.02	0.00	35.7	0.0	35.7	4.22	0.46	0.58	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
E Le Boukin 12" (207')	0.35	0.79	150.0			0.02	160.00	35.7	5.3	41.0	3.92	1.08	1.38	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
E Le Boukin 12" (50.75')	0.35	1.39	150.0			0.02	365.00	35.7	12.2	47.9	3.59	1.75	2.22	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Le Boukin 12" (62.5')	0.35	1.57	150.0			0.02	425.00	35.7	14.2	49.9	3.51	1.93	2.45	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Le Boukin 12" (96')	0.35	1.78	150.0			0.02	485.00	35.7	16.2	51.9	3.43	2.14	2.72	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
E Le Boukin 15" (166')	0.35	2.03	150.0			0.02	585.00	35.7	19.5	55.2	3.30	2.35	1.91	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Le Boukin 18" (26')	0.35	2.55	150.0			0.02	750.00	35.7	25.0	60.7	3.12	2.78	1.57	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Le Boukin 18" (99')	0.35	2.65	150.0			0.02	785.00	35.7	26.2	61.9	3.08	2.86	1.62	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Le Boukin 18" (40')	0.35	2.93	150.0			0.02	890.00	35.7	29.7	65.4	2.98	3.05	1.73	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Le Boukin 18" (59.5')	0.35	3.04	150.0			0.02	930.00	35.7	31.0	66.7	2.94	3.13	1.77	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Le Boukin 18" (70')	0.35	3.28	150.0			0.02	995.00	35.7	33.2	68.9	2.88	3.31	1.87	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Le Boukin 18" (76.5')	0.35	3.40	150.0			0.02	1065.00	35.7	35.5	71.2	2.82	3.36	1.90	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Le Boukin 18" (66')	0.35	3.60	150.0			0.02	1140.00	35.7	38.0	73.7	2.76	3.48	1.97	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Le Boukin 18" (61.5')	0.35	3.77	150.0			0.02	1215.00	35.7	40.5	76.2	2.70	3.56	2.02	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Le Boukin 18" (60')	0.35	3.94	150.0			0.02	1275.00	35.7	42.5	78.2	2.65	3.66	2.07	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Le Boukin 18" (48.5')	0.35	4.13	150.0			0.02	1340.00	35.7	44.7	80.4	2.61	3.77	2.13	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Le Boukin 18" (76.5')	0.35	4.24	150.0			0.02	1390.00	35.7	46.3	82.0	2.57	3.82	2.16	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Le Boukin 18" (149')	0.35	4.55	150.0			0.02	1470.00	35.7	49.0	84.7	2.52	4.01	2.27	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Le Boukin 18" (121.5')	0.35	5.17	150.0			0.02	1615.00	35.7	53.8	89.5	2.43	4.39	2.49	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Le Boukin 18" (21')	0.35	5.51	150.0			0.02	1740.00	35.7	58.0	93.7	2.35	4.54	2.57	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Le Boukin 18" (41')	0.35	6.37	150.0			0.02	2015.00	35.7	67.2	102.9	2.21	4.93	2.79	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E T Poche 6" (90')	0.35	0.73	245.0			0.02	0.00	43.3	0.0	43.3	3.80	0.97	4.95	6	0.50	0.012	0.0015	0.20	1.57	0.13	0.24	1.20
UNDERSIZED													**NEW**	**12**	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
E T Poche to W T Poche (Cross Drain) 8" (39.5')	0.35	2.36	245.0			0.02	93.00	43.3	3.1	46.4	3.66	3.02	8.65	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E T Poche 15" (20')	0.35	1.09	230.0			0.02	0.00	42.2	0.0	42.2	3.86	1.47	1.20	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E T Poche to W T Poche (Cross Drain) 18" (39')	0.35	2.92	230.0			0.02	107.00	42.2	3.6	45.8	3.68	3.77	2.13	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E T Poche 15" (30')	0.35	0.72	265.0			0.02	0.00	44.6	0.0	44.6	3.74	0.94	0.77	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E T Poche 15" (23')	0.35	0.86	280.0			0.02	0.00	45.6	0.0	45.6	3.69	1.11	0.91	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E T Poche 15" (30')	0.35	1.07	300.0			0.02	0.00	46.8	0.0	46.8	3.64	1.36	1.11	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E T Poche to W Poche (Cross Drain) 24" (41')	0.35	4.60	265.0			0.02	215.00	44.6	7.2	51.8	3.43	5.52	1.76	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E T Poche 15" (31')	0.35	1.35	265.0			0.02	0.00	44.6	0.0	44.6	3.74	1.77	1.44	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E T Poche 15" (22.5')	0.35	0.22	225.0			0.02	0.00	41.9	0.0	41.9	3.87	0.30	0.24	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E T Poche 15" (18.5')	0.35	0.40	225.0			0.02	25.00	41.9	0.8	42.7	3.83	0.54	0.44	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
W T Poche Under R/R Outfall 18"? (?)	0.35	26.40	310.0			0.02	2000.00	47.5	66.7	114.1	2.06	19.00	10.75	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED, REPLACE OUTFALL 30"													**NEW**	**30**	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W T Poche Under R/R Outfall 24" (?)	0.35	26.40	310.0			0.02	2000.00	47.5	66.7	114.1	2.06	19.00	6.05	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
UNDERSIZED, REPLACE OUTFALL 30"													**NEW**	**30**	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
W T Poche 30" (100')	0.35	24.00	310.0			0.02	1860.00	47.5	62.0	109.5	2.12	17.78	3.62	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK																						
W T Poche 30" (100')	0.35	23.35	310.0			0.02	1760.00	47.5	58.7	106.1	2.16	17.67	3.60	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK																						
W T Poche 30" (91')	0.35	22.79	310.0			0.02	1665.00	47.5	55.5	103.0	2.21	17.61	3.59	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK																						
W T Poche 30" (110.5')	0.35	22.17	310.0			0.02	1550.00	47.5	51.7	99.1	2.27	17.59	3.58	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK																						
W T Poche 12" (19.75')	0.35	22.79	310.0			0.02	1665.00	47.5	55.5	103.0	2.21	17.61	22.43	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**30**	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
W T Poche 30" (87')	0.35	21.53	310.0			0.02	1470.00	47.5	49.0	96.5	2.31	17.40	3.54	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK																						
W T Poche 30" (126')	0.35	17.12	310.0			0.02	1335.00	47.5	44.5	92.0	2.38	14.29	2.91	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK																						
W T Poche 30" (65')	0.35	16.76	310.0			0.02	1270.00	47.5	42.3	89.8	2.42	14.21	2.90	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK																						
W T Poche 30" (102')	0.35	16.16	310.0			0.02	1160.00	47.5	38.7	86.1	2.49	14.09	2.87	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
W T Poche 30" (120.5')	0.35	15.20	310.0			0.02	1035.00	47.5	34.5	82.0	2.57	13.70	2.79	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
W T Poche 30" (184.5')	0.35	13.99	310.0			0.02	850.00	47.5	28.3	75.8	2.71	13.27	2.70	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
W T Poche 30" (98.5')	0.35	13.37	310.0			0.02	745.00	47.5	24.8	72.3	2.79	13.07	2.66	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
W T Poche 30" (102')	0.35	12.75	310.0			0.02	640.00	47.5	21.3	68.8	2.88	12.87	2.62	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
W T Poche 30" (97')	0.35	12.15	310.0			0.02	550.00	47.5	18.3	65.8	2.97	12.61	4.01	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK																						
W T Poche 24" (23.5')	0.35	7.43	310.0			0.02	435.00	47.5	14.5	62.0	3.08	8.01	2.55	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W T Poche 24" (93')	0.35	6.88	310.0			0.02	340.00	47.5	11.3	58.8	3.18	7.66	2.44	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W T Poche 24"? (81')	0.35	5.85	310.0			0.02	150.00	47.5	5.0	52.5	3.41	6.97	2.22	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W T Poche 24"? (112.5')	0.35	5.13	310.0			0.02	40.00	47.5	1.3	48.8	3.55	6.38	2.03	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W T Poche 24"? (195.5')	0.35	1.05	240.0			0.02	85.00	42.9	2.8	45.8	3.69	1.35	0.43	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W T Poche 24"? (88')	0.35	0.45	240.0			0.02	0.00	42.9	0.0	42.9	3.82	0.60	0.19	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Bellvue 12" (31')	0.35	1.69	335.0			0.02	0.00	48.9	0.0	48.9	3.55	2.10	2.67	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Bellvue 10" (134')	0.35	0.51	285.0			0.02	0.00	45.9	0.0	45.9	3.68	0.66	1.20	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
W Bellvue 12" (55.5')	0.35	1.32	285.0			0.02	400.00	45.9	13.3	59.2	3.16	1.46	1.86	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Bellvue 12" (26.5')	0.35	1.63	285.0			0.02	560.00	45.9	18.7	64.6	3.00	1.71	2.18	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Bellvue ? (17.5')	0.35	1.98	285.0			0.02	735.00	45.9	24.5	70.4	2.84	1.97	2.51	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
12" CULVERT OK																						
W Bellvue ? (18')	0.35	2.06	285.0			0.02	810.00	45.9	27.0	72.9	2.78	2.00	2.55	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
12" CULVERT OK																						
W Bellvue 12" (28.5')	0.35	2.14	285.0			0.02	840.00	45.9	28.0	73.9	2.75	2.06	2.63	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
E Bellvue 24" (64')	0.35	5.59	335.0			0.02	850.00	48.9	28.3	77.2	2.68	5.24	1.67	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Bellvue 24" (41')	0.35	6.14	335.0			0.02	985.00	48.9	32.8	81.7	2.58	5.54	1.76	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Bellvue 15" (147.5')	0.35	2.51	285.0			0.02	1015.00	45.9	33.8	79.7	2.62	2.30	1.88	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Bellvue 24" (40.5')	0.35	6.50	335.0			0.02	1075.00	48.9	35.8	84.7	2.52	5.73	1.82	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Bellvue 15" (76')	0.35	3.39	285.0			0.02	1170.00	45.9	39.0	84.9	2.52	2.98	2.43	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
W Bellvue 24" (62')	0.35	3.77	285.0			0.02	1355.00	45.9	45.2	91.1	2.40	3.17	1.01	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Bellvue 24" (42')	0.35	4.14	285.0			0.02	1420.00	45.9	47.3	93.2	2.36	3.42	1.09	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Bellvue 18" (18.75')	0.35	4.93	285.0			0.02	1545.00	45.9	51.5	97.4	2.29	3.96	2.24	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
W Bellvue 24" (48')	0.35	5.18	285.0			0.02	1645.00	45.9	54.8	100.7	2.24	4.06	1.29	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Bellvue 24" (72')	0.35	5.93	285.0			0.02	1875.00	45.9	62.5	108.4	2.13	4.42	1.41	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Bellvue Outfall ?" (?')	0.35	17.52	335.0			0.02	1965.00	48.9	65.5	114.4	2.05	12.59	4.01	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
REPLACE WITH 24"																						
E Bellvue 24" (61.5')	0.35	11.06	335.0			0.02	1860.00	48.9	62.0	110.9	2.10	8.12	2.58	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Belvue 24" (30')	0.35	11.48	335.0			0.02	1925.00	48.9	64.2	113.1	2.07	8.31	2.65	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Martin ?" (?)	0.35	8.00	380.0			0.02	1235.00	51.4	41.2	92.6	2.37	6.65	2.76	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
REPLACE WITH 21"																						
W Martin 21" (97')	0.35	4.26	205.0			0.02	1060.00	40.4	35.3	75.7	2.71	4.04	1.68	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
W Martin 21" (167.5')	0.35	3.58	205.0			0.02	875.00	40.4	29.2	69.5	2.86	3.59	1.49	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
E Martin to W Martin 12" (21')	0.35	2.37	360.0			0.02	850.00	50.3	28.3	78.6	2.65	2.19	2.79	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
E Martin 15" (43')	0.35	1.70	360.0			0.02	520.00	50.3	17.3	67.6	2.91	1.73	1.41	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
W Martin 21" (111')	0.35	3.16	205.0			0.02	765.00	40.4	25.5	65.9	2.96	3.28	1.36	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
W Martin 10" (20.5')	0.35	2.98	205.0			0.02	700.00	40.4	23.3	63.7	3.03	3.16	5.79	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W Martin ?" (16')	0.35	2.68	205.0			0.02	600.00	40.4	20.0	60.4	3.13	2.93	2.39	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
REPLACE WITH 15"																						
W Martin 18" (80')	0.35	2.40	205.0			0.02	520.00	40.4	17.3	57.7	3.22	2.70	1.53	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Martin 12" (17')	0.35	1.14	360.0			0.02	195.00	50.3	6.5	56.8	3.25	1.30	1.65	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
E Martin 12" (74.5')	0.35	0.98	360.0			0.02	104.00	50.3	3.5	53.8	3.35	1.15	1.47	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Martin ?" (44.5')	0.35	2.15	205.0			0.02	380.00	40.4	12.7	53.0	3.38	2.55	3.24	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
REPLACE WITH 12"																						
E Martin 12" (108')	0.35	0.75	360.0			0.02	0.00	50.3	0.0	50.3	3.49	0.92	1.17	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Martin 12" (17.75')	0.35	1.33	205.0			0.02	200.00	40.4	6.7	47.0	3.63	1.69	2.15	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Martin 15" (15')	0.35	0.80	205.0			0.02	130.00	40.4	4.3	44.7	3.74	1.05	0.85	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W Martin 10" (79')	0.35	0.39	205.0			0.02	0.00	40.4	0.0	40.4	3.95	0.54	0.99	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
E Antioch 6" (Old D/W) (23.75')	0.35	0.43	190.0			0.02	0.00	39.2	0.0	39.2	4.02	0.60	3.08	6	0.50	0.012	0.0015	0.20	1.57	0.13	0.24	1.20
UNDERSIZED													**NEW**	**8**	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
E Antioch 12" (20')	0.35	0.61	190.0			0.02	60.00	39.2	2.0	41.2	3.91	0.83	1.06	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Antioch 12" (20')	0.35	0.94	190.0			0.02	205.00	39.2	6.8	46.0	3.67	1.21	1.54	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Antioch 12" D/W (16')	0.35	1.23	190.0			0.02	325.00	39.2	10.8	50.0	3.50	1.51	1.92	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Antioch 12"/15"? D/W (11')	0.35	3.36	250.0			0.02	425.00	43.6	14.2	57.8	3.21	3.78	3.08	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
15" OK																						
E Antioch 12" S/W (6.5')	0.35	3.50	250.0			0.02	480.00	43.6	16.0	59.6	3.15	3.86	4.92	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Antioch 12" D/W (17')	0.35	3.58	250.0			0.02	525.00	43.6	17.5	61.1	3.10	3.89	4.95	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Antioch 15" D/W (20')	0.35	3.75	250.0			0.02	585.00	43.6	19.5	63.1	3.04	3.99	3.26	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Antioch 15" D/W (15.5')	0.35	5.76	250.0			0.02	680.00	43.6	22.7	66.3	2.95	5.95	4.85	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Antioch to E Antioch ? (18.5')	0.35	3.44	250.0			0.02	675.00	43.6	22.5	66.1	2.96	3.56	2.90	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
15" OK																						
E Antioch 15" D/W (17')	0.35	5.83	250.0			0.02	695.00	43.6	23.2	66.8	2.94	5.99	4.88	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Antioch 15" (8.5')	0.35	6.05	250.0			0.02	775.00	43.6	25.8	69.4	2.87	6.07	4.95	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Antioch 18" S/W (8')	0.35	6.22	250.0			0.02	855.00	43.6	28.5	72.1	2.80	6.09	3.45	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Antioch 15"/18" D/W (20.5')	0.35	6.31	250.0			0.02	900.00	43.6	30.0	73.6	2.76	6.10	3.45	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
REPLACE W/ 18"																						
E Antioch 18" S/W (6.5')	0.35	6.51	250.0			0.02	960.00	43.6	32.0	75.6	2.71	6.18	3.50	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Antioch 18" D/W (16.75')	0.35	6.56	250.0			0.02	980.00	43.6	32.7	76.3	2.70	6.20	3.51	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Antioch 18" S/W (6.5')	0.35	6.60	250.0			0.02	995.00	43.6	33.2	76.8	2.69	6.21	3.51	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Antioch 18" D/W (26')	0.35	6.65	250.0			0.02	1010.00	43.6	33.7	77.3	2.68	6.23	3.52	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Antioch 18" D/W (24')	0.35	6.78	250.0			0.02	1135.00	43.6	37.8	81.4	2.59	6.13	3.47	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Antioch 18" S/W (6')	0.35	6.86	250.0			0.02	1200.00	43.6	40.0	83.6	2.54	6.10	3.45	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Antioch 18" (20')	0.35	6.94	250.0			0.02	1240.00	43.6	41.3	84.9	2.51	6.11	3.46	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Antioch 18" D/W (103')	0.35	6.97	250.0			0.02	1260.00	43.6	42.0	85.6	2.50	6.10	3.45	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Antioch 24" Outfall (179')	0.35	9.96	250.0			0.02	1370.00	43.6	45.7	89.3	2.43	8.48	2.70	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Antioch Outfall to E Antioch 18"? (23')	0.35	6.82	250.0			0.02	1525.00	43.6	50.8	94.4	2.34	5.59	3.16	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
18" OK																						
W Antioch 18" (49')	0.35	5.49	250.0			0.02	1235.00	43.6	41.2	84.8	2.52	4.84	2.74	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
W Antioch 12" D/W (17')	0.35	5.42	250.0			0.02	1215.00	43.6	40.5	84.1	2.53	4.80	6.11	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Antioch 21" (17.5')	0.35	5.34	250.0			0.02	1190.00	43.6	39.7	83.3	2.55	4.76	1.98	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W Antioch 21" (74.5')	0.35	5.05	250.0			0.02	1115.00	43.6	37.2	80.8	2.60	4.59	1.91	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
W Antioch 12" (15')	0.35	4.60	250.0			0.02	980.00	43.6	32.7	76.3	2.70	4.34	5.53	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Antioch 12" (4')	0.35	4.48	250.0			0.02	950.00	43.6	31.7	75.3	2.72	4.27	5.43	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Antioch 18" D/W (15.5')	0.35	4.07	250.0			0.02	840.00	43.6	28.0	71.6	2.81	4.00	2.27	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Antioch 12" (4')	0.35	3.95	250.0			0.02	810.00	43.6	27.0	70.6	2.84	3.92	4.99	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W Antioch 18" D/W (4.5')	0.35	3.85	250.0			0.02	780.00	43.6	26.0	69.6	2.86	3.86	2.18	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Antioch 15"? D/W (17.5')	0.35	3.52	250.0			0.02	700.00	43.6	23.3	66.9	2.93	3.61	2.94	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
15" OK																						
W Antioch to E Antioch 12" (15')	0.35	2.21	250.0			0.02	355.00	43.6	11.8	55.4	3.29	2.55	3.24	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Antioch 12" (14.5')	0.35	2.00	250.0			0.02	305.00	43.6	10.2	53.8	3.35	2.35	2.99	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Antioch 12" D/W (16.5')	0.35	1.75	250.0			0.02	235.00	43.6	7.8	51.4	3.44	2.11	2.69	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Antioch 12" D/W (80')	0.35	1.09	250.0			0.02	50.00	43.6	1.7	45.3	3.71	1.41	1.80	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Antioch 12" D/W (29.5')	0.35	0.99	250.0			0.02	25.00	43.6	0.8	44.4	3.75	1.30	1.65	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Antioch 12" S/W (3.5')	0.35	0.87	250.0			0.02	0.00	43.6	0.0	43.6	3.79	1.15	1.47	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W 642 Outfall 18" (8.5')	0.35	3.38	105.0			0.02	660.00	31.1	22.0	53.1	3.38	4.00	2.26	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W 642 18" (24.5')	0.35	1.37	105.0			0.02	630.00	31.1	21.0	52.1	3.42	1.64	0.93	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W 642 18" D/W (29.5')	0.35	1.23	105.0			0.02	580.00	31.1	19.3	50.4	3.49	1.50	0.85	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W 642 18" (16')	0.35	1.20	105.0			0.02	565.00	31.1	18.8	49.9	3.51	1.47	0.83	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W 642 ?" D/W (20')	0.35	0.93	105.0			0.02	480.00	31.1	16.0	47.1	3.63	1.18	0.67	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
18" OK, OVERSIZED																						
W 642 18" (24.5')	0.35	0.78	105.0			0.02	420.00	31.1	14.0	45.1	3.72	1.02	0.57	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W 642 18" S/W (5')	0.35	0.76	105.0			0.02	380.00	31.1	12.7	43.7	3.78	1.01	0.57	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
44 W of 642 18" D/W (37.5')	0.35	0.64	105.0			0.02	235.00	31.1	7.8	38.9	4.03	0.90	0.51	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
44 18" D/W (20')	0.35	0.47	105.0			0.02	140.00	31.1	4.7	35.7	4.22	0.69	0.39	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
44 @ Washington ?" (27')	0.35	0.11	105.0			0.02	0.00	31.1	0.0	31.1	4.53	0.17	0.32	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
18"OK, OVERSIZED																						
E 642 18" D/W (41.5')	0.35	0.25	155.0			0.02	0.00	36.2	0.0	36.2	4.19	0.37	0.21	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E 642 18" D/W (15.5')	0.35	0.46	155.0			0.02	80.00	36.2	2.7	38.8	4.04	0.65	0.37	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E 642 18" (135')	0.35	0.62	155.0			0.02	130.00	36.2	4.3	40.5	3.94	0.86	0.48	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
D/W 18" (45')	0.35	0.31	120.0			0.02	0.00	32.7	0.0	32.7	4.41	0.48	0.27	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
D/W 18" (7')	0.35	0.57	120.0			0.02	360.00	32.7	12.0	44.7	3.73	0.74	0.42	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W Albert ?" (?)	0.35					0.02		0.0														
NO PIPE SIZE																						
W Albert ?" D/W S/W (?)	0.35					0.02		0.0														
NO PIPE SIZE																						
W Albert ?" (?)	0.35					0.02		0.0														
NO PIPE SIZE																						
W Albert 18" D/W (25')	0.35	0.24	125.0			0.02	15.00	33.2	0.5	33.7	4.34	0.36	0.21	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Albert 10" S/W (4')	0.35	0.20	125.0			0.02	0.00	33.2	0.0	33.2	4.38	0.31	0.56	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
E Albert 15" S/W (7')	0.35	0.10	90.0			0.02	0.00	29.2	0.0	29.2	4.66	0.16	0.13	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E Albert 15" D/W (18')	0.35	0.16	90.0			0.02	55.00	29.2	1.8	31.1	4.53	0.25	0.21	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E Albert 15" D/W (21')	0.35	0.28	90.0			0.02	130.00	29.2	4.3	33.6	4.36	0.43	0.35	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E Albert 10" (9.5')	0.35	0.41	90.0			0.02	210.00	29.2	7.0	36.2	4.19	0.60	1.10	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
E Albert 18" D/W (20')	0.35	0.53	90.0			0.02	275.00	29.2	9.2	38.4	4.06	0.75	0.43	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Albert Outfall Under R/R 30" (?)	0.35	0.74	90.0			0.02	385.00	29.2	12.8	42.1	3.86	1.00	0.57	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Albert Outfall	0.35	0.95	125.0			0.02	315.00	33.2	10.5	43.7	3.78	1.26	2.30	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
REPLACE WITH 10"																						
W Belmont Dr 12" D/W (42')	0.35	0.52	220.0			0.02	0.00	41.5	0.0	41.5	3.89	0.71	0.90	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Belmont Dr 10" D/W (20.5')	0.35	0.40	175.0			0.02	0.00	37.9	0.0	37.9	4.09	0.57	1.05	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
E Belmont Dr to W Belmont 18" (24.5')	0.35	0.79	175.0			0.02	135.00	37.9	4.5	42.4	3.84	1.06	0.60	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Belmont Ave 18" (20.5')	0.35	1.96	220.0			0.02	235.00	41.5	7.8	49.3	3.53	2.42	1.37	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Belmont Ave 18" (36')	0.35	2.75	270.0			0.02	204.00	45.0	6.8	51.8	3.43	3.30	1.87	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Belmont Ave 18" (40')	0.35	1.51	270.0			0.02	85.00	45.0	2.8	47.8	3.60	1.90	1.08	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Belmont Ave 18" (42')	0.35	1.02	270.0			0.02	45.00	45.0	1.5	46.5	3.65	1.30	0.74	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Belmont Ave 18" (42.5')	0.35	0.57	270.0			0.02	0.00	45.0	0.0	45.0	3.72	0.74	0.42	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Belmont Ave 12" (12")	0.35	0.42	275.0			0.02	0.00	45.3	0.0	45.3	3.71	0.55	0.69	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Belmont Ave 15" (20.5')	0.35	1.92	275.0			0.02	77.00	45.3	2.6	47.8	3.59	2.41	1.97	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
S Belmont Outfall 18" (205.5')	0.35	6.52	270.0			0.02	525.00	45.0	17.5	62.5	3.06	6.99	3.96	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
S Belmont Outfall 24" (62')	0.35	11.63	270.0			0.02	1375.00	45.0	45.8	90.8	2.41	9.79	3.12	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK																						
W Denise 15" (30')	0.35	5.89	275.0			0.02	955.00	45.3	31.8	77.1	2.68	5.52	4.50	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Denise 15" (50')	0.35	5.48	275.0			0.02	885.00	45.3	29.5	74.8	2.73	5.24	4.27	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Denise 15" (62')	0.35	5.06	275.0			0.02	820.00	45.3	27.3	72.6	2.79	4.93	4.02	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Denise 15" (23.75")	0.35	4.85	275.0			0.02	790.00	45.3	26.3	71.6	2.81	4.77	3.89	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W Denise 15" (50')	0.35	4.63	275.0			0.02	750.00	45.3	25.0	70.3	2.84	4.61	3.76	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Denise 15" (?)	0.35	4.32	275.0			0.02	680.00	45.3	22.7	67.9	2.91	4.39	3.58	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
W Denise 12" (37')	0.35	0.94	275.0			0.02	0.00	45.3	0.0	45.3	3.71	1.22	1.55	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Denise ? (62.5')	0.35	1.20	275.0			0.02	35.00	45.3	1.2	46.4	3.65	1.53	1.95	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
12" OK																						
W Denise ? (76.5)	0.35	1.51	275.0			0.02	100.00	45.3	3.3	48.6	3.56	1.88	2.40	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
12" OK																						
W Denise ? (63')	0.35	1.92	275.0			0.02	175.00	45.3	5.8	51.1	3.46	2.32	2.96	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
12" OK																						
W Denise ? (71.5')	0.35	2.23	275.0			0.02	240.00	45.3	8.0	53.3	3.37	2.63	3.35	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
SWITCH TO 15"(12" UNDERSIZED)													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Denise 12" D/W (62.5')	0.35	0.26	215.0			0.02	0.00	41.1	0.0	41.1	3.91	0.36	0.45	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
E Denise ? (69.5")	0.35	0.51	215.0			0.02	60.00	41.1	2.0	43.1	3.81	0.68	0.87	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
12" OK																						
E Denise ? (62.5)	0.35	0.88	215.0			0.02	130.00	41.1	4.3	45.4	3.70	1.14	1.45	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
12"OK																						
E Denise ?" D/W (78.5)	0.35	1.18	215.0			0.02	190.00	41.1	6.3	47.4	3.61	1.49	1.90	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
12" OK																						
E Denise 12" D/W (81')	0.35	1.86	215.0			0.02	335.00	41.1	11.2	52.3	3.41	2.22	2.83	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
E Denise ?" (61.5)	0.35	2.24	215.0			0.02	420.00	41.1	14.0	55.1	3.31	2.59	3.30	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
12" OK																						
E Denise 12" (62')	0.35	2.51	215.0			0.02	480.00	41.1	16.0	57.1	3.24	2.84	3.62	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Denise 15" (67.5')	0.35	2.83	215.0			0.02	555.00	41.1	18.5	59.6	3.15	3.12	2.54	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Denise 15" D/W (66')	0.35	3.13	215.0			0.02	620.00	41.1	20.7	61.8	3.08	3.38	2.75	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Denise 18" D/W (76')	0.35	4.86	215.0			0.02	965.00	41.1	32.2	73.3	2.77	4.71	2.67	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
W Effie 10" D/W (37')	0.35	1.01	300.0			0.02	0.00	46.8	0.0	46.8	3.64	1.29	2.36	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
W Effie 10" D/W (19')	0.35	1.27	300.0			0.02	65.00	46.8	2.2	49.0	3.54	1.57	2.89	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
W Effie 12" D/W (30.5')	0.35	2.20	300.0			0.02	305.00	46.8	10.2	57.0	3.24	2.49	3.18	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Effie 10" (19')	0.35	2.43	300.0			0.02	350.00	46.8	11.7	58.5	3.19	2.71	4.97	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W Effie 12" D/W (30')	0.35	2.71	300.0			0.02	420.00	46.8	14.0	60.8	3.11	2.95	3.76	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W Effie 18" D/W (23')	0.35	3.45	300.0			0.02	595.00	46.8	19.8	66.7	2.94	3.55	2.01	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Effie 18" D/W (60')	0.35	3.83	300.0			0.02	680.00	46.8	22.7	69.5	2.86	3.84	2.17	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Effie to E Effie 36" (29.5')	0.35	4.90	300.0			0.02	940.00	46.8	31.3	78.2	2.66	4.55	0.64	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
OK, OVERSIZED																						
E Effie 10" D/W (39')	0.35	0.17	150.0			0.02	0.00	35.7	0.0	35.7	4.22	0.25	0.46	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
E Effie 18" D/W (40')	0.35	0.85	150.0			0.02	180.00	35.7	6.0	41.7	3.88	1.15	0.65	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Roseann Under Belmont Lane 18" (25')**																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
From W Roseann 6" (20.5')	0.35	1.91	320.0			0.02	0.00	48.0	0.0	48.0	3.58	2.40	12.20	6	0.50	0.012	0.0015	0.20	1.57	0.13	0.24	1.20
UNDERSIZED													**NEW**	**12**	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
From W Roseann 8" (20.5')	0.35	1.75	400.0			0.02	0.00	52.4	0.0	52.4	3.41	2.09	5.98	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**12**	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
From W Roseann 8" (20.5')	0.35	0.96	280.0			0.02	0.00	45.6	0.0	45.6	3.69	1.24	3.55	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**10**	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
From W Roseann 8" (23.25')	0.35	1.26	330.0			0.02	0.00	48.6	0.0	48.6	3.56	1.57	4.50	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**10**	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
From W Roseann 8" (23.5')	0.35	1.10	305.0			0.02	0.00	47.1	0.0	47.1	3.62	1.39	4.00	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**10**	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
From W Roseann 8" (21')	0.35	1.06	300.0			0.02	0.00	46.8	0.0	46.8	3.64	1.35	3.86	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**10**	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
N Belmont Ln W of Hester 8" (18.5')	0.35	0.55	255.0			0.02	0.00	44.0	0.0	44.0	3.77	0.73	2.08	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
OK																						
N Belmont Ln W of Hester 12" (20')	0.35	1.21	255.0			0.02	115.00	44.0	3.8	47.8	3.59	1.52	1.94	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
S Belmont Ln W of Hester 18" (40')	0.35	0.13	35.0			0.02	115.00	20.2	3.8	24.0	5.11	0.23	0.13	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Hester Under R/R 36" **																						
W Hester Under Belmont Ln 21" (30')**	0.35	0.85	245.0			0.02	65.00	43.3	2.2	45.4	3.70	1.10	0.46	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
W Hester 15" D/W (79')	0.35	0.66	270.0			0.02	0.00	45.0	0.0	45.0	3.72	0.86	0.70	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
W Hester 15" (33')	0.35	1.34	270.0			0.02	120.00	45.0	4.0	49.0	3.55	1.66	1.35	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
W Hester 18" (20')	0.35	1.89	270.0			0.02	210.00	45.0	7.0	52.0	3.42	2.27	1.28	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Hester 18" D/W (20')	0.35	2.21	270.0			0.02	265.00	45.0	8.8	53.8	3.35	2.59	1.47	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Hester 18" D/W (20.5')	0.35	2.85	270.0			0.02	265.00	45.0	8.8	53.8	3.35	3.35	1.89	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Hester 12" D/W (16')	0.35	0.49	200.0			0.02	0.00	40.0	0.0	40.0	3.97	0.68	0.87	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
W Hester 18" D/W (20.5')	0.35	4.28	200.0			0.02	850.00	40.0	28.3	68.3	2.90	4.34	2.46	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
W Hester to E Hester Outfall 54" (40')	0.35	5.09	200.0			0.02	1005.00	40.0	33.5	73.5	2.76	4.93	0.31	54	4.50	0.012	0.0015	15.90	14.14	1.13	82.73	5.20
OK, OVERSIZED																						
E Hester Outfall 60" (30')	0.35	26.53	255.0			0.02	2195.00	44.0	73.2	117.1	2.02	18.75	0.95	60	5.00	0.012	0.0015	19.63	15.71	1.25	109.58	5.58
OK, OVERSIZED																						
E Hester 24" D/W (50.5')	0.35	13.11	255.0			0.02	2030.00	44.0	67.7	111.6	2.09	9.58	3.05	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK																						
E Hester 24" D/W (62')	0.35	11.47	255.0			0.02	1765.00	44.0	58.8	102.8	2.21	8.87	2.82	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Hester 24" (47.5')	0.35	10.90	255.0			0.02	1655.00	44.0	55.2	99.1	2.27	8.65	2.75	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Hester ?" (75.5')	0.35	10.55	255.0			0.02	1575.00	44.0	52.5	96.5	2.31	8.53	2.71	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
24 OK, OVERSIZED																						
E Hester 24" D/W (69')	0.35	10.15	255.0			0.02	1500.00	44.0	50.0	94.0	2.35	8.35	2.66	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Hester 18" (16')	0.35	9.88	255.0			0.02	1425.00	44.0	47.5	91.5	2.39	8.28	4.68	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Hester 21" (19.5')	0.35	8.69	255.0			0.02	1245.00	44.0	41.5	85.5	2.50	7.62	3.17	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK																						
E Hester 24" D/W (22')	0.35	7.69	255.0			0.02	1070.00	44.0	35.7	79.6	2.62	7.06	2.25	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
E Hester 18" (71')	0.35	7.10	255.0			0.02	970.00	44.0	32.3	76.3	2.70	6.70	3.79	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Hester 18" (76')	0.35	6.68	255.0			0.02	890.00	44.0	29.7	73.6	2.76	6.46	3.65	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Hester 18" D/W (24')	0.35	5.16	255.0			0.02	625.00	44.0	20.8	64.8	2.99	5.41	3.06	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
From W Hester 21" (34')	0.35	3.48	255.0			0.02	310.00	44.0	10.3	54.3	3.34	4.06	1.69	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
S Belmont Ln Under R/R 24" (?)	0.35	7.52	100.0			0.02	380.00	30.5	12.7	43.1	3.81	10.03	3.19	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
Aross Belmont Ln 15" (42')	0.35	8.01	100.0			0.02	420.00	30.5	14.0	44.5	3.75	10.50	5.94	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
S Belmont Ln 12" (92')	0.35	0.44	45.0			0.02	0.00	22.3	0.0	22.3	5.28	0.81	1.03	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
S Belmont Ln Under Khan 12" (34')	0.35	0.52	45.0			0.02	90.00	22.3	3.0	25.3	4.99	0.91	1.16	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Loque Outfall 15" (20.5')	0.35	1.65	100.0			0.02	30.00	30.5	1.0	31.5	4.50	2.60	2.12	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E Loque 15" (20.5')	0.35	1.43	100.0			0.02	0.00	30.5	0.0	30.5	4.57	2.29	1.86	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
N 44 Under Khan 18" (73')	0.35	1.95	280.0			0.02	0.00	45.6	0.0	45.6	3.69	2.52	1.43	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Khan to W Khan Outfall 30" (46')	0.35	2.07	290.0			0.02	0.00	46.2	0.0	46.2	3.66	2.65	0.54	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
W Khan 12" D/W (34.5')	0.35	1.84	130.0			0.02	60.00	33.8	2.0	35.8	4.22	2.71	3.46	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Khan 12" D/W (34.5')	0.35	1.57	130.0			0.02	0.00	33.8	0.0	33.8	4.34	2.39	3.04	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
Across Honeysuckle 15" (24')	0.35	0.56	120.0			0.02	0.00	32.7	0.0	32.7	4.41	0.86	0.28	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
N Honeysuckle 10" (84')	0.35	0.36	100.0			0.02	0.00	30.5	0.0	30.5	4.57	0.58	1.06	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK, OVERSIZED																						
N 44 12" D/W (19')	0.35	0.81	415.0			0.02	0.00	53.2	0.0	53.2	3.38	0.96	1.22	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
N 44 18" D/W (60')	0.35	1.78	415.0			0.02	105.00	53.2	3.5	56.7	3.25	2.02	1.15	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S 44 to N 44 27" (41.5')	0.35	10.89	530.0			0.02	580.00	58.5	19.3	77.9	2.66	10.15	5.74	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**24**	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
S 44 18" D/W (28')	0.35	10.05	530.0			0.02	540.00	58.5	18.0	76.5	2.69	9.47	5.36	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
S 44 18" D/W (39.5')	0.35	8.91	530.0			0.02	465.00	58.5	15.5	74.0	2.75	8.58	4.85	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
S 44 18" D/W (24')	0.35	6.97	530.0			0.02	220.00	58.5	7.3	65.9	2.96	7.23	4.09	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
S 44 15" D/W (24.5')	0.35	6.05	530.0			0.02	170.00	58.5	5.7	64.2	3.01	6.38	5.20	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
S 44 18" D/W (39')	0.35	4.49	530.0			0.02	0.00	58.5	0.0	58.5	3.19	5.01	2.83	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
S 44 18" (38')	0.35	1.09	315.0			0.02	0.00	47.7	0.0	47.7	3.60	1.37	0.78	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S 44 to N 44 27" (41.5') Outfall	0.35	5.93	390.0			0.02	410.00	51.9	13.7	65.6	2.97	6.17	1.55	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK, OVERSIZED																						
S 44 15" D/W (79.5')	0.35	1.89	250.0			0.02	0.00	43.6	0.0	43.6	3.79	2.50	2.04	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
S 44 15" (26')	0.35	2.54	250.0			0.02	75.00	43.6	2.5	46.1	3.67	3.26	2.66	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
S 44 15" (34.5')	0.35	3.03	250.0			0.02	135.00	43.6	4.5	48.1	3.58	3.80	3.09	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
S 44 18" D/W (30')	0.35	2.80	560.0			0.02	0.00	59.8	0.0	59.8	3.15	3.08	1.74	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S 44 18" (56.5')	0.35	3.95	560.0			0.02	140.00	59.8	4.7	64.5	3.00	4.15	2.35	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
S 44 18"? (39')	0.35	4.05	560.0			0.02	200.00	59.8	6.7	66.5	2.95	4.18	2.36	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
18" OK																						
S 44 18" D/W (51')	0.35	5.04	560.0			0.02	240.00	59.8	8.0	67.8	2.91	5.13	2.90	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
S 44 to N 44 Outfall 27x 18" (41')	0.35	14.72	560.0			0.02	420.00	59.8	14.0	73.8	2.76	14.20	8.04	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**30**	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
S 44 18" (12')	0.35	6.87	680.0			0.02	360.00	64.5	12.0	76.5	2.69	6.47	3.66	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
S 44 18" (13')	0.35	5.18	680.0			0.02	260.00	64.5	8.7	73.2	2.77	5.02	2.84	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
S 44 Across Adams 18" (40')	0.35	2.77	680.0			0.02	120.00	64.5	4.0	68.5	2.89	2.80	1.59	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S 44 Across Melancon ?" (18')	0.35	1.03	680.0			0.02	0.00	64.5	0.0	64.5	3.00	1.08	0.61	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
18" OK, OVERSIZED																						
N 44 to Outfall 18" (46.5')	0.35	9.15	730.0			0.02	480.00	66.4	16.0	82.4	2.57	8.22	4.65	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
N 44 ?" (56')	0.35	8.75	730.0			0.02	430.00	66.4	14.3	80.7	2.60	7.97	4.51	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED AT 18"													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
N 44 18" (57')	0.35	8.23	730.0			0.02	380.00	66.4	12.7	79.0	2.64	7.60	4.30	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
N 44 10" Side D/W (18.5')	0.35	7.22	730.0			0.02	345.00	66.4	11.5	77.9	2.66	6.73	12.34	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
N 44 18" D/W (33')	0.35	6.89	730.0			0.02	320.00	66.4	10.7	77.0	2.68	6.47	3.66	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
N 44 18" D/W (61')	0.35	3.57	730.0			0.02	100.00	66.4	3.3	69.7	2.86	3.57	2.02	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
N 44 18" D/W (35')	0.35	1.99	730.0			0.02	0.00	66.4	0.0	66.4	2.95	2.05	1.16	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S 44 Across Elmo 12" (53')	0.35	0.20	100.0			0.02	0.00	30.5	0.0	30.5	4.57	0.32	0.41	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Elmo Outfall to N 44 Ditch 12" (120')	0.35	0.66	290.0			0.02	0.00	46.2	0.0	46.2	3.66	0.85	1.08	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
W Elmo to S 44 Ditch 18" D/W (20')	0.35	1.53	240.0			0.02	720.00	42.9	24.0	66.9	2.93	1.57	0.89	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Elmo 12" D/W (33')	0.35	1.14	240.0			0.02	630.00	42.9	21.0	63.9	3.02	1.20	1.53	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
W Elmo 12" (22')	0.35	1.26	240.0			0.02	550.00	42.9	18.3	61.3	3.10	1.37	1.74	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
W Elmo ?" (16')	0.35	1.12	240.0			0.02	390.00	42.9	13.0	55.9	3.28	1.28	2.36	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
10" OK																						
W Elmo 10" D/W (24')	0.35	0.92	240.0			0.02	275.00	42.9	9.2	52.1	3.42	1.10	2.02	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
W Elmo 10" D/W (24.5')	0.35	0.73	240.0			0.02	140.00	42.9	4.7	47.6	3.60	0.92	1.69	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
W Elmo 10" D/W (24')	0.35	0.57	240.0			0.02	75.00	42.9	2.5	45.4	3.70	0.74	1.35	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK, OVERSIZED																						
W Elmo 10" (4.5')	0.35	0.46	240.0			0.02	0.00	42.9	0.0	42.9	3.82	0.62	1.13	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK, OVERSIZED																						
W Sharon ?" (50')	0.35	1.14	470.0			0.02	0.00	55.9	0.0	55.9	3.28	1.31	2.40	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
REPLACE WITH 10"																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W Sharon ?" (47')	0.35	1.35	470.0			0.02	40.00	55.9	1.3	57.2	3.23	1.53	1.95	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
REPLACE WITH 12"																						
W Sharon 12" S/W (59.5')	0.35	1.47	470.0			0.02	85.00	55.9	2.8	58.7	3.18	1.64	2.09	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Sharon 15" (20.5')	0.35	2.15	470.0			0.02	385.00	55.9	12.8	68.7	2.89	2.17	1.77	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
S 44 Across Sharon ?" (41.5')	0.35	3.05	240.0			0.02	940.00	42.9	31.3	74.3	2.75	2.93	2.39	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
REPLACE WITH 15"																						
S 44 10" D/W (20.5')	0.35	4.12	240.0			0.02	1045.00	42.9	34.8	77.8	2.66	3.84	7.05	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
S 44 to N 44 Outfall Ditch 21" (41')	0.35	19.31	470.0			0.02	1600.00	55.9	53.3	109.2	2.12	14.33	5.96	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
UNDERSIZED													**NEW**	**30**	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
S 44 18" (60')	0.35	8.89	315.0			0.02	1185.00	47.7	39.5	87.2	2.47	7.69	4.35	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
S 44 15" (35.5')	0.35	8.37	315.0			0.02	1015.00	47.7	33.8	81.6	2.58	7.57	6.16	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Trudeau 10" D/W (52')	0.35	0.94	190.0			0.02	0.00	39.2	0.0	39.2	4.02	1.32	2.42	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
E Trudeau 12" D/W (50')	0.35	1.05	190.0			0.02	50.00	39.2	1.7	40.8	3.93	1.44	1.84	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Trudeau 12" D/W (20.5')	0.35	1.42	190.0			0.02	160.00	39.2	5.3	44.5	3.74	1.86	2.37	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
E Trudeau 18" D/W (67.5')	0.35	1.51	190.0			0.02	180.00	39.2	6.0	45.2	3.71	1.96	1.11	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Trudeau 18" (68')	0.35	1.75	190.0			0.02	250.00	39.2	8.3	47.5	3.61	2.21	1.25	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Trudeau 18" (19')	0.35	2.01	190.0			0.02	320.00	39.2	10.7	49.8	3.51	2.47	1.40	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Trudeau 18" (38.5')	0.35	2.18	190.0			0.02	340.00	39.2	11.3	50.5	3.48	2.66	1.50	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Trudeau 15" D/W (87')	0.35	2.35	190.0			0.02	385.00	39.2	12.8	52.0	3.42	2.81	2.29	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Trudeau 15" (59')	0.35	2.65	190.0			0.02	475.00	39.2	15.8	55.0	3.31	3.07	2.50	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Trudeau 12" D/W (131')	0.35	2.89	190.0			0.02	550.00	39.2	18.3	57.5	3.22	3.26	4.15	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Trudeau 18" D/W (39.5')	0.35	3.72	190.0			0.02	775.00	39.2	25.8	65.0	2.99	3.89	2.20	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S 44 Across Trudeau 15" (40')	0.35	4.13	170.0			0.02	945.00	37.5	31.5	69.0	2.88	4.16	3.39	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
W Trudeau ?" D/W (14.5')	0.35	1.13	170.0			0.02	0.00	37.5	0.0	37.5	4.11	1.63	2.98	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
REPLACE WITH 10" or 12"																						
W Trudeau 12" D/W (32.5')	0.35	1.51	170.0			0.02	105.00	37.5	3.5	41.0	3.92	2.07	2.64	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Trudeau 12" (79')	0.35	1.63	170.0			0.02	150.00	37.5	5.0	42.5	3.84	2.19	2.79	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Trudeau ?" D/W (50')	0.35	1.89	170.0			0.02	230.00	37.5	7.7	45.2	3.71	2.46	3.13	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
12" OK																						
W Trudeau ?" (74.5')	0.35	2.01	170.0			0.02	280.00	37.5	9.3	46.8	3.64	2.56	3.26	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
12" OK																						
W Trudeau 12" D/W (63')	0.35	2.22	170.0			0.02	355.00	37.5	11.8	49.3	3.53	2.74	3.49	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Trudeau 12" (74')	0.35	2.37	170.0			0.02	425.00	37.5	14.2	51.7	3.44	2.85	3.63	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W Trudeau 12" D/W (58.5')	0.35	2.50	170.0			0.02	505.00	37.5	16.8	54.3	3.33	2.92	3.71	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W Trudeau 15" D/W S/W (71')	0.35	2.93	170.0			0.02	560.00	37.5	18.7	56.2	3.27	3.35	2.73	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
W Trudeau ?" D/W (67.5')	0.35	3.23	170.0			0.02	635.00	37.5	21.2	58.7	3.18	3.60	2.93	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
15" OK																						
W Trudeau ?" (76')	0.35	3.54	170.0			0.02	700.00	37.5	23.3	60.8	3.11	3.86	3.14	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
15" OK																						
W Trudeau to S 44 15" (49.5')	0.35	3.79	170.0			0.02	775.00	37.5	25.8	63.3	3.04	4.03	3.28	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
S 44 12" D/W (21')	0.35	1.09	170.0			0.02	0.00	37.5	0.0	37.5	4.11	1.57	2.00	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
S 44 15" Manresa Fence (13.5')	0.35	0.73	320.0			0.02	0.00	48.0	0.0	48.0	3.58	0.92	0.75	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
S 44 18" End Manresa Fence (67.5')	0.35	7.76	320.0			0.02	970.00	48.0	32.3	80.4	2.61	7.08	4.01	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
S 44 to Grate N 44 28"x18" (36.5')	0.35	8.44	320.0			0.02	1110.00	48.0	37.0	85.0	2.51	7.42	4.20	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
S 44 to N 44 Ditch 28" x 18" (41')	0.35	1.03	135.0			0.02	1110.00	34.3	37.0	71.3	2.82	1.02	0.58	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S 44 10" (16')	0.35	0.12	135.0			0.02	1110.00	34.3	37.0	71.3	2.82	0.12	0.22	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
N 44 Outfall to Manresa 10" D/W (20')	0.35	0.36	190.0			0.02	0.00	39.2	0.0	39.2	4.02	0.51	0.93	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
N 44 to Outfall 12" (17.5')	0.35	8.90	310.0			0.02	995.00	47.5	33.2	80.6	2.60	8.11	10.32	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
N 44 15" D/W to Ditch (59.5')	0.35	1.67	200.0			0.02	0.00	40.0	0.0	40.0	3.97	2.32	1.89	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
N 44 12" to Ditch (16')	0.35	0.67	270.0			0.02	0.00	45.0	0.0	45.0	3.72	0.87	1.11	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
N 44 18" D/W to Ditch (15.75')	0.35	1.01	150.0			0.02	0.00	35.7	0.0	35.7	4.22	1.49	0.84	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N 44 12" D/W to Ditch (19')	0.35	0.40	45.0			0.02	0.00	22.3	0.0	22.3	5.28	0.74	0.94	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
N 44 12" D/W (15')	0.35	0.16	285.0			0.02	0.00	45.9	0.0	45.9	3.68	0.21	0.26	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
N 44 12" D/W (20')	0.35	0.62	285.0			0.02	110.00	45.9	3.7	49.6	3.52	0.76	0.97	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
N 44 18" D/W (19.5')	0.35	1.76	285.0			0.02	390.00	45.9	13.0	58.9	3.18	1.96	1.11	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N 44 18" D/W (20')	0.35	2.29	285.0			0.02	450.00	45.9	15.0	60.9	3.11	2.49	1.41	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S 44 10" D/W (43.5')	0.35	0.63	205.0			0.02	0.00	40.4	0.0	40.4	3.95	0.87	1.60	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
S 44 10" D/W (42.5')	0.35	0.87	205.0			0.02	40.00	40.4	1.3	41.7	3.88	1.18	2.17	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
S 44 10" D/W (46.5')	0.35	1.33	205.0			0.02	105.00	40.4	3.5	43.9	3.77	1.76	3.22	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**12**	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
S 44 15" (8')	0.35	1.72	205.0			0.02	150.00	40.4	5.0	45.4	3.70	2.23	1.82	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
Outfall from S44 to N44 Ditch 27" (32')	0.35	3.96	250.0			0.02	190.00	43.6	6.3	49.9	3.50	4.86	1.22	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK, OVERSIZED																						
S 44 15" D/W (59')	0.35	1.89	250.0			0.02	115.00	43.6	3.8	47.4	3.61	2.39	1.95	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
S 44 12" D/W S/W (47.5')	0.35	1.11	250.0			0.02	0.00	43.6	0.0	43.6	3.79	1.47	1.87	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
N 44 15" D/W (37.5')	0.35	1.40	235.0			0.02	0.00	42.6	0.0	42.6	3.84	1.88	1.53	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
E Hotard 12" D/W (30')	0.35	0.46	110.0			0.02	0.00	31.6	0.0	31.6	4.49	0.72	0.92	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Hotard 15" (?')	0.35	2.04	110.0			0.02	215.00	31.6	7.2	38.8	4.04	2.88	2.35	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Hotard to E Hotard 15" (29')	0.35	1.12	170.0			0.02	185.00	37.5	6.2	43.7	3.78	1.48	1.21	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
W Hotard 12" D/W (30')	0.35	0.42	170.0			0.02	0.00	37.5	0.0	37.5	4.11	0.60	0.77	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
N 44 10" D/W (32.5')	0.35	0.48	200.0			0.02	0.00	40.0	0.0	40.0	3.97	0.67	1.22	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
E Ester 10" D/W (15')	0.35	1.03	200.0			0.02	0.00	40.0	0.0	40.0	3.97	1.43	2.63	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
E Sugar Hill to West Sugar Hill 30" (39.5')	0.35	8.47	170.0			0.02	2550.00	37.5	85.0	122.5	1.96	5.80	1.18	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
E Sugar Hill 30" (17')	0.35	8.29	170.0			0.02	2470.00	37.5	82.3	119.8	1.99	5.76	1.17	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
E Sugar Hill 24" (17')	0.35	5.58	170.0			0.02	1650.00	37.5	55.0	92.5	2.38	4.64	1.48	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Sugar Hill Outfall Under R/R 36" (?')	0.35	16.50	170.0			0.02	2550.00	37.5	85.0	122.5	1.96	11.30	1.60	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
OK, OVERSIZED																						
W Sugar Hill 30" (17')	0.35	6.73	105.0			0.02	2490.00	31.1	83.0	114.1	2.06	4.85	0.99	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
W Sugar Hill 24" (20.5')	0.35	6.30	105.0			0.02	2325.00	31.1	77.5	108.6	2.13	4.69	1.49	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Sugar Hill 27" (17')	0.35	6.09	105.0			0.02	2260.00	31.1	75.3	106.4	2.16	4.60	1.16	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK, OVERSIZED																						
W Sugar Hill 24" (20.5')	0.35	6.30	105.0			0.02	2325.00	31.1	77.5	108.6	2.13	4.69	1.49	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Sugar Hill 30" (57')	0.35	6.00	105.0			0.02	2175.00	31.1	72.5	103.6	2.20	4.62	0.94	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
W Sugar Hill 24" (17')	0.35	4.74	105.0			0.02	1740.00	31.1	58.0	89.1	2.44	4.04	1.29	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Sugar Hill Across 44 27" (58')	0.35	0.83	325.0			0.02	0.00	48.3	0.0	48.3	3.57	1.04	0.26	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK, OVERSIZED																						
E Schexnaydre 15" D/W (40.5')	0.35	6.97	360.0			0.02	2000.00	50.3	66.7	117.0	2.02	4.93	4.02	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
E Schexnaydre 18" D/W (40')	0.35	6.57	360.0			0.02	1865.00	50.3	62.2	112.5	2.08	4.78	2.70	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
E Schexnaydre 15" D/W (23')	0.35	6.12	360.0			0.02	1675.00	50.3	55.8	106.1	2.16	4.63	3.77	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
E Schexnaydre 15" (29.5')	0.35	6.03	360.0			0.02	1610.00	50.3	53.7	104.0	2.19	4.63	3.77	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Schexnaydre 15" (29.5')	0.35	4.94	360.0			0.02	1220.00	50.3	40.7	91.0	2.40	4.15	3.38	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Schexnaydre 15" (20')	0.35	4.54	360.0			0.02	1080.00	50.3	36.0	86.3	2.49	3.95	3.22	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Schexnaydre 12" (12')	0.35	4.00	360.0			0.02	925.00	50.3	30.8	81.1	2.59	3.63	4.62	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Schexnaydre 12" D/W (86')	0.35	3.35	360.0			0.02	730.00	50.3	24.3	74.6	2.74	3.21	4.09	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
E Schexnaydre ?" (40')	0.35	3.18	360.0			0.02	695.00	50.3	23.2	73.5	2.76	3.08	3.92	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Schexnaydre 12" (82')	0.35	2.95	360.0			0.02	615.00	50.3	20.5	70.8	2.83	2.92	3.72	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Schexnaydre 12" D/W (46.5')	0.35	2.77	360.0			0.02	565.00	50.3	18.8	69.1	2.87	2.79	3.55	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
E Schexnaydre 10" D/W (34')	0.35	2.75	360.0			0.02	525.00	50.3	17.5	67.8	2.91	2.80	5.13	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
E Schexnaydre 10" D/W (23.5')	0.35	2.47	360.0			0.02	425.00	50.3	14.2	64.5	3.00	2.60	4.76	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
E Schexnaydre 12" D/W (21')	0.35	1.86	360.0			0.02	245.00	50.3	8.2	58.5	3.19	2.08	2.64	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
W Schexnaydre 6" D/W (28")	0.35	0.77	325.0			0.02	0.00	48.3	0.0	48.3	3.57	0.96	4.90	6	0.50	0.012	0.0015	0.20	1.57	0.13	0.24	1.20
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
W Schexnaydre 8" D/W (22')	0.35	1.14	325.0			0.02	140.00	48.3	4.7	53.0	3.38	1.35	3.87	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
W Schexnaydre 6" (16')	0.35	1.25	325.0			0.02	180.00	48.3	6.0	54.3	3.33	1.46	7.43	6	0.50	0.012	0.0015	0.20	1.57	0.13	0.24	1.20
UNDERSIZED													**NEW**	**12**	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
W Schexnaydre 8" D/W (28')	0.35	1.64	325.0			0.02	330.00	48.3	11.0	59.3	3.16	1.81	5.20	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
W Schexnaydre 8" D/W (24.5')	0.35	1.94	325.0			0.02	475.00	48.3	15.8	64.2	3.01	2.05	5.86	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
W Schexnaydre 10" D/W (37.5')	0.35	2.19	325.0			0.02	585.00	48.3	19.5	67.8	2.91	2.23	4.09	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
W Schexnaydre 8" D/W (21')	0.35	2.33	325.0			0.02	685.00	48.3	22.8	71.2	2.82	2.30	6.59	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
W Schexnaydre 12" (26')	0.35	2.58	325.0			0.02	765.00	48.3	25.5	73.8	2.76	2.49	3.17	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W Schexnaydre 8" S/W (6')	0.35	2.82	325.0			0.02	875.00	48.3	29.2	77.5	2.67	2.64	7.55	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W Schexnaydre 8" D/W (25')	0.35	3.01	325.0			0.02	925.00	48.3	30.8	79.2	2.63	2.77	7.95	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
W Schexnaydre 8" D/W (25')	0.35	3.40	325.0			0.02	1110.00	48.3	37.0	85.3	2.51	2.98	8.55	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
W Schexnaydre 8" D/W (28')	0.35	3.58	325.0			0.02	1120.00	48.3	37.3	85.7	2.50	3.13	8.97	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
W Schexnaydre 8" D/W (27.5')	0.35	4.00	325.0			0.02	1355.00	48.3	45.2	93.5	2.36	3.30	9.46	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
W Schexnaydre 12" (20.5')	0.35	4.25	325.0			0.02	1455.00	48.3	48.5	96.8	2.30	3.43	4.36	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Schexnaydre 12" (25.5')	0.35	4.40	325.0			0.02	1480.00	48.3	49.3	97.7	2.29	3.53	4.49	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Schexnaydre 12" (40')	0.35	4.45	325.0			0.02	1505.00	48.3	50.2	98.5	2.28	3.54	4.51	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Schexnaydre 8" D/W (29')	0.35	4.57	325.0			0.02	1545.00	48.3	51.5	99.8	2.26	3.61	10.33	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
W Schexnaydre 12" (45')	0.35	4.77	325.0			0.02	1585.00	48.3	52.8	101.2	2.23	3.73	4.75	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Schexnaydre 12" (80')	0.35	4.89	325.0			0.02	1620.00	48.3	54.0	102.3	2.22	3.79	4.83	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Schexnaydre 12" D/W (40')	0.35	4.91	325.0			0.02	1705.00	48.3	56.8	105.2	2.18	3.74	4.76	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
W Schexnaydre 12" (58.5')	0.35	4.94	325.0			0.02	1745.00	48.3	58.2	106.5	2.16	3.73	4.75	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Schexnaydre 15" D/W (67')	0.35	5.10	325.0			0.02	1810.00	48.3	60.3	108.7	2.13	3.80	3.09	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
W Schexnaydre 18" (89')	0.35	5.25	325.0			0.02	1875.00	48.3	62.5	110.8	2.10	3.86	2.18	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
W Schexnaydre 12" D/W (60')	0.35	5.51	325.0			0.02	1965.00	48.3	65.5	113.8	2.06	3.97	5.06	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
W Schexnaydre 12" D/W (57.5')	0.35	5.74	325.0			0.02	2025.00	48.3	67.5	115.8	2.03	4.09	5.20	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W Schexnaydre 18" (50')	0.35	6.05	325.0			0.02	2085.00	48.3	69.5	117.8	2.01	4.26	2.41	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
W Schexnaydre 18" (19.5')	0.35	6.21	325.0			0.02	2140.00	48.3	71.3	119.7	1.99	4.32	2.45	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
W Schexnaydre 18" (40')	0.35	6.29	325.0			0.02	2160.00	48.3	72.0	120.3	1.98	4.36	2.47	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
W Schexnaydre 15" (59.5')	0.35	6.40	325.0			0.02	2195.00	48.3	73.2	121.5	1.97	4.41	3.59	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
W Schexnaydre 12" D/W (33')	0.35	6.48	325.0			0.02	2270.00	48.3	75.7	124.0	1.94	4.40	5.60	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
W Schexnaydre 15" (40')	0.35	6.57	325.0			0.02	2315.00	48.3	77.2	125.5	1.92	4.42	3.60	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
W Schexnaydre to Outfall 12"/15" (48.5')	0.35	6.60	325.0			0.02	2365.00	48.3	78.8	127.2	1.91	4.40	3.59	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
W Joseph 15" (15')	0.35	2.22	315.0			0.02	355.00	47.7	11.8	59.6	3.15	2.45	2.00	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
W Joseph 18" (82')	0.35	1.83	315.0			0.02	230.00	47.7	7.7	55.4	3.30	2.11	1.19	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Joseph 24" D/W (12')	0.35	1.80	315.0			0.02	215.00	47.7	7.2	54.9	3.31	2.09	0.66	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Joseph 15" D/W (19')	0.35	1.14	315.0			0.02	90.00	47.7	3.0	50.7	3.47	1.39	1.13	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
W Joseph 18" D/W (16')	0.35	1.06	315.0			0.02	0.00	47.7	0.0	47.7	3.60	1.33	0.76	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
Outfall Ditch Across 2nd (2) 54" (50.5')	0.35	8.28	165.0			0.02	870.00	37.1	29.0	66.1	2.96	8.57	0.54	54	4.50	0.012	0.0015	15.90	14.14	1.13	82.73	5.20
OK, OVERSIZED																						
S 2nd to Outfall 42" (36')	0.35	2.99	165.0			0.02	795.00	37.1	26.5	63.6	3.03	3.17	0.33	42	3.50	0.012	0.0015	9.62	11.00	0.88	42.32	4.40
OK, OVERSIZED																						
S 2nd 12" (10')	0.35	2.77	165.0			0.02	750.00	37.1	25.0	62.1	3.08	2.98	3.80	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
S 2nd 12" (9')	0.35	2.38	165.0			0.02	650.00	37.1	21.7	58.7	3.18	2.65	3.37	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
S 2nd 15" (6')	0.35	1.70	165.0			0.02	440.00	37.1	14.7	51.7	3.43	2.04	1.66	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
S 2nd 24" D/W (87')	0.35	1.09	165.0			0.02	240.00	37.1	8.0	45.1	3.72	1.42	0.45	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
S 2nd 24" D/W (40.5')	0.35	0.80	165.0			0.02	155.00	37.1	5.2	42.2	3.85	1.08	0.34	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
S 2nd 24" D/W (14')	0.35	0.50	165.0			0.02	50.00	37.1	1.7	38.7	4.04	0.71	0.23	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
S 2nd ?" (26')	0.35	0.37	165.0			0.02	0.00	37.1	0.0	37.1	4.14	0.54	0.17	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
24" OK, OVERSIZED																						
S 2nd Across Gold Grove 24" (36.5')	0.35	0.37	60.0			0.02	105.00	24.9	3.5	28.4	4.73	0.61	0.19	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Golden Grove 48" (22')	0.35	5.23	445.0			0.02	390.00	54.7	13.0	67.7	2.91	5.33	0.42	48	4.00	0.012	0.0015	12.57	12.57	1.00	60.43	4.81
OK, OVERSIZED																						
W Golden Grove 54" (13')	0.35	5.41	445.0			0.02	430.00	54.7	14.3	69.0	2.88	5.45	0.34	54	4.50	0.012	0.0015	15.90	14.14	1.13	82.73	5.20
OK, OVERSIZED																						
W Golden Grove 54" (66.5')	0.35	6.00	445.0			0.02	445.00	54.7	14.8	69.5	2.86	6.02	0.38	54	4.50	0.012	0.0015	15.90	14.14	1.13	82.73	5.20
OK, OVERSIZED																						
1st Outfall 36" (14.5')	0.35	7.78	150.0			0.02	0.00	35.7	0.0	35.7	4.22	11.49	1.63	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
OK, OVERSIZED																						
Across Golden Grove 12" (30')	0.35	1.63	445.0			0.02	0.00	54.7	0.0	54.7	3.32	1.90	2.41	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
E Golden Grove 12" D/W (9.5')	0.35	0.11	60.0			0.02	0.00	24.9	0.0	24.9	5.02	0.19	0.25	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
E Golden Grove 12" D/W (31')	0.35	0.22	60.0			0.02	45.00	24.9	1.5	26.4	4.89	0.38	0.48	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Golden Grove 12" D/W (21')	0.35	0.30	120.0			0.02	80.00	32.7	2.7	35.4	4.24	0.45	0.57	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
S Rose Ln 18" S/W (5')	0.35	0.86	120.0			0.02	270.00	32.7	9.0	41.7	3.88	1.17	0.95	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
S Rose Ln 18" (20.5')	0.35	1.62	120.0			0.02	410.00	32.7	13.7	46.4	3.66	2.07	1.17	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Rose Ln 24" D/W (17')	0.35	2.60	120.0			0.02	580.00	32.7	19.3	52.1	3.42	3.11	0.99	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
S Rose Ln 27" D/W (4')	0.35	3.15	120.0			0.02	680.00	32.7	22.7	55.4	3.30	3.63	0.91	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK, OVERSIZED																						
S Rose Ln 30" S/W (8')	0.35	3.68	120.0			0.02	770.00	32.7	25.7	58.4	3.19	4.11	0.84	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
S Rose Ln 33" (22')	0.35	3.85	120.0			0.02	800.00	32.7	26.7	59.4	3.16	4.26	0.72	33	2.75	0.012	0.0015	5.94	8.64	0.69	22.25	3.75
OK, OVERSIZED																						
S Rose Ln to Outfall Ditch 33" (20.5')	0.35	8.93	120.0			0.02	1175.00	32.7	39.2	71.9	2.80	8.76	1.48	33	2.75	0.012	0.0015	5.94	8.64	0.69	22.25	3.75
OK, OVERSIZED																						
N Rose Ln 10" D/W (22.5')	0.35	0.22	125.0			0.02	0.00	33.2	0.0	33.2	4.38	0.34	0.62	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK, OVERSIZED																						
N Rose Ln 12" (10')	0.35	0.46	125.0			0.02	90.00	33.2	3.0	36.2	4.19	0.67	0.86	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
N Rose to S Rose 18" (24')	0.35	2.30	320.0			0.02	490.00	48.0	16.3	64.4	3.01	2.42	1.37	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Rose Ln 15" D/W (76')	0.35	2.04	320.0			0.02	420.00	48.0	14.0	62.0	3.08	2.20	1.79	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
N Rose Ln 21" D/W (15')	0.35	1.94	320.0			0.02	400.00	48.0	13.3	61.4	3.10	2.10	0.87	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
N Rose Ln 18" D/W (15')	0.35	1.67	320.0			0.02	315.00	48.0	10.5	58.5	3.19	1.86	1.05	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Rose Ln 15" S/W (4')	0.35	1.23	320.0			0.02	145.00	48.0	4.8	52.9	3.39	1.46	1.19	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
N Rose Ln 12" S/W (4.5')	0.35	0.80	320.0			0.02	0.00	48.0	0.0	48.0	3.58	1.00	1.28	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
S Tulip Ln Outfall 24" (70')	0.35	3.68	140.0			0.02	990.00	34.8	33.0	67.8	2.91	3.75	1.19	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
S Tulip Ln 21" D/W (20')	0.35	2.31	140.0			0.02	625.00	34.8	20.8	55.6	3.29	2.66	1.11	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
S Tulip Ln 15" (4.5')	0.35	0.46	140.0			0.02	105.00	34.8	3.5	38.3	4.07	0.65	0.53	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E Golden Grove 24" (4')	0.35	0.22	130.0			0.02	110.00	33.8	3.7	37.4	4.12	0.32	0.26	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E Golden Grove Across Tulip 15" (32')	0.35	0.22	130.0			0.02	110.00	33.8	3.7	37.4	4.12	0.32	0.26	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
2nd Outfall @ School 54" (144')	0.35	4.04	555.0			0.02	95.00	59.6	3.2	62.8	3.05	4.32	0.27	54	4.50	0.012	0.0015	15.90	14.14	1.13	82.73	5.20
OK, OVERSIZED																						
S 2nd St 30" (40')	0.35	3.74	555.0			0.02	50.00	59.6	1.7	61.3	3.10	4.06	0.83	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
S 2nd St 15" (9')	0.35	3.35	555.0			0.02	0.00	59.6	0.0	59.6	3.15	3.70	3.01	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
N 2nd St 12" (125')	0.35	0.67	250.0			0.02	0.00	43.6	0.0	43.6	3.79	0.89	1.13	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
N 2nd St 15" (22.5')	0.35	1.39	250.0			0.02	220.00	43.6	7.3	50.9	3.46	1.69	1.37	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
N 2nd St 18" (29')	0.35	3.07	250.0			0.02	455.00	43.6	15.2	58.8	3.18	3.42	1.93	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
Colonial Outfall Across 2nd 18" (71.5')	0.35	4.52	145.0			0.02	810.00	35.2	27.0	62.2	3.07	4.86	2.75	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Colonial 12" (32.5')	0.35	2.87	145.0			0.02	775.00	35.2	25.8	61.1	3.11	3.12	3.97	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E Colonial 12" D/W (70')	0.35	2.60	145.0			0.02	690.00	35.2	23.0	58.2	3.20	2.91	3.71	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
E Colonial 12" D/W (26')	0.35	2.52	145.0			0.02	665.00	35.2	22.2	57.4	3.23	2.85	3.62	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
E Colonial 15" D/W (93')	0.35	2.15	145.0			0.02	545.00	35.2	18.2	53.4	3.37	2.54	2.07	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E Colonial 18" D/W (50')	0.35	0.34	145.0			0.02	0.00	35.2	0.0	35.2	4.25	0.51	0.29	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Colonial 12" S/W (4')	0.35	0.61	145.0			0.02	80.00	35.2	2.7	37.9	4.09	0.87	1.11	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Colonial 10" S/W (4.5')	0.35	0.76	145.0			0.02	135.00	35.2	4.5	39.7	3.99	1.06	1.94	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**12**	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
E Colonial 8" D/W (34.5')	0.35	0.91	145.0			0.02	175.00	35.2	5.8	41.1	3.91	1.25	3.57	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
E Colonial 10" (56')	0.35	1.33	145.0			0.02	310.00	35.2	10.3	45.6	3.69	1.72	3.15	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
W Colonial 12" (?)	0.35	0.68	385.0			0.02	0.00	51.7	0.0	51.7	3.44	0.82	1.04	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
W Colonial 8"/10" (20.5')	0.35	0.81	385.0			0.02	50.00	51.7	1.7	53.3	3.37	0.96	1.75	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**12**	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
W Colonial 12" (38')	0.35	1.25	385.0			0.02	310.00	51.7	10.3	62.0	3.08	1.35	1.71	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Colonial to E Colonial 15" (26')	0.35	1.60	385.0			0.02	565.00	51.7	18.8	70.5	2.84	1.59	1.30	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E Airline Under R/R 24" (?')	0.35	5.56	85.0			0.02	980.00	28.6	32.7	61.3	3.10	6.03	1.92	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Airline 18" D/W (93.5')	0.35	6.95	85.0			0.02	1245.00	28.6	41.5	70.1	2.85	6.93	3.92	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.009	0.0015	2.41	5.50	0.44	8.89	3.69
E Airline 21" D/W (34')	0.35	7.23	85.0			0.02	1360.00	28.6	45.3	73.9	2.75	6.97	2.90	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
UNDERSIZED													**NEW**	**21**	1.75	0.009	0.0015	2.41	5.50	0.44	8.89	3.69
E Airline 24" D/W (133.5')	0.35	8.99	85.0			0.02	1790.00	28.6	59.7	88.3	2.45	7.71	2.46	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Airline 21" D/W (3')	0.35	9.52	85.0			0.02	1970.00	28.6	65.7	94.3	2.35	7.81	3.25	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
UNDERSIZED													**NEW**	**24**	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
E Airline 24" D/W (17')	0.35	12.95	85.0			0.02	2770.00	28.6	92.3	120.9	1.97	8.95	2.85	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Airline 24" D/W (26')	0.35	14.62	85.0			0.02	3625.00	28.6	120.8	149.4	1.70	8.68	2.76	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK																						
E Airline Across 6th 24" (154')	0.35	20.98	85.0			0.02	5415.00	28.6	180.5	209.1	1.32	9.72	3.09	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
UNDERSIZED													**NEW**	**30**	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
E Airline 21" D/W (25')	0.35	21.53	85.0			0.02	5640.00	28.6	188.0	216.6	1.29	9.72	4.04	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
UNDERSIZED													**NEW**	**24**	2.00	0.009	0.0015	3.14	6.28	0.50	12.69	4.04
E Airline 24" D/W (73.5')	0.35	22.35	85.0			0.02	6125.00	28.6	204.2	232.8	1.22	9.55	3.04	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
UNDERSIZED													**NEW**	**24**	2.00	0.009	0.0015	3.14	6.28	0.50	12.69	4.04
E Airline 30" (20')	0.35	22.39	85.0			0.02	6195.00	28.6	206.5	235.1	1.21	9.50	1.93	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
E Airline 24" S/W (722) (96')	0.35	24.28	85.0			0.02	6570.00	28.6	219.0	247.6	1.17	9.90	3.15	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
UNDERSIZED													**NEW**	**30**	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
E Airline 24" D/W (850) (63')	0.35	27.63	85.0			0.02	7645.00	28.6	254.8	283.4	1.05	10.16	3.23	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
UNDERSIZED													**NEW**	**24**	2.00	0.009	0.0015	3.14	6.28	0.50	12.69	4.04
E Airline Outfall 30" D/W (856) (?')	0.35					0.02		0.0														

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W Airline Outfall ?" (34')	0.35	28.51	160.0			0.02	8085.00	36.6	269.5	306.1	0.99	9.88	3.14	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
30" OK													**NEW**	**30**	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
W Airline 24" D/W (76.5')	0.35	26.91	160.0			0.02	7895.00	36.6	263.2	299.8	1.01	9.48	3.02	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK																						
W Airline 21" D/W (14')	0.35	25.15	160.0			0.02	7210.00	36.6	240.3	277.0	1.07	9.41	3.91	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
UNDERSIZED													**NEW**	**24**	2.00	0.009	0.0015	3.14	6.28	0.50	12.69	4.04
W Airline to E Airline 30" (38')	0.35	24.98	160.0			0.02	7185.00	36.6	239.5	276.1	1.07	9.37	1.91	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
W Airline 21" D/W (32')	0.35	24.76	160.0			0.02	6730.00	36.6	224.3	261.0	1.12	9.70	4.03	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
UNDERSIZED													**NEW**	**24**	2.00	0.009	0.0015	3.14	6.28	0.50	12.69	4.04
W Airline 24" D/W (49')	0.35	24.11	160.0			0.02	6515.00	36.6	217.2	253.8	1.14	9.65	3.07	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
UNDERSIZED													**NEW**	**24**	2.00	0.009	0.0015	3.14	6.28	0.50	12.69	4.04
W Airline 18" D/W (21')	0.35	23.46	160.0			0.02	6200.00	36.6	206.7	243.3	1.18	9.70	5.49	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**24**	2.00	0.009	0.0015	3.14	6.28	0.50	12.69	4.04
W Airline Across 6th 30" D/W (321')	0.35	21.41	160.0			0.02	5780.00	36.6	192.7	229.3	1.24	9.26	1.89	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
W Airline 24" D/W (17')	0.35	21.24	160.0			0.02	5745.00	36.6	191.5	228.1	1.24	9.22	2.93	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK																						
W Airline 18" D/W (28')	0.35	15.02	160.0			0.02	4225.00	36.6	140.8	177.5	1.50	7.87	4.45	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.009	0.0015	2.41	5.50	0.44	8.89	3.69
W Airline 24" D/W (50')	0.35	15.01	160.0			0.02	4115.00	36.6	137.2	173.8	1.52	7.98	2.54	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Airline 18" D/W (18')	0.35	10.21	160.0			0.02	2570.00	36.6	85.7	122.3	1.96	7.00	3.96	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.009	0.0015	2.41	5.50	0.44	8.89	3.69
W Airline 24" D/W (103')	0.35	9.43	160.0			0.02	2365.00	36.6	78.8	115.5	2.04	6.73	2.14	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Airline Across R/R 30" (?')	0.35	4.64	160.0			0.02	1185.00	36.6	39.5	76.1	2.70	4.39	0.89	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
E Magnolia to Outfall 18" (62.5')	0.35	1.67	170.0			0.02	90.00	37.5	3.0	40.5	3.94	2.31	1.30	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Magnolia 12" D/W (82')	0.35	1.00	100.0			0.02	0.00	30.5	0.0	30.5	4.57	1.60	2.04	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
Across Magnolia 18" (24')	0.35	0.35	170.0			0.02	15.00	37.5	0.5	38.0	4.08	0.50	0.28	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Magnolia/ S Second 18" (10')	0.35	0.27	170.0			0.02	0.00	37.5	0.0	37.5	4.11	0.39	0.22	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Second/E Collects Pine Ave ?" (39')	0.35	3.09	60.0			0.02	85.00	24.9	2.8	27.8	4.78	5.17	2.93	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
21" OK													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
Across Pine/Collects W Pine (38')	0.35	6.09	60.0			0.02	170.00	24.9	5.7	30.6	4.56	9.72	5.50	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
30" OK													**NEW**	**30**	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
Second and David ?" (85')	0.35	8.04	60.0			0.02	400.00	24.9	13.3	38.3	4.07	11.44	6.48	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
REPLACE WITH 30"													**NEW**	**30**	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
E David Outfall (2) 36" (40')	0.35	36.70	133.0			0.02	2520.00	34.1	84.0	118.1	2.01	25.79	3.65	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
OK																						
E David Across Main (2) 48" (94.5')	0.35	25.57	133.0			0.02	1550.00	34.1	51.7	85.7	2.50	22.37	1.78	48	4.00	0.012	0.0015	12.57	12.57	1.00	60.43	4.81
OK, OVERSIZED																						
E David Under R/R 42"/60" (?')	0.35	22.89	133.0			0.02	950.00	34.1	31.7	65.7	2.97	23.77	2.47	42	3.50	0.012	0.0015	9.62	11.00	0.88	42.32	4.40
42" OK, OVERSIZED																						
W David 12" D/W (183')	0.35	1.13	105.0			0.02	0.00	31.1	0.0	31.1	4.53	1.79	2.28	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
E Pine 18" D/W (95')	0.35	1.42	315.0			0.02	270.00	47.7	9.0	56.7	3.25	1.61	0.91	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Pine 12" D/W (55')	0.35	1.38	190.0			0.02	355.00	39.2	11.8	51.0	3.46	1.67	2.13	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
E Second @ Fifth 18" (32.5')	0.35	0.91	350.0			0.02	245.00	49.8	8.2	57.9	3.21	1.02	0.58	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
S Fifth 18" D/W (78')	0.35	1.30	350.0			0.02	235.00	49.8	7.8	57.6	3.22	1.46	0.83	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Fifth 18" D/W (41')	0.35	0.48	180.0			0.02	120.00	38.3	4.0	42.3	3.85	0.65	0.37	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Second 18" D/W (21')	0.35	3.68	350.0			0.02	320.00	49.8	10.7	60.4	3.13	4.03	2.28	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Second 18" D/W (108')	0.35	4.60	350.0			0.02	455.00	49.8	15.2	64.9	2.99	4.81	2.72	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
E Third B/T 7th & 8th 18" (87')	0.35	1.09	130.0			0.02	95.00	33.8	3.2	36.9	4.15	1.58	0.89	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Third (1489) 18" D/W (62.5')	0.35	0.82	130.0			0.02	55.00	33.8	1.8	35.6	4.23	1.21	0.69	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Third (1545) 18" D/W (79')	0.35	2.59	130.0			0.02	585.00	33.8	19.5	53.3	3.37	3.06	1.73	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Third (1561) 18" D/W (156')	0.35	1.21	140.0			0.02	240.00	34.8	8.0	42.8	3.83	1.62	0.92	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Tenth From Outfall (2) 48" (60')																						
W Second S of Seventh 18" D/W (61.5')	0.35	6.97	110.0			0.02	2070.00	31.6	69.0	100.6	2.24	5.47	3.10	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
E 2nd @ 6th 18" S/W (6')	0.35	5.81	350.0			0.02	1580.00	49.8	52.7	102.4	2.22	4.51	2.55	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E 2nd (1500) 18" D/W (61')	0.35	6.09	350.0			0.02	1810.00	49.8	60.3	110.1	2.11	4.49	2.54	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
N 7th 18" D/W (35')	0.35	0.76	175.0			0.02	170.00	37.9	5.7	43.6	3.79	1.01	0.57	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N 6th 18" D/W (185')	0.35	1.58	200.0			0.02	325.00	40.0	10.8	50.8	3.47	1.92	1.09	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S 6th 18" S/W (6')	0.35	2.65	215.0			0.02	455.00	41.1	15.2	56.3	3.26	3.03	1.71	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N 4th 12" D/W (118')	0.35	0.33	260.0			0.02	0.00	44.3	0.0	44.3	3.75	0.43	0.55	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
N 4th Across 3rd 24" (34')	0.35	2.23	210.0			0.02	70.00	40.7	2.3	43.1	3.81	2.98	0.95	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
N 4th 18" S/W (56')	0.35	1.00	210.0			0.02	0.00	40.7	0.0	40.7	3.93	1.38	0.78	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Lutcher 10" D/W (1502) (27')	0.35	0.14	100.0			0.02	0.00	30.5	0.0	30.5	4.57	0.22	0.41	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK, OVERSIZED																						
W Lutcher 8" (10')	0.35	0.12	75.0			0.02	0.00	27.2	0.0	27.2	4.83	0.20	0.58	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
OK																						
E Louisiana @ Hospital 18" (78')	0.35	1.91	430.0			0.02	0.00	53.9	0.0	53.9	3.35	2.24	1.27	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Lutcher to Middle 48"x28"? (52.5')	0.35	1.39	95.0			0.02	150.00	29.9	5.0	34.9	4.27	2.08	0.49	28	2.33	0.012	0.0015	4.28	7.33	0.58	14.35	3.36
OK, OVERSIZED																						
Car Wash W Lutcher 18" (76')	0.35	1.08	95.0			0.02	40.00	29.9	1.3	31.2	4.52	1.71	0.97	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Lutcher 18" (30.5')	0.35	0.95	95.0			0.02	0.00	29.9	0.0	29.9	4.62	1.54	0.87	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E 8th 36" (51')	0.35	10.17	420.0			0.02	0.00	53.4	0.0	53.4	3.37	11.99	1.70	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
OK, OVERSIZED																						
W Louisiana to E 15" (31.5')	0.35	0.65	250.0			0.02	0.00	43.6	0.0	43.6	3.79	0.86	0.70	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E Louisiana 18" (21')	0.35	1.86	130.0			0.02	245.00	33.8	8.2	41.9	3.87	2.52	1.05	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
E Louisiana 18" (21')	0.35	1.85	170.0			0.02	0.00	37.5	0.0	37.5	4.11	2.66	1.11	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
E Louisiana 18" D/W (13.5')	0.35	1.72	85.0			0.02	75.00	28.6	2.5	31.1	4.53	2.73	1.54	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N 5th 18" (19.5')	0.35	1.15	190.0			0.02	205.00	39.2	6.8	46.0	3.67	1.48	0.84	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
th to Outfall @ Texas 10" steel inside 18" RCP (63	0.35	1.86	190.0			0.02	395.00	39.2	13.2	52.3	3.41	2.22	1.26	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Texas 8" D/W (30')	0.35	0.30	95.0			0.02	0.00	29.9	0.0	29.9	4.62	0.48	1.39	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
OK																						
W Texas to E Outfall 8" (32')	0.35	0.96	95.0			0.02	290.00	29.9	9.7	39.5	4.00	1.34	3.85	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**12**	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
W Texas to E Texas 12" (26')	0.35	1.31	135.0			0.02	245.00	34.3	8.2	42.4	3.84	1.76	2.24	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
N St. Louis @ Albert 12" S/W (6')	0.35	0.17	65.0			0.02	0.00	25.7	0.0	25.7	4.95	0.29	0.38	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
S St. Louis 18" S/W (5.5')	0.35	1.22	185.0			0.02	250.00	38.8	8.3	47.1	3.63	1.55	0.88	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S St. Louis 15" S/W (7')	0.35	0.69	185.0			0.02	95.00	38.8	3.2	41.9	3.87	0.93	0.76	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
N St. Louis 18" (10')	0.35	0.56	100.0			0.02	75.00	30.5	2.5	33.0	4.40	0.86	0.49	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Central 12" D/W (102')	0.35	2.47	645.0			0.02	0.00	63.2	0.0	63.2	3.04	2.63	3.35	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
W Central 18" (20')	0.35	3.10	645.0			0.02	165.00	63.2	5.5	68.7	2.89	3.13	1.77	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Central 10" D/W (32')	0.35	3.22	645.0			0.02	195.00	63.2	6.5	69.7	2.86	3.22	5.91	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
W Central 12" D/W (108')	0.35	4.41	645.0			0.02	880.00	63.2	29.3	92.6	2.37	3.66	4.67	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
W Central 12" (9')	0.35	5.00	645.0			0.02	1065.00	63.2	35.5	98.7	2.27	3.98	5.06	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Central 12" (93')	0.35	5.15	645.0			0.02	1095.00	63.2	36.5	99.7	2.26	4.07	5.18	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W Central 15" D/W (344')	0.35	5.67	645.0			0.02	130.00	63.2	4.3	67.6	2.92	5.79	4.72	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
E Central 15" (145')	0.35	1.81	515.0			0.02	0.00	57.9	0.0	57.9	3.21	2.03	1.66	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
S to N Central 18" (E Outfall) (16')	0.35	6.00	515.0			0.02	150.00	57.9	5.0	62.9	3.05	6.41	3.62	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
S to N Central 15" (W Outfall) (25')	0.35	5.96	645.0			0.02	1650.00	63.2	55.0	118.2	2.01	4.18	3.41	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
E King 60" (18')	0.35	8.30	645.0			0.02	2575.00	63.2	85.8	149.1	1.70	4.94	0.25	60	5.00	0.012	0.0015	19.63	15.71	1.25	109.58	5.58
OK, OVERSIZED																						
W King to E King 18" (25')	0.35	1.11	115.0			0.02	285.00	32.2	9.5	41.7	3.88	1.51	0.85	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W King 15"/21" (67')	0.35	0.83	115.0			0.02	200.00	32.2	6.7	38.8	4.03	1.17	0.96	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
15" OK, OVERSIZED																						
W King 10" (69')	0.35	0.52	115.0			0.02	80.00	32.2	2.7	34.8	4.27	0.78	1.43	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
E King 18" (19.5')	0.35	1.28	480.0			0.02	0.00	56.3	0.0	56.3	3.26	1.46	0.83	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W E Lebray 24" (6')	0.35	3.47	665.0			0.02	1440.00	64.0	48.0	112.0	2.08	2.53	0.81	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W E Lebray 30" (8')	0.35	3.80	665.0			0.02	1685.00	64.0	56.2	120.2	1.98	2.64	0.54	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
E Lebray Across W Lebray 30" (26')	0.35	8.78	665.0			0.02	2000.00	64.0	66.7	130.7	1.87	5.74	1.17	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W W Lebray 18" (100')	0.35	4.81	120.0			0.02	2090.00	32.7	69.7	102.4	2.22	3.73	2.11	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W W Lebray 15" (7')	0.35	3.10	120.0			0.02	1340.00	32.7	44.7	77.4	2.67	2.90	2.36	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
W W Lebray 15" (63')	0.35	2.60	120.0			0.02	1055.00	32.7	35.2	67.9	2.91	2.65	2.16	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
W W Lebray 15" D/W (29')	0.35	1.34	120.0			0.02	475.00	32.7	15.8	48.6	3.56	1.67	1.36	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
W W Lebray 18" (33')	0.35	0.79	90.0			0.02	120.00	29.2	4.0	33.2	4.38	1.21	0.68	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Courseault 18" (326')	0.35	0.50	120.0			0.02	190.00	32.7	6.3	39.1	4.02	0.70	0.40	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Courseault 18" (106.5')	0.35	2.79	120.0			0.02	1055.00	32.7	35.2	67.9	2.91	2.84	1.61	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Courseault 42" (198')	0.35	3.34	120.0			0.02	1445.00	32.7	48.2	80.9	2.60	3.04	0.32	42	3.50	0.012	0.0015	9.62	11.00	0.88	42.32	4.40
OK, OVERSIZED																						
E Courseault 18" (29')	0.35	5.04	120.0			0.02	2220.00	32.7	74.0	106.7	2.15	3.80	2.15	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Courseault 21" D/W (16')	0.35	3.34	125.0			0.02	1475.00	33.2	49.2	82.4	2.57	3.00	1.25	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
S Courseault 24" (90')	0.35	3.37	125.0			0.02	1505.00	33.2	50.2	83.4	2.54	3.00	0.96	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Courseault to E Outfall 18" (24')	0.35	3.29	125.0			0.02	1400.00	33.2	46.7	79.9	2.62	3.01	1.71	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Courseault 10" D/W (18.5')	0.35	0.57	125.0			0.02	110.00	33.2	3.7	36.9	4.15	0.83	1.52	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
W Courseault 15" D/W (16')	0.35	1.65	125.0			0.02	620.00	33.2	20.7	53.9	3.35	1.93	1.58	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
W Courseault 12" D/W (73')	0.35	1.80	125.0			0.02	715.00	33.2	23.8	57.1	3.24	2.04	2.60	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
W Courseault 15" D/W (16')	0.35	2.84	125.0			0.02	1215.00	33.2	40.5	73.7	2.76	2.74	2.23	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
W Courseault 15"/18" D/W (41')	0.35	3.04	125.0			0.02	1300.00	33.2	43.3	76.6	2.69	2.86	2.33	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
18" OK													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
W Courseault 15" (18')	0.35	0.55	95.0			0.02	85.00	29.9	2.8	32.7	4.41	0.85	0.69	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
W Courseault 10" (17')	0.35	0.43	95.0			0.02	40.00	29.9	1.3	31.2	4.52	0.68	1.25	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
W Courseault 12" D/W (20')	0.35	0.31	95.0			0.02	0.00	29.9	0.0	29.9	4.62	0.50	0.64	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
W Nobile 24" (40')	0.35	7.34	210.0			0.02	475.00	40.7	15.8	56.6	3.25	8.36	2.66	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Nobile to E Nobile 24" (41.5')	0.35	8.97	210.0			0.02	515.00	40.7	17.2	57.9	3.21	10.07	3.21	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
UNDERSIZED													**NEW**	**30**	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
W Nobile 18" (86')	0.35	0.52	210.0			0.02	0.00	40.7	0.0	40.7	3.93	0.72	0.40	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Nobile 12" (15')	0.35	3.55	210.0			0.02	150.00	40.7	5.0	45.7	3.69	4.58	5.83	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Nobile 18" (19')	0.35	5.59	210.0			0.02	145.00	40.7	4.8	45.6	3.69	7.23	4.09	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**24**	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
E Nobile 18" (49')	0.35	4.73	210.0			0.02	0.00	40.7	0.0	40.7	3.93	6.51	3.68	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
E Nobile 18" D/W (20')	0.35	5.82	210.0			0.02	180.00	40.7	6.0	46.7	3.64	7.42	4.20	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK													**NEW**	**21**	1.75	0.009	0.0015	2.41	5.50	0.44	8.89	3.69
E Nobile 18" D/W (83')	0.35	7.05	210.0			0.02	395.00	40.7	13.2	53.9	3.35	8.27	4.68	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.009	0.0015	2.41	5.50	0.44	8.89	3.69

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
E Nobile 18" (50')	0.35	7.52	210.0			0.02	475.00	40.7	15.8	56.6	3.25	8.57	4.85	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**24**	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
E Nobile 18" ? (19')	0.35	8.09	210.0			0.02	565.00	40.7	18.8	59.6	3.15	8.93	5.05	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**24**	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
E Nobile 18" D/W (71')	0.35	8.58	210.0			0.02	655.00	40.7	21.8	62.6	3.06	9.19	5.20	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**24**	2.00	0.009	0.0015	3.14	6.28	0.50	12.69	4.04
E Nobile 18" D/W (76')	0.35	9.41	210.0			0.02	720.00	40.7	24.0	64.7	3.00	9.87	5.58	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**24**	2.00	0.009	0.0015	3.14	6.28	0.50	12.69	4.04
W Nobile 18" (45.5') *	0.35	5.63	210.0			0.02	1555.00	40.7	51.8	92.6	2.37	4.68	2.65	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
W Nobile to E Nobile Outfall (2) 24" (41')	0.35	5.65	210.0			0.02	1620.00	40.7	54.0	94.7	2.34	4.62	1.47	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Nobile to Outfall 18"? (47')	0.35	1.79	210.0			0.02	195.00	40.7	6.5	47.2	3.62	2.27	1.28	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Nobile 18" (12')	0.35	3.77	210.0			0.02	810.00	40.7	27.0	67.7	2.91	3.84	2.17	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W to E Nobile 30" (40')	0.35	4.27	210.0			685.00	810.00	5.1	27.0	32.1	4.45	6.66	1.36	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
W Nobile 18" (18')	0.35	3.63	210.0			0.02	665.00	40.7	22.2	62.9	3.05	3.87	2.19	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Nobile 18" (56')	0.35	1.37	210.0			0.02	185.00	40.7	6.2	46.9	3.63	1.74	0.99	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Nobile 18" D/W (122.5')	0.35	0.93	210.0			0.02	60.00	40.7	2.0	42.7	3.83	1.25	0.71	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Nobile 18" (88')	0.35	2.10	210.0			0.02	325.00	40.7	10.8	51.6	3.44	2.53	1.43	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Nobile 18" (80')	0.35	1.53	210.0			0.02	0.00	40.7	0.0	40.7	3.93	2.11	1.19	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Nobile to E Outfall 21" (40.5')	0.35	1.80	210.0			0.02	0.00	40.7	0.0	40.7	3.93	2.48	1.40	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Nobile 18" (51.5')	0.35	1.71	210.0			0.02	0.00	40.7	0.0	40.7	3.93	2.35	1.33	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Nobile 24" (49')	0.35	3.30	210.0			0.02	315.00	40.7	10.5	51.2	3.45	3.99	1.27	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Nobile 24" D/W (120')	0.35	1.39	210.0			0.02	190.00	40.7	6.3	47.1	3.63	1.76	0.56	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Carrot 18" (59')	0.35	6.51	140.0			0.02	1010.00	34.8	33.7	68.4	2.89	6.59	3.73	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
N Ricky 18" (67')	0.35	5.51	140.0			0.02	560.00	34.8	18.7	53.4	3.37	6.50	3.68	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
W 642 18" D/W (22')	0.35	5.97	460.0			0.02	410.00	55.4	13.7	69.0	2.88	6.01	3.40	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
W 642 18" (15')	0.35	8.51	460.0			0.02	655.00	55.4	21.8	77.2	2.68	7.97	4.51	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**24**	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
W 642 21" D/W (22.5')	0.35	10.99	460.0			0.02	1190.00	55.4	39.7	95.0	2.33	8.97	3.73	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
UNDERSIZED													**NEW**	**24**	2.00	0.009	0.0015	3.14	6.28	0.50	12.69	4.04
W 642 ?" D/W (17.5')	0.35	11.71	460.0			0.02	1310.00	55.4	43.7	99.0	2.27	9.29	3.86	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
REPLACE WITH 24" OK													**NEW**	**24**	2.00	0.009	0.0015	3.14	6.28	0.50	12.69	4.04
W 642 24" D/W (37')	0.35	12.80	460.0			0.02	1555.00	55.4	51.8	107.2	2.15	9.62	3.06	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
UNDERSIZED													**NEW**	**24**	2.00	0.009	0.0015	3.14	6.28	0.50	12.69	4.04
W 642 Across Bourbon 24" (51')	0.35	2.21	395.0			0.02	295.00	52.2	9.8	62.0	3.08	2.38	0.76	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
N Bourbon 18" (9.5')	0.35	0.75	75.0			0.02	0.00	27.2	0.0	27.2	4.83	1.27	0.72	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Bourbon 12" (33')	0.35	0.93	140.0			0.02	0.00	34.8	0.0	34.8	4.28	1.39	1.77	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W 642 18" (19.5')	0.35	2.01	395.0			0.02	145.00	52.2	4.8	57.0	3.24	2.28	1.29	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W 642 18" (189')	0.35	0.32	225.0			0.02	135.00	41.9	4.5	46.4	3.66	0.41	0.23	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N St. Joseph 15" (48')	0.35	0.59	225.0			0.02	350.00	41.9	11.7	53.5	3.36	0.69	0.57	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
N St. Joseph 15" (42.5')	0.35	1.62	225.0			0.02	520.00	41.9	17.3	59.2	3.17	1.80	1.46	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
N St. Joseph ?" (37')	0.35	1.94	225.0			0.02	565.00	41.9	18.8	60.7	3.12	2.12	1.73	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
SHOULD BE 18"																						
N St. Joseph 18" (53.5')	0.35	2.20	225.0			0.02	600.00	41.9	20.0	61.9	3.08	2.37	1.34	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N St. Joseph ?" (35')	0.35	2.63	225.0			0.02	665.00	41.9	22.2	64.0	3.02	2.78	1.57	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18"																						
N St. Joseph ?" D/W (19')	0.35	2.87	225.0			0.02	700.00	41.9	23.3	65.2	2.98	3.00	1.70	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18"																						
N St. Joseph ?" (19')	0.35	3.00	225.0			0.02	720.00	41.9	24.0	65.9	2.96	3.11	1.76	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18"																						
N St. Joseph ?" (64')	0.35	3.17	225.0			0.02	755.00	41.9	25.2	67.0	2.93	3.25	1.84	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18"																						
N St. Joseph ?" (67')	0.35	3.56	225.0			0.02	815.00	41.9	27.2	69.0	2.88	3.59	2.03	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18"																						
N St. Joseph ?" (57.5')	0.35	4.05	225.0			0.02	885.00	41.9	29.5	71.4	2.82	3.99	2.26	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18"																						
N St. Joseph 18" (78')	0.35	4.36	225.0			0.02	945.00	41.9	31.5	73.4	2.77	4.22	2.39	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
N St. Joseph 18" (31')	0.35	4.82	225.0			0.02	1028.00	41.9	34.3	76.1	2.70	4.56	2.58	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
N St. Joseph ?" (48.5')	0.35	5.08	225.0			0.02	1065.00	41.9	35.5	77.4	2.67	4.75	1.98	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
SHOULD BE 21"																						
N St. Joseph ?" (60')	0.35	5.46	225.0			0.02	1115.00	41.9	37.2	79.0	2.64	5.04	2.85	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
Across St. Joseph 18" (37')	0.35	5.87	225.0			0.02	1175.00	41.9	39.2	81.0	2.59	5.33	3.02	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**21**	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
S St. Joseph 12" (70')	0.35	0.28	220.0			0.02	0.00	41.5	0.0	41.5	3.89	0.38	0.49	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
S St. Joseph ?" (63')	0.35	0.35	220.0			0.02	70.00	41.5	2.3	43.8	3.78	0.46	0.59	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
SHOULD BE 12"																						
S St. Joseph 12" (21')	0.35	0.76	220.0			0.02	134.00	41.5	4.5	46.0	3.68	0.98	1.25	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
S St. Joseph 18" (59')	0.35	0.89	220.0			0.02	160.00	41.5	5.3	46.8	3.64	1.13	0.64	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S St. Joseph ?" (39.5')	0.35	1.11	220.0			0.02	220.00	41.5	7.3	48.8	3.55	1.38	0.78	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18", OVERSIZED																						
S St. Joseph 18" (41')	0.35	1.46	220.0			0.02	305.00	41.5	10.2	51.7	3.44	1.76	0.99	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S St. Joseph ?" (59.5')	0.35	1.61	220.0			0.02	340.00	41.5	11.3	52.8	3.39	1.91	1.08	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18", OVERSIZED																						
S St. Joseph ?" (39.5')	0.35	1.86	220.0			0.02	400.00	41.5	13.3	54.8	3.32	2.16	1.22	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18", OVERSIZED																						
S St. Joseph ?" (68')	0.35	2.04	220.0			0.02	440.00	41.5	14.7	56.2	3.27	2.33	1.32	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18", OVERSIZED																						
S St. Joseph ?" (65')	0.35	2.41	220.0			0.02	525.00	41.5	17.5	59.0	3.17	2.68	1.51	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18", OK																						
S St. Joseph 18" D/W (24')	0.35	3.08	220.0			0.02	685.00	41.5	22.8	64.3	3.01	3.24	1.83	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
Outfall Across Tupelo 33" (37')	0.35	11.62	220.0			0.02	890.00	41.5	29.7	71.2	2.82	11.48	1.93	33	2.75	0.012	0.0015	5.94	8.64	0.69	22.25	3.75
33" OK, OVERSIZED																						
Outfall Across Tupelo 33" (37')	0.35	11.62	220.0			0.02	890.00	41.5	29.7	71.2	2.82	11.48	1.93	33	2.75	0.012	0.0015	5.94	8.64	0.69	22.25	3.75
33" OK, OVERSIZED																						
W 642 18" D/W (33')	0.35	0.40	175.0			0.02	0.00	37.9	0.0	37.9	4.09	0.57	0.32	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Geismar 12" (64.5')	0.35	0.93	175.0			0.02	280.00	37.9	9.3	47.3	3.62	1.18	1.50	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
N Geismar ?" (76')	0.35	1.32	175.0			0.02	350.00	37.9	11.7	49.6	3.52	1.63	0.92	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18", OVERSIZED																						
N Geismar 18" (15')	0.35	1.81	175.0			0.02	435.00	37.9	14.5	52.4	3.41	2.16	1.22	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Geismar 24" D/W (39')	0.35	1.88	175.0			0.02	450.00	37.9	15.0	52.9	3.39	2.23	0.71	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
N Geismar ?" (46.5')	0.35	2.15	175.0			0.02	495.00	37.9	16.5	54.4	3.33	2.51	0.80	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
SHOULD BE 24" OVERSIZED																						
N Geismar ?" (39.5')	0.35	2.41	175.0			0.02	545.00	37.9	18.2	56.1	3.27	2.76	0.88	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
SHOULD BE 24" OVERSIZED																						
N Geismar ?" (79')	0.35	2.63	175.0			0.02	590.00	37.9	19.7	57.6	3.22	2.96	0.94	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
SHOULD BE 24" OVERSIZED																						
N Geismar @ Cypress 27" (80')	0.35	6.80	175.0			0.02	1275.00	37.9	42.5	80.4	2.61	6.20	1.56	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK, OVERSIZED																						
S Geismar 12" (35')	0.35	0.38	210.0			0.02	0.00	40.7	0.0	40.7	3.93	0.52	0.67	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
S Geismar 12" (27')	0.35	0.63	210.0			0.02	35.00	40.7	1.2	41.9	3.87	0.85	1.09	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
S Geismar 18" (72')	0.35	0.79	210.0			0.02	65.00	40.7	2.2	42.9	3.82	1.06	0.60	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Geismar ?" (65')	0.35	1.19	210.0			0.02	140.00	40.7	4.7	45.4	3.70	1.54	0.87	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OVERSIZED																						
S Geismar ?" (48')	0.35	1.57	210.0			0.02	200.00	40.7	6.7	47.4	3.61	1.98	1.12	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OVERSIZED																						
S Geismar ?" (40')	0.35	1.86	210.0			0.02	250.00	40.7	8.3	49.1	3.54	2.30	1.30	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OVERSIZED																						
S Geismar ?" (39.5')	0.35	2.05	210.0			0.02	285.00	40.7	9.5	50.2	3.49	2.51	1.42	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OVERSIZED																						
S Geismar ?" (65')	0.35	2.32	210.0			0.02	330.00	40.7	11.0	51.7	3.43	2.79	1.58	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OK																						
S Geismar ?" (38')	0.35	2.74	210.0			0.02	400.00	40.7	13.3	54.1	3.34	3.21	1.81	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OK																						
S Geismar ?" (30')	0.35	3.22	210.0			0.02	455.00	40.7	15.2	55.9	3.28	3.69	2.09	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OK																						
S Geismar ?" (13.5')	0.35	3.43	210.0			0.02	485.00	40.7	16.2	56.9	3.24	3.89	2.20	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OK																						
S Geismar ?" (66')	0.35	3.49	210.0			0.02	500.00	40.7	16.7	57.4	3.23	3.94	2.23	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OK																						
S Geismar 27" (60')	0.35	7.43	180.0			0.02	500.00	38.3	16.7	55.0	3.31	8.61	2.16	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK, OVERSIZED																						
W Tupelo 12" D/W (17')	0.35	0.50	200.0			0.02	0.00	40.0	0.0	40.0	3.97	0.70	0.89	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W Tupelo 15" D/W (16')	0.35	1.06	200.0			0.02	125.00	40.0	4.2	44.1	3.76	1.40	1.14	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
W Tupelo 18" (71.5')	0.35	1.98	200.0			0.02	360.00	40.0	12.0	52.0	3.42	2.37	1.34	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Tupelo 18" D/W (65')	0.35	1.26	215.0			0.02	215.00	41.1	7.2	48.3	3.57	1.58	0.89	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W Tupelo (Outfall to Geismar) 18" (49.5')	0.35	0.91	180.0			0.02	150.00	38.3	5.0	43.3	3.80	1.21	0.68	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Tupelo 18" (16')	0.35	0.84	200.0			0.02	0.00	40.0	0.0	40.0	3.97	1.17	0.66	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Tupelo 12" D/W (38')	0.35	0.17	110.0			0.02	50.00	31.6	1.7	33.3	4.37	0.26	0.33	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
E Tupelo ?" (17')	0.35	0.41	110.0			0.02	100.00	31.6	3.3	35.0	4.27	0.61	0.78	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
SHOULD BE 12" OK, OVERSIZED																						
E Tupelo ?" (60')	0.35	0.48	110.0			0.02	120.00	31.6	4.0	35.6	4.22	0.71	0.90	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
SHOULD BE 12" OK, OVERISZED																						
E Tupelo ?" (56')	0.35	0.65	110.0			0.02	180.00	31.6	6.0	37.6	4.10	0.93	1.19	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
SHOULD BE 12" OK																						
E Tupelo ?" (16')	0.35	0.84	110.0			0.02	255.00	31.6	8.5	40.1	3.96	1.17	1.48	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
SHOULD BE 12" OK																						
E Tupelo 21" (161')	0.35	1.26	150.0			0.02	240.00	35.7	8.0	43.7	3.78	1.67	0.69	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
W Cypress 15" D/W (30')	0.35	0.09	110.0			0.02	0.00	31.6	0.0	31.6	4.49	0.14	0.12	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
W Cypress 18" (24.5')	0.35	0.36	110.0			0.02	100.00	31.6	3.3	35.0	4.27	0.54	0.30	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Cypress ?" D/W (29.5')	0.35	0.42	110.0			0.02	125.00	31.6	4.2	35.8	4.21	0.62	0.35	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OK, OVERSIZED																						
W Cypress ?" (75')	0.35	0.50	110.0			0.02	155.00	31.6	5.2	36.8	4.15	0.73	0.41	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OK, OVERSIZED																						
W Cypress 15" (20')	0.35	0.70	110.0			0.02	240.00	31.6	8.0	39.6	3.99	0.98	0.80	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, SHOULD BE 18"																						
W Cypress 21"/24'? D/W (40')	0.35	1.25	110.0			0.02	440.00	31.6	14.7	46.3	3.66	1.60	0.67	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
21" OK, OVERSIZED																						
W Cypress ?" D/W (46')	0.35	0.10	90.0			0.02	0.00	29.2	0.0	29.2	4.66	0.16	0.21	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
SHOULD BE 12"																						
W Cypress ?" (19')	0.35	0.13	90.0			0.02	35.00	29.2	1.2	30.4	4.58	0.21	0.27	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
SHOULD BE 12"																						
W Cypress 15" D/W (20')	0.35	0.42	135.0			0.02	130.00	34.3	4.3	38.6	4.05	0.60	0.48	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
W Cypress 21" (61')	0.35	1.03	135.0			0.02	315.00	34.3	10.5	44.8	3.73	1.35	0.56	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
W Cypress ?" D/W (27')	0.35	1.23	135.0			0.02	380.00	34.3	12.7	46.9	3.63	1.56	0.65	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
SHOULD BE 21" OK, OVERSIZED																						
W Cypress ?" (41')	0.35	1.30	135.0			0.02	405.00	34.3	13.5	47.8	3.60	1.64	0.68	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
SHOULD BE 21" OK, OVERSIZED																						
W Cypress @ Plantation ?" (66')	0.35	1.46	135.0			0.02	455.00	34.3	15.2	49.4	3.53	1.80	0.75	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
SHOULD BE 21" OK, OVERSIZED																						
E Cypress 12" (80')	0.35	0.20	100.0			0.02	0.00	30.5	0.0	30.5	4.57	0.32	0.41	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Cypress 15" (81')	0.35	0.39	100.0			0.02	80.00	30.5	2.7	33.1	4.38	0.60	0.49	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E Cypress 18" (22')	0.35	1.08	100.0			0.02	350.00	30.5	11.7	42.1	3.86	1.46	0.83	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Cypress 12" D/W (76')	0.35	0.20	100.0			0.02	0.00	30.5	0.0	30.5	4.57	0.32	0.41	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Cypress 15" D/W (21')	0.35	0.53	100.0			0.02	210.00	30.5	7.0	37.5	4.11	0.76	0.62	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
E Cypress 18" (8')	0.35	0.69	100.0			0.02	285.00	30.5	9.5	40.0	3.97	0.96	0.54	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Cypress to W Cypress Outfall 24" (39')	0.35	0.71	100.0			0.02	295.00	30.5	9.8	40.3	3.96	0.98	0.31	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
E Cypress 18" (52')	0.35	0.58	100.0			0.02	240.00	30.5	8.0	38.5	4.06	0.82	0.26	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Cypress 18" (52')	0.35	0.24	100.0			0.02	75.00	30.5	2.5	33.0	4.40	0.37	0.21	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Cypress 27" (91.5')	0.35	1.48	100.0			0.02	565.00	30.5	18.8	49.3	3.53	1.83	0.46	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK, OVERSIZED																						
W 642 (3529) 18" D/W (83')	0.35	1.53	360.0			0.02	0.00	50.3	0.0	50.3	3.49	1.87	1.06	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W 642 Under Plantation 28" (38')	0.35	4.84	360.0			0.02	610.00	50.3	20.3	70.6	2.83	4.80	1.21	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK, OVERSIZED																						
W 642 18" D/W (18.5')	0.35	5.35	360.0			0.02	735.00	50.3	24.5	74.8	2.73	5.12	2.90	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
N Plantation 12" D/W (18.5')	0.35	1.03	290.0			0.02	0.00	46.2	0.0	46.2	3.66	1.32	1.68	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
N Plantation 15" D/W (45')	0.35	2.44	290.0			0.02	290.00	46.2	9.7	55.9	3.28	2.80	2.28	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**15**	1.25	0.009	0.0015	1.23	3.93	0.31	3.62	2.95
N Plantation 12" S/W (4')	0.35	0.51	220.0			0.02	0.00	41.5	0.0	41.5	3.89	0.69	0.88	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
N Plantation 15" D/W (21')	0.35	1.66	220.0			0.02	260.00	41.5	8.7	50.2	3.50	2.03	1.66	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Elmwood 18" D/W (61.5')	0.35	0.18	150.0			0.02	0.00	35.7	0.0	35.7	4.22	0.27	0.15	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
From East Ditch 18" (36')	0.35	2.79	210.0			0.02	0.00	40.7	0.0	40.7	3.93	3.84	2.17	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
E Elmwood to W Elmwood 28" (38')	0.35	4.30	150.0			0.02	140.00	35.7	4.7	40.4	3.95	5.95	1.50	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK, OVERSIZED																						
E Elmwood 12" (45')	0.35	0.28	170.0			0.02	0.00	37.5	0.0	37.5	4.11	0.40	0.51	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Elmwood 15" (48.5')	0.35	0.86	170.0			0.02	170.00	37.5	5.7	43.2	3.81	1.15	0.93	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
N Kenmore 18" (76.5')	0.35	3.65	170.0			0.02	640.00	37.5	21.3	58.8	3.18	4.06	2.30	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
N Kenmore 24" D/W (57')	0.35	4.75	170.0			0.02	890.00	37.5	29.7	67.2	2.93	4.87	1.55	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
N Kenmore 18" D/W (20')	0.35	2.43	220.0			0.02	0.00	41.5	0.0	41.5	3.89	3.31	1.87	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
N Kenmore 30" (17')	0.35	6.72	220.0			0.02	160.00	41.5	5.3	46.8	3.64	8.56	1.74	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
S Kenmore 27" (33')	0.35	1.68	110.0			0.02	0.00	31.6	0.0	31.6	4.49	2.64	0.66	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK, OVERSIZED																						
S Kenmore Across Wahl 30" (17.5')	0.35	3.36	110.0			0.02	265.00	31.6	8.8	40.5	3.95	4.64	0.95	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
OK, OVERSIZED																						
S Kenmore to N Outfall 10'(120") (37')	0.35	18.76	110.0			0.02	310.00	31.6	10.3	42.0	3.87	25.40	0.32	120	10.00	0.012	0.0015	78.54	31.42	2.50	695.93	8.86
OK, OVERSIZED																						
W Elmwood 18" (73')	0.35	2.66	190.0			0.02	405.00	39.2	13.5	52.7	3.40	3.16	1.79	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
S Kenmore 18" (56')	0.35	3.20	190.0			0.02	680.00	39.2	22.7	61.8	3.08	3.45	1.95	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
S Kenmore 36" D/W (98')	0.35	3.98	190.0			0.02	890.00	39.2	29.7	68.8	2.88	4.01	0.57	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
OK, OVERSIZED																						
S Kenmore Across Redwood 42" (40')	0.35	5.91	190.0			0.02	1270.00	39.2	42.3	81.5	2.58	5.35	0.56	42	3.50	0.012	0.0015	9.62	11.00	0.88	42.32	4.40
OK, OVERSIZED																						
N Plantation 15" D/W (21.5')	0.35	1.59	400.0			0.02	0.00	52.4	0.0	52.4	3.41	1.90	1.54	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
N Plantation 18" (60')	0.35	2.21	400.0			0.02	125.00	52.4	4.2	56.6	3.25	2.52	1.42	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
N Plantation 18"? (59')	0.35	2.71	400.0			0.02	225.00	52.4	7.5	59.9	3.14	2.98	1.69	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OK																						
N Plantation 18"? D/W (40')	0.35	2.91	400.0			0.02	285.00	52.4	9.5	61.9	3.08	3.14	1.77	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OK																						
N Plantation 18"? (54')	0.35	3.08	400.0			0.02	325.00	52.4	10.8	63.3	3.04	3.28	1.85	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OK																						
N Plantation 18"? (51')	0.35	3.32	400.0			0.02	380.00	52.4	12.7	65.1	2.99	3.47	1.96	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18" OK																						
N Plantation to S Plantation Crossdrain 18" (37.5'	0.35																					
S Plantation 12" D/W (27')	0.35	1.16	320.0			0.02	0.00	48.0	0.0	48.0	3.58	1.46	1.85	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
S Plantation 15" D/W (20')	0.35	2.25	320.0			0.02	260.00	48.0	8.7	56.7	3.25	2.56	2.09	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
S Plantation to N Plantation 18" (41')	0.35	2.65	320.0			0.02	345.00	48.0	11.5	59.5	3.15	2.93	1.66	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
S Plantation to N Plantation 21" (41')	0.35	2.69	320.0			0.02	350.00	48.0	11.7	59.7	3.15	2.97	1.23	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
S Plantation to N Plantation 21" (41')	0.35	2.74	320.0			0.02	355.00	48.0	11.8	59.9	3.14	3.02	1.25	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
S Plantation 15" D/W (73')	0.35	1.05	210.0			0.02	90.00	40.7	3.0	43.7	3.78	1.39	1.13	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
S Plantation 27" (77.5')	0.35	2.46	210.0			0.02	370.00	40.7	12.3	53.1	3.38	2.91	0.73	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK, OVERSIZED																						
S Plantation 24" D/W (73')	0.35	8.97	320.0			0.02	1235.00	48.0	41.2	89.2	2.43	7.64	2.43	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK																						
S Plantation 24" D/W (81')	0.35	9.00	320.0			0.02	1300.00	48.0	43.3	91.4	2.39	7.54	2.40	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK																						
S Plantation 36" (107')	0.35	10.59	320.0			0.02	1755.00	48.0	58.5	106.5	2.16	7.99	1.13	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
OK, OVERSIZED																						
N Belle Rose 18" (89.5')	0.35	2.12	140.0			0.02	660.00	34.8	22.0	56.8	3.25	2.41	1.36	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
S to N Belle Rose 27" (41')	0.35	2.21	115.0			0.02	770.00	32.2	25.7	57.8	3.21	2.48	0.62	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK, OVERSIZED																						
W Redwood 12" D/W (33')	0.35	0.26	115.0			0.02	0.00	32.2	0.0	32.2	4.45	0.40	0.52	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
W Redwood 15" D/W (16')	0.35	1.06	115.0			0.02	310.00	32.2	10.3	42.5	3.84	1.42	1.16	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
W Redwood 10" D/W (59')	0.35	0.08	115.0			0.02	0.00	32.2	0.0	32.2	4.45	0.12	0.23	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK, OVERSIZED																						
E to W Redwood (Plant. Outfall) (2) 36" (74.5')	0.35																					
W Redwood 18" D/W (38')	0.35	0.83	125.0			0.02	190.00	33.2	6.3	39.6	3.99	1.16	0.66	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Redwood 18" (65.5')	0.35	0.58	125.0			0.02	110.00	33.2	3.7	36.9	4.15	0.84	0.48	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Redwood 18" (36.5')	0.35	1.71	160.0			0.02	430.00	36.6	14.3	51.0	3.46	2.07	1.17	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
W Redwood 24" (12')	0.35	1.89	160.0			0.02	475.00	36.6	15.8	52.5	3.40	2.25	0.72	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W Redwood Outfall 36" (208')	0.35	2.64	125.0			0.02	115.00	33.2	3.8	37.1	4.14	3.82	1.22	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
S Oak Grove 18" D/W (25')	0.35	0.24	120.0			0.02	0.00	32.7	0.0	32.7	4.41	0.37	0.21	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Oak Grove 15" D/W (20.5')	0.35	1.87	120.0			0.02	490.00	32.7	16.3	49.1	3.54	2.32	1.89	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
S Oak Grove 18" (13.5')	0.35	2.18	120.0			0.02	565.00	32.7	18.8	51.6	3.44	2.62	1.49	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Oak Grove 12" D/W (40')	0.35	0.22	125.0			0.02	0.00	33.2	0.0	33.2	4.38	0.34	0.43	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
N Oak Grove 15" (75')	0.35	1.50	125.0			0.02	430.00	33.2	14.3	47.6	3.60	1.89	1.54	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Redwood 15" (44')	0.35	1.32	125.0			0.02	590.00	33.2	19.7	52.9	3.39	1.56	1.28	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
E Redwood 18" (40')	0.35	2.04	125.0			0.02	830.00	33.2	27.7	60.9	3.11	2.22	1.26	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Redwood 24" (40')	0.35	2.47	125.0			0.02	975.00	33.2	32.5	65.7	2.97	2.56	0.82	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Redwood to W Redwood (2) 21" (36')	0.35	6.10	125.0			0.02	1000.00	33.2	33.3	66.6	2.94	6.28	2.61	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK																						
From Due East Redwood 33" (?)	0.35	3.49	100.0			0.02	860.00	30.5	28.7	59.1	3.17	3.87	0.65	33	2.75	0.012	0.0015	5.94	8.64	0.69	22.25	3.75
OK, OVERSIZED																						
E Redwood 18" D/W (33')	0.35	0.28	125.0			0.02	0.00	33.2	0.0	33.2	4.38	0.43	0.24	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Redwood 24" (59')	0.35	0.81	125.0			0.02	170.00	33.2	5.7	38.9	4.03	1.14	0.36	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
E Redwood 18" (36')	0.35	0.79	125.0			0.02	250.00	33.2	8.3	41.6	3.89	1.08	0.61	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
E Redwood 21" (38')	0.35	0.90	125.0			0.02	285.00	33.2	9.5	42.7	3.83	1.21	0.50	21	1.75	0.012	0.0015	2.41	5.50	0.44	6.66	2.77
OK, OVERSIZED																						
E Redwood 12" (44')	0.35	0.21	125.0			0.02	0.00	33.2	0.0	33.2	4.38	0.32	0.41	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK, OVERSIZED																						
E Redwood 24" (78')	0.35	6.38	125.0			0.02	830.00	33.2	27.7	60.9	3.11	6.95	2.21	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK																						
E Redwood 27" (78')	0.35	6.81	125.0			0.02	1020.00	33.2	34.0	67.2	2.93	6.97	1.75	27	2.25	0.012	0.0015	3.98	7.07	0.56	13.03	3.28
OK																						
S Perique 10" D/W (29')	0.35	0.40	200.0			0.02	0.00	40.0	0.0	40.0	3.97	0.56	1.02	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
OK																						
S Perique 10" D/W (19')	0.35	0.74	200.0			0.02	125.00	40.0	4.2	44.1	3.76	0.97	1.79	10	0.83	0.012	0.0015	0.55	2.62	0.21	0.92	1.69
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
S Perique 15" D/W (14.5')	0.35	1.34	200.0			0.02	355.00	40.0	11.8	51.8	3.43	1.61	1.31	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
S to N Perique Outfall 36" (20')	0.35	1.42	200.0			0.02	405.00	40.0	13.5	53.5	3.37	1.67	0.24	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
OK, OVERSIZED																						
N Perique 12" D/W (20')	0.35	0.91	120.0			0.02	345.00	32.7	11.5	44.2	3.76	1.20	1.52	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W 642 12"? (206')	0.35	0.64	225.0			0.02	0.00	41.9	0.0	41.9	3.87	0.87	1.10	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
W 642 24" (25.5')	0.35	0.68	225.0			0.02	15.00	41.9	0.5	42.4	3.85	0.92	0.29	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
W 642 15" (13')	0.35	2.17	225.0			0.02	420.00	41.9	14.0	55.9	3.28	2.49	2.03	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
W 642 ?" (?')	0.35	1.22	120.0			0.02	0.00	32.7	0.0	32.7	4.41	1.88	1.54	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
SHOULD BE 15", OK																						
W 642 18" D/W (41')	0.35	2.72	120.0			0.02	510.00	32.7	17.0	49.7	3.51	3.34	1.89	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
W 642 15" D/W (23')	0.35	3.14	120.0			0.02	650.00	32.7	21.7	54.4	3.33	3.66	2.98	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
UNDERSIZED													**NEW**	**18**	1.50	0.009	0.0015	1.77	4.71	0.38	5.89	3.33
W 642 ?" (32')	0.35	3.28	120.0			0.02	685.00	32.7	22.8	55.6	3.29	3.78	2.14	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18", OK																						
W 642 ?" (31.5')	0.35	3.36	120.0			0.02	710.00	32.7	23.7	56.4	3.26	3.83	2.17	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18", OK																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
W 642 ?" D/W (21')	0.35	3.37	120.0			0.02	745.00	32.7	24.8	57.6	3.22	3.80	2.15	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
SHOULD BE 18", OK																						
W 642 24" (82.5')	0.35	3.42	120.0			0.02	775.00	32.7	25.8	58.6	3.19	3.82	1.21	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
S Snyder 8" (21')	0.35	0.13	60.0			0.02	65.00	24.9	2.2	27.1	4.84	0.22	0.63	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
OK																						
S Snyder 8" D/W (18.5')	0.35	0.36	60.0			0.02	210.00	24.9	7.0	31.9	4.47	0.56	1.61	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
S Snyder 4" (35')	0.35	0.47	60.0			0.02	280.00	24.9	9.3	34.3	4.31	0.71	8.12	4	0.33	0.012	0.0015	0.09	1.05	0.08	0.08	0.92
UNDERSIZED													**NEW**	**12**	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
S Snyder 12" (?')	0.35	0.70	60.0			0.02	410.00	24.9	13.7	38.6	4.05	0.99	1.26	12	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
OK																						
S Stella 4" D/W (38')	0.35	0.48	240.0			0.02	0.00	42.9	0.0	42.9	3.82	0.64	7.35	4	0.33	0.012	0.0015	0.09	1.05	0.08	0.08	0.92
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
S Stella 6" D/W (33')	0.35	0.58	240.0			0.02	40.00	42.9	1.3	44.3	3.76	0.76	3.88	6	0.50	0.012	0.0015	0.20	1.57	0.13	0.24	1.20
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
S Stella 6" (5.5')	0.35	0.65	240.0			0.02	75.00	42.9	2.5	45.4	3.70	0.84	4.29	6	0.50	0.012	0.0015	0.20	1.57	0.13	0.24	1.20
UNDERSIZED													**NEW**	**12**	1.00	0.012	0.0015	0.79	3.14	0.25	1.50	1.91
S Stella 8" D/W (29')	0.35	0.67	240.0			0.02	80.00	42.9	2.7	45.6	3.69	0.87	2.48	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
S Stella 22x13" (8')	0.35	0.94	240.0			0.02	195.00	42.9	6.5	49.4	3.53	1.16	0.66	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Stella 4" D/W (14.5')	0.35	0.21	240.0			0.02	0.00	42.9	0.0	42.9	3.82	0.28	3.22	4	0.33	0.012	0.0015	0.09	1.05	0.08	0.08	0.92
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
N Stella 6" D/W (53')	0.35	0.34	240.0			0.02	65.00	42.9	2.2	45.1	3.72	0.44	2.25	6	0.50	0.012	0.0015	0.20	1.57	0.13	0.24	1.20
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
N Stella 6" D/W (80')	0.35	0.71	240.0			0.02	235.00	42.9	7.8	50.8	3.47	0.86	4.39	6	0.50	0.012	0.0015	0.20	1.57	0.13	0.24	1.20
UNDERSIZED													**NEW**	**12**	1.00	0.009	0.0015	0.79	3.14	0.25	2.00	2.54
N Stella 22x13" (8')	0.35	0.92	240.0			0.02	335.00	42.9	11.2	54.1	3.34	1.08	0.61	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N A&G ?" (75.5')	0.35	0.22	130.0			0.02	0.00	33.8	0.0	33.8	4.34	0.33	0.96	8	0.67	0.012	0.0015	0.35	2.09	0.17	0.51	1.46
SHOULD BE AT LEAST BE 8", OK																						
S Sugar House 36" (176')	0.35	32.60	400.0			0.02	0.00	52.4	0.0	52.4	3.41	38.86	5.50	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
UNDERSIZED**													**NEW**	**42**	3.50	0.012	0.0015	9.62	11.00	0.88	42.32	4.40
S Sugar House Outfall 36" (48')	0.35	42.92	1955.0			0.02	0.00	97.6	0.0	97.6	2.29	34.40	4.87	36	3.00	0.012	0.0015	7.07	9.42	0.75	28.06	3.97
UNDERSIZED**													**NEW**	**42**	3.50	0.012	0.0015	9.62	11.00	0.88	42.32	4.40
S Sugar House ?" (17')	0.35	14.33	2415.0			0.02	0.00	106.0	0.0	106.0	2.16	10.85	2.21	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
SHOULD AT LEAST BE 30", OK																						
S Sugar House Outfall ?" (27')	0.35	15.83	2415.0			0.02	20.00	106.0	0.7	106.7	2.15	11.94	2.43	30	2.50	0.012	0.0015	4.91	7.85	0.63	17.25	3.51
SHOULD AT LEAST BE 30", OK																						
S Sugar House 18" (21')	0.35	0.38	185.0			0.02	0.00	38.8	0.0	38.8	4.04	0.54	0.30	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Sugar House 15" (207')	0.35	0.60	210.0			0.02	100.00	40.7	3.3	44.1	3.76	0.79	0.64	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
N Sugar House 15" (101')	0.35	0.86	265.0			0.02	85.00	44.6	2.8	47.5	3.61	1.09	0.89	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
N Sugar House 18" (9')	0.35	1.92	265.0			0.02	275.00	44.6	9.2	53.8	3.35	2.25	1.28	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK																						
S Maura 15" (56.5')	0.35	0.51	220.0			0.02	115.00	41.5	3.8	45.3	3.71	0.66	0.54	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
S Maura 18" (67')	0.35	1.16	220.0			0.02	330.00	41.5	11.0	52.5	3.40	1.38	0.78	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Maura 18" (20')	0.35	1.33	220.0			0.02	415.00	41.5	13.8	55.3	3.30	1.54	0.87	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Maura 18" (9')	0.35	1.25	220.0			0.02	330.00	41.5	11.0	52.5	3.40	1.49	0.84	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						

Basin	(C)	Area	Overland Length	Elevation,u	Elevation,d	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Vel,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap	Vel,cap
		(Acres)	(Ft.)	(Ft.)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(Ft./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)	(Ft./Sec.)
S Maura 18" (35')	0.35	1.30	220.0			0.02	250.00	41.5	8.3	49.8	3.51	1.60	0.90	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Maura 18" (77')	0.35	1.51	225.0			0.02	250.00	41.9	8.3	50.2	3.49	1.85	1.05	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Maura 24" (36')	0.35	1.85	225.0			0.02	335.00	41.9	11.2	53.0	3.38	2.19	0.70	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
N Maura 18" (89')	0.35	1.40	225.0			0.02	350.00	41.9	11.7	53.5	3.36	1.65	0.93	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Maura 24" (93')	0.35	1.74	225.0			0.02	440.00	41.9	14.7	56.5	3.26	1.98	0.63	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
N Maura 18" (55')	0.35	0.89	225.0			0.02	235.00	41.9	7.8	49.7	3.51	1.09	0.62	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Maura 24" (19')	0.35	1.26	225.0			0.02	335.00	41.9	11.2	53.0	3.38	1.49	0.47	24	2.00	0.012	0.0015	3.14	6.28	0.50	9.52	3.03
OK, OVERSIZED																						
N Maura 15" (20.5')	0.35	0.89	225.0			0.02	240.00	41.9	8.0	49.9	3.51	1.09	0.89	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, INCONSISTENT WITH OTHER 18" CULVERTS																						
N Maura 22x13" (9')	0.35	1.46	225.0			0.02	385.00	41.9	12.8	54.7	3.32	1.70	0.96	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Wendy 15" (85')	0.35	1.42	220.0			0.02	230.00	41.5	7.7	49.2	3.54	1.76	1.43	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
S Wendy 18" (25.5')	0.35	1.71	220.0			0.02	305.00	41.5	10.2	51.7	3.44	2.06	1.16	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Wendy 18" (10')	0.35	1.51	220.0			0.02	330.00	41.5	11.0	52.5	3.40	1.80	1.02	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Wendy 18" (88')	0.35	1.06	220.0			0.02	275.00	41.5	9.2	50.7	3.48	1.29	0.73	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
S Wendy 22x13" (9')	0.35	1.66	220.0			0.02	475.00	41.5	15.8	57.3	3.23	1.88	1.06	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Wendy 15" (67')	0.35	0.60	200.0			0.02	45.00	40.0	1.5	41.5	3.89	0.82	0.67	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK, OVERSIZED																						
N Wendy 15" (18')	0.35	1.46	200.0			0.02	270.00	40.0	9.0	49.0	3.54	1.81	1.48	15	1.25	0.012	0.0015	1.23	3.93	0.31	2.72	2.21
OK																						
N Wendy 18" (21')	0.35	1.68	200.0			0.02	330.00	40.0	11.0	51.0	3.46	2.04	1.15	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Wendy 18" (10.5')	0.35	1.67	200.0			0.02	440.00	40.0	14.7	54.6	3.32	1.94	1.10	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Wendy 18" (8.5')	0.35	1.32	200.0			0.02	340.00	40.0	11.3	51.3	3.45	1.59	0.90	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						
N Wendy 18" (8')	0.35	1.32	200.0			0.02	360.00	40.0	12.0	52.0	3.42	1.58	0.90	18	1.50	0.012	0.0015	1.77	4.71	0.38	4.42	2.50
OK, OVERSIZED																						

Table 3B: Driveway Culvert CostEstimate Breakdown ($69/Ft.)

PECAN							
12"							
RCP	36.5	12"	Broken, Silted In	W Pecan Ln	BROKEN	12	
	36.5						**$2,518.50**
15"							
RCP/CMP	88	15"	Silted in, to main outfall, CMP Extension	W Pecan Ln Outfall	UNDERSIZED	15	
	88						**$6,072.00**
					Pecan	**=**	**$8,590.50**
CHERRY							
18"							
RCP	39.5	15"	Silted in, From subsurface	E Cherry St	UNDERSIZED	18	
RCPA	23	15" EQ	Silted in, From W Cherry	E Cherry St crossdrain	UNDERSIZED	18	
RCP	38	15"	Silted in, To main outfall	E Cherry St	UNDERSIZED	18	
	100.5						**$6,934.50**
					Cherry	**=**	**$6,934.50**
PLUM							
12"							
CMP	20	??	Silted in, Crushed, size?	E Plum Ave crossdrain	CRUSHED	12	
CMP	22	12"	Silted in, grate overgrown	E Plum Ave crossdrain	UNDERSIZED	12	
	42						**$2,898.00**
15"							
RCP	64	12"	Silted in, size?, to subsurface	E Plum Ave	UNDERSIZED	15	
RCP	70	12"	Silted in, continued from subsurface, size?	E Plum Ave	UNDERSIZED	15	
	134						**$9,246.00**
21"							
RCP	112.75	18"	Silted in, Undersized	E Plum Ave	UNDERSIZED	21	
??	65	??	Covered end, to subsurface	E Plum Ave	NO DATA	21	
	177.75						**$12,264.75**
36"							
RCP	82	27"	Silted, to subsurface	Railroad Outfall near Plum Ave	UNDERSIZED	36	
	82						**$9,348.00**
					Plum	**=**	**$33,756.75**
MILLET							
12"							
RCP	4	15"	Silted, From subsurface	W Millet	UNDERSIZED	12	

RCP	17	15"	Silted	W Millet	UNDERSIZED	12	
	21						$1,449.00
			15"				
RCP/CMP	25	18"	Silted, CMP extension	W Millet	UNDERSIZED	15	
	25						$1,725.00
			18"				
CMP	32	24"?	Crushed, Silted	S Railroad b/t Hickory and Millet	CRUSHED	18	
CPP	15.5	15"	Silted, Undersized	W Millet	UNDERSIZED	18	
	47.5						$3,277.50
			24"				
CMP	32	18"x28"?	Damaged, Crushed, to subsurface outfall under Railroad	W Millet crossdrain outfall to E Millet	UNDERSIZED	24	
	32						$2,176.00
					Millet	=	$8,627.50
			HICKORY				
			18"				
RCP	73	15"	Silted	E Hickory	UNDERSIZED	18	
RCP	16.75	15"	Silted, Trash	E Hickory	UNDERSIZED	18	
RCP	17	15"	Silted, Trash	E Hickory	UNDERSIZED	18	
RCP	16.75	15"	Silted, Trash	E Hickory	UNDERSIZED	18	
RCP	17	15"	Silted, Trash	E Hickory	UNDERSIZED	18	
RCP	18	15"	Silted, Trash	E Hickory	UNDERSIZED	18	
RCP	17	15"	Silted, Trash	E Hickory	UNDERSIZED	18	
RCP	89	15"	Silted, To subsurface, Silted Grate	E Hickory	UNDERSIZED	18	
RCP	88	15"	Silted, From subsurface	E Hickory Outfall to S Railroad	UNDERSIZED	18	
	318.75						$21,993.75
					Hickory	=	$21,993.75
			RAILROAD				
			18"				
RCP	25	15"	Silted, Damaged, Undersized	S Railroad under Fir	UNDERSIZED	18	
	25						$1,725.00
			21"				
RCP	13	21"	Silted, To subsurface	S Railroad, W Elm	UNDERSIZED	21	
	13						$897.00
			30"				
RCP	88	24"	Silted, Buried downstream	W Railroad St outfall across S David Dr	UNDERSIZED	30	
	88						$11,968.00
					Railroad	=	$14,590.00
			FIR				

15"							
RCP	16.5	15"	Silted in, Broken	E Fir crossdrain (250)	BROKEN	15	
RCP	8	12"	Silted in, Damaged, Undersized	E Fir	UNDERSIZED	15	
	24.5						**$1,690.50**
					Fir	**=**	**$1,690.50**
MULBERRY							
12"							
Steel Cast in	23.5	12"	Broken, Silted in, To subsurface, Undersized?	W Mulberry	BROKEN	12	
	23.5						**$1,621.50**
					Mulberry	**=**	**$1,621.50**
AIRLINE							
12"							
??	47.5	??	Subsurface, Silted, Grate overgrown	E S Airline	NO DATA	12	
	47.5						**$3,277.50**
18"							
CMP	100	21"/24"?	Silted, Trash, Crushed	E S Airline, Outfall to Railroad St	CRUSHED	18	
	100						**$6,900.00**
21"							
CMP	20.5	24"	Silted, Standing water, Crushed downstream	W S Airline	CRUSHED	21	
RCP	93.5	18"	Silted	E Airline	UNDERSIZED	21	
RCP	21	21"	Silted	E Airline	UNDERSIZED	21	
RCP	34	21"	Silted	E Airline	UNDERSIZED	21	
?	27	?	From Subsurface, To Subsurface	E Airline	NO DATA	21	
?	41	?	From Subsurface, To Subsurface	E Airline	NO DATA	21	
Steel	3	21"	Silted	E Airline	UNDERSIZED	21	
RCP	22	24"	Silted, Broken Headwall D/S	E Airline	BROKEN	21	
CMP	50	24"	Silted, From Grate	W Airline	UNDERSIZED	21	
?	47	?	From Grate, To Grate, In Drive, Warehouse	W Airline	UNDERSIZED	21	
?	44.5	?	From Grate, To Grate, In Drive, Warehouse	W Airline	NO DATA	21	
PVC	4.5	12"	Silted	From West	UNDERSIZED	21	
CMP	18	18"	From Grate, Silted	W Airline	UNDERSIZED	21	
?	76	?	To Grate, From Grate	W Airline	NO DATA	21	
?	18	?	To Grate, From Grate	W Airline	NO DATA	21	
?	35.5	?	From Grate, To Grate	W Airline	NO DATA	21	
?	49	?	From Grate, To Grate	W Airline*	NO DATA	21	
?	197	?	From Grate, To Grate	W Airline	NO DATA	21	
?	67.5	?	From Grate, To Grate	W Airline (Foodmart Drive)	NO DATA	21	
?	225	?	From Grate, To Grate	W Airline Across Main	NO DATA	21	
?	72	?	From Grate, To Grate	W Airline	NO DATA	21	
?	65	?	From Grate, To Grate	W Airline	NO DATA	21	
?	66	?	From Grate, To Grate	W Airline	NO DATA	21	

?	52	?	From Grate, To Grate	W Airline	NO DATA	21	
	1349						**$93,081.00**
24"							
?	50	?	From Grate, To Grate	E Airline	NO DATA	24	
?	50	?	From Grate, To Grate	E Airline	NO DATA	24	
?	52	?	From Grate, To Grate	E Airline	NO DATA	24	
?	63	?	From Grate, To Grate	E Airline	NO DATA	24	
?	35	?	From Grate, To Grate	E Airline	NO DATA	24	
?	43.5	?	From Grate, To Grate	E Airline	NO DATA	24	
?	42.5	?	From Grate, To Grate	E Airline	NO DATA	24	
?	49.5	?	From Grate, To Grate, Trash in Grate	E Airline	NO DATA	24	
?	75.5	?	From Grate, To Grate	E Airline	NO DATA	24	
?	72	?	From Grate, To Grate	E Airline	NO DATA	24	
?	68.5	?	From Grate, To Grate	E Airline	NO DATA	24	
?	85	?	From Grate, To Grate	E Airline	NO DATA	24	
?	26	?	From Grate, To Grate	E Airline	NO DATA	24	
?	82	?	From Grate, To Grate	E Airline Across 4th	NO DATA	24	
RCP	25	24"	Silted, Broken Headwall U/S	E Airline	BROKEN	24	
RCP/CMP	126.5	24"/36"	Silted, Broken Headwall D/S, 36" CMP Extens.	E Airline	BROKEN	24	
?	75	?	From Grate, To Grate	E Airline	NO DATA	24	
?	144	?	From Grate, To Grate	E Airline	NO DATA	24	
?	234	?	From Grate, To Grate	E Airline	NO DATA	24	
?	27.5	?	From Grate, To Grate	E Airline	NO DATA	24	
?	62	?	From Grate, To Grate	E Airline	NO DATA	24	
?	40	?	From Grate, To Grate	E Airline	NO DATA	24	
?	62	?	From Grate, To Grate	E Airline	NO DATA	24	
?	40	?	From Grate, To Grate	E Airline	NO DATA	24	
?	43	?	From Grate, To Grate	E Airline	NO DATA	24	
RCP	154	24"	Silted, From Subsurface	E Airline Across 6th	UNDERSIZED	24	
RCP	25	21"	Broken, Silted	E Airline	BROKEN	24	
?	44	?	From Subsurface, To Subsurface	E Airline	NO DATA	24	
?	68	?	From Subsurface, To Subsurface	E Airline	NO DATA	24	
?	73.5	?	From Grate, To Grate	E Airline	UNDERSIZED	24	
CMP	20	30"	From Grate	E Airline	UNDERSIZED	24	
RCP	19	24"	Silted	E Airline	UNDERSIZED	24	
RCP/CMP	92	24"	To Grate, CMP EXT.	E Airline (706/708)	UNDERSIZED	24	
?	24.5	?	From Grate, To Grate	E Airline (712)	NO DATA	24	
?	20	?	From Grate, To Grate	E Airline	NO DATA	24	
?	96	?	From Grate, To Grate, D/S Grate Buried	E Airline (722)	NO DATA	24	
RCP	96	24"	From Grate, Silted, Broken Headwall D/S	E Airline (722)	UNDERSIZED	24	
CMP	15	30"	Silted, Broken Wood Headwall U/S	E Airline (734)	UNDERSIZED	24	
CMP	166.5	24"	Silted	E Airline (740-748)	UNDERSIZED	24	
RCP	24	24"	Silted	E Airline (754)	UNDERSIZED	24	
CMP	40	24"	Silted	E Airline	UNDERSIZED	24	
CMP	226	24"	Silted, To Grate	E Airline Across 8th	UNDERSIZED	24	
?	149	?	From Grate, To Grate	E Airline (828)	NO DATA	24	
?	94	?	From Grate, To Grate	E Airline (834)	NO DATA	24	
?	96.5	?	From Grate, To Grate	E Airline (842)	NO DATA	24	

RCP	63	24"	From Grate	E Airline (850)	UNDERSIZED	24	
?	34	?	To Grate, From Grate	W Airline Outfall	NO DATA	24	
?	79	?	From Grate, To Grate	W Airline	NO DATA	24	
CMP	76.5	24"	To Grate, Silted	W Airline	UNDERSIZED	24	
Steel	16	30"	Silted, Crushed	W Airline	CRUSHED	24	
RCP/CMP	57.5	24"	Silted, From Grate	W Airline	UNDERSIZED	24	
CMP	37	?	From Grate, To Grate	W Airline	UNDERSIZED	24	
RCP/CMP	52	24"	Silted, To Grate	W Airline	UNDERSIZED	24	
RCP	17	24"	Silted, Timber Headwall Blocking	W Airline	UNDERSIZED	24	
RCP	26	24"	Silted	W Airline	UNDERSIZED	24	
RCP	74	24"	Silted	W Airline	UNDERSIZED	24	
CMP	41	24"	Silted	W Airline	UNDERSIZED	24	
Steel	14	21"	Silted	W Airline	UNDERSIZED	24	
RCP	20	24"	Silted	W Airline	UNDERSIZED	24	
RCP	59	24"	Silted	W Airline	UNDERSIZED	24	
RCP	19	24"	Silted	W Airline	UNDERSIZED	24	
RCP	16.5	24"	Silted, Timber Headwall Blocking	W Airline	UNDERSIZED	24	
RCP	32	21"	Silted	W Airline	UNDERSIZED	24	
RCP	49	24"	Silted	W Airline	UNDERSIZED	24	
RCP	95	24"	Silted, Buried Headwall U/S /Grate	W Airline (853)*	UNDERSIZED	24	
?	96	?	From Grate, To Grate	W Airline	NO DATA	24	
?	50	?	From Grate, To Grate	W Airline	NO DATA	24	
RCP	21	18"	To Grate, Silted	W Airline	UNDERSIZED	24	
CMP	54	24"	Silted, From Grate	W Airline	UNDERSIZED	24	
?	45	?	To Grate, From Grate	W Airline	NO DATA	24	
?	122	?	From Grate, To Grate	W Airline (421)-(407)	NO DATA	24	
?	59	?	From Grate, To Grate	W Airline	NO DATA	24	
?	17	?	Buried U/S, To Grate	W Airline	NO DATA	24	
RCP	28	18"	Buried Headwall D/S, Silted	W Airline	UNDERSIZED	24	
CMP	40	24"	Silted, Damaged, From Grate	W Airline	DAMAGED	24	
?	74	?	To Grate, From Grate	W Airline	NO DATA	24	
	4598						**$312,664.00**
30"							
CMP	365	30"	Silted, Across 3125	Outfall E Airline (856)	UNDERSIZED	30	
	365						**$49,640.00**
					Airline	**=**	**$465,562.50**
DAVID							
12"							
CMP	183	12"	To Subsurface	W David	UNDERSIZED	12	
	183						**$12,627.00**
18"							
RCP/CMP	25	15"	Silted, Crushed upstream, CMP Extension	W S David Dr @ George St	UNDERSIZED	18	
CMP	270	15"	uried downstream, Grates @ 50.5', 107.5', 174.5', 208' (Silted in and b	W S David Dr Outfall	UNDERSIZED	18	

	295						**$20,355.00**
24"							
RCP	147.5	30"	Silted, Broken	E S David Dr	BROKEN	24	
?	85	?	To Box With Outfall, Buried	Second & David	NO DATA	24	
	232.5						**$15,810.00**
30"							
RCP	88	24"	Silted, Buried downstream	W Railroad St outfall across S David Dr	UNDERSIZED	30	
	88						**$11,968.00**
36"							
CMP	40	(2) 36"	Silted, Crushed	E David Outfall	CRUSHED	36	
?	72	?	From Grate, To Grate	E David	NO DATA	36	
?	60	?	From Grate, To Grate	E David	NO DATA	36	
?	115.5	?	From Grate, To Grate	E David	NO DATA	36	
	287.5						**$32,775.00**
					David	**=**	**$93,535.00**
LAWRENCE							
12"							
PVC/Terra Cotta	70	8"	Silted, Sewer manhole in swale	E Lawrence St	UNDERSIZED	12	
CMP	30	12"	Silted, To subsurface	E Lawrence St @ Dale St	UNDERSIZED	12	
	100						**$6,900.00**
					Lawrence	**=**	**$6,900.00**
LUTCHER							
12"							
PVC	10	8"	Silted, Broken	W Lutcher (Across Faye's Beauty)	BROKEN	12	
	10						**$690.00**
15"							
PVC	33	11.5"	OK	W Lutcher Ave	UNDERSIZED	15	
	33						**$2,277.00**
					Lutcher	**=**	**$2,967.00**
ALBERT							
12"							
?	69	?	From Grate, To Grate, Crushed, Buried	W Albert	CRUSHED	12	
Steel	50.5	?	To Grate, Rusted, Broken, From Grate	W Albert	BROKEN	12	
?	43	?	To Grate, From Grate, Overgrown	W Albert	NO DATA	12	
RCP	9.5	10"	Silted, Standing Water, Uncovered, Broken	E Albert	BROKEN	12	
	172						**$11,868.00**
					Albert	**=**	**$11,868.00**

KING							
15"							
CMP	13	15"	Silted, Broken	W King Ave	BROKEN	15	
	13						**$897.00**
24"							
CPP	65	18"	Main outfall, Undersized, To subsurface	King Ave C/L	UNDERSIZED	24	
	65						**$4,420.00**
					King	**=**	**$5,317.00**
EXCHANGE							
NONE							
INEZ							
15"							
CMP	19.25	12"	Silted, Standing water, Undersized	N Inez St	UNDERSIZED	15	
RCP	4.5	12"	Silted, Standing water, Undersized	N Inez St	UNDERSIZED	15	
RCP	13	12"	Silted, Standing water, Undersized	N Inez St	UNDERSIZED	15	
RCP	18.5	12"	Silted, Damaged, Standing water, Undersized	N Inez St	UNDERSIZED	15	
RCP	13	12"	Silted, Standing water, Undersized	N Inez St	UNDERSIZED	15	
RCP	18.5	12"	Silted, Damaged, Standing water, Undersized	N Inez St	UNDERSIZED	15	
	55.25						**$3,812.25**
					Exchange	**=**	**$3,812.25**
CENTRAL							
15"							
CMP	49	12"	Silted, Blocked, To grate	W Central St	UNDERSIZED	15	
RCP	32.5	12"	Silted, From grate	Central St Outfall to N Railroad Ave	UNDERSIZED	15	
RCP	102	12"	Silted, Broken, From Subsurface	W Central St	BROKEN	15	
CMP	20	18"	Silted, Damaged	W Central St	UNDERSIZED	15	
RCP	32	10"	Silted, To Subsurface	W Central St	UNDERSIZED	15	
	235.5						**$16,249.50**
18"							
RCP	108	12"	From Subsurface, Silted	W Central St	UNDERSIZED	18	
RCP	9	12"	Silted	W Central St	UNDERSIZED	18	
RCP	93	12"	Silted, To Subsurface	W Central St	UNDERSIZED	18	
Steel	344	15"	From Subsurface, Silted, Buried D/S	W Central St	UNDERSIZED	18	
RCP	25	15"	Silted	S to N Central W Outfall	UNDERSIZED	18	
	579						**$39,951.00**
21"							
RCP	16	18"	Silted, Broken	S to N Central? E Outfall	BROKEN	21	
	16						**$1,104.00**

					Central	**=**	**$57,304.50**
NICHOLAS							
30"							
RCP	77	30"	Silted, Blocked, Broken, Undersized	W Nicholas Ln outfall under R/R	BROKEN	30	
	77						**$10,472.00**
					Nicholas	**=**	**$10,472.00**
LEVY GAUDET							
15"							
RCP	6	12"?	Silted, From grate, Heads due East, Undersized	E Levy Gaudet St	UNDERSIZED	15	
	6						**$414.00**
18"							
RCP	17.75	12"/15"?	Silted in, To grate, Undersized	E Levy Gaudet St	UNDERSIZED	18	
RCP	4.5	12"	Silted, Blocked upstream, Undersized	E Levy Gaudet St	UNDERSIZED	18	
RCP	13	15"	Silted in, Undersized	E Levy Gaudet St	UNDERSIZED	18	
RCP	19	15"	Silted, Undersized	E Levy Gaudet St	UNDERSIZED	18	
CMP	18.5	15"	Silted, Damaged, Undersized	E Levy Gaudet St	UNDERSIZED	18	
CMP	16	15"	Silted, Damaged, Undersized	E Levy Gaudet St	UNDERSIZED	18	
RCP	25.5	15"	Silted, Undersized	E Levy Gaudet St	UNDERSIZED	18	
Terra Cotta	5.5	10"	Broked, Silted, Undersized	E Levy Gaudet St	UNDERSIZED	18	
RCP	13	15"	Silted in, Undersized	E Levy Gaudet St	UNDERSIZED	18	
RCP	25	15"	Silted in, Damaged, Undersized	E Levy Gaudet St	UNDERSIZED	18	
RCP	12.5	15"	Silted, Standing water downstream, Undersized	E Levy Gaudet St	UNDERSIZED	18	
RCP/CMP	17	15"/18"	Silted, Standing water, CMP extension	E Levy Gaudet St	UNDERSIZED	18	
	187.25						**$12,920.25**
21"							
CPP	16	18"	Silted,Standing water	E Levy Gaudet St	UNDERSIZED	21	
RCP	17.5	15"	Silted, Blocked upstream with timber, Undersized	E Levy Gaudet St	UNDERSIZED	21	
CMP	4.5	18"	Silted	E Levy Gaudet St	UNDERSIZED	21	
RCP	4	12"	Silted, Undersized	E Levy Gaudet St	UNDERSIZED	21	
	42						**$2,898.00**
24"							
CMP	5.5	18"	Silted, Trash	E Levy Gaudet St	UNDERSIZED	24	
CMP	56	18"	Silted, To subsurface	E Levy Gaudet St	UNDERSIZED	24	
	61.5						**$4,182.00**
					Levy Gaudet	**=**	**$20,414.25**
COURSEAULT							
12"							
RCP	4	12"	Silted, Broken	E Courseault Ln	BROKEN	12	

RCP	17	?	Silted, Buried	W Courseault	NO DATA	12	
PVC	18.5	10"	Silted	W Courseault	UNDERSIZED	12	
	39.5						**$2,725.50**
15"							
CMP	17	12/15"	Silted, Crushed	W Courseault crossdrain to E Courseault Ln	UNDERSIZED	15	
?	28	?	From Grate, To Grate	W Courseault	NO DATA	15	
RCP	73	12"	Silted, Broken, To Grate	W Courseault	BROKEN	15	
RCP	45	?	From Grate, Buried	W Courseault	NO DATA	15	
CMP	21	15"	Silted	W Courseault	UNDERSIZED	15	
CMP	16	15"	Crushed, Silted	W Courseault	CRUSHED	15	
RCP	16	15"	Silted	W Courseault	UNDERSIZED	15	
RCP	16	15"	Silted	W Courseault	UNDERSIZED	15	
RCP	13	15"	Silted	W Courseault	UNDERSIZED	15	
CMP	16	15"	Silted, Crushed	W Courseault	CRUSHED	15	
	261						**$18,009.00**
18"							
RCP	9	15"	Upstream blocked, Broken	E Courseault Ln	UNDERSIZED	18	
RCP	16.5	15"	Silted	E Courseault Ln	UNDERSIZED	18	
RCP	17	18"	Silted, Broken	E Courseault Ln	BROKEN	18	
RCP	4.5	15"	Silted, Undersized	E Courseault Ln	UNDERSIZED	18	
CMP	79.5	18"	From Subsurface, Silted	E Courseault Ln	UNDERSIZED	18	
CMP	19.5	18"	Silted	E Courseault Ln	UNDERSIZED	18	
RCP	16	18"	Silted	E Courseault Ln	UNDERSIZED	18	
RCP	17.5	18"	Silted	E Courseault Ln	UNDERSIZED	18	
RCP	16	18"	Silted	E Courseault Ln	UNDERSIZED	18	
RCP	17.5	18"	Silted	E Courseault Ln	UNDERSIZED	18	
RCP	13	18"	Silted	E Courseault Ln	UNDERSIZED	18	
CMP	106.5	18"	Silted, To Subsurface	E Courseault Ln	UNDERSIZED	18	
RCP/CMP	41	15"/18"	Silted, CMP EXT.	W Courseault	UNDERSIZED	18	
	340						**$23,460.00**
21"							
CMP	19	15"	Silted, Undersized	E Courseault Ln	UNDERSIZED	21	
CMP	62	18"	Silted, To subsurface	E Courseault Ln	UNDERSIZED	21	
RCP/CMP	28	?/18"	Silted In, CMP EXT.	E Courseault Ln (2449)	UNDERSIZED	21	
RCP	20	18"	Buried	E Courseault Ln	UNDERSIZED	21	
RCP	16	18"	Silted	E Courseault Ln	UNDERSIZED	21	
RCP	100	18"	Silted	E Courseault Ln	UNDERSIZED	21	
CPP	29	18"	Silted, To Subsurface	E Courseault Ln	UNDERSIZED	21	
RCP	24	18"	Silted	W Courseault Ln to E Outfall	UNDERSIZED	21	
	298						**$20,562.00**
24"							
RCP	13	21"	From Subsurface, Silted	S Courseault Ln	UNDERSIZED	24	
RCP	16	21"	Silted	S Courseault Ln	UNDERSIZED	24	
CMP	90	24"	Silted, To Grate @ W Lebray	S Courseault Ln	UNDERSIZED	24	
	119						**$8,092.00**

					Courseault	**=**	**$72,848.50**
ALEXANDER							
18"							
CMP	39.5	18"	Silted, Crushed, To subsurface	E Alexander St	CRUSHED	18	
CMP	81.5	18"?	Silted, Crushed upstream, To subsurface, Undersized	E Alexander St	CRUSHED	18	
	121						**$8,349.00**
					Alexander	**=**	**$8,349.00**
ROME							
15"							
Steel	18.5	10"	Silted, Standing water, Undersized, Ditch outfalls to E Morgan St	W Rome St	UNDERSIZED	15	
RCP/CMP	53	12"/15"	Silted, CMP extension, Undersized	E Rome St	UNDERSIZED	15	
RCP	104	12"	Silted, To grate, Undersized	E Rome St	UNDERSIZED	15	
CMP	43.5	12"	From grate, To grate, Silted, Undersized	E Rome St	UNDERSIZED	15	
CMP	30	12"	From grate, Silted, Damaged, Undersized	E Rome St	UNDERSIZED	15	
RCP	53.5	12"	Silted, Standing water, Undersized	E Rome St	UNDERSIZED	15	
Steel	19.5	12"	Silted, Undersized	E Rome St	UNDERSIZED	15	
	322						**$22,218.00**
24"							
CMP	18.5	24"/30"?	Silted,Crushed	E Rome St	CRUSHED	24	
CMP	30	??	Crushed	E Rome St outfall under R/R	CRUSHED	24	
	48.5						**$3,298.00**
					Rome	**=**	**$25,516.00**
MORGAN							
12"							
RCP	159	??	Silted in, Buried downstream, From grate	E Morgan St	NO DATA	12	
??	72	??	Buried, From grate	W Morgan St	NO DATA	12	
RCP	28	12"	Broken, Silted	W Morgan St crossdrain to E Morgan St	BROKEN	12	
	259						**$17,871.00**
15"							
RCP	20	12"	Silted, Damaged	W Morgan St crossdrain to E Morgan St	UNDERSIZED	15	
	20						**$1,380.00**
21"							
RCP	32	18"	Silted, Standing water	E Morgan St	UNDERSIZED	21	
CMP	32	18"	Damaged, Silted, To grate	E Morgan St	UNDERSIZED	21	
RCP	54	18"	Silted, Standing water, From grate	E Morgan St	UNDERSIZED	21	
	118						**$8,142.00**
24"							

??	100	??	To grate, From grate	E Morgan St	NO DATA	24	
??	38.5	??	To grate, From grate	E Morgan St	NO DATA	24	
CMP	68.5	18"	Silted, Damaged, Standing water, From grate	E Morgan St	UNDERSIZED	24	
	207						**$14,076.00**
					Morgan	**=**	**$41,469.00**
NOBILE							
15"							
Steel	15	12"	Silted	W Nobile St	UNDERSIZED	15	
	15						**$1,035.00**
18"							
CPP	21	18"?	Crushed, Broken	W Nobile St	CRUSHED	18	
Steel	22	15"	Silted, Damaged	W Nobile St	UNDERSIZED	18	
CMP	19	18"?	Buried, Crushed	E Nobile St	CRUSHED	18	
CMP	18	18"	To Outfall, Silted, Crushed	W Nobile St	CRUSHED	18	
?	70	?	From Grate, To Grate	E Nobile St	NO DATA	18	
?	84	?	From Grate, To Grate	E Nobile St	NO DATA	18	
CPP	51.5	18"	Silted, Broken, From Subsurface	E Nobile St	BROKEN	18	
?	57	?	From Subsurface, Silted, Buried	E Nobile to Outfall	NO DATA	18	
CMP	49	24"	Silted, Damaged, To Subsurface, Under 3125	E Nobile St	DAMAGED	18	
	391.5						**$27,013.50**
21"							
CMP	127	24"	Silted	W Nobile St	UNDERSIZED	21	
CPP	63	18"	From Grate, To Grate	W Nobile St	UNDERSIZED	21	
CPP	45.5	18"	Silted	W Nobile	UNDERSIZED	21	
RCP	40.5	21"	Silted, Broken, To Outfall	W Nobile to E Outfall	BROKEN	21	
	276						**$19,044.00**
24"							
CMP	40	24"	Silted	W Nobile St	UNDERSIZED	24	
CMP	41.5	24"	Silted, Damaged, To Grate	W Nobile St to E Nobile St	UNDERSIZED	24	
CMP	12	18"	Buried	E Nobile St	UNDERSIZED	24	
CMP	19	18"	Silted	E Nobile St	UNDERSIZED	24	
CMP	71	24"	Under Grate, To Subsurface	E Nobile St	UNDERSIZED	24	
	183.5						**$12,478.00**
					Nobile	**=**	**$59,570.50**
LE BOUKIN							
15"							
Steel	207	12"	Silted	E Le Boukin St	UNDERSIZED	15	
Steel	50.75	12"	Silted, To grate	E Le Boukin St	UNDERSIZED	15	
Steel	62.5	12"	From grate, To grate	E Le Boukin St	UNDERSIZED	15	
Steel	96	12"	From grate, To grate	E Le Boukin St	UNDERSIZED	15	

	416.25						**$28,721.25**
21"							
Steel	121.5	18"	From broken grate, Silted, To broken grate	E Le Boukin St	UNDERSIZED	21	
Steel	21	18"	From broken grate, Silted	E Le Boukin St	UNDERSIZED	21	
CPP	41	18"	Silted, New	E Le Boukin St	UNDERSIZED	21	
CPP	28.5	18"	New	W Le Boukin St	UNDERSIZED	21	
	212						**$14,628.00**
					Le Boukin	**=**	**$43,349.25**
T POCHE							
12"							
PVC	90	6"	Silted, Broken, To grate	E T Poche St	UNDERSIZED	12	
	90						**$6,210.00**
15"							
Steel/PVC	39.5	8"	Silted, Small steel to larger PVC	E T Poche St crossdrain to W T Poche St	UNDERSIZED	15	
	39.5						**$2,725.50**
18"							
CMP	39	18"	Silted, Damaged, Crushed	E T Poche St crossdrain to W T Poche St	CRUSHED	18	
	39						**$2,691.00**
24"							
CMP	81	24"?	Crushed, Silted, From grate	W T Poche St	CRUSHED	24	
CMP	97	30"	To grate, Silted, Crushed	W T Poche St	CRUSHED	24	
	178						**$12,104.00**
30"							
Steel	40	24"?	Silted	W T Poche St outfall under R/R	UNDERSIZED	30	
RCP	40	18"?	Silted	W T Poche St outfall under R/R	UNDERSIZED	30	
	80						**$10,880.00**
					T Poche	**=**	**$34,610.50**
BELLVUE							
12"							
PVC	134	10"	Silted, To grate	W Bellvue St	UNDERSIZED	12	
	134						**$9,246.00**
15"							
RCP	31	12"	Silted, To grate	E Bellvue St	UNDERSIZED	15	
CMP	55.5	12"	From subsurface, Silted	W Bellvue St	UNDERSIZED	15	
CMP	26.5	12"	Silted, To grate	W Bellvue St	UNDERSIZED	15	
Steel	17.5	??	Buried	W Bellvue St	NO DATA	15	
	130.5						**$9,004.50**

18"							
??	18	??	Buried	W Bellvue St	NO DATA	18	
RCP	28.5	12"	Silted	W Bellvue St	UNDERSIZED	18	
RCP	147.5	15"	To grate in drive, Silted	W Bellvue St	UNDERSIZED	18	
Steel	76	15"	Silted, Damaged, Standing water	W Bellvue St	UNDERSIZED	18	
	270						**$18,630.00**
30"							
CMP	45	??	Crushed	W Bellvue outfall under R/R	CRUSHED	30	
	45						**$6,120.00**
					Bellvue	**=**	**$43,000.50**
MARTIN							
15"							
RCP	21	12"	Silted	E Martin to W Martin	UNDERSIZED	15	
CPP	43	15"	From Subsurface, Silted, Crushed	E Martin	CRUSHED	15	
RCP	16	?	Submerged, From Grate	W Martin	NO DATA	15	
RCP	44.5	?	Buried	W Martin	NO DATA	15	
	124.5						**$8,590.50**
18"							
RCP	20.5	10"	Silted, Standing Water	W Martin	UNDERSIZED	18	
	20.5						**$1,414.50**
21"							
?	14	?	Buried, To Outfall Ditch	W Martin	NO DATA	21	
	14						**$966.00**
					Martin	**=**	**$10,971.00**
ANTIOCH							
12"							
RCP	23.75	6"	U/S Buried, Damaged, Silted	E Antioch	UNDERSIZED	12	
RCP	20	12"	Silted, Damaged, Standing Water, Joint Undone	E Antioch	BROKEN	12	
?	18.5	?	Buried	W Antioch to E Antioch	NO DATA	12	
	62.25						**$4,295.25**
15"							
CMP	20	12"	Silted, Trash, Standing Water, Crushed	E Antioch	UNDERSIZED	15	
RCP	16	12"	Silted, Standing Water	E Antioch	UNDERSIZED	15	
RCP	15	12"	Silted, Broken, Standing Water	W Antioch to E Antioch	UNDERSIZED	15	
RCP	14.5	12"	U/S Buried, Silted, Broken	W Antioch	UNDERSIZED	15	
RCP	16.5	12"	Silted, Standing Water	W Antioch	UNDERSIZED	15	
	82						**$5,658.00**

			18"				
CMP	11	12"/15"?	Crushed U/S, Standing Water	E Antioch	UNDERSIZED	18	
RCP	6.5	12"	Silted, Standing Water	E Antioch	UNDERSIZED	18	
RCP	17	12"	Silted, Standing Water	E Antioch	UNDERSIZED	18	
RCP	20	15"	Silted, Standing Water	E Antioch	UNDERSIZED	18	
CMP	23	18"?	Crushed, Silted	W Antioch Outfall to E Antioch	CRUSHED	18	
CMP	49	18"	Crushed, Silted, To Grate	W Antioch	CRUSHED	18	
RCP	17	12"	From Grate, Silted	W Antioch	UNDERSIZED	18	
CMP	74.5	21"	Silted, Crushed	W Antioch	CRUSHED	18	
	218						**$15,042.00**
			21"				
RCP	15.5	15"	Silted, Standing Water	E Antioch	UNDERSIZED	21	
RCP	17	15"	Silted, Standing Water	E Antioch	UNDERSIZED	21	
RCP	8.5	15"	Silted, Standing Water	E Antioch	UNDERSIZED	21	
CMP	8	18"	Silted, Standing Water	E Antioch	UNDERSIZED	21	
RCP/CMP	20.5	15"/18"	Silted, Standing Water, CMP EXT.	E Antioch	UNDERSIZED	21	
RCP	6.5	18"	Silted, Standing Water	E Antioch	UNDERSIZED	21	
RCP	16.75	18"	Silted, Standing Water	E Antioch	UNDERSIZED	21	
RCP	6.5	18"	Silted, Standing Water	E Antioch	UNDERSIZED	21	
RCP	26	18"	Silted, Standing Water	E Antioch	UNDERSIZED	21	
RCP	24	18"	Silted, Standing Water	E Antioch	UNDERSIZED	21	
RCP	6	18"	Silted, Standing Water	E Antioch	UNDERSIZED	21	
RCP/CPP	20	18"	Silted, Standing Water	E Antioch	UNDERSIZED	21	
Steel	103	18"	Silted, Standing Water	E Antioch	UNDERSIZED	21	
	278.25						**$19,199.25**
					Antioch	**=**	**$44,194.50**
			642				
			12"				
CMP	40	?	Silted, Destroyed U/S, To Grate	W 642	BROKEN	12	
CMP	206	12"?	Crushed	W 642	CRUSHED	12	
CMP	50.5	18"	Crushed, Overtop Above	E 642	CRUSHED	12	
?	8	?	To Manhole Due East	E 642	NO DATA	12	
	304.5						**$21,010.50**
			15"				
CMP	19.5	18"	Silted, Crushed	W 642	CRUSHED	15	
CMP	20.5	?	Crushed	W 642	CRUSHED	15	
CMP	33	18"	Silted, Damaged	W 642	DAMAGED	15	
Steel	20	?	Buried	W 642	BURIED	15	
?	80	?	Completely Buried	E 642	NO DATA	15	
	173						**$11,937.00**
			18"				
?	20	?	Blocked, Buried	W 642	NO DATA	18	

CMP	51	21'?	Silted, Crushed	W 642	CRUSHED	18	
Steel	51.5	18"	From Grate/To Grate, Rusted Out D/S, Washed Out CB	W 642	BROKEN	18	
Steel	35	18"	Silted, Rusted, From Grate/To Grate	W 642	BROKEN	18	
CMP	13	18"	From Grate/To Grate	W 642	UNDERSIZED	18	
CMP	46	18"	From Grate/To Grate	W 642	UNDERSIZED	18	
CMP	48	18"	From Grate/To Grate	W 642	UNDERSIZED	18	
RCP	24	18"	From Grate/To Grate	W 642	UNDERSIZED	18	
CMP	84	18"	From Grate/To Grate	W 642	UNDERSIZED	18	
CMP	38	28"	From Grate, Destroyed D/S, Silted	W 642 Under Plantation	BROKEN	18	
RCP	18.5	18"	Silted	W 642	UNDERSIZED	18	
CMP	41	18"	Silted	W 642	UNDERSIZED	18	
CMP	23	15"	Silted, To Grate	W 642 (Carwash)	UNDERSIZED	18	
?	32	?	From Grate, To Grate	W 642	NO DATA	18	
?	31.5	?	From Grate, To Grate	W 642	NO DATA	18	
?	21	?	From Grate	W 642	NO DATA	18	
?	72	?	From Grate, To Grate	E 642	NO DATA	18	
	649.5						**$44,815.50**
21"							
RCP	22	18"	Silted	W 642	UNDERSIZED	21	
Steel	28	21"	Silted	W 642	UNDERSIZED	21	
Steel	15	18"	Silted	W 642	UNDERSIZED	21	
	65						**$4,485.00**
24"							
CMP	41	24"	Silted	W 642	UNDERSIZED	24	
CMP?	30	24"	Buried	W 642	UNDERSIZED	24	
RCP	22.5	21"	Silted	W 642	UNDERSIZED	24	
?	17.5	?	Buried	W 642	NO DATA	24	
CMP	37	24"	Silted, Damaged	W 642	UNDERSIZED	24	
?	28	?	From Manhole To Manhole	E 642	NO DATA	24	
CMP	21	27"	Buried	E 642	UNDERSIZED	24	
	197						**$13,396.00**
30"							
CMP	66	36"	Silted, From Grate	E 642	UNDERSIZED	30	
?	52	?	To Grate, From Grate	E 642	NO DATA	30	
?	84	?	To Grate, From Grate	E 642	NO DATA	30	
?	201	?	To Grate, From Grate	E 642	NO DATA	30	
?	295	?	To Grate, From Grate	E 642	NO DATA	30	
?	42.5	?	To Grate, From Grate	E 642	NO DATA	30	
?	332	?	To Grate, From Grate	E 642	NO DATA	30	
?	42	?	To Grate, From Grate	E 642	NO DATA	30	
?	338	?	To Grate, From Grate	E 642	NO DATA	30	
?	42	?	From Grate, To Grate	E 642	NO DATA	30	
?	161	?	To Grate, From Grate	E 642	NO DATA	30	
?	173	?	To Grate, From Grate	E 642	NO DATA	30	

?	42.5	?	From Grate, To Grate	E 642	NO DATA	30	
?	581.5	?	From Grate, To Grate	E 642	NO DATA	30	
?	42	?	From Grate, To Grate	E 642	NO DATA	30	
?	293.5	?	From Grate, To Grate	E 642	NO DATA	30	
?	49	?	From Grate, To Grate	E 642	NO DATA	30	
?	301.5	?	From Grate, To Grate	E 642	NO DATA	30	
?	42.5	?	From Grate, To Grate	E 642	NO DATA	30	
?	135	?	From Manhole	E 642	NO DATA	30	
CMP	24	36"	Silted	E 642	UNDERSIZED	30	
CMP	29	28/27"	Silted	E 642	UNDERSIZED	30	
?	7	?	From Manhole, Buried	E 642	NO DATA	30	
	3376						**$459,136.00**
					642	**=**	**$554,780.00**
44							
12"							
RCP	19	12"	Silted, Standing Water	N 44	UNDERSIZED	12	
RCP	18	?	Silted, Blocked, Submerged	S 44 Across Melancon	NO DATA	12	
RCP	18.5	10"	Damaged	N 44 Side D/W	UNDERSIZED	12	
CMP	35	18"	Crushed, Silted	N 44	CRUSHED	12	
CMP	19	12"	Silted, Crushed	N 44 to Ditch	UNDERSIZED	12	
RCP	15	12"	Submerged	N 44	UNDERSIZED	12	
RCP	43.5	10"	Silted, Damaged	S 44 Opposite Hotard	UNDERSIZED	12	
RCP	42.5	10"	Silted	S 44	UNDERSIZED	12	
RCP	46.5	10"	Silted, Damaged	S 44	UNDERSIZED	12	
	257						**$17,733.00**
15"							
CMP	60	18"	Silted, To Outfall Ditch	N 44	UNDERSIZED	15	
CMP	79.5	15"	Crushed, Standing Water, Silted	S 44	UNDERSIZED	15	
CMP	34.5	15"	Crushed, Standing Water	S 44	CRUSHED	15	
CMP	30	18"	Silted, Crushed D/S	S 44	CRUSHED	15	
CMP	40	18"	Silted, Damaged, Standing Water, Crushed U/S	S 44 Across Adams	CRUSHED	15	
CMP	61	18"	Silted	N 44	UNDERSIZED	15	
RCP	41.5	10"?	Submerged, Buried	S 44 Across Sharon	NO DATA	15	
CMP	15.75	18"	Crushed, Silted	N 44 to Ditch	CRUSHED	15	
CMP	59	15"	Silted, To Grate	S 44	UNDERSIZED	15	
	421.25						**$29,066.25**
18"							
CMP	20	18"	Silted, Crushed	44	CRUSHED	18	
CMP	39	18"	Silted, Standing Water	S 44	UNDERSIZED	18	
CMP	56.5	18"	Damaged, Silted, To Grate	S 44 @ Pole	UNDERSIZED	18	
CMP?	39	18"?	From Grate, To Grate	S 44	UNDERSIZED	18	
CMP	13	18"	Buried, Submerged	S 44	UNDERSIZED	18	
CMP	33	18"	Crushed, Silted	N 44	CRUSHED	18	

RCP	20.5	10"	Silted	S 44	UNDERSIZED	18	
RCP	40	15"	Silted, Buried U/S	S 44 Across Trudeau	UNDERSIZED	18	
RCP	21	12"	Silted, Buried U/S	S 44	UNDERSIZED	18	
	282						**$19,458.00**
21"							
RCP	28	18"	Silted, Standing Water	S 44	UNDERSIZED	21	
RCP	39.5	18"	Silted, Broken	S 44	UNDERSIZED	21	
CMP	24	18"	Silted, Standing Water	S 44	UNDERSIZED	21	
RCP	24.5	15"	Silted, Standing Water, Buried U/S	S 44	UNDERSIZED	21	
CMP	51	18"	From Grate, Crushed D/S, Silted	S 44	CRUSHED	21	
RCP	12	18"	Silted, Damaged	S 44	UNDERSIZED	21	
CMP	46.5	18"	Heavily Silted, From Grate	N 44 to Outfall	UNDERSIZED	21	
CMP	56	18"?	From Grate, To Grate	N 44	UNDERSIZED	21	
CMP	57	18"	To Grate, Crushed	N 44	UNDERSIZED	21	
RCP	35.5	15"	Buried	S 44	UNDERSIZED	21	
RCP	13.5	15"	To Subsurface, Silted	S 44 Manresa Fence	UNDERSIZED	21	
	387.5						**$26,737.50**
24"							
RCP	41.5	27"	Silted, Standing Water	S 44 to N 44 @ Clinton	UNDERSIZED	24	
CMP	60	18"	Silted, Standing Water	S 44 Canatellas Rd	UNDERSIZED	24	
	101.5						**$6,902.00**
30"							
RCPA	41	27x18A	Silted, Damaged	S 44 to N 44 Outfall Ditch	UNDERSIZED	30	
RCP	41	21"	Silted, Damaged	S 44 to N 44 Outfall Ditch	UNDERSIZED	30	
	82						**$11,152.00**
36"							
CMP	67.5	18"	From Subsurface, Standing Water	S 44 End Manresa Fence	UNDERSIZED	36	
RCPA	36.5	28"x18"	Standing Water, To Grate	S 44 to Grate N 44	UNDERSIZED	36	
CMP	17.5	12"	From Subsurface, Crushed	N 44 to Outfall	CRUSHED	36	
	121.5						**$13,851.00**
					44	**=**	**$124,899.75**
BELMONT							
12"							
CMP	42	12"	Silted, Standing Water	W Belmont	UNDERSIZED	12	
RCP	18.5	8"	Silted, Damaged	N Belmont Ln W of Hester	UNDERSIZED	12	
CMP	20	12"	Silted	N Belmont LN W of Hester	UNDERSIZED	12	
	80.5						**$5,554.50**
15"							
CMP	20.5	18"	Silted, Standing Water	S Belmont	UNDERSIZED	15	
CMP	20.5	15"	Silted, Standing Water	W Belmont	UNDERSIZED	15	

	41						**$2,829.00**
			18"				
CMP	24.5	18"	Silted, Standing Water, Crushed	E Belmont	CRUSHED	18	
CMP	36	18"	Silted, Heavily Damaged, Standing Water	S Belmont	CRUSHED	18	
CPP ?	42	18"?	Subsurface	S Belmont	NO DATA	18	
CPP	40	18"	Silted, Broken, Crushed	S Belmont Ln W of Hester	CRUSHED	18	
	142.5						**$9,832.50**
			21"				
CMP	205.5	18"	Crushed, Silted, Standing Water	S Belmont Outfall	UNDERSIZED	21	
CPP	27	18"	Silted, Standing Water, To Grate	S Belmont Outfall	UNDERSIZED	21	
?	69.5	?	Subsurface	S Belmont Outfall	NO DATA	21	
?	70.5	?	Subsurface	S Belmont Outfall	NO DATA	21	
?	80.5	?	Subsurface	S Belmont Outfall	NO DATA	21	
?	61	?	Subsurface	S Belmont Outfall	NO DATA	21	
?	61.5	?	Subsurface	S Belmont Outfall	NO DATA	21	
?	63	?	Subsurface	S Belmont Outfall	NO DATA	21	
?	83	?	Subsurface	S Belmont Outfall	NO DATA	21	
	721.5						**$49,783.50**
			24"				
CMP	62	24"	Silted, Standing Water	S Belmont Outfall	UNDERSIZED	24	
Steel	40	24"	Silted, Broken, Standing Water	S Belmont Ln Under R/R	UNDERSIZED	24	
RCP	42	15"	Silted, Damaged, Standing Water	Across Belmont Ln	UNDERSIZED	24	
	144						**$9,792.00**
					Belmont	**=**	**$77,791.50**
			DENISE				
			12"				
?	76.5	?	Subsurface	W Denise	NO DATA	12	
?	62.5	?	Subsurface	W Denise	NO DATA	12	
CPP?	69.5	12"?	Subsurface	E Denise	NO DATA	12	
CPP?	62.5	12?	Subsurface	E Denise	NO DATA	12	
	271						**$18,699.00**
			15"				
CMP	50	15"	Silted, From Grate	W Denise	UNDERSIZED	15	
CMP	62	15"	To Grate, Silted	W Denise	UNDERSIZED	15	
Steel	23.75	15"	Silted	W Denise	UNDERSIZED	15	
CMP	50	15"	Silted, From Grate	W Denise	UNDERSIZED	15	
?	63	?	Subsurface	W Denise	NO DATA	15	
?	63	?	Subsurface	W Denise	NO DATA	15	
?	64	?	Subsurface	W Denise	NO DATA	15	
?	83.5	?	Subsurface	W Denise	NO DATA	15	
?	83	?	Subsurface	W Denise	NO DATA	15	

?	73.5	?	Subsurface	W Denise	NO DATA	15	
?	71.5	?	Subsurface	W Denise	NO DATA	15	
?	63	?	Subsurface	W Denise	NO DATA	15	
CPP?	61.5	12"?	Subsurface	E Denise	NO DATA	15	
CPP	62	12"	From Grate, Silted, Standing Water	E Denise	UNDERSIZED	15	
	873.75						**$60,288.75**
18"							
Steel	30	15"	Silted	W Denise	UNDERSIZED	18	
	30						**$2,070.00**
					Denise	**=**	**$81,057.75**
EFFIE							
12"							
PP	19	10"	Silted, Standing Water	W Effie	UNDERSIZED	12	
	19						**$1,311.00**
15"							
CMP	30.5	12"	Silted, Standing Water	W Effie	UNDERSIZED	15	
PP	19	10"	Silted, Standing Water	W Effie	UNDERSIZED	15	
CMP	30	12"	Silted, Crushed, Standing Water	W Effie	UNDERSIZED	15	
	79.5						**$5,485.50**
18"							
CPP/CMP	60	18"	Silted, Standing Water	W Effie	UNDERSIZED	18	
PP/CMP	39	10"	Silted, Broken, Standing Water	E Effie	UNDERSIZED	18	
CMP	40	18"	Silted, Standing Water	E Effie	UNDERSIZED	18	
	139						**$9,591.00**
					Effie	**=**	**$16,387.50**
ROSEANN							
12"							
Steel	20.5	8"	Silted, Blocked U/S	From W Roseann	UNDERSIZED	12	
PP	23.25	8"	Silted, Broken	From W Roseann	UNDERSIZED	12	
PP	23.5	8"	Silted	From W Roseann	UNDERSIZED	12	
PP	21	8"	Silted	From W Roseann	UNDERSIZED	12	
	88.25						**$6,089.25**
15"							
PP	20.5	6"	Silted	From W Roseann	UNDERSIZED	15	
PP	20.5	8"	Silted	From W Roseann	UNDERSIZED	15	
	41						**$2,829.00**
24"							
RCP	25	18"	?	E Rosann Under Belmont Ln	UNDERSIZED	24	

	25						$1,700.00
			30"				
Steel	21	24"	Silted, Rusted Through	E Roseann	UNDERSIZED	30	
	21						$2,856.00
			48"				
CMP	40	48"	Silted, Standing Water, Crushed	E Rosann Under R/R	CRUSHED	48	
	40						$9,160.00
					Roseann	=	$22,634.25
			HESTER				
			15"				
CMP	20.5	18"	Silted, Crushed	W Hester	CRUSHED	15	
	20.5						$1,414.50
			18"				
CMP	79	15"	Silted	W Hester	UNDERSIZED	18	
CMP	18.5	18"	Crushed, Silted	W Hester	UNDERSIZED	18	
CMP	40.5	18"	Silted	W Hester	UNDERSIZED	18	
CMP	10.5	18"	Crushed, Silted	W Hester	UNDERSIZED	18	
CPP	20.5	18"	Crushed, Silted	W Hester	UNDERSIZED	18	
CMP	10.5	18"	Crushed, Silted	W Hester	UNDERSIZED	18	
CPP	20.5	18"	Crushed, Silted	W Hester	UNDERSIZED	18	
RCP/CMP	33	18"	CMP EXT., Silted, Standing Water	E Hester Under Belmont Ln	UNDERSIZED	18	
	33						$2,277.00
			21"				
RCP	33	15"	Silted, Damaged	W Hester	UNDERSIZED	21	
CMP	20	18"	Silted, Crushed	W Hester	UNDERSIZED	21	
CMP	20	18"	Silted, Damaged	W Hester	UNDERSIZED	21	
CMP	20.5	18"	Silted, Outfalls West	W Hester	UNDERSIZED	21	
CMP	47.5	24"	Silted, Standing Water, From Grate	E Hester	UNDERSIZED	21	
CMP?	75.5	24"?	From Grate, To Grate	E Hester	NO DATA	21	
CMP	69	24"	To Grate	E Hester	UNDERSIZED	21	
CMP	16	18"	Standing Water	E Hester	UNDERSIZED	21	
RCP	19.5	21"	Standing Water	E Hester	UNDERSIZED	21	
CPP	71	18"	Standing Water, From Grate	E Hester	UNDERSIZED	21	
RCP	76	18"	To Grate, Silted, Standing Water, Grate @ Pipe	E Hester	UNDERSIZED	21	
RCP	24	18"	Silted	E Hester	UNDERSIZED	21	
	492						$33,948.00
			24"				
CMP	50.5	24"	Silted	E Hester	UNDERSIZED	24	
CMP	62	24"	Silted, Crushed	E Hester	UNDERSIZED	24	
	112.5						$7,650.00
					Hester	=	$45,289.50

LOQUE							
15"							
CMP	20.5	15"	Silted	E Loque	UNDERSIZED	15	
	20.5						**$1,414.50**
18"							
CMP	20.5	15"	Silted, Damaged	E Loque Across P.O. Road	UNDERSIZED	18	
	20.5						**$1,414.50**
					Loque	**=**	**$2,829.00**
KHAN							
NONE							
HONEYSUCKLE							
15"							
RCP	24	15"	Broken, Silted	Across Honeysuckle	BROKEN	15	
	24						**$1,656.00**
					Honeysuckle	**=**	**$1,656.00**
ELMO							
12"							
RCP	22	12"	Silted	W Elmo	UNDERSIZED	12	
?	16	?	Buried	W Elmo	NO DATA	12	
RCP	24	10"	Submerged	W Elmo	UNDERSIZED	12	
RCP	24.5	10"	Submerged	W Elmo	UNDERSIZED	12	
RCP	24	10"	Silted, Standing Water	W Elmo	UNDERSIZED	12	
	110.5						**$7,624.50**
15"							
RCP	33	12"	Silted	W Elmo	UNDERSIZED	15	
	33						**$2,277.00**
					Elmo	**=**	**$9,901.50**
SHARON							
12"							
?	50	?	Submerged, Buried	W Sharon Behind House	NO DATA	12	
?	47	?	To Grate	W Sharon B/T House & Shed	NO DATA	12	
	97						**$6,693.00**
					Sharon	**=**	**$6,693.00**
TRUDEAU							

12"							
RCP	52	10"	Silted, To Grate	E Trudeau	UNDERSIZED	12	
RCP	50	12"	Headwall D/S, From Grate	E Trudeau	UNDERSIZED	12	
?	14.5	?	Crushed by Failed D/W, Buried	W Trudeau	CRUSHED	12	
	116.5						**$8,038.50**
15"							
RCP	20.5	12"	Silted, To Grate	E Trudeau	UNDERSIZED	15	
CMP	68	18"	From Grate, To Grate	E Trudeau	UNDERSIZED	15	
CMP	19	18"	From Grate, To Grate	E Trudeau	UNDERSIZED	15	
CMP	38.5	18"	From Grate, To Grate	E Trudeau	UNDERSIZED	15	
RCP/CMP	87	15"	From Grate, To Grate	E Trudeau	UNDERSIZED	15	
CMP	59	15"	From Grate, To Grate	E Trudeau	UNDERSIZED	15	
RCP	32.5	12"	Silted	W Trudeau	UNDERSIZED	15	
CMP	79	12"	Silted, To Grate	W Trudeau	UNDERSIZED	15	
CMP	50	?	From Grate, To Grate	W Trudeau	UNDERSIZED	15	
CMP	74.5	?	From Grate, To Grate	W Trudeau	UNDERSIZED	15	
RCP	63	12"	From Grate, Silted	W Trudeau	UNDERSIZED	15	
CMP	74	12"	Silted, Damaged, To Grate	W Trudeau	UNDERSIZED	15	
CMP	58.5	12"	From Grate, Silted	W Trudeau	UNDERSIZED	15	
	723.5						**$49,921.50**
18"							
RCP	131	12"	From Grate, Silted	E Trudeau	UNDERSIZED	18	
CMP	71	15"	To Grate, Silted	W Trudeau	UNDERSIZED	18	
?	67.5	?	From Grate, To Grate	W Trudeau	NO DATA	18	
?	76	?	From Grate, To Grate	W Trudeau	NO DATA	18	
Steel	49.5	15"	Silted, Standing Water	W Trudeau to S 44	UNDERSIZED	18	
	395						**$27,255.00**
					Trudeau	**=**	**$85,215.00**
HOTARD							
15"							
RCP	100	15"	Silted, Back to Outfall Ditch	E Hotard	UNDERSIZED	15	
	100						**$6,900.00**
					Hotard	**=**	**$6,900.00**
ESTER							
12"							
RCP	15	10"	Silted Heavily	E Ester	UNDERSIZED	12	
	15						**$1,035.00**
					Ester	**=**	**$1,035.00**
SUGAR HILL							

18"							
CMP	17	24"	Silted, Crushed	E Sugar Hill	CRUSHED	18	
CMP	17	24"	Silted, Crushed	E Sugar Hill	CRUSHED	18	
CMP	17	24"	Silted, Crushed	E Sugar Hill	CRUSHED	18	
CMP	17	24"	Silted, Crushed	E Sugar Hill	CRUSHED	18	
CMP	17	24"	Silted, Crushed	E Sugar Hill	CRUSHED	18	
CMP	17	24"	Silted, Crushed	E Sugar Hill	CRUSHED	18	
CMP	17	24"	Silted, Crushed	E Sugar Hill	CRUSHED	18	
CMP	17	24"	Silted, Crushed	W Sugar Hill	CRUSHED	18	
CMP	17	24"	Silted, Crushed	W Sugar Hill	CRUSHED	18	
CMP	17	24"	Silted, Crushed	W Sugar Hill	CRUSHED	18	
CMP	17.5	24"	Silted, Crushed	W Sugar Hill	CRUSHED	18	
CMP	17.5	24"	Silted, Crushed	W Sugar Hill	CRUSHED	18	
CMP	69.5	30"	Silted, Crushed	W Sugar Hill Under Road	CRUSHED	18	
CMP	17.5	24"	Silted, Crushed	W Sugar Hill	CRUSHED	18	
CMP	17.5	24"	Silted, Crushed	W Sugar Hill	CRUSHED	18	
CMP	17	24"	Silted, Crushed	W Sugar Hill	CRUSHED	18	
CMP	17	24"	Silted, Crushed	W Sugar Hill	CRUSHED	18	
CMP	20	24"	Silted, Crushed	W Sugar Hill	CRUSHED	18	
CMP	20	24"	Silted, Crushed	W Sugar Hill	CRUSHED	18	
CMP	17.5	24"	Silted, Crushed	W Sugar Hill	CRUSHED	18	
	401						**$27,669.00**
21"							
CMP	39.5	30"?	Outfall, Silted, Crushed	E Sugar Hill to W Sugar Hill	CRUSHED	21	
CMP	17	27"/30"	Silted, Crushed	E Sugar Hill	CRUSHED	21	
CMP	17	30"	Silted, Crushed	E Sugar Hill	CRUSHED	21	
CMP	17	27"	Silted, Crushed	W Sugar Hill	CRUSHED	21	
CMP	57	30"	Silted, Crushed	W Sugar Hill Under Cut Cane	CRUSHED	21	
CMP	17	30"	Silted, Crushed	W Sugar Hill	CRUSHED	21	
CMP	17	30"	Silted, Crushed	W Sugar Hill	CRUSHED	21	
CMP	20	30"	Silted, Crushed	W Sugar Hill	CRUSHED	21	
	201.5						**$13,903.50**
36"							
CMP	175	36"	Silted, Crushed	W Sugar Hill Outfall Under R/R	CRUSHED	36	
	175						**$19,950.00**
					Sugar Hill	**=**	**$61,522.50**
SCHEXNAYDRE							
12"							
RCP	21	12"	Silted	E Schexnaydre	UNDERSIZED	12	
CMP	20	12"	Silted	E Schexnaydre	UNDERSIZED	12	
Steel	28	6"	Silted In	W Schexnaydre	UNDERSIZED	12	
RCP	22	8"	Silted	W Schexnaydre	UNDERSIZED	12	
Steel	16	6"	Silted, Broken	W Schexnaydre	BROKEN	12	

RCP	28	8"	Silted	W Schexnaydre	UNDERSIZED	12	
	135						**$9,315.00**
15"							
CMP	86	12"	Silted, From Grate	E Schexnaydre	UNDERSIZED	15	
?	40	?	From Grate, To Grate	E Schexnaydre	UNDERSIZED	15	
CMP	82	12"	From Grate,To Grate	E Schexnaydre	UNDERSIZED	15	
CMP	46.5	12"	To Grate, From Grate	E Schexnaydre	UNDERSIZED	15	
RCP	34	10"	To Grate	E Schexnaydre	UNDERSIZED	15	
Steel	23.5	10"	OK	E Schexnaydre	UNDERSIZED	15	
RCP	24.5	8"	Silted, Broken	W Schexnaydre	BROKEN	15	
Steel/RCP	37.5	10"/12"	Silted	W Schexnaydre	UNDERSIZED	15	
RCP	21	8"	Silted, Damaged	W Schexnaydre	UNDERSIZED	15	
CMP	26	12"	Silted	W Schexnaydre	UNDERSIZED	15	
RCP	6	8"	Silted, Damaged	W Schexnaydre	UNDERSIZED	15	
RCP	25	8"	Silted	W Schexnaydre	UNDERSIZED	15	
RCP	25	8"	Silted, Collapsed & Broken Under D/W, Standing Water	W Schexnaydre	BROKEN	15	
RCP	28	8"	Silted, Standing Water	W Schexnaydre	UNDERSIZED	15	
RCP	27.5	8"	Silted, Broken, Standing Water	W Schexnaydre	BROKEN	15	
CMP	20.5	12"	Silted, Standing Water	W Schexnaydre	UNDERSIZED	15	
CMP	25.5	12"	Silted, To Grate	W Schexnaydre	UNDERSIZED	15	
CMP	40	12"	From Grate, To Grate	W Schexnaydre	UNDERSIZED	15	
	618.5						**$42,676.50**
18"							
CMP	40.5	15"	Crushed, Silted	E Schexnaydre	CRUSHED	18	
CMP	40	18"	Silted	E Schexnaydre	UNDERSIZED	18	
CMP	23	15"	Silted, Damaged	E Schexnaydre	UNDERSIZED	18	
CMP	29.5	15"	Silted	E Schexnaydre	UNDERSIZED	18	
CMP	29.5	15"	Silted, Blocked D/S, Crushed, Standing Water	E Schexnaydre	CRUSHED	18	
CMP	20	15"	Silted, Bent, Standing Water, Rusted Through	E Schexnaydre	UNDERSIZED	18	
RCP	12	12"	Blocked U/S, Damaged	E Schexnaydre	UNDERSIZED	18	
Steel	29	8"	From Grate, To Grate	W Schexnaydre	UNDERSIZED	18	
CMP	45	12"	From Grate, To Grate	W Schexnaydre	UNDERSIZED	18	
CMP	80	12"	From Grate, To Grate	W Schexnaydre	UNDERSIZED	18	
CMP	40	12"	From Grate, To Grate	W Schexnaydre	UNDERSIZED	18	
CMP	58.5	12"	From Grate, To Grate	W Schexnaydre	UNDERSIZED	18	
CMP	67	15"	From Grate, To Grate	W Schexnaydre	UNDERSIZED	18	
Fiberglass (To CMP)	89	18"	From Grate, To Grate	W Schexnaydre	UNDERSIZED	18	
CMP/PP	60	12"	From Grate	W Schexnaydre	UNDERSIZED	18	
Fiberglass	57.5	12"	Silted, To Grate	W Schexnaydre	UNDERSIZED	18	
CMP	50	18"	From Grate, To Grate	W Schexnaydre	UNDERSIZED	18	
CMP	19.5	18"	From Grate, To Grate	W Schexnaydre	UNDERSIZED	18	
CMP	40	18"	From Grate, To Grate	W Schexnaydre	UNDERSIZED	18	
CMP	59.5	15"	From Grate, To Grate, Standing Water	W Schexnaydre	UNDERSIZED	18	
RCP	33	12"	From Grate, Silted, Standing Water	W Schexnaydre	UNDERSIZED	18	
CMP	40	15"	Silted, Standing Water, Crushed	W Schexnaydre	CRUSHED	18	

RCP/CMP	48.5	12"/15"	Silted, Broken	W Schexnaydre to Outfall	BROKEN	18	
	1011						**$69,759.00**
					Schexnaydre	**=**	**$121,750.50**
JOSEPH							
NONE							
E-W 2ND							
12"							
PVC	125	12"	From Grate, Broken	N 2nd	BROKEN	12	
	125						**$8,625.00**
15"							
CMP	10	12"	To Grate, Silted	S 2nd	UNDERSIZED	15	
CMP	9	12"	To Grate, Silted	S 2nd	UNDERSIZED	15	
CMP	6	15"	To Grate, Silted	S 2nd	UNDERSIZED	15	
	25						**$1,725.00**
18"							
RCP	9	15"	Silted	S 2nd	UNDERSIZED	18	
?	42	?	From Grate, To Grate	S 2nd	NO DATA	18	
?	39	?	From Grate, To Grate	S 2nd/ Collects E Pine Ave	NO DATA	18	
	90						**$6,210.00**
21"							
?	26	?	Damaged, Silted, Buried	S 2nd	BURIED	21	
	26						**$1,794.00**
24"							
?	38	?	From Grate, To Grate	Across Pine/ Collects W Pine	NO DATA	24	
?	93	?	From Grate, To Grate	S 2nd	NO DATA	24	
?	49	?	From Grate, To Grate	S 2nd	NO DATA	24	
?	68.5	?	From Grate, To Grate	S 2nd	NO DATA	24	
?	85	?	To Box With Outfall, Buried	2nd & David	NO DATA	24	
	333.5						**$22,678.00**
					E-W 2nd	**=**	**$41,032.00**
N-S 2ND							
18"							
RCP	5	18"	Silted	E 2nd	UNDERSIZED	18	
RCP	108	18"	Silted, To Subsurface	E 2nd	UNDERSIZED	18	
RCP	61.5	18"	To Grate	W 2nd S of 7th	UNDERSIZED	18	
RCP	21	18"	Silted	W 2nd (1537)	UNDERSIZED	18	
CMP	115	18"	Silted, From Subsurface	W 2nd	UNDERSIZED	18	

RCP	164	18"	To Subsurface, Silted	W 2nd (Grate @ 1451) D/W (1439)	UNDERSIZED	18	
Steel	115	18"	Silted, From Subsurface	W 2nd (1437)	UNDERSIZED	18	
CMP	27	18"	Silted	E 2nd	UNDERSIZED	18	
RCP	6	18"	To Subsurface, Silted	E 2nd @ 6th	UNDERSIZED	18	
CPP/RCP	108	21"/18"	Silted	E 2nd (Blue House)	UNDERSIZED	18	
Steel/RCP	25	24"/18"	Silted	E 2nd (1496)	UNDERSIZED	18	
RCP	61	18"	Silted, From Subsurface	E 2nd (1500)	UNDERSIZED	18	
	816.5						$56,338.50
					N-S 2nd	=	$56,338.50
GOLDEN GROVE							
12"							
RCP	30	12"	Broken, Silted	Across Golden Grove	BROKEN	12	
CMP	9.5	12"	Damaged, Silted, Crushed	E Golden Grove	CRUSHED	12	
	39.5						$2,725.50
					Golden Grove	=	$2,725.50
E-W 1ST							
NONE							
ROSE							
12"							
CMP	16	15"	Crushed, Silted	S Rose Ln	CRUSHED	12	
CMP	4.5	12"	Silted	N Rose Ln	UNDERSIZED	12	
	20.5						$1,414.50
15"							
CMP	24	18"	From Grate, Bent	N Rose to S Rose	UNDERSIZED	15	
CMP	76	15"	From Grate, To Grate	N Rose Ln	UNDERSIZED	15	
	100						$6,900.00
18"							
CMP	16	24"	Crushed, Silted	S Rose Ln	CRUSHED	18	
	16						$1,104.00
					Rose	=	$9,418.50
TULIP							
15"							
CMP	20	?	Buried, Broken	S Tulip Ln	BROKEN	15	
CMP	6	21"	Silted, Damaged	S Tulip Ln	DAMAGED	15	
CMP	69	21"	Silted, Crushed	S Tulip Ln	CRUSHED	15	
	95						$6,555.00
					Tulip	=	$6,555.00

			COLONIAL				
			12"				
RCP	13	10"	Silted	E Colonial	UNDERSIZED	12	
PP	4.5	10"	Silted	E Colonial	UNDERSIZED	12	
RCP	34.5	8"	Silted	E Colonial	UNDERSIZED	12	
RCP	12.5	12"	Silted	E Colonial	UNDERSIZED	12	
Steel	56	10"	Silted, To Grate	E Colonial	UNDERSIZED	12	
RCP	19	?	To Grate, From Grate	E Colonial	NO DATA	12	
RCP	21.5	?	To Grate, From Grate	E Colonial	NO DATA	12	
?	34.5	?	To Grate, From Grate	E Colonial	NO DATA	12	
?	29	?	To Grate, From Grate	E Colonial	NO DATA	12	
CMP	80	12"	From Subsurface, Silted	W Colonial	UNDERSIZED	12	
RCP/PVC	20.5	8"/10"	PVC EXT, Silted	W Colonial	UNDERSIZED	12	
	325						**$22,425.00**
			15"				
RCP	32.5	12"	To Subsurface, From Grate	E Colonial	UNDERSIZED	15	
RCP	70	12"	To Grate, From Grate	E Colonial	UNDERSIZED	15	
RCP	26	12"	To Grate, Silted	E Colonial	UNDERSIZED	15	
?	34	?	From Grate, To Grate	E Colonial	NO DATA	15	
?	25	?	From Grate, To Grate	E Colonial	NO DATA	15	
RCP	30	?	From Grate, To Grate	W Colonial	NO DATA	15	
RCP	35.5	?	?	W Colonial****	NO DATA	15	
RCP	40	?	From Grate, To Grate	W Colonial	NO DATA	15	
RCP	26	?	From Grate, To Grate, Washed Out, Seperated Seam	W Colonial to E Colonial	DAMAGED	15	
	319						**$22,011.00**
			18"				
RCP/CMP	71.5	18"	Damaged, From Subsurface, CMP EXT.	Colonial Outfall Across 2nd	UNDERSIZED	18	
	71.5						**$4,933.50**
					Colonial	**=**	**$49,369.50**
			E-W 4TH				
			NONE				
			E-W 6TH				
			18"				
?	112	?	From Grate, To Grate	S 6th @ 2nd	NO DATA	18	
	112						**$7,728.00**
					E-W 6th	**=**	**$7,728.00**
			E-W 8TH				

NONE							
MAGNOLIA							
12"							
RCP	82	12"	Silted, From Subsurface	E Magnolia	UNDERSIZED	12	
	82						$5,658.00
					Magnolia	=	$5,658.00
PINE							
12"							
?	145	?	Silted, From Subsurface, Buried D/S	E Pine	NO DATA	12	
RCP	111	12"	From Subsurface, Silted	W Pine	UNDERSIZED	12	
CMP	56	12"	FROM / TO GRATE	E. PINE ST	UNDERSIZED	12	
CMP	40	12"	FROM / TO GRATE	E. PINE ST	UNDERSIZED	12	
CMP	41	12"	DAMAGED, FROM / TO GRATE	E. PINE ST	UNDERSIZED	12	
CMP	17	15"	DAMAGED, SILTED	E. PINE ST D/W	UNDERSIZED	12	
	410						$28,290.00
15"							
RCP	55	12"	Silted, To Subsurface	W Pine	UNDERSIZED	15	
CMP	83	18"	FROM / TO GRATE	E. PINE ST	UNDERSIZED	15	
CMP	42	18"	FROM / TO GRATE	E. PINE ST	UNDERSIZED	15	
CMP	43	15"	FROM / TO GRATE	W PINE ST	UNDERSIZED	15	
	223						$15,387.00
18"							
CMP	41	24"	FROM GRATE, DAMAGED	CROSSING PINE ST	UNDERSIZED	18	
	41						$2,829.00
					Pine	=	$46,506.00
E-W 5TH							
12"							
RCP	4	18"	Silted, Broken	N 5th	BROKEN	12	
RCP/Steel	63.5	10" Steel Inside 18" RCP	From Grate	N 5th to Outfall @ Texas	UNDERSIZED	12	
	67.5						$4,657.50
					E-W 5th	=	$4,657.50
N-S 3RD							
15"							
CMP	79	18"	Silted, To Grate	W 3rd (1545) (Outfalls to Center Ditch)	UNDERSIZED	15	
	79						$5,451.00
					N-S 3rd	=	$5,451.00

E-W 10TH							
NONE							
E-W 7TH							
NONE							
LOUISIANA							
18"							
CPP	21	18"	To Grate, Broken, To Outfall Under Baseball Field	E Louisiana	BROKEN	18	
RCP	17	18"	Silted, Broken	E Louisiana (2400)	BROKEN	18	
	38						**$2,622.00**
					Louisiana	**=**	**$2,622.00**
TEXAS							
12"							
RCP/Steel	63.5	10" Steel Inside 18" RCP	From Grate	N 5th to Outfall @ Texas	UNDERSIZED	12	
CMP	30	8"	Silted	W Texas	UNDERSIZED	12	
CMP	32	8"	Silted	W Texas to E Outfall	UNDERSIZED	12	
CMP	20	8"	Silted	W Texas	UNDERSIZED	12	
Steel	3	8"	Silted	W Texas	UNDERSIZED	12	
RCP	26	12"	OK	W Texas to E Texas	UNDERSIZED	12	
	174.5						**$12,040.50**
					Texas	**=**	**$12,040.50**
ST. LOUIS							
18"							
Steel	81.5	15"	Silted, Broken, To Grate @ Central	S St. Louis	BROKEN	18	
	81.5						**$5,623.50**
					St. Louis	**=**	**$5,623.50**
E LEBRAY							
24"							
RCP	8	24"	Silted, Damaged	W E Lebray	DAMAGED	24	
RCP	6	24"	Silted, Damaged	W E Lebray	DAMAGED	24	
	14						**$952.00**
					E Lebray	**=**	**$952.00**
W LEBRAY							
18"							
CMP	100	18"	To Grate, Silted	W W Lebray	UNDERSIZED	18	

CMP	62	18"	Silted, From Subsurface	W W Lebray	UNDERSIZED	18	
CMP	102	18"	To Subsurface, Silted	W W Lebray	UNDERSIZED	18	
RCP	7	15"	Silted	W W Lebray	UNDERSIZED	18	
RCP	12	15"	Silted	W W Lebray	UNDERSIZED	18	
RCP/CMP	49	18"	Silted, CMP EXT.	W W Lebray	UNDERSIZED	18	
RCP	63	15"	Silted, From Grate in Drive	W W Lebray	UNDERSIZED	18	
RCP	151	18"	Silted, To Grate in Drive	W W Lebray	UNDERSIZED	18	
CMP	23	18"	Silted, Crushed	W W Lebray	CRUSHED	18	
CMP	17	18"	Silted, Crushed	W W Lebray	CRUSHED	18	
RCP	4.5	18"	Silted	W W Lebray	UNDERSIZED	18	
RCP	12	18"	Silted	W W Lebray	UNDERSIZED	18	
RCP	22	18"	Silted	W W Lebray	UNDERSIZED	18	
RCP	29	15"	Silted	W W Lebray	UNDERSIZED	18	
RCP	12.5	18"	Silted	W W Lebray	UNDERSIZED	18	
RCP	17	18"	Silted	W W Lebray	UNDERSIZED	18	
RCP	22	18"	Silted	W W Lebray	UNDERSIZED	18	
RCP	13	18"	Silted	W W Lebray	UNDERSIZED	18	
RCP	6	18"	Silted	W W Lebray	UNDERSIZED	18	
	724						**$49,956.00**
					W Lebray	**=**	**$49,956.00**
CARROT							
18"							
CMP	59	18"	OK, From Grate	W Carrot	UNDERSIZED	18	
CMP	68	18"	From Grate, To Grate	W Carrot	UNDERSIZED	18	
CMP	69	18"	From Grate, To Grate	W Carrot	UNDERSIZED	18	
CMP	69	18"	From Grate, To Grate	W Carrot	UNDERSIZED	18	
CMP	68	18"	From Grate, To Grate	W Carrot	UNDERSIZED	18	
CMP	89	18"	From Grate, To Grate	W Carrot	UNDERSIZED	18	
CMP	84	18"	To Grate, Silted	W Carrot @ N Ricky	UNDERSIZED	18	
CMP	50	18"	From Grate, OK	W Carrot Under Ricky	UNDERSIZED	18	
Steel/PP	99	20"/15"	?	W Carrot	UNDERSIZED	18	
	655						**$45,195.00**
					Carrot	**=**	**$45,195.00**
RICKY							
15"							
CMP	38	18"	Silted	N Ricky	UNDERSIZED	15	
CMP	67	18"	Silted, From Grate	N Ricky	UNDERSIZED	15	
CMP	66	18"	From Grate, To Grate	N Ricky	UNDERSIZED	15	
	171						**$11,799.00**
18"							
CMP	68	18"	From Grate, Silted	N Ricky	UNDERSIZED	18	
CMP	78	18"	To Grate, Silted	N Ricky	UNDERSIZED	18	

	146						$10,074.00
					Ricky	=	$21,873.00
BOURBON							
NONE							
ST. JOSEPH							
12"							
CMP	54	15"	Grate Missing, Silted	N St. Joseph	UNDERSIZED	12	
?	63	?	From Grate/To Grate	S St. Joseph	NO DATA	12	
CMP	21	12"	From Grate/To Grate	S St. Joseph	UNDERSIZED	12	
?	39.5	?	From Grate/To Grate	S St. Joseph	NO DATA	12	
	177.5						$12,247.50
15"							
?	67	?	To Grate/From Grate	N St. Joseph	NO DATA	15	
?	64	?	To Grate/From Grate	N St. Joseph	NO DATA	15	
?	19	?	To Grate/From Grate	N St. Joseph	NO DATA	15	
?	19	?	To Grate/From Grate	N St. Joseph	NO DATA	15	
?	35	?	To Grate/From Grate	N St. Joseph	NO DATA	15	
?	37	?	Overgrown Grate, From Grate/To Grate	N St. Joseph	NO DATA	15	
?	59.5	?	Silted, From Grate/To Grate	S St. Joseph	NO DATA	15	
?	39.5	?	Silted, From Grate/To Grate	S St. Joseph	NO DATA	15	
?	68	?	Silted, From Grate/To Grate	S St. Joseph	NO DATA	15	
?	65	?	Buried, Standing Water	S St. Joseph	NO DATA	15	
	473						$32,637.00
18"							
RCP	37	18"	Broken, Silted	Across St. Joseph	BROKEN	18	
Steel	60	18"	Buried	N St. Joseph	UNDERSIZED	18	
?	48.5	?	From Grate/To Grate	N St. Joseph	NO DATA	18	
Steel	31	18"	Silted, Standing Water	N St. Joseph	UNDERSIZED	18	
?	57.5	?	From Grate/To Grate	N St. Joseph	NO DATA	18	
	234						$16,146.00
					St. Joseph	=	$61,030.50
GEISMAR							
12"							
?	76	?	From Grate/To Grate	N Geismar	NO DATA	12	
?	65	?	To Grate/From Grate	S Geismar	NO DATA	12	
CMP	27	12"	Silted Crushed, From Grate	S Geismar	CRUSHED	12	
	168						$11,592.00
15"							

?	46.5	?	From Grate/To Grate	N Geismar	NO DATA	15	
?	39.5	?	From Grate/To Grate	N Geismar	NO DATA	15	
?	79	?	From Grate/To Grate	N Geismar	NO DATA	15	
?	38	?	To Grate/From Grate	S Geismar	NO DATA	15	
?	65	?	To Grate/From Grate	S Geismar	NO DATA	15	
?	39.5	?	To Grate/From Grate	S Geismar	NO DATA	15	
?	40	?	To Grate/From Grate	S Geismar	NO DATA	15	
?	48	?	To Grate/From Grate	S Geismar	NO DATA	15	
	395.5						**$27,289.50**
			18"				
Steel	60.5	18"	From Grate, Silted, Rusted Out	S Geismar	BROKEN	18	
?	66	?	To Grate/From Grate	S Geismar	NO DATA	18	
?	13.5	?	To Grate/From Grate	S Geismar	NO DATA	18	
?	30	?	To Grate/From Grate	S Geismar	NO DATA	18	
	170						**$11,730.00**
			21"				
CMP	75	27"	Silted, Damaged, To Grate	N Geismar	DAMAGED	21	
CMP	60	27"	To Grate/From Grate	S Geismar	UNDERSIZED	21	
	135						**$9,315.00**
					Geismar	**=**	**$59,926.50**
			TUPELO				
			12"				
?	16	?	Buried	E Tupelo	NO DATA	12	
?	56	?	From Grate, Buried D/S	E Tupelo	NO DATA	12	
CMP	60	?	To Grate, From Grate	E Tupelo	NO DATA	12	
?	17	?	Buried, To Grate	E Tupelo	NO DATA	12	
	149						**$10,281.00**
			15"				
CMP	16	18"	Silted, Crushed	E Tupelo	CRUSHED	15	
	16						**$1,104.00**
			21"				
RCP	37	18"	Silted, Broken	Outfall Across Tupelo	BROKEN	21	
CMP	37	30"?	Crushed, Silted	Outfall Across Tupelo	CRUSHED	21	
	74						**$5,106.00**
					Tupelo	**=**	**$16,491.00**
			CYPRESS				
			12"				
?	46	?	To Grate/From Grate	W Cypress	NO DATA	12	
	46						**$3,174.00**

			15"				
CMP	24.5	18"	Silted, Damaged, To Grate	W Cypress	DAMAGED	15	
?	29.5	?	From Grate, To Grate	W Cypress	NO DATA	15	
?	75	?	From Grate, Silted, Blocked With Concrete	W Cypress	NO DATA	15	
CMP	40	21"/24"?	Silted, Slightly Crushed, To Grate	W Cypress	CRUSHED	15	
?	19	?	From Grate/To Grate, Outfall Box	W Cypress	NO DATA	15	
	188						**$12,972.00**
			18"				
?	27	?	From Grate/To Grate	W Cypress	NO DATA	18	
?	41	?	From Grate/To Grate	W Cypress	NO DATA	18	
?	66	?	From Grate/To Grate	W Cypress @ Plantation	NO DATA	18	
	134						**$9,246.00**
			30"				
CMP	64	27"	To Grate/From Grate	E Cypress	UNDERSIZED	30	
CMP	75	27"	To Grate/From Grate	E Cypress	UNDERSIZED	30	
CMP	51.5	27"	To Grate/From Grate	E Cypress	UNDERSIZED	30	
CMP	29.5	27"	To Grate/From Grate	E Cypress	UNDERSIZED	30	
CMP	161	27"	To Grate/From Grate	E Cypress	UNDERSIZED	30	
CMP	91.5	27"	?	E Cypress Outfall	UNDERSIZED	30	
	472.5						**$64,260.00**
					Cypress	**=**	**$89,652.00**
			PLANTATION				
			12"				
CMP	18.5	12"	Silted	N Plantation	UNDERSIZED	12	
	18.5						**$1,276.50**
			15"				
RCP	45	15"	Silted, Buried	N Plantation	UNDERSIZED	15	
RCP	24.5	15"	To Grate, Damaged	S Plantation	DAMAGED	15	
	69.5						**$4,795.50**
			18"				
CPP?	59	18"?	From Grate/To Grate	N Plantation	NO DATA	18	
CPP?	40	18"?	From Grate/To Grate	N Plantation	NO DATA	18	
CPP?	54	18"?	From Grate/To Grate	N Plantation	NO DATA	18	
CPP?	51	18"?	From Grate/To Grate	N Plantation	NO DATA	18	
	204						**$14,076.00**
			24"				
RCP/CMP	40.5	24"	To Grate, From Grate, CMP Extension	S Plantation Across Cypress	UNDERSIZED	24	
RCP	41	21"	Silted	S Plantation to N Plantation	UNDERSIZED		
RCP	41	21"	Silted	S Plantation to N Plantation	UNDERSIZED	24	

CMP	41	18"	Damaged	S Plantation to N Plantation	UNDERSIZED		
	81.5						$5,542.00
			30"				
CMP	63	36"	To Grate, Silted, Damaged	S Plantation	DAMAGED	30	
CMP	66	36"	Silted, Damaged, From Grate	S Plantation	DAMAGED	30	
	129						$17,544.00
					Plantation	=	$43,234.00
			ELMWOOD				
			12"				
Steel	53	12"	Damaged, From Grate	E Elmwood	DAMAGED	12	
	53						$3,657.00
			15"				
CMP	35.5	18"	From Grate, Destroyed D/S	E Elmwood	BROKEN	15	
	35.5						$2,449.50
					Elmwood	=	$6,106.50
			KENMORE				
			18"				
CMP	41	24"	From Grate/To Grate	N Kenmore	UNDERSIZED	18	
CMP	48	24"	From Grate/To Grate	N Kenmore	UNDERSIZED	18	
CMP	50.5	24"	From Grate/To Grate	N Kenmore	UNDERSIZED	18	
CMP	78	24"	From Grate/To Grate	N Kenmore	UNDERSIZED	18	
	217.5						$15,007.50
			21"				
CMP	74	24"	From Grate/To Grate	N Kenmore	UNDERSIZED	21	
CMP	57	24"	From Grate/To Outfall	N Kenmore	UNDERSIZED	21	
	131						$9,039.00
					Kenmore	=	$24,046.50
			BELLE ROSE				
			15"				
CMP	89.5	18"	To Grate, Damaged, From Grate	N Belle Rose	DAMAGED	15	
CMP	257	18"	To Grate, Crushed D/S, Silted	N Belle Rose	CRUSHED	15	
	346.5						$23,908.50
					Belle Rose	=	$23,908.50
			REDWOOD				
			15"				
CMP	16	15"	Silted, Crushed U/S	W Redwood	CRUSHED	15	
CMP	80	15"	From Grate, To Stack	E Redwood	UNDERSIZED	15	

CMP	44	15"	From Stack, Silted	E Redwood	UNDERSIZED	15	
CMP	40	18"	From Grate, To Grate	E Redwood	UNDERSIZED	15	
CMP	42	18"	From Grate, To Grate	E Redwood	UNDERSIZED	15	
	222						**$15,318.00**
18"							
RCP	33	18"	Broken	E Redwood	BROKEN	18	
	33						**$2,277.00**
21"							
CMP	12	24"	To Grate	W Redwood	UNDERSIZED	21	
RCP	36.5	18"	Silted	W Redwood	UNDERSIZED	21	
CMP	36	(2) 21"	From Grate, To Grate	E Redwood to W Redwood	UNDERSIZED	21	
CMP	77	24"	From Grate, To Grate	E Redwood	UNDERSIZED	21	
CMP	78	24"	From Grate, To Grate	E Redwood	UNDERSIZED	21	
	239.5						**$16,525.50**
30"							
CMP	208	36"	From Grate, Crushed	W Redwood Outfall	CRUSHED	30	
	208						**$28,288.00**
					Redwood	**=**	**$62,408.50**
OAK GROVE							
12"							
CMP/RCP	87.5	15"	Silted	N Oak Grove	UNDERSIZED	12	
	87.5						**$6,037.50**
15"							
CMP	46	15"	To Grate, Silted	S Oak Grove	UNDERSIZED	15	
CMP	75	15"	Silted, To Grate	N Oak Grove	UNDERSIZED	15	
	121						**$8,349.00**
					Oak Grove	**=**	**$14,386.50**
PERIQUE							
12"							
PVC	19	10"	Broken	S Perique	UNDERSIZED	12	
CMP	20	12"	Silted	N Perique	UNDERSIZED	12	
CMP	22	12"	Damaged, Silted	N Perique	UNDERSIZED	12	
CMP	5	12"	Silted	N Perique	UNDERSIZED	12	
CMP	20	12"	Damaged, Silted	N Perique	UNDERSIZED	12	
CMP	24	12"	Silted, Crushed	N Perique	CRUSHED	12	
	24						**$1,656.00**
					Perique	**=**	**$1,656.00**

ELAINE							
12"							
?	21	?	Buried	S Elaine	BURIED	12	
	21						**$1,449.00**
					Elaine	**=**	**$1,449.00**
SNYDER							
12"							
PVC	35	4"	Broken	S Snyder	BROKEN	12	
RCP	18.5	8"	Damaged, Silted	S Snyder	UNDERSIZED	12	
	53.5						**$3,691.50**
					Snyder	**=**	**$3,691.50**
STELLA							
12"							
Fiberglass	38	4"	To Grate	S Stella	UNDERSIZED	12	
PVC	33	6"	From Grate, To Grate	S Stella	UNDERSIZED	12	
PVC	5.5	6"	From Grate, To Grate	S Stella	UNDERSIZED	12	
PVC	29	8"	From Grate	S Stella	UNDERSIZED	12	
PVC	80	6"	OK	N Stella	UNDERSIZED	12	
PVC	53	6"	Buried	N Stella	UNDERSIZED	12	
Fiberglass	14.5	4"	Buried	N Stella	UNDERSIZED	12	
	253						**$17,457.00**
					Stella	**=**	**$17,457.00**
A&G							
12"							
?	75.5	?	Buried	N A&G	BURIED	12	
	75.5						**$5,209.50**
					A&G	**=**	**$5,209.50**
SUGAR HOUSE							
24"							
CMP	27	?	Silted, To Subsurface	Main Outfall Across Sugar House	NO DATA	24	
?	17	?	Buried	S Sugar House	NO DATA	24	
	44						**$2,992.00**
36"							
CMP	176	36"	Silted, From Grate	S Sugar House	UNDERSIZED	36	
	176						**$20,064.00**
42"							
RCP	48	36"	To Subsurface, Silted	Main Outfall Across Sugar House	UNDERSIZED	42	

	48						$8,304.00
					Sugar House	=	$31,360.00
MAURA							
18"							
CMP	20	18"	Crushed	S Maura	CRUSHED	18	
CMP	72	18"	Broken	S Maura	BROKEN	18	
RCP	77	18"	Damaged, To Grate, 24" CPP EXT.	N Maura	DAMAGED	18	
RCP	71	18"	From Grate, To Grate, Broken	N Maura	BROKEN	18	
Steel	28	18"	Broken	N Maura	BROKEN	18	
Steel	80	18"	Broken	N Maura	BROKEN	18	
CMP	19	24"	Crushed	N Maura	CRUSHED	18	
Steel	24.5	18"	Crushed	N Maura	CRUSHED	18	
Steel	18	18"	Crushed	N Maura	CRUSHED	18	
	409.5						$28,255.50
					Maura	=	$28,255.50
WENDY							
12"							
CMP	64	15"	From Grate, To Grate	S Wendy	UNDERSIZED	12	
CMP	39.5	15"	From Grate, To Grate, Broken	S Wendy	BROKEN	12	
	103.5						$7,141.50
15"							
CMP	25.5	18"	Damaged, To Outfall Grate	S Wendy	DAMAGED	15	
CMP	85	15"	From Grate, To Grate	S Wendy	UNDERSIZED	15	
CMP	20.5	18"	Broken	N Wendy	BROKEN	15	
CMP	18	15"	Crushed	N Wendy	CRUSHED	15	
CMP	21	18"	Silted, Broken	N Wendy Outfall	BROKEN	15	
CMP	27	18"	To Grate, Broken	N Wendy	BROKEN	15	
CMP	17.5	18"	Crushed	N Wendy	CRUSHED	15	
CMP	30	18"	To Grate, Broken	N Wendy	BROKEN	15	
	244.5						$16,870.50
18"							
CMP	98.5	18"	Broken, From Grate	S Wendy	BROKEN	18	
CMP	36	18"	To Grate, Silted, Damaged	S Wendy	DAMAGED	18	
CMP	20.5	18"	Damaged, Silted	S Wendy	DAMAGED	18	
?	65	18"	From Grate, Pipe Appears Broken On West Side Of D/W	N Wendy	BROKEN	18	
	220						$15,180.00
					Wendy	=	$39,192.00
AMY							
15"							

CMP	20	18	Broken	S Amy	BROKEN	15	
CMP	19	18	Crushed	N Amy D/W	CRUSHED	15	
CMP	20.5	18	Crushed	N Amy D/W	CRUSHED	15	
CMP	19.5	18	Crushed	N Amy	CRUSHED	15	
CMP	61	18	Crushed, Silted	N Amy D/W	CRUSHED	15	
CMP	27.5	18	Silted, Broken	N Amy	CRUSHED	15	
CMP	32	18	Crushed by Concrete, To Grate	N Amy	BROKEN	15	
	199.5						**$13,765.50**
					Amy	**=**	**$13,765.50**
RILEY							
15"							
CMP	40	18	From/To Grate	S Riley	UNDERSIZED	15	
CMP	63	18	From/To Grate	S Riley	UNDERSIZED	15	
CMP	59	18	From/To Grate	S Riley	UNDERSIZED	15	
CMP	36.5	18	From/To Grate	S Riley	UNDERSIZED	15	
CMP	56	18	From/To Grate	S Riley	UNDERSIZED	15	
CMP	42	18	From/To Grate	S Riley	UNDERSIZED	15	
CMP	61	18	From/To Grate	S Riley	UNDERSIZED	15	
CMP	81	18	Leak in Box, From/To Grate	S Riley across Irene	UNDERSIZED	15	
CMP	50	18	Crushed Stack, To Grate	N Riley	CRUSHED	15	
CMP	67	18	Crushed, To Grate	N Riley	CRUSHED	15	
CMP	81	18	From/To Grate	N Riley	UNDERSIZED	15	
	636.5						**$43,918.50**
18"							
CMP	41	21	Leak in Box, From/To Grate	S Riley	UNDERSIZED	18	
CMP	28	18	To Outfall, From/To Grate	S Riley	UNDERSIZED	18	
	69						**$4,761.00**
					Riley	**=**	**$48,679.50**
IRENE							
NONE							
BETH							
NONE							
LENA							
15"							
CMP	59	18	From/To Grate	S Lena	UNDERSIZED	15	
CMP	74	18	From/To Grate	S Lena D/W	UNDERSIZED	15	
CMP	20	18	From Grate, Silted	S Lena	UNDERSIZED	15	

CMP	48	18	To Grate, Silted	S Lena D/W	UNDERSIZED	15	
CMP	45	18	From Grate, Silted	S Lena	UNDERSIZED	15	
CMP	65	18	From/To Grate	N Lena	UNDERSIZED	15	
CMP	75.5	18	From/To Grate	N Lena	UNDERSIZED	15	
CMP	45	18	To Grate	N Lena D/W	UNDERSIZED	15	
CMP	52	18	Broken, To Broken Grate	N Lena	BROKEN	15	
	483.5						**$33,361.50**
18"							
RCP	23	18	To Outfall Grate	S Lena D/W	UNDERSIZED	18	
CMP	61	18	From/To Grate	N Lena	UNDERSIZED	18	
	84						**$5,796.00**
					Lena	**=**	**$39,157.50**
NICOLE							
12"							
CMP	33	12	Buried, From/To Grate	W Nicole	UNDERSIZED	12	
CMP	35	12	Due East, From/To Grate	W Nicole along D/W	UNDERSIZED	12	
	68						**$4,692.00**
15"							
CMP	59.5	18	From/To Grate	W Nicole	UNDERSIZED	15	
CMP	66	18	From/To Grate	W Nicole	UNDERSIZED	15	
CMP	53.5	18	To Outfall, From/To Grate	W Nicole	UNDERSIZED	15	
CMP	92	18	Silted	W Nicole D/W	UNDERSIZED	15	
CMP	80	18	From/To Grate	W Nicole	UNDERSIZED	15	
CMP	80.5	18	From/To Grate	W Nicole	UNDERSIZED	15	
CMP	83.5	18	From/To Grate	W Nicole	UNDERSIZED	15	
CMP	20	18	To Grate, Silted	E Nicole	UNDERSIZED	15	
CMP	21	18	Silted	E Nicole D/W	UNDERSIZED	15	
CMP	20	18	Silted	E Nicole D/W	UNDERSIZED	15	
CMP	34.5	18	Silted, From Grate	E Nicole D/W	UNDERSIZED	15	
CMP	25.5	18	Crushed, From Grate	E Nicole	CRUSHED	15	
	636						**$43,884.00**
18"							
CMP	44	18	From/To Grate	W Nicole	UNDERSIZED	18	
CMP	81	18	From/To Grate	W Nicole D/W	UNDERSIZED	18	
CMP	39.5	18	To Grate, Silted	W Nicole	UNDERSIZED	18	
CMP	60.5	18	From Grate?	W Nicole	UNDERSIZED	18	
CMP	93	21	From/To Grate	W Nicole D/W	UNDERSIZED	18	
CMP	57.5	24	Silted, To Grate, Crushed	W Nicole	UNDERSIZED	18	
CMP	76.5	24	From/To Grate	W Nicole	UNDERSIZED	18	
CMP	61	24	From Grate	W Nicole	UNDERSIZED	18	
RCP	79	18	From/To Grate	E Nicole	UNDERSIZED	18	
RCP	32.5	18	Silted	E Nicole	UNDERSIZED	18	

CMP	67	18	Silted, To Grate	E Nicole	UNDERSIZED	18	
??	41.5	??	From/To Grate	E Nicole	NO DATA	18	
CMP	100	18	From/To Grate	E Nicole	UNDERSIZED	18	
	833						**$57,477.00**
21"							
CMP	95	24	Leak In Box, From/To Grate	E Nicole	UNDERSIZED	21	
CMP	92.5	24?	From/To Grate	E Nicole	UNDERSIZED	21	
CMP	106	24?	To Grate, Crushed	E Nicole	CRUSHED	21	
	293.5						**$20,251.50**
30"							
CMP	41	42	Crushed	W to E Nicole Outfall	CRUSHED	30	
	41						**$5,576.00**
					Nicole	**=**	**$131,880.50**
S ANGELLE							
12"							
CMP	45.5	12"	FROM / TO GRATE	S. S. ANGELLE D/W	UNDERSIZED	12	
CMP	42	15"	BROKEN / RUSTED OUT	S. S. ANGELLE	BROKEN	12	
?	41	?	ACROSS S. ANGELLE	S. S. ANGELLE	NO DATA	12	
	128.5						**$8,866.50**
15"							
CMP	20	18"	BROKEN SILTED	S. S. ANGELLE	BROKEN	15	
?	58	18"	FROM / TO GRATE	N. S. ANGELLE	UNDERSIZED	15	
CMP	48	18"	FROM / TO GRATE	N. S. ANGELLE D/W	UNDERSIZED	15	
CMP	61	18"	FROM / TO GRATE	N. S. ANGELLE	UNDERSIZED	15	
CMP	24	18"	FROM / TO OUTFALL GRATE	N. S. ANGELLE	UNDERSIZED	15	
CMP	49	18"	TO GRATE, BROKEN	N. S. ANGELLE	BROKEN	15	
	260						**$17,940.00**
18"							
RCP	92	18"	SILTED, BROKEN	N. S. ANGELLE D/W	BROKEN	18	
	92						**$6,348.00**
					S Angelle	**=**	**$33,154.50**
ANGELLE							
12"							
?	30.5	?	FROM / TO GRATE	W. ANGELLE D/W	NO DATA	12	
CMP	53	18"	DESTROYED, TO GRATE	E. ANGELLE D/W	BROKEN	12	
	83.5						**$5,761.50**
					Angelle	**=**	**$5,761.50**

N ANGELLE							
15"							
CMP	20	15"	BURIED, CRUSHED, FROM GRATE	S. N. ANGELLE D/W	CRUSHED	15	
STEEL	71	18"	RUSTED OUT, TO GRATE	S. N. ANGELLE	BROKEN	15	
STEEL	43	18"	RUSTED OUT, SILTED	S. N. ANGELLE D/W	BROKEN	15	
CMP	79	24"	TO OUTFALL, FROM GRATE	S. N. ANGELLE	UNDERSIZED	15	
CMP	53	24"	FROM / TO GRATE	S. N. ANGELLE D/W	UNDERSIZED	15	
CMP	24	18"	FROM / TO GRATE	S. N. ANGELLE D/W	UNDERSIZED	15	
CMP	42	18"	CRUSHED, TO OUTFALL	N.N. ANGELLE D/W	CRUSHED	15	
CMP	59	18"	BROKEN GRATE	N.N. ANGELLE	BROKEN	15	
STEEL	58.5	18"	FROM / TO GRATE	N.N. ANGELLE	UNDERSIZED	15	
CMP	64	18"	FROM / TO GRATE	N.N. ANGELLE	UNDERSIZED	15	
CMP	63	18"	FROM / TO OUTFALL	N.N. ANGELLE D/W	UNDERSIZED	15	
CMP	37	18"	CRUSHED	N.N. ANGELLE D/W	CRUSHED	15	
	613.5						**$42,331.50**
					N Angelle	**=**	**$42,331.50**
ST. JAMES							
12"							
CMP	25.5	18"	DESTROYED	N. ST. JAMES D/W	BROKEN	12	
	25.5						**$1,759.50**
15"							
CMP	42.5	18"	SILTED, FROM GRATE, CRUSHED	N. ST. JAMES	CRUSHED	15	
?	16	?	COULD NOT LOCATE	N. ST. JAMES	NO DATA	15	
CMP	25	18"	SILTED, CRUSHED	S. ST. JAMES D/W	CRUSHED	15	
CMP	41	18"	FROM GRATE	S. ST. JAMES ACROSS BRANDY	UNDERSIZED	15	
	124.5						**$8,590.50**
18"							
CMP	54	18"	FROM / TO GRATE	S. ST. JAMES	UNDERSIZED	18	
CMP	29	18"	FROM / TO GRATE	S. ST. JAMES D/W	UNDERSIZED	18	
CMP	77	18"	FROM / TO GRATE	S. ST. JAMES	UNDERSIZED	18	
	160						**$11,040.00**
24"							
CMP	42	33"	BROKEN, RUSTED OUT, SILTED	S. ST. JAMES ACROSS ST. JAMES / FROM E. BRANDY	BROKEN	24	
	42						**$2,856.00**
					St. James	**=**	**$24,246.00**
BRANDY							
15"							
CMP	73.5	18"	BROKEN / CRUSHED	W. BRANDY D/W	CRUSHED	15	
	73.5						**$5,071.50**

					Brandy	=	$5,071.50
MICHELLE							
NONE							
N AIRLINE							
24"							
CMP/RCP	70	27/24	Silted, From/To Grate	E Airline (N 3125)	UNDERSIZED	24	
RCP	32	24	From Grate	E Airline	UNDERSIZED	24	
CMP/RCP	130	24	Silted	E Airline D/W	UNDERSIZED	24	
STEEL	27	24	To Buried Grate	E Airline D/W	UNDERSIZED	24	
??	195	??	From Buried Grate to Grate at 10th	E Airline D/W	NO DATA	24	
RCP	40	24	From/To Grate	E Airline across 10th	UNDERSIZED	24	
RCP/CMP	102	24	From/To Grate	E Airline	UNDERSIZED	24	
CMP	271.5	24	From/To Grate	E Airline D/W	UNDERSIZED	24	
CMP	56	24	From/To Grate	E Airline	UNDERSIZED	24	
RCP	25	24	From/To Grate	E Airline	UNDERSIZED	24	
RCP	262	27	Damaged	E Airline	DAMAGED	24	
STEEL/RCP	27	24	Crushed	E Airline D/W	CRUSHED	24	
CMP	20	24	Silted	E Airline D/W	UNDERSIZED	24	
CMP	27	24	Silted, To Grate	E Airline D/W	UNDERSIZED	24	
CMP	41	24	From/To Grate	E Airline D/W	UNDERSIZED	24	
CMP	27	24	Silted, To Grate	E Airline D/W	UNDERSIZED	24	
CMP	41	24	From/To Grate	E Airline D/W	UNDERSIZED	24	
CMP/STEEL	73	24	From/To Grate	E Airline D/W	UNDERSIZED	24	
RCP	52	24	From/To Grate	E Airline D/W	UNDERSIZED	24	
RCP	92	24	From Grate, Silted	E Airline	UNDERSIZED	24	
RCP/CMP	42	24	Silted	E Airline D/W	UNDERSIZED	24	
CMP/RCP	84	24	Silted, To Grate	E Airline D/W	UNDERSIZED	24	
RCP	75	24	From/To Grate	E Airline D/W	UNDERSIZED	24	
RCP	78	24	From/To Grate	E Airline	UNDERSIZED	24	
RCP	41	24	From/To Grate	E Airline across E 12th	UNDERSIZED	24	
RCP/CMP	52	24	From/To Grate	E Airline D/W	UNDERSIZED	24	
CMP	46	24	From/To Grate	E Airline	UNDERSIZED	24	
CMP/RCP	72	24	From/To Grate	E Airline D/W	UNDERSIZED	24	
CMP	149	24	From/To Grate	E Airline	UNDERSIZED	24	
CMP/RCP	169	24	Silted, From Grate	E Airline	UNDERSIZED	24	
RCP	17	24/27	Silted, To Grate	E Airline	UNDERSIZED	24	
RCP	45	24/27	From/To Grate	E Airline	UNDERSIZED	24	
RCP	75	24/27	From/To Grate	E Airline	UNDERSIZED	24	
RCP	75	24/27	From/To Grate	E Airline	UNDERSIZED	24	
RCP	76	24/27	From/To Grate	E Airline	UNDERSIZED	24	
RCP	265	24/27	From/To Grate	E Airline	UNDERSIZED	24	
??	118	??	From/To Grate	E Airline	NO DATA	24	
??	116	??	From/To Grate	E Airline	NO DATA	24	
??	150	??	From/To Grate	E Airline	NO DATA	24	

??	92	??	From/To Grate	E Airline	NO DATA	24	
??	158	??	From/To Grate	E Airline	NO DATA	24	
STEEL/CMP	48	30	Silted, Crushed	W Airline	CRUSHED	24	
CMP	30	27	Silted	W Airline D/W	UNDERSIZED	24	
CMP	197	24	Silted	W Airline D/W	UNDERSIZED	24	
RCP	18	24	Silted	W Airline D/W	UNDERSIZED	24	
CMP	48	24	Silted	W Airline D/W	UNDERSIZED	24	
??	12	??	Buried	W Airline D/W	NO DATA	24	
RCP	40	24	Silted	W Airline D/W	UNDERSIZED	24	
RCP	24	24	Silted	W Airline D/W	UNDERSIZED	24	
STEEL	17	24	Silted	W Airline D/W	UNDERSIZED	24	
STEEL	15	21	Silted	W Airline D/W	UNDERSIZED	24	
RCP	22	24	Silted	W Airline D/W	UNDERSIZED	24	
RCP	4	24	Silted	W Airline S/W	UNDERSIZED	24	
STEEL	12	21	Silted	W Airline D/W	UNDERSIZED	24	
CMP	35	24	Silted	W Airline D/W	UNDERSIZED	24	
RCP	16	24	Silted	W Airline D/W	UNDERSIZED	24	
RCP	78	24	Silted, Damaged	W Airline	DAMAGED	24	
RCP	20	24	Silted, Damaged	W Airline	UNDERSIZED	24	
RCP	162	24	Silted, From Grate	W Airline	UNDERSIZED	24	
RCP	85	24	Silted, From/To Grate	W Airline	UNDERSIZED	24	
RCP	220	24	Silted, To Grate	W Airline	UNDERSIZED	24	
CMP	20	24	Silted	W Airline	UNDERSIZED	24	
RCP	57	24	Silted, From Grate	W Airline	UNDERSIZED	24	
RCP/CMP	63	24	From/To Grate	W Airline	UNDERSIZED	24	
RCP/CMP	67	24	Silted, From/To Grate	W Airline	UNDERSIZED	24	
RCP/CMP	63	24	From/To Grate	W Airline	UNDERSIZED	24	
RCP/CMP	67	24	Silted, From/To Grate	W Airline	UNDERSIZED	24	
RCP	50	24	Silted, From/To Grate	W Airline	UNDERSIZED	24	
RCP	154	24	Silted, To Grate	W Airline	UNDERSIZED	24	
RCP	24	24	Silted, Damaged	W Airline	UNDERSIZED	24	
RCP	27	24	Silted	W Airline	UNDERSIZED	24	
RCP	22	24	Silted	W Airline	UNDERSIZED	24	
RCP	49	24	Silted, From Grate	W Airline	UNDERSIZED	24	
RCP	98	24	Silted, From/To Grate	W Airline	UNDERSIZED	24	
STEEL	46	24	From/To Grate	W Airline	UNDERSIZED	24	
RCP	118	24	From/To Grate	W Airline	UNDERSIZED	24	
RCP	83	24	From/To Grate	W Airline	UNDERSIZED	24	
PP/RCP	49	24	Silted, From/To Grate	W Airline	UNDERSIZED	24	
RCP	40	24	Silted, To Grate	W Airline	UNDERSIZED	24	
	5607.5						**$381,310.00**
					N Airline	**=**	**$381,310.00**
MAGNOLIA (N 3125)							
12"							
CMP	68	15	Silted, To Grate	W Magnolia D/W	UNDERSIZED	12	
CMP	41	12	From/To Grate	W Magnolia D/W	UNDERSIZED	12	
CMP	49	12	From/To Grate	W Magnolia D/W	UNDERSIZED	12	

CMP	87	12	From/To Grate	W Magnolia D/W	UNDERSIZED	12	
STEEL	21	15	Silted, Damaged	E Magnolia D/W	DAMAGED	12	
CMP	21	15	Silted, Damaged	E Magnolia D/W	UNDERSIZED	12	
CMP	24	15	Silted	E Magnolia D/W	UNDERSIZED	12	
CMP	26	15	Silted, Damaged	E Magnolia D/W	UNDERSIZED	12	
CMP	20	15	Silted	E Magnolia D/W	UNDERSIZED	12	
	357						**$24,633.00**
15"							
CMP	60	18	From Grate, Damaged	E Magnolia D/W	DAMAGED	15	
CMP	21	15	Silted	E Magnolia D/W	UNDERSIZED	15	
	81						**$5,589.00**
21"							
CMP	39	18	Silted, Damaged, To Grate	E Magnolia to W Magnolia	DAMAGED	21	
	39						**$2,691.00**
					Magnolia (N 3125)	**=**	**$32,913.00**
MANHATTAN							
12"							
CMP	47	15	FROM GRATE, DAMAGED	S. S. MANHATTAN D/W	UNDERSIZED	12	
	47						**$3,243.00**
15"							
15"							
CMP	76	18	FROM / TO GRATE	S. N. MANHATTAN	UNDERSIZED	15	
CMP	51	18	FROM GRATE, DAMAGED	S. N. MANHATTAN D/W	UNDERSIZED	15	
CMP	42	18	TO GRATE	CROSSING MAGNOLIA ST	UNDERSIZED	15	
	169						**$11,661.00**
18"							
CMP	73	18	FROM / TO GRATE	N.N. MANHATTAN	UNDERSIZED	18	
CMP	87	18	FROM / TO GRATE	N.N. MANHATTAN D/W	UNDERSIZED	18	
	160						**$11,040.00**
21"							
CMP	60	18	FROM / TO GRATE	N. S. MANHATTAN	UNDERSIZED	21	
CMP	63	18	FROM / TO GRATE	N. S. MANHATTAN D/W	UNDERSIZED	21	
CMP	60	18	FROM / TO GRATE, SILTED	N. S. MANHATTAN	UNDERSIZED	21	
CMP	72	18	FROM / TO GRATE, SILTED	N. S. MANHATTAN	UNDERSIZED	21	
	255						**$17,595.00**
					Manhattan	**=**	**$43,539.00**
DEY SAY							
15"							
CMP	68	18"	FROM / TO GRATE	W DEY SAY ST	UNDERSIZED	15	

CMP	67	18"	FROM / TO GRATE	W DEY SAY ST D/W	UNDERSIZED	15	
CMP	61	18"	FROM / TO GRATE	W DEY SAY ST	UNDERSIZED	15	
CMP	65	18"	FROM / TO GRATE	W DEY SAY ST	UNDERSIZED	15	
CMP	73	18"	SILTED, TO GRATE	W DEY SAY ST D/W	UNDERSIZED	15	
CMP	39	18"	SILTED, TO GRATE	E DEY SAY ST	UNDERSIZED	15	
CMP	60	18"	FROM / TO GRATE	E DEY SAY ST D/W	UNDERSIZED	15	
CMP	35	18"	FROM / TO GRATE	E DEY SAY ST	UNDERSIZED	15	
CMP	6	18"	FROM GRATE	E DEY SAY ST	UNDERSIZED	15	
CMP	54	18"	SILTED	E DEY SAY ST D/W	UNDERSIZED	15	
CMP	20	18"	SILTED	E DEY SAY ST	UNDERSIZED	15	
CMP	86	18"	SILTED	E DEY SAY ST D/W	UNDERSIZED	15	
	634						
							$43,746.00
18"							
CMP	64	18"	FROM GRATE	W DEY SAY ST D/W	UNDERSIZED	18	
CMP	21	18"	SILTED	E DEY SAY ST D/W	UNDERSIZED	18	
CMP	67	18"	SILTED, DAMAGED, TO GRATE	E DEY SAY ST	UNDERSIZED	18	
CMP	61	18"	FROM GRATE, SILTED	E DEY SAY ST D/W	UNDERSIZED	18	
CPP	38	15"	SILTED	E DEY SAY ST D/W	UNDERSIZED	18	
CMP	51	18"	TO GRATE	E DEY SAY ST	UNDERSIZED	18	
CMP	76	18"	FROM GRATE	E DEY SAY ST D/W	UNDERSIZED	18	
	378						**$26,082.00**
21"							
CMP	20	15"	SILTED, DAMAGED	E DEY SAY ST	UNDERSIZED	21	
	20						**$1,380.00**
					Dey Say	**=**	**$71,208.00**
LONGVIEW							
12"							
CMP	40	15"	SILTED, FROM GRATE	W LONGVIEW D/W	UNDERSIZED	12	
CMP	46	15"	FROM / TO GRATE	W LONGVIEW D/W	UNDERSIZED	12	
CMP	149	15"	BROKEN, FROM / TO GRATE	W LONGVIEW D/W	BROKEN	12	
	235						**$16,215.00**
15"							
STEEL/CMP	78	18"	FROM GRATE, TO OUTFALL DITCH	E LONGVIEW	UNDERSIZED	15	
CMP	23	18"	CRUSHED, IN OUTFALL DITCH	LONGVIEW BACK DITCH	CRUSHED	15	
CMP	28	18"	CRUSHED	E LONGVIEW ACCESS HUMBLE	CRUSHED	15	
CMP	54	18"	CRUSHED, TO GRATE	E LONGVIEW	CRUSHED	15	
CMP	19	18"	CRUSHED, TO GRATE	E LONGVIEW	CRUSHED	15	
?	56	?	FROM GRATE, BURIED	E LONGVIEW D/W	NO DATA	15	
CMP	79	18"	TO STACK, FROM GRATE	W LONGVIEW D/W	UNDERSIZED	15	
?	79	?	TO / FROM GRATE	W LONGVIEW	NO DATA	15	
?	33	?	TO / FROM GRATE	W LONGVIEW ACROSS CARLY	NO DATA	15	
?	38	?	TO / FROM GRATE	W LONGVIEW	NO DATA	15	

?	21	?	TO / FROM GRATE	W LONGVIEW	NO DATA	15	
CMP	46	?	TO / FROM GRATE	W LONGVIEW	NO DATA	15	
?	90	?	TO / FROM GRATE, OUTFALL	W LONGVIEW	NO DATA	15	
CMP	29	18"	TO GRATE, CRUSHED	W LONGVIEW	CRUSHED	15	
CMP	39	15"	TO GRATE, CRUSHED	W LONGVIEW	CRUSHED	15	
CMP	66	18"	CRUSHED	W LONGVIEW	CRUSHED	15	
CMP	43	18"	FROM GRATE	W LONGVIEW D/W	UNDERSIZED	15	
STEEL	91	18"	TO / FROM GRATE, CRUSHED	W LONGVIEW	CRUSHED	15	
STEEL	75	?	CRUSHED, FROM / TO GRATE	W LONGVIEW	CRUSHED	15	
	987						**$68,103.00**
			18"				
CMP	58	18"	BURIED, FROM STACK	W LONGVIEW	UNDERSIZED	18	
RCP	95	18"	FROM / TO GRATE	E LONGVIEW	UNDERSIZED	18	
RCP	88	18"	FROM / TO GRATE	E LONGVIEW	UNDERSIZED	18	
RCP	46	18"	FROM GRATE, SILTED	E LONGVIEW D/W	UNDERSIZED	18	
RCP	16	18"	SILTED, TO GRATE	E LONGVIEW	UNDERSIZED	18	
?	48	?	BURIED, TO GRATE	E LONGVIEW	NO DATA	18	
STEEL	20	18"	CRUSHED	E LONGVIEW	CRUSHED	18	
STEEL	22	18"	CRUSHED	E LONGVIEW D/W	CRUSHED	18	
CMP	29	24"	CRUSHED	W LONGVIEW UNDER HOUSE	CRUSHED	18	
CMP	29	24"	CRUSHED	W LONGVIEW TO E LONGVIEW	CRUSHED	18	
STEEL	57	15"	SILTED, FROM GRATE	W LONGVIEW	UNDERSIZED	18	
STEEL	53	15"	FROM / TO GRATE	W LONGVIEW	UNDERSIZED	18	
RCP	18	15"	FROM / TO GRATE	W LONGVIEW D/W	UNDERSIZED	18	
STEEL	31	15"	SILTED, TO GRATE	W LONGVIEW	UNDERSIZED	18	
RCP	18	15"	FROM / TO GRATE	W LONGVIEW D/W	UNDERSIZED	18	
STEEL	31	15"	SILTED, TO GRATE	W LONGVIEW	UNDERSIZED	18	
CMP	62	15"	FROM GRATE, SILTED	W LONGVIEW D/W	UNDERSIZED	18	
CMP	61	15"	TO GRATE, FROM GRATE	W LONGVIEW	UNDERSIZED	18	
	733						**$50,577.00**
					Longview	**=**	**$134,895.00**
			CARLY				
			15"				
CMP	49	18"	CRUSHED	S CARLY D/W	CRUSHED	15	
CMP	71	18"	CRUSHED, FROM GRATE	S CARLY	CRUSHED	15	
?	71	?	BURIED, TO GRATE	N CARLY	NO DATA	15	
?	72	?	FROM GRATE, TO OUTFALL	N CARLY D/W	NO DATA	15	
	263						**$18,147.00**
			18"				
CMP	36	21"	CRUSHED	S CARLY TO N	CRUSHED	18	
	36						**$2,484.00**
					Carly	**=**	**$20,631.00**

CAROLYN							
12"							
CMP	21	?	SILTED, FROM GRATE	E CAROLYN D/W	NO DATA	12	
?	116	?	TO / FROM GRATE	E CAROLYN	NO DATA	12	
CMP	53	15"	SILTED, TO / FROM GRATE	E CAROLYN D/W	UNDERSIZED	12	
	190						**$13,110.00**
15"							
?	47	?	TO / FROM GRATE, BURIED	E CAROLYN	NO DATA	15	
?	21	?	TO / FROM GRATE	E CAROLYN	NO DATA	15	
?	118	?	TO / FROM GRATE	E CAROLYN D/W	NO DATA	15	
?	41	?	FROM GRATE, TO OUTFALL, BURIED	E CAROLYN	NO DATA	15	
CMP	20	18"	BURIED	E CAROLYN D/W	UNDERSIZED	15	
?	51	?	TO GRATE, BURIED	W CAROLYN D/W	NO DATA	15	
?	61	?	FROM / TO GRATE, BURIED	W CAROLYN	NO DATA	15	
CMP	41	18"	CRUSHED	W CAROLYN	UNDERSIZED	15	
CMP	154	15"	FROM GRATE, SUBMERGED	W CAROLYN D/W	UNDERSIZED	15	
CMP	61	15"	FROM / TO GRATE, BURIED	W CAROLYN	UNDERSIZED	15	
	615						**$42,435.00**
18"							
?	19	?	BURIED	E CAROLYN	NO DATA	18	
	19						**$1,311.00**
					Carolyn	**=**	**$56,856.00**
HUMBLE							
12"							
RCP/CMP	27	10/12"	CRUSHED	N HUMBLE	CRUSHED	12	
STEEL	12	12"	SILTED	N HUMBLE GAZEBO	UNDERSIZED	12	
	39						**$2,691.00**
21"							
RCP	176	?	SILTED	S HUMBLE	NO DATA	21	
	176						**$12,144.00**
30"							
STEEL	16	18"	SILTED	S HUMBLE	UNDERSIZED	30	
CMP/RCP	21	24"	CRUSHED	S HUMBLE	UNDERSIZED	30	
	37						**$5,032.00**
					Humble	**=**	**$19,867.00**
INDUSTRIAL							
12"							

CMP	76	15"	DAMAGED, SILTED, TO GRATE	E/N INDUSTRIAL PAD D/W	DAMAGED	12	
CMP	23	15"	FROM, TO GRATE, SILTED	E/N INDUSTRIAL	UNDERSIZED	12	
	99						**$6,831.00**
15"							
RCP	25	15"	BURIED, DAMAGED	S/W INDUSTRIAL D/W	DAMAGED	15	
	25						**$1,725.00**
18"							
STEEL	23	15"	SILTED, DAMAGED	E/N INDUSTRIAL D/W	UNDERSIZED	18	
CMP	99	24"	CRUSHED, TO INLET	E/N INDUSTRIAL	CRUSHED	18	
CMP	36	24"	SILTED, CRUSHED	E/N INDUSTRIAL, D/W	CRUSHED	18	
STEEL	40	18"	SILTED, DAMAGED	S/W INDUSTRIAL D/W	DAMAGED	18	
	198						**$13,662.00**
					Industrial	**=**	**$22,218.00**
642 (N 3125)							
12"							
?	93	?	BURIED	CROSSES LA 642	NO DATA	12	
RCP	39	?	BURIED	NO DATA	NO DATA	12	
CMP	36	12"	CRUSHED, BURIED, SILTED	CROSSES LA 642	CRUSHED	12	
	168						**$11,592.00**
18"							
RCP	46	18"	DAMAGED	CROSSES LA 642	DAMAGED	18	
RCP/STEEL	123	18"	DAMAGED, SILTED	CROSSES LA 642	DAMAGED	18	
	169						**$11,661.00**
36"							
CMP	38	48"	SILTED, DAMAGED	CROSSES INDUSTRIAL PARK	DAMAGED	36	
CMP	84	36"	SILTED, DAMAGED, FROM GRATE	E LA 642, D/W	DAMAGED	36	
CMP	33	48"	SILTED, DAMAGED	E LA 642, D/W	DAMAGED	36	
	155						**$17,670.00**
48"							
CMP	47	60"	SILTED, DAMAGED	CROSSES HUMBLE	DAMAGED	48	
CMP	33	60"	SILTED, DAMAGED	CROSSES LA 642	DAMAGED	48	
	80						**$18,240.00**
					642 (N 3125)	**=**	**$59,163.00**
A LOQUE							
15"							
CMP	52	18"	CRUSHED	N A LOUQUE ST D/W	CRUSHED	15	
	52						**$3,588.00**

			36"				
CMP	29	18"	DAMAGED	END OF A LOUQUE ST	DAMAGED	36	
	29						**$3,306.00**
					A Loque	**=**	**$6,894.00**
			GRAVOIS				
			12"				
STEEL	40	12"	SILTED, DAMAGED	N GRAVOIS ST, D/W	UNDERSIZED	12	
CMP	33	15"	SILTED FROM / TO GRATE	S GRAVOIS ST D/W	UNDERSIZED	12	
CMP	108	15"	SILTED FROM / TO GRATE	S GRAVOIS ST	UNDERSIZED	12	
	181						**$12,489.00**
			15"				
?	36	?	TO GRATE, SILTED	N GRAVOIS ST D/W	NO DATA	15	
STEEL	53	15"	FROM / TO GRATE	N GRAVOIS ST	UNDERSIZED	15	
STEEL	44	15"	FROM / TO GRATE	N GRAVOIS ST	UNDERSIZED	15	
CMP	21	15"	SILTED, CRUSHED, FROM GRATE	S GRAVOIS ST D/W	UNDERSIZED	15	
	154						**$10,626.00**
			18"				
CMP	27	18"	SILTED, TO GRATE	N GRAVOIS ST, D/W	UNDERSIZED	18	
CMP	17	18"	SILTED, FROM / TO GRATE	N GRAVOIS ST	UNDERSIZED	18	
CMP	45	18"	SILTED, FROM / TO GRATE	N GRAVOIS ST	UNDERSIZED	18	
CMP	62	18"	FROM / TO GRATE	N GRAVOIS ST	UNDERSIZED	18	
CMP	40	18"	FROM / TO GRATE	N GRAVOIS ST, D/W	UNDERSIZED	18	
CMP	49	18"	FROM / TO GRATE	N GRAVOIS ST	UNDERSIZED	18	
CMP/RCP	73	18"	FROM / TO GRATE	N GRAVOIS ST, D/W	UNDERSIZED	18	
STEEL	79	18"	DAMAGED, FROM / TO GRATE	N GRAVOIS ST	DAMAGED	18	
CMP	61	18"	FROM / TO GRATE	S GRAVOIS ST D/W	UNDERSIZED	18	
CMP	76	18"	FROM / TO GRATE	S GRAVOIS ST	UNDERSIZED	18	
CMP	140	18"	FROM / TO GRATE	S GRAVOIS ST D/W	UNDERSIZED	18	
STEEL	72	18"	FROM / TO GRATE	S GRAVOIS ST	UNDERSIZED	18	
CMP	62	18"	SILTED, FROM GRATE	S GRAVOIS ST D/W	UNDERSIZED	18	
CMP	12	18"	SILTED	S GRAVOIS ST	UNDERSIZED	18	
PVC	18	18"	SILTED, DAMAGED	S GRAVOIS ST	DAMAGED	18	
	833						**$57,477.00**
					Gravois	**=**	**$80,592.00**
			WINSLEY				
			12"				
STEEL/CMP	63	12"	TO GRATE	S WINSLEY RD, D/W	UNDERSIZED	12	
	63						**$4,347.00**

15"							
CMP	39	15"	TO GRATE, SILTED	S WINSLEY RD	UNDERSIZED	15	
CMP	45	15"	FROM / TO GRATE	S WINSLEY RD	UNDERSIZED	15	
CMP	95	15"	FROM / TO GRATE	S WINSLEY RD, D/W	UNDERSIZED	15	
	179						**$12,351.00**
18"							
CMP	63	18"	FROM / TO GRATE	S WINSLEY RD, D/W	UNDERSIZED	18	
CMP	64	18"	FROM / TO GRATE	S WINSLEY RD	UNDERSIZED	18	
CMP	46	18"	FROM / TO GRATE	S WINSLEY RD	UNDERSIZED	18	
CMP	84	18"	FROM / TO GRATE	S WINSLEY RD, D/W	UNDERSIZED	18	
CMP	105	18"	FROM GRATE, SILTED	S WINSLEY RD	UNDERSIZED	18	
	362						**$24,978.00**
					Winsley	**=**	**$41,676.00**

SHEET NUMBER: IND.

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-3901 • FAX (504)488-1714

BKI #NO.10468

INDEX

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME: FILENAME XREF: XREFNAME DATE: PLOTDATE

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FILE NAME=FILENAME XREF: XREFNAME DATE: PLOTDATE

SHEET NUMBER 2

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5011 FAX (504)488-1714

BKI #NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

ST._JAMES_PARISH

NO.	DATE	REVISION DESCRIPTION	BY

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

BKI **BURK-KLEINPETER, INC.**
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901•FAX (504)488-1714

ST._JAMES_PARISH BKI#NO.10468

ST. JAMES PARISH
MASTER DRAINAGE PLAN

SHEET NUMBER 3

Figure 5: Deficient Driveway Culverts Page 107

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

W. 5th ST.

W. FOURTH ST.

N. AIRLINE AVE.

22' (24")
OK
BROKEN (24")
UNDERSIZED (21")
DAMAGED (24")
OVERSIZED
OVERSIZED OK
UNDERSIZED (21")
DAMAGED (15")
22' (15")

SHEET NUMBER 4

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BK#NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

ST._JAMES_PARISH

XREF: XREFNAME
DATE: PLOTDATE
FILE NAME: FILENAME

Figure 5: Deficient Driveway Culverts Page 108

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FILE NAME: FILENAME XREF: XREFNAME DATE: PLOTDATE

SHEET NUMBER 5

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI

BKI#NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

Figure 5: Deficient Driveway Culverts Page 109

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

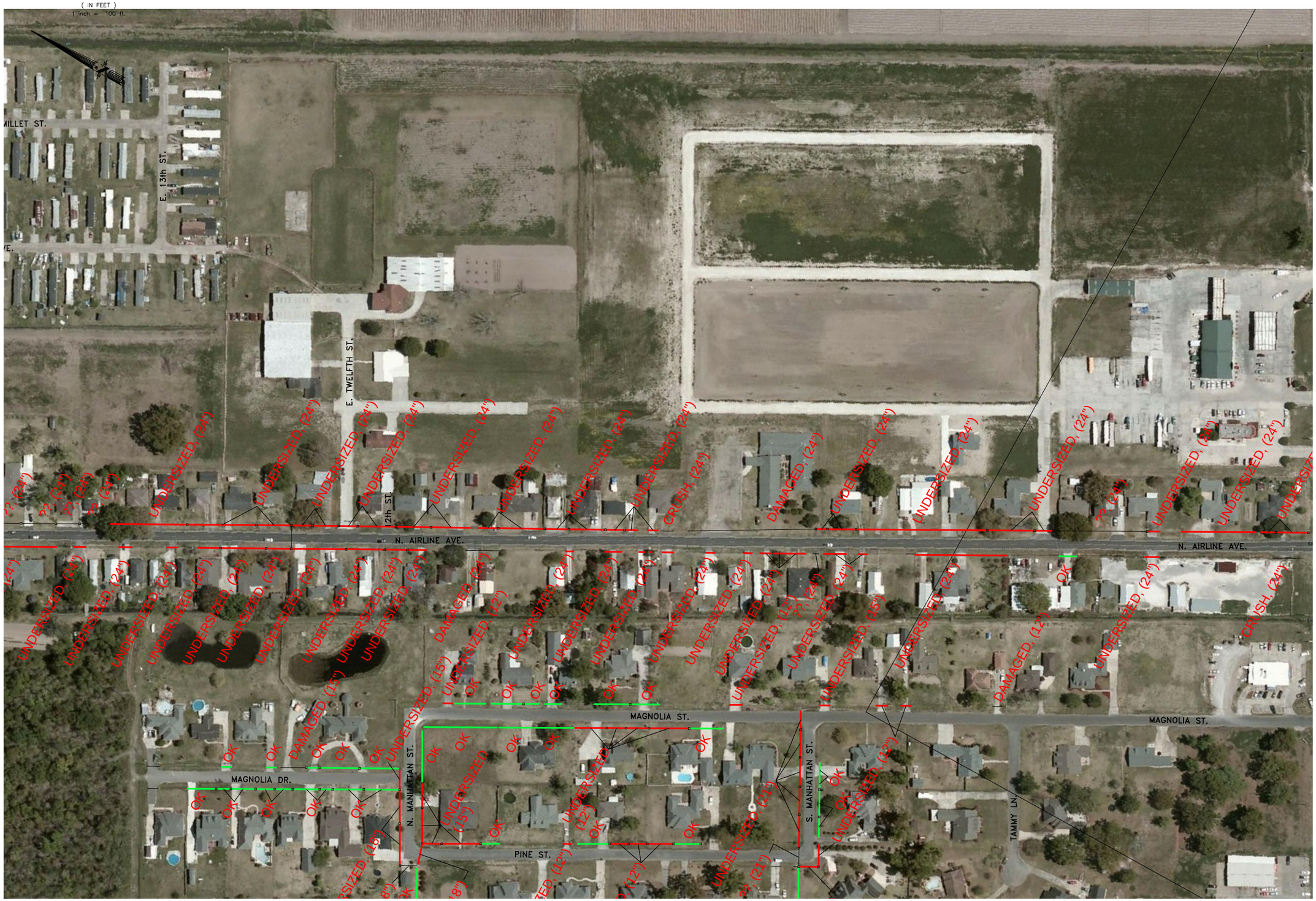


Figure 5: Deficient Driveway Culverts Page 110

SHEET NUMBER 6

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)486-7714

BKI #NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

ST._JAMES_PARISH

FILE NAME/FILENAME DATE: PLOTDATE XREF: XREFNAME

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

SHEET NUMBER 7

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI JOB NO. 10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=FILENAME DATE=PLOTDATE XREF=XREFNAME

Figure 5: Deficient Driveway Culverts Page 111

Figure 5: Deficient Driveway Culverts Page 112

NO.	DATE	REVISION DESCRIPTION	BY

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

BKI BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901•FAX (504)488-1714

ST._JAMES_PARISH BKI#NO.10468

ST. JAMES PARISH
MASTER DRAINAGE PLAN

SHEET NUMBER 8

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
inch = 100 ft.

FAUSTINE CT.
DELOGNY CT.
8th ST.
SCHOOL ST.
3rd ST.
7th ST.
2nd ST.
6th ST.
FIFTH ST.
4th ST.
LUTCHER AVE.

OVERSIZED, OK
OK
UNDERSIZED, (15")
UNDERSIZED, (16")
UNDERSIZED, (18")
OVERSIZED, (18")
?? (18")
BROKEN, (12")
CRUSHED (36")
?? (24")
?? (24")
UNDERSIZED, (12")
UNDER-
OK

SHEET NUMBER 9

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

ST._JAMES_PARISH

NO.	DATE	REVISION DESCRIPTION	BY

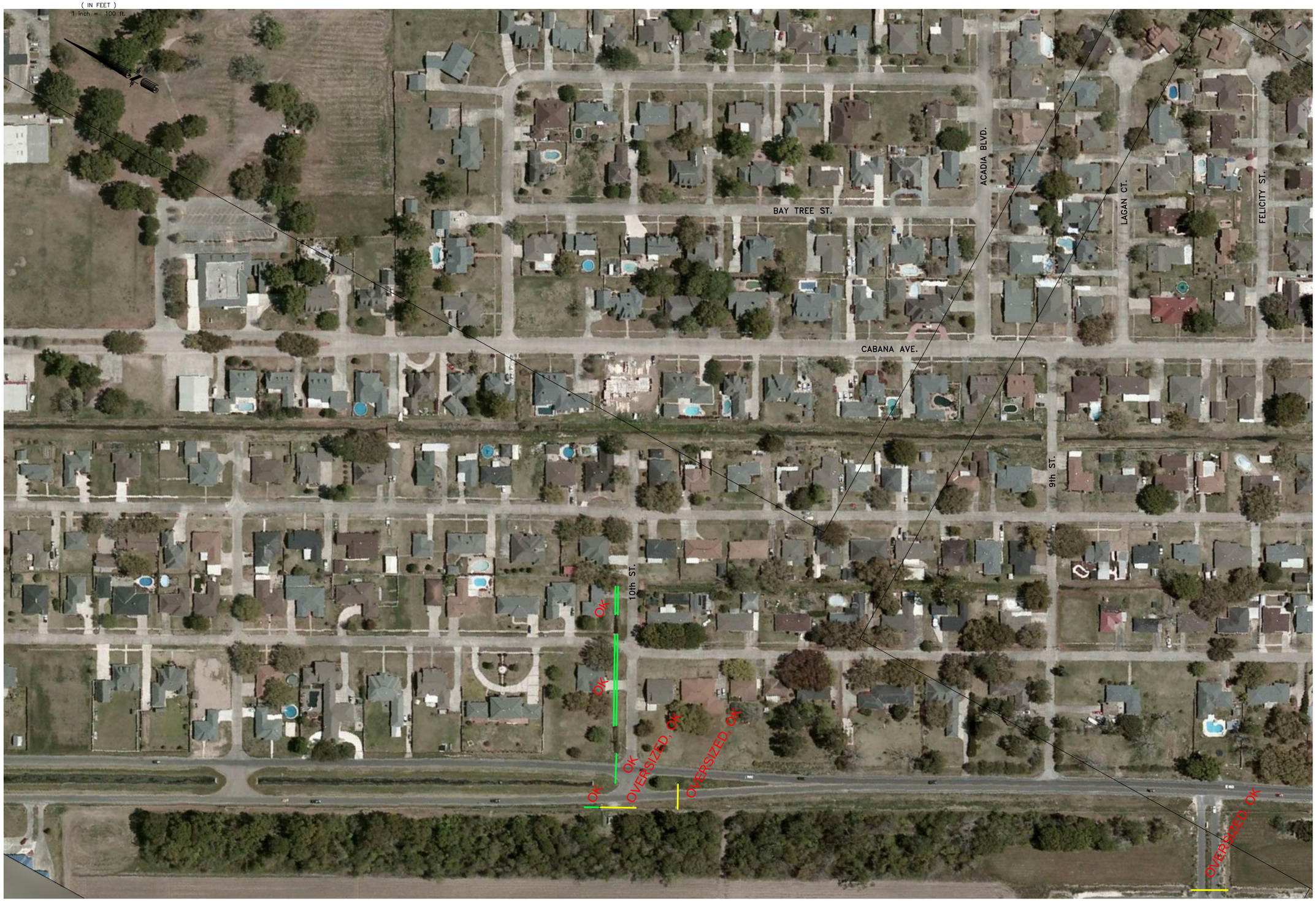
FILE NAME=FILENAME XREF: XREFNAME DATE: PLOTDATE

Figure 5: Deficient Driveway Culverts Page 113

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.



SHEET NUMBER 10

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)486-1714

BK#NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=FILENAME DATE: PLOTDATE XREF: XREFNAME

Figure 5: Deficient Driveway Culverts Page 114

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

FILE NAME=ILENAME DATE: PLOTDATE XREF: XREFNAME

SHEET NUMBER 11

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

ST._JAMES_PARISH

NO.	DATE	REVISION DESCRIPTION	BY

Figure 5: Deficient Driveway Culverts Page 115

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

SHEET NUMBER 12

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714
BKI#NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

ST._JAMES_PARISH

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=FILENAME DATE: PLOTDATE XREF: XREFNAME

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FILE NAME=FILENAME XREF: XREFNAME DATE: PLOTDATE

SHEET NUMBER 13

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI NO. 10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

Figure 5: Deficient Driveway Culverts Page 117

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

SHEET NUMBER 14

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)488-5901 • FAX (504)488-1714

BKI NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=$FILENAME XREF: XREFNAME DATE: PLOTDATE

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FILE NAME: FILENAME XREF: XREFNAME DATE: PLOTDATE

SHEET NUMBER	15

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

ST._JAMES_PARISH

Figure 5: Deficient Driveway Culverts Page 119

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FILE NAME: FILENAME XREF: XREFNAME DATE: PLOTDATE

SHEET NUMBER 16

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

ST._JAMES_PARISH

NO.	DATE	REVISION DESCRIPTION	BY

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

Figure 5: Deficient Driveway Culverts Page 121

SHEET NUMBER 17

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)488-5901 • FAX (504)488-1714

BKI NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=LENAME DATE: PLOTDATE XREF: XREFNAME

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

SHEET NUMBER 18

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI #NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME: FILENAME XREF: XREFNAME DATE: PLOTDATE

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

SHEET NUMBER 19

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)486-1714

BKI NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV	DETAILED	G. DUNN	DATE	APRIL, 2016
CHECKED	H. PICARD	CHECKED	R.CHOPIN, IV	SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=FILENAME XREF: XREFNAME DATE: PLOTDATE

Figure 5: Deficient Driveway Culverts Page 123

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

Figure 5: Deficient Driveway Culverts Page 124

SHEET NUMBER 20

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 FAX (504)488-1714

BKI JNO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=FILENAME DATE= PLOTDATE XREF: XREFNAME

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 200 ft.

CRUSH, OK @ (18")
UNDERSIZED, (21")
ANTIOCH ST.
OK
UNDERSIZED, (21")
OK
UNDERSIZED, (21")
OVERSIZED, OK
OK
UNDERSIZED, (28")
OVERSIZED, OK
UNDERSIZED, (28")
OK
?? (12")
UNDERSIZED, (21")
UNDERSIZED, (21")
UNDERSIZED, (18")
UNDERSIZED, (15")
UNDERSIZED, (15")
UNDERSIZED, (18")
UNDERSIZED, (15")
MICHEL RD.
UNDERSIZED, (12")
OK
BROKEN, OK @ (12")
OK
OK
UNDERSIZED, (12")
METGE ST.
ANTIOCH ST.
CRUSH, OK @ (15")
UNDERSIZED, (15")
OVERSIZED, OK
UNDERSIZED, (18")
?? (15")
BELLVUE ST.
OVERSIZED, OK
OK
?? (15")
OK
UNDERSIZED, (15")
UNDERSIZED, (15")
OK
MARTIN ST.
OVERSIZED, OK
OK
CRUSH, (24")
OK
UNDERSIZED (15")
UNDERSIZED (12")
OK
OK
OK

SHEET NUMBER 21

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI

BKI NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=%%FILENAME
XREF: XREFNAME
DATE: PLOTDATE

SHEET NUMBER	22

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BKI

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901•FAX (504)488-1714

ST._JAMES_PARISH

BKI#NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

XREF: XREFNAME

DATE: PLOTDATE

FILE NAME: FILENAME

Figure 5: Deficient Driveway Culverts Page 126

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

SHEET NUMBER 23

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BKI BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI#NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV	DETAILED	G. DUNN
CHECKED	H. PICARD	CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016	SHEET	X of X

NO. DATE REVISION DESCRIPTION BY

XREF: XREFNAME
DATE: PLOTDATE
FILE NAME: FILENAME

Figure 5: Deficient Driveway Culverts Page 127

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft

SHEET NUMBER 24

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=ILENAME XREF: XREFNAME DATE: PLOTDATE

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

SHEET NUMBER 25

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI

BKI NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

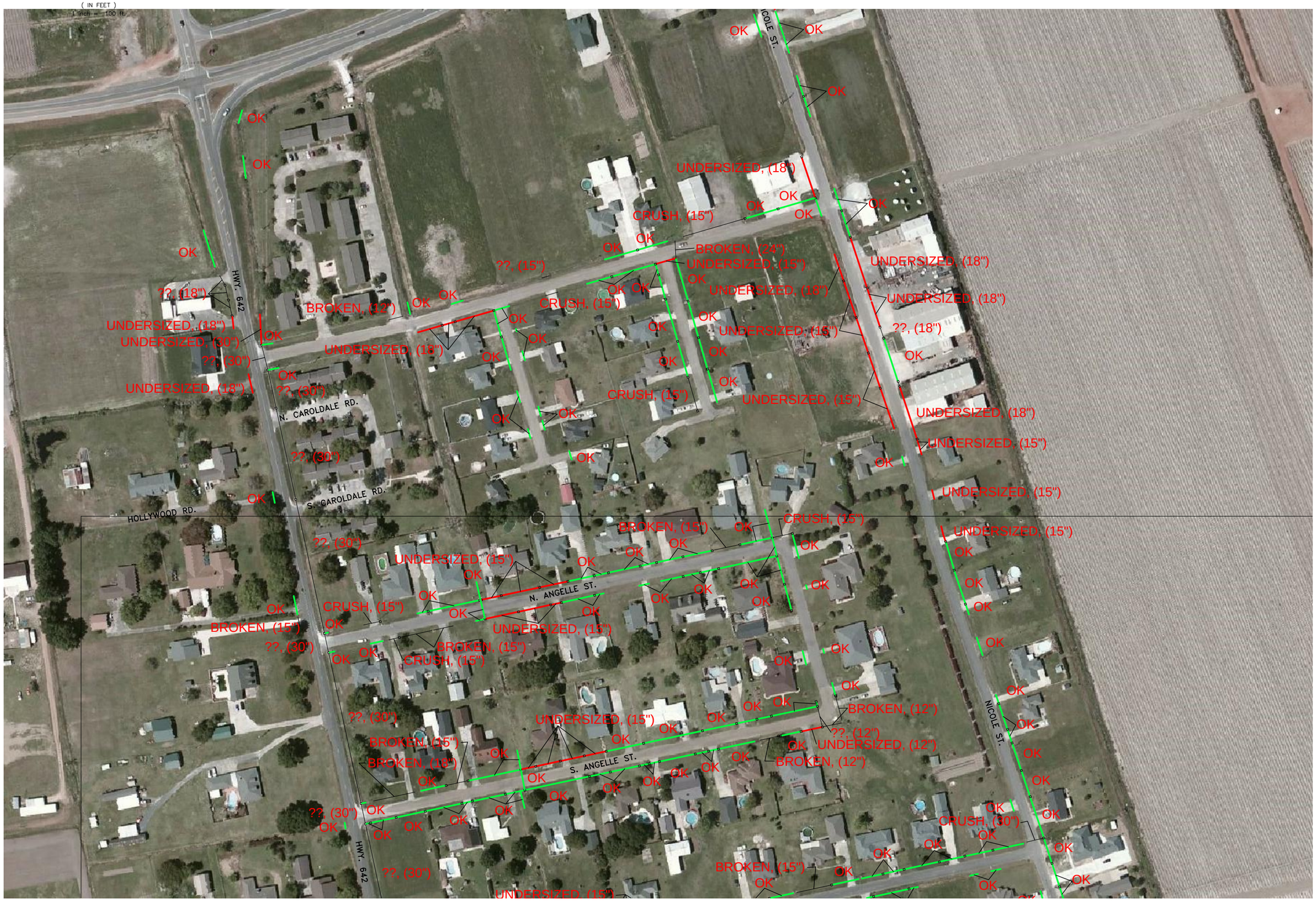
NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=FILENAME XREF: XREFNAME DATE: PLOTDATE

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.



XREF: XREFNAME
DATE: PLOTDATE
FILE NAME=FILENAME

SHEET NUMBER	26

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

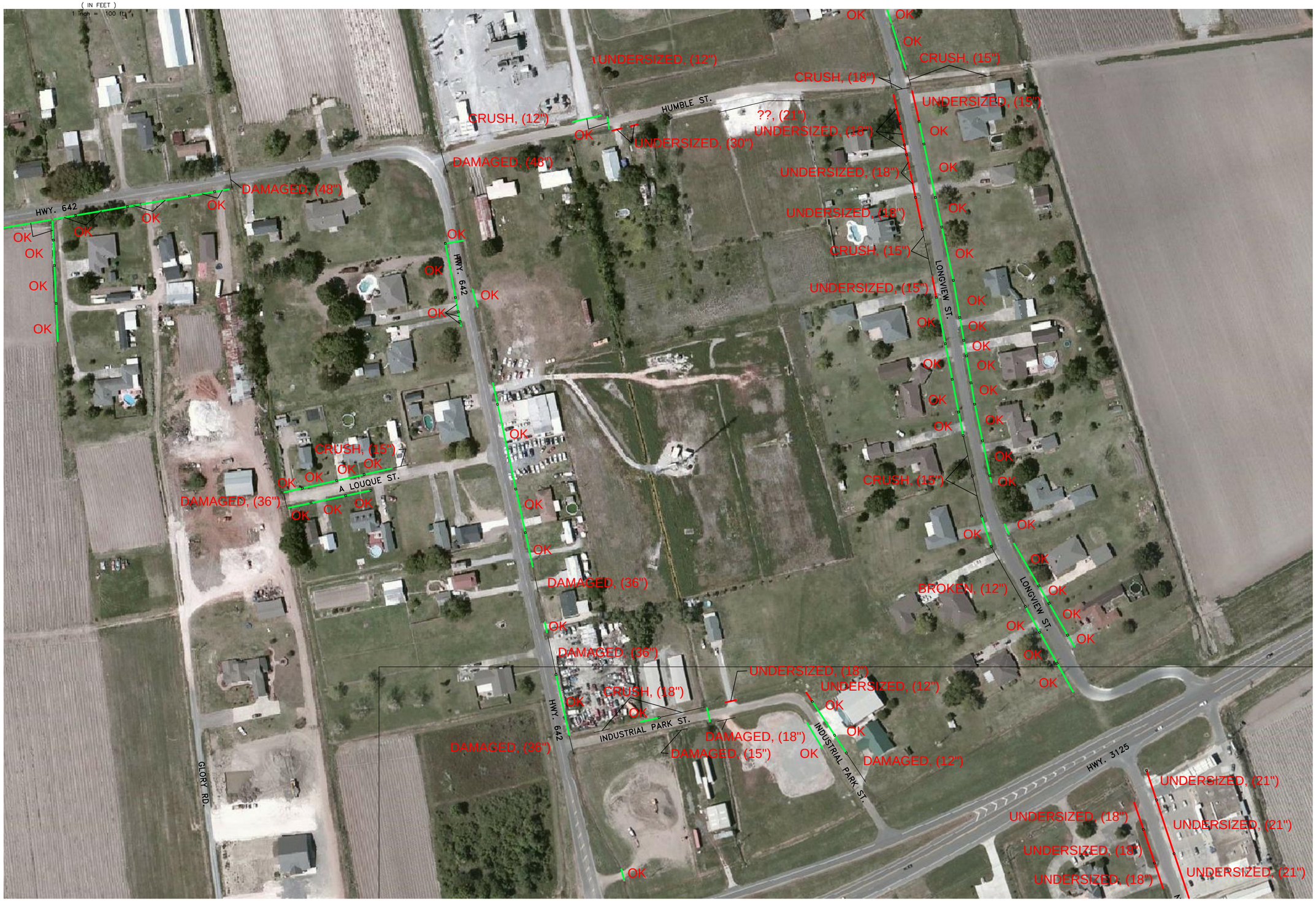
NO.	DATE	REVISION DESCRIPTION	BY

Figure 5: Deficient Driveway Culverts Page 130

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.



SHEET NUMBER 27

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI

BKI NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=LENAME XREF: XREFNAME DATE: PLOTDATE

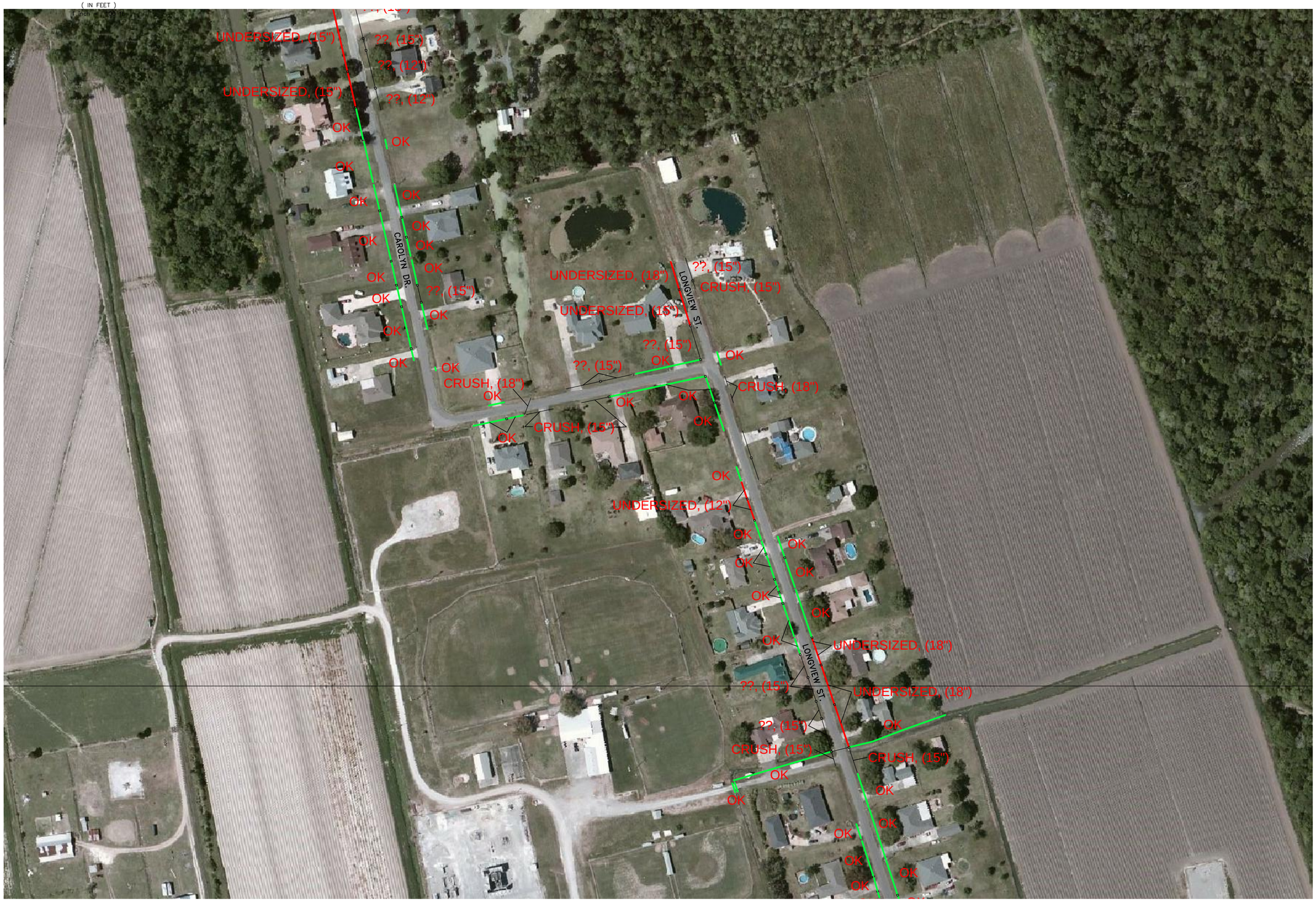
Figure 5: Deficient Driveway Culverts Page 131

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft



SHEET NUMBER 28

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5911 • FAX (504)488-1714

BKI#NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

ST._JAMES_PARISH

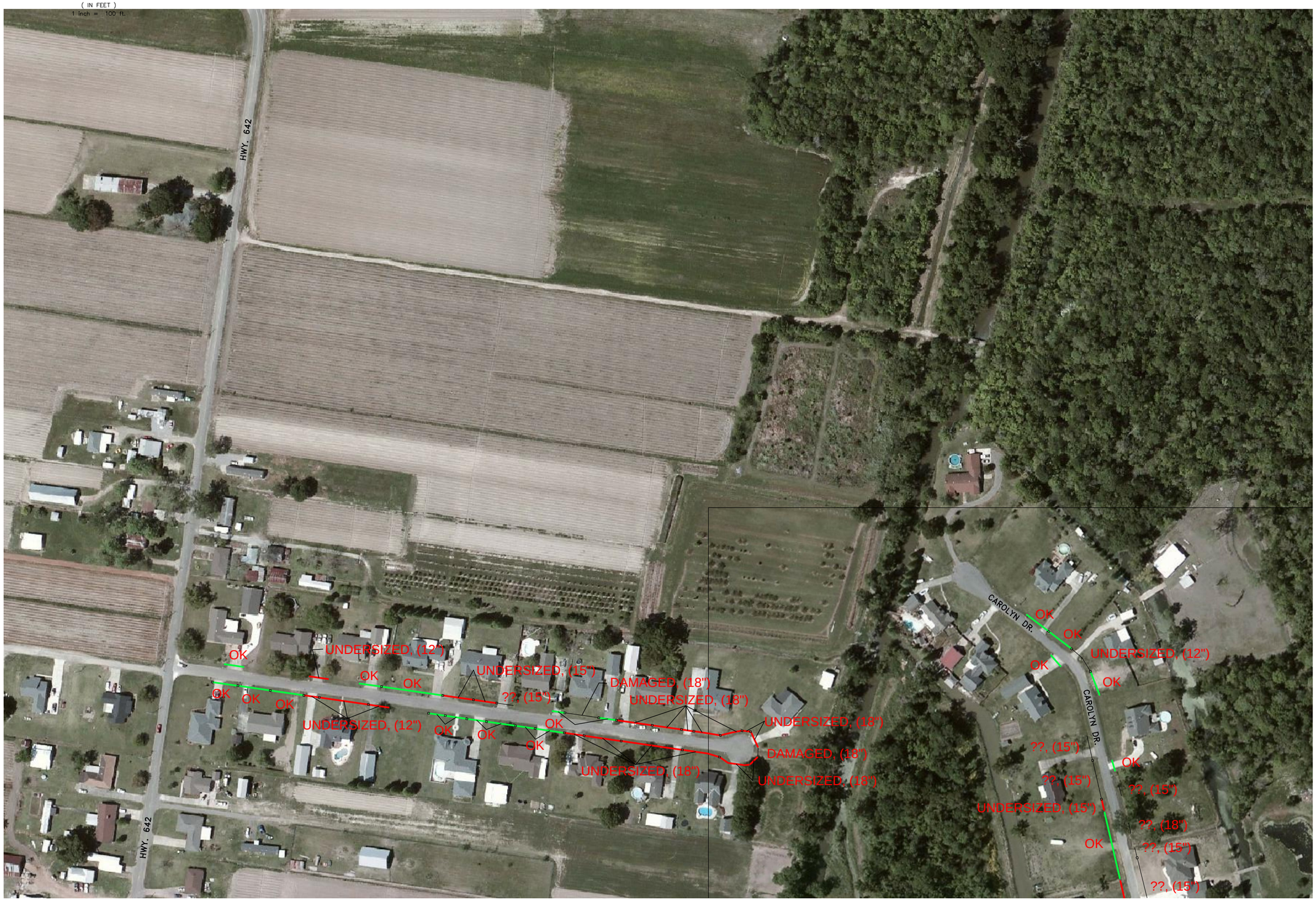
NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=FILENAME XREF: XREFNAME DATE: PLOTDATE

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.



SHEET NUMBER 29

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714
BKI NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

ST._JAMES_PARISH

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME/FILENAME XREF: XREFNAME DATE: PLOTDATE

Figure 5: Deficient Driveway Culverts Page 133

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

SHEET NUMBER 30

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=FILENAME XREF: XREFNAME DATE: PLOTDATE

FILE NAME: FILENAME DATE: PLOTDATE XREF: XREFNAME

NO.	DATE	REVISION DESCRIPTION	BY

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

BKI BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901•FAX (504)488-1714

ST._JAMES_PARISH BKI#NO.10468

ST. JAMES PARISH
MASTER DRAINAGE PLAN

SHEET NUMBER 31

Figure 5: Deficient Driveway Culverts Page 135

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

SHEET NUMBER 32

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI #NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

ST._JAMES_PARISH

FILE NAME=FILENAME DATE: PLOTDATE XREF: XREFNAME

Figure 5: Deficient Driveway Culverts Page 136

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

KENMORE DR.

BELLE ROSE DR.

PLANTATION ST.

MURPHY RD.

PERIQUE RD

REDWOOD LN.

ELMWOOD LN.

CYPRESS LN.

GAISMAR

UNDERSIZED, (18")

UNDERSIZED, (21")

OVERSIZED, OK

BROKEN, (15")

CRUSH, (15")

DAMAGED, (15")

DAMAGED, (12")

?? (18")

DAMAGED, (30")

BROKEN, (18")

?? (12")

?? (15")

CRUSH, (30")

UNDERSIZED, (21")

DAMAGED, (21")

UNDERSIZED REPLACED

DAMAGED, (35")

OVERSIZED, OK

OK

FILE NAME: FILENAME XREF: XREFNAME DATE: PLOTDATE

SHEET NUMBER 33

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI NO.10468

ST._JAMES_PARISH

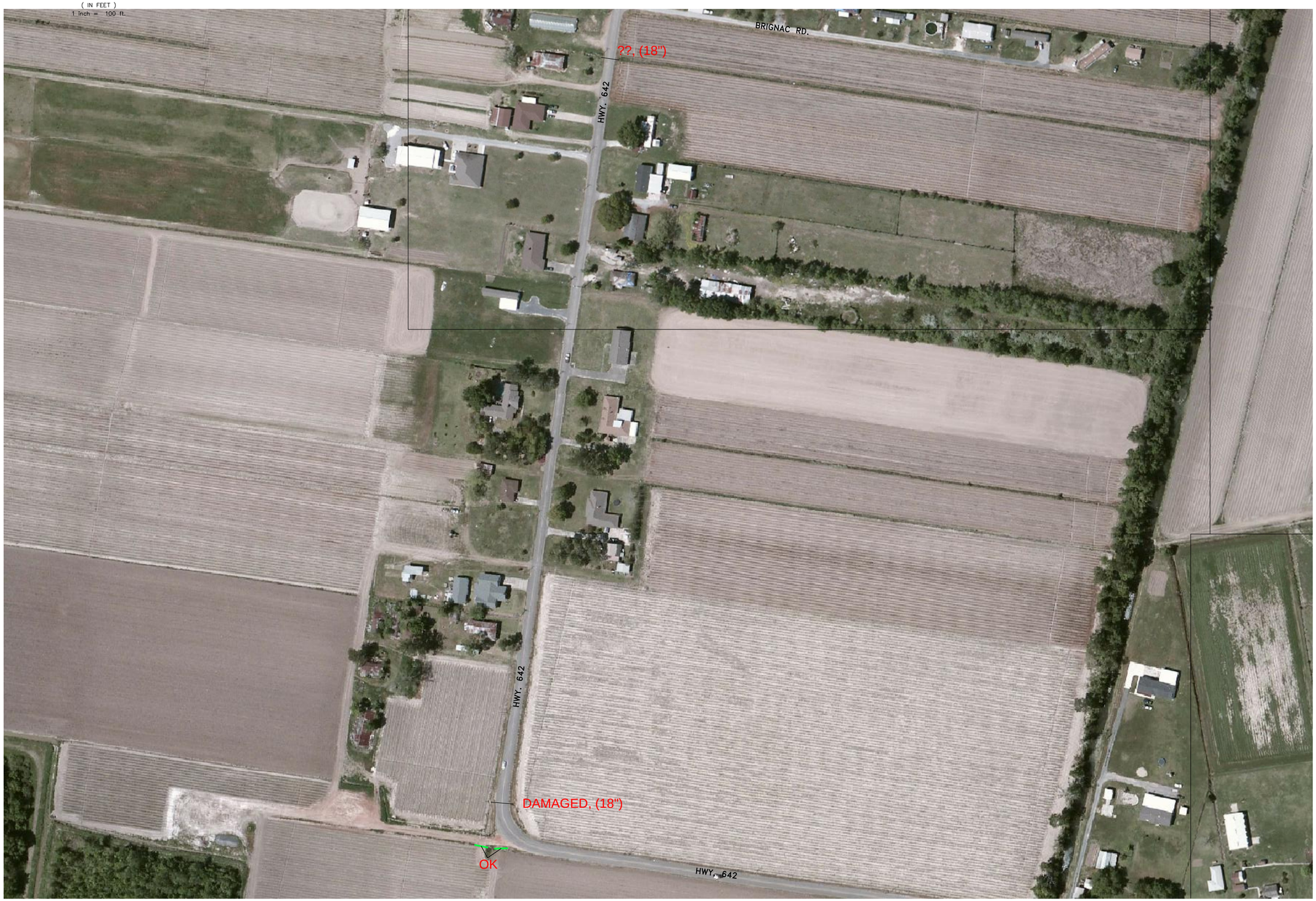
DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.



SHEET NUMBER 34

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI#NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

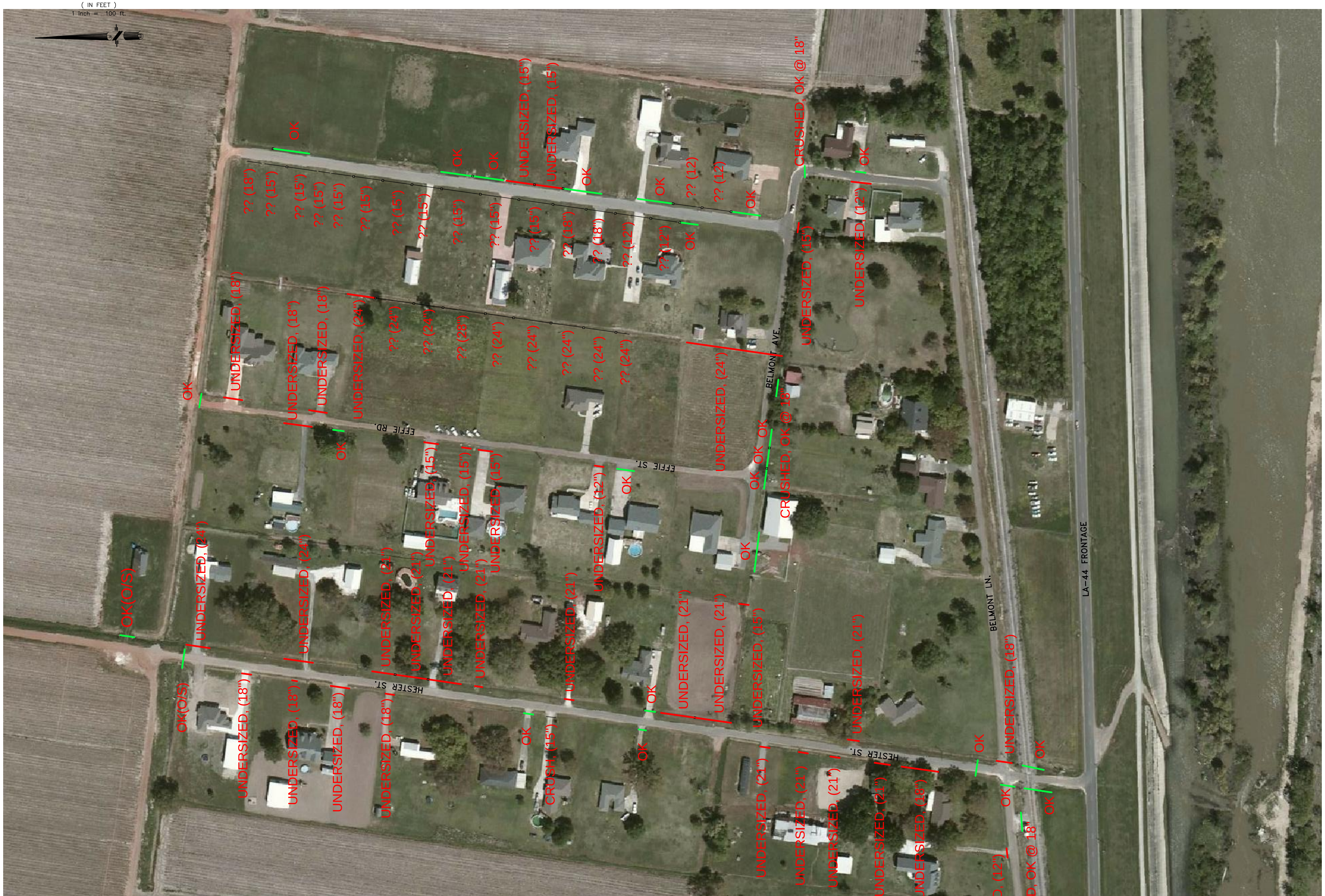
FILE NAME:ILENAME XREF: XREFNAME DATE: PLOTDATE

Figure 5: Deficient Driveway Culverts Page 138

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.



XREF: XREFNAME

DATE: PLOTDATE

FILE NAME: FILENAME

SHEET NUMBER 35

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BKI BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

ST._JAMES_PARISH

BKI#NO.10468

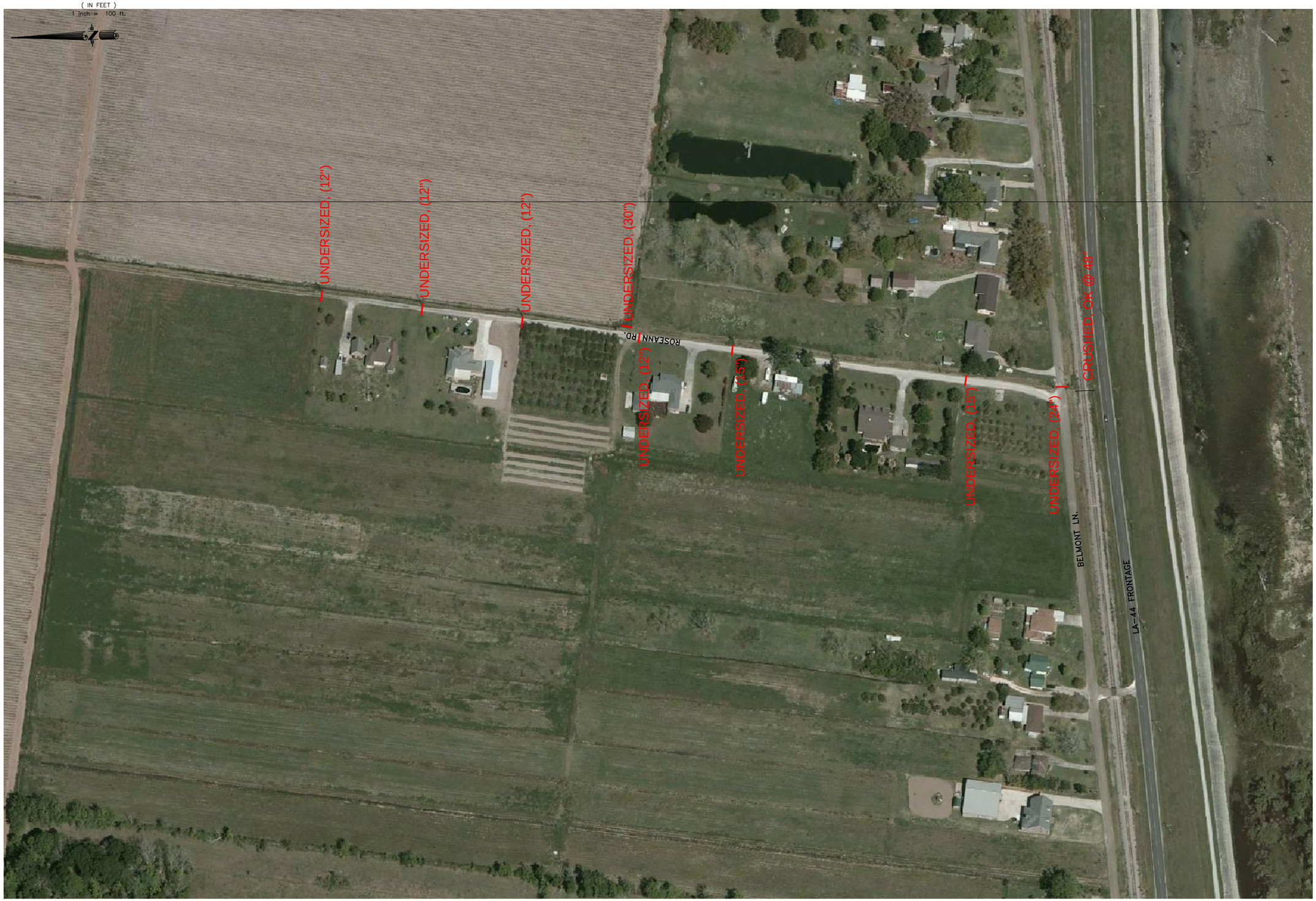
DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.



FILE NAME=FILENAME DATE: PLOTDATE XREF: XREFNAME

SHEET NUMBER 36

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714
BKI#NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

ST._JAMES_PARISH

NO.	DATE	REVISION DESCRIPTION	BY

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
inch = 100 ft.

SHEET NUMBER 37

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV	DETAILED	G. DUNN
CHECKED	H. PICARD	CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016	SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=FILENAME DATE: PLOTDATE XREF: XREFNAME

Figure 5: Deficient Driveway Culverts Page 141

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

Figure 5: Deficient Driveway Culverts Page 142

SHEET NUMBER 38

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

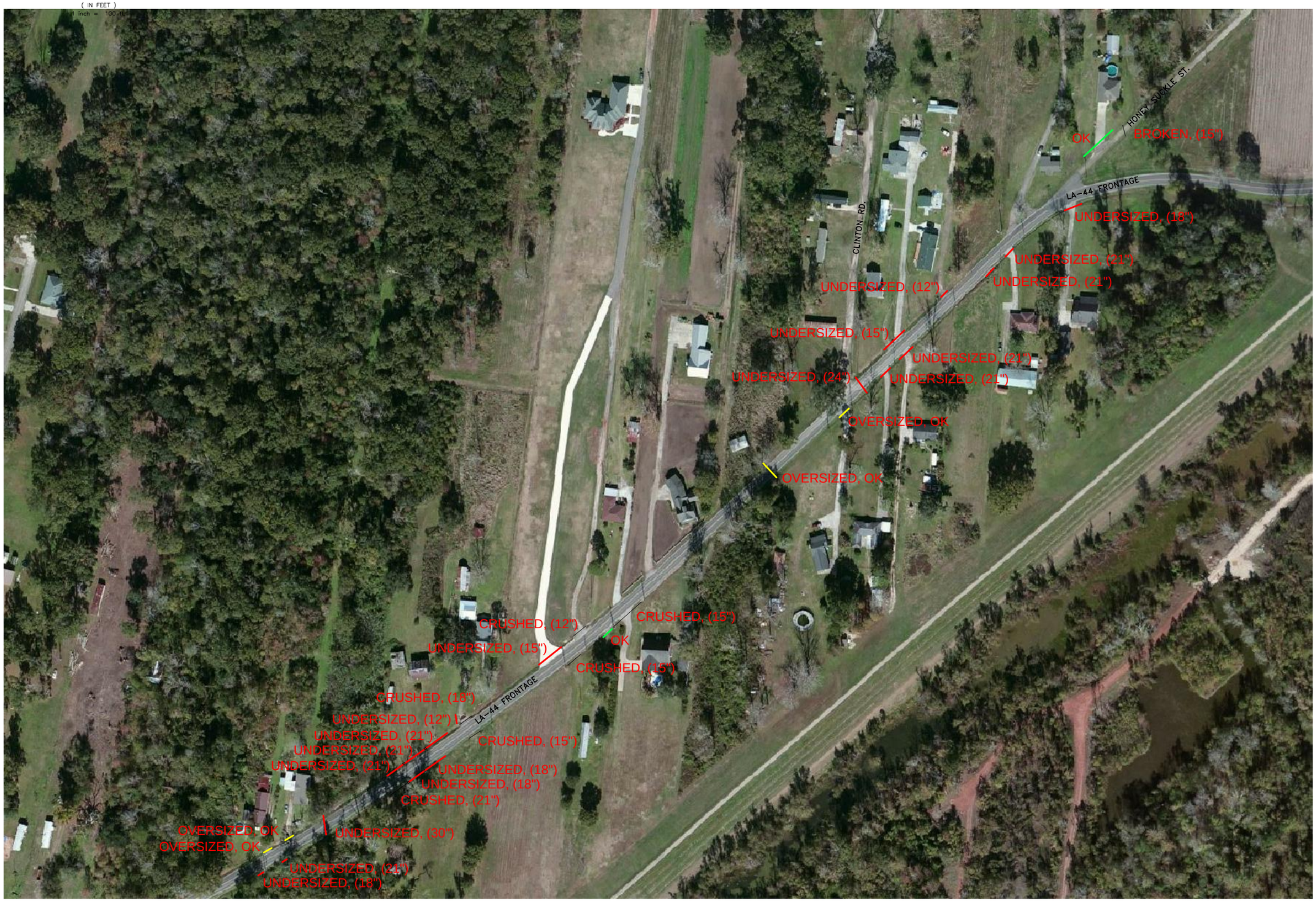
FILE NAME:FILENAME XREF: XREFNAME DATE: PLOTDATE

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.



SHEET NUMBER 39

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)486-1714

BKI NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=LENAME XREF: XREFNAME DATE: PLOTDATE

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 200 ft.

SHEET NUMBER 40

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)486-7714

BKI NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV	DETAILED	G. DUNN
CHECKED	H. PICARD	CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016	SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME:ILENAME DATE: PLOTDATE XREF: XREFNAME

NO.	DATE	REVISION DESCRIPTION	BY

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

BKI BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901•FAX (504)488-1714

ST._JAMES_PARISH BKI#NO.10468

ST. JAMES PARISH
MASTER DRAINAGE PLAN

SHEET NUMBER 41

Figure 5: Deficient Driveway Culverts Page 145

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

FILE NAME=FILENAME XREF: XREFNAME DATE: PLOTDATE

SHEET NUMBER 42

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BKI BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)488-5901 • FAX (504)488-1714

BKI NO.10468

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

ST._JAMES_PARISH

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.

SHEET NUMBER 43

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BKI BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901•FAX (504)488-1714

ST._JAMES_PARISH BKI#NO.10468

DESIGNED	R.CHOPIN, IV	DETAILED	G. DUNN
CHECKED	H. PICARD	CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016	SHEET	X of X

NO.	DATE	REVISION DESCRIPTION	BY

XREF: XREFNAME
DATE: PLOTDATE
FILE NAME: FILENAME

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

SHEET NUMBER 44

ST. JAMES PARISH
MASTER DRAINAGE PLAN

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LA 70119-5994
PHONE (504)486-5901 • FAX (504)488-1714

BKI #NO.10468

ST._JAMES_PARISH

DESIGNED	R.CHOPIN, IV
CHECKED	H. PICARD
DETAILED	G. DUNN
CHECKED	R.CHOPIN, IV
DATE	APRIL, 2016
SHEET	X OF X

NO.	DATE	REVISION DESCRIPTION	BY

FILE NAME=FILENAME DATE: PLOTDATE XREF: XREFNAME

Figure 5: Deficient Driveway Culverts Page 148

Table 3C: Driveway Culvert Cost Estimate by Street						
Street Name	**Cost**				**Street Name**	**Cost**
Pecan	$8,590.50				**Magnolia**	$5,658.00
Cherry	$6,934.50				**Pine**	$46,506.00
Plum	$33,756.75				**E-W 5th**	$4,657.50
Millet	$8,627.50				**N-S 3rd**	$5,451.00
Hickory	$21,993.75				**Louisiana**	$2,622.00
Railroad	$14,590.00				**Texas**	$12,040.50
Fir	$1,690.50				**St. Louis**	$5,623.50
Mulberry	$1,621.50				**E Lebray**	$952.00
Airline	$465,562.50				**W Lebray**	$49,956.00
David	$93,535.00				**Carrot**	$45,195.00
Lawrence	$6,900.00				**Ricky**	$21,873.00
Lutcher	$2,967.00				**St. Joseph**	$61,030.50
Albert	$11,868.00				**Geismar**	$59,926.50
King	$5,317.00				**Tupelo**	$16,491.00
Exchange	$3,812.25				**Cypress**	$89,652.00
Central	$57,304.50				**Plantation**	$43,234.00
Nicholas	$10,472.00				**Elmwood**	$6,106.50
Levy Gaudet	$20,414.25				**Kenmore**	$24,046.50
Courseault	$72,848.50				**Belle Rose**	$23,908.50
Alexander	$8,349.00				**Redwood**	$62,408.50
Rome	$25,516.00				**Oak Grove**	$14,386.50
Morgan	$41,469.00				**Perique**	$1,656.00
Nobile	$59,570.50				**Elaine**	$1,449.00
Le Boukin	$43,349.25				**Snyder**	$3,691.50
T Poche	$34,610.50				**Stella**	$17,457.00
Bellvue	$43,000.50				**A&G**	$5,209.50
Martin	$10,971.00				**Sugar House**	$31,360.00
Antioch	$44,194.50				**Maura**	$28,255.50
642	$554,780.00				**Wendy**	$39,192.00
44	$124,899.75				**Amy**	$13,765.50
Belmont	$77,791.50				**Riley**	$48,679.50
Denise	$81,057.75				**Lena**	$39,157.50
Effie	$16,387.50				**Nicole**	$131,880.50
Roseann	$22,634.25				**S Angelle**	$33,154.50
Hester	$45,289.50				**Angelle**	$5,761.50
Loque	$2,829.00				**N Angelle**	$42,331.50
Honeysuckle	$1,656.00				**St. James**	$24,246.00
Elmo	$9,901.50				**Brandy**	$5,071.50
Sharon	$6,693.00				**N Airline**	$381,310.00
Trudeau	$85,215.00				**Magnolia (N 3125)**	$32,913.00
Hotard	$6,900.00				**Manhattan**	$43,539.00
Ester	$1,035.00				**Dey Say**	$71,208.00
Sugar Hill	$61,522.50				**Longview**	$134,895.00
Schexnaydre	$121,750.50				**Carly**	$20,631.00
E-W 2nd	$41,032.00				**Carolyn**	$56,856.00
N-S 2nd	$56,338.50				**Humble**	$19,867.00
Golden Grove	$2,725.50				**Industrial**	$22,218.00
Rose	$9,418.50				**642 (N 3125)**	$59,163.00
Tulip	$6,555.00				**A Loque**	$6,894.00
Colonial	$49,369.50				**Gravois**	$80,592.00
E-W 6th	$7,728.00				**Winsley**	$41,676.00
					GRAND TOTAL:	**$4,515,641.00**

This page intentionally left blank

4. La. 3125 Lateral Culvert (10yr) & La.D.O.T.D. La. 3125 Cross Culvert (50 Yr) Analyses:

After the inventory, analyses and cost estimates were completed, the next step was to analyze the La. 3125 lateral culverts. These are the culverts that run parallel, right next to, La. 3125. They are responsible for routing the flow from the perpendicular oriented driveway culverts into the La. D.O.T.D. Cross culverts beneath La. 3125. These lateral culverts need to be large enough to handle the runoff that flows from the river to La. 3125. Again, the same approach used before was employed. Rational method (Figure 1) to determine the 10 yr storm event runoff rates and Manning's equation (Figure 4) to determine the existing culvert capacity. The sub basins were cut out using the adjacent roads, as well as where the connectivity between the lateral ditches parallel to La. 3125 terminate at a road, delineated the sub basin boundaries. Each sub basin was split along the location of the La.D.O.T.D. cross culverts. The lateral culverts that approached the cross culverts from the west had the western half of the delineated sub basin as its contributory area. Those lateral culverts that approached the cross culverts from the east had the eastern half of the delineated sub basin as it's contributory area. Table 4A details the analysis for those lateral culverts located south and parallel to La. 3125 as well as the La.D.O.T.D. La.3125 cross culverts (50 yr rain event). Figure 6 details the locations of these cross culverts and their contributory areas. For areas to the west that are sparsely populated, the presence of lateral culverts is few and far between. The focus of this effort was placed mainly where the population centers are. Because these culverts rout the entire runoff south of La. 3125, the Parish has already begun to implement the necessary lateral culvert replacements and ditch regrading to rout the water to where it was originally intended to go, distinct La. 3125 Cross Culverts. For further detail of this work and cost estimates place see BKI. Job# NO.16.014 for the La. 3125 Lateral Culverts Improvement Project. Replacing the La. 3125 lateral culverts first, is the proper sequence for infrastructure improvements. These lateral culverts are the most downstream locations of the sub basins. While analyzing the La. 3125 Lateral Culverts, the La.D.O.T.D. cross culverts were analyzed. These cross culverts rout the runoff from the basins south of La. 3125 to the north where it is conveyed to the Lake Maurepas swamp. These cross culverts are La.DOTD's responsibility and are designed to convey runoff from a 50 yr storm event. It was found that these cross culverts were able to route the runoff they were designed for. It must be stated that these cross culverts need to be routinely cleared of siltation and debris. Any back up at these cross culverts will cause back water flooding south of La. 3125 regardless of the water surface elevation in the Maurepas swamp. Once again, these cross culverts were analyzed using the aforementioned Rational Method (Figure 1) and Manning's Equation (Figure 4). Although the Rational Method is normally used for basins below 200 acres, using this equation for larger basins is an even more conservative approach. The east bank of St. James Parish consists of three distinct but interrelated areas.

Flow to La.3125 Lateral Culverts (10 Yr. Event-24 Hr. Duration) & La.3125 La.3125 Cross Culverts (50 Yr .Event-24 Hr. Duration)

Basin	(C)	Area	Overland Length	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap
		(Acres)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)
Kaiser Canal 10 year Event																		
Kaiser Canal East	0.20	104.00	2271.0	1.3700	4063.00	84.2	135.4	219.7	1.28	26.54	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Farmland	0.20	104.00																43.20
Kaiser Canal LA 3125	0.18	104.00	2271.0	1.3700	4063.00	94.9	135.4	230.3	1.66	31.08	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							
Colonial Canal 10 year Event																		
Colonial Canal East	0.23	97.80	938.0	0.8600	6228.00	56.9	207.6	264.5	1.11	24.48	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Commercial	0.50	8.46																
Farmland	0.20	89.34																43.20
Colonial Canal West	0.21	102.37	1166.0	0.6900	6228.00	71.2	207.6	278.8	1.06	22.62	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	7.90																
Farmland	0.20	94.47																43.20
Colonial Canal LA 3125	0.22	200.17	1166.0	0.7731	6228.00	66.4	207.6	274.0	1.46	63.50	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							
Central Canal 10 year Event																		
Central Canal East	0.23	256.60	2580.0	0.8200	6135.00	82.8	204.5	287.3	1.04	61.92	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Commercial	0.50	7.40									36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	80.10																
Farmland	0.20	169.10																86.39
Central Canal West	0.30	102.20	2844.0	1.0600	5377.00	61.7	179.2	240.9	1.19	36.22	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Commercial	0.50	19.63									30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	74.03																
Playground	0.28	8.54																53.13
Central Canal LA 3125	0.25	358.80	2844.0	0.8884	6135.00	77.6	204.5	282.1	1.43	129.06	72	6.00	0.022	0.002	28.27	18.85	1.50	336.70
Cross Culverts (50Yr)											3							
Ferrero Canal 10 year Event																		
Ferrero Canal East	0.30	122.70	2891.0	1.0000	5330.00	62.3	177.7	240.0	1.19	43.92	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
											36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	122.70																
																		86.39
Ferrero Canal West	0.34	33.60	2922.0	1.6000	5330.00	50.0	177.7	227.7	1.24	14.05	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	27.42																
Commercial	0.50	6.18																26.56
Ferrero Canal LA 3125	0.31	156.30	2922.0	1.1290	5330.00	59.3	177.7	237.0	1.63	78.28	48	4.00	0.022	0.002	12.57	12.57	1.00	114.19
Cross Culverts (50Yr)											3							

Flow to La.3125 Lateral Culverts (10 Yr. Event-24 Hr. Duration) & La.3125 La.3125 Cross Culverts (50 Yr .Event-24 Hr. Duration)

Basin	(C)	Area	Overland Length	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap
		(Acres)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)
David Canal 10 year Event																		
David Canal East	0.29	110.00	1965.0	1.1300	6427.00	54.5	214.2	268.8	1.09	34.79	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Commercial	0.50	7.40									30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	80.10																
Farmland	0.25	22.50																53.13
David Canal West	0.29	96.10	2088.0	1.0500	6427.00	56.7	214.2	271.0	1.09	30.18	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	42.00																
Playground	0.28	54.10																43.20
David Canal LA 3125	0.29	206.10	2088.0	1.0927	6427.00	56.2	214.2	270.5	1.48	88.02	60	5.00	0.022	0.002	19.63	15.71	1.25	207.05
Cross Culverts (50Yr)											3							
School Side Ditch 10 Year Event																		
School Side Ditch East	0.25	86.90	2886.0	0.9900	5576.00	77.8	185.9	263.6	1.11	23.83	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	50.00																
Playground	0.18	36.90																26.56
School Side Ditch West	0.30	43.90	2945.0	1.4800	5576.00	58.1	185.9	243.9	1.18	15.52	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	43.90																
Farmland	0.20	0.00																26.56
School Side Ditch LA 3125	0.26	130.80	2945.0	1.1545	5576.00	70.3	185.9	256.1	1.54	53.25	48	4.00	0.022	0.002	12.57	12.57	1.00	114.19
Cross Culverts (50Yr)											3							
Woods Canal 10 Year Event																		
Woods Canal East	0.29	107.00	7070.0	1.1100	1397.00	91.4	46.6	138.0	1.80	54.99	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
											36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	92.00																
Farmland	0.20	15.00																86.39
Woods Canal West	0.22	88.60	7227.0	0.9400	1397.00	125.9	46.6	172.4	1.53	30.29	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
											30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	21.00																
Farmland	0.20	67.60																53.13
Woods Canal LA 3125	0.26	195.60	7227.0	1.0330	1397.00	105.2	46.6	151.8	2.23	112.23	48	4.00	0.022	0.002	12.57	12.57	1.00	114.19
Cross Culverts (50Yr)											3							
Lutcher Canal 10 Year Event																		
Lutcher Canal West	0.25	78.60	4180.0	0.8100	4805.00	93.1	160.2	253.3	1.15	22.32	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Commercial	0.50	4.39																
Residential	0.30	24.55																
Farmland	0.20	49.66																43.20
Lutcher Canal LA 3125	0.25	78.60	4180.0	0.8100	4805.00	93.1	160.2	253.3	1.55	30.22	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							

Flow to La.3125 Lateral Culverts (10 Yr. Event-24 Hr. Duration) & La.3125 La.3125 Cross Culverts (50 Yr .Event-24 Hr. Duration)

Basin	(C)	Area	Overland Length	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap
		(Acres)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)
Tramonte Canal 10 Year Event																		
Tramonte Canal East	0.26	24.60	3131.0	0.8400	5576.00	79.9	185.9	265.7	1.10	6.93	*24*	2.00	0.009	0.002	3.14	6.28	0.50	14.65
Residential	0.30	13.60																
Farmland	0.20	11.00																14.65
Tramonte Canal West	0.25	90.75	3214.0	0.8500	5576.00	83.4	185.9	269.2	1.09	24.55	*36*	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	43.14																
Farmland	0.20	47.61																43.20
Tramonte Canal LA 3125	0.25	115.35	3214.0	0.8479	5576.00	82.8	185.9	268.6	1.49	42.70	*48*	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											*2*							
Reynaud Canal 10 Year Event																		
Reynaud Canal East	0.26	60.80	4053.0	0.8400	4746.00	84.8	158.2	243.0	1.18	19.01	*36*	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	39.30																
Farmland	0.20	21.50																43.20
Reynaud Canal West	0.27	142.00	4192.0	0.9700	4746.00	83.0	158.2	241.2	1.19	44.93	*36*	3.00	0.009	0.002	7.07	9.42	0.75	43.20
											36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	94.00																
Farmland	0.20	48.00																86.39
Reynaud Canal LA 3125	0.27	202.80	4192.0	0.9310	4746.00	83.8	158.2	242.0	1.60	86.33	*48*	4.00	0.022	0.002	12.57	12.57	1.00	114.19
Cross Culverts (50Yr)											*3*							
Wells Canal 10 Year Event																		
Wells Canal East	0.23	63.00	3218.0	1.1200	5657.00	84.8	188.6	273.3	1.08	15.82	*30*	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Unimproved Areas	0.10	19.60																
Residential	0.30	40.04																
Farmland	0.20	3.36																26.56
Reynaud Canal West	0.18	71.50	3326.0	0.8300	5657.00	120.6	188.6	309.2	0.98	12.75	*30*	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Unimproved Areas	0.10	18.14																
Residential	0.30	4.90																
Farmland	0.20	48.46																26.56
Wells Canal LA 3125	0.21	134.50	3326.0	0.9658	5657.00	101.8	188.6	290.3	1.40	38.78	*48*	4.00	0.022	0.002	12.57	12.57	1.00	38.06
Cross Culverts (50Yr)											*1*							

Flow to La.3125 Lateral Culverts (10 Yr. Event-24 Hr. Duration) & La.3125 La.3125 Cross Culverts (50 Yr .Event-24 Hr. Duration)

Basin	(C)	Area	Overland Length	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap
		(Acres)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)
Paulina Ditch 10 Year Event																		
Paulina Ditch East	0.17	64.73	7070.0	0.7800	1890.00	174.1	63.0	237.1	1.20	13.42	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Unimproved Areas	0.10	18.00																
Farmland	0.20	46.73																26.56
Paulina Ditch West	0.20	69.50	7137.0	0.8200	1890.00	142.5	63.0	205.5	1.34	19.06	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	14.18																
Unimproved Areas	0.10	11.10																
Farmland	0.20	44.22																43.20
Paulina Ditch LA 3125	0.19	134.23	7137.0	0.8007	1890.00	156.5	63.0	219.5	1.72	43.56	54	4.50	0.022	0.002	15.90	14.14	1.13	52.11
Cross Culverts (50Yr)											1							
Roussel Ditch 10 Year Event																		
Roussel Ditch East	0.23	63.00	3218.0	1.1200	5657.00	84.8	188.6	273.3	1.08	15.82	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Unimproved Areas	0.10	19.60																
Residential	0.30	40.04																
Farmland	0.20	3.36																26.56
Roussel Ditch West	0.18	71.50	3326.0	0.8300	5657.00	120.6	188.6	309.2	0.98	12.75	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Unimproved Areas	0.10	18.14																
Residential	0.30	4.90																
Farmland	0.20	48.46																26.56
Roussel Ditch LA 3125	0.21	134.50	3326.0	0.9658	5657.00	101.8	188.6	290.3	1.40	38.78	48	4.00	0.022	0.002	12.57	12.57	1.00	38.06
Cross Culverts (50Yr)											1							
Bourgeois Ditch 10 Year Event																		
Bourgeois Ditch East	0.21	183.00	1956.0	0.8900	7296.00	82.1	243.2	325.3	0.94	36.19	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	51.80									30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Unimproved Areas	0.10	34.50																
Farmland	0.20	96.70																53.13
Bourgeois Ditch West	0.22	77.00	1987.0	1.0400	7296.00	76.1	243.2	319.3	0.96	16.16	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	14.72																
Farmland	0.20	62.28																26.56
Bourgeois Ditch LA 3125	0.21	260.00	7137.0	0.9344	7296.00	133.0	243.2	376.2	1.16	64.04	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							

Flow to La.3125 Lateral Culverts (10 Yr. Event-24 Hr. Duration) & La.3125 La.3125 Cross Culverts (50 Yr .Event-24 Hr. Duration)

Basin	(C)	Area	Overland Length	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap
		(Acres)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)
Admiral's Landing Ditch 10 Year Event																		
Admiral's Landing Ditch	0.30	34.50	1920.0	0.8800	7208.00	54.4	240.3	294.7	1.02	10.55	24	2.00	0.009	0.002	3.14	6.28	0.50	14.65
East																		
Residential	0.30	34.50																
																		14.65
Admiral's Landing Ditch	0.26	192.90	2234.0	0.7700	7208.00	69.7	240.3	310.0	0.98	49.17	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
West											36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	115.80																
Farmland	0.20	77.10																86.39
Admiral's Landing LA 3125	0.27	227.40	2234.0	0.7867	7208.00	67.6	240.3	307.9	1.34	81.38	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							
Section 61 Ditch 10 Year Event																		
Section61 Ditch East	0.22	56.90	6135.0	0.6900	3181.00	131.2	106.0	237.2	1.20	14.73	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	8.60																
Farmland	0.20	48.30																26.56
Section61 Ditch West	0.21	89.24	6201.0	0.8800	3181.00	130.4	106.0	236.5	1.21	22.39	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
											30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	7.10																
Farmland	0.20	82.14																53.13
Section61 Ditch LA 3125	0.21	146.14	6201.0	0.8060	3181.00	130.7	106.0	236.8	1.63	50.13	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							
Roussel Ditch 10 Year Event																		
Roussel Ditch East	0.23	39.10	1960.0	1.1000	7430.00	71.8	247.7	319.5	0.96	8.52	24	2.00	0.009	0.002	3.14	6.28	0.50	14.65
Residential	0.30	10.74																
Farmland	0.20	28.36																14.65
Roussel Ditch West	0.19	19.70	1980.0	0.8800	7430.00	89.8	247.7	337.5	0.92	3.52	24	2.00	0.009	0.002	3.14	6.28	0.50	14.65
Park/Cemeteries	0.18	5.13																
Farmland	0.20	14.57																14.65
Roussel Ditch LA 3125	0.22	58.80	1980.0	1.0263	7430.00	77.3	247.7	324.9	1.29	16.46	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							

Flow to La.3125 Lateral Culverts (10 Yr. Event-24 Hr. Duration) & La.3125 La.3125 Cross Culverts (50 Yr .Event-24 Hr. Duration)

Basin	(C)	Area	Overland Length	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap
		(Acres)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)
St. Joseph Ditch 10 Year Event																		
St. Joseph Ditch East	0.23	34.60	2002.0	0.7400	7415.00	79.1	247.2	326.3	0.94	7.35	24	2.00	0.009	0.002	3.14	6.28	0.50	14.65
Commercial	0.50	2.94																
Farmland	0.20	31.66																14.65
St. Joseph Ditch West	0.25	213.75	2435.0	0.7500	7415.00	74.7	247.2	321.8	0.95	51.58	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
											36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Commercial	0.50	38.05																
Farmland	0.20	175.70																86.39
St. Joseph Ditch LA 3125	0.25	248.35	2435.0	0.7486	7415.00	76.0	247.2	323.2	1.30	80.43	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							
Deroache Ditch 10 Year Event																		
Deroache Ditch East	0.23	225.00	2309.0	0.7000	7520.00	84.1	250.7	334.7	0.92	47.10	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
											36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Commercial	0.50	20.00																
Farmland	0.20	205.00																86.39
Deroache Ditch LA 3125	0.23	225.00	2435.0	0.7000	7520.00	85.9	250.7	336.5	1.26	64.25	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							
Section 66 Ditch 10 Year Event																		
Section 66 Ditch East	0.20	82.00	2245.0	0.9700	7525.00	89.8	250.8	340.6	0.91	14.94	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	0.00																
Farmland	0.20	82.00																26.56
Section 66 Ditch West	0.20	79.40	2326.0	0.7200	7525.00	96.6	250.8	347.4	0.90	14.25	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Park/Cemeteries	0.18	0.00																
Farmland	0.20	79.40																26.56
Section 66 Ditch LA 3125	0.20	161.40	2326.0	0.8470	7525.00	93.5	250.8	344.4	1.24	39.98	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							
Laiche Ditch 10 Year Event																		
Laiche Ditch East	0.20	23.60	4851.0	0.9700	7193.00	121.4	239.8	361.2	0.87	4.11	24	2.00	0.009	0.002	3.14	6.28	0.50	14.65
Residential	0.30	0.00																
Farmland	0.20	23.60																14.65
Laiche Ditch West	0.20	96.00	5000.0	0.7100	7193.00	130.7	239.8	370.5	0.85	16.38	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Park/Cemeteries	0.28	0.00																
Farmland	0.20	96.00																26.56
Laiche Ditch LA 3125	0.20	119.60	5000.0	0.7613	7193.00	128.9	239.8	368.7	1.18	28.17	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							

Flow to La.3125 Lateral Culverts (10 Yr. Event-24 Hr. Duration) & La.3125 La.3125 Cross Culverts (50 Yr .Event-24 Hr. Duration)

Basin	(C)	Area	Overland Length	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap
		(Acres)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)
Caillou Ditch 10 Year Event																		
Caillou Ditch East	0.27	171.00	2460.0	0.8800	8222.00	67.0	274.1	341.1	0.91	42.32	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
											36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	123.00																
Farmland	0.20	48.00																86.39
Caillou Ditch West	0.23	107.60	2460.0	0.7600	8222.00	84.1	274.1	358.2	0.88	21.53	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	30.50																
Farmland	0.20	77.10																43.20
Caillou Ditch LA 3125	0.26	278.60	2460.0	0.8337	8222.00	72.8	274.1	346.9	1.23	87.55	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							
Martin Ditch 10 Year Event																		
Martin Ditch West	0.34	107.70	4375.0	0.9700	5804.00	64.8	193.5	258.3	1.13	40.85	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
											30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Commercial	0.50	48.90																
Farmland	0.20	58.80																53.13
Martin Ditch LA 3125	0.34	107.70	4375.0	0.9700	5804.00	64.8	193.5	258.3	1.53	55.35	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							
Longview Ditch 10 Year Event																		
Longview Ditch East	0.20	188.60	2957.0	0.7100	6632.00	106.4	221.1	327.5	0.94	35.44	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
											30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	0.00																
Farmland	0.20	188.60																53.13
Longview Ditch West	0.26	175.00	1933.0	0.9900	6632.00	62.6	221.1	283.7	1.05	47.80	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Playgrounds	0.28	12.90									36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	95.00																
Farmland	0.20	67.10																86.39
Longview Ditch LA 3125	0.23	363.60	2957.0	0.8448	6632.00	88.2	221.1	309.3	1.34	111.59	42	3.50	0.022	0.002	9.62	11.00	0.88	79.97
Cross Culverts (50Yr)											3							
Grand Point Ditch 10 Year Event																		
Grand Point Ditch West	0.27	150.20	1143.0	0.8900	7197.00	49.0	239.9	288.9	1.04	42.65	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
											36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	111.70																
Farmland	0.20	38.50																86.39
Grand Point Ditch LA 3125	0.27	150.20	1143.0	0.8900	7197.00	49.0	239.9	288.9	1.41	58.06	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							

Flow to La.3125 Lateral Culverts (10 Yr. Event-24 Hr. Duration) & La.3125 La.3125 Cross Culverts (50 Yr .Event-24 Hr. Duration)

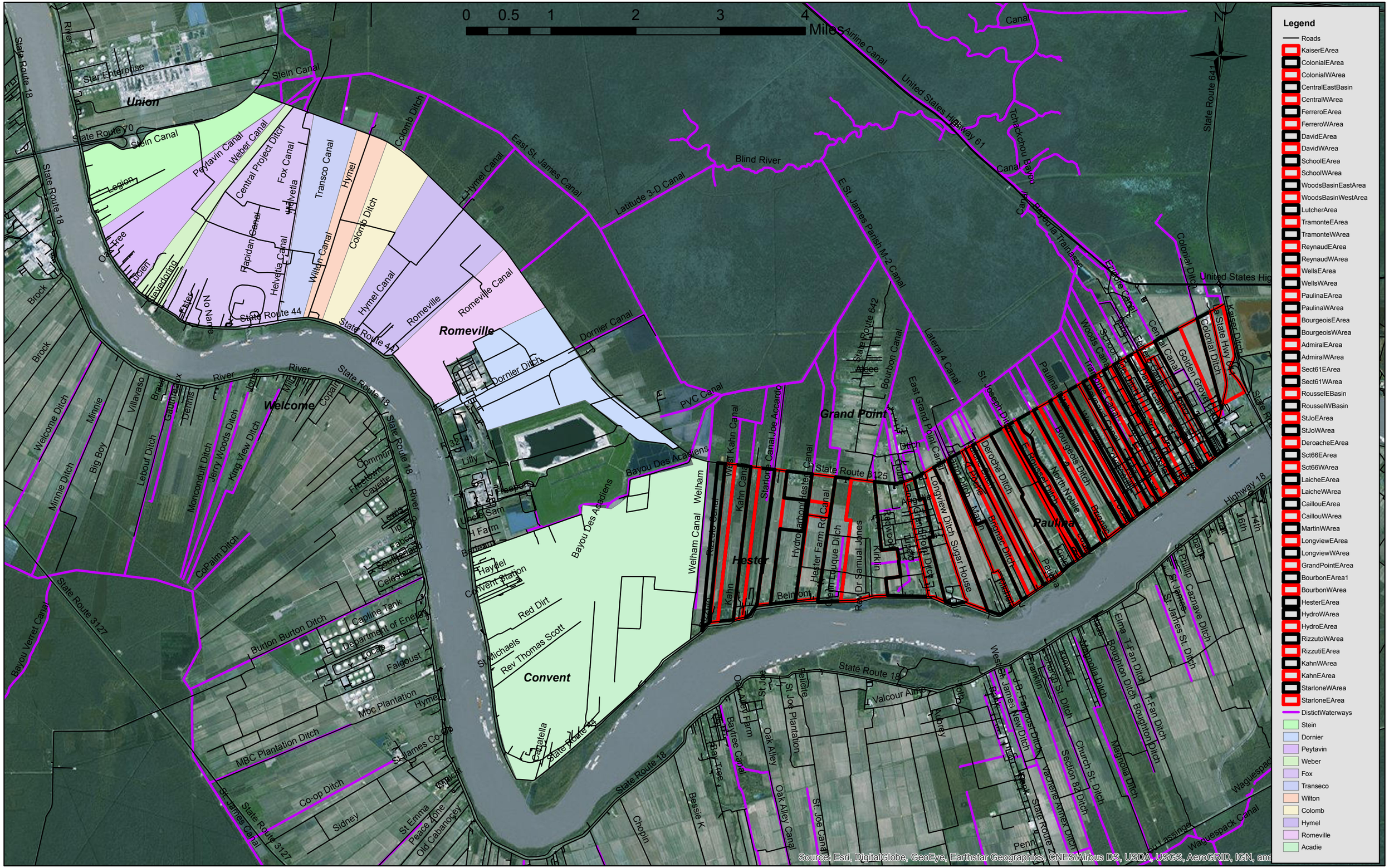
Basin	(C)	Area	Overland Length	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap
		(Acres)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)
Bourbon Ditch 10 Year Event																		
Bourbon Ditch East	0.26	320.00	1931.0	0.9100	8623.00	64.8	287.4	352.2	0.89	72.79	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
											36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	180.00									36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Farmland	0.20	140.00																129.59
Bourbon Ditch West	0.20	395.00	2933.0	0.7700	7791.00	105.6	259.7	365.3	0.86	67.47	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Unimproved Areas	0.10	73.00									36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	65.00									36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Farmland	0.20	257.00																129.59
Bourbon Ditch LA 3125	0.22	715.00	2957.0	0.8327	8623.00	90.7	287.4	378.1	1.16	185.17	48	4.00	0.022	0.002	12.57	12.57	1.00	114.19
Cross Culverts (50Yr)											3							
Hester Farm Road Canal 10 Year Event																		
Hester Farm Road Canal	0.23	222.00	1401.0	0.6700	7696.00	68.6	256.5	325.1	0.94	48.24	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
East											36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	66.60																
Farmland	0.20	155.40																86.39
Hester Canal LA 3125	0.23	222.00	1143.0	0.6700	7696.00	63.3	256.5	319.9	1.31	66.77	54	4.50	0.022	0.002	15.90	14.14	1.13	104.22
Cross Culverts (50Yr)											2							
Hydrocarbon Canal 10 Year Event																		
Hydrocarbon Canal East	0.22	226.00	1493.0	0.7400	7050.00	73.2	235.0	308.2	0.98	48.52	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
											36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	40.80																
Farmland	0.20	185.20																86.39
Hydrocarbon Canal West	0.22	224.30	2024.0	0.6100	7050.00	85.0	235.0	320.0	0.96	47.16	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
											36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Residential	0.30	44.40																
Farmland	0.20	179.90																86.39
Hydrocarbon Canal LA 3125	0.22	450.30	2024.0	0.6752	7050.00	83.7	235.0	318.7	1.31	129.28	48	4.00	0.022	0.002	12.57	12.57	1.00	114.19
Cross Culverts (50Yr)											3							
Starlone Canal 10 Year Event																		
Starlone Canal East	0.21	155.70	2722.0	0.7000	5659.00	100.5	188.6	289.1	1.03	33.02	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
											30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	7.80																
Farmland	0.20	147.90																53.13
Starlone Canal West	0.14	180.70	3775.0	0.8300	5659.00	167.8	188.6	356.5	0.88	22.50	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Unimproved Areas	0.10	120.00									30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	14.40																
Farmland	0.20	46.30																53.13
Starlone Canal LA 3125	0.17	336.40	3775.0	0.7698	5659.00	137.6	188.6	326.3	1.29	74.11	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							

Flow to La.3125 Lateral Culverts (10 Yr. Event-24 Hr. Duration) & La.3125 La.3125 Cross Culverts (50 Yr .Event-24 Hr. Duration)

Basin	(C)	Area	Overland Length	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap
		(Acres)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)
Kahn Canal 10 Year Event																		
Kahn Canal East	0.17	121.40	1243.0	0.7300	8373.00	89.2	279.1	368.3	0.86	17.94	36	3.00	0.009	0.002	7.07	9.42	0.75	43.20
Unimproved Areas	0.10	53.66																
Residential	0.30	20.10																
Farmland	0.20	47.64																43.20
Kahn Canal West	0.16	216.90	1732.0	0.8500	8373.00	109.2	279.1	388.3	0.82	28.08	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Unimproved Areas	0.10	92.47									30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Residential	0.30	0.00																
Farmland	0.20	124.43																53.13
Kahn Canal LA 3125	0.16	338.30	1732.0	0.8069	8373.00	106.2	279.1	385.3	1.14	62.75	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							
Rizzuto Canal 10 Year Event																		
Rizzuto Canal East	0.19	123.00	1979.0	0.7600	7973.00	97.3	265.8	363.0	0.87	19.85	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Unimproved Areas	0.10	17.00																
Residential	0.30	0.00																
Farmland	0.20	106.00																26.56
Rizzuto Canal West	0.18	103.00	2577.0	0.7700	8373.00	109.5	279.1	388.6	0.82	15.52	30	2.50	0.009	0.002	4.91	7.85	0.63	26.56
Unimproved Areas	0.10	17.20																
Residential	0.30	0.00																
Farmland	0.20	85.80																26.56
Rizzuto Canal LA 3125	0.18	226.00	2577.0	0.7646	8373.00	108.6	279.1	387.7	1.13	47.40	48	4.00	0.022	0.002	12.57	12.57	1.00	76.12
Cross Culverts (50Yr)											2							
Des Acadie 50 Year Event																		
Bayou Des Acadie LA 3125	0.20	4050.45	15374.0	0.6000	11518.00	209.9	383.9	593.8	0.82	667.60	100	8.33	0.022	0.002	54.54	26.18	2.08	808.61
Cross Culverts (50Yr)											3							
Dornier 50 Year Event																		
Dornier LA 3125	0.20	1022.05	2400.0	0.6000	7400.00	101.4	246.7	348.1	1.23	251.20	68	5.67	0.022	0.002	25.22	17.80	1.42	289.09
Cross Culverts (50Yr)											3							
Romeville 50 Year Event																		
Romeville LA 3125	0.20	783.87	2514.0	0.6000	9404.00	103.3	313.5	416.7	1.08	168.57	60	5.00	0.022	0.002	19.63	15.71	1.25	207.05
Cross Culverts (50Yr)											3							
Hymel 50 Year Event																		
Hymel LA 3125	0.20	1197.96	2640.0	0.6000	9800.00	105.3	326.7	431.9	1.05	250.82	68	5.67	0.022	0.002	25.22	17.80	1.42	289.09
Cross Culverts (50Yr)											3							
Colomb 50 Year Event																		
Colomb LA 3125	0.20	573.54	1980.0	0.6000	9550.00	94.0	318.3	412.4	1.08	124.31	54	4.50	0.022	0.002	15.90	14.14	1.13	156.33
Cross Culverts (50Yr)											3							

Flow to La.3125 Lateral Culverts (10 Yr. Event-24 Hr. Duration) & La.3125 La.3125 Cross Culverts (50 Yr .Event-24 Hr. Duration)

Basin	(C)	Area	Overland Length	Overland Slope	Channel Length	Tcof	Tcch	Tctot.	Intensity	Flow,act	Size,pipe	Size,pipe	Pipe	Slope,pipe	Area,pipe	W.P.	R	Flow,cap
		(Acres)	(Ft.)	(%)	(Ft.)	(Min.)	(Min.)	(Min.)	(In./Hr.)	(C.F./Sec.)	(In.)	(Ft.)	(n)	(Ft./Ft.))	(S.F.)	(Ft.)	(Ft.)	(C.F./Sec.)
Witton 50 Year Event																		
Witton LA 3125	0.20	441.00	990.0	0.6000	11600.00	71.7	386.7	458.3	1.00	88.33	48	4.00	0.022	0.002	12.57	12.57	1.00	114.19
Cross Culverts (50Yr)											3							
Transeco 50 Year Event																		
Transeco LA 3125	0.20	622.45	3816.0	0.6000	9550.00	121.6	318.3	439.9	1.03	128.55	54	4.50	0.022	0.002	15.90	14.14	1.13	156.33
Cross Culverts (50Yr)											3							
Fox 50 Year Event																		
Fox LA 3125	0.20	1533.59	2990.0	0.6000	11322.00	110.5	377.4	487.9	0.96	293.09	72	6.00	0.022	0.002	28.27	18.85	1.50	336.70
Cross Culverts (50Yr)											3							
Weber 50 Year Event																		
Weber LA 3125	0.20	345.69	8171.0	0.6000	6618.00	163.9	220.6	384.5	1.14	78.93	48	4.00	0.022	0.002	12.57	12.57	1.00	114.19
Cross Culverts (50Yr)											3							
Peytavin 50 Year Event																		
Peytavin LA 3125	0.20	694.55	8110.0	0.6000	6480.00	163.4	216.0	379.4	1.15	160.16	54	4.50	0.022	0.002	15.90	14.14	1.13	156.33
Cross Culverts (50Yr)											3							
Stein 50 Year Event																		
Stein LA 3125	0.20	787.92	4053.0	0.6000	12634.00	124.5	421.1	545.6	0.88	138.44	54	4.50	0.022	0.002	15.90	14.14	1.13	156.33
Cross Culverts (50Yr)											3							


0 0.5 1 2 3 4 Miles
N
Legend
Roads
KaiserEArea
ColonialEArea
ColonialWArea
CentralEastBasin
CentralWArea
FerreroEArea
FerreroWArea
DavidEArea
DavidWArea
SchoolEArea
SchoolWArea
WoodsBasinEastArea
WoodsBasinWestArea
LutcherArea
TramonteEArea
TramonteWArea
ReynaudEArea
ReynaudWArea
WellsEArea
WellsWArea
PaulinaEArea
PaulinaWArea
BourgeoisEArea
BourgeoisWArea
AdmiralEArea
AdmiralWArea
Sect61EArea
Sect61WArea
RousselEBasin
RousselWBasin
StJoEArea
StJoWArea
DeroacheEArea
Sct66EArea
Sct66WArea
LaicheEArea
LaicheWArea
CaillouEArea
CaillouWArea
MartinWArea
LongviewEArea
LongviewWArea
GrandPointEArea
BourbonEArea1
BourbonWArea
HesterEArea
HydroWArea
HydroEArea
RizzutoWArea
RizzutiEArea
KahnWArea
KahnEArea
StarloneWArea
StarloneEArea
DistictWaterways
Stein
Dornier
Peytavin
Weber
Fox
Transeco
Wilton
Colomb
Hymel
Romeville
Acadie
Union
Romeville
Welcome
Grand Point
Hester
Convent
Paulina
Stein Canal
Peytavin Canal
Weber Canal
Central Project Ditch
Fox Canal
Helvetia
Transco Canal
Hymel
Colomb Ditch
Hymel Canal
East St. James Canal
Latitude 3-D Canal
Blind River
Airline Canal
United States Highway 61
Tchackchou Bayou
Bayou la Trainasse
State Route 641
Colonial Ditch
Kaiser Ditch
State Hwy 641
Golden Grove Road
Woods Canal
Central Canal
Lateral 4 Canal
St. Joseph Ditch
Paulina Ditch
Bourgeois Ditch
North Nobile
Brignac Ditch
Daroche Ditch
Sugar House
Longview Ditch
Lateral 3 Canal
Lateral 2 Canal
Lateral 1 Canal
Bourbon Canal
State Route 642
E St. James Parish M-2 Canal
Dornier Canal
Dornier Ditch
PVC Canal
Romeville Canal
Rapidan Canal
Helvetia Canal
Wilton Canal
Hymel Canal
Colomb Ditch
Stein Canal
Star Enterprise
State Route 70
State Route 18
State Route 44
State Route 3214
State Route 3125
State Route 3127
Legion
Oak Free
Kitchen
Haydoutino
Enter
No Name
Brock
Welcome Ditch
Minnie Ditch
Big Boy
Lebouf Ditch
Villavaso
Gautreaux
Dennis
Jones
Mill
Copain
Monconduit Ditch
Jerry Woods Ditch
King View Ditch
Woods Ditch
Community
Fleetburn
Cavette
Lewis
Tio Tio
Fabco
Southerland
Celestan
CoPalm Ditch
Bayou Verret Canal
Burton Burton Ditch
Capline Tank
Department of Energy
Locap
Falgoust
Mbc Plantation
MBC Plantation Ditch
St James Co-op
Co-op Ditch
Sidney
St Emma
Peace Zone
Old Cabanogey
Uncle Sam
H Farm
Bridgeway
Haydel
Convent Station
Red Dirt
St Michaels
Rev Thomas Scott
Catatella
Bayou Des Acadiens
Welham Canal
Welham
Rizzuto Bend
Kahn Canal
Starlone Canal
Hydro Labord Hester Canal
Hester Farm Rd Canal
Rev Dr Samual Jones
Kirklin
Belmont
Ellis
Longview Ditch
Sugar House
Brignac Ditch
Daroche Ditch
Bourgeois Ditch
North Nobile
Paulina Ditch
Lateral 3 Canal
Lateral 2 Canal
Lateral 1 Canal
Bourbon Canal
Oak Alley Farm
Oak Alley
Oak Alley Canal
Bay Tree
Baytree Canal
St Joe Plantation
St Joe Canal
Chopin
Bessie K
Valcour Aime
Ashley
Bayou
Park
Vacherie Annex Ditch
Section 82 Ditch
Church St. Ditch
Magnolia Ditch
Boughton Ditch
T-Fan Ditch
Elma
Magnolia Ditch
Kinler
Franklin
H.B. Fairpoint Ditch
New Ditch
West St. James
St. James St. Ditch
St. James
St. Phillip Caznave Ditch
Daroc
Highway 18
16th
14th
Lassinger
Waguespack Canal
Penn
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and

To illustrate the inability of the undersized La.3125 lateral culverts and poorly graded parallel ditches to efficiently route runoff from a rain event, a field inspection was undertaken on April 25 to see if there was any ponding along the south side of La.3125 from the heavy rains that had hit the area the previous two days. When this rain event occurred the Lake Maurepas was at a 3.5'NAVD88 WSE. This event fully demonstrates everything the Parish has concerns about when it comes to interior drainage and how it must work hand in hand with a surge protection system with pumps. The picture shown below in Figure 7 illustrate how even though the swamp WSE reduced the ponded runoff south of La. 3125 could not get to the La.3125 cross culvert outfall.

Figure 7: April 25 Ponding Southside of La.3125

Based upon this latest example of the need for La. 3125 lateral culvert improvements and the need to perform drainage improvements downstream to upstream so as not worsen flooding on other communities, the parish decided to begin performing drainage improvements to the lateral culverts and their poorly graded ditches. BKI prepared the construction documents. The parish may ultimately decide to do this work on their own to benefit from cost savings. BKI prepared detailed analyses that resulted in the following recommendations for the 1st stage of lateral culvert improvements to benefit the most populated portions of the Parish. Figure 7A, 7B and 7C detail these targeted improvements including Humble Road North of La. 3125 where the flow is to be split to the west and east into the Gran Point Canals (East and West). Tables 5A & B detail the approximate costs. For more refined costs and construction documents can be found in BKI Job# No.16.014.

ST. JAMES DRAINAGE IMPROVEMENTS

N

ST. JAMES PARISH LOUISIANA

School Side Ditch

Ferrero Canal

David Canal

Lutcher-Moore Canal

Ferrero East 330'-48" Laterals

Ferrero East 330'-48" Laterals

Ferrero East 330'-48" Laterals

David East 195'-42" Laterals

David East 195'-42" Laterals

School Side East 390'-42" Laterals

School Side East 390'-42" Laterals

School Side East 390'-42" Laterals

School Side West 195'-36" Laterals

School Side West 195'-36" Laterals

Gramercy

Ferrero West 150'-30" Laterals

Ferrero West 150'-30" Laterals

Woods East 123'-36" Laterals

Lutcher

David East 195'-42" Laterals

Woods West 95'-30" Laterals

School Side East 390'-42" Laterals

Reynaud Canal

Tramonte Canal

Woods Canal

Projects

- Hotspots
- Replacement Lateral Culverts
- COMPLETED DRAINAGE CHANNEL MAINTENANCE & PROPOSED CHANNEL DREDGING AND CULVERT ADDITIONS-EAST BANK
- FerreroCanal $266,000
- DavidCanal $89,000
- SchoolSideDitch $232,000
- WoodsCanal $74,000

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Figure 7A: Lateral Improvements Construction

Order of Magnitude Costs

Item	Unit	Unit Cost	Quantity	Total Cost
Ferrero				
Storm Drain Removal	Feet	$17.67	480	$8,481.60
Concrete Pavement Removal	Square Yd.	$15.26	178	$2,716.28
Install Concrete Pavement	Square Yd.	$138.00	178	$24,564.00
30" Install Ribbed PVC Pipe (Contech A-2000) West	Feet	$95.00	150	$14,250.00
48" Install Ribbed PVC Pipe (Contech A-2000) East	Feet	$400.00	330	$132,000.00
Excavation	Cubic Yd	$10.00	300	$3,000.00
		Total		$185,011.88
		25%Contingency		$231,264.85
		15%Engineering		$265,954.58
David				
Storm Drain Removal	Feet	$17.67	195	$3,445.65
Concrete Pavement Removal	Square Yd.	$15.26	133	$2,029.58
Install Concrete Pavement	Square Yd.	$138.00	133	$18,354.00
42" Install Ribbed PVC Pipe (Contech A-2000) East	Feet	$178.00	195	$34,710.00
Excavation	Cubic Yd	$10.00	300	$3,000.00
		Total		$61,539.23
		25%Contingency		$76,924.04
		15%Engineering		$88,462.64
School Side				
Storm Drain Removal	Feet	$17.67	585	$10,336.95
Concrete Pavement Removal	Square Yd.	$15.26	355	$5,417.30
Install Concrete Pavement	Square Yd.	$138.00	355	$48,990.00
36" Install Ribbed PVC Pipe (Contech A-2000) West	Feet	$123.00	195	$23,985.00
42" Install Ribbed PVC Pipe (Contech A-2000) East	Feet	$178.00	390	$69,420.00
Excavation	Cubic Yd	$10.00	300	$3,000.00
		Total		$161,149.25
		25%Contingency		$201,436.56
		15%Engineering		$231,652.05
Woods				
Storm Drain Removal	Feet	$17.67	195	$3,445.65
Concrete Pavement Removal	Square Yd.	$15.26	133	$2,029.58
Install Concrete Pavement	Square Yd.	$138.00	133	$18,354.00
30" Install Ribbed PVC Pipe (Contech A-2000) West	Feet	$95.00	95	$9,025.00
36" Install Ribbed PVC Pipe (Contech A-2000) East	Feet	$123.00	123	$15,129.00
Excavation	Cubic Yd	$10.00	300	$3,000.00
		Total		$50,983.23
		25%Contingency		$63,729.04
		15%Engineering		$73,288.39
		Grand Total		$659,357.66

Table 5A: Lateral Improvement Estimated Construction Costs (East)

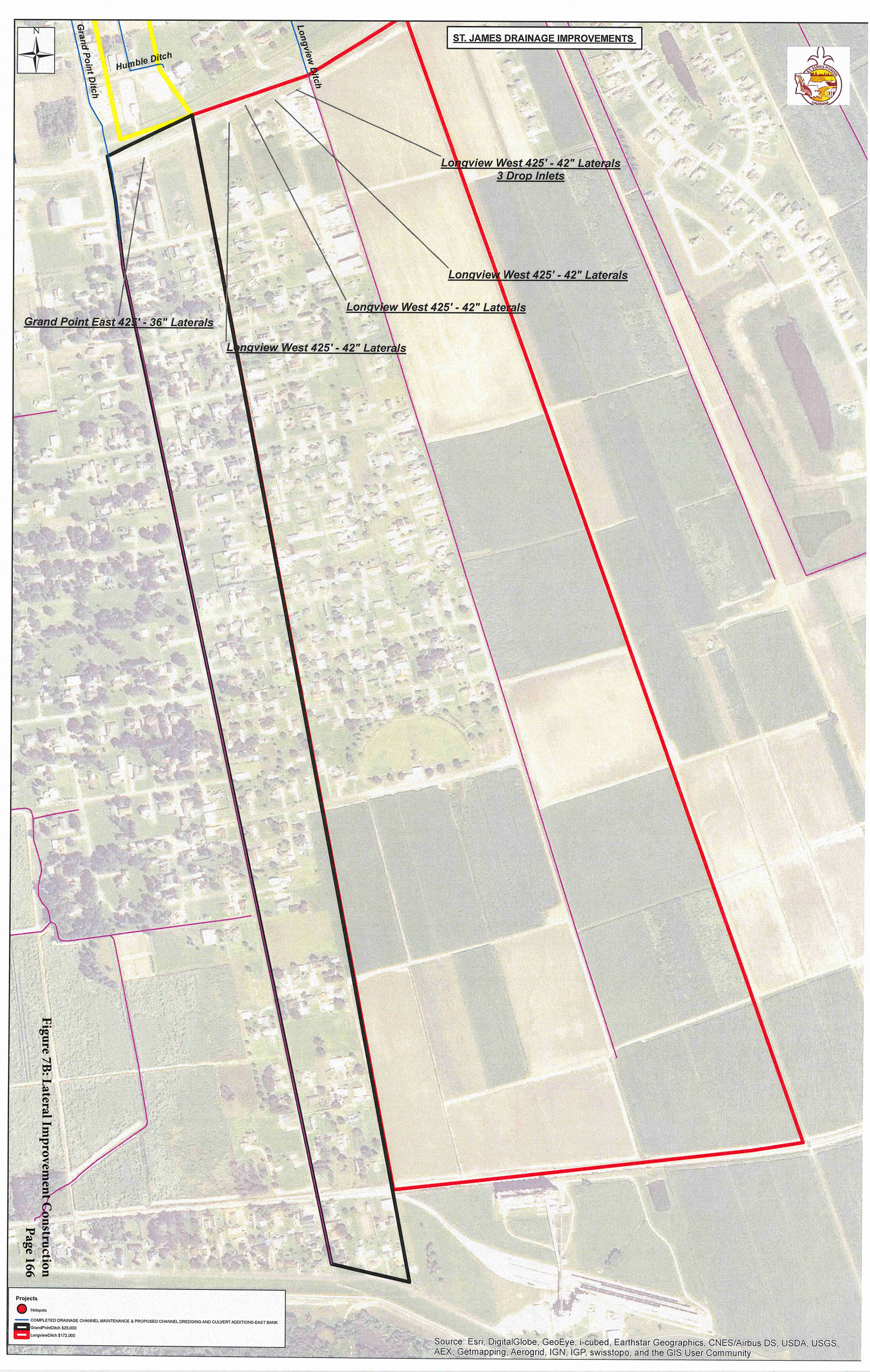


Figure 7B: Lateral Improvement Construction

ST. JAMES DRAINAGE IMPROVEMENTS

Longview Ditch

Dtich

New Humble Ditch West
260' Long x 4.5'-5.5' Width x 4.5' Deep

New Humble Ditch
Cross Drain Culvert 45'-30"

Humble Ditch

Grand Point Ditch

Grandpoint Ditch

N

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Projects
- Hotspots
- NewHumbleCrossCulvert
- NewHumbleDitch
- Replacement Lateral Culverts
- COMPLETED DRAINAGE CHANNEL MAINTENANCE & PROPOSED CHANNEL DREDGING AND CULVERT ADDITIONS-EAST BANK
- HumbleDitch
- FerrierCanal $295,000
- DavisCanal $89,000
- SchoolSlideDitch $232,000
- WoodsCanal $74,000

Figure 7C: Lateral Improvements Construction

Order of Magnitude Costs

Item	Unit	Unit Cost	Quantity	Total Cost
Humble				
Storm Drain Removal	Feet	$17.67	0	$0.00
Concrete Pavement Removal	Square Yd.	$15.26	17	$259.42
Install Concrete Pavement	Square Yd.	$138.00	17	$2,346.00
30" Install Ribbed PVC Pipe (Contech A-2000) West	Feet	$95.00	45	$4,275.00
Excavation	Cubic Yd	$10.00	300	$3,000.00
		Total		$9,880.42
		25%Contingency		$12,350.53
		15%Engineering		$14,203.10
Grand Point				
Storm Drain Removal	Feet	$17.67	65	$1,148.55
Concrete Pavement Removal	Square Yd.	$15.26	30	$457.80
Install Concrete Pavement	Square Yd.	$138.00	30	$4,140.00
36" Install Ribbed PVC Pipe (Contech A-2000) East	Feet	$123.00	65	$7,995.00
Excavation	Cubic Yd	$10.00	300	$3,000.00
		Total		$16,741.35
		25%Contingency		$20,926.69
		15%Engineering		$24,065.69
Longview				
Storm Drain Removal	Feet	$17.67	425	$7,509.75
Concrete Pavement Removal	Square Yd.	$15.26	120	$1,831.20
Install Concrete Pavement	Square Yd.	$138.00	120	$16,560.00
42" Install Ribbed PVC Pipe (Contech A-2000) West	Feet	$178.00	425	$75,650.00
Install Drop Inlets	Each	$5,000.00	3	$15,000.00
Excavation	Cubic Yd	$10.00	300	$3,000.00
		Total		$119,550.95
		25%Contingency		$149,438.69
		15%Engineering		$171,854.49
		Grand Total		$210,123.29

Table 5B: Lateral Improvement Estimated Construction Costs(West)

5. North of La. 3125 – Maurepas Swamp Analyses & Hydrologic (HEC HMS) and Hydraulic (HEC RAS) Future Condition (Land Use):

The third and final distinct watershed-basin area encompasses the land areas north of La. 3125. This area is proned to two types of flooding. Because they are the most downstream portion of the east bank of St. James Parish they must be able to convey the runoff from the sub basins south of it as well as handle the direct runoff that comes from a rainfall event. The second form of flooding this area encounters is the flooding that results from high WSE in Lake Maurepas and its contiguous swamps. For all intents and purposes the developed portions of this basin or very low in elevation and are squeezed by LA. 3125 to the south and Lake Maurepas to the north. They are also in close proximity to the runoff being routed from Ascension Parish through Bayou Conway, the Amite River and Blin River to the west. In August, we witnessed are rare riverine flooding event where the Amite River spilled out of its banks and almost flooded the homes in this basin. The backwater condition was created by the Blind River and the Amite River backing up over Airline Highway and into the North Grand Point and North Gramercy areas. This area's flood problems arise from runoff being routed into it from the North, high WSE in the swamp and being last in line for drainage through Blind River when a several parish wide rain event occurs. It is imperative that not only the interior drainage improvements occur in this area, see Figure 5 Deficient Driveway Culvert Analysis and Table 3A Deficient Driveway Culvert Crossing Capacities, but also solve the backwater issues with high swamp WSE not to mention storm surges from tropical events. Replacing the undersized culverts listed in Figure 5 will alleviate the flooding from 10 year rain events when the swamp WSE is below 2' NAVD88. It will not relieve the flooding when this WSE elevation is above 2'NAVD88. As mentioned earlier these interior drainage improvements will not reduce the flooding when the outfall WSE is above 2'NAVD88, it will reduce the duration of this flooding as the interior drainage system is more responsive in draining the interior when the outfall WSE drops. As far as dredging the main outfall canals in this basin, the only benefit will be in increased in-channel storage which would be small as compared to the contributory area draining into these channels. BKI and St. James officials embarked on several field trips to evaluate the condition of the existing drainage system in sub basins north of La. 3125. It would appear that many culverts and drainage canals-ditches have become overgrown. Figure 8A-B shows examples of these maintenance restrictions in the lower Gramercy area near Sportman's Pond and the Zapp's facility. The railroad bridge (near the dump) in this area is more than adequate to convey the runoff it's downstream of this bridge that maintenance issues arise and backwater to occur. It must also be stated that maintaining the ditches and even improving these ditches is restricted by right of way issues and access. The parish must do it's best to resolve these issues so the most downstream sections of the Parish can drain properly when the swamp WSE is below 2' NAVD88. The North Grand Point-Humble Road Ditch Split is underway and will efficiently utilize the East and West Gran Point Canals. Before only the East Grand Point Canal was routing the flow from Longview and the Humble Road Ditch, see Figure 7C above.

This page intentionally left blank

Figure 8B: North Gramercy Required Maintenance Photos

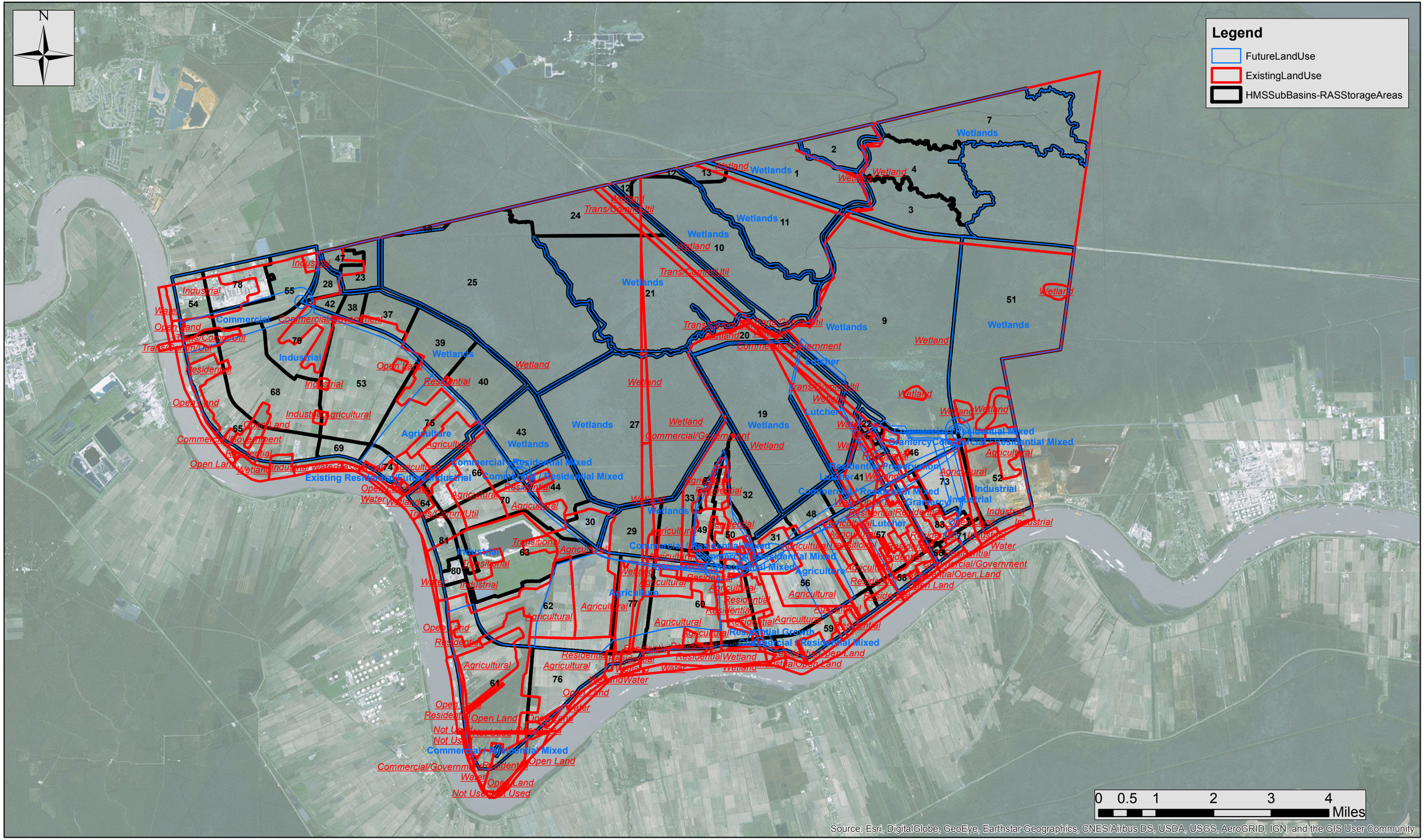
Figure 8B: North Gramercy Required Maintenance Photos (Continued)

Figure 8B: North Gramercy Required Maintenance Photos (Continued)

Figure 8B: North Gramercy Required Maintenance Photos (Continued)

HEC HMS Hydrologic Model Future Land Use Condition

In Phase 1 of the St. James East Bank Master Drainage plan an existing conditions hydrologic model was created to determine runoff rates and volumes from a 10, 50 & 100 year storm event using the United States Army Corps of Engineers (U.S.A.C.E.) Hydrologic Modeling Software (HEC HMS). The details of the methodology used for the existing condition is discussed in the body of this Phase 1 report. As a summary, HMS sub basins were delineated, GAP (Land Use) Data was assembled along with corresponding soil classification data to determine a composite curve number for each HMS sub basin. Arc GIS was used to determine the slopes of each sub basin and a lag time was developed. These hydrologic parameters as well as the SCS 10 yr., 50 yr. and 100 yr. rain event data were input into the hydrologic model to determine existing runoff rates. As part of the Phase 2 portions of this report BKI was tasked with determining what future runoff rates would be seen 20 years from now. To create the Future Land Use (FLU) hydrologic model the latest HEC HMS 4.2 program was used. To update the hydrologic parameters in the FLU model, a composite curve number (CN) correlation needed to be made between the existing land use (ELU) plan of the parish and the corresponding GAP data with the future land use (FLU) plan of the parish. ArcGIS 10.2 was used to over lay the parish's existing land use plan with the parishes future land use plan. In addition, existing composite curve numbers were modified to reflect the new FLU curve numbers corresponding to the FLU shapefile. Figure 9 shows this overlay of the Existing Land Use (ELU) with Future Land Use (FLU) shapefile. Table 6 shows the changes to the sub basin curve numbers and lag times from the ELU to the FLU conditions. It must be noted that for a large percentage of the East St. James Watershed the changes in curve numbers, runoff rates were not at an extreme level. This is due to the fact that only a small percentage of the east bank (La. 3125 south to the river) saw real modifications to the land use. For the most part, the sub basins north of La. 3125 remained the same, marshland-swamp. The meteorological data remained the same between the ELU and FLU to ensure continuity between the hydrologic models (runoff rates). For a detailed look at the runoff rates – hydrographs for the FLU condition on a sub basin by sub basin level please see Appendices 1,2 and 3 for the 10 yr.,50yr. & 100 yr. rain events.



BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

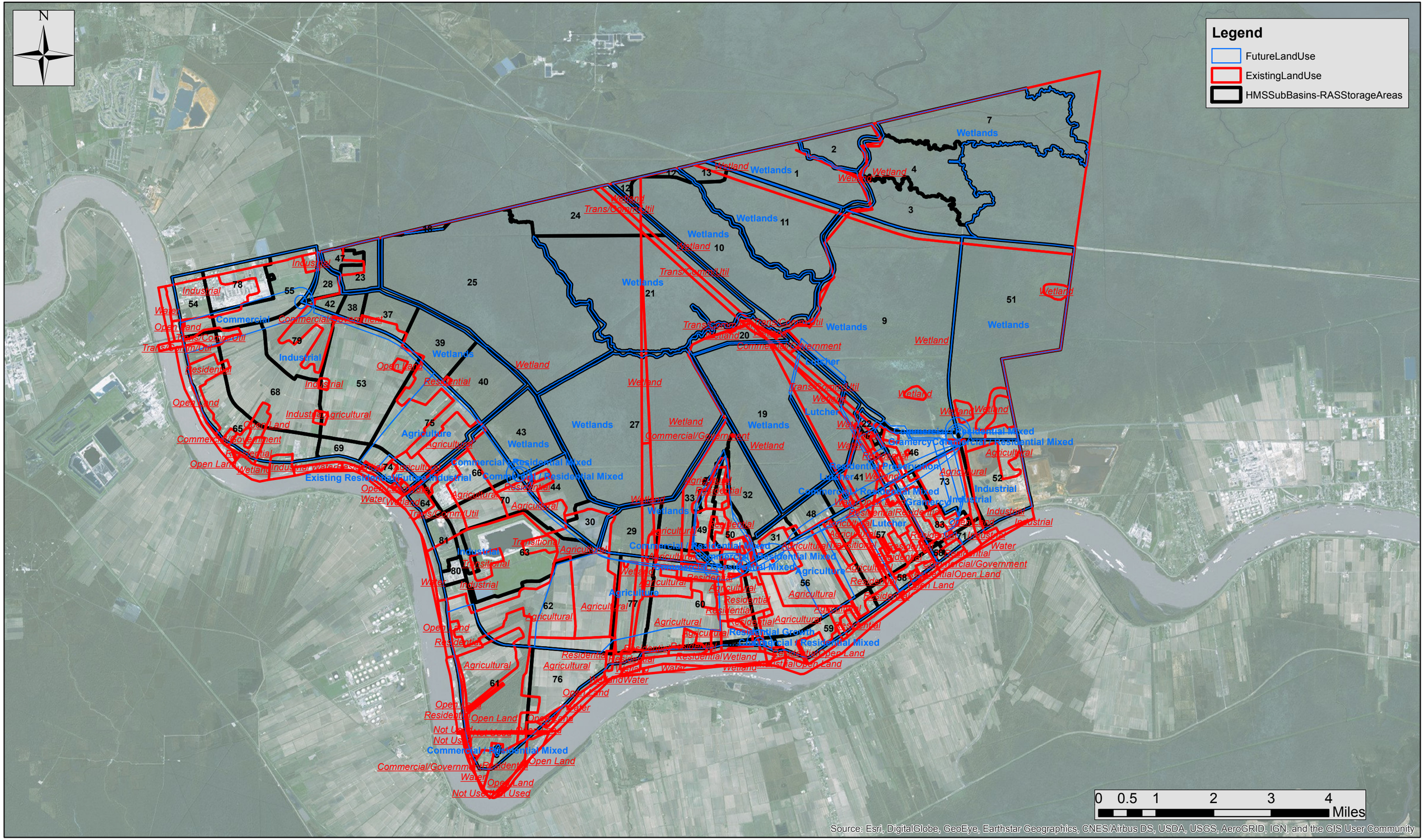
Figure 9: ELU vs.FLU Map Page 175

Table 6: HEC HMS Parameters: Existing Land Use (Ex.) versus Future Land Use (Fut.)

Basin	Fut. CN	Ex. CN	Area (sq. mi.)	Hydraulic Length (ft.)	Slope	Fut. Lag time (min.)	Ex. Lag time (min.)
1	82	82	1.7100	5674	0.1325	197	197
2	82	82	0.7800	6672	0.277	155	155
3	82	82	1.1600	18334	0.299	335	335
4	82	82	1.6000	19604	0.256	382	382
5	82	82	1.1600	21253	0.269	398	398
6	82	82	1.4700	18773	0.214	404	404
7	82	82	3.2800	24936	0.1	741	741
8	82	82	9.8500	28047	0.1	814	814
9	82	82	7.7000	34272	0.2	676	676
10	82	82	2.8800	25660	0.268	463	463
11	82	82	2.4400	26616	0.22	527	527
12	82	82	0.4900	11083	0.276	233	233
13	82	82	0.2400	8292	0.34	167	167
14	82	82	0.8300	14196	0.298	274	274
15	80	80	2.4100	10949	0.1	409	409
16	81	81	1.5300	6809	0.1	271	271
17	81	80	0.3900	6174	0.498	112	116
18	82	82	3.6300	14456	0.509	212	212
19	82	82	4.8900	38896	0.196	756	756
20	82	82	0.5000	13394	0.303	259	259
21	82	82	4.6000	39909	0.355	573	573
22	82	83	0.1000	1384	0.1	73	71
23	82	82	0.5100	2627	0.542	53	53
24	82	82	3.0500	26696	0.264	482	482
25	82	82	6.7600	31266	0.441	423	423
26	82	82	0.3200	8389	0.467	143	143
27	82	82	5.8800	28314	0.367	428	428
28	83	82	0.2400	3409	0.1	146	151
29	82	80	0.7700	4871	0.1	201	214
30	82	82	0.3600	3344	0.1	149	149
31	83	82	0.2900	2393	0.595	45	47
32	82	79	0.8300	9358	0.349	181	199
33	82	81	1.0000	12737	0.464	201	208
34	80	80	1.2300	16198	0.1	560	560
35	81	81	1.1200	17188	0.486	258	258
36	81	81	0.9900	8084	0.1	311	311
37	82	83	0.5600	3324	0.56	62	61
38	82	81	0.1800	3406	0.649	59	61
39	82	82	0.8600	4521	0.643	75	75
40	82	81	1.0000	5201	0.805	75	77
41	83	81	0.7900	6073	0.1	232	247
42	83	82	0.1400	3409	0.674	56	58
43	82	81	1.1400	5298	0.315	121	125
44	82	82	0.7700	4460	0.1	187	187

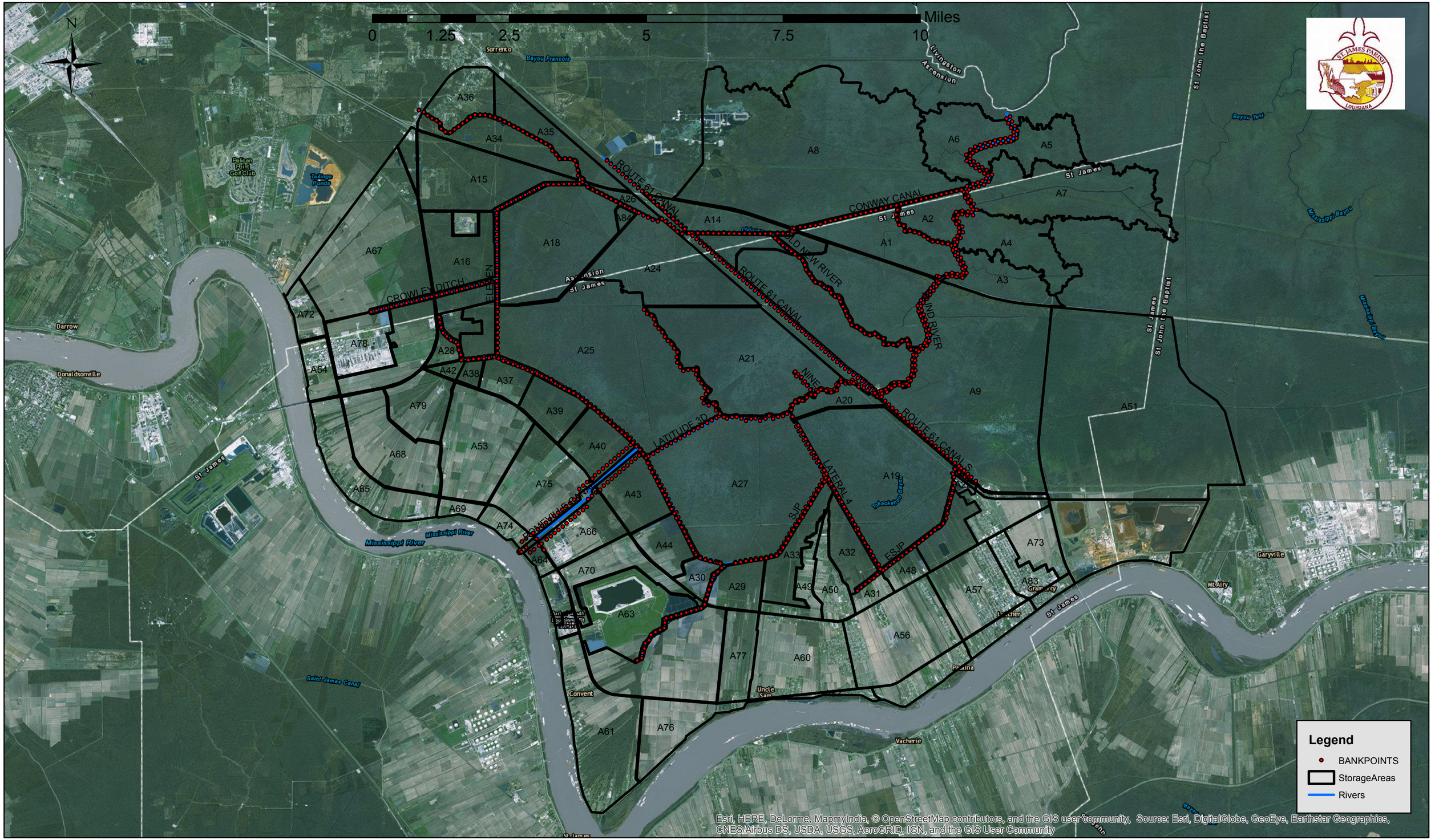
Table 6: HEC HMS Parameters: Existing Land Use (Ex.) versus Future Land Use (Fut.)							
Basin	Fut. CN	Ex. CN	Area (sq. mi.)	Hydraulic Length (ft.)	Slope	Fut. Lag time (min.)	Ex. Lag time (min.)
45	87	87	0.2100	3428	0.1	127	127
46	85	80	0.9000	4604	0.1	173	205
47	82	81	0.2500	2231	0.1	107	111
48	83	82	0.3700	2747	0.1	123	127
49	82	81	0.6300	10460	0.753	135	139
50	82	81	0.7500	10731	0.485	171	177
51	82	82	10.2400	21514	0.366	344	344
52	92	84	3.0000	13725	0.1	316	430
53	91	82	2.5800	10566	0.598	109	683
54	92	84	0.6200	4514	0.614	52	71
55	93	82	1.3900	8783	0.491	95	145
56	83	81	2.7400	7569	0.492	125	133
57	82	82	1.7300	7170	0.636	108	108
58	81	81	0.4600	1732	1.028	28	28
59	81	81	0.7500	2265	0.615	45	45
60	84	81	2.4700	7493	0.1	265	293
61	82	81	2.8600	11572	0.1	401	414
62	88	82	3.1100	10971	0.1	311	384
63	92	84	1.9900	11443	0.1	273	372
64	92	79	0.1900	1805	0.752	23	36
65	92	80	1.8200	8535	0.532	94	145
66	91	83	1.1600	7655	0.1	207	279
67	82	82	4.3400	14066	0.608	190	190
68	92	81	2.1100	8005	0.538	88	133
69	92	80	0.2500	1534	0.594	22	35
70	91	82	1.1500	8039	0.673	83	116
71	92	80	0.2000	1234	1.035	14	32
72	81	81	0.4900	4580	0.1	197	197
73	91	80	0.8400	6749	0.1	187	278
74	82	81	0.3600	1955	0.1	97	100
75	88	81	2.0700	8222	0.546	106	135
76	81	81	1.2900	7875	0.383	156	156
77	85	80	0.9800	8898	0.554	125	147
78	92	86	1.2000	7042	0.1	185	235
79	92	82	1.2000	7006	0.1	184	269
80	92	81	0.1400	2134	0.1	71	107
81	92	81	0.3400	2133	0.1	71	107
82	83	81	0.1700	1380	0.531	31	33
83	89	81	1.7100	6948	0.66	81	104
84	82	82	0.1100	2031	0.655	39	39
85	80	80	0.2600	6595	0.1	273	273
600	76	76	37.6300			1294	1294

Once the hydrologic HEC HMS model was created the next step was to route this flow-runoff through the hydraulic model. The hydraulic model was created using the U.S.A.C.E. River Analysis Software (HEC RAS 10.2). The model consisted of a geometry network containing a river reach network, storage areas, lateral structures and storage area connections. To view the HEC RAS geometry schematic please see Figure 10. These HEC RAS Storage Areas corresponded to the HEC HMS sub basins discussed earlier in this report. The flows generated in the FLU HEC HMS sub basins were tied directly to the HEC RAS storage areas. Once these flows-runoffs were input into the storage areas and the water levels in the storage areas increased, the runoff would flow into adjacent storage areas by HEC RAS storage area connections and into river reaches by HEC RAS lateral structures. Within these storage areas was a unique volume-elevation table. As the flow into these unique elevation-volume the tables a corresponding WSE elevation in the storage area was computed. As this elevation increases, based on the elevation-volume table, the runoff flows into adjacent storage areas over and through storage area connections that simulate a weir connection in the model. The storage area runoff also flows into the river network based upon lateral structures that also act as weirs within the model. Both the storage area connections and lateral structures are based upon the actual topography of the land where the structures exist in the model. ArcGIS EZ Profiler was used to determine the topography of these land areas. A new HEC RAS unsteady flow file was created using the Future Land Use sub basin flows computed in the FLU HEC HMS model. For a more detailed description and figures of the hydraulic structures and tables listed above, please see the St. James East Bank Master Drainage Plan Phase 1 report. The final piece of the FLU HEC RAS model was the outfall boundary condition. This outfall boundary condition simulates the Lake Maurepas WSE. For the purposes of this report 3 boundary conditions were analyzed. They were 2',3' and 4' NAVD88. These WSE elevations are conservative assumptions that the drainage network improvements should be based upon. These WSE really are the determining factor in how the interior drainage network routes the water out of the watershed. As discussed earlier the higher the WSE at the outfall the flow is realized out of the watershed. It must be stated that for the purposes of this report the model was used to get a basin wide snap shot of the flooding that occurs from a 10 yr. (Design Event), 50 yr. and 100 yr. rain events along with Lake WSE of 2', 3' and 4' NAVD88. The major drainage channels were included as well as the major bridges and culverts within the watershed. Smaller drainage features and their sheer number, do not reveal how efficiently they are operating within such a large scale hydraulic model. For more pertinent information and analyses each of these drainage features was analyzed separately outside the model and improvement recommendations were compiled in the earlier sections of this report. Figure 11, 12 and 13 show the inundation that occurs from a Future Land Use 10yr. 50 yr. and 100 yr. rain event with a 2'NAVD88 Lake WSE under a gravity condition.



BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

Figure 9: ELU vs.FLU Map Page 175


N
0
1.25
2.5
5
7.5
10
Miles
Sorrento
Bayou Francois
Livingston
Ascension
St John the Baptist
Bayou Tent
Pelican Point Golf Club
Tailings Ponds
ROUTE 61 CANAL
CONWAY CANAL
St James
OLD NEW RIVER
MAIN RIVER
CROWLEY DITCH
ELBEN
NINE MILE CUTOFF
LATITUDE 30
LATERAL 4
SJIP
ESJIP
Mississippi Bayou
Darrow
Donaldsonville
Mississippi River
Saint James Canal
Convent
Vacherie
Gramercy
Garyville
Mt Airy
Lutcher
Paulina
Uncle Sam
A36
A35
A34
A15
A8
A6
A5
A7
A2
A4
A1
A3
A14
A18
A16
A67
A24
A25
A21
A9
A51
A72
A78
A54
A28
A42
A38
A37
A79
A39
A53
A68
A40
A27
A43
A75
A65
A69
A74
A66
A44
A64
A70
A30
A29
A33
A32
A49
A50
A31
A48
A57
A73
A83
A56
A63
A77
A60
A61
A76
A19
A20
A26
A84
Legend
BANKPOINTS
StorageAreas
Rivers
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

0 0.5 1 2 3 4 Miles

Legend

StorageAreas

10yr-FLU-2' Depth (Max).tif

Value

High : 14.9275

Low : 0.00107908

Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

Future Land Use Figure 11
10 Year Inundation With Lake Water Surface Elevation of 2' NAVD88

0 0.5 1 2 3 4 Miles

Legend

50yr-FLU-2' Depth (Max).tif

Value

High : 18.2235

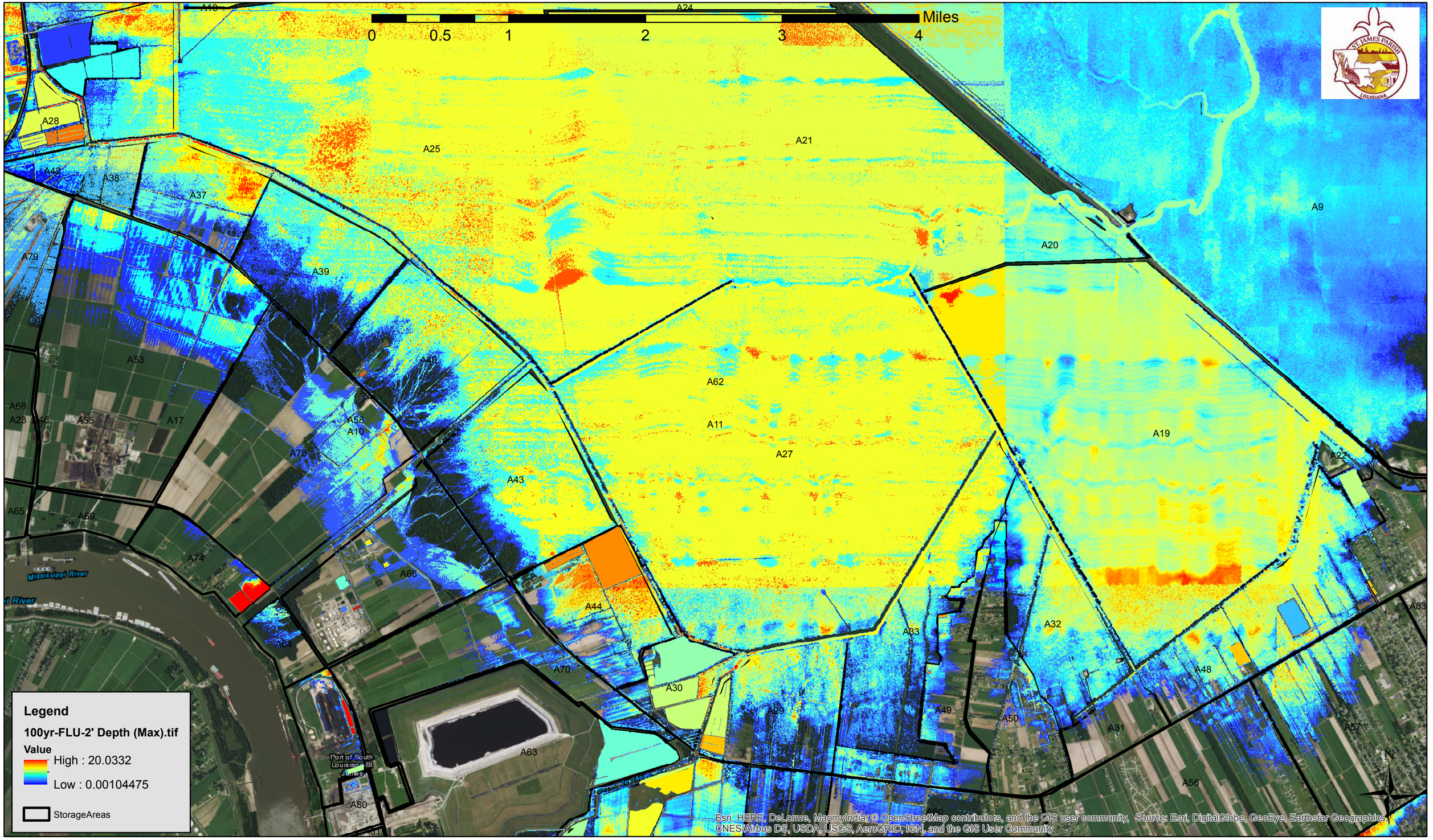
Low : 0.00123072

StorageAreas

Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

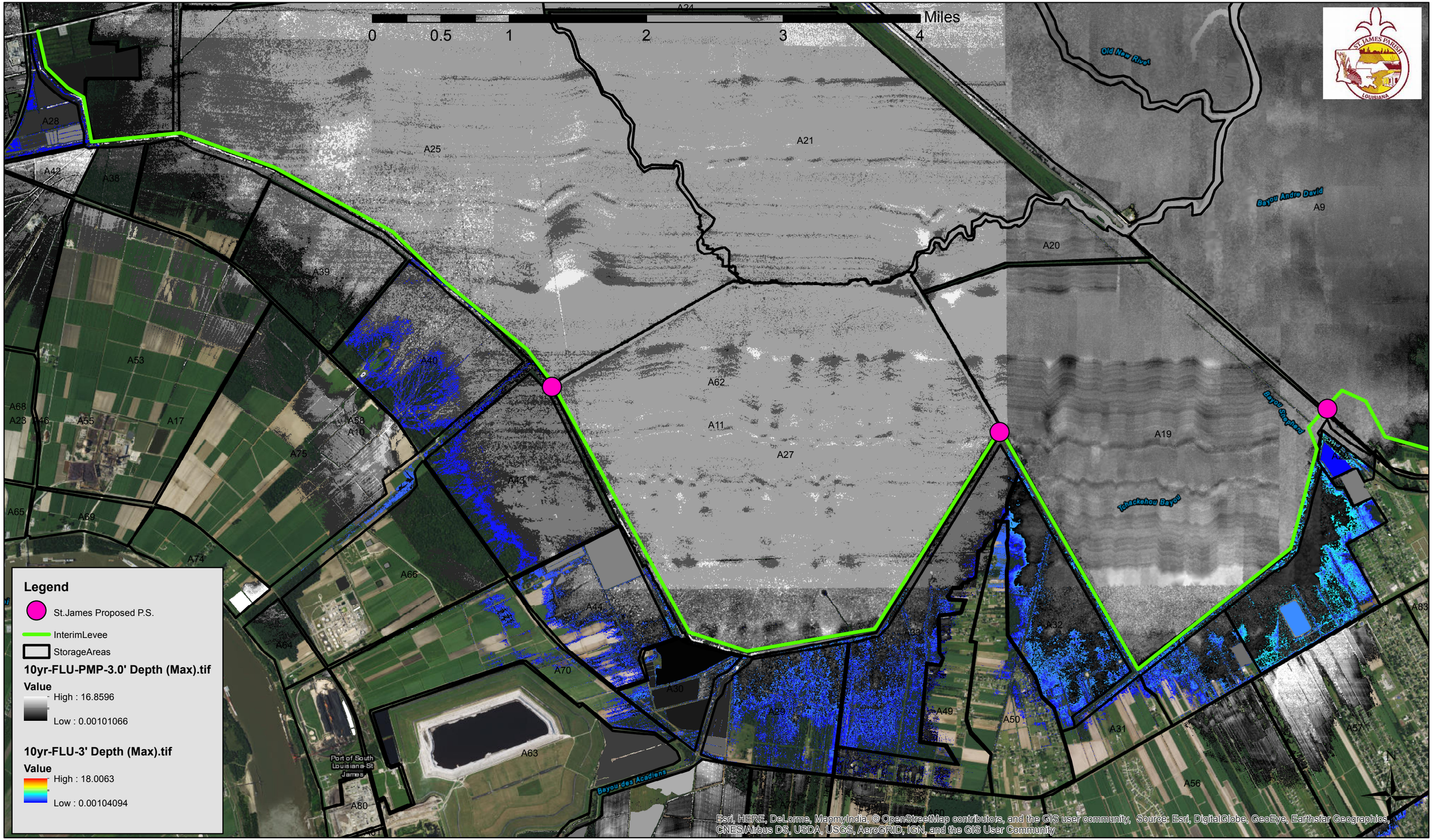
Future Land Use Figure 12
50 Year Inundation With Lake Water Surface Elevation of 2' NAVD88



BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

Future Land Use Figure 13
100 Year Inundation With Lake
Water Surface Elevation of 2' NAVD88

As stated earlier, the majority of effective gravity drainage improvements should consist of railroad culvert upgrades, driveway culvert upgrades, La. 3125 lateral culvert upgrades, ditch regrading and cleaning (maintenance) of existing drainage structures. Dredge outfall canals and bayous are not that effective. The reason they are not effective for the cost is they are located in a swamp. The only thing to be gained by dredging-widening these channels is the slight increase in channel storage. Because these canals drain into a swamp their effectiveness is diminished. The parish would be better served if they constructed a surge protection levee with pump stations and flood gates. Once these are constructed, dredging and widening the canals behind the structures would be more effective in draining the parish. This is due to the fact that the improved channels would no longer be flooding out of bank in the swamp and instead would be feeding the drainage pumps and reducing the flooding behind the stations and levees. BKI did a cursory look at providing this surge barrier system by my placing them in the Hydraulic (HEC RAS) model and using an outfall condition of 3' and 4' NAVD88 respectively. Also included in this pumped scenario were the 10, 50 and 100 year rain events. The levee was placed on top of the existing spoil bank, 450 cfs pump station at RTE 61 South Canal, 1000 cfs pump station at Lateral $ canal and a 450 cfs pump station at Latitude 3D canal. The pumps were turned on when the Lake Maurepas WSE was 2' as is common practice for pump stations in Southeast La. The inundations both with and with out the storm surge protection systems is shown in Figures 14-19. Figure 14 compares the Future Land Use inundations from a 10 year rain event both with and without the storm surge protection system at a 3' Lake Maurepas WSE. As can be seen the storm surge protection system not only reduces the inundation area but also the depths because the water piles up against the northern lanes of La. 3125. Figure 15 compares the Future Land Use inundations from a 10 year rain event both with and without the storm surge protection system at a 4' Lake Maurepas WSE. Figure 16 compares the Future Land Use inundations from a 50 year rain event both with and without the storm surge protection system at a 3' Lake Maurepas WSE. Figure 17 compares the Future Land Use inundations from a 50 year rain event both with and without the storm surge protection system at a 4' Lake Maurepas WSE. Figure 18 compares the Future Land Use inundations from a 100 year rain event both with and without the storm surge protection system at a 3' Lake Maurepas WSE. Figure 19 compares the Future Land Use inundations from a 100 year rain event both with and without the storm surge protection system at a 4' Lake Maurepas WSE. It can be expected that if the outfall elevations at Lake Maurepas were higher, the inundation behind the levee would also increase.



BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

Future Land Use Figure 14
10 Year Inundation With Lake Water Surface Elevation of 3' NAVD88
Existing Drainage vs. Levee/Pumps
Page 184

0 0.5 1 2 3 4 Miles

Old New River

Bayou Andre David

Bayou Sorrel

Bayou Shepherd

Tchackahou Bayou

Bayou des Acadiens

Port of South Louisiana-St James

A24 A28 A42 A38 A37 A25 A21 A9 A20 A39 A53 A68 A23 A46 A35 A17 A10 A58 A75 A62 A11 A27 A19 A22 A66 A44 A84 A70 A63 A80 A29 A49 A50 A31 A83 A57 A56 A60

Legend

- St.James Proposed P.S.
- InterimLevee
- StorageAreas

10yr-FLU-PMP-4.0' Depth (Max).tif

Value

High : 20.1826

Low : 0.00101256

10yr-FLU-4' Depth (Max).tif

Value

High : 20.475

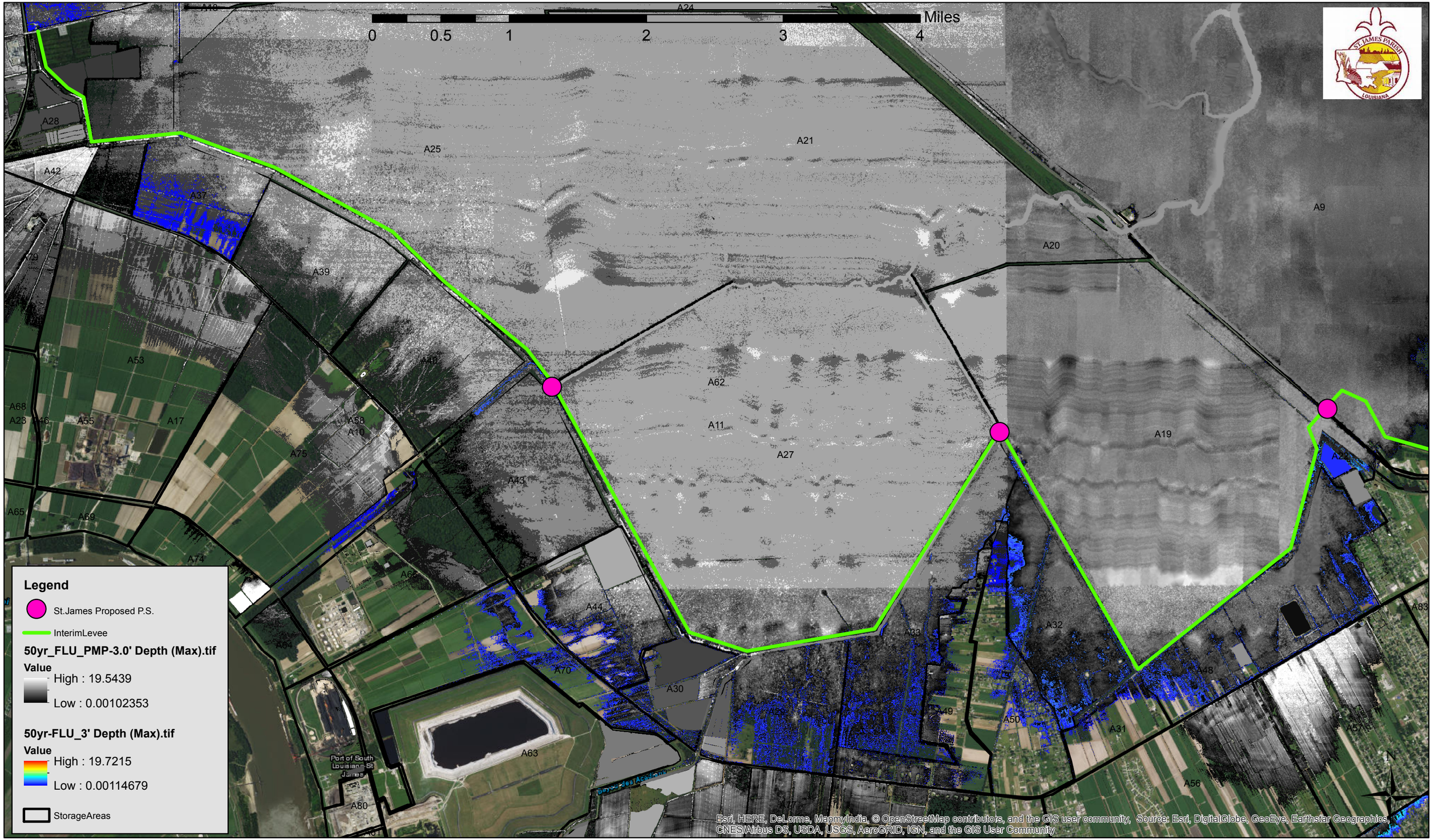
Low : 0.00108314

N

Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

BKI BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

Future Land Use Figure 15
10 Year Inundation With Lake Water Surface Elevation of 4' NAVD88 Existing Drainage vs. Levee/Pumps



BKI BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

Future Land Use Figure 16
50 Year Inundation With Lake Water Surface Elevation of 3' NAVD88
Existing Drainage vs. Levee/Pumps
Page 186

0 0.5 1 2 3 4 Miles

Legend

- St.James Proposed P.S.
- InterimLevee

50yr-FLU-PMP-4.0' Depth (Max).tif

Value

High : 20.7778

Low : 0.00101638

50yr-FLU-4' Depth (Max).tif

Value

High : 20.9321

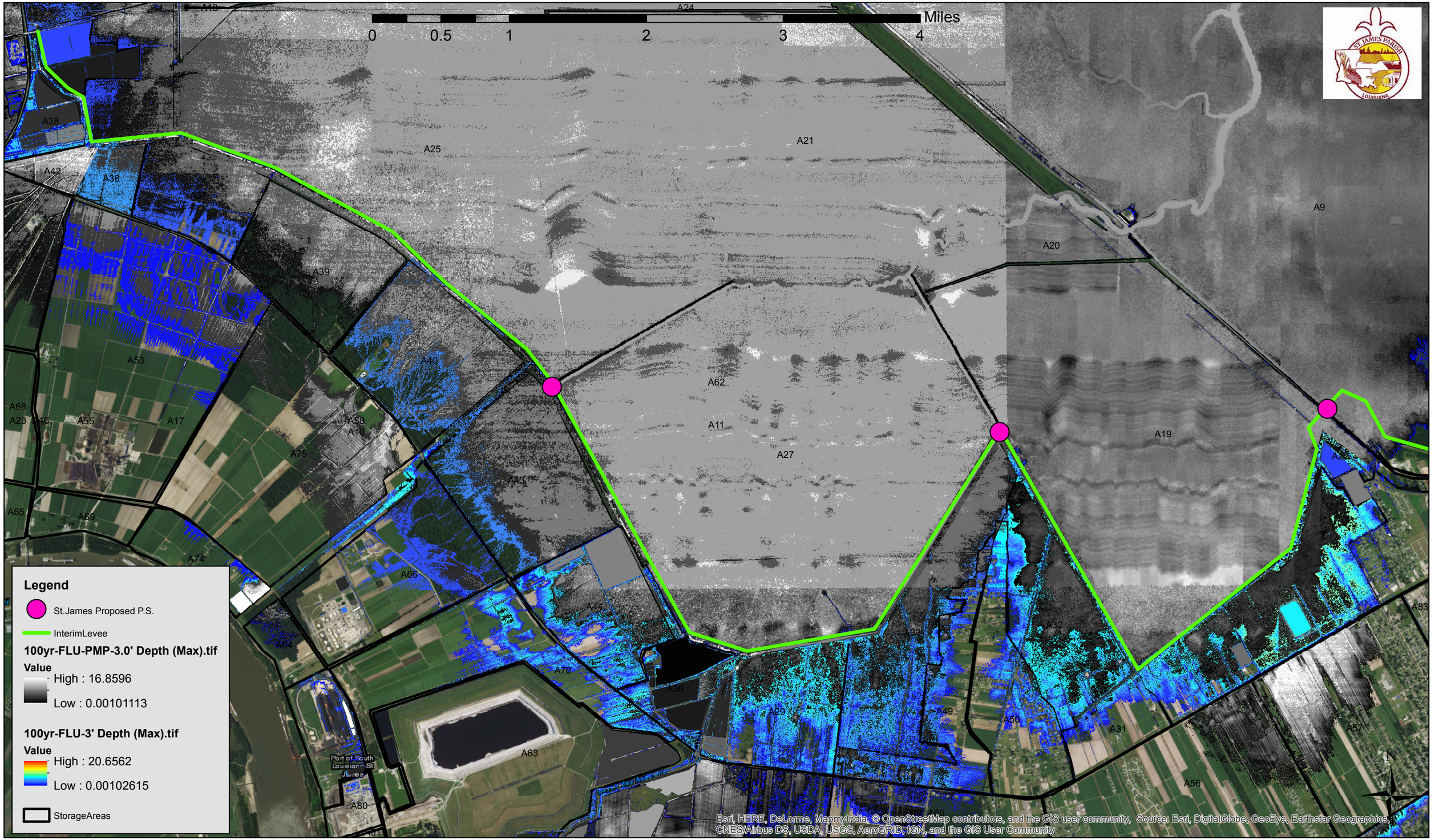
Low : 0.00111389

- StorageAreas

Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

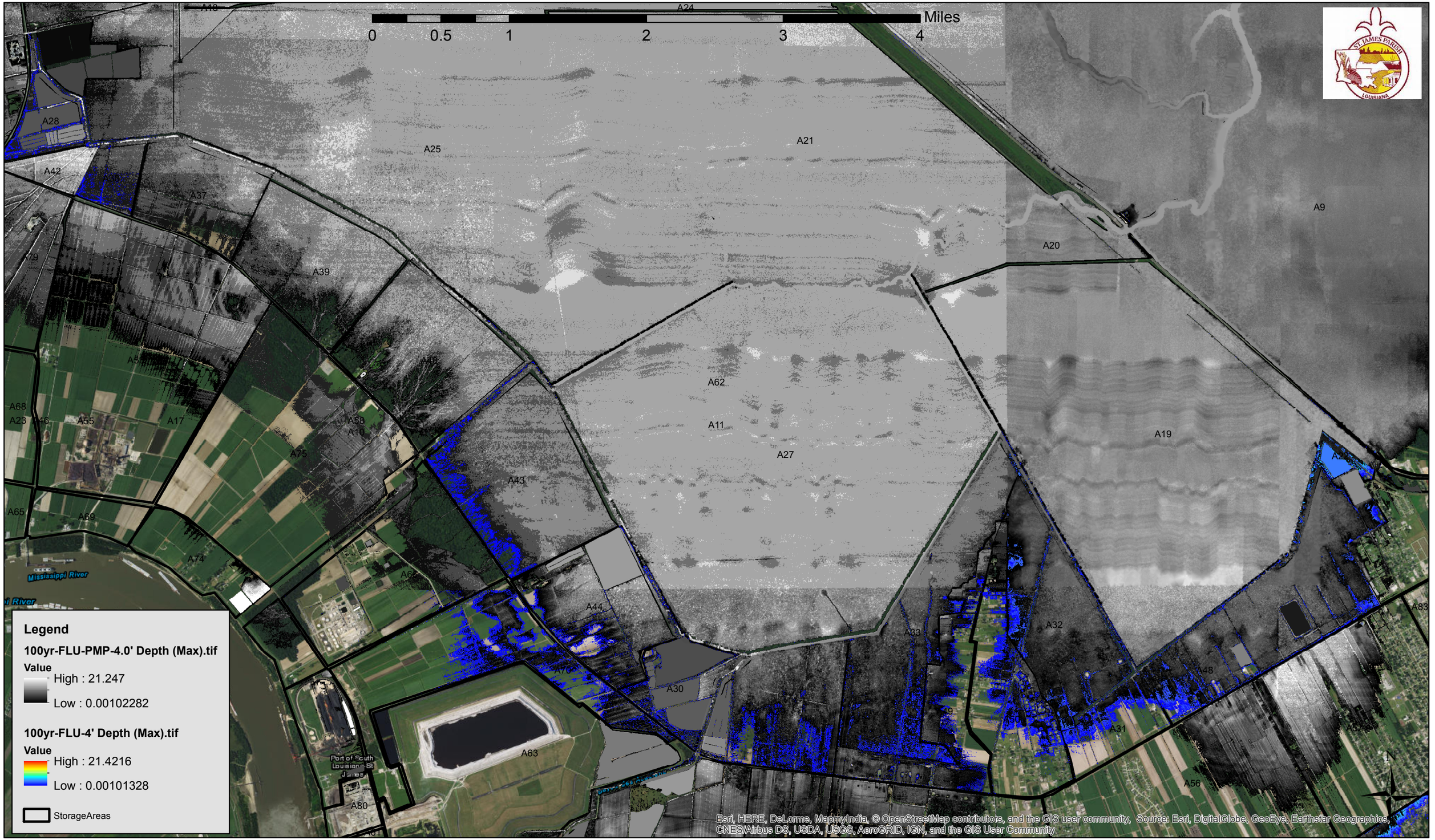
BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

Future Land Use Figure 17
50 Year Inundation With Lake Water Surface Elevation of 4' NAVD88 Existing Drainage vs. Levee/Pumps



BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

Future Land Use Figure 18
100 Year Inundation With Lake Water Surface Elevation of 3' NAVD88
Existing Drainage vs. Levee/Pumps



BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

Future Land Use Figure 19
100 Year Inundation With Lake Water Surface Elevation of 4' NAVD88 Existing Drainage vs. Levee/Pumps

Conclusions:

As stated earlier, the gravity drainage system's effectiveness is subject to the water surface elevation of the Lake Maurepas outfall. While the gravity drainage improvements detailed in this report will help alleviate the flooding in the east bank of St. James Parish when the water surface elevation in Lake Maurepas is at a WSE of 2.0' NAVD88 or below, anything above this WSE will create a backflow condition where the runoff cannot be routed out of the system. What these gravity drainage improvements will do is alleviate the flooding when the lake WSE is below 2.0' NAVD88. It will also reduce the duration of the flooding when the lake is above 2.0 NAVD88 and begins to fall. The gravity drainage system will be more responsive in routing the runoff to the outfall. Every parish in Southeast Louisiana that borders the Pontchartrain Basin as well as those parishes on the west bank has had to accept this condition. Parishes have to accept that the interior flooding is directly related to not only the rainfall event but the surge or WSE being seen at the outfall. When the outfall is high, no runoff can get out. The only solution to this condition is to construct levees, flood gates and pump stations to eliminate the backflow from high outfall WSE. The general operating procedure would be to keep the flood gates open until and under a gravity condition where the aforementioned gravity drainage improvements can efficiently route the runoff to the outfall. Once the Lake Maurepas WSE would be above 2.0'NAVD88 the basin would go into a pumped condition where the floodgates are closed and the pumps drain the basins behind it. It must be noted that the gravity drainage improvements list in this report are still necessary to efficiently feed the pump stations and alleviate the flooding. The interior drainage system improvements are needed for both a gravity and pumped condition. The proposed levee system while not completely detailed in this report can be viewed in the St. James-Ascension Storm Surge Protection Project, BKI Job# NO.15.035. The levee is approximately 8' high with subsequent lifts to 14' NAVD88 over the next 50 years, Pump Stations-Floodgates at Airline Canal 500 cubic feet/second(c.f.s.), Lateral 4 Canal 1000 c.f.s. and Latitude 3D Canal 1000 c.f.s.. Floodgates will be constructed along the levee alignment where canals exist but do not have a pump station. The levee heights are based upon a 100yr storm surge event calculated in the United States Army Corps of Engineer's (U.S.A.C.E.) Westshore Study and the pump stations are designed around a 10 year rain event. Included in this report are the results of the modeling effort for the 10, 50 and 100yr rain events, the future land use condition, Lake Maurepas WSE of 2', 3' and 4' NAVD88 both with and without the storm surge protection. The levee will be aligned on top of the existing spoil banks of the parish canals where the soil has already been compacted to a degree. The existing canals directly adjacent to and behind the levees will provide the connectivity-redundancy for the pumped condition.
Throughout the course of this study BKI facilitated numerous suggestions as to how to alleviate the flooding and storm surge problems in the east bank of St. James Parish. As it relates to storm surge alternative designs we analyzed using Airline Highway and/or La. 3125 as levees. Another alternative was constructing a barge gate at Blind River near the Airline Highway Bridge. The idea was explored with a field visit to St. Mary Parish to

see their barge gate. Another alternative was to put temporary PTO pumps at Woods Canal. These alternatives are detailed more extensively in the body of this report. The overall problem with these alternatives were:

1. They were not cost effective due to a limit amounted of protection of 6' to 8' NAVD88
2. Recirculation issues due to no existing levee to tie the structures back into.
3. State and Federal stipulations not to allow their highways to be used for flood protection
4. Some of the projects, i.e. Woods Canal only provided protection for a small portion of the community leaving other communities out of the protection and in some cases increasing the flooding in there are.
5. The Westshore Non Structural Flap Gate Project would only protect from a storm surge below 7'NAVD88. In addition, once these flap gates are closed any rainfall that occurs south of La. 3125 would be trapped and flood those areas while the areas north of La. 3125 would be inundated by storm surge.

In summary, the parish should implement a maintenance program for interior drainage to clear existing channels and culverts, as well as replacing damaged culverts listed in this report. The next step would be to upsize the La. 3125 Lateral Culverts and regrade their ditches to feed the La. 3125 cross culverts. After these downstream improvements are completed, the driveway culverts that are undersized should be replaced moving from La. 3125 south to the CN railroad. Then, the undersized CN railroad culverts should be replaced. All of these interior drainage improvements will help alleviate the flooding and also provide the infrastructure to maximize the benefits-capacity of the future levee-pump station project to reduce rain event flooding and backwater flooding from high Lake Maurepas WSE.

BKI BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

4176 Canal Street
P.O. Box 19087
New Orleans, LA 70119-5994
Phone: (504) 486-5901
Fax: (504) 488-1714
www.BKIUSA.com