

Special Joint Meeting
City Council and the Planning Commission
4:00 p.m., Tuesday, July 23, 2019
Council Chambers
1207 Palm Boulevard, Isle of Palms, South Carolina

AGENDA

1. Call to order and acknowledgement that the press and public were duly notified of the meeting in accordance with the Freedom of Information Act.
2. **PURPOSE**

Presentation by Thomas & Hutton on Phase III Drainage Project – Outfall Improvements
3. **Adjournment**

THOMAS & HUTTON

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MEMORANDUM

TO: Douglas Kerr
Director of Building, Planning and Licensing

FROM: Hillary Aton, PE
Thomas & Hutton

DATE: June 10, 2019

SUBJECT: Phase 3 Drainage Outfalls
Conceptual Design Summary

JOB NO.: 27670.0000

Introduction

The City of Isle of Palms is experiencing increased occurrences of flooding due to heavy rainfall events, extreme high tides, sea level rise, high-water table conditions, and more intense coastal storms. These conditions, combined with an inadequate drainage system, have created flooding conditions throughout the City. In response, the City has identified three outfalls to be improved as part of the Phase 3 Drainage Outfall Design and Permitting Project. Thomas & Hutton was selected for the project and has, to-date, performed a drainage study, developed conceptual improvement alternatives, and opinions of probable construction costs for the following three basins and corresponding outfalls:

1. 30th Avenue
2. Forest Trail
3. 41st Avenue

All three outfalls discharge to the Intracoastal Waterway. The study anticipated and accounted for all internal drainage infrastructure within the basins to be improved so that the proposed outfall improvements would be adequate to accept the future runoff and meet the design storm event at each outfall and throughout the basins. Please see the attached Project Area Map and Outfall Map.

30th Avenue Outfall Improvements

The proposed improvements for this outfall include new 48" RCPs collecting and combining stormwater on the south, upstream side of Waterway Blvd. These proposed pipes will include new grate inlet structures that tie into existing storm drain pipes. The stormwater is conveyed under Waterway Blvd. via an 8' x 4' concrete box culvert. Just downstream of Waterway Blvd., located within an existing 30' drainage easement, will be a junction box that allows for the transition from a box culvert to triple 48" RCPs. The conversion from a box to triple circular pipes is necessary for the installation of in-line check valves. The in-line check valves will provide protection from tidal

backflow and will prevent "sunny day flooding". The triple 48" RCPs will extend north towards the existing golf cart bridge. By filling and piping this portion of the drainage easement, the City will be able to access and maintain the downstream system. At the pipe outfall, a headwall is proposed that will contain sluice gates for each pipe. These gates will be manually operated and will provide the ability to close off the system so that it can be pumped dry and inspected/maintained. A concrete apron and outfall protection are also proposed to prevent potential erosion. The channel will be improved from the pipe outfall to the Wild Dunes Golf Course property boundary with the Intracoastal Waterway. The channel improvements consist of realignment and widening to provide adequate stormwater conveyance.

Forest Trail Outfall Improvements

The proposed improvements for the Forest Trail Outfall include a headwall, concrete apron, localized channel grading, and riprap protection on the south, upstream side of Waterway Blvd. Stormwater is conveyed under Waterway Blvd. via a 9' x 5' concrete box culvert to a junction box, located within an existing 30' drainage easement. The junction box provides access for the installation and maintenance for three in-line check valves that are to be installed on triple 54" RCPs. The 54" RCPs extend downstream towards the existing golf cart bridge across a large, existing scour hole that will be filled and stabilized. A headwall, sluice gates, concrete apron, localized channel grading, and riprap outfall protection are proposed to stabilize the existing scour hole and proposed outfall. The downstream channel will be improved which will consist of widening and realignment to a point downstream where the channel transitions to a wide, flat, grassy floodplain. A maintenance access shelf will be provided from Waterway Blvd. extending downstream along the channel.

41st Avenue Outfall Improvements – Alternative 1

Three alternatives were analyzed for the 41st Avenue outfall. The proposed improvements for Alternative 1 consisted of a headwall, concrete apron, localized channel grading, and riprap protection on the south, upstream side of Waterway Blvd. Stormwater is conveyed under Waterway Blvd. via a 6' x 3' concrete box culvert to a junction box. The junction box provides access for the installation and maintenance for three in-line check valves that are to be installed on triple 36" RCPs. A headwall, sluice gates, concrete apron, and riprap are proposed at the outfall. Some localized channel grading will be required to lower the channel to the proposed invert elevations and provide uniform, stabilized side slopes. This system will be accessed and maintained from the shoulder of 41st Avenue and the adjacent City owned property downstream.

41st Avenue Outfall Improvements – Alternative 2

The second alternative for the 41st Avenue outfall consists of the same drainage infrastructure as Alternative 1. However, the downstream channel will be widened to a 15' flat-bottomed channel with bulkheads on either side. Two alternatives were considered for the bulkheads. The two alternatives selected will have minimal impact to adjacent properties. One alternative (2a) is sheet pile walls. The second alternative (2b) is Redirock. Redirock is a gravity, segmental block retaining wall. Option 2b is slightly more cost effective than the sheet piles, however, it has a larger footprint than the sheet piles and may limit the width of the channel.

41st Avenue Outfall Improvements – Alternative 3

The third alternative for 41st Avenue consists of piping the entire channel to its outfall into the Intracoastal waterway. This alternative would consist of a 6' x 3' concrete box culvert under

Waterway Blvd., 8'x 4' and 10' x 4' box culverts extending to the outfall, and multiple grate inlet structures collecting runoff along the channel and contributing stormwater from adjacent systems. Headwalls, concrete aprons, riprap, and localized grading are proposed at both the upstream and downstream ends of the system. Just upstream of the outfall a junction box is proposed to transition the system from a box to triple 48" RCPs. The junction box structure will provide access for the installation and maintenance of three in-line check valves. Sluice gates will be installed on the headwall at the outfall.

Summary

An opinion of probable construction cost was developed for each drainage improvement concept. The Table below provides a summary of the estimated construction costs for each outfall, alternative, and a total Phase 3 construction cost.

OPINION OF PROBABLE COST - SUMMARY TABLE				
Project	Alternative 1	Alternative 2a	Alternative 2b	Alternative 3
30th Avenue Outfall Improvements	\$ 718,800			
Forest Trail Outfall Improvements	\$ 719,900			
41st Avenue Outfall Improvements	\$ 575,100	\$ 2,373,700	\$ 1,661,500	\$ 1,795,100
GRAND TOTAL OPINION OF CONSTRUCTION COST:	\$ 2,013,800	\$ 3,812,400	\$ 3,100,200	\$ 3,233,800

These costs are conceptual at this point and do not include any property costs (drainage easement, temporary const. easements, right-of way, etc.) or wetland mitigation fees. Utility costs are estimated. Utility pole relocations will be required at the 30th Avenue and 41st Avenue outfalls. These costs have been included in the construction costs. Any additional utility conflicts (water, sewer, etc.) may result in additional costs.



Job Number:	Produced: 08/30/18	Produced By: HEA	Modified: 8/30/2018	Modified By:
File: W:\MARKETING\SUBMITTALS\2018\City of Isle of Palms 3 Outfalls\GIS\Map\Map.mxd				Vertical Datum:
Thomas & Hutton compiled the map information from the following sources:				
Data	Source	Date		
Basin/Outfall	T&H	2018		
Inlet/Manhole/Pipe/Channel	Charleston County	2015		
Building Footprints	Charleston County	2007		
Contours	Charleston County	2009		
Parcels	Charleston County	2015		
DISCLAIMER Where Thomas & Hutton is cited as the data source, the firm has created or verified the data. For all other sources cited, Thomas & Hutton used the data "as is," has made no independent investigation of the data, and makes no representation as to the accuracy or completeness of the data. Please see each source for available documentation of its respective datasets. Copyright © 2015 by Thomas & Hutton No part of this document may be reproduced without written permission from an officer of Thomas & Hutton.				

City of Isle of Palms
Charleston County, SC
Phase 3 Drainage Outfall Design and Permitting
Basin Map



682 JOHNNIE DODDS BLVD • SUITE 100
MT. PLEASANT, SC 29464 • 843.849.0200
WWW.THOMASANDHUTTON.COM

GEOGRAPHIC INFORMATION SYSTEMS

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Job Number:	Produced: 08/30/18	Produced By: HEA	Modified: 8/30/2018	Modified By:
File: W:\MARKETING\SUBMITTALS\2018\City of Isle of Palms 3 Outfalls\GIS\WADO\Outfalls.mxd				Vertical Datum:
Thomas & Hutton compiled the map information from the following sources:				
Data	Source	Date		
Outfalls	T&H	2018		
Inlets/Manholes/Pipes/Channels	Charleston County	2015		
Building Footprint	Charleston County	2007		
Contours	Charleston County	2009		
Parcels	Charleston County	2015		
DISCLAIMER				
Where Thomas & Hutton is cited as the data source, the firm has created or verified the data. For all other sources cited, Thomas & Hutton used the data "as is," has made no independent investigation of the data, and makes no representation as to the accuracy or completeness of the data. Please see each source for available documentation of its respective datasets.				
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City of Isle of Palms
Charleston County, SC

Phase 3 Drainage Outfall Design and Permitting
Outfalls



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MT. PLEASANT, SC 29464 • 843.849.0200
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PROJECT : **PHASE 3 DRAINAGE OUTFALL IMPROVEMENTS**
LOCATION : **CITY OF ISLE OF PALMS**
ESTIMATOR : **WTH**



OPINION OF PROBABLE COST - SUMMARY TABLE				
Project	Alternative 1	Alternative 2a	Alternative 2b	Alternative 3
30th Avenue Outfall Improvements	\$ 718,800			
Forest Trail Outfall Improvements	\$ 719,900			
41st Avenue Outfall Improvements	\$ 575,100	\$ 2,373,700	\$ 1,661,500	\$ 1,795,100
GRAND TOTAL OPINION OF CONSTRUCTION COST:	\$ 2,013,800	\$ 3,812,400	\$ 3,100,200	\$ 3,233,800

PROJECT : Isle of Palms - 30th Avenue Outfall Improvements
 LOCATION : Isle of Palms, SC
 ESTIMATOR : WTH



OPINION OF PROBABLE CONSTRUCTION COST	
DATE PREPARED : 06/03/2019	REVISED:
BASIS FOR ESTIMATE	
	(No design completed-Master Plan)
X	(Preliminary design)
	(Final design)
	(Other)

OPINION OF PROBABLE CONSTRUCTION COST

Since the Engineer has no control over the cost of labor, materials, equipment, over the Contractor's methods of determining prices, or over competitive bidding or market conditions, the Opinions of Probable Construction Costs provided for herein are made on the basis of his experience and qualifications. These opinions represent his best judgment as a design professional familiar with the construction industry. However, the Engineer cannot and does not guarantee that proposals, bids, or the construction cost will not vary from Opinions of Probable Construction Costs prepared by him.

ITEM	DESCRIPTION	QUANTITY		COST	
		NUMBER OF UNITS	UNIT MEASURE	PER UNIT	TOTAL COST
1031000	Mobilization	1	LS		\$ 24,900.00
1032010	Bonds and Insurance	1	LS		\$ 10,000.00
1071000	Traffic Control	1	LS		\$ 10,000.00
1090200	As-Built Construction Plans	1	LS		\$ 10,000.00
2015000	Clearing and Grubbing within Right-of-Way	0.3	AC	\$ 5,000.00	\$ 1,424.24
2023000	Removal & Disposal of Existing Pavement (Roadway)	77	SY	\$ 7.00	\$ 539.78
2027000	Removal & Disposal of Existing Pavement (Cart Path)	8	SY	\$ 7.00	\$ 58.33
2028503	Removal of Existing Culvert 1' x 24"	138	LF	\$ 20.00	\$ 2,760.00
2028504	Removal of Existing Culvert 1' x 36"	79	LF	\$ 20.00	\$ 1,580.00
2033030	Controlled Fill - Borrow Material	98	CY	\$ 25.00	\$ 2,447.04
2034000	Excavation	1,042	CY	\$ 25.00	\$ 26,041.67
2034000	Muck Excavation	500	CY	\$ 25.00	\$ 12,500.00
2081001	Fine Grading	1,300	SY	\$ 7.00	\$ 9,100.00
3050112	Graded Aggregate Base Course (8" Uniform)	85	SY	\$ 15.00	\$ 1,281.67
4013990	Milling Existing Asphalt Pavement (Variable)	256	SY	\$ 5.00	\$ 1,278.89
4030319	Hot Mix Asphalt Surface Course Type B	36	TON	\$ 100.00	\$ 3,596.88
6250010	4" White Solid Lines (Pvt. Edge Lines) Fast Dry Paint	540	LF	\$ 2.00	\$ 1,080.00
6250025	4" White Solid Lines (Stop/Diag Lines) Fast Dry Paint	14	LF	\$ 2.00	\$ 28.00
6250110	4" Yellow Solid Lines (Pvt. Edge No Passing Zone) Fast Dry Paint	270	LF	\$ 2.00	\$ 540.00
6271010	4" White Solid Lines (Pvt. Edge Lines) Thermoplastic - 90 mil.	540	LF	\$ 2.00	\$ 1,080.00
6271025	4" White Solid Lines (Stop/Diag Lines) Thermoplastic - 90 mil.	14	LF	\$ 2.00	\$ 28.00
6271074	4" Yellow Solid Lines (PVT. Edge Lines) Thermoplastic - 90 mil.	270	LF	\$ 2.00	\$ 540.00
7141116	48" RC Pipe (Class III)	405	LF	\$ 120.00	\$ 48,600.00
7192032	Grate Inlet (48" x 60")	2	EA	\$ 2,500.00	\$ 5,000.00
7192033	Grate Inlet (48" x 120")	1	EA	\$ 5,000.00	\$ 5,000.00
7221011	8' x 4' PC Box Culvert	61	LF	\$ 1,200.00	\$ 73,200.00
-	Head and Wingwall Structures	1	EA	\$ 25,000.00	\$ 25,000.00
-	In-Line Check Valves (48")	3	EA	\$ 30,000.00	\$ 90,000.00
-	Junction Box	1	EA	\$ 60,000.00	\$ 60,000.00
-	Sluice Gates	3	EA	\$ 10,000.00	\$ 30,000.00
8041020	Rip-Rap Class B	101	TON	\$ 75.00	\$ 7,575.00
8048205	Geotextile for Erosion Control Under Rip-Rap (Class 2) Type B	121	SY	\$ 6.00	\$ 726.00
8100101	Sodding	1.30	MSY	\$ 10,000.00	\$ 13,000.00
8153000	Silt Fence	1,078	LF	\$ 3.00	\$ 3,234.00
8153090	Replace/Repair Silt Fence	300	LF	\$ 3.50	\$ 1,050.00
8154050	Removal of Silt Retained by Silt Fence	1,078	LF	\$ 2.50	\$ 2,695.00
8156490	Stabilized Construction Entrance - 100'x24'	300	SY	\$ 40.00	\$ 12,000.00
8990153	Utility Work Within Project Area	1	LS		\$ 50,000.00
-	Misc. Erosion Control/Water Management	1	EA	\$ 5,000.00	\$ 5,000.00
				SUBTOTAL	\$ 552,884.49
	Contingency	30.0	%	\$ 165,865.35	\$ 165,865.35
	GRAND TOTAL OPINION OF CONSTRUCTION COST				\$718,800

Notes:

1. Utility relocation fees are estimated.
2. No mitigation (wetland) fees included.
3. No property costs (drainage easement, temporary const. easements, right-of-way, etc.) are included.

PROJECT : Isle of Palms - Forest Trail Outfall Improvements
LOCATION : Isle of Palms, SC
ESTIMATOR : WTH



OPINION OF PROBABLE CONSTRUCTION COST	
DATE PREPARED : 06/03/2019	REVISED:
BASIS FOR ESTIMATE	
	(No design completed-Master Plan)
X	(Preliminary design)
	(Final design)
	(Other)

OPINION OF PROBABLE CONSTRUCTION COST

Since the Engineer has no control over the cost of labor, materials, equipment, over the Contractor's methods of determining prices, or over competitive bidding or market conditions, the Opinions of Probable Construction Costs provided for herein are made on the basis of his experience and qualifications. These opinions represent his best judgment as a design professional familiar with the construction industry. However, the Engineer cannot and does not guarantee that proposals, bids, or the construction cost will not vary from Opinions of Probable Construction Costs prepared by him.

ITEM	DESCRIPTION	QUANTITY		COST	
		NUMBER OF UNITS	UNIT MEASURE	PER UNIT	TOTAL COST
1031000	Mobilization	1	LS		\$ 25,000.00
1032010	Bonds and Insurance	1	LS		\$ 10,000.00
1071000	Traffic Control	1	LS		\$ 10,000.00
1090200	As-Built Construction Plans	1	LS		\$ 10,000.00
2015000	Clearing and Grubbing within Right-of-Way	0.4	AC	\$ 5,000.00	\$ 2,244.49
2023000	Removal & Disposal of Existing Pavement (Roadway)	36	SY	\$ 7.00	\$ 248.89
2027000	Removal & Disposal of Existing Pavement (Cart Path)	9	SY	\$ 7.00	\$ 66.11
2028503	Removal of Existing Culvert 1' x 54"	50	LF	\$ 25.00	\$ 1,257.50
2033030	Controlled Fill - Borrow Material	100	CY	\$ 25.00	\$ 2,500.00
2034000	Excavation	437	CY	\$ 25.00	\$ 10,936.20
2034000	Muck Excavation	200	CY	\$ 25.00	\$ 5,000.00
2081001	Fine Grading	700	SY	\$ 7.00	\$ 4,900.00
3050112	Graded Aggregate Base Course (8" Uniform)	45	SY	\$ 15.00	\$ 675.00
4013990	Milling Existing Asphalt Pavement (Variable)	87	SY	\$ 5.00	\$ 436.11
4030319	Hot Mix Asphalt Surface Course Type B	12	TON	\$ 100.00	\$ 1,226.56
6250010	4" White Solid Lines (Pvt. Edge Lines) Fast Dry Paint	190	LF	\$ 2.00	\$ 380.00
6250110	4" Yellow Solid Lines (Pvt. Edge No Passing Zone) Fast Dry Paint	95	LF	\$ 2.00	\$ 190.00
6271010	4" White Solid Lines (Pvt. Edge Lines) Thermoplastic - 90 mil.	190	LF	\$ 2.00	\$ 380.00
6271074	4" Yellow Solid Lines (Pvt. Edge Lines) Thermoplastic - 90 mil.	95	LF	\$ 2.00	\$ 190.00
7141119	54" RC Pipe (Class III)	87	LF	\$ 160.00	\$ 13,920.00
7221011	9'x5' PC Box Culvert	55	LF	\$ 1,800.00	\$ 99,000.00
-	Headwall	2	EA	\$ 25,000.00	\$ 50,000.00
-	Junction Box	1	EA	\$ 60,000.00	\$ 60,000.00
-	In-Line Check Valves (54")	3	EA	\$ 35,000.00	\$ 105,000.00
-	Sluice Gates	3	EA	\$ 10,000.00	\$ 30,000.00
8041020	Rip-Rap Class B	222	TON	\$ 75.00	\$ 16,650.00
8048205	Geotextile for Erosion Control Under Rip-Rap (Class 2) Type B	261	SY	\$ 6.00	\$ 1,566.00
8100101	Sodding	0.70	MSY	\$ 10,000.00	\$ 7,000.00
8153000	Silt Fence	898	LF	\$ 3.00	\$ 2,694.00
8153090	Replace/Repair Silt Fence	300	LF	\$ 3.50	\$ 1,050.00
8154050	Removal of Silt Retained by Silt Fence	898	LF	\$ 2.50	\$ 2,245.00
8990153	Utility Work Within Project Area	1	LS		\$ 50,000.00
8156490	Stabilized Construction Entrance - 100'x24'	600	SY	\$ 40.00	\$ 24,000.00
-	Misc. Erosion Control/Water Management	1	EA	\$ 5,000.00	\$ 5,000.00
				SUBTOTAL	\$ 553,755.87
	Contingency	30.0	%	\$ 166,126.76	\$ 166,126.76
	GRAND TOTAL OPINION OF CONSTRUCTION COST				\$719,900

Notes:

- Utility relocation fees are estimated.
- No mitigation (wetland) fees included.
- No property costs (drainage easement, temporary const. easements, right-of way, etc.) are included.

PROJECT : Isle of Palms - 41st Avenue Outfall Improvements - Alternative 1
 LOCATION : Isle of Palms, SC
 ESTIMATOR : WTH



OPINION OF PROBABLE CONSTRUCTION COST	
DATE PREPARED : 06/03/2019	REVISED:
BASIS FOR ESTIMATE	
	(No design completed-Master Plan)
X	(Preliminary design)
	(Final design)
	(Other)

OPINION OF PROBABLE CONSTRUCTION COST

Since the Engineer has no control over the cost of labor, materials, equipment, over the Contractor's methods of determining prices, or over competitive bidding or market conditions, the Opinions of Probable Construction Costs provided for herein are made on the basis of his experience and qualifications. These opinions represent his best judgment as a design professional familiar with the construction industry. However, the Engineer cannot and does not guarantee that proposals, bids, or the construction cost will not vary from Opinions of Probable Construction Costs prepared by him.

ITEM	DESCRIPTION	QUANTITY		COST	
		NUMBER OF UNITS	UNIT MEASURE	PER UNIT	TOTAL COST
1031000	Mobilization	1	LS		\$ 19,800.00
1032010	Bonds and Insurance	1	LS		\$ 7,900.00
1071000	Traffic Control	1	LS		\$ 10,000.00
1090200	As-Built Construction Plans	1	LS		\$ 10,000.00
2015000	Clearing and Grubbing within Right-of-Way	0.3	AC	\$ 5,000.00	\$ 1,710.63
2023000	Removal & Disposal of Existing Pavement (Roadway)	38	SY	\$ 7.00	\$ 266.00
2023001	Removal & Disposal of Existing Pavement (Cart Path)	9	SY	\$ 7.00	\$ 60.67
2027000	Removal & Disposal of Existing Pavement (Sidewalk)	4	SY	\$ 7.00	\$ 28.78
2028503	Removal of Existing Culvert 1' x 24"	216	LF	\$ 20.00	\$ 4,320.00
2021000	Removal of Existing Structure	1	EA	\$ 500.00	\$ 500.00
2033030	Controlled Fill - Borrow Material	98	CY	\$ 25.00	\$ 2,447.04
2034000	Excavation	58	CY	\$ 25.00	\$ 1,454.26
2034000	Muck Excavation	10	CY	\$ 25.00	\$ 250.00
2081001	Fine Grading	1,900	SY	\$ 7.00	\$ 13,300.00
3050112	Graded Aggregate Base Course (8" Uniform)	51	SY	\$ 20.00	\$ 1,015.56
4013990	Milling Existing Asphalt Pavement (Variable)	153	SY	\$ 15.00	\$ 2,288.33
4030319	Hot Mix Asphalt Surface Course Type B	21	TON	\$ 100.00	\$ 2,145.31
6250010	4" White Solid Lines (Pvt. Edge Lines) Fast Dry Paint	180	LF	\$ 2.00	\$ 360.00
6250025	4" White Solid Lines (Stop/Diag Lines) Fast Dry Paint	36	LF	\$ 2.00	\$ 72.00
6250110	4" Yellow Solid Lines (Pvt. Edge No Passing Zone) Fast Dry Paint	90	LF	\$ 2.00	\$ 180.00
6271010	4" White Solid Lines (Pvt. Edge Lines) Thermoplastic - 90 mil.	180	LF	\$ 2.00	\$ 360.00
6271025	4" White Solid Lines (Stop/Diag Lines) Thermoplastic - 90 mil.	36	LF	\$ 2.00	\$ 72.00
6271074	4" Yellow Solid Lines (PVT. Edge Lines) Thermoplastic - 90 mil.	90	LF	\$ 2.00	\$ 180.00
7141115	30" RC Pipe (Class III)	34	LF	\$ 100.00	\$ 3,400.00
7141116	36" RC Pipe (Class III)	60	LF	\$ 120.00	\$ 7,200.00
7192030	Grate Inlet (36" x 48")	1	EA	\$ 2,500.00	\$ 2,500.00
7221011	6' x 3' PC Box Culvert	78	LF	\$ 600.00	\$ 46,800.00
-	Headwall	2	EA	\$ 25,000.00	\$ 50,000.00
-	Junction Box	1	EA	\$ 60,000.00	\$ 60,000.00
-	In-Line Check Valves (36")	3	EA	\$ 15,000.00	\$ 45,000.00
-	Sluice Gates	3	EA	\$ 10,000.00	\$ 30,000.00
8041020	Rip-Rap Class B	132	TON	\$ 75.00	\$ 9,900.00
8048205	Geotextile for Erosion Control Under Rip-Rap (Class 2) Type B	162	SY	\$ 6.00	\$ 972.00
8100101	Sodding	1.90	MSY	\$ 10,000.00	\$ 19,000.00
8153000	Silt Fence	1,540	LF	\$ 3.00	\$ 4,620.00
8153090	Replace/Repair Silt Fence	400	LF	\$ 3.50	\$ 1,400.00
8154050	Removal of Silt Retained by Silt Fence	1,540	LF	\$ 2.50	\$ 3,850.00
8156490	Stabilized Construction Entrance - 100'x24'	600	SY	\$ 40.00	\$ 24,000.00
8990153	Utility Work Within Project Area	1	LS		\$ 50,000.00
-	Misc. Erosion Control/Water Management	1	EA	\$ 5,000.00	\$ 5,000.00
				SUBTOTAL	\$ 442,352.57
	Contingency	30.0	%	\$ 132,705.77	\$ 132,705.77
	GRAND TOTAL OPINION OF CONSTRUCTION COST				\$575,100

Notes:

- Utility relocation fees are estimated.
- No mitigation (wetland) fees included.
- No property costs (drainage easement, temporary const. easements, right-of way, etc.) are included.

PROJECT : Isle of Palms - 41st Avenue Outfall Improvements - Alternative 2a
LOCATION : Isle of Palms, SC
ESTIMATOR : WTH



OPINION OF PROBABLE CONSTRUCTION COST	
DATE PREPARED : 06/03/2019	REVISED:
BASIS FOR ESTIMATE	
<input type="checkbox"/>	(No design completed-Master Plan)
<input checked="" type="checkbox"/>	(Preliminary design)
<input type="checkbox"/>	(Final design)
<input type="checkbox"/>	(Other)

OPINION OF PROBABLE CONSTRUCTION COST

Since the Engineer has no control over the cost of labor, materials, equipment, over the Contractor's methods of determining prices, or over competitive bidding or market conditions, the Opinions of Probable Construction Costs provided for herein are made on the basis of his experience and qualifications. These opinions represent his best judgment as a design professional familiar with the construction industry. However, the Engineer cannot and does not guarantee that proposals, bids, or the construction cost will not vary from Opinions of Probable Construction Costs prepared by him.

ITEM	DESCRIPTION	QUANTITY		COST	
		NUMBER OF UNITS	UNIT MEASURE	PER UNIT	TOTAL COST
1031000	Mobilization	1	LS		\$ 84,400.00
1032010	Bonds and Insurance	1	LS		\$ 33,800.00
1071000	Traffic Control	1	LS		\$ 10,000.00
1090200	As-Built Construction Plans	1	LS		\$ 10,000.00
2015000	Clearing and Grubbing within Right-of-Way	0.3	AC	\$ 5,000.00	\$ 1,710.63
2023000	Removal & Disposal of Existing Pavement (Roadway)	38	SY	\$ 7.00	\$ 266.00
2023001	Removal & Disposal of Existing Pavement (Cart Path)	9	SY	\$ 7.00	\$ 60.67
2027000	Removal & Disposal of Existing Pavement (Sidewalk)	4	SY	\$ 7.00	\$ 28.78
2028503	Removal of Existing Culvert 1' x 24"	216	LF	\$ 20.00	\$ 4,320.00
2021000	Removal of Existing Structure	1	EA	\$ 2,000.00	\$ 2,000.00
2033030	Controlled Fill - Borrow Material	98	CY	\$ 25.00	\$ 2,447.04
2034000	Excavation	532	CY	\$ 25.00	\$ 13,310.19
2034000	Muck Excavation	200	CY	\$ 25.00	\$ 5,000.00
2081001	Fine Grading	1,600	SY	\$ 7.00	\$ 11,200.00
3050112	Graded Aggregate Base Course (8" Uniform)	51	SY	\$ 20.00	\$ 1,015.56
4013990	Milling Existing Asphalt Pavement (Variable)	153	SY	\$ 15.00	\$ 2,288.33
4030319	Hot Mix Asphalt Surface Course Type B	21	TON	\$ 100.00	\$ 2,145.31
6250010	4" White Solid Lines (Pvt. Edge Lines) Fast Dry Paint	180	LF	\$ 2.00	\$ 360.00
6250025	4" White Solid Lines (Stop/Diag Lines) Fast Dry Paint	36	LF	\$ 2.00	\$ 72.00
6250110	4" Yellow Solid Lines (Pvt. Edge No Passing Zone) Fast Dry Paint	90	LF	\$ 2.00	\$ 180.00
6271010	4" White Solid Lines (Pvt. Edge Lines) Thermoplastic - 90 mil.	180	LF	\$ 2.00	\$ 360.00
6271025	4" White Solid Lines (Stop/Diag Lines) Thermoplastic - 90 mil.	36	LF	\$ 2.00	\$ 72.00
6271074	4" Yellow Solid Lines (PVT. Edge Lines) Thermoplastic - 90 mil.	90	LF	\$ 2.00	\$ 180.00
7141115	30" RC Pipe (Class III)	34	LF	\$ 100.00	\$ 3,400.00
7141116	36" RC Pipe (Class III)	60	LF	\$ 120.00	\$ 7,200.00
7192030	Grate Inlet (36" x 48")	1	EA	\$ 2,500.00	\$ 2,500.00
7221011	6' x 3' PC Box Culvert	78	LF	\$ 600.00	\$ 46,800.00
-	Headwall	2	EA	\$ 25,000.00	\$ 50,000.00
-	Junction Box	1	EA	\$ 60,000.00	\$ 60,000.00
-	In-Line Check Valves (36")	3	EA	\$ 15,000.00	\$ 45,000.00
-	Bulkheads (Steel Sheetpiles)	1,280	LF	\$ 1,000.00	\$ 1,280,000.00
-	Sluice Gates	3	EA	\$ 10,000.00	\$ 30,000.00
8041020	Rip-Rap Class B	132	TON	\$ 75.00	\$ 9,900.00
8048205	Geotextile for Erosion Control Under Rip-Rap (Class 2) Type B	162	SY	\$ 6.00	\$ 972.00
8100101	Sodding	1.60	MSY	\$ 10,000.00	\$ 16,000.00
8153000	Silt Fence	1,540	LF	\$ 3.00	\$ 4,620.00
8153090	Replace/Repair Silt Fence	400	LF	\$ 3.50	\$ 1,400.00
8154050	Removal of Silt Retained by Silt Fence	1,540	LF	\$ 2.50	\$ 3,850.00
8156490	Stabilized Construction Entrance - 100'x24'	600	SY	\$ 40.00	\$ 24,000.00
8990153	Utility Work Within Project Area	1	LS		\$ 50,000.00
-	Misc. Erosion Control/Water Management	1	EA	\$ 5,000.00	\$ 5,000.00
				SUBTOTAL	\$ 1,825,858.50
	Contingency	30.0	%	\$ 547,757.55	\$ 547,757.55
	GRAND TOTAL OPINION OF CONSTRUCTION COST				\$2,373,700

Notes:

- Utility relocation fees are estimated.
- No mitigation (wetland) fees included.
- No property costs (drainage easement, temporary const. easements, right-of-way, etc.) are included.

PROJECT : Isle of Palms - 41st Avenue Outfall Improvements - Alternative 2b
LOCATION : Isle of Palms, SC
ESTIMATOR : WTH



OPINION OF PROBABLE CONSTRUCTION COST	
DATE PREPARED : 06/03/2019	REVISED:
BASIS FOR ESTIMATE	
	(No design completed-Master Plan)
X	(Preliminary design)
	(Final design)
	(Other)

OPINION OF PROBABLE CONSTRUCTION COST

Since the Engineer has no control over the cost of labor, materials, equipment, over the Contractor's methods of determining prices, or over competitive bidding or market conditions, the Opinions of Probable Construction Costs provided for herein are made on the basis of his experience and qualifications. These opinions represent his best judgment as a design professional familiar with the construction industry. However, the Engineer cannot and does not guarantee that proposals, bids, or the construction cost will not vary from Opinions of Probable Construction Costs prepared by him.

ITEM	DESCRIPTION	QUANTITY		COST	
		NUMBER OF UNITS	UNIT MEASURE	PER UNIT	TOTAL COST
1031000	Mobilization	1	LS		\$ 58,800.00
1032010	Bonds and Insurance	1	LS		\$ 23,600.00
1071000	Traffic Control	1	LS		\$ 10,000.00
1090200	As-Built Construction Plans	1	LS		\$ 10,000.00
2015000	Clearing and Grubbing within Right-of-Way	0.3	AC	\$ 5,000.00	\$ 1,710.63
2023000	Removal & Disposal of Existing Pavement (Roadway)	38	SY	\$ 7.00	\$ 266.00
2023001	Removal & Disposal of Existing Pavement (Cart Path)	9	SY	\$ 7.00	\$ 60.67
2027000	Removal & Disposal of Existing Pavement (Sidewalk)	4	SY	\$ 7.00	\$ 28.78
2028503	Removal of Existing Culvert 1' x 24"	216	LF	\$ 20.00	\$ 4,320.00
2021000	Removal of Existing Structure	1	EA	\$ 2,000.00	\$ 2,000.00
2033030	Controlled Fill - Borrow Material	98	CY	\$ 25.00	\$ 2,447.04
2034000	Excavation	532	CY	\$ 25.00	\$ 13,310.19
2034000	Muck Excavation	200	CY	\$ 25.00	\$ 5,000.00
2081001	Fine Grading	1,600	SY	\$ 7.00	\$ 11,200.00
3050112	Graded Aggregate Base Course (8" Uniform)	51	SY	\$ 20.00	\$ 1,015.56
4013990	Milling Existing Asphalt Pavement (Variable)	153	SY	\$ 15.00	\$ 2,288.33
4030319	Hot Mix Asphalt Surface Course Type B	21	TON	\$ 100.00	\$ 2,145.31
6250010	4" White Solid Lines (Pvt. Edge Lines) Fast Dry Paint	180	LF	\$ 2.00	\$ 360.00
6250025	4" White Solid Lines (Stop/Diag Lines) Fast Dry Paint	36	LF	\$ 2.00	\$ 72.00
6250110	4" Yellow Solid Lines (Pvt. Edge No Passing Zone) Fast Dry Paint	90	LF	\$ 2.00	\$ 180.00
6271010	4" White Solid Lines (Pvt. Edge Lines) Thermoplastic - 90 mil.	180	LF	\$ 2.00	\$ 360.00
6271025	4" White Solid Lines (Stop/Diag Lines) Thermoplastic - 90 mil.	36	LF	\$ 2.00	\$ 72.00
6271074	4" Yellow Solid Lines (PVT. Edge Lines) Thermoplastic - 90 mil.	90	LF	\$ 2.00	\$ 180.00
7141115	30" RC Pipe (Class III)	34	LF	\$ 100.00	\$ 3,400.00
7141116	36" RC Pipe (Class III)	60	LF	\$ 120.00	\$ 7,200.00
7192030	Grate Inlet (36" x 48")	1	EA	\$ 2,500.00	\$ 2,500.00
7221011	6' x 3' PC Box Culvert	78	LF	\$ 600.00	\$ 46,800.00
-	Headwall	2	EA	\$ 25,000.00	\$ 50,000.00
-	Junction Box	1	EA	\$ 60,000.00	\$ 60,000.00
-	In-Line Check Valves (36")	3	EA	\$ 15,000.00	\$ 45,000.00
-	Bulkheads (Redirock)	1,280	LF	\$ 600.00	\$ 768,000.00
-	Sluice Gates	3	EA	\$ 10,000.00	\$ 30,000.00
8041020	Rip-Rap Class B	132	TON	\$ 75.00	\$ 9,900.00
8048205	Geotextile for Erosion Control Under Rip-Rap (Class 2) Type B	162	SY	\$ 6.00	\$ 972.00
8100101	Sodding	1.60	MSY	\$ 10,000.00	\$ 16,000.00
8153000	Silt Fence	1,540	LF	\$ 3.00	\$ 4,620.00
8153090	Replace/Repair Silt Fence	400	LF	\$ 3.50	\$ 1,400.00
8154050	Removal of Silt Retained by Silt Fence	1,540	LF	\$ 2.50	\$ 3,850.00
8156490	Stabilized Construction Entrance - 100'x24'	600	SY	\$ 40.00	\$ 24,000.00
8990153	Utility Work Within Project Area	1	LS		\$ 50,000.00
-	Misc. Erosion Control/Water Management	1	EA	\$ 5,000.00	\$ 5,000.00
				SUBTOTAL	\$ 1,278,058.50
	Contingency	30.0	%	\$ 383,417.55	\$ 383,417.55
	GRAND TOTAL OPINION OF CONSTRUCTION COST				\$1,661,500

Notes:

1. Utility relocation fees are estimated.
2. No mitigation (wetland) fees included.
3. No property costs (drainage easement, temporary const. easements, right-of-way, etc.) are included.

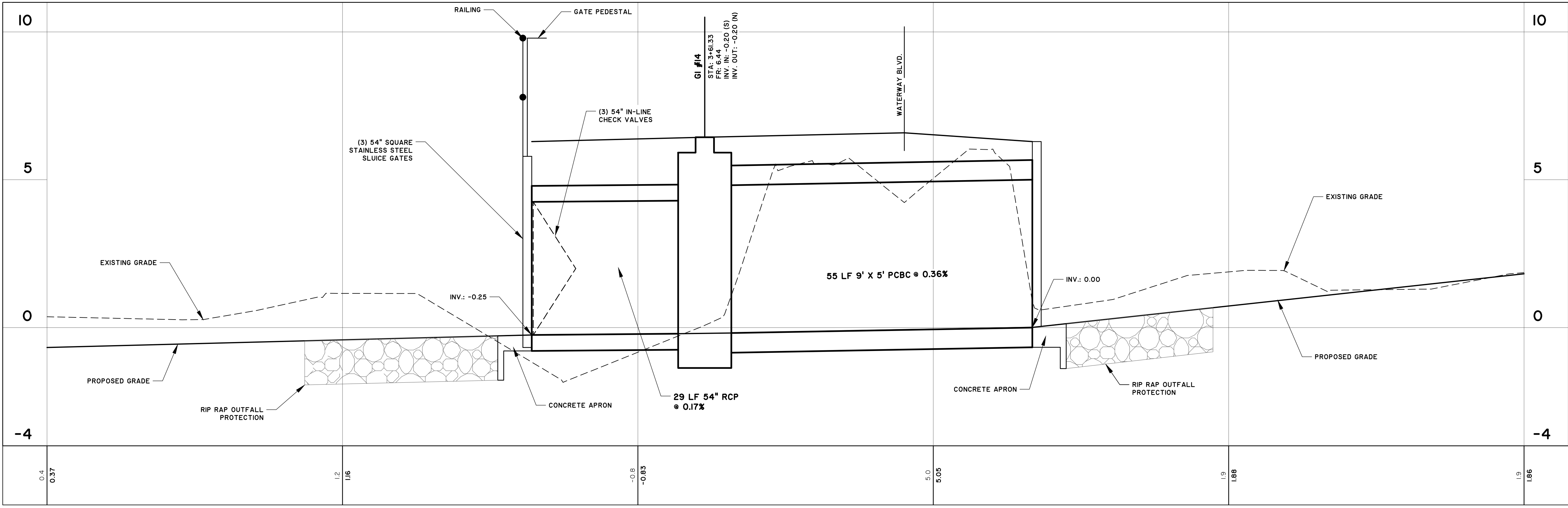
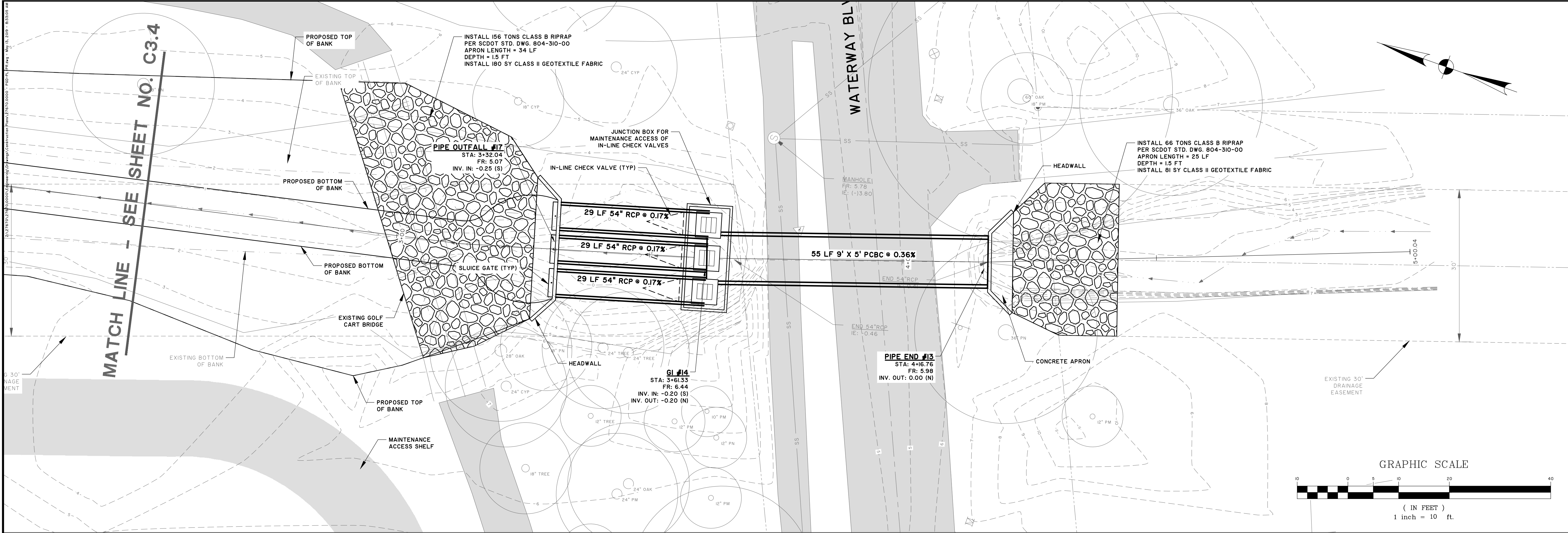
THOMAS & HUTTON

OPINION OF PROBABLE CONSTRUCTION COST	
DATE PREPARED : 06/03/2019	REVISED:
BASIS FOR ESTIMATE	
	(No design completed-Master Plan)
X	(Preliminary design)
	(Final design)
	(Other)

Since the Engineer has no control over the cost labor, materials, equipment, over the Contractor's methods of determining prices, or over competitive bidding or market conditions, the Opinions of Probable Construction Costs provided for herein are made on the basis of his experience and qualifications. These opinions represent his best judgment as a design professional familiar with the construction industry. However, the Engineer cannot and does not guarantee that proposals, bids, or the construction cost will not vary from Opinions of Probable Construction Costs prepared by him.

		QUANTITY		COST	
ITEM	DESCRIPTION	NUMBER OF UNITS	UNIT MEASURE	PER UNIT	TOTAL COST
1031000	Mobilization	1	LS		\$ 63,600.00
1032010	Bonds and Insurance	1	LS		\$ 25,500.00
1071000	Traffic Control	1	LS		\$ 10,000.00
1090200	As-Built Construction Plans	1	LS		\$ 10,000.00
2015000	Clearing and Grubbing within Right-of-Way	0.3	AC	\$ 5,000.00	\$ 1,710.63
2023000	Removal & Disposal of Existing Pavement (Roadway)	38	SY	\$ 7.00	\$ 266.00
2023001	Removal & Disposal of Existing Pavement (Cart Path)	9	SY	\$ 7.00	\$ 60.67
2027000	Removal & Disposal of Existing Pavement (Sidewalk)	4	SY	\$ 7.00	\$ 28.78
2028503	Removal of Existing Culvert 1' x 24"	216	LF	\$ 20.00	\$ 4,320.00
2021000	Removal of Existing Structure	1	EA	\$ 2,000.00	\$ 2,000.00
2033030	Controlled Fill - Borrow Material	98	CY	\$ 25.00	\$ 2,447.04
2034000	Muck Excavation	10	CY	\$ 25.00	\$ 250.00
2081001	Fine Grading	1,820	SY	\$ 7.00	\$ 12,740.00
3050112	Graded Aggregate Base Course (8" Uniform)	51	SY	\$ 20.00	\$ 1,015.56
4013990	Milling Existing Asphalt Pavement (Variable)	153	SY	\$ 15.00	\$ 2,288.33
4030319	Hot Mix Asphalt Surface Course Type B	21	TON	\$ 100.00	\$ 2,145.31
6250010	4" White Solid Lines (Pvt. Edge Lines) Fast Dry Paint	180	LF	\$ 2.00	\$ 360.00
6250025	4" White Solid Lines (Stop/Diag Lines) Fast Dry Paint	36	LF	\$ 2.00	\$ 72.00
6250110	4" Yellow Solid Lines (Pvt. Edge No Passing Zone) Fast Dry Paint	90	LF	\$ 2.00	\$ 180.00
6271010	4" White Solid Lines (Pvt. Edge Lines) Thermoplastic - 90 mil.	180	LF	\$ 2.00	\$ 360.00
6271025	4" White Solid Lines (Stop/Diag Lines) Thermoplastic - 90 mil.	36	LF	\$ 2.00	\$ 72.00
6271074	4" Yellow Solid Lines (PVT. Edge Lines) Thermoplastic - 90 mil.	90	LF	\$ 2.00	\$ 180.00
7141115	30" RC Pipe (Class III)	34	LF	\$ 100.00	\$ 3,400.00
7141116	48" RC Pipe (Class III)	219	LF	\$ 120.00	\$ 26,280.00
7192030	Grate Inlet (36"x 48")	1	EA	\$ 2,500.00	\$ 2,500.00
7192030	Grate Inlet (48"x 120")	5	EA	\$ 5,000.00	\$ 25,000.00
7221011	6' x 3' PC Box Culvert	78	LF	\$ 600.00	\$ 46,800.00
7221011	8' x 4' PC Box Culvert	353	LF	\$ 1,200.00	\$ 423,600.00
7221011	10' x 4' PC Box Culvert	198	LF	\$ 1,600.00	\$ 316,800.00
-	Headwall	2	EA	\$ 25,000.00	\$ 50,000.00
-	Junction Box	1	EA	\$ 60,000.00	\$ 60,000.00
-	In-Line Check Valves (48")	3	EA	\$ 30,000.00	\$ 90,000.00
-	Sluice Gates	3	EA	\$ 10,000.00	\$ 30,000.00
8041020	Rip-Rap Class B	119	TON	\$ 75.00	\$ 8,925.00
8048205	Geotextile for Erosion Control Under Rip-Rap (Class 2) Type B	147	SY	\$ 6.00	\$ 882.00
8100101	Sodding	1.81	MSY	\$ 10,000.00	\$ 18,139.68
8153000	Silt Fence	1,540	LF	\$ 3.00	\$ 4,620.00
8153090	Replace/Repair Silt Fence	400	LF	\$ 3.50	\$ 1,400.00
8154050	Removal of Silt Retained by Silt Fence	1,540	LF	\$ 2.50	\$ 3,850.00
8156490	Stabilized Construction Entrance - 100'x24'	600	SY	\$ 40.00	\$ 24,000.00
8990153	Utility Work Within Project Area	1	LS		\$ 100,000.00
-	Misc. Erosion Control/Water Management	1	EA	\$ 5,000.00	\$ 5,000.00
				SUBTOTAL	\$ 1,380,792.99
	Contingency	30.0	%	\$ 414,237.90	\$ 414,237.90
	GRAND TOTAL OPINION OF CONSTRUCTION COST				\$1,795,100

1. Utility relocation fees are estimated.
2. No mitigation (wetland) fees included.
3. No property costs (drainage easement, temporary const. easements, right-of way, etc.) are included.



FOREST TRAIL OUTFALL
STATIONS: 2+50 - 5+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 2'

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON

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Savannah, GA 31405 • 912.234.5300
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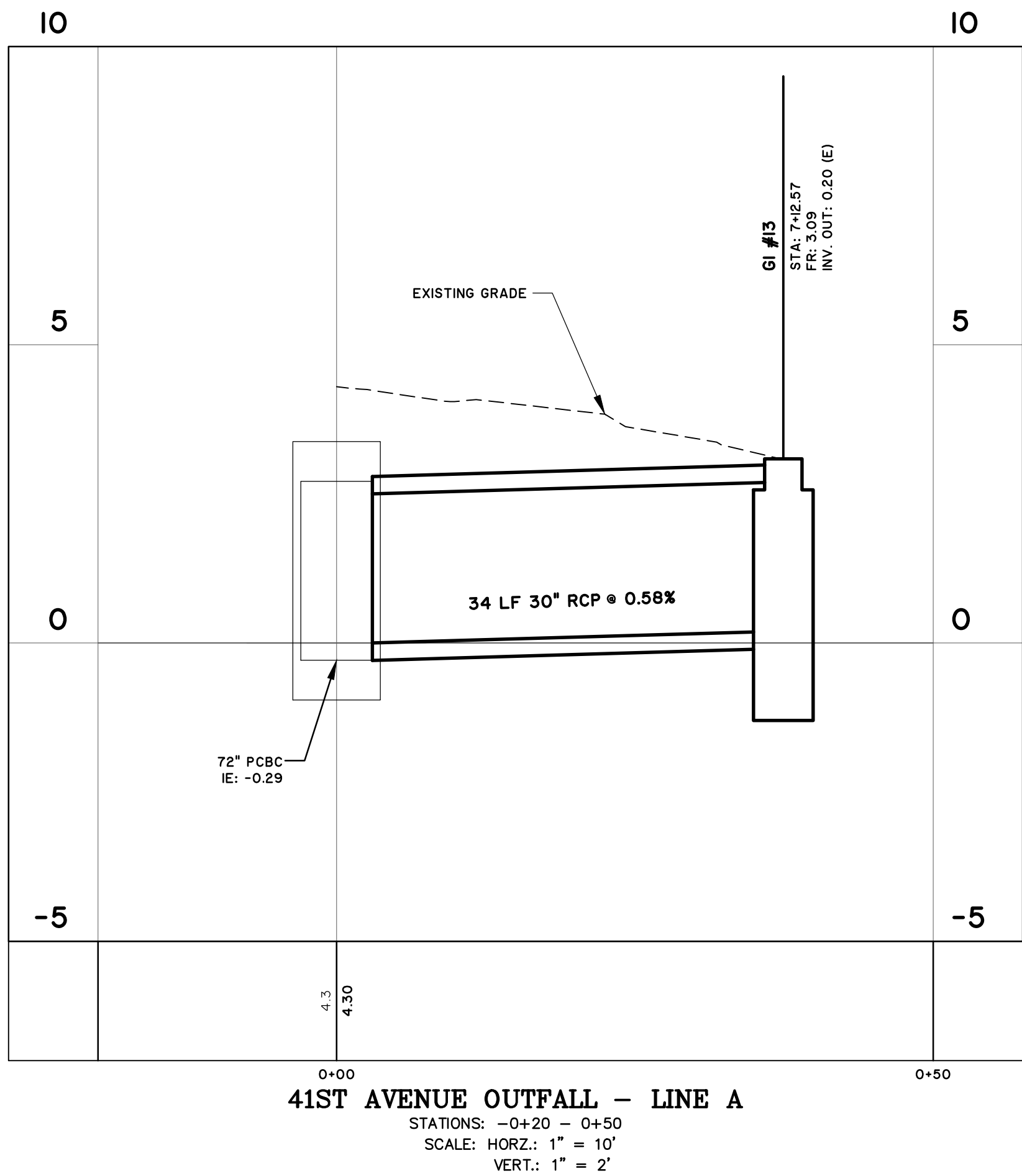
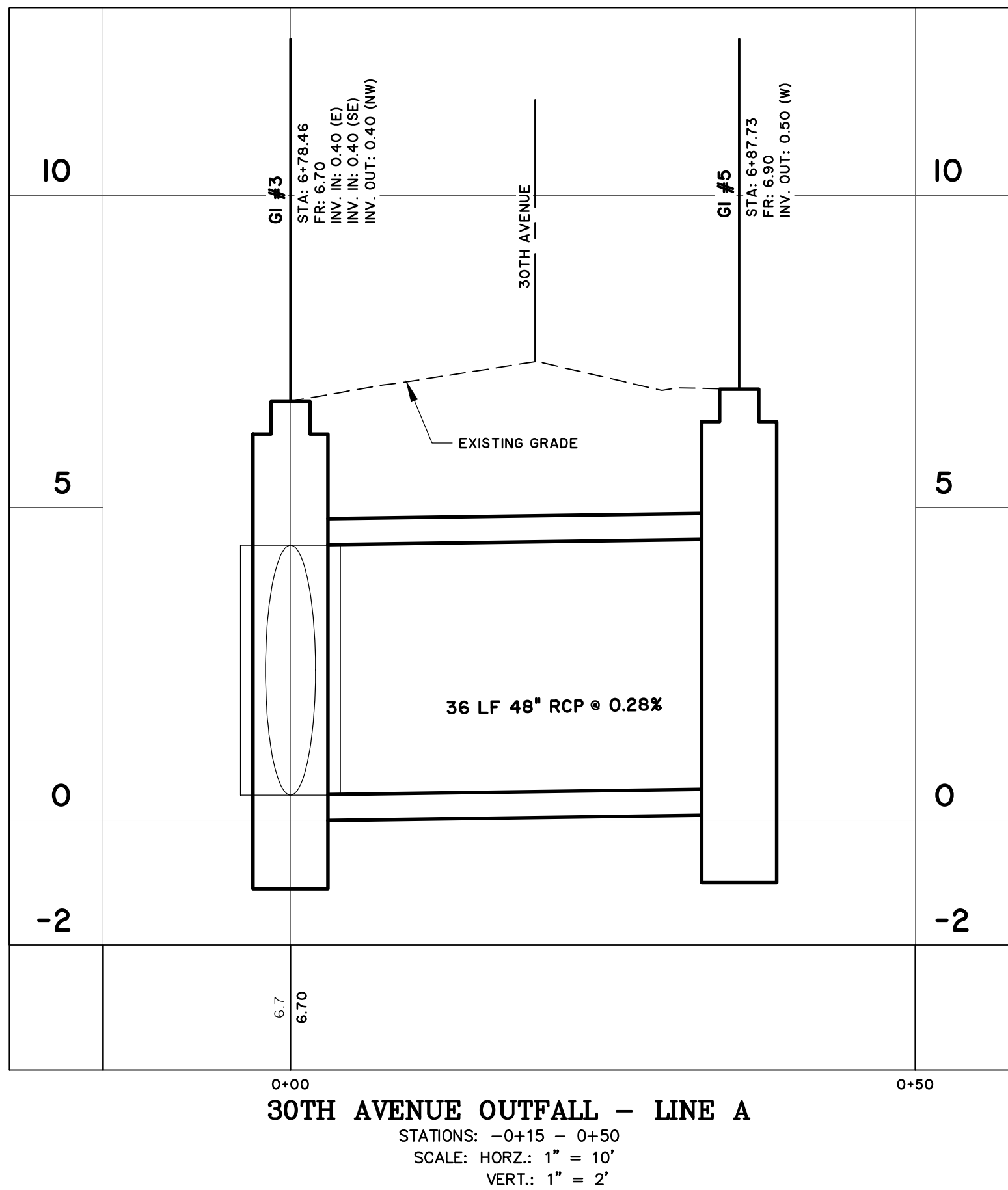
CITY OF ISLE OF PALMS

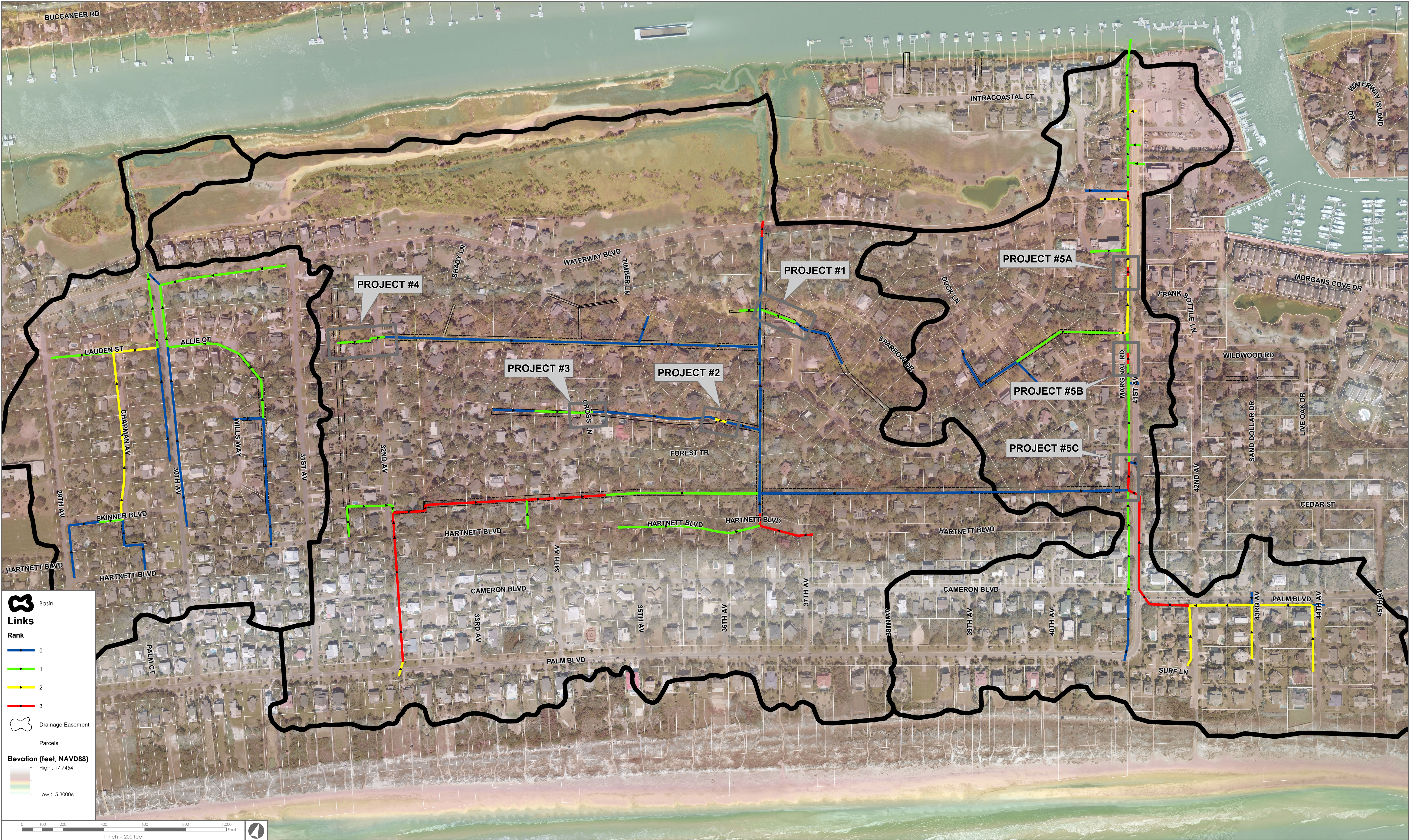
ISLE OF PALMS OUTFALL IMPROVEMENTS


PAVING, GRADING, & DRAINAGE PLAN & PROFILE

JOB NO:	J-27670.0000
DATE:	05/13/19
DRAWN:	
DESIGNED:	
REVIEWED:	
APPROVED:	
SCALE:	AS NOTED

C3.5





0 100 200 400 600 800 1,000 Feet					
1 inch = 200 feet					
Job Number: 27670.0000	Produced: 6/28/2019	Produced By: HEA	Modified By:		
File: Z:\27670\27670.0002\GIS\Map\Pipe Capacity Analysis.mxd		HEA	Vertical Datum: NAVD83		
Thomas & Hutton compiled the map information from the following sources:					
Data	Source	Date			
DISCLAIMER					
Where Thomas & Hutton is cited as the data source, the firm has created or verified the data. For all other sources cited, Thomas & Hutton used the data "as is" and has made no independent investigation of the data, and makes no representation as to the accuracy or completeness of the data. Please see each source for available documentation of its respective datasets.					
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Isle of Palms Internal Drainage Projects

Charleston County, South Carolina

10-Year Pipe Capacity Analysis



682 JOHNNIE DODDS BLVD • SUITE 100
MT. PLEASANT, SC 29464 • 843.849.0200
WWW.THOMASANDHUTTON.COM

GEOGRAPHIC INFORMATION SYSTEMS

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PROJECT : **PHASE 3 INTERNAL IMPROVEMENTS**
LOCATION : **CITY OF ISLE OF PALMS**
ESTIMATOR : **HEA**



OPINION OF PROBABLE COST - SUMMARY TABLE		
#1	Sparrow Drive Drainage Improvement	\$ 99,600
#2	Forest Trail Drainage Improvement	\$ 56,600
#3	Cross Lane Drainage Improvements	\$ 52,800
#4	32nd Ave Drainage Improvements	\$ 96,800
#5	41st Avenue Driveway Pipe Drainage Improvements	\$ 152,800
GRAND TOTAL OPINION OF CONSTRUCTION COST:		\$ 458,600

*These improvements are dependent on other improvements

PROJECT : #1 - Isle of Palms - Sparrow Drive, Forest Trail, Cross Lane, & 32nd Ave Drainage Imp
LOCATION : Isle of Palms, SC
ESTIMATOR : HEA



OPINION OF PROBABLE CONSTRUCTION COST	
DATE PREPARED : 06/03/2019	REVISED:
BASIS FOR ESTIMATE	
X	(No design completed-Master Plan)
	(Preliminary design)
	(Final design)
	(Other)

OPINION OF PROBABLE CONSTRUCTION COST
Since the Engineer has no control over the cost of labor, materials, equipment, over the Contractor's methods of determining prices, or over competitive bidding or market conditions, the Opinions of Probable Construction Costs provided for herein are made on the basis of his experience and qualifications. These opinions represent his best judgment as a design professional familiar with the construction industry. However, the Engineer cannot and does not guarantee that proposals, bids, or the construction cost will not vary from Opinions of Probable Construction Costs prepared by him.

ITEM	DESCRIPTION	QUANTITY		COST	
		NUMBER OF UNITS	UNIT MEASURE	PER UNIT	TOTAL COST
1031000	Mobilization	1	LS		\$ 2,600.00
1032010	Bonds and Insurance	1	LS		\$ 1,100.00
1071000	Traffic Control	1	LS		\$ 5,000.00
1090200	As-Built Construction Plans	1	LS		\$ 5,000.00
2015000	Clearing and Grubbing within Right-of-Way	0.1	AC	\$ 5,000.00	\$ 396.92
2023000	Removal & Disposal of Existing Pavement	44	SY	\$ 7.00	\$ 311.11
2028502	Removal of Existing Culvert 1' x 18"	238	LF	\$ 20.00	\$ 4,760.00
2021000	Removal of Existing Structure	2	EA	\$ 500.00	\$ 1,000.00
3050112	Graded Aggregate Base Course (8 " Uniform)	44	SY	\$ 15.00	\$ 666.67
4030319	Hot Mix Asphalt Surface Course Type B	6	TON	\$ 100.00	\$ 625.00
7141114	24" RC pipe (Class III)	238	LF	\$ 85.00	\$ 20,230.00
7192030	Grate Inlet (36" x 36")	2	EA	\$ 2,500.00	\$ 5,000.00
8041020	Rip-Rap Class B	7	TON	\$ 75.00	\$ 525.00
8048205	Geotextile for Erosion Control Under Rip-Rap (Class 2) Type B	12	SY	\$ 6.00	\$ 72.00
8100101	Sodding	0.38	MSY	\$ 10,000.00	\$ 3,842.22
8153000	Silt Fence	433	LF	\$ 3.00	\$ 1,299.00
8153090	Replace/Repair Silt Fence	200	LF	\$ 3.50	\$ 700.00
8154050	Removal of Silt Retained by Silt Fence	433	LF	\$ 2.50	\$ 1,082.50
8990153	Utility Work Within Project Area	1	LS		\$ 5,000.00
-	Misc. Erosion Control/Water Management	1	EA	\$ 5,000.00	\$ 5,000.00
				SUBTOTAL	\$ 64,210.42
	Survey, Engineering, Bidding, & Construction Services	15	%	\$ 9,631.56	\$ 9,631.56
	Contingency	40	%	\$ 25,684.17	\$ 25,684.17
	GRAND TOTAL OPINION OF CONSTRUCTION COST				\$99,600

- Notes:
- 1. Utility relocation fees are estimated.
 - 2. No mitigation (wetland) fees included.
 - 3. No property costs (drainage easement, temporary const. easements, right-of way, etc.) are included.

PROJECT : #2 - Isle of Palms - Sparrow Drive, Forest Trail, Cross Lane, & 32nd Ave Drainage Imp
LOCATION : Isle of Palms, SC
ESTIMATOR : HEA



OPINION OF PROBABLE CONSTRUCTION COST	
DATE PREPARED : 06/03/2019	REVISED:
BASIS FOR ESTIMATE	
X	(No design completed-Master Plan)
	(Preliminary design)
	(Final design)
	(Other)

OPINION OF PROBABLE CONSTRUCTION COST

Since the Engineer has no control over the cost of labor, materials, equipment, over the Contractor's methods of determining prices, or over competitive bidding or market conditions, the Opinions of Probable Construction Costs provided for herein are made on the basis of his experience and qualifications. These opinions represent his best judgment as a design professional familiar with the construction industry. However, the Engineer cannot and does not guarantee that proposals, bids, or the construction cost will not vary from Opinions of Probable Construction Costs prepared by him.

ITEM	DESCRIPTION	QUANTITY		COST	
		NUMBER OF UNITS	UNIT MEASURE	PER UNIT	TOTAL COST
1031000	Mobilization	1	LS		\$ 1,300.00
1032010	Bonds and Insurance	1	LS		\$ 500.00
1071000	Traffic Control	1	LS		\$ 5,000.00
1090200	As-Built Construction Plans	1	LS		\$ 5,000.00
2015000	Clearing and Grubbing within Right-of-Way	0.05	AC	\$ 5,000.00	\$ 235.31
2023000	Removal & Disposal of Existing Pavement	42	SY	\$ 7.00	\$ 291.67
2028501	Removal of Existing Culvert 1' x 15"	58	LF	\$ 20.00	\$ 1,160.00
3050112	Graded Aggregate Base Course (8 " Uniform)	42	SY	\$ 15.00	\$ 625.00
4030319	Hot Mix Asphalt Surface Course Type B	6	TON	\$ 100.00	\$ 585.94
7141116	36" RC Pipe (Class III)	58	LF	\$ 120.00	\$ 6,960.00
8041020	Rip-Rap Class B	14	TON	\$ 75.00	\$ 1,050.00
8048205	Geotextile for Erosion Control Under Rip-Rap (Class 2) Type B	24	SY	\$ 6.00	\$ 144.00
8100101	Sodding	0.23	MSY	\$ 10,000.00	\$ 2,277.78
8153000	Silt Fence	180	LF	\$ 3.00	\$ 540.00
8153090	Replace/Repair Silt Fence	100	LF	\$ 3.50	\$ 350.00
8154050	Removal of Silt Retained by Silt Fence	180	LF	\$ 2.50	\$ 450.00
8990153	Utility Work Within Project Area	1	LS		\$ 5,000.00
-	Misc. Erosion Control/Water Management	1	EA	\$ 5,000.00	\$ 5,000.00
				SUBTOTAL	\$ 36,469.69
	Survey, Engineering, Bidding, & Construction Services	15	%	\$ 5,470.45	\$ 5,470.45
	Contingency	40	%	\$ 14,587.88	\$ 14,587.88
	GRAND TOTAL OPINION OF CONSTRUCTION COST				\$56,600

- Notes:**
- 1. Utility relocation fees are estimated.
 - 2. No mitigation (wetland) fees included.
 - 3. No property costs (drainage easement, temporary const. easements, right-of way, etc.) are included.

PROJECT : #3 - Isle of Palms - Sparrow Drive, Forest Trail, Cross Lane, & 32nd Ave Drainage Imp
LOCATION : Isle of Palms, SC
ESTIMATOR : HEA



OPINION OF PROBABLE CONSTRUCTION COST	
DATE PREPARED : 06/03/2019	REVISED:
BASIS FOR ESTIMATE	
X	(No design completed-Master Plan)
	(Preliminary design)
	(Final design)
	(Other)

OPINION OF PROBABLE CONSTRUCTION COST

Since the Engineer has no control over the cost of labor, materials, equipment, over the Contractor's methods of determining prices, or over competitive bidding or market conditions, the Opinions of Probable Construction Costs provided for herein are made on the basis of his experience and qualifications. These opinions represent his best judgment as a design professional familiar with the construction industry. However, the Engineer cannot and does not guarantee that proposals, bids, or the construction cost will not vary from Opinions of Probable Construction Costs prepared by him.

ITEM	DESCRIPTION	QUANTITY		COST	
		NUMBER OF UNITS	UNIT MEASURE	PER UNIT	TOTAL COST
1031000	Mobilization	1	LS		\$ 1,200.00
1032010	Bonds and Insurance	1	LS		\$ 500.00
1071000	Traffic Control	1	LS		\$ 5,000.00
1090200	As-Built Construction Plans	1	LS		\$ 5,000.00
2015000	Clearing and Grubbing within Right-of-Way	0.1	AC	\$ 5,000.00	\$ 276.06
2023000	Removal & Disposal of Existing Pavement	32	SY	\$ 7.00	\$ 225.56
2028500	Removal of Existing Culvert 1' x 12"	59	LF	\$ 20.00	\$ 1,180.00
3050112	Graded Aggregate Base Course (8 " Uniform)	32	SY	\$ 15.00	\$ 483.33
4030319	Hot Mix Asphalt Surface Course Type B	5	TON	\$ 100.00	\$ 453.13
7141114	24" RC pipe (Class III)	59	LF	\$ 85.00	\$ 5,015.00
8041020	Rip-Rap Class B	6	TON	\$ 75.00	\$ 450.00
8048205	Geotextile for Erosion Control Under Rip-Rap (Class 2) Type B	14	SY	\$ 6.00	\$ 84.00
8100101	Sodding	0.27	MSY	\$ 10,000.00	\$ 2,672.22
8153000	Silt Fence	205	LF	\$ 3.00	\$ 615.00
8153090	Replace/Repair Silt Fence	100	LF	\$ 3.50	\$ 350.00
8154050	Removal of Silt Retained by Silt Fence	205	LF	\$ 2.50	\$ 512.50
8990153	Utility Work Within Project Area	1	LS		\$ 5,000.00
-	Misc. Erosion Control/Water Management	1	EA	\$ 5,000.00	\$ 5,000.00
				SUBTOTAL	\$ 34,016.79
	Survey, Engineering, Bidding, & Construction Services	15	%	\$ 5,102.52	\$ 5,102.52
	Contingency	40	%	\$ 13,606.72	\$ 13,606.72
	GRAND TOTAL OPINION OF CONSTRUCTION COST				\$52,800

- Notes:**
- 1. Utility relocation fees are estimated.
 - 2. No mitigation (wetland) fees included.
 - 3. No property costs (drainage easement, temporary const. easements, right-of way, etc.) are included.

PROJECT : #4 - Isle of Palms - Sparrow Drive, Forest Trail, Cross Lane, & 32nd Ave Drainage Imp
LOCATION : Isle of Palms, SC
ESTIMATOR : HEA



OPINION OF PROBABLE CONSTRUCTION COST	
DATE PREPARED : 06/03/2019	REVISED:
BASIS FOR ESTIMATE	
X	(No design completed-Master Plan)
	(Preliminary design)
	(Final design)
	(Other)

OPINION OF PROBABLE CONSTRUCTION COST
Since the Engineer has no control over the cost of labor, materials, equipment, over the Contractor's methods of determining prices, or over competitive bidding or market conditions, the Opinions of Probable Construction Costs provided for herein are made on the basis of his experience and qualifications. These opinions represent his best judgment as a design professional familiar with the construction industry. However, the Engineer cannot and does not guarantee that proposals, bids, or the construction cost will not vary from Opinions of Probable Construction Costs prepared by him.

ITEM	DESCRIPTION	QUANTITY		COST	
		NUMBER OF UNITS	UNIT MEASURE	PER UNIT	TOTAL COST
1031000	Mobilization	1	LS		\$ 2,500.00
1032010	Bonds and Insurance	1	LS		\$ 1,000.00
1071000	Traffic Control	1	LS		\$ 5,000.00
1090200	As-Built Construction Plans	1	LS		\$ 5,000.00
2015000	Clearing and Grubbing within Right-of-Way	0.04	AC	\$ 5,000.00	\$ 193.99
2023000	Removal & Disposal of Existing Pavement	37	SY	\$ 7.00	\$ 256.67
2028501	Removal of Existing Culvert 1' x 15"	243	LF	\$ 20.00	\$ 4,860.00
2021000	Removal of Existing Structure	2	EA	\$ 500.00	\$ 1,000.00
3050112	Graded Aggregate Base Course (8 " Uniform)	37	SY	\$ 15.00	\$ 550.00
4030319	Hot Mix Asphalt Surface Course Type B	5	TON	\$ 100.00	\$ 515.63
7141114	24" RC pipe (Class III)	243	LF	\$ 85.00	\$ 20,655.00
7192030	Grate Inlet (36" x 36")	2	EA	\$ 2,500.00	\$ 5,000.00
8041020	Rip-Rap Class B	5	TON	\$ 75.00	\$ 375.00
8048205	Geotextile for Erosion Control Under Rip-Rap (Class 2) Type B	9	SY	\$ 6.00	\$ 54.00
8100101	Sodding	0.19	MSY	\$ 10,000.00	\$ 1,877.78
8153000	Silt Fence	525	LF	\$ 3.00	\$ 1,575.00
8153090	Replace/Repair Silt Fence	200	LF	\$ 3.50	\$ 700.00
8154050	Removal of Silt Retained by Silt Fence	525	LF	\$ 2.50	\$ 1,312.50
8990153	Utility Work Within Project Area	1	LS		\$ 5,000.00
-	Misc. Erosion Control/Water Management	1	EA	\$ 5,000.00	\$ 5,000.00
				SUBTOTAL	\$ 62,425.55
	Survey, Engineering, Bidding, & Construction Services	15	%	\$ 9,363.83	\$ 9,363.83
	Contingency	40	%	\$ 24,970.22	\$ 24,970.22
	GRAND TOTAL OPINION OF CONSTRUCTION COST				\$96,800

- Notes:
- 1. Utility relocation fees are estimated.
 - 2. No mitigation (wetland) fees included.
 - 3. No property costs (drainage easement, temporary const. easements, right-of way, etc.) are included.

PROJECT : #5 - Isle of Palms - 41st Avenue Driveway Pipe Drainage Improvements
LOCATION : Isle of Palms, SC
ESTIMATOR : HEA



OPINION OF PROBABLE CONSTRUCTION COST	
DATE PREPARED : 06/03/2019	REVISED:
BASIS FOR ESTIMATE	
X	(No design completed-Master Plan)
	(Preliminary design)
	(Final design)
	(Other)

OPINION OF PROBABLE CONSTRUCTION COST
Since the Engineer has no control over the cost of labor, materials, equipment, over the Contractor's methods of determining prices, or over competitive bidding or market conditions, the Opinions of Probable Construction Costs provided for herein are made on the basis of his experience and qualifications. These opinions represent his best judgment as a design professional familiar with the construction industry. However, the Engineer cannot and does not guarantee that proposals, bids, or the construction cost will not vary from Opinions of Probable Construction Costs prepared by him.

ITEM	DESCRIPTION	QUANTITY		COST	
		NUMBER OF UNITS	UNIT MEASURE	PER UNIT	TOTAL COST
1031000	Mobilization	1	LS		\$ 4,200.00
1032010	Bonds and Insurance	1	LS		\$ 1,700.00
1071000	Traffic Control	1	LS		\$ 5,000.00
1090200	As-Built Construction Plans	1	LS		\$ 5,000.00
2015000	Clearing and Grubbing within Right-of-Way	0.1	AC	\$ 5,000.00	\$ 528.01
2023000	Removal & Disposal of Existing Pavement	135	SY	\$ 7.00	\$ 945.00
2028502	Removal of Existing Culvert 1' x 18"	151	LF	\$ 20.00	\$ 3,020.00
3050112	Graded Aggregate Base Course (8 " Uniform)	135	SY	\$ 20.00	\$ 2,700.00
4030319	Hot Mix Asphalt Surface Course Type B	19	TON	\$ 100.00	\$ 1,898.44
7141119	54" RC Pipe (Class III)	151	LF	\$ 150.00	\$ 22,650.00
8041020	Rip-Rap Class B	152	TON	\$ 75.00	\$ 11,390.63
8048205	Geotextile for Erosion Control Under Rip-Rap (Class 2) Type B	208	SY	\$ 6.00	\$ 1,245.00
8100101	Sodding	0.51	MSY	\$ 10,000.00	\$ 5,111.11
8153000	Silt Fence	450	LF	\$ 3.00	\$ 1,350.00
8153090	Replace/Repair Silt Fence	200	LF	\$ 3.50	\$ 700.00
8154050	Removal of Silt Retained by Silt Fence	450	LF	\$ 2.50	\$ 1,125.00
8990153	Utility Work Within Project Area	1	LS		\$ 25,000.00
-	Misc. Erosion Control/Water Management	1	EA	\$ 5,000.00	\$ 5,000.00
				SUBTOTAL	\$ 98,563.18
	Survey, Engineering, Bidding, & Construction Services	15	%	\$ 14,784.48	\$ 14,784.48
	Contingency	40	%	\$ 39,425.27	\$ 39,425.27
	GRAND TOTAL OPINION OF CONSTRUCTION COST				\$152,800

- Notes:
- 1. Utility relocation fees are estimated.
 - 2. No mitigation (wetland) fees included.
 - 3. No property costs (drainage easement, temporary const. easements, right-of way, etc.) are included.