

PELICAN REEF HOA DRAINAGE CONCERNS

Proposed Drainage Improvements



Gulfstream Design Group, LLC.
906A Anastasia Blvd.
St. Augustine, FL 32080
904-794-4231
www.gulfstreamdesign.com

OUTLINE OF PRESENTATION

1. **Typical Drainage Challenges**
 - A. **Typical Neighborhood Situations**
2. **Typical Drainage Solutions Sections**
3. **Project Phasing**
4. **Project Area Overview and Discussion**
5. **Materials and Labor Estimate**
6. **Questions**

TYPICAL RAINFALL SITUATION

Typical Neighborhood Situations



Typical standing water situations throughout the Pelican Reef community post rainfall event.

TYPICAL DRAINAGE CHALLENGES

Typical Neighborhood Culvert Situations



Arrow Indicates standing water due too partially covered culvert section.

Some areas may be able to be drained more efficiently by simply connecting adjacent swales and “unclogging” culvert sections to allow for positive flow.

SWALE CHALLENGES



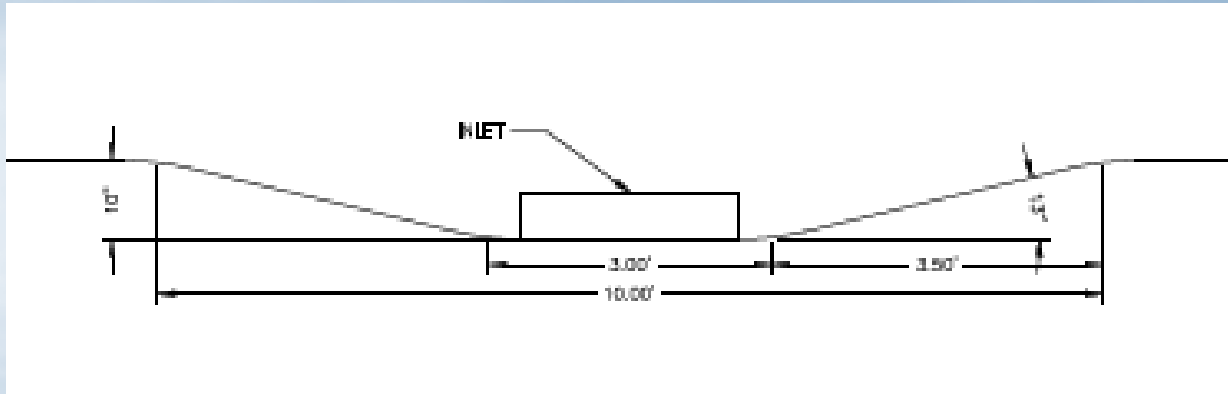
Example of a swale which terminates (see arrow) prematurely. This point of termination allows for expedited ponding, as can be seen by the shallow silty area. This is a prime example of where underground piping will be utilized to minimize standing water within lots and roadways.

SWALE CHALLENGES



- Example of a swale which terminates (see arrow) prematurely. This point of termination allows for expedited ponding, as can be seen by the ponding occurring directly adjacent to the culvert section. . This is a prime example of where underground piping will be utilized to minimize standing water within lots and roadways.

SWALE SECTION

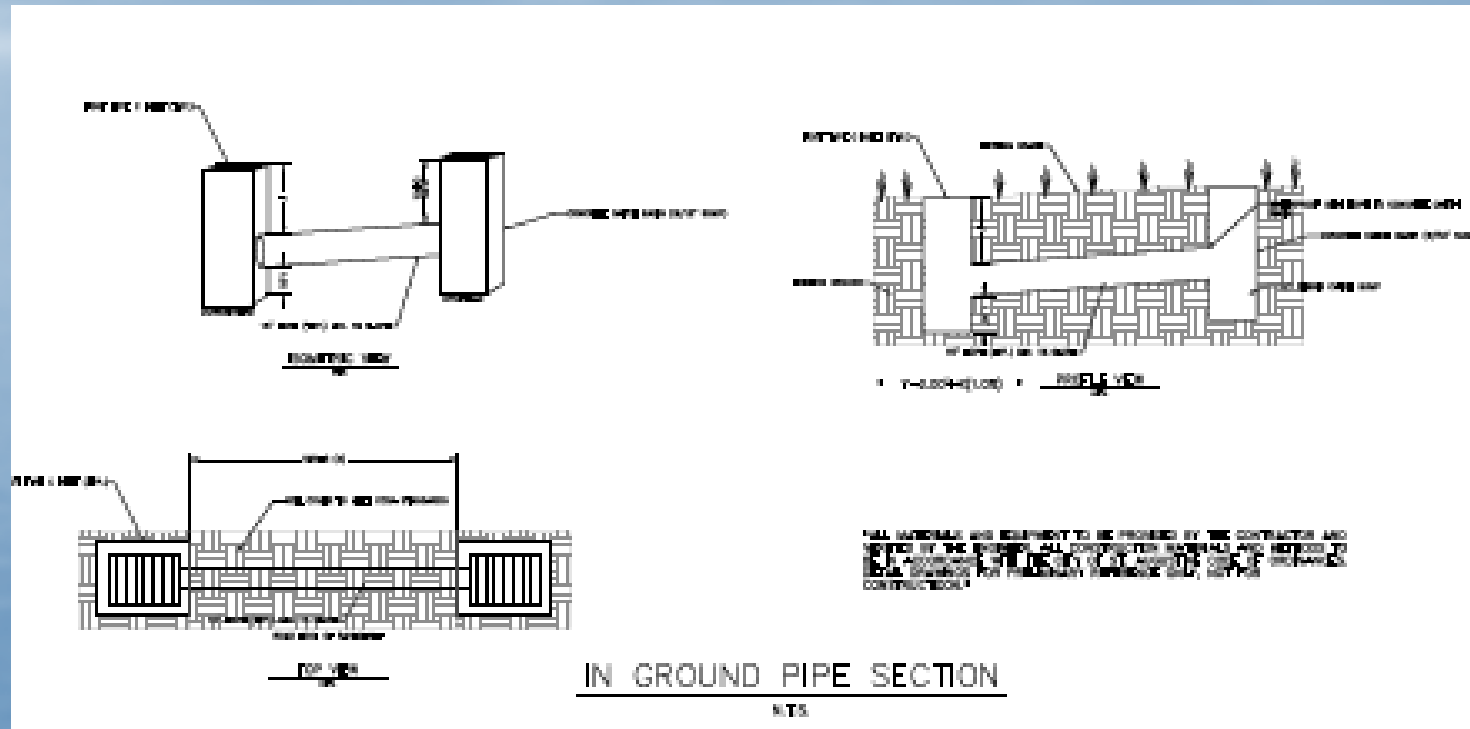


This swale section shows a typical 4':1' slope, which will be utilized to collect water and the specified pint of installment for type "C" inlets. The inlet can be seen to sit somewhat above the bottom of the swale. This is being done per the request of the SJRWMD to allow for some "treatment" via short term "retention" before water enters the stormwater system.



Above is an example of an above grade inlet which allows for treatment in the form of ponding. This example is located at an interstate exchange in St. Johns County.

PIPE SECTION



These above sections illustrate the vertical and horizontal elements of the proposed piping system.

OVERALL PROJECT PHASING

The overall “maintenance” of the stormwater system will take place in four (4) phases as follows:

1. Preliminary design stakeout
 - Surveyor will stakeout proposed construction items to ensure no field conflicts prior to construction commencement.
 - Engineer, contractor, and board member(s) will walk each site to give final verification of work
2. Construction
 - Contractor will construct items per Gulfstream plans.
 - Gulfstream will perform a site observation to verify the proposed design has been followed.
3. As-Builts
 - Surveyor will collect “As-Built” information to provide to the HOA so that the locations of any constructed items may be verified.

PROJECT AREAS

- For upcoming slides regarding specific project areas, please reference the overall project summary and its photo attachments provided to you for this meeting. Please reference the subheading notations regarding picture numbers and all bullet points included within the subheading for existing site details.

PROJECT AREA 1

Proposed Improvements:



Project area 1 will be the responsibility of future homeowners, this is due to the “vacant” states of the properties shown on this site plan. Future homeowners will be responsible for complying with the neighborhood drainage standards.

<i>PROPOSED</i>	
PROPOSED 18" HDPE PIPING	346 LF
PROPOSED 18" WIDE TRENCHING	3850 SF
PROPOSED TYPE "C" INLETS	3 EA
PROPOSED MES STRUCTURES	1 EA
<i>STRUCTURE TABLE</i>	
STRUCTURE 10-1	18" MES
STRUCTURE 10-2	C INLET
STRUCTURE 10-3	C INLET
STRUCTURE 10-4	C INLET

See Photo and Project Area Summary Attachment. Reference Project “1” and corresponding photos.

Underground piping, inlets, and culverts will be used to transport water more efficiently. Alleviating the majority of standing water.

PROJECT AREA 2

Proposed Improvements:



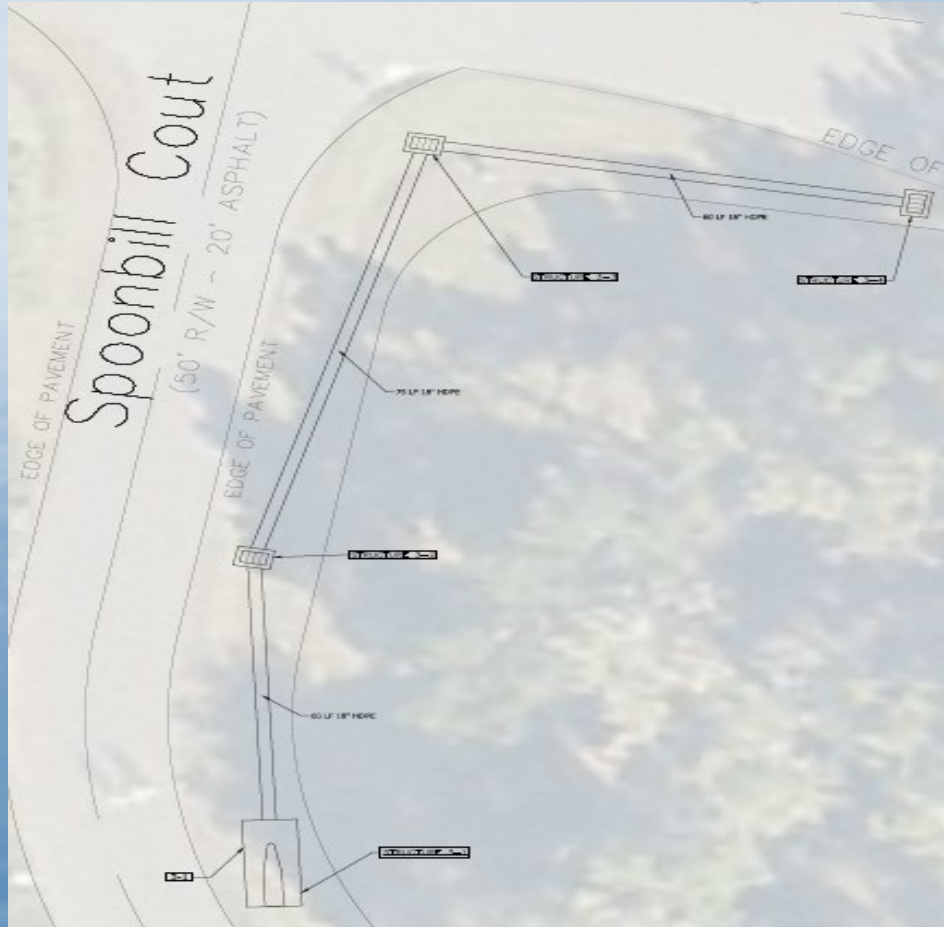
PROPOSED	
PROPOSED 18" HDPE PIPING	300 LF
PROPOSED 18' WIDE TRENCHING	3100 SF
PROPOSED TYPE "C" INLETS	3 EA
PROPOSED MES STRUCTURES	1 EA
STRUCTURE TABLE	
STRUCTURE 2-1	18" MES
STRUCTURE 2-2	C INLET
STRUCTURE 2-3	C INLET
STRUCTURE 2-4	C INLET

See Photo and Project Area Summary Attachment. Reference Project "2" and corresponding photos.

Underground piping, inlets, and culverts will be used to transport water more efficiently. Alleviating the majority of standing water.

PROJECT AREA 3

Proposed Improvements:



PROPOSED	
PROPOSED 18" HDPE PIPING	300 LF
PROPOSED 10' WIDE TRENCHING	2050 SF
PROPOSED TYPE "C" INLETS	3 EA
PROPOSED MES STRUCTURES	1 EA
STRUCTURE TABLE	
STRUCTURE 3-1	18" MES
STRUCTURE 3-2	C INLET
STRUCTURE 3-3	C INLET
STRUCTURE 3-4	C INLET

See Photo and Project Area Summary Attachment. Reference Project "3" and corresponding photos.

Underground piping, inlets, and culverts will be used to transport water more efficiently. Alleviating the majority of standing water.

PROJECT AREA 4/5

Proposed Improvements:

PROPOSED	
PROPOSED 18" HDPE PIPING	643 LF
PROPOSED 10' WIDE TRENCHING	6000 SF
PROPOSED TYPE "C" INLETS	4 EA
PROPOSED MES STRUCTURES	2 EA
STRUCTURE TABLE	
STRUCTURE 4-1	18" MES
STRUCTURE 4-2	C INLET
STRUCTURE 4-3	C INLET
STRUCTURE 5-1	18" MES
STRUCTURE 5-2	C INLET
STRUCTURE 5-3	C INLET

See Photo and Project Area Summary Attachment. Reference Project "4/5" and corresponding photos.

Underground piping, inlets, and culverts will be used to transport water more efficiently. Alleviating the majority of standing water.



PROJECT AREA 6

Proposed Improvements:



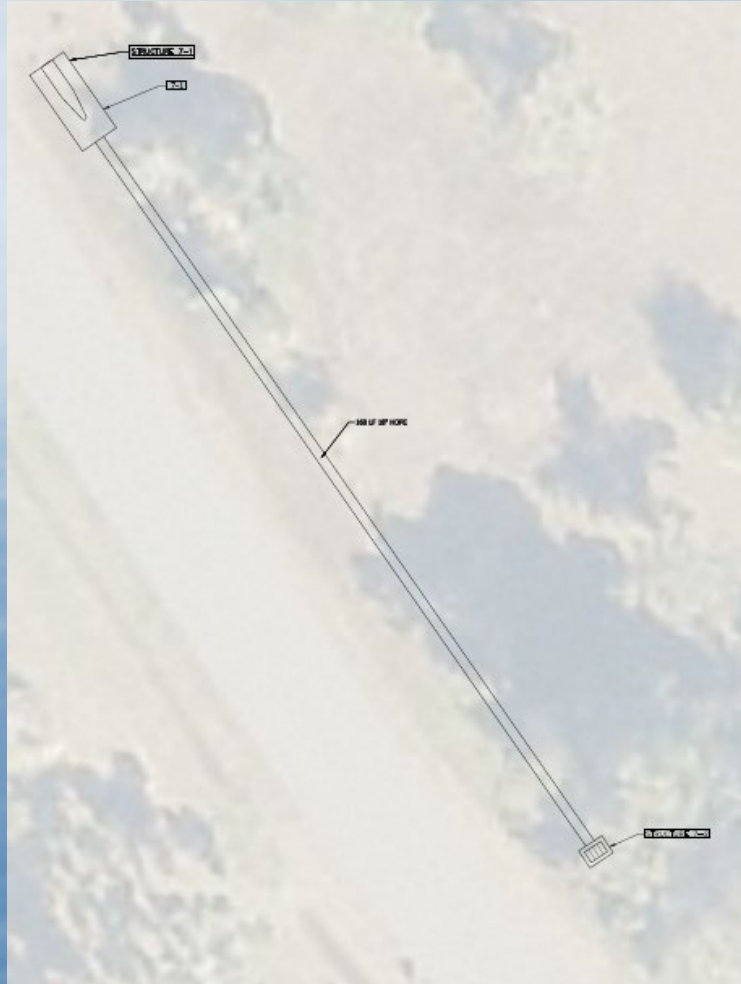
PROPOSED	
PROPOSED 18" HDPE PIPING	350 LF
PROPOSED 10' WIDE TRENCHING	3600 SF
PROPOSED TYPE "C" INLETS	3 EA
PROPOSED MES STRUCTURES	1 EA
STRUCTURE TABLE	
STRUCTURE 6-1	18" MES
STRUCTURE 6-2	C INLET
STRUCTURE 6-3	C INLET
STRUCTURE 6-4	C INLET

See Photo and Project Area Summary Attachment. Reference Project "6" and corresponding photos.

Underground piping, inlets, and culverts will be used to transport water more efficiently. Alleviating the majority of standing water.

PROJECT AREA 7

Proposed Improvements:



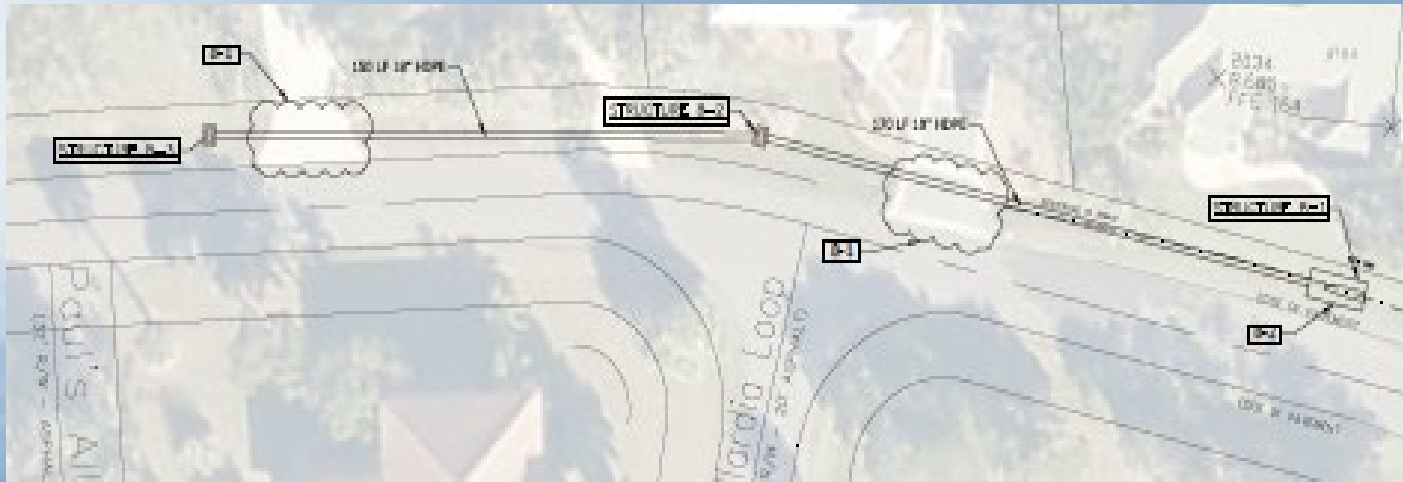
<i>PROPOSED</i>	
PROPOSED 18" HDPE PIPING	180 LF
PROPOSED 18" WIDE TRENCHING	1650 SF
PROPOSED TYPE "C" INLETS	1 EA
PROPOSED MES STRUCTURES	1 EA
<i>STRUCTURE TABLE</i>	
STRUCTURE 7-1	18" MES
STRUCTURE 7-2	C INLET

See Photo and Project Area Summary Attachment. Reference Project "7" and corresponding photos.

Underground piping, inlets, and culverts will be used to transport water more efficiently. Alleviating the majority of standing water.

PROJECT AREA 8

Proposed Improvements:



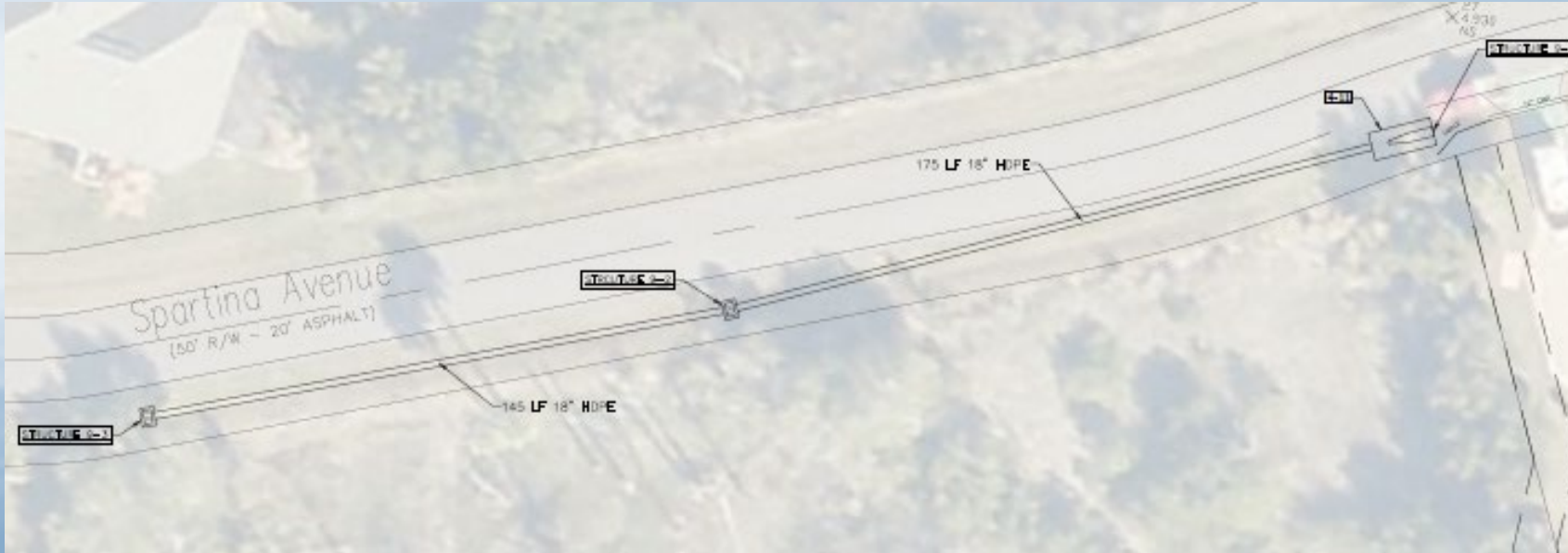
PROPOSED	
PROPOSED 18" HDPE PIPING	320 LF
PROPOSED 10' WIDE TRENCHING	3300 SF
PROPOSED TYPE "C" INLETS	2 EA
PROPOSED MES STRUCTURES	1 EA
STRUCTURE TABLE	
STRUCTURE B-1	18" MES
STRUCTURE B-2	C INLET
STRUCTURE B-3	C INLET

See Photo and Project Area Summary Attachment. Reference Project "8" and corresponding photos.

Underground piping, inlets, and culverts will be used to transport water more efficiently. Alleviating the majority of standing water.

PROJECT AREA 9

Proposed Improvements:



PROPOSED	
PROPOSED 18" HDPE PIPING	320 LF
PROPOSED 10' WIDE TRENCHING	3300 SF
PROPOSED TYPE "C" INLETS	2 EA
PROPOSED MES STRUCTURES	1 EA
STRUCTURE TABLE	
STRUCTURE 9-1	18" MES
STRUCTURE 9-2	6" INLET
STRUCTURE 9-3	6" INLET

See Photo and Project Area Summary Attachment. Reference Project "9" and corresponding photos.

Underground piping, inlets, and culverts will be used to transport water more efficiently. Alleviating the majority of standing water.

OVERALL MATERIALS AND LABOR ESTIMATE

INFORMATIONAL USE ONLY

Item	Price (Unit)	Quantity	Total Cost
Type C inlet	\$1,200.00 (Each)	21	\$25,200.00
Mitered End Section	\$400.00 (Each)	9	\$3,600.00
18" HDPE Pipe	\$250.00 (Per 20' Segment)	115 (2,300 LF total)	\$28,750.00
Muck Removal	\$65.00 (Yard)	400	\$26,000.00
Rock	\$25.00 (Yard)	40	\$5,000.00
Fill	\$125.00 (Yard)	400	\$50,000.00
Labor	\$95,000.00	1	\$95,000.00
Trenching	\$2.50 (Linear Foot)	2,300	\$5,175.00
Contingency	\$40,000.00	1	\$40,000.00
Estimated Total:			\$278,725.00

This estimate was prepared with unit cost and labor cost estimation provided by Hudson Tractor Service on 4-16-19.

6/4/2019

FINAL COMMENTS AND CLOSING

- Thank you for providing us the opportunity to serve you and your community. At this time we will allow time for questions.

