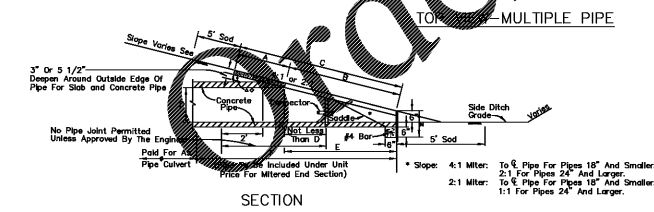
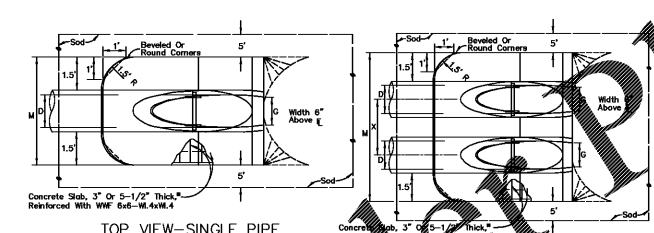


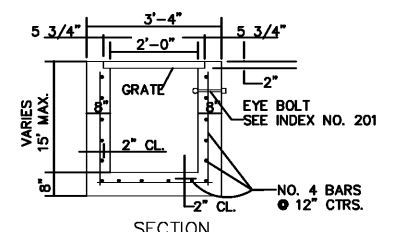
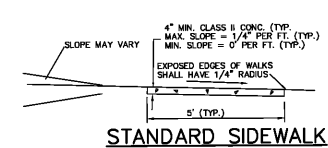
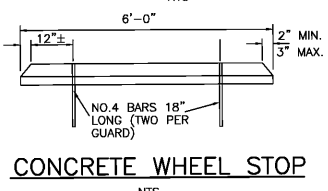
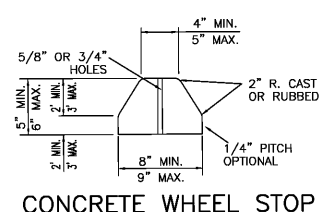
**ROUND PIPE**

DIMENSIONS AND QUANTITIES

D	X	A	B	C	E	F	G	M			
								Single	Double	Triple	Quad.
15"	2'-0"	1.92'	2.18'	4.10'	2.08'	5'	1.22'	4.83'	7.21'	9.39'	12.37'
18"	2'-10"	1.97'	2.74'	4.71'	2.58'	6'	1.41'	4.92'	7.75'	10.58'	13.42'
24"	3'-0"	2.06'	3.88'	5.91'	3.58'	7'	1.73'	5.50'	8.92'	12.33'	15.75'
30"	4'-0"	2.10'	4.91'	7.10'	4.56'	8'	2.02'	6.08'	10.33'	14.58'	18.83'
36"	5'-1"	2.25'	6.08'	8.33'	5.58'	9'	2.24'	6.67'	11.75'	16.83'	21.92'
42"	6'-0"	2.34'	7.21'	9.58'	6.58'	10'	2.45'	7.28'	13.25'	18.92'	24.25'
48"	6'-9"	2.43'	8.33'	10.78'	7.58'	11'	2.65'	7.83'	14.58'	21.33'	28.08'
54"	7'-8"	2.52'	9.44'	11.98'	8.58'	12'	2.83'	8.42'	16.08'	23.75'	31.42'
60"	8'-4"	2.62'	10.56'	13.18'	9.58'	14'	3.00'	9.02'	17.50'	26.00'	34.50'
66"	9'-2"	2.71'	11.68'	14.38'	10.58'	15'	3.18'	9.58'	18.75'	27.92'	37.08'
72"	10'-0"	2.80'	12.80'	15.58'	11.58'	16'	3.35'	10.18'	20.18'	30.18'	40.18'

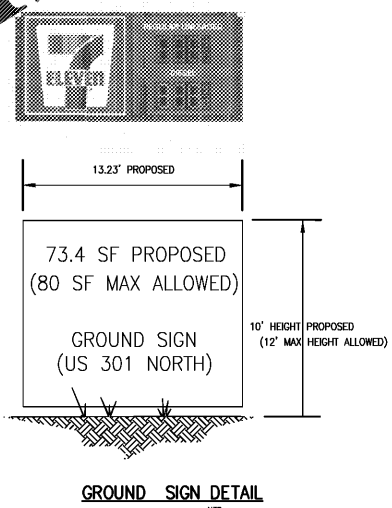


**MITERED END SECTION FOR ROUND, SINGLE & MULTIPLE PIPES** 102.2

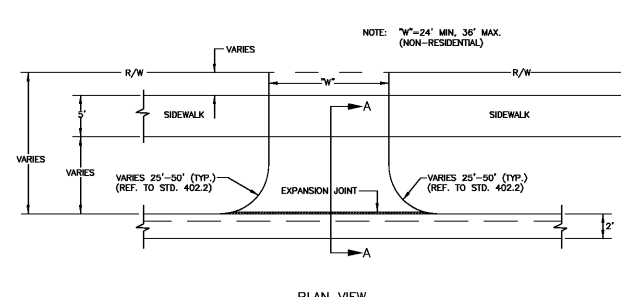
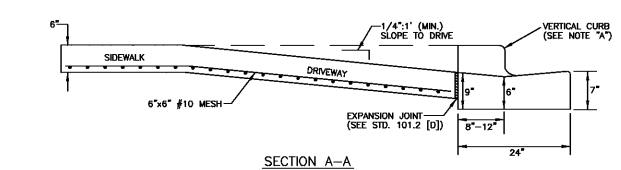


**RECOMMENDED MAXIMUM PIPE SIZE:**  
2'-0" VALLEY GUTTER INLET  
3'-1" WALL INLET PIPE  
SEE F.D.O.T. INDEX NO. 232 FOR MORE INFORMATION

**TYPE "C" VALLEY GUTTER INLET AND CATCH BASIN DETAIL**  
W/ USF GRATE NO. 6212 FOR ALL TYPE "C" INLETS  
FOR USE WITH INLETS WHERE PIPE SIZE IS LESS THAN 30"



**GROUND SIGN DETAIL** N.T.S.

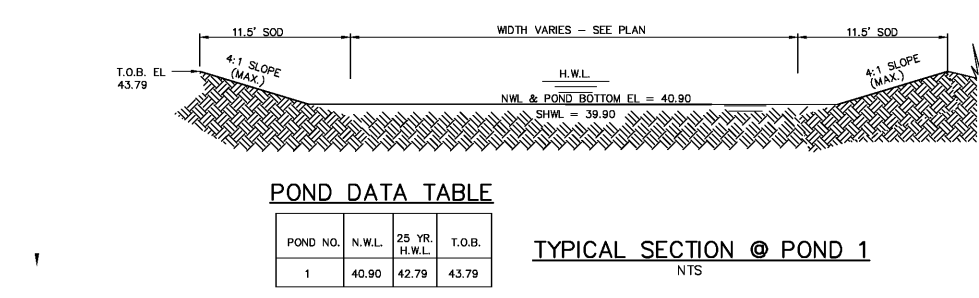
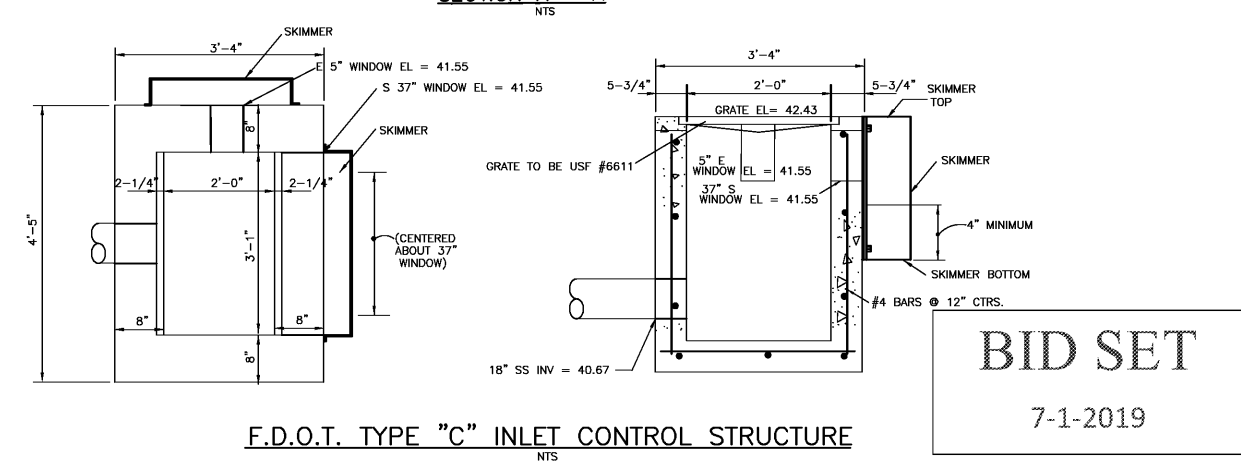
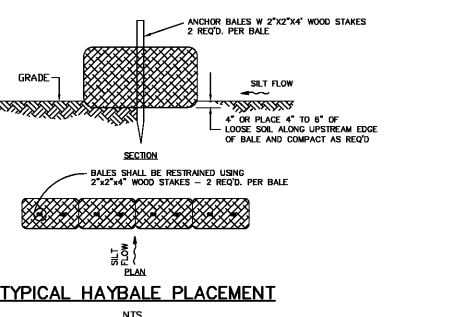
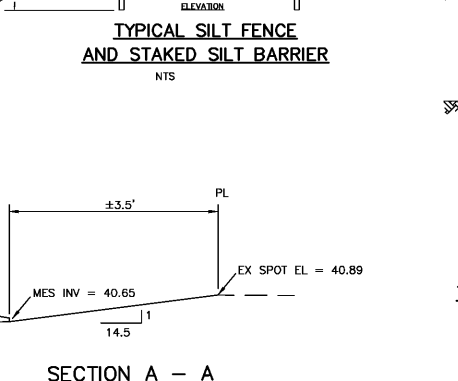
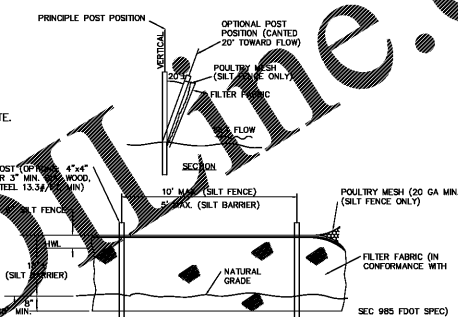


- IF REPLACING VERTICAL CURB AND GUTTER, REPLACE WITH MIAMI CURB AND GUTTER.  
\* NO CHANGE WITH 3' VALLEY CROSSING
- SIDEWALK, CONSTRUCT WITH 6" CONCRETE, 6"x6" #10 MESH, 3000 PSI AT 28 DAYS.
- DRIVEWAY CONSTRUCTED WITH 6" CONCRETE WITH 6"x6" #10 MESH, 3000 PSI AT 28 DAYS.
- EXPANSION JOINT 1/2" PREFORMED JOINT FILLER PER FDOT SECTION 932-1.1 OR APPROVED ALTERNATE.  
\* IF DRIVE IS WIDER THAN 12', ADD JOINTS AT 10' CENTERS
- 5' SIDEWALK ON LOCAL STREETS, 5' SIDEWALK ON THOROUGHFARES.  
(MIXED USE PATHS MAY REQUIRE 8' SIDEWALKS PER LAND DEVELOPMENT CODE.)

**COMMERCIAL & INDUSTRIAL DRIVE 101.3** N.T.S.

**PAVING GRADING AND DRAINAGE NOTES**

- ALL PROPOSED IMPROVEMENTS TO THE SITE TO BE STAKED IN THE FIELD BY OR UNDER THE SUPERVISION OF A FLORIDA REGISTERED LAND SURVEYOR.
- THE CONTRACTOR IS TO PROVIDE THE ENGINEER OF RECORD WITH REPRODUCIBLE AS-BUILT DRAWINGS SHOWING ALL IMPROVEMENT LOCATIONS AND ELEVATIONS.
- ALL PROPOSED CONSTRUCTION IS TO MEET OR EXCEED LATEST APPLICABLE MANATEE COUNTY CONSTRUCTION STANDARDS AND TO CONFORM TO ENGINEERS/ARCHITECTS SPECIFICATIONS. PROPOSED CONSTRUCTION IS TO BE PRIVATELY OWNED AND OPERATED.
- TO PREVENT SEDIMENTARY RUNOFF DURING CONSTRUCTION, HAY BALES OR INLET DEBRIS CONTROL SCREENS TO BE PLACED AT ALL INLET OR OUTFALL LOCATIONS. STORMWATER TREATMENT FACILITIES TO BE CONSTRUCTED EARLY IN SITE DEVELOPMENT, WITH NO OFF-SITE, UNTREATED RUNOFF OCCURRING DURING CONSTRUCTION.
- THE CONTRACTOR IS TO COORDINATE THE LOCATION AND ELEVATION OF ALL F.P.L., G.T.E. AND IRRIGATION SERVICE SLEEVES WITH RESPECTIVE AGENCY PRIOR TO CONSTRUCTION.
- ALL UTILITIES AND/OR DRAINAGE SHOWN AS EXISTING ARE TO BE FIELD VERIFIED FOR LOCATION AND ELEVATION PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY "SUNSHINE STATE ONE-CALL" (800) 432-4770, EXT.1, 48 HOURS MINIMUM PRIOR TO START OF CONSTRUCTION FOR POSSIBLE UTILITY LOCATIONS NOT SHOWN.
- THE CONTRACTOR IS TO ASSURE HIMSELF THAT ALL UNDERGROUND UTILITIES AND STORM SEWER ARE CONSTRUCTED, TESTED AND OPERATIONAL PRIOR TO ANY ROADWAY CONSTRUCTION.
- ROADSIDE UNDERDRAIN SHALL BE REQUIRED AS DETERMINED NECESSARY BY THE ENGINEER OF RECORD AND/OR PCPMD INSPECTION DEPARTMENT.
- ALL FILL AREAS TO BE CONSTRUCTED IN 6" LIFTS, 100% STANDARD PROCTOR, AASHTO T-99 UTILIZING SUITABLE MATERIAL.
- PROPER EROSION CONTROL SHALL BE PLACED AROUND SOIL STOCKPILES TO AVOID RUNOFF INTO RECEIVING WATERBODIES.
- STORM SEWER PIPE SHALL BE ALUMINIZED TYPE 2 CMP ULTRA FLOW PIPE, A2000 OR RCP.  
PER ASTM F-949 AND FDOT SECTION 948; NO POLYETHYLENE OR ADS.
- All the signing and pavement markings shall be provided in accordance with the latest editions of the Manual on Uniform Traffic Control Devices (MUTCD), FDOT Design Standards, and the Manatee County Public Works Department - Highway Traffic, and Stormwater Standards. Traffic control devices that do not conform to the latest edition of the Manatee County Public Works Department Highway Traffic and Stormwater Standards within publicly maintained right of way will require a sign and hardware diagram and if applicable, executed Maintenance Agreement prior to approval of Construction Plans.
- The inspection required for all CMP/RCP pipes.



**HOUGH ENGINEERING, INC.**  
CONSULTING ENGINEERS

1771 MANATEE AVE. W., BRADENTON FLORIDA 34205  
PHONE : (941) 747-4838 • FAX : (941) 747-4072

**HOUGH**

DATE	DESCRIPTION
01/25/2019	CONTRACT
02/27/2019	REVISED
03/27/2019	REVISED
04/27/2019	REVISED
05/27/2019	REVISED
06/27/2019	REVISED
07/27/2019	REVISED
08/27/2019	REVISED
09/27/2019	REVISED
10/27/2019	REVISED
11/27/2019	REVISED
12/27/2019	REVISED

PROJECT NO. **NTS**  
SEP-01

**7-ELEVEN, PARRISH**  
Paving, Grading & Drainage Details

LOCATED IN SECTION 33, TOWNSHIP 33S, RANGE 19E  
MANATEE COUNTY, FLORIDA

DATE: 7-1-2019  
SHEET NO. **5**