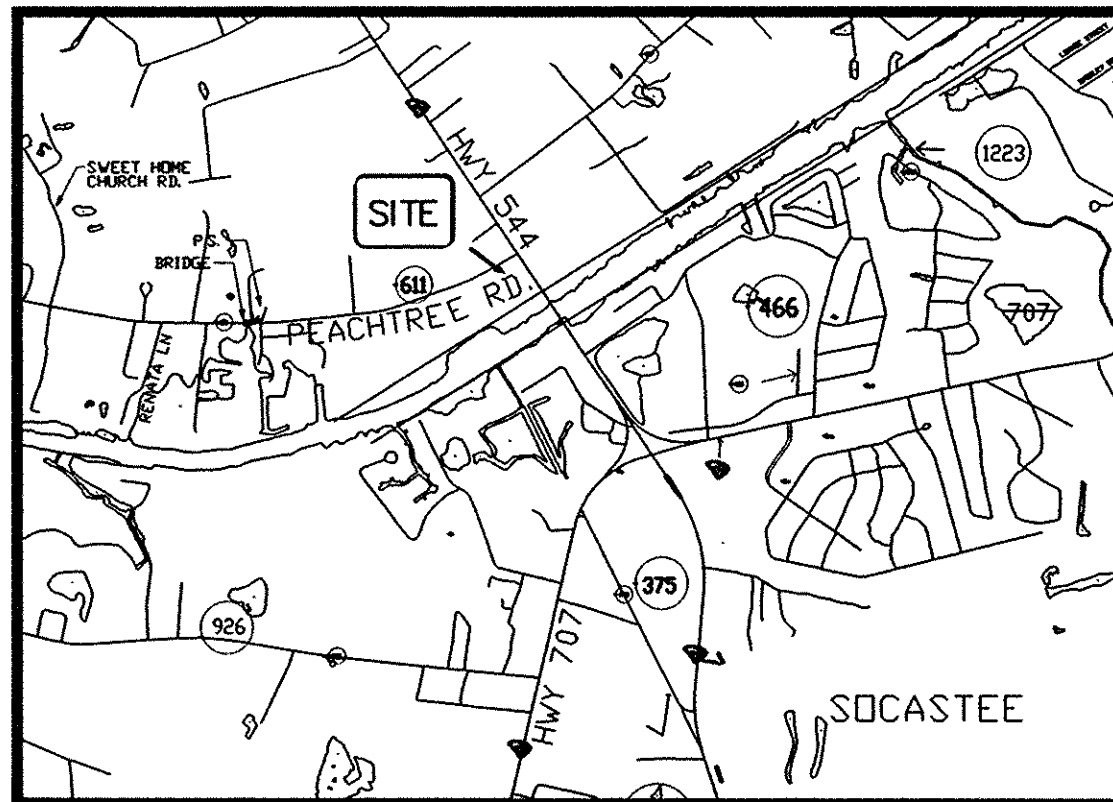
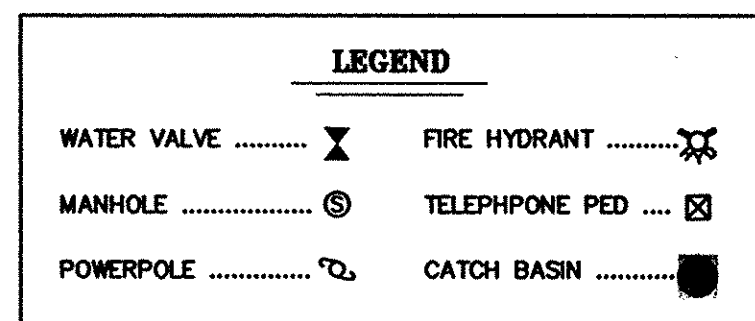




VICINITY MAP NTS.



LIST OF MATERIALS

1,433 LF. 6" PVC C900 WATERLINE
4-6" GATE VALVES (MAIN LINE VALVES)
3-6" GATE VALVES
2-6"x6" TEES
2-6" 90° BENDS
3-FIRE HYDRANTS
1-6" 45° BEND
1-12"x6" TAP AND SLEEVE (INSTALLED BY GSW&SA)

INSTALLED TO SERVE 38 LOTS

TOTAL COST OF WATER \$ 26,429.00

SCDHEC WATER PERMIT No. # 16,856-WS MARCH 1, 2002

DATE OF INSTALLATION: SEPTEMBER 2002

OWNER:
YSV, INC.
116 CORNERSTONE LANE
MYRTLE BEACH, S.C. 29577
PH: 843-222-4661

CONTRACTOR:
PC&J ENTERPRISES, INC.
CONWAY, S.C. 29526
PHONE: 843-458-2882

ENGINEER: CASTLES CONSULTING ENGINEERS, INC.
FOUNDERS CENTRE, SUITE 304
2411 OAK STREET
MYRTLE BEACH, S.C. 29577
PH: 843-448-0910

ASBUILT NOTES:

1. TMS 179-00-01-043
2. ALL DISTANCES SHOWN ARE HORIZONTAL DISTANCES.
3. VERTICAL SEPARATION OF THE UTILITY LINES & DRAINAGE PIPES SHOWN ON PLAN DETERMINED BY CALCULATION AND ARE APPROXIMATE.
4. RECORD DRAWINGS PREPARED FROM FIELD SURVEY AND INFORMATION PROVIDED BY CONTRACTOR.
5. REFERENCE: TO A PLAT IN DEED BOOK 2461/1163

AUDREY SECINO
TMS# 179-00-01-041
DB 418 PG 191

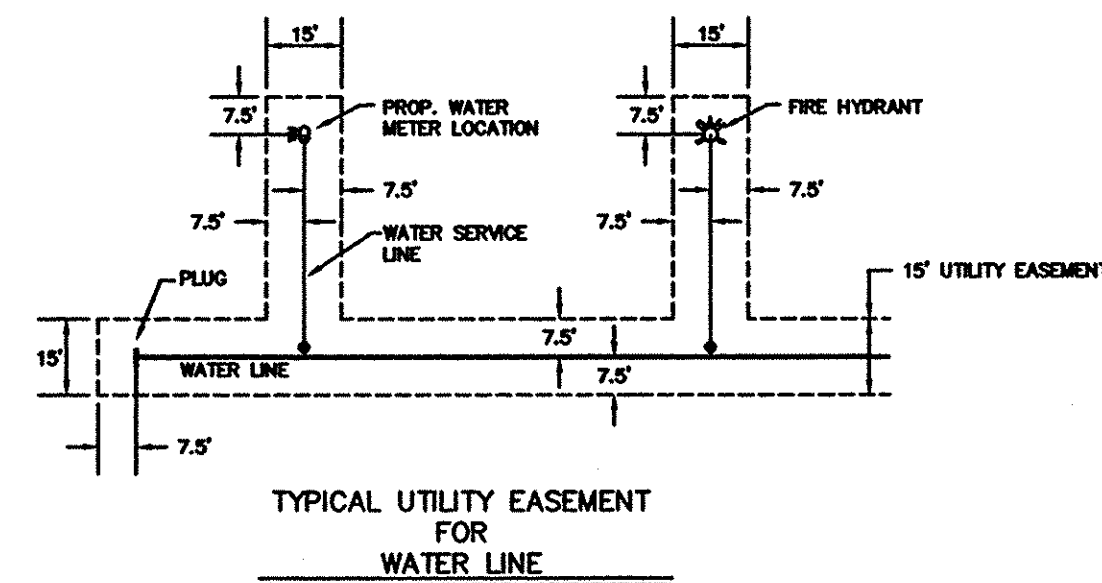
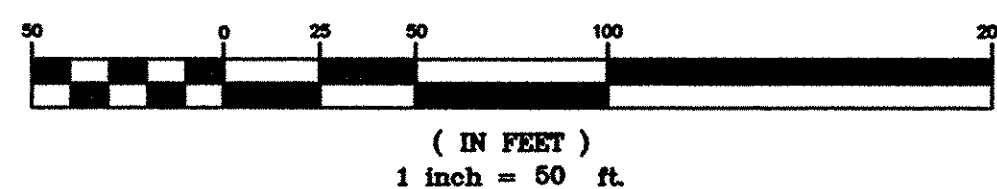
PHASE II
(FUTURE DEVELOPMENT)

TMS# 179-00-01-042
DB 418 PG 191

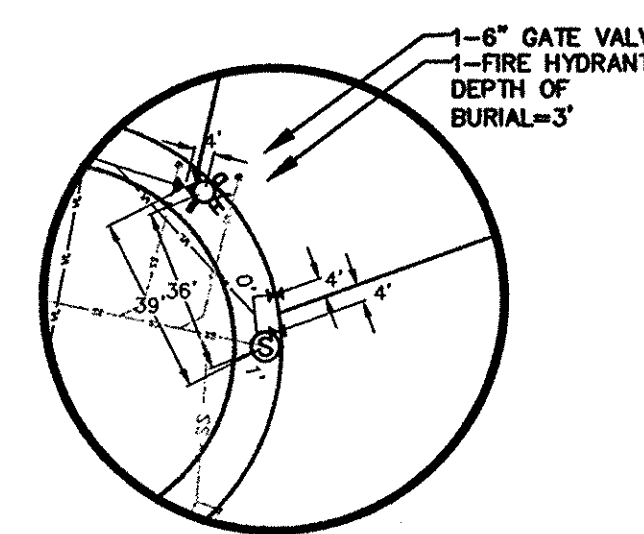
WATER

INTRACOASTAL WATERWAY (320'R/W)

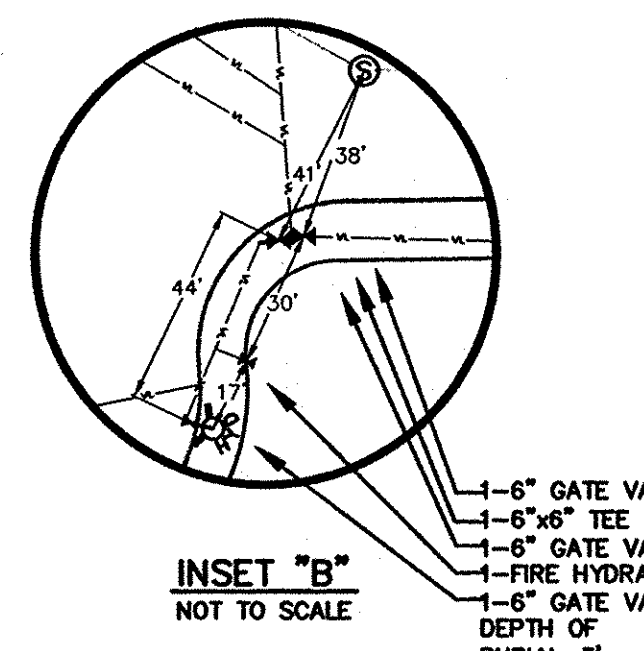
GRAPHIC SCALE



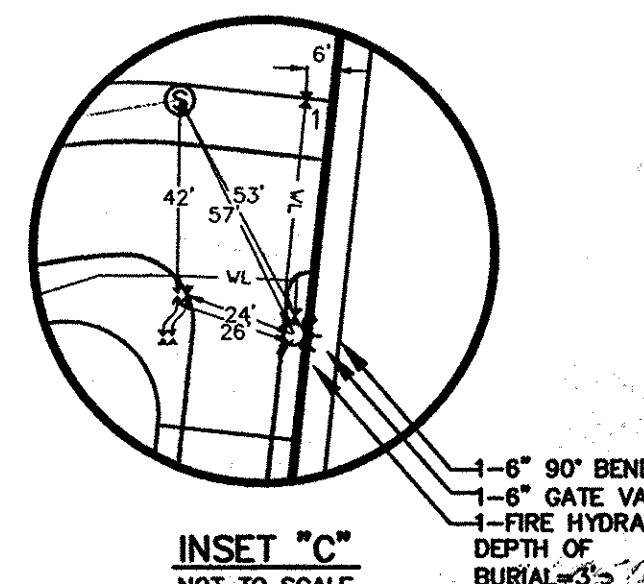
TYPICAL UTILITY EASEMENT
FOR
WATER LINE



INSET "A"
NOT TO SCALE



INSET "B"
NOT TO SCALE



INSET "C"
NOT TO SCALE

APPROVED DATE 7/25/03
GRAND STRAND WATER & SEWER AUTHORITY
BY: *Ronald W. Norris*

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BELIEF, AND SITE VISITS MADE, IT IS OUR OPINION THAT THE WATER SYSTEM INSTALLATIONS HAVE BEEN CONSTRUCTED IN SUBSTANTIAL ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS EXCEPT FOR ANY MINOR FIELD CHANGES AS INDICATED OR DOCUMENTED BY THE RECORD DRAWINGS.
Ronald W. Norris 7/25/03
DAVID NORRIS, P.E. DATE

REPRODUCTION OR REUSE OF THIS DRAWING IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN PERMISSION IS STRICTLY FORBIDDEN.
17-127-001/3 W/S

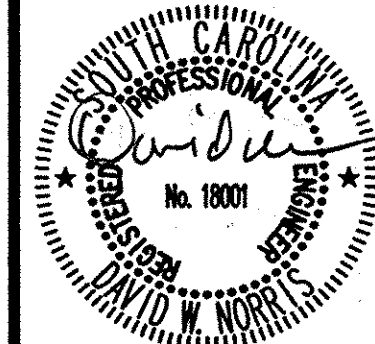
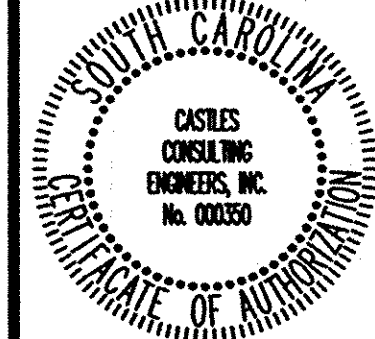
WATER SYSTEMS RECORD DRAWING

HARBOUR OAKS SUBDIVISION

LOCATED ON HWY. No. 544, WEST OF HWY. No. 707 NEAR SOCASTE
SOCASTEE TOWNSHIP, Horry County, SOUTH CAROLINA

FOR
GRAND STRAND WATER AND SEWER AUTHORITY

SCALE: 1" = 50'
DESIGNED BY: DWN
DRAWN BY: TCM
CHECKED BY: WRP
DATE: 05/28/03
REVISION
BY
DATE



SHEET NUMBER:

1

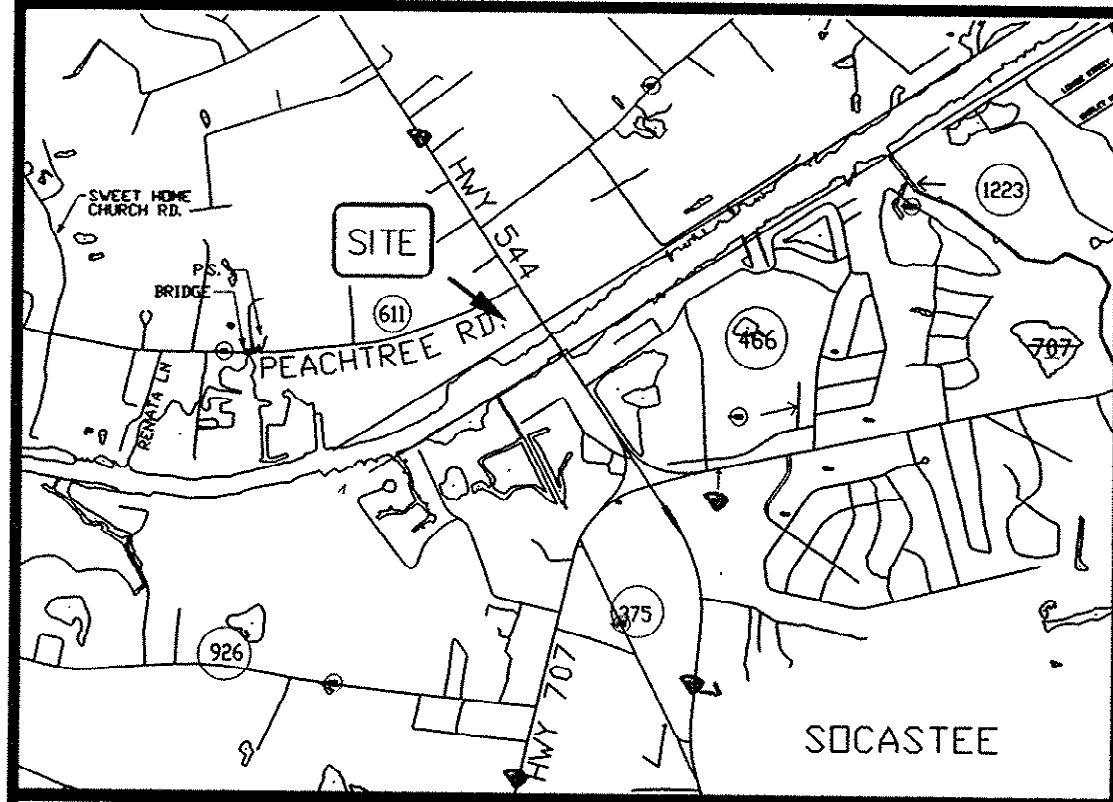
1 OF 3

COMMENTS

PRJ. NO: 01425

ENGINEERING / PLANNING
LAND SURVEYING

Castles Consulting Engineers, Inc.
Founders Centre, Suite 304
2411 Oak Street
Myrtle Beach, SC 29577
Telephone: 843-448-0810
FAX: 843-448-0869



VICINITY MAP NTS.

LEGEND	
WATER VALVE	FIRE HYDRANT
MANHOLE	TELEPHONE PED
POWERPOLE	CATCH BASIN

LIST OF MATERIALS
2,110 LF. 10" PVC SDR 18 SEWER LINE
1,502 LF. 8" PVC SDR 35 SEWER LINE
13 LF. 10" PVC SDR 18 SEWER LINE
6-4" DIAMETER CONCRETE MANHOLES
1-PUMP STATION ASSEMBLY
1-12"x2" TAP AND SLEEVE (INSTALLED BY GSW&S)
INSTALLED TO SERVE 38 LOTS

SDOHEC SEWER PERMIT No. # 27,449-WW MARCH, 01, 2002

DATE OF INSTALLATION: SEPTEMBER 2002

OWNER:
VSV, INC.
116 CORNERSTONE LANE
MYRTLE BEACH, S.C. 29577
PH: 843-222-4661

CONTRACTOR:
PCAJ ENTERPRISES, INC.
2385 HIGHWAY 544
CONWAY, S.C. 29526
PHONE: 843-458-2882

ENGINEER: CASTLES CONSULTING ENGINEERS, INC.
FOUNDERS CENTRE, SUITE 304
MYRTLE BEACH, S.C. 29577
PH: 843-448-0910

- ASBUILT NOTES:
1. TMS 165-00-01-090
 2. ALL DISTANCES SHOWN ARE HORIZONTAL DISTANCES.
 3. VERTICAL SEPARATION OF THE UTILITY LINES & DRAINAGE PIPES SHOWN ON PLAN DETERMINED BY CALCULATION AND ARE APPROXIMATE.
 4. RECORD DRAWINGS PREPARED FROM FIELD SURVEY AND INFORMATION PROVIDED BY CONTRACTOR.
 5. REFERENCE: TO A PLAT OF 6 TRACTS OF LAND CONTAINING 549.07 ACRES DATED MARCH 28, 1981, BY TERRY WATSON LAND SURVEYING COMPANY
 6. REFERENCE: TO A PLAT OF 10.89 ACRE PORTION-OCEAN TRACT DATED MAY 17, 2002, BY ASSOCIATED LAND SURVEYORS

AUDREY SECINO
TMS# 173-00-01-041
DB 418 PG 191

MH 1" A"
STA. 0+64=0+00
RM=17.48
INV. IN(FROM 1B)=8.83
INV. IN(FROM 2A)=8.38
INV. IN(FROM 1C)=8.27
INV. OUT=11.85

CONTROL MH
STA. 0+13=0+00
RM=18.37
INV. IN=7.89
INV. OUT=7.88

PUMP STATION
STA. 0+00=0+00
RM=18.86
INV. IN=7.43
SEE DETAIL
PAGE 3 OF 3

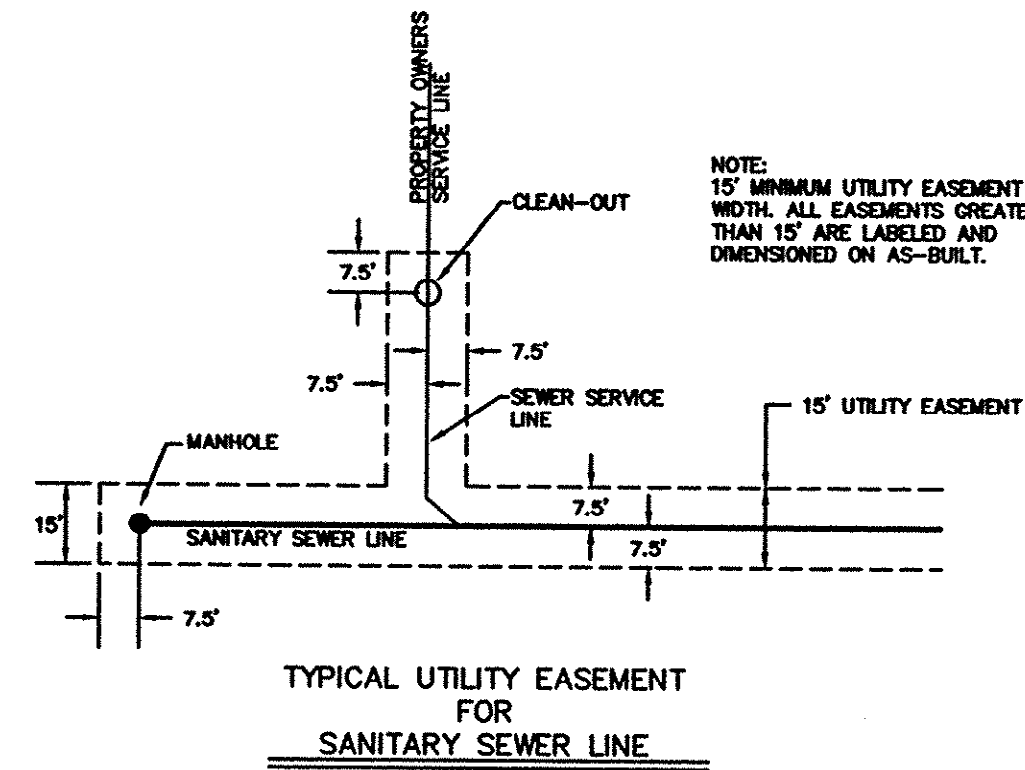
MH 2" A"
STA. 0+72=0+00
RM=17.03
INV. IN=8.88
INV. OUT=8.79

MH 3" A"
STA. 1+05=0+00
RM=18.20
INV. IN=9.55
INV. OUT=9.47

MH 1" C"
STA. 1+36=0+00
RM=14.39
INV. OUT=10.14

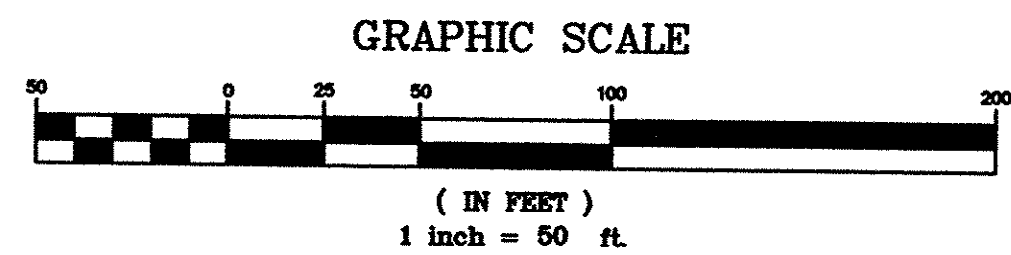
MH 2" B"
STA. 3+61=0+00
RM=19.28
INV. OUT=13.41

MH 4" A"
STA. 3+46=0+00
RM=18.99
INV. OUT=10.94



MANHOLE DATA											
FROM MAN	STATION	RM	INV. OUT	TO MAN	STATION	RM	INV. IN	DISTANCE	SLOPE	MATERIAL	
2" B"	3+61	19.28	13.41	1" C"	0+00	18.94	11.99	361	0.30%	8" PVC SDR 35	
1" B"	3+42	18.94	11.85	1" A"	0+00	17.48	8.83	342	0.80%	8" PVC SDR 35	
1" C"	1+36	14.39	10.14	1" A"	0+00	17.48	8.83	136	1.35%	1" PVC SDR 35	
4" A"	3+46	18.99	10.94	3" A"	0+00	18.20	9.55	346	0.40%	8" PVC SDR 35	
3" A"	1+05	18.20	9.47	2" A"	0+00	17.03	8.86	165	0.37%	8" PVC SDR 35	
2" A"	0+74	17.03	8.79	1" A"	0+00	17.48	8.88	74	0.55%	8" PVC SDR 35	
1" A"	0+64	17.48	8.25	COLLECT	0+00	19.37	7.89	64	0.58%	8" PVC SDR 35	
COLLECT	0+13	19.37	7.88	WETWELL	0+00	19.86	7.43	13	1.92%	10" PVC SDR 18	

APPROVED DATE 7/25/03
GRAND STRAND WATER & SEWER AUTHORITY
BY: *Ronald W. Freeman*



INTRACOASTAL WATERWAY (320'R/W)

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BELIEF, AND SITE VISITS MADE, IT IS OUR OPINION THAT THE SEWER SYSTEM INSTALLATIONS HAVE BEEN CONSTRUCTED IN SUBSTANTIAL ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS EXCEPT FOR ANY MINOR FIELD CHANGES AS INDICATED OR DOCUMENTED BY THE RECORD DRAWINGS.
DAVID MORRIS, P.E. DATE 7/21/03
PRDJ. NO: 01296

SANITARY SEWER RECORD DRAWING
HARBOUR OAKS SUBDIVISION
LOCATED ON HWY. No. 544 WEST OF HWY. No. 707 NEAR SOCASTEE
SOCASTEE TOWNSHIP, Horry County, SOUTH CAROLINA
FOR
GRAND STRAND WATER AND SEWER AUTHORITY

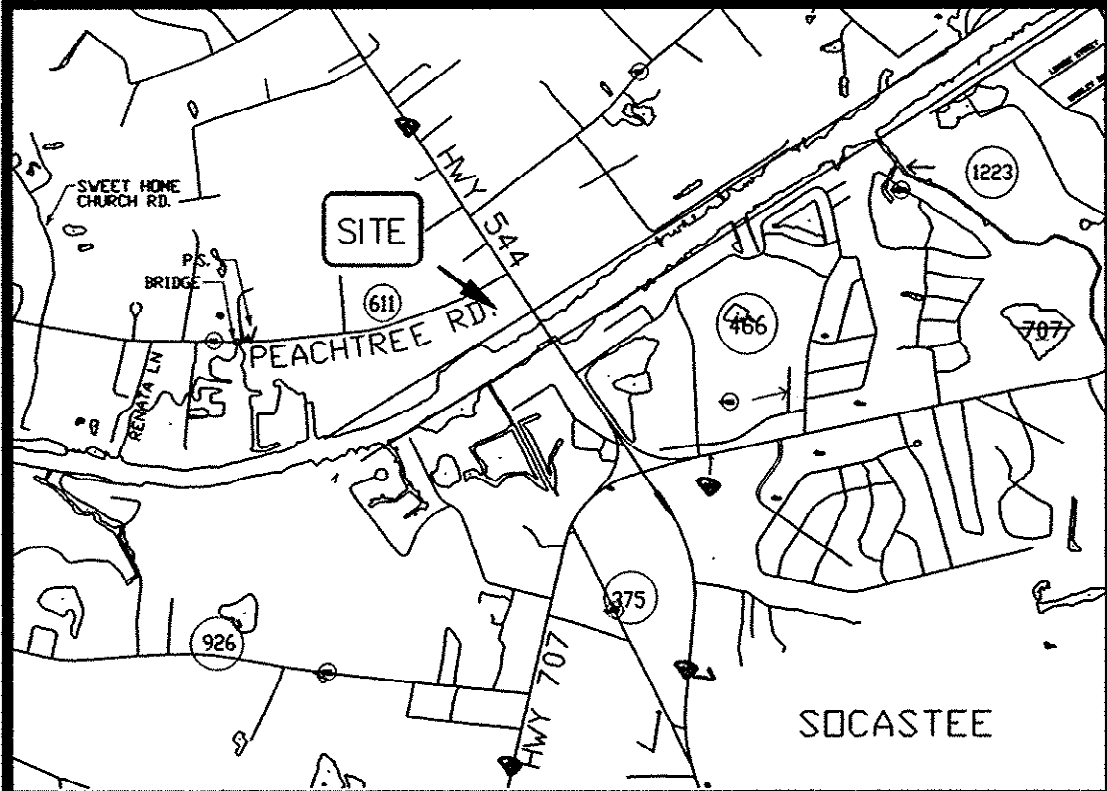
SCALE: 1" = 50'
DESIGNED BY: DWN
DRAWN BY: TCM
CHECKED BY: WRP
DATE: 03/28/03

REVISION BY DATE

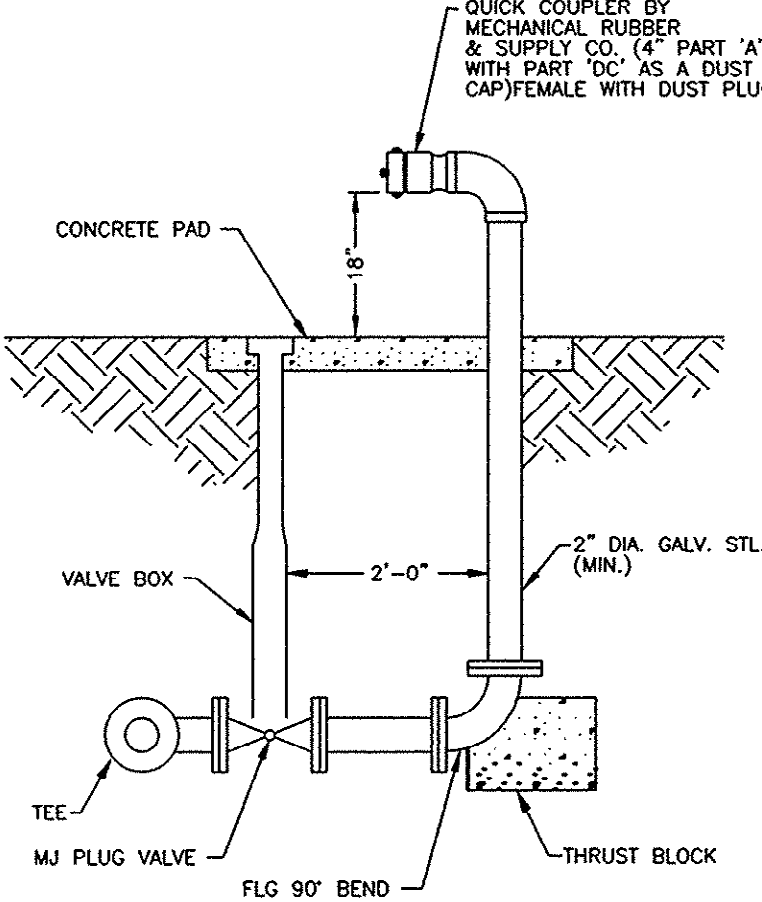
2 OF 3

SHEET NUMBER: 2

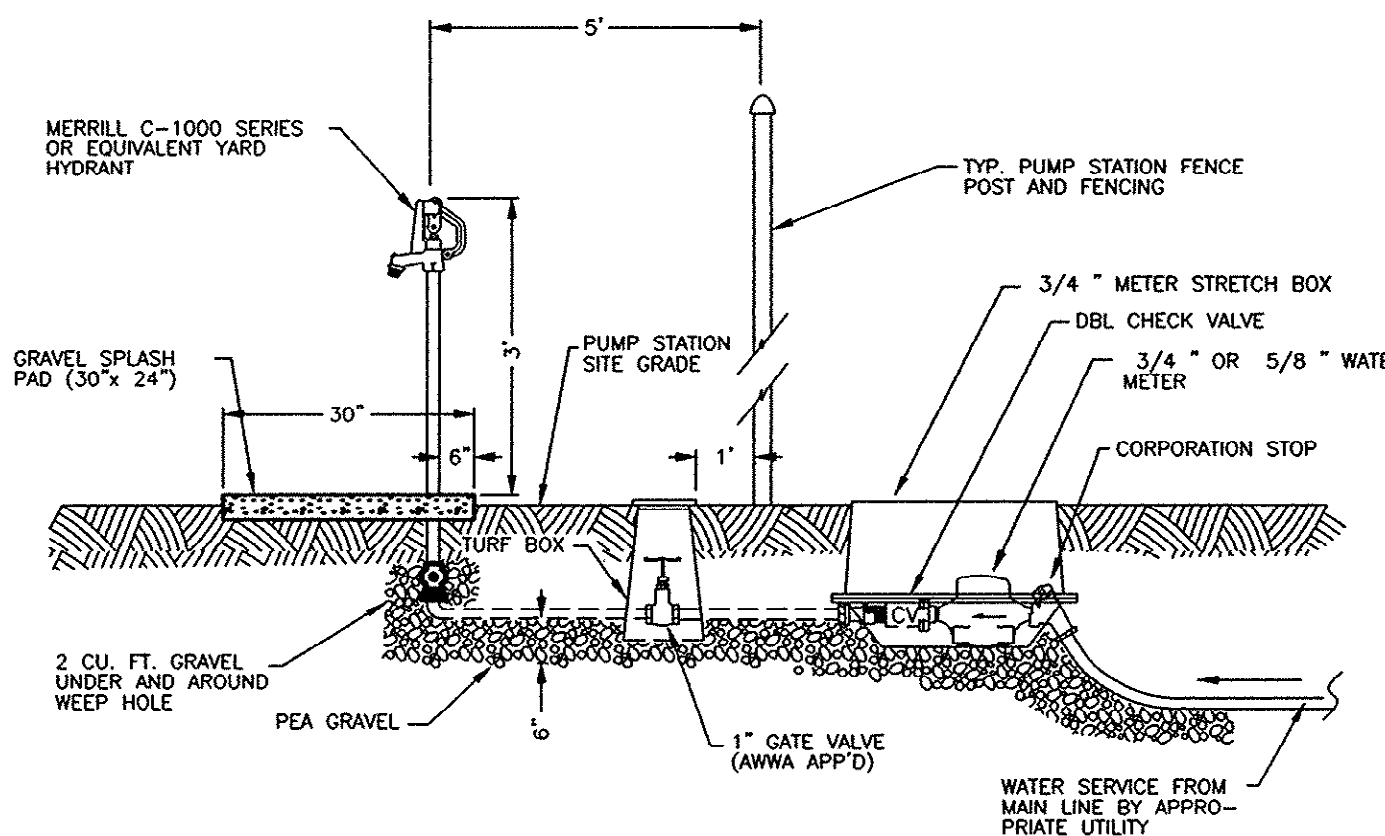
CASTLES CONSULTING ENGINEERS, INC.
ENGINEERING / PLANNING
LAND SURVEYING
Myrtle Beach, SC 29577
2411 Oak Street
Telephone: 843-448-0910
FAX: 843-448-0969



VICINITY MAP NTS.

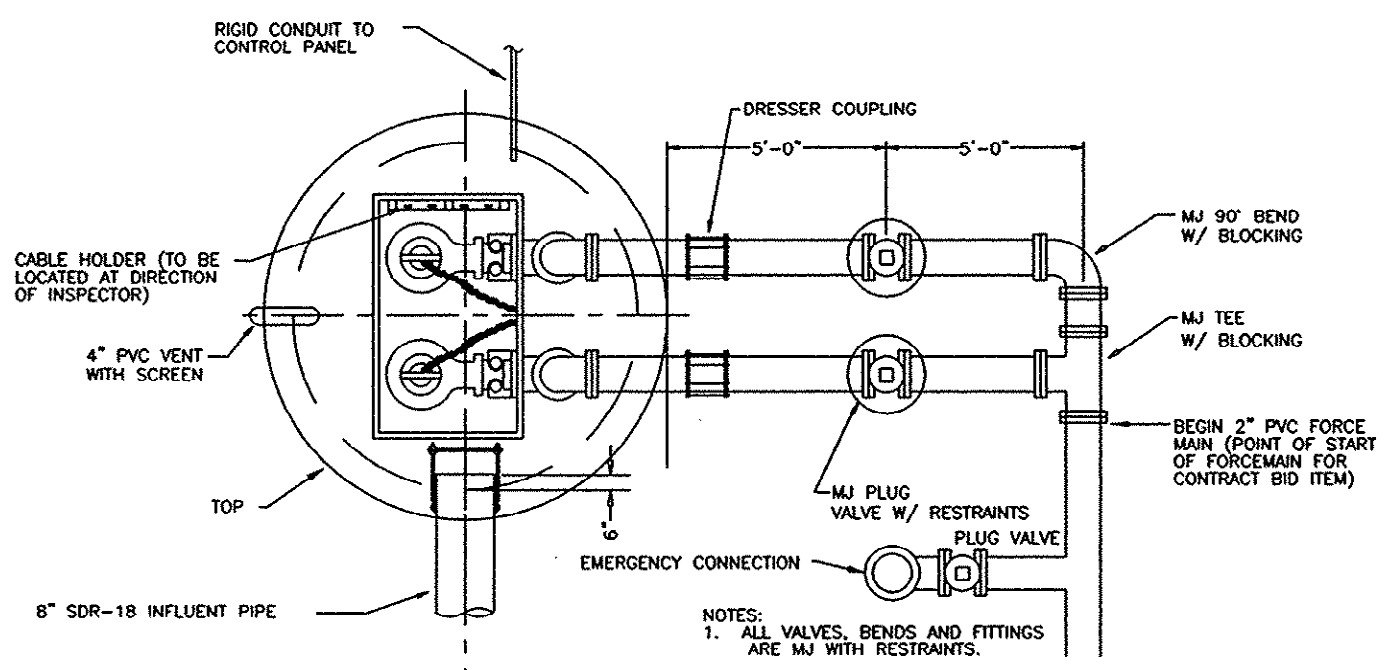


EMERGENCY CONNECTION DETAIL NTS.

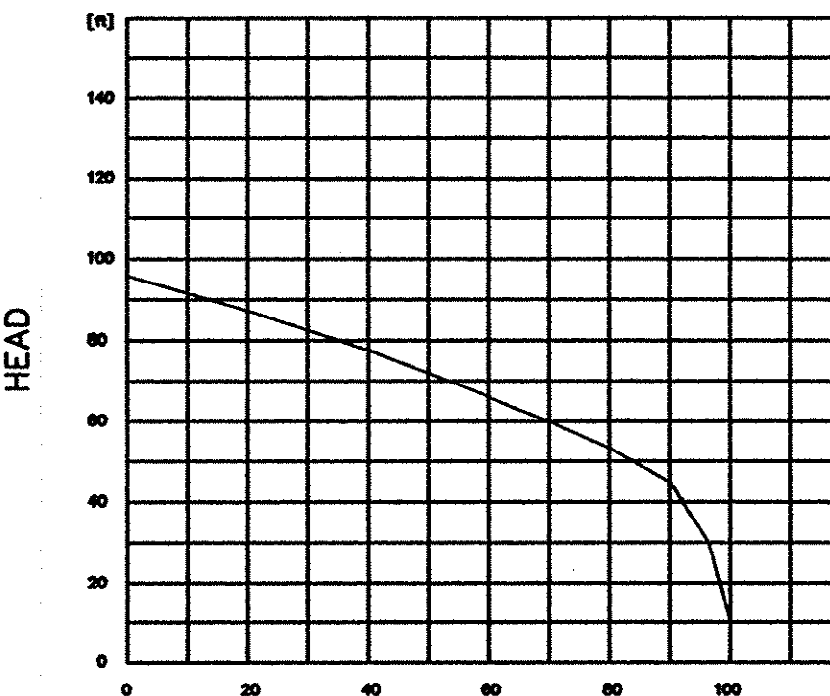
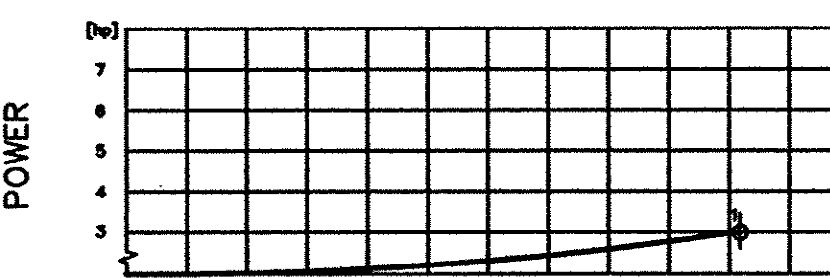


NOTES:
1) METER BOX ASSEMBLY ARE 3/4" STRETCH BOX WITH LOCKING VALVE AND WATER NO. 7 DBL C.V. (OR APPL. EQUIV.) AS SUPPLIED BY CITIES SUPPLY. DHEC APPROVED BACKFLOW PREVENTION DEVICES INSTALLED.
2) METER IS A 3/4" OR 5/8" POSITIVE TYPE DISPLACEMENT METER CONFORMING TO AWWA SPEC'S C700-71 KENT ALL BRONZE METER OR EQUAL.

PUMP STATION YARD HYDRANT DETAIL NTS.



TYPICAL PLAN - DUPLEX PUMP STATION NTS.

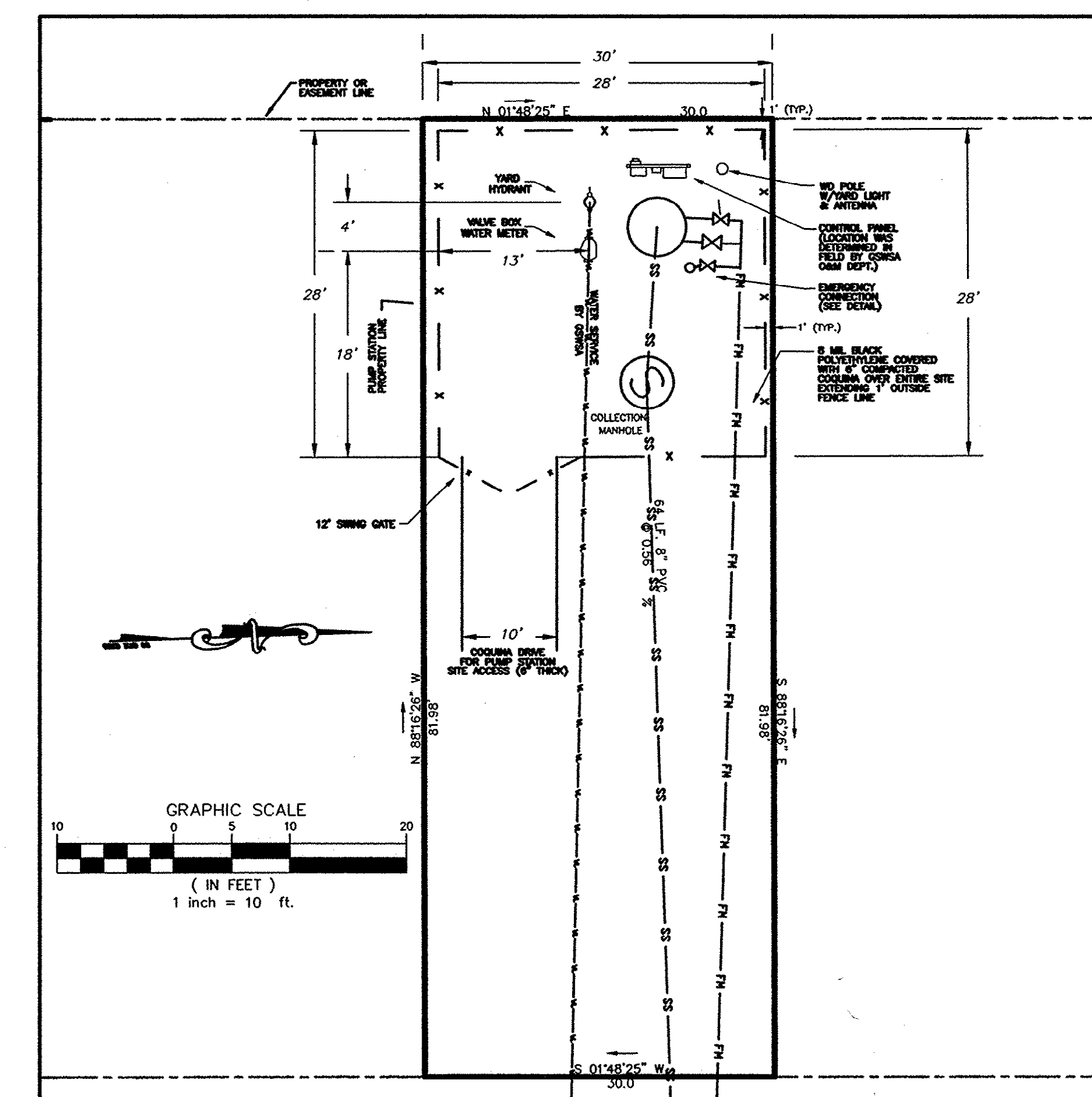


EFF. [%]

FLOW

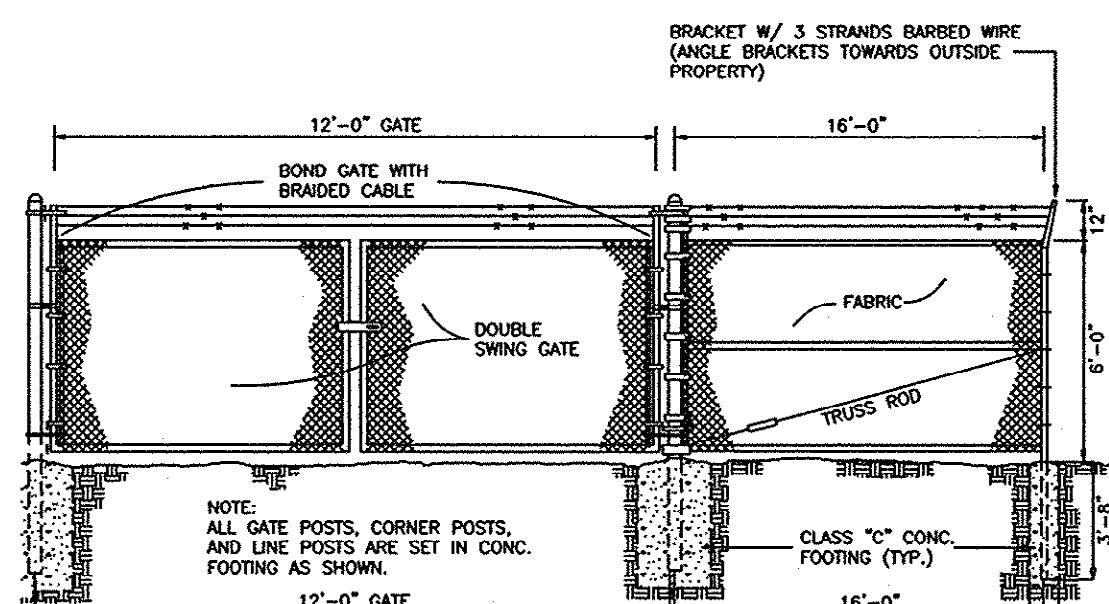
PUMP STATION SCHEDULE

PIPE I.D.	8" SDR 18"
ELEVATION	7.43'
INSIDE DIAMETER	10.00
TOP ELEVATION	19.86
HIGH WATER LEVEL	8.86
LOW WATER LEVEL	5.36
FLOOR ELEVATION	5.36
ALARM SIGNAL ON	8.86
LAG PUMP ON	8.36
LEAD PUMP ON	7.86
PUMPS OFF	6.86
MODEL (PUMP/MANUF.)	MYERS MODEL W330H-23-25
IMPELLER (SELECTION)	5"
DISCHARGE PIPING	2"
CHECK VALVE SIZE	2"
PLUG VALVE SIZE	2"
DESIGN FLOW*	37 GPM.
DESIGN HEAD* (TDH)	90 FT.
VOLTAGE	230
PHASE	3/0
HORSEPOWER	3 HP.
RPM (PUMP/MOTOR)	3450 RPM



NOTES:
1. PUMP STATION SITE GRADED TO DRAIN.
2. FOR DIRECTION AND LAYOUT OF PUMP STATION, PIPING AND APPURTENANCES REFER TO SHEET 2 OF 3.

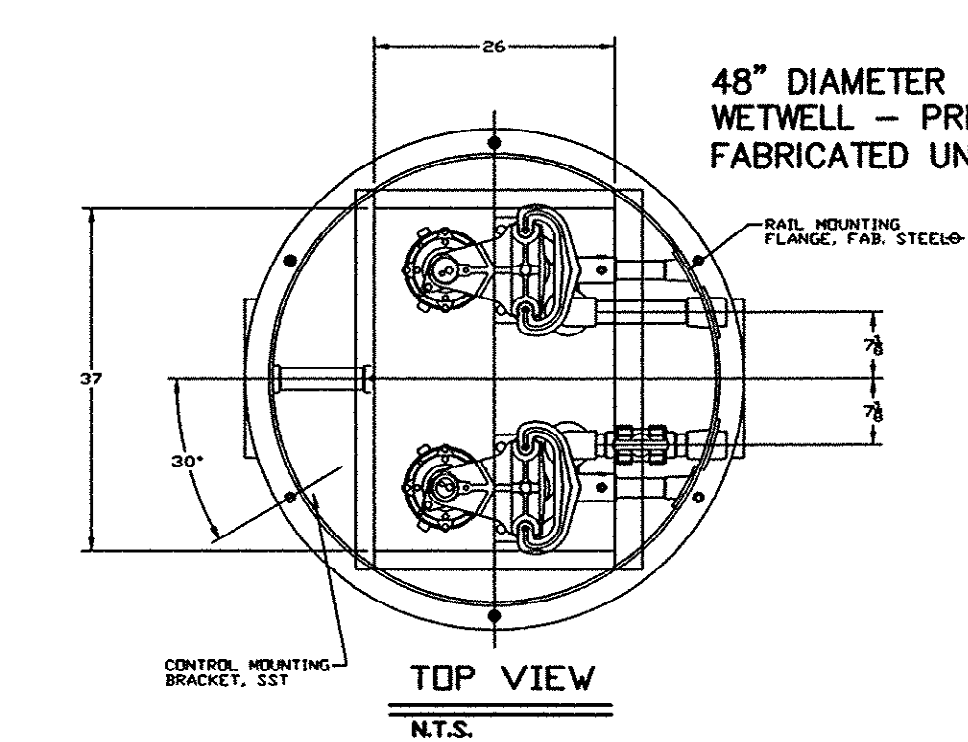
PUMP STATION SITE PLAN SCALE 1" = 10'



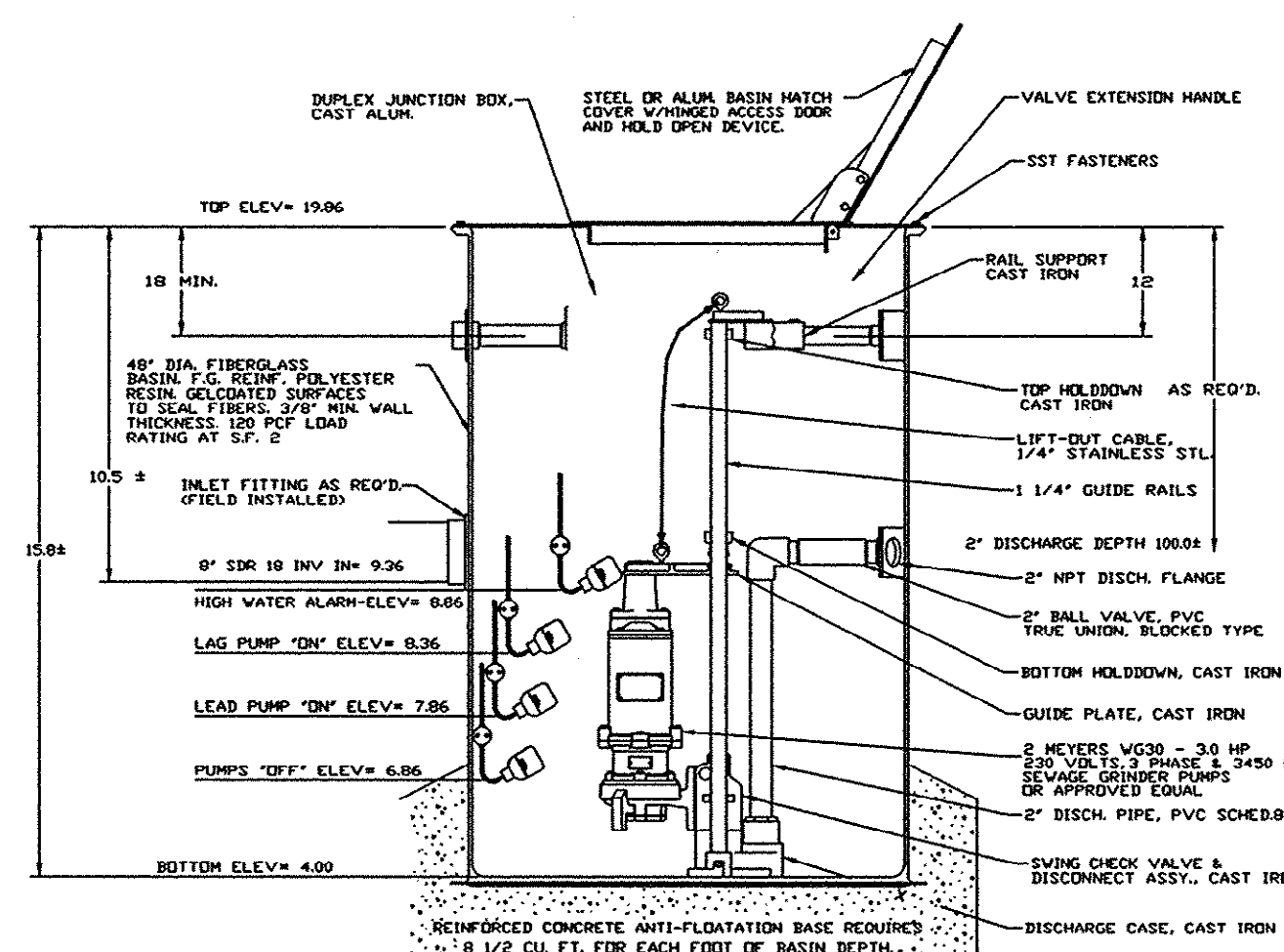
6"-0" GALV. CHAIN LINK FENCE & GATE DETAIL NTS.

PUMP STATION NOTES

- ALL WORK AND MATERIALS DO CONFORM TO REQUIREMENTS OF THE GRAND STRAND WATER & SEWER AUTHORITY.
- ALL HINGES, GUIDE HOLDERS, CABLE HOLDERS, ALL NUTS, BOLTS, WASHERS, AND OTHER FASTENERS ARE 302 STAINLESS STEEL.
- THE NEMA 3RX ENCLOSURES ARE FIBERGLASS AND RAINIGHT.
- ALL WETWELL HARDWARE ARE MOUNTED SUCH THAT ANY COMPONENT CAN BE REMOVED.
- THE POWER CABLE IS WIRED NON-STOP FROM THE PUMP TO THE BOTTOM OF THE STARTER WITH NO JUNCTION BOXES OR SPLICES IN BETWEEN.
- WETWELL SECTIONS CONFORM TO ASTM C-478.
- ALL PIPING WITHIN THE WETWELL IS GLASS 50 DUCTILE IRON PIPE, AND ALL FITTINGS ARE AMERICAN CAST IRON PIPE COMPANY "DURALINE" OR EQUIVALENT (OR PER PACKAGE PUMP STATION RECOMMENDATIONS).
- PUMPS AND MOTORS HAVE A STAINLESS STEEL CABLE FOR LIFTING. THE LENGTH DOES REACH TO THE TOP OF THE STATION PLUS AN ADDITIONAL SIX FEET.
- LOCATION OF THE CONTROL PANEL WAS DETERMINED IN THE FIELD BY GSWA OPERATIONS DEPT.
- INFLUENT PIPING TO PUMP STATION IS SDR 18.
- PUMPS ARE MYERS MODEL W330H-23-25 WITH A 3 HP, 230 VOLTS, 3 PH MOTOR WITH A 5" DIAMETER IMPELLER.
- CONTROL PANEL DOES CONTAIN AN AUDIO AND VISUAL HIGH LEVEL ALARM VISUAL ALARM WITH 360° VISIBILITY.
- AN ALUMINUM LADDER, LENGTH ADEQUATE TO EXTEND FROM BOTTOM OF WETWELL TO 4" BEYOND HATCH. IS PROVIDED TO GSWA O&M DEPT. AT TIME OF FINAL INSPECTION.
- PUMP SPARE PARTS WILL BE PROVIDED PER GSWA SPECIAL CONTRACT PROVISIONS.
- ALL PACKAGE PUMP STATION SUBMITTALS WAS APPROVED PRIOR TO ORDERING OF EQUIPMENT.



TOP VIEW NTS.



NOTE:
1. THE CONTROL PANEL DOES MEET GRAND STRAND WATER & SEWER SPECIFICATIONS.
2. THE BASE OF WET-CELL IS REINFORCED CONCRETE CONSISTING OF A MINIMUM STRENGTH OF 3500 PSI AND #4 REINFORCING BARS WITH A YIELD STRENGTH OF 40,000 PSI.
3. A MINIMUM AMOUNT OF CONCRETE INSTALLED FOR ANTI-FLOATATION
4. PUMP STATION PLC/RADIO TELEMETRY SYSTEM IS ON.

PUMP STATION NTS.

APPROVED DATE 7/25/03

GRAND STRAND WATER & SEWER AUTHORITY

By: *Ronald W. Freeman*

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BELIEF, AND SITE VISITS MADE, IT IS OUR OPINION THAT THE SEWER SYSTEM INSTALLATIONS HAVE BEEN CONSTRUCTED IN SUBSTANTIAL ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS EXCEPT FOR ANY MINOR FIELD CHANGES AS INDICATED OR DOCUMENTED BY THE RECORD DRAWINGS.
David Norris, P.E. 7/4/03
DAVID NORRIS, P.E.

PROJ. NO. 01296

PUMP STATION RECORD DRAWING
HARBOUR OAKS SUBDIVISION
LOCATED ON HWY No. 544, WEST OF HWY. No. 707 NEAR SOCASTEE
HORRY COUNTY, SOUTH CAROLINA
FOR
GRAND STRAND WATER AND SEWER AUTHORITY

SCALE: 1" = 50'

DESIGNED BY: DWN

DRAWN BY: TCM

CHECKED BY: DWN

DATE: 03/07/03

REVISION BY DATE

TCM 07/17/03

TCM 06/24/03

REVISION BY DATE

REVISION BY DATE

REVISION BY DATE

REVISION BY DATE

REVISION BY DATE

REVISION BY DATE

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