

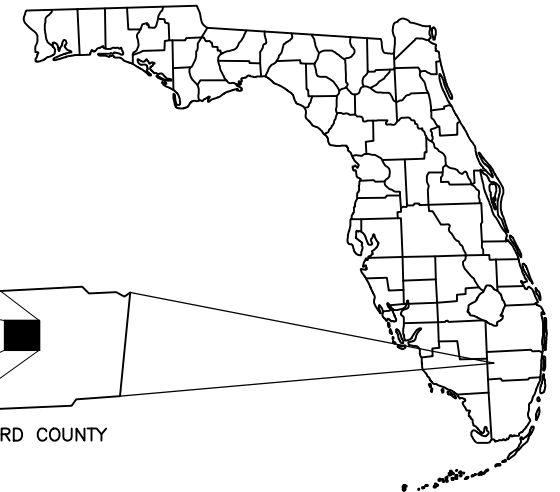
# CITY OF MARGATE

## LIFT STATION NO. 20 RENOVATION

LOCATION MAP



CALL SUNSHINE STATE  
ONE-CALL CENTER 48 HOURS  
BEFORE EXCAVATION  
811  
1-800-432-4770



VICINITY MAP  
SCALE: N.T.S.



Know what's below.  
Call before you dig.

PREPARED FOR:

# CITY OF MARGATE

PROJECT No. 08-22-033

PERMITTING

FILE NAME: 00-22-033-G-00-CVR.dwg



**CRAIG A. SMITH & ASSOCIATES**  
CONSULTING ENGINEERS-PLANNERS-SURVEYORS  
21045 COMMERCIAL TRAIL - BOCA RATON, FLORIDA 33486  
(561) 314-4445 WWW.CRAIGASMITH.COM  
CERTIFICATE OF AUTHORIZATION NUMBER: LB0003110



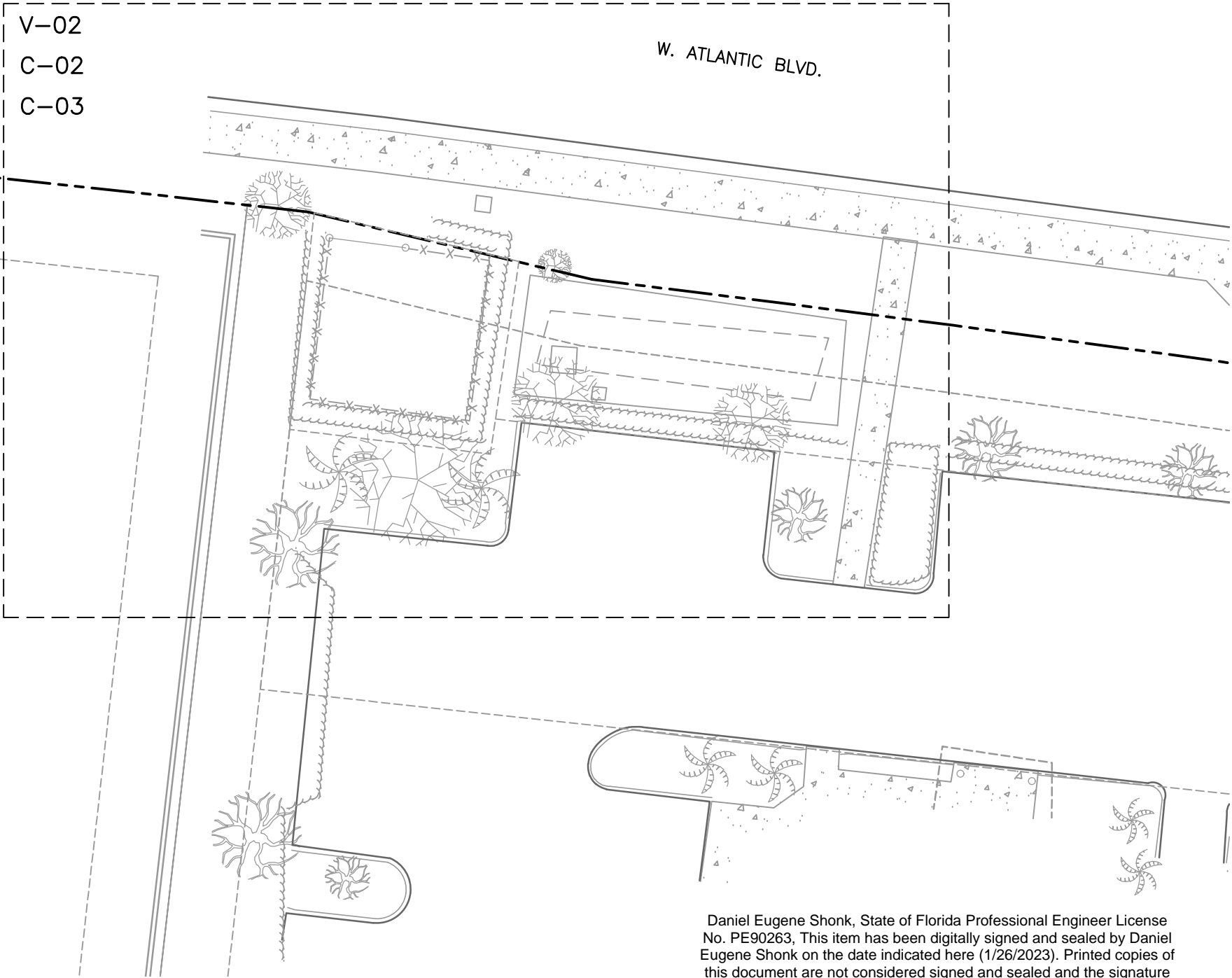
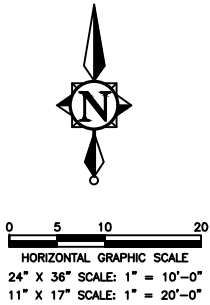
Daniel Eugene Shonk, State of Florida Professional Engineer License No. PE90263, This item has been digitally signed and sealed by Daniel Eugene Shonk on the date indicated here (1/26/2023). Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

STEPHEN E. BAILEY, P.E. (ELECTRICAL)  
DATE \_\_\_\_\_  
FLORIDA PROFESSIONAL ENGINEER NO. 42461

DANIEL E. SHONK, P.E. (CML)  
DATE \_\_\_\_\_  
FLORIDA PROFESSIONAL ENGINEER NO. 90263

\\cae-file\projects\Cities\_Villages\_Towns\Margate\08-22-033\15-20\PLANS\00-22-033-G-01-KEY.dwg, 1/25/2023 12:12:11 PM, kschirmer, 1:2

FOR OFFICIAL USE ONLY



**SHEET INDEX**

SHEET NUMBER	DESCRIPTION
G-00	COVER SHEET
G-01	KEY SHEET & SHEET INDEX
G-02	GENERAL NOTES & SPECIFICATIONS
V-01	SURVEY ABBREVIATIONS, SYMBOLS, LEGEND AND NOTES
V-02	MAP OF SPECIFIC PURPOSE SURVEY
C-01	CIVIL ABBREVIATIONS & LEGEND SHEET
C-02	DEMOLITION PLAN
C-03	SITE WORK PLAN
C-04	PROFILE VIEWS
C-05	DETAILS AND SPECIFICATIONS
C-06 - C-10	STANDARD DETAILS
E-01	ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS
E-02	ELECTRICAL PLAN VIEWS
E-03	SINGLE LINE DIAGRAM
E-04	PCP ELEMENTARY DIAGRAM-1
E-05	PCP ELEMENTARY DIAGRAM-2
E-06	TERMINATION CABINET AND SERVICE RACK DETAIL
E-07	ELECTRICAL DETAILS

Daniel Eugene Shonk, State of Florida Professional Engineer License No. PE90263, This item has been digitally signed and sealed by Daniel Eugene Shonk on the date indicated here (1/26/2023). Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

PERMITTING

NO.	DATE	REVISION	BY
1	01/19/23	SHEET INDEX REVISIONS/ADDED SHEETS	KRS

Date:	10/06/2022
Designed:	KR
Drawn:	OM
Checked:	DS

APPROVED BY:	DANIEL E. SHONK, P.E.
DATE:	
FLORIDA PROFESSIONAL ENGINEER NO.	90263

**CRAIG A. SMITH & ASSOCIATES**  
CONSULTING ENGINEERS-PLANNERS-SURVEYORS

21045 COMMERCIAL TRAIL  
BOCA RATON, FLORIDA 33486  
(561) 314-4445  
CERTIFICATE NO. LB0003110

PREPARED FOR:

**THE CITY OF MARGATE**  
BROWARD COUNTY, FLORIDA

LIFT STATION No. 20  
RENOVATION  
KEY SHEET  
& SHEET INDEX

FILE NAME: 00-22-033-G-01-KEY.dwg  
LAST SAVED: 01/19/23 - 12:56pm

CAS PROJECT NUMBER  
08-22-033

SHEET

G-01

\\cae-file\projects\Cities\_Villages\_Towns\Margate\08-22-035\15-20\PLANS\00-22-035-G-02-NOTE.dwg, I / 25 / 2025 12:12:18 PM, ksdhrner, 1:2

GENERAL NOTES

1. ALL CONSTRUCTION & MATERIALS TO BE IN ACCORDANCE WITH THE CITY OF MARGATE, WATER AND WASTE WATER SPECIFICATIONS.
2. CONTRACTOR SHALL NOTE THAT ASBESTOS CEMENT MAY BE PRESENT ON PROJECT SITE. CONTRACTOR SHALL FOLLOW SPECIFICATIONS AND REGULATORY AGENCY MEASUREMENTS FOR HANDLING AND DISPOSAL OF SUCH ELEMENTS.
3. THE LOCATION AND SIZE OF ALL EXISTING UTILITIES SHOWN ON THE PLAN ARE APPROXIMATE. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXACT LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITIES BY ELECTRONIC METHODS AND BY HAND EXCAVATION IN COORDINATION WITH ALL UTILITY COMPANIES PRIOR TO BEGINNING ANY CONSTRUCTION OPERATION. THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR DURING CONSTRUCTION AND THE LOCATIONS AND ELEVATIONS OF EXPOSED FEATURES SHALL BE CAREFULLY NOTED ON THE PROJECT RECORD "AS-BUILT" DRAWINGS. ANY AND ALL CONFLICT OF EXISTING UTILITIES WITH PROPOSED IMPROVEMENTS MUST BE RESOLVED BY THE CONTRACTOR IN AN APPROVED MANNER.
4. CONTRACTOR SHALL PROVIDE A FIVE (5) DAY NOTICE TO CITY AND ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITY ON SITE WHERE WATER AND/OR FORCE MAIN PIPES NEED TO BE SHUTDOWN. CONTRACTOR TO COORDINATE WITH THE CITY TO ISOLATE WATER OR SEWER MAIN.
5. 48 HOURS PRIOR TO DIGGING, CONTRACTOR SHALL COORDINATE WITH ALL UNDERGROUND SERVICE COMPANIES TO VERIFY THE LOCATION OF THEIR FACILITIES. ADDITIONALLY, CONTRACTOR SHALL CONTACT SUNSHINE STATE ONE CALL OF FLORIDA, INC. AT 1-800-432-4770 PRIOR TO DIGGING.
6. THE INFORMATION PROVIDED IN THESE PLANS IS TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF THE CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF THE WORK. ALL CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT ANY INVESTIGATIONS THEY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSIONS REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH THEIR BIDS WILL BE BASED. CONTRACTOR IS RESPONSIBLE TO VERIFY DIMENSIONS AND FIELD CONDITIONS PRIOR TO ORDERING ANY PARTS.
7. THE CONTRACTOR IS ADVISED TO USE EXTREME CAUTION WHEN CONSTRUCTION IS NEAR OR AROUND ANY ELECTRICAL FACILITIES.
8. THE CONTRACTOR SHALL COORDINATE THE UTILITIES TO ARRANGE RELOCATION AND TEMPORARY SUPPORT OF UTILITY FEATURES, AS NECESSARY TO COMPLETE THE WORK. ANY COST INVOLVED IS TO BE BORNE BY THE CONTRACTOR.
9. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WHEN CONFLICTS BETWEEN DRAWINGS AND ACTUAL CONDITIONS ARE DISCOVERED.
10. THE CONTRACTOR SHALL MAINTAIN A SET OF PLANS WITH CURRENT FIELD CHANGES ACCURATELY MARKED AND SHALL DELIVER THESE PLANS TO THE ENGINEER UPON COMPLETION OF CONSTRUCTION. THE CURRENT MARKINGS SHALL BE REVIEWED WITH THE ENGINEER DAILY, OR AS NEEDED, TO ASSURE THAT THEY BOTH AGREE THAT THE MARK-UPS REFLECT THE ACTUAL "AS-BUILT" CONDITIONS. THE CONTRACTOR WILL PREPARE PROJECT RECORD DRAWINGS AT THE CONCLUSION OF THE PROJECT BASED ON THE MARK-UP DRAWINGS AND TIES.
11. ANY U.S.G.S. OR STATE OF FLORIDA MONUMENT OR BENCH WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF IN DANGER OF DAMAGE, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND DISTRICT LOCATION SURVEYOR.
12. ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED.
13. ALL EXISTING UTILITIES ARE TO REMAIN UNLESS OTHERWISE NOTED.
14. THE CONTRACTOR IS ADVISED THAT ALL PROPERTIES ADJACENT TO THE PROJECT HAVE WATER AND SEWER SERVICES WHICH MAY NOT BE SHOWN IN THE PLANS. THE CONTRACTOR MUST REQUEST THE LOCATION OF THESE LATERAL SERVICES. THE ADDITIONAL COST OF EXCAVATING, INSTALLING, BACKFILLING AND COMPACTING AROUND THESE LATERALS SERVICING SAID PROPERTIES MUST BE INCLUDED IN THE BID ITEMS.
15. IF SHEETING, SHORING, DEWATERING INCLUDING WELL POINTS ARE NECESSARY AND UTILIZED, THE CONTRACTOR MUST MONITOR AND CONTROL ALL WORK THAT MAY CAUSE CRACKING TO ANY ADJACENT BUILDING AND THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY ITS OPERATIONS. THE COST OF THIS WORK WILL BE INCLUDED IN THE RELATED BID ITEM FOR THE WORK BEING DONE.
16. CONTRACTOR SHALL NOTIFY PROPERTY OWNERS A MINIMUM OF FIFTEEN (15) DAYS, OR EARLIER IF REQUIRED BY THE CITY, PRIOR TO CONSTRUCTION ON THEIR STREET.
17. CONTRACTOR SHALL DELIVER WRITTEN NOTIFICATION TO THE CITY, ENGINEER, AND PROPERTY OCCUPANTS OF ALL PLANNED DISRUPTION TO UTILITIES 72 HOURS IN ADVANCE OF DISRUPTION.
18. THE CONTRACTOR SHALL MAINTAIN SAFE VEHICULAR ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES AND WILL MAINTAIN ACCOMMODATIONS FOR INTERSECTING AND CROSSING TRAFFIC. NO ROAD OR STREET CROSSING WILL BE BLOCKED OR UNDULY RESTRICTED AS DETERMINED BY THE ENGINEER.
19. ANY PAVEMENT MARKINGS OR SIGNS THAT ARE DAMAGED SHALL BE REPAIRED OR REPLACED IN ACCORDANCE WITH THE BROWARD COUNTY TRAFFIC ENGINEERING DIVISION PAVEMENT MARKING LATEST STANDARDS.
20. THE CONTRACTOR SHALL USE A STREET SWEEPER (USING WATER) OR OTHER EQUIPMENT CAPABLE OF CONTROLLING AND REMOVING DUST. APPROVAL OF THE USE OF SUCH EQUIPMENT IS CONTINGENT UPON ITS DEMONSTRATED ABILITY TO DO THE WORK.
21. RECONSTRUCTION OF SIDEWALKS AND DRIVEWAYS SHALL MEET CITY OF MARGATE MINIMUM STANDARDS.
22. THE PERMIT PLAN SET MUST BE ON SITE AT ALL TIMES.
23. ALL ACTIVITIES SHALL BE CARRIED OUT IN STRICT ACCORDANCE WITH LOCAL RULES AND LEGISLATION REGARDING POLLUTION PREVENTION FOR WATER, SOIL AND AIR. ALSO, ALL APPLICABLE RULES AND LEGISLATION REGARDING PERSONAL HEALTH AND SAFETY SHALL BE OBSERVED.
24. CONTRACTOR TO PAVE AT ITS OWN RISK IF INSTALLED FORCE MAIN HAS NOT BEEN CERTIFIED BY THE ENGINEER.
25. ALL PIPE, JOINTS, VALVES, AND RELATED APPURTENANCES ARE TO BE RESTRAINED PER CONSTRUCTION DETAILS.
26. ALL PIPING SHALL BE COLOR CODED IN ACCORDANCE WITH F.A.C. 62-555.320(21)(B)(3).
27. ALL APPURTENANCES REMOVED FROM SITE SHALL BE SALVAGED AND DELIVERED TO THE CITY OF MARGATE.
28. DUCTILE IRON PIPE SHALL MEET OR EXCEED AWWA/ANSI C151/A21.51, LATEST REVISIONS. PIPE AND FITTINGS SHALL BE THICKNESS CLASS 53 WHERE SPECIFIED IN THE DRAWINGS.
29. MINIMUM PIPE COVER SHALL BE 36 INCHES FOR PVC AND 30 INCHES FOR DIP.
30. PROPERTIES ADJACENT TO THE PROJECT MAY HAVE UTILITIES SUCH AS, BUT NOT LIMITED TO: GAS, COMMUNICATIONS, FIBER OPTIC, ELECTRICITY, WATER AND SEWER SERVICES WHICH MAY NOT BE SHOWN IN THE PLANS. THE CONTRACTOR SHALL REQUEST AND FIELD VERIFY THE LOCATION OF ALL EXISTING UTILITIES AROUND THE PROJECT AREA. THE ADDITIONAL COST OF EXCAVATING, INSTALLING, CONSTRUCTING, BACKFILLING, COMPACTING AND PAVING AROUND THESE EXISTING FEATURES SERVICING SAID PROPERTIES, MUST BE INCLUDED IN THE BID ITEMS.

TESTING

1. BEFORE TEST, ALL PIPING SHALL BE CLEANED (PIGED, FILLED & FLUSHED)
2. FORCE MAINS SHALL BE TESTED IN ACCORDANCE WITH A.N.S.I. / A.W.W.A. STANDARDS C-600-10, LATEST REVISION. HYDROSTATIC TESTS SHALL BE CONDUCTED AS FOLLOWS: AFTER A NEW PRESSURE MAIN HAS BEEN LAID AND BACKFILLED, IT SHALL BE PUMPED TO A PRESSURE OF 150 PSI AND SHALL NOT VARY BY MORE THAN ±5 P.S.I. FOR THE DURATION OF THE TEST. ALL VISIBLE LEAKS SHALL BE STOPPED BY APPROVED METHODS. A LEAKAGE TEST SHALL THEN BE CONDUCTED AT THE ABOVE MENTIONED PRESSURE AND NO INSTALLATION WILL BE ACCEPTABLE BY THE ENGINEER UNTIL THE LEAKAGE IS LESS THAN THE NUMBER OF GALLONS PER HOUR AS DETERMINED BY THE FOLLOWING FORMULA:

$$Q = \frac{LD \sqrt{P}}{148,000}$$

A.N.S.I./A.W.W.A. C600 – 10 STANDARDS

IN WHICH Q EQUALS THE ALLOWABLE LEAKAGE IN GALLONS PER HOUR; L= LENGTH OF LINES IN FEET; D= DIAMETER OF LINES IN INCHES; AND P IS THE AVERAGE TEST PRESSURE DURING THE LEAKAGE TEST, IN POUNDS PER SQUARE INCH. THE TEST SHALL BE MAINTAINED FOR A TWO (2) HOUR DURATION, BUT IT MAY BE CONTINUED FOR ONE (1) ADDITIONAL HOUR IF IT BECOMES APPARENT THAT THE LEAKAGE IS EQUAL TO OR GREATER THAN THE AMOUNT ALLOWABLE. WATER SUPPLIED TO THE MAIN DURING THE TEST TO MAINTAIN THE REQUIRED PRESSURE SHALL BE MEASURED BY A 5/8 INCH METER INSTALLED. ON THE DISCHARGE SIDE OF THE TEST PUMP, OR BY PUMPING FROM A CALIBRATED CONTAINER. A HOSE BIBB CONNECTION WILL BE PROVIDED TO ACCEPT THE TEST GAUGE SUPPLIED BY THE CITY OF MARGATE. THE SECTION OF THE MAIN BEING TESTED SHALL BE LIMITED TO A MAXIMUM LENGTH OF 2000 FEET, OR THE DISTANCE BETWEEN THE TWO (2) CLOSEST VALVES, WHICHEVER IS GREATER. WHEN TESTING AGAINST CLOSED METAL-SEATED VALVES, AND ADDITIONAL LEAKAGE PER CLOSED VALVE OF 0.0078 GAL/HR/IN OF NOMINAL VALVE SIZE SHALL BE ALLOWED. ANY QUESTIONS PERTAINING TO PROCEDURES USED DURING THE TEST SHALL BE DIRECTED BY THE ENGINEER.

3. HYDROSTATIC TESTING: HYDROSTATIC TESTING OF WATER SERVICE LINES SHALL BE DONE IN CONJUNCTION WITH THE TESTING OF THE LATERAL OR MAIN LINE. NO ADDITIONAL LEAKAGE ALLOWANCE WILL BE MADE FOR SERVICE LINES.

NOTES ON WATER-SEWER SEPARATION

1. WATER MAIN SHOULD CROSS ABOVE OTHER PIPE, WHEN WATER MAIN MUST BE BELOW OTHER PIPE, THE MINIMUM SEPARATION IS 12 INCHES UNLESS NOTED BELOW.
2. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES, AND PREFERABLY 12 INCHES, ABOVE OR AT LEAST 18 INCHES BELOW THE OUTSIDE OF SANITARY SEWER.
3. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER OR STORM WATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR AT LEAST 18 INCHES BELOW THE OUTSIDE OF THE PRESSURIZED SANITARY SEWER PIPE.
4. ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM OTHER PIPELINE.
5. ALL CROSSING SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND THE WATER MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING (PIPE CENTERED ON CROSSING).
6. A MINIMUM 10 FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN ANY OTHER PIPE AND WATER MAIN PARALLEL INSTALLATIONS WHENEVER POSSIBLE UNLESS NOTED BELOW.
7. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST 3 FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER OR STORM WATER FORCE MAIN.
8. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST 6 FEET, AND PREFERABLY 10 FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY OR PRESSURIZED SANITARY SEWER OR WASTEWATER FORCE MAIN. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO 3 FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE SEWER.
9. NO WATER MAIN SHALL PASS THROUGH, OR COME INTO CONTACT WITH, ANY PART OF A SANITARY SEWER MANHOLE, STORM SEWER MANHOLE, OR INLET STRUCTURE.
10. ALL D.I.P. SHALL BE CLASS 50 OR HIGHER, ADEQUATE PROTECTIVE MEASURES AGAINST CORROSION SHALL BE USED AS DETERMINED BY THE DESIGN.
11. WATER & SEWER MAIN SEPARATION PER 62-555.314.

Daniel Eugene Shonk, State of Florida Professional Engineer License No. PE90263, This item has been digitally signed and sealed by Daniel Eugene Shonk on the date indicated here (1/26/2023). Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

FOR OFFICIAL USE ONLY

DEMOLITION NOTES

1. DO NOT START DEMOLITION WORK UNTIL UTILITY DISCONNECTING AND SEALING HAVE BEEN COMPLETED AND VERIFIED IN WRITING.
2. BEFORE PROCEEDING WITH DEMOLITION OPERATIONS THE CONTRACTOR IS TO DRAIN, PURGE, OR OTHERWISE REMOVE, COLLECT, AND DISPOSE OF CHEMICALS, GASES, EXPLOSIVES, ACIDS, FLAMMABLES, OR OTHER DANGEROUS MATERIALS.
3. CONDUCT DEMOLITION OPERATIONS AND REMOVE DEBRIS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED AND USED FACILITIES.
4. CONDUCT DEMOLITION OPERATIONS WHILE LIMITING IMPACTS TO THE STRUCTURAL INTEGRITY AND PROTECTING AGAINST DAMAGES OF THE SITE'S PRE-EXISTING CONDITIONS (ASPHALT, CURBING, SIDEWALKS, CATCH BASINS, MANHOLES, UTILITY POLES, STRUCTURES, ETC.). ANY DAMAGES DUE TO THE CONTRACTOR'S MEANS AND METHODS OF CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
5. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER ADJACENT OCCUPIED OR IN-USE FACILITIES WITHOUT PERMISSION FROM OWNER. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS AS REQUIRED BY THE CITY.
6. CONDUCT DEMOLITION OPERATIONS TO PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT BUILDINGS AND FACILITIES TO REMAIN. ENSURE SAFE PASSAGE OF PEOPLE AROUND DEMOLITION AREA.
7. ERECT TEMPORARY PROTECTION, SUCH AS WALKS, FENCES, BARRIERS, RAILINGS, SHORING, ETC. WHERE REQUIRED BY AUTHORITIES HAVING JURISDICTION.
8. PROTECT EXISTING SITE IMPROVEMENTS, APPURTENANCES, AND LANDSCAPING TO REMAIN.
9. ADJACENT IMPROVEMENTS SHALL BE CLEANED OF DUST, DIRT, AND DEBRIS CAUSED BY DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO CONDITION EXISTING BEFORE START OF DEMOLITION.
10. FOR SELECTIVE DEMOLITION, USE CUTTING METHODS LEAST LIKELY TO DAMAGE CONSTRUCTION TO REMAIN OR ADJOINING CONSTRUCTION. TO MINIMIZE DISTURBANCE OF ADJACENT SURFACES, USE HAND OR SMALL POWER TOOLS DESIGNED FOR SAWING OR GRINDING, NOT HAMMERING OR CHOPPING. TEMPORARILY COVER OPENINGS TO REMAIN.
11. DEMOLISH CONCRETE IN SMALL SECTIONS. CUT CONCRETE AT JUNCTURES WITH CONSTRUCTION TO REMAIN, USING POWER-DRIVEN MASONRY SAW OR HAND TOOLS; DO NOT USE POWER-DRIVEN IMPACT TOOLS.
12. REMOVAL, DEMOLITION, HAULING, AND DISPOSAL SHALL COMPLY WITH REGULATIONS BY F.D.E.P., E.P.A. AND ANY OTHER AUTHORITY HAVING JURISDICTION.
13. ALL EXISTING PATHWAY AND STREET LIGHTING WILL REMAIN IN PLACE AND REMAIN IN SERVICE DURING CONSTRUCTION OPERATIONS.

PERMITTING

NO.	DATE	REVISION	BY

Date: 10/08/2022

Designed: KR

Drawn: OM

Checked: DS

APPROVED BY: DANIEL E. SHONK, P.E.

DATE

FLORIDA PROFESSIONAL ENGINEER NO. 90263

CRAIG A. SMITH & ASSOCIATES

CONSULTING ENGINEERS-PLANNERS-SURVEYORS

21045 COMMERCIAL TRAIL  
BOCA RATON, FLORIDA 33486  
(561) 314-4445  
CERTIFICATE. NO. LB0003110

PREPARED FOR:

THE CITY OF MARGATE

BROWARD COUNTY, FLORIDA

LIFT STATION No. 20

RENOVATION

GENERAL NOTES

& SPECIFICATIONS

FILE NAME: 00-22-033-G-02-NOTE.dwg

LAST SAVED: 12/16/22 – 9:11am

CAS PROJECT NUMBER

08-22-033

SHEET

G-02













































































































## GENERAL ABBREVIATIONS

ABRV	DESCRIPTION	ABRV	DESCRIPTION
A/C	AIR CONDITION PAD	NTS	NOT TO SCALE
ACP	ASBESTOS CEMENT PIPE	ORB	OFFICIAL RECORDS BOOK
ALUM	ALUMINUM	O / S	OFF SET
APPROX	APPROXIMATELY	(P)	PLAT
B.C.R.	BROWARD COUNTY RECORDS	P.B.	PLAT BOOK
B/L	BASELINE	P.B.C.R.	PALM BEACH COUNTY RECORDS
BOTT	BOTTOM	PC	POINT OF CURVE
(C)	CALCULATED	PCP	PERMANENT CONTROL POINT
CIP	CAST IRON PIPE	PGS	PAGES
CL	CENTER LINE	PHDPE	PERFORATED HIGH DENSITY POLYETHYLENE
CONC	CONCRETE	PI	POINT OF INTERSECTION
D	DEED/DESCRIPTION	PK&D	PK NAIL AND DISK
D.E.	DRAINAGE EASEMENT	PRC	POINT OF REVERSE CURVE
DIA	DIAMETER	PROP	PROPOSED
DIP	DUCTILE IRON PIPE	PRM	PERMANENT REFERENCE MARKER
ELEV	ELEVATION	PSM	PROFESSIONAL SURVEYOR AND MAPPER
EOW	EDGE OF WATER	PT	POINT OF TANGENCY
EP	EDGE OF PAVEMENT	PVC	POLY VINYL CHLORIDE
EXIST	EXISTING	R	RADIUS
FF	FINISHED FLOOR	RCP	REINFORCED CONCRETE PIPE
FND	FOUND	R.E.	RIM ELEVATION
FPL	FLORIDA POWER & LIGHT	RGE	RANGE
GFF	GARAGE FINISHED FLOOR	R/W	RIGHT-OF-WAY LINE
HDPE	HIGH DENSITY POLYETHYLENE	SEC	SECTION
I.E.	INVERT ELEVATION	TOB	TOP OF BANK
IR	IRON ROD	TOE	TOE OF SLOPE
IR&C	IRON ROD AND CAP	TOP	TOP OF PIPE
IP	IRON PIPE	TWP	TOWNSHIP
L	ARC LENGTH	TYP	TYPICAL
LB	LICENSED BUSINESS	U.E.	UTILITY EASEMENT
LF	LINEAR FEET	VCP	VITRIFIED CLAY PIPE
(M)	MEASURED	$\Delta$	DELTA

## STANDARD LINETYPES

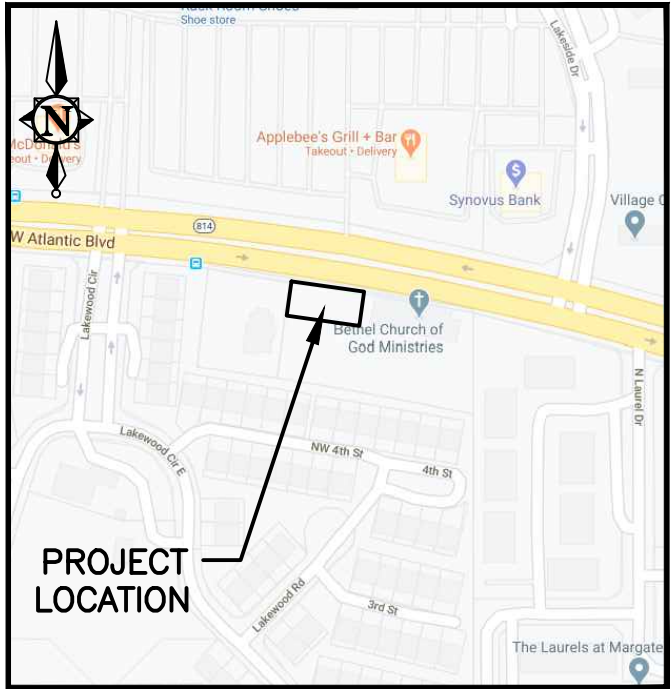
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	BASELINE		BURIED TRAFFIC CONTROL
	PARCEL LINE		COMMUNICATIONS DUCTBANK CL
	BOUNDARY LINE		FIBER OPTIC DUCTBANK CL
	EASEMENT LINE		OVERHEAD WIRE
	LOT LINE		BURIED ELECTRIC
	RIGHT OF WAY LINE		BURIED STREET LIGHTING
	CENTER LINE		ELECTRICAL DUCTBANK CENTER LINE
	SECTION LINE		FORCE MAIN
	LANDSCAPE LINE		SANITARY SEWER
	EDGE OF WATER		SANITARY SERVICE
	NON-VEHICULAR ACCESS LINE		VACUUM SEWER
	PLAT LINE		STORM DRAIN
	CURB & GUTTER		FIRE LINE
	FENCE LINE		RAW WATER LINE
	GUARD RAIL		WATER LINE MAIN
	UNKNOWN UTILITY		WATER LINE CHILLED
	ABANDONED UTILITY		WATER SERVICE
	NON FIELD VERIFIED UTILITY		IRRIGATION LINE
	BURIED CABLE TV		GAS LINE ABOVE GROUND
	BURIED COMMUNICATIONS LINE		BURIED GAS LINE
	FIBER OPTIC CABLE		BURIED GAS SERVICE LINE
	BURIED TELEPHONE		FUEL LINE

### GENERAL SYMBOL LEGEND

SYM.		DESCRIPTION	SYM.		DESCRIPTION	
CONTROL		AERIAL TARGET	GAS / FUEL		GAS METER	
		BENCH MARK			GAS MANHOLE	
		CONCRETE MONUMENT			GAS VALVE	
		IRON PIPE			MONITORING WELL	
		IRON ROD			VAPOR EXTRACTION POINT	
		NAIL & DISC			FUEL PUMP DISPENSER	
		TRAVERSE POINT			GAS MARKER	
		IRON ROD AND CAP			VENT PIPE	
		X CUT			GAS VALVE BOX	
		DRILL HOLE			FUEL FILL CAP	
PIPE FITTINGS		11.25° PIPE BEND	TELE/ TV		TELEPHONE JUNCTION BOX	
		22.5° PIPE BEND			TELEPHONE RISER	
		45° PIPE BEND			TELEPHONE MANHOLE	
		90° PIPE BEND			FIBER OPTIC CABLE MARKER	
		CROSS PIPE FITTING			CATV RISER	
		TEE PIPE FITTING			TELEPHONE MARKER	
		WYE PIPE FITTING			BACKFLOW PREVENTOR	
ELECTRICAL		REDUCER PIPE FITTING	WATER / IRRIGATION		BLOW OFF	
		ELECTRIC MANHOLE			AIR RELEASE VALVE	
		ELECTRIC MOTOR			SAMPLE POINT	
		ELECTRICAL OUTLET			FIRE HYDRANT	
		GROUND LIGHT			SIAMESE CONNECTION	
		ELECTRIC JUNCTION BOX			WATER METER	
		ELECTRIC METER			WATER VALVE	
		LIGHT POLE BOX			WATER SPIGOT	
		TRAFFIC CONTROL BOX			IRRIGATION CONTROL VALVE	
		ELECTRICAL RISER			IRRIGATION METER	
UTILITY POLES		TRANSFORMER	TREES		SPRINKLER	
		CROSSWALK POST			CITRUS TREE (TRC)	
		GUY WIRE			CYPRESS TREE (TRCY)	
		GUY POLE			GENERIC TREE (TRG)	
		LIGHT POLE			OAK TREE (TRO)	
		CONCRETE POWER POLE			PINE TREE (TRP)	
		CONCRETE UTILITY POLE			PALM TREE (TRPL)	
		METAL POWER POLE			MANGROVE (TRMG)	
		METAL UTILITY POLE		MISCELLANEOUS		GROUND PENETRATING RADAR
		WOOD UTILITY POLE				BORING HOLE
	WOOD POWER POLE		METER (UNKNOWN)			
	MAST ARM POLE		BOLLARD			
	CLEAN OUT		COLUMN			
	SANITARY MANHOLE		MAIL BOX			
	STUB OUT		FLAG POLE			
	STAND PIPE		HANDICAP MARKER			
	SEWER VALVE		MANHOLE (UNKNOWN)			
	GRINDER		SATELLITE DISH			
STORM		CATCH BASIN		SIGN		
		STORM DRAIN MANHOLE		PARKING METER		
		YARD DRAIN		POST		
		DRAIN		UTILITY BOX		
		CURB INLET		UTILITY RISER		
		CURB INLET W/ MANHOLE		CEMETERY HEAD STONE		
		CURB INLET W/ GRATE		HAND HOLE		
	CI W/ MANHOLE & GRATE		GATE POST			

### LOCATION MAP

SCALE: N.T.S.



SURVEYOR'S NOTES:

1. REPRODUCTIONS OF THIS SURVEY ARE NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.
2. NO SEARCH OF THE PUBLIC RECORDS WAS UNDERTAKEN FOR EASEMENTS, RIGHTS OF WAYS, RESTRICTIONS OR OTHER RECORDED OR EVIDENCE OF UNRECORDED DOCUMENTS BY THIS FIRM, THOUGH A LIMITED SEARCH OF THE BROWARD COUNTY PROPERTY APPRAISER'S WEBSITE WAS PERFORMED FOR VARIOUS DEED AND PLAT INFORMATION.
3. THE INTENT OF THIS "MAP OF SPECIFIC PURPOSE SURVEY" IS TO AID IN THE DESIGN OF SANITARY SEWER LIFT STATION IMPROVEMENTS WITHIN THE CORRIDORS SHOWN HEREON. THIS IS NOT A BOUNDARY SURVEY.
4. THERE MAY BE UNDERGROUND "FOOTINGS", DRAINAGE, UTILITIES, ETC. NOT SHOWN OR INDICATED HEREON. UTILITY SURFACE MARKINGS SHOWN HEREON WERE LOCATED AS PROVIDED BY THE CRAIG A. SMITH & ASSOCIATES UTILITY LOCATES DEPARTMENT.
5. HORIZONTAL COORDINATES SHOWN HEREON ARE RELATIVE TO THE FLORIDA STATE PLANE COORDINATE GRID SYSTEM, EAST ZONE, NORTH AMERICAN DATUM OF 1983 (2011 ADJUSTMENT). CAS CONTROL POINTS (CP) SHOWN HEREON WERE ADJUSTED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION GNSS PROCESSING CENTER AND WERE USED AS REDUNDANT CHECKS FOR THE DURATION OF THE PROJECT. ELEVATIONS SHOWN HEREON ARE RELATIVE TO NORTH AMERICAN VERTICAL DATUM OF 1988 AND BASED ON BROWARD COUNTY PUBLISHED BENCHMARK 2738 (ELEVATION = 9.52')
6. ALL SYMBOLS ARE SHOWN FOR REPRESENTATION PURPOSES ONLY AND ARE NOT TO SCALE.
7. THE ACCURACY OF THIS SURVEY IS PREMISED ON THE EXPECTED USE OF THE SURVEY. THE EXPECTED USE/PREMISE OF THIS SURVEY IS THE DESIGN OF SANITARY SEWER IMPROVEMENTS. A TRIMBLE R2 GNSS INSTRUMENT WITH TRIMBLE TSC-3 DATA COLLECTION WAS UTILIZED TO ESTABLISH HORIZONTAL CONTROL AND LOCATE UTILITY SURFACE MARKS AND MISC. FEATURES HORIZONTALLY. A TOPCON ES-102 INSTRUMENT WITH RANGER (TDS) DATA COLLECTION WAS UTILIZED TO COLLECT DATA IN BOTH THE HORIZONTAL AND VERTICAL PLANES. CLOSED LEVEL LOOPS WERE PERFORMED USING TOPCON GTS 2 LEVELS TO TRANSFER ELEVATIONS FROM KNOWN BENCHMARKS AND THROUGHOUT THE PROJECT.
8. THE DIGITAL DATA PROVIDED IS INTENDED TO BE VIEWED AT A SCALE OF 1" = 20' OR SMALLER.
9. ALL DISTANCES AND ELEVATIONS SHOWN HEREON ARE IN ACCORD WITH THE UNITED STATES STANDARD USING FEET AND DECIMALS THEREOF.

SURVEYORS CERTIFICATE:

I HEREBY CERTIFY THAT THIS SURVEY IS ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF AND MEETS APPLICABLE SECTIONS OF THE STANDARDS OF PRACTICE AS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 5J-17, FLORIDA ADMINISTRATIVE CODE, PURSUANT TO SECTION 472.027, FLORIDA STATUTES, SUBJECT TO QUALIFICATIONS NOTED HEREON.

FOR THE FIRM BY: \_\_\_\_\_  
ROBERT D. KEENER  
PROFESSIONAL SURVEYOR & MAPPER  
FLORIDA REGISTRATION NO. 4846

FIELD DATE: 09/11/20

SIGNATURE DATE: \_\_\_\_\_

1	08/18/20	1924/68	MM	MAP OF SPECIFIC PURPOSE SURVEY	RDK
NO.	DATE	FB / PG	DWN	REVISION	CKD

PREPARED FOR

CITY OF MARGATE

**CRAIG A. SMITH & ASSOCIATES**  
CONSULTING ENGINEERS-PLANNERS-SURVEYORS

 21045 COMMERCIAL TRAIL  
BOCA RATON, FLORIDA 33486  
(561) 314-4445  
CERTIFICATE NO. LB0003110 

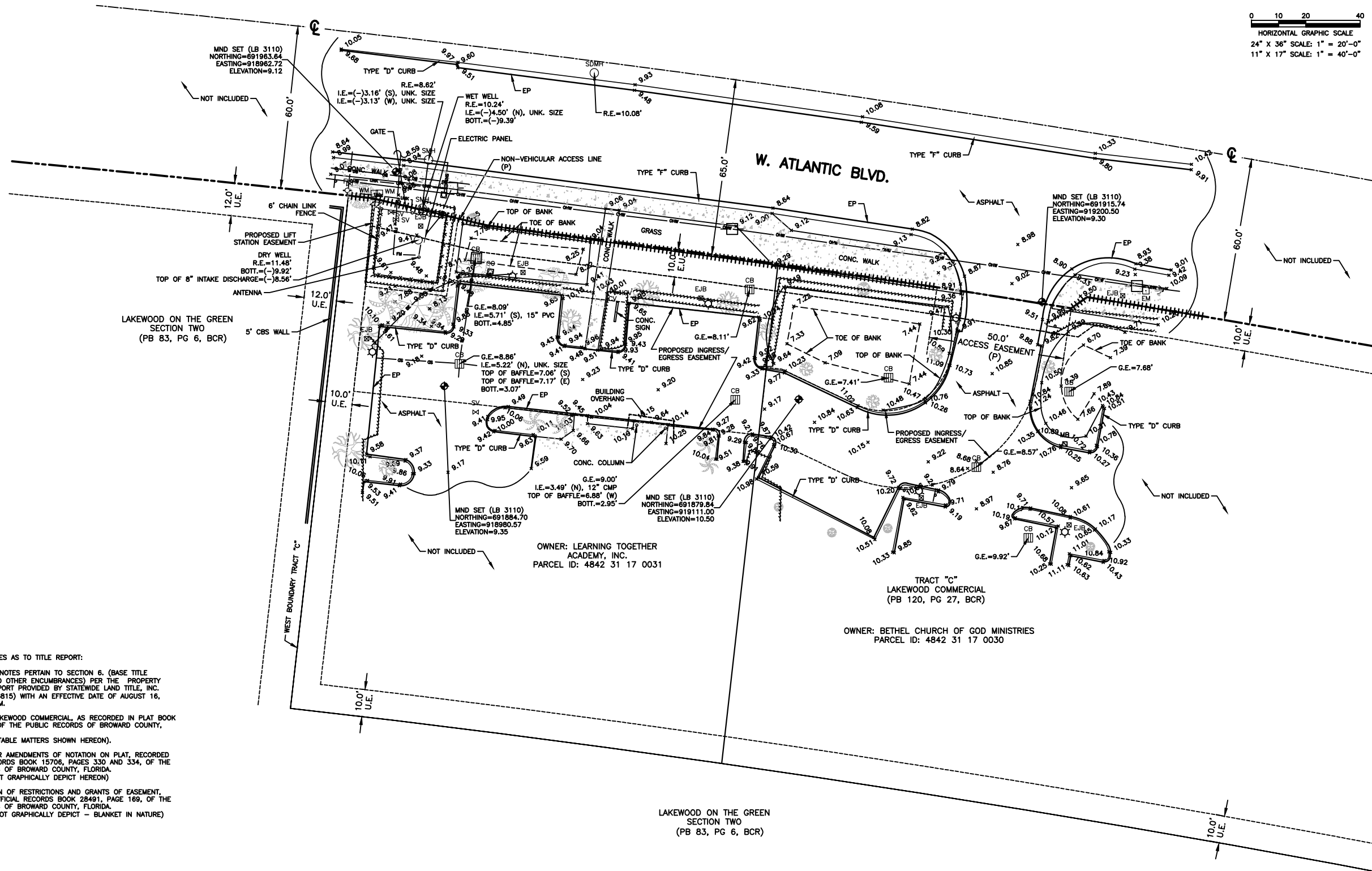
## MAP OF SPECIFIC PURPOSE SURVEY

MARGATE LIFT STATION No. 20  
REHAB

FILE NAME: 10-22-033-V-01-COVR.dwg  
LAST SAVED: 10/06/22 - 1:43pm

CAS PROJECT NUMBER  
**08-22-033**

SHEET  
/—01  
— OF —  
02



1	08/18/20	1924/68	MM	MAP OF SPECIFIC PURPOSE SURVEY		RDK
NO.	DATE	FB / PG	DWN	REVISION		CKD

**CRAIG A. SMITH & ASSOCIATES**  
CONSULTING ENGINEERS-PLANNERS-SURVEYORS

**CAS** 21045 COMMERCIAL TRAIL  
BOCA RATON, FLORIDA 33486  
(561) 314-4445  
CERTIFICATE NO. LB0003110 **CAS**

CAS PROJECT NUMBER  
**08-22-033**

SHEET  
V-02  
OF  
02

\\cae-file\projects\Cities\_Villages\_Towns\Margate\08-22-033\08-22-033-01-LGND.dwg, 1/25/2023 12:12:45 PM, kschriner, 1:2

FOR OFFICIAL USE ONLY

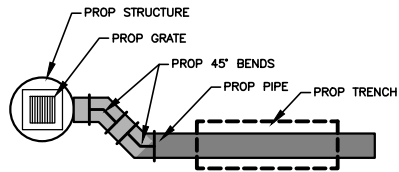
GENERAL ABBREVIATIONS

ABRV	DESCRIPTION	ABRV	DESCRIPTION
A/C	AIR CONDITION PAD	NTS	NOT TO SCALE
ACP	ASBESTOS CEMENT PIPE	ORB	OFFICIAL RECORDS BOOK
ALUM	ALUMINUM	O / S	OFF SET
APPROX	APPROXIMATELY	(P)	PLAT
B.C.R.	BROWARD COUNTY RECORDS	P.B.	PLAT BOOK
B/L	BASELINE	P.B.C.R.	PALM BEACH COUNTY RECORDS
BOTT	BOTTOM	PC	POINT OF CURVE
(C)	CALCULATED	PCP	PERMANENT CONTROL POINT
CIP	CAST IRON PIPE	PGS	PAGES
CL	CENTER LINE	PHDPE	PERFORATED HIGH DENSITY POLYETHYLENE
CONC	CONCRETE	PI	POINT OF INTERSECTION
D	DEED/DESCRIPTION	PK&D	PK NAIL AND DISK
D.E.	DRAINAGE EASEMENT	PRC	POINT OF REVERSE CURVE
DIA	DIAMETER	PROP	PROPOSED
DIP	DUCTILE IRON PIPE	PRM	PERMANENT REFERENCE MARKER
ELEV	ELEVATION	PSM	PROFESSIONAL SURVEYOR AND MAPPER
EOW	EDGE OF WATER	PT	POINT OF TANGENCY
EP	EDGE OF PAVEMENT	PVC	POLY VINYL CHLORIDE
EXIST	EXISTING	R	RADIUS
FF	FINISHED FLOOR	RCP	REINFORCED CONCRETE PIPE
FND	FOUND	R.E.	RIM ELEVATION
FPL	FLORIDA POWER & LIGHT	RGE	RANGE
GFF	GARAGE FINISHED FLOOR	R/W	RIGHT-OF-WAY LINE
HDPE	HIGH DENSITY POLYETHYLENE	SEC	SECTION
I.E.	INVERT ELEVATION	TOB	TOP OF BANK
IR	IRON ROD	TOE	TOE OF SLOPE
IR&C	IRON ROD AND CAP	TOP	TOP OF PIPE
IP	IRON PIPE	TWP	TOWNSHIP
L	ARC LENGTH	TYP	TYPICAL
LB	LICENSED BUSINESS	U.E.	UTILITY EASEMENT
LF	LINEAR FEET	VCP	VITRIFIED CLAY PIPE
(M)	MEASURED	Δ	DELTA

PIPE FITTINGS

FITTING DESCRIPTION	SYMBOL			
	FLANGED	MECH	P.V.C.	SINGLE LINE
PROPOSED 11.25" BEND				
PROPOSED 22.5" BEND				
PROPOSED 45" BEND				
PROP. 45" BEND (TURN DOWN)				
PROP. 45" BEND (TURN UP)				
PROPOSED 90" BEND				
PROP. 90" BEND (TURN DOWN)				
PROP. 90" BEND (TURN UP)				
PROPOSED CROSS				
PROPOSED TEE				
PROP. TEE (TURN UP)				
PROP. TEE (TURN DOWN)				
PROPOSED WYE OR LATERAL				
FLANGE FITTING FRONT VIEW				
FLANGE (UNION) SIDE / TOP VIEW				
PROPOSED CHECK VALVE				
PROPOSED GATE VALVE SIDE VIEW				
PROPOSED GATE VALVE TOP VIEW				
PROPOSED BALL VALVE				
PROPOSED PLUG VALVE				
PROPOSED REDUCER				
PROP. CAP W/ RESTRAINED JOINT				
PROP. PLUG W/ RESTRAINED JOINT				

UTILITY PLAN  
PIPE LEGEND



LINE WEIGHTS

EXISTING	SHADED SOLID LINES & TEXT DENOTE EXISTING EQUIPMENT, STRUCTURES AND WORK.
FUTURE	NON-SHADED DASHED LINES & TEXT DENOTE FUTURE EQUIPMENT, STRUCTURES AND WORK.
PROPOSED	NON-SHADED, BOLD, SOLID LINES & TEXT DENOTE PROPOSED EQUIPMENT, STRUCTURES AND WORK.

NOTE: FOR GRAPHICAL CLARIFICATION ON PLANS CONTAINING BACKGROUND AERIAL PHOTOS EXISTING ITEMS ARE SHOWN HOLLOW WHERE AS PROPOSED ARE SHOWN SOLID.



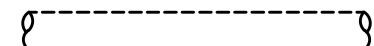
MECHANICAL / DETAIL  
SHEET PIPE SYMBOLS



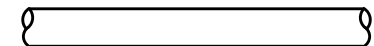
EXISTING PIPE BELOW GROUND



EXISTING PIPE ABOVE GROUND



PROPOSED PIPE BELOW GROUND



PROPOSED PIPE ABOVE GROUND

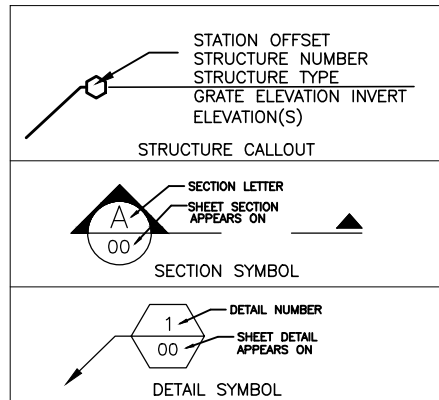
GENERAL SYMBOL LEGEND

SYMBOL DESCRIPTION	SYM.	SYMBOL DESCRIPTION	SYM.
BACTERIOLOGICAL SAMPLING POINT		MANHOLE	
PROPOSED GRADE		PIPE BREAK	
BOLLARD		GRADING FLOW	
EXISTING TREE		PIPE FLOW	
EXISTING SIGN		CLEAN OUT	
EXISTING GUARD RAIL		SANITARY MANHOLE	
EXISTING CULVERT		FIRE HYDRANT	
UTILITY POLES		SEWER VALVE	
CATCH BASIN		WATER VALVE	
STORM MANHOLE		WATER METER	

SYMBOL DESCRIPTION	SYM.	SYMBOL DESCRIPTION	SYM.
SANITARY AIR RELEASE VALVE		PRESSURE GAUGE	
CORP STOP		VENT AND FILTER	
COUPLING SIDE / TOP VIEW		MAG METER	
GRUVLOK FITTING		WATER LINE AIR RELEASE VALVE	
KAMLOK FITTING		WALL PIPE	

SYMBOL DESCRIPTION	SYM.
PROP. FIRE HYDRANT ASSEMBLY	
PROP. DOUBLE GATE VALVE	
PROPOSED GLOBE VALVE	
PROPOSED CAP AND BLOWOFF	
PROP. BACK FLOW PREVENTER	

TAGS



NOTE: THE LEGEND SHOWN HEREON IS REPRESENTATIVE OF ALL CAS DRAFTING STANDARDS AND IS NOT PROJECT SPECIFIC.

PATTERNS

SYMBOL	DESCRIPTION
	PROPOSED ASPHALT
	PROPOSED PAVEMENT RESTORATION
	PROPOSED CONCRETE
	DEMOLITION

Daniel Eugene Shonk, State of Florida Professional Engineer License No. PE90263, This item has been digitally signed and sealed by Daniel Eugene Shonk on the date indicated here (1/26/2023). Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

PERMITTING

NO.	DATE	REVISION	BY

Date: 10/08/2022  
Designed: KR  
Drawn: OM  
Checked: DS

APPROVED BY: DANIEL E. SHONK, P.E.  
DATE  
FLORIDA PROFESSIONAL ENGINEER NO. 90263

CRAIG A. SMITH & ASSOCIATES  
CONSULTING ENGINEERS-PLANNERS-SURVEYORS  
21045 COMMERCIAL TRAIL  
BOCA RATON, FLORIDA 33486  
(561) 314-4445  
CERTIFICATE. NO. LB0003110

PREPARED FOR:  
THE CITY OF MARGATE  
BROWARD COUNTY, FLORIDA

LIFT STATION No. 20  
RENOVATION  
CIVIL ABBREVIATIONS  
& LEGEND SHEET

FILE NAME: 20-22-033-C-01-LGND.dwg  
LAST SAVED: 12/19/22 - 1:22pm  
CAS PROJECT NUMBER  
08-22-033

SHEET  
C-01



0 2.5 5 10  
HORIZONTAL GRAPHIC SCALE  
24" X 36" SCALE: 1" = 5'-0"  
11" X 17" SCALE: 1" = 10'-0"

DEMOLITION NOTES:

1. CONTRACTOR TO FIELD VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION.
3. RESTORE EXISTING PAVEMENT, CURB AND GUTTER, SOD, ETC. TO PRE-CONSTRUCTION CONDITION AS DIRECTED BY THE CITY (AT CONTRACTOR'S EXPENSE).
4. CONTRACTOR TO REMOVE ENTIRE DRY WELL STRUCTURE AND INSTALL SELECT FILL AS NECESSARY. ALL ITEMS OF VALUE INSIDE DRY WELL SHALL BE RETURNED TO OWNER.
5. INSIDE OF EXIST. WET WELL, PROP. WET WELL & PROP. VALVE VAULT SHALL BE COATED W/ MAINSTAY COATING AS PER SPEC. 09980.
6. INSIDE OF EXIST. WET WELL SHALL HAVE PROPER SURFACE PREPARATION. ABRASIVE BLAST CLEAN TO REMOVE ALL LAITANCE, FINES & CONTAMINATION. ALL SURFACE VOIDS, CRACKS, PINHOLES & OTHER DEFECTS MUST BE FILLED FLUSH W/ THE ADJACENT SURFACES BY PUTTY KNIFE, TROWEL, SQUEEGEE OR OTHER SUITABLE METHOD.
7. CONTRACTOR TO CONDUCT SPARK TEST TO TEST INTEGRITY OF ALL NEW LINERS AS PER SPEC 09980.
8. ANY HOLES INSIDE EXIST. WET WELL SHALL BE REPAIRED W/ HYDRAULIC CEMENT.
9. EXISTING WET PIT TO REMAIN. CONTRACTOR TO FILL WITH CONCRETE AND FORM FLOW CHANNEL. REMOVE SUCTION PIPING AND PLUG ALL HOLES. CORE AND CONNECT NEW GRAVITY LINE TO PROPOSED WET WELL AS PER PLAN.
10. ALL ITEMS OF VALUE REMOVED FROM SITE SHALL BE RETURNED TO OWNER.
11. CONTRACTOR SHALL BE AWARE THAT OVERHEAD WIRE IS PRESENT AT LIFT STATION SITE & SHALL USE EXTREME CAUTION WHEN INSTALLING LIFT STATION COMPONENTS. A PRE-BID SITE VISIT IS MANDATORY. NO ADDITIONAL PAYMENTS OR COMPENSATION SHALL BE GIVEN FOR OVERHEAD WIRE ISSUES.
12. CONTRACTOR IS RESPONSIBLE FOR OBTAINING STAGING AREA AND SHALL OBTAIN ALL REQ'D. AGREEMENTS, DOCUMENTS, AND TEMPORARY CONSTRUCTION EASEMENTS AS DEEMED NECESSARY TO COMPLETE REQ'D. WORK.
13. REMOVAL/RELOCATION OF EXISTING TREES SHALL BE COORDINATE WITH THE CITY. ALL IMPACTS TO EXISTING TREES WILL REQUIRE A TREE PERMIT (CITY). ANY TREES REMOVE MOST BE REPLACED.
14. THE CONTRACTOR SHALL UTILIZE CONSTRUCTION BEST PRACTICES TO MINIMIZE INTERFERENCES/DAMAGES AND MAINTAIN THE STRUCTURAL INTEGRITY OF ALL INFRASTRUCTURE ADJACENT TO THE PROJECT.

Daniel Eugene Shonk, State of Florida Professional Engineer License No. PE90263, This item has been digitally signed and sealed by Daniel Eugene Shonk on the date indicated here (1/26/2023). Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

PERMITTING

NO.	DATE	REVISION	BY

Date: 10/08/2022  
Designed: KR  
Drawn: OM  
Checked: DS

APPROVED BY: DANIEL E. SHONK, P.E.  
DATE  
FLORIDA PROFESSIONAL ENGINEER NO. 90263

CRAIG A. SMITH & ASSOCIATES  
CONSULTING ENGINEERS-PLANNERS-SURVEYORS  
21045 COMMERCIAL TRAIL  
BOCA RATON, FLORIDA 33486  
(561) 314-4445  
CERTIFICATE NO. LB0003110

PREPARED FOR:  
THE CITY OF MARGATE  
BROWARD COUNTY, FLORIDA

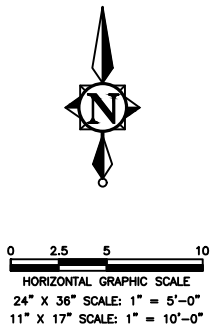
LIFT STATION No. 20  
RENOVATION  
DEMOLITION PLAN

FILE NAME: 20-22-033-C-02-DEMO.dwg  
LAST SAVED: 01/16/23 - 3:39pm  
CAS PROJECT NUMBER  
08-22-033

SHEET  
C-02

\\cae-file\projects\Cities\_Villages\_Towns\Margate\08-22-033\_15-20\PLANS\20-22-033-C-02-DEMO.dwg, 1/25/2023 12:12:52 PM, tsdmer, 1:2





1. CONTRACTOR TO FIELD VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION.
3. RESTORE EXISTING PAVEMENT CURB, AND GUTTER, SOD, ETC. TO PRECONSTRUCTION CONDITION AS DIRECTED BY THE CITY (AT CONTRACTOR'S EXPENSE).
4. INSIDE OF EXIST. WET PIT, PROP. WET WELL & PROP. VALVE VAULT SHALL BE COATED W/ MAINSTAY COATING AS PER SPEC. 09980.
5. INSIDE OF EXIST. WET PIT SHALL HAVE PROPER SURFACE PREPARATION. ABRASIVE BLAST CLEAN TO REMOVE ALL LAITANCE, FINES & CONTAMINATION. ALL SURFACE VOIDS, CRACKS, PINHOLES & OTHER DEFECTS MUST BE FILLED FLUSH W/ THE ADJACENT SURFACES BY PUTTY KNIFE, TROWEL, SQUEEGEE OR OTHER SUITABLE METHOD.
6. CONTRACTOR TO CONDUCT SPARK TEST TO TEST INTEGRITY OF ALL NEW LINERS AS PER SPEC 09980.
7. ANY HOLES INSIDE EXIST. WET PIT SHALL BE REPAIRED W/ HYDRAULIC CEMENT.
8. ALL PIPING INSIDE VALVE VAULT SHALL BE PAINTED PER SPEC. 09900.
9. ALL PIPING INSIDE PROP. LIFT STATION WET WELL SHALL BE FLG. SCH. 10 S.S.
10. ALL AREAS INSIDE FENCED AREA SHALL BE COVERED W/ 3/4" WASHED STONE.
11. CONTRACTOR SHALL BE AWARE THAT OVERHEAD WIRE IS PRESENT AT LIFT STATION SITE & SHALL USE EXTREME CAUTION WHEN INSTALLING LIFT STATION COMPONENTS. A PRE-BID SITE VISIT IS MANDATORY, NO ADDITIONAL PAYMENTS OR COMPENSATION SHALL BE GIVEN FOR OVERHEAD WIRE ISSUES.
12. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ON-SITE STAGING AREA AND SHALL OBTAIN ALL REQ'D. AGREEMENTS, DOCUMENTS, AND TEMPORARY CONSTRUCTION EASEMENTS AS DEEMED NECESSARY TO COMPLETE REQ'D. WORK.
13. GRADE 4:1 SLOPES TO MATCH EXIST. GRADES AROUND PROP. IMPROVEMENTS.
14. PROP. LIFT STATION TOP SLAB AND ACCESS DRIVEWAY SHALL BE INSTALLED ON 12" BASEROCK ON TOP OF SELECT FILL, COMPACTED IN 6" LIFTS TO 98% DENSITY.

- A. 36" MIN. COVER OVER FM.
- B. HORIZONTAL SEPARATION CLEARANCE:
  - 10' TO BUILDINGS AND OTHER STRUCTURES.
  - 10' TO WASTEWATER LINES (MIN. 6' MUST BE APPROVED)
  - 10' TO DRAINAGE PIPES (MIN. 3' MUST BE APPROVED)
  - 4' TO POWER POLE
  - 3' TO DRAINAGE STRUCTURE
- C. 12" MIN. VERTICAL SEPARATION BETWEEN WALLS OF PIPES.
- D. 36" MIN. HORIZONTAL SEPARATION IN BETWEEN WALLS OF WATER MAINS.

PERMITTING ]

PREPARED FOR:

**THE CITY OF MARGATE  
BROWARD COUNTY, FLORIDA**

FILE NAME: 20-22-033-C-03-PS.dwg  
LAST SAVED: 01/23/23 - 11:35am

CAS PROJECT NUMBER  
08-22-033

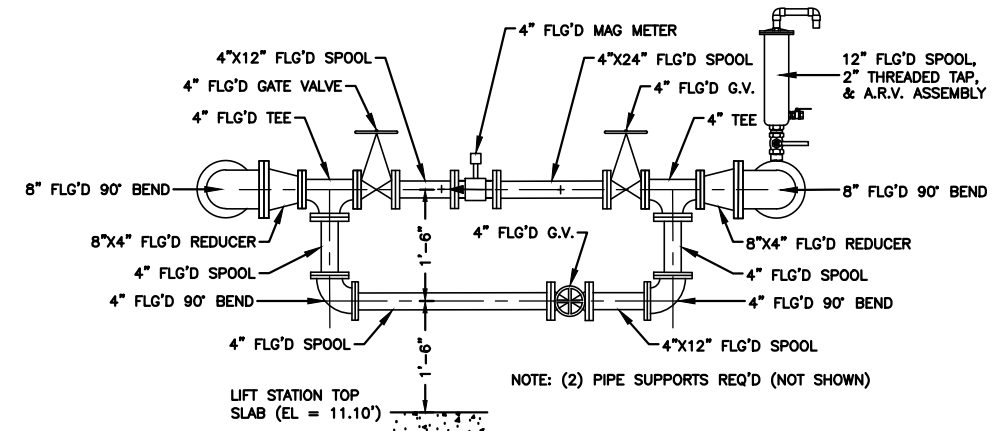
C-03

Date: 10/06/2022  
Designed: KR  
Drawn: OM  
Checked: DS

**CRAIG A. SMITH & ASSOCIATES**  
CONSULTING ENGINEERS-PLANNERS-SURVEYORS

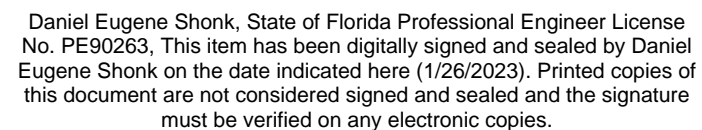
 21045 COMMERCIAL TRAIL  
BOCA RATON, FLORIDA 33486  
(561) 314-4445  
CERTIFICATE NO. LB0003110 





4" FLG'D MAG METTER ASSEMBLY  
N.T.S

1. INSIDE OF EXISTING WET PIT, PROPOSED WET WELL, AND PROPOSED VALVE VAULT SHALL BE COATED WITH MAINSTAY COATING AS PER SPEC 09980.
2. INSIDE OF EXIST. WET WELL SHALL HAVE PROPER SURFACE PREPARATION, ABRASIVE BLAST CLEAN TO REMOVE ALL LAITANCE, FINES & CONTAMINATION. ALL SURFACE VOIDS, CRACKS, PINHOLES & OTHER DEFECTS MUST BE FILLED FLUSH W/ THE ADJACENT SURFACES BY PUTTY KNIFE, TROWEL, SQUEEGEE OR OTHER SUITABLE METHOD.
3. CONTRACTOR TO CONDUCT SPARK TEST TO TEST INTEGRITY OF ALL NEW LINERS AS PER SPEC 09980.
4. ANY HOLES INSIDE EXIST. WET WELL SHALL BE REPAIRED W/ HYDRAULIC CEMENT.
5. CONTRACTOR SHALL BE AWARE THAT O.H.W. IS PRESENT AT L.S. SITE & SHALL USE EXTREME CAUTION WHEN INSTALLING L.S. COMPONENTS. A PRE-BID SITE VISIT IS MANDATORY. NO ADDITIONAL PAYMENTS OR COMPENSATION SHALL BE GIVEN FOR O.H.W. ISSUES.
6. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ON-SITE STAGING AREA AND SHALL OBTAIN ALL REQ'D AGREEMENTS, DOCUMENTS, AND TEMPORARY CONSTRUCTION EASEMENTS AS DEEMED NECESSARY TO COMPLETE REQ'D WORK.
7. CONTRACTOR TO FILL BOT OF EXIST STRUCTURE W/ CONCRETE AND FORM NEW FLOW CHANNELS TO PROP. INVERT.
8. THE PROPOSED LIFT STATION'S TOP SLAB ELEVATION IS SET AT 11.10' NAVD88 WITH THE CONTROL PANEL BOTTOM ELEVATION AT 12.60' (MIN.) NAVD88. THIS SITE IS LOCATED WITHIN A ZONE X PER FEMA AND BROWARD COUNTY FLOOD MAPS. THE CLOSEST FLOOD ZONE TO THIS SITE IS APPROXIMATELY 330'-FT AWAY (ZONE AH, ELEVATION 11.00' NAVD88). THE FUTURE CONDITIONS (YEAR 2060) 100-YR FLOOD ELEVATION PER BROWARD COUNTY MAP IS 12.50' NAVD88. W ATLANTIC BLVD ROADWAY ELEVATIONS ADJACENT TO THE SITE RANGE FROM 9.68- TO 8.59' NAVD88.



1	01/19/23	NOTE 8, ELEV REV, MAG METER DETAIL	KRS
NO.	DATE	REVISION	BY

APPROVED BY: DANIEL E. SHONK, P.E.  
\_\_\_\_\_  
DATE \_\_\_\_\_  
FLORIDA PROFESSIONAL ENGINEER NO. 90263

PREPARED FOR:

FILE NAME: 20-22-033-C-04-PRO.dwg  
LAST SAVED: 01/23/23 - 11:35am

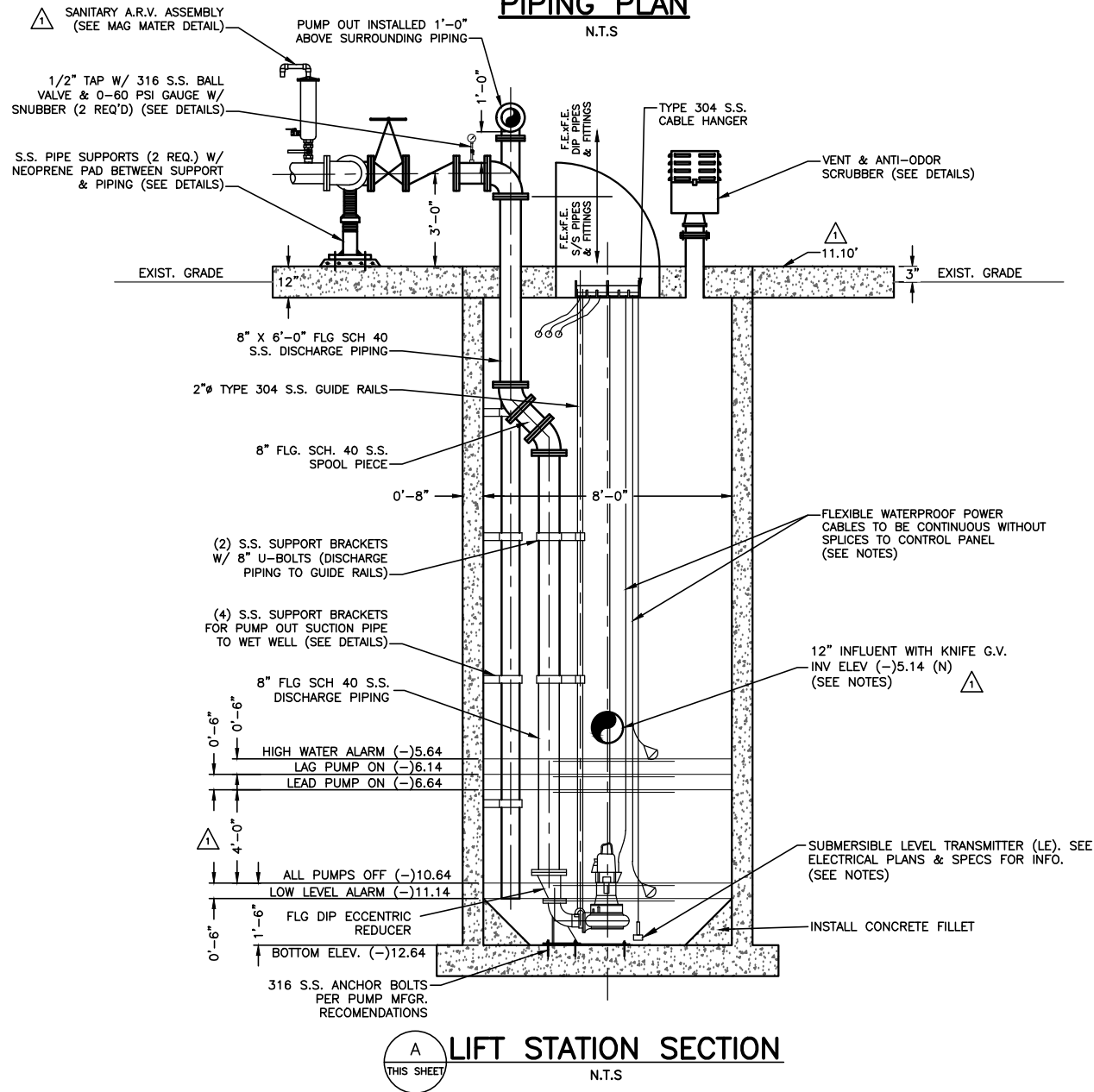
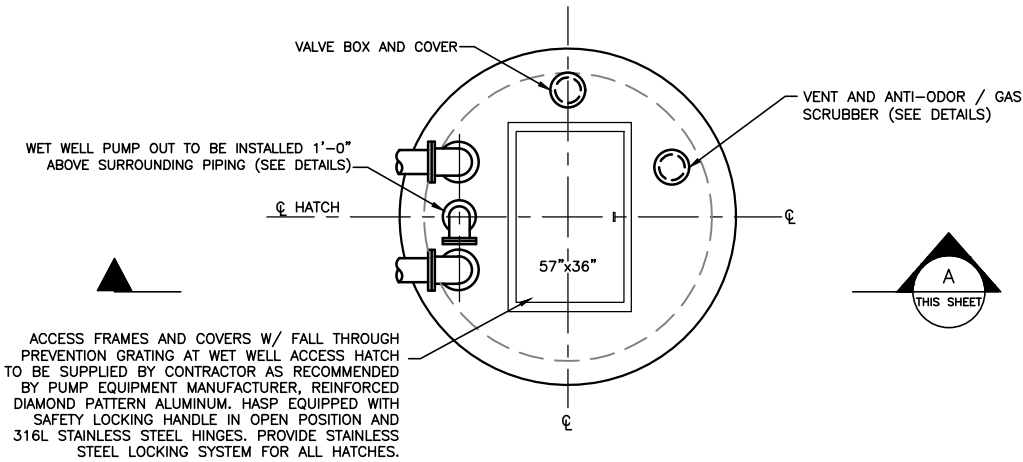
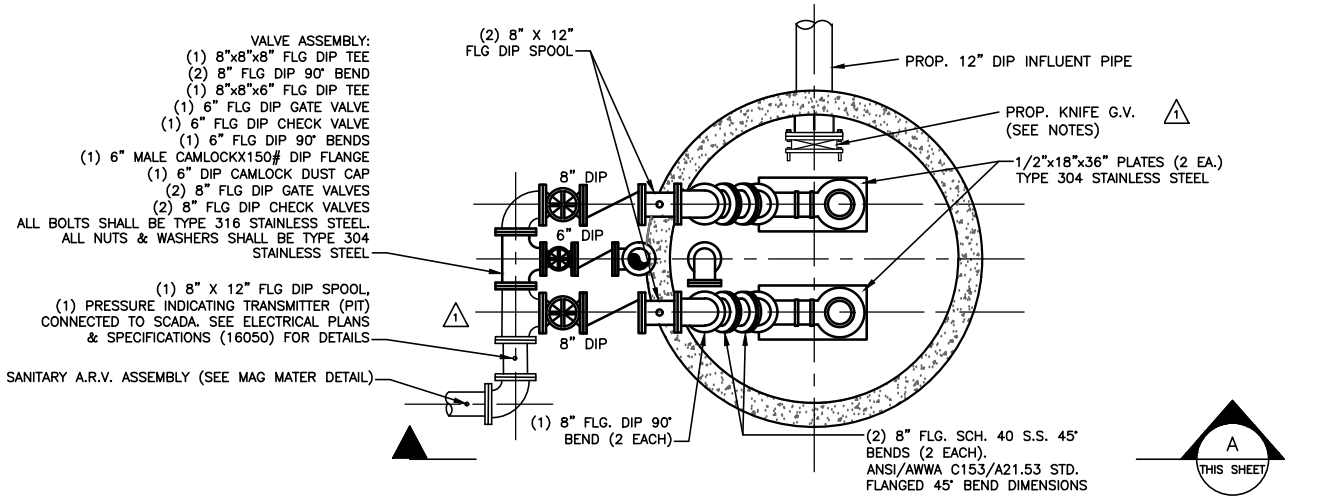
CAS PROJECT NUMBER  
08-22-033

SHEET

C-04

\\cae-file\projects\Cities\_Villages\_Towns\Margate\08-22-033\15-20\PLANS\30-22-033-C-05-DTL5.dwg, 1/26/2023 1:55:01 PM, kschmer, 1:2

FOR OFFICIAL USE ONLY



#### GENERAL NOTES

- ALL CONSTRUCTION SHALL CONFORM TO THE FLORIDA BUILDING CODE, LATEST REVISION.
- THE CONTRACTOR SHALL VERIFY ALL INFORMATION SHOWN PRIOR TO CONSTRUCTION AND ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER.
- CONCRETE SHALL NOT HAVE LESS THAN 3000 PSI COMPRESSIVE STRENGTH AT 28 DAYS. PRECAST CONCRETE SHALL BE 4000 PSI CLASS II MINIMUM. REINFORCING STEEL SHALL CONFORM TO ASTM SPEC. A-615 AND SHALL BE DEFORMED ACCORDING TO ASTM SPEC. 305. ALL PIPE OPENINGS SHALL BE CAST AT TIME OF FABRICATION.
- DUCTILE IRON PIPE SHALL BE AWWA C151, CLASS 350, CERAMIC EPOXY COATED WITH PROTECTO 401 CERAMIC EPOXY LINING.
- DUCTILE IRON FITTINGS SHALL BE AWWA C110/C153, FLANGED JOINTS (EXPOSED PIPING), OR MECHANICAL JOINTS WITH RESTRAINTS (BURIED PIPING), CERAMIC COATED WITH PROTECTO 401 CERAMIC EPOXY LINING.
- FOLLOW ALL PROCEDURES FOR SEALING CUT ENDS AND REPAIRING FIELD DAMAGED AREAS OF PROTECTO 401 CERAMIC EPOXY LINED PIPES AND FITTINGS.
- SEWAGE PUMPS SHALL BE DUPLEX SUBMERSIBLE. CONTROLS SHALL BE OF THE MERCURY FLOAT SWITCH TYPE, WITH SUBMERSIBLE LEVEL TRANSMITTER. (SEE ELECTRICAL PLANS & SPECS FOR DETAILS)
- SHOP DRAWINGS FOR THE COMPLETE LIFT STATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO DELIVERY TO THE JOB SITE.
- FOUR (4) COPIES OF OPERATION AND MAINTENANCE MANUAL ARE TO BE SUBMITTED TO THE CITY AFTER ENGINEER'S APPROVAL.
- OPENINGS AROUND ALL PIPES SHALL BE SEALED WITH EMBECO MORTAR.
- ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF CONSTRUCTION.
- OUTSIDE OF NEW WETWELL AND NEW VALVE BOX SHALL BE COATED WITH COAL TAR EPOXY.
- INSIDE OF NEW WETWELL AND NEW VALVE BOX SHALL BE COATED WITH MAINSTAY COATING, AS PER SPECIFICATIONS 09880.
- GATE VALVES SHALL BE RESILIENT SEAT, EPOXY COATED.
- CHECK VALVES SHALL BE IRON BODY, EPOXY COATED, BRONZE MOUNTED, SWING CHECK, LEVER AND WEIGHT.
- ALL ELECTRICAL ITEMS SHALL BE IN ACCORDANCE WITH ELECTRICAL PLANS AND SPECIFICATIONS.
- ALL PIPE SUPPORTS, CLAMPS, AND FASTENERS IN THE WETWELL AND VALVE BOX SHALL BE TYPE 304 STAINLESS STEEL. ALL BOLTS, AND WASHERS SHALL BE TYPE 316 STAINLESS STEEL (UNLESS OTHERWISE NOTED).
- PUMPS TO HAVE STAINLESS STEEL PLATE IDENTIFICATION.
- ALL CABLES INSIDE THE WET WELL SHALL BE CONTINUOUS WITHOUT SPLICES AND FULLY PROTECTED WITH S/S BRAIDED SLEEVING FOR THEIR ENTIRE LENGTH. SLEEVING SHALL ACHIEVE ASTM G-21 RATING 0 OR 1 AND HAVE A TENSILE STRENGTH OF 125,000 PSI OR GREATER PER ASTM D-2256.
- PROPOSED KNIFE G.V. SHALL INCLUDE VALVE BOX AND COVER WITH TYPE 304 STAINLESS STEEL EXTENSION OPERATOR, TYPE 304 STAINLESS STEEL 2" SQUARE OPERATING NUT, AND THREE (3) TYPE 304 STAINLESS STEEL SUPPORT BRACKETS SPACED EVENLY.

#### LIFT STATION DATA TABLE

PUMP MANUFACTURER		WILO
PUMP MODEL NUMBER		FA 15.66 E
PUMP IMPELLER	DIA. IN	11.4
QUANT OF PUMPS PER STATION		2
DESIGN FLOW	G.P.M.	600
DESIGN TDH	FEET	81
MAX DESIGN FLOW	GPM	735
MAX DESIGN TDH	FEET	74
SHUT OFF HEAD	FEET	117
MOTOR MODEL NUMBER		FK 202-4/27
MAX MOTOR SPEED	R.P.M.	1723
MIN MOTOR HORSEPOWER	H.P.	25
ELECTRICAL SERVICE		240 V, 3 Ø
TOP SLAB	NAVD 88'	11.10
INFLUENT INVERT (W)	NAVD 88'	(-)5.14
HIGH LEVEL ALARM	NAVD 88'	(-)5.64
LAG PUMP ON	NAVD 88'	(-)6.14
LEAD PUMP ON	NAVD 88'	(-)6.64
ALL PUMPS OFF	NAVD 88'	(-)10.64
LOW LEVEL ALARM	NAVD 88'	(-)11.14
BOTTOM OF WET WELL	NAVD 88'	(-)12.64

Daniel Eugene Shonk, State of Florida Professional Engineer License No. PE90263, This item has been digitally signed and sealed by Daniel Eugene Shonk on the date indicated here (1/26/2023). Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

PERMITTING

NO.	DATE	REVISION	BY
1	01/19/23	ELEV REV, KNIFE GV, DISCH PIPING	KRS

Date: 10/08/2022  
Designed: KR  
Drawn: OM  
Checked: DS

APPROVED BY: DANIEL E. SHONK, P.E.  
DATE  
FLORIDA PROFESSIONAL ENGINEER NO. 90263

CRAIG A. SMITH & ASSOCIATES  
CONSULTING ENGINEERS-PLANNERS-SURVEYORS  
21045 COMMERCIAL TRAIL  
BOCA RATON, FLORIDA 33486  
(561) 314-4445  
CERTIFICATE NO. LB00031110

PREPARED FOR:  
THE CITY OF MARGATE  
BROWARD COUNTY, FLORIDA

LIFT STATION No. 20  
RENOVATION  
DETAILS AND SPECIFICATIONS

FILE NAME: 30-22-033-C-05-DTLS.dwg  
LAST SAVED: 01/26/23 - 1:52pm  
CAS PROJECT NUMBER  
08-22-033

SHEET  
C-05



\\cae-file\projects\Cities\_Villages\_Towns\Margate\08-22-033\30-22-033-C-07-DTL.dwg, 1/25/2025 11:17:53 PM, kschirmer, 1:2

MIN. LENGTH OF PIPE (FEET) TO BE RESTRAINED  
(SOURCES: EBAA IRON RESTRAINT LENGTH CALCULATION PROGRAM FOR PVC PIPE, RELEASE 3.1,  
AND DIPRA THRUST RESTRAINT FOR DUCTILE IRON PIPE, RELEASE 3.2)

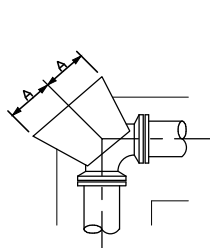
FITTING TYPE		PIPE SIZE								200psi			
		4'	6'	8'	10'	12'	16'	20'	24'	30'	36'	42'	48'
90° HORIZ. BEND		14	20	25	30	35	45	54	62	98	112	124	135
45° HORIZ. BEND		6	8	11	13	15	19	22	26	41	46	51	56
22.5° HORIZ. BEND		3	4	5	6	7	9	11	12	19	22	25	27
11.25° HORIZ. BEND		1	2	3	3	4	4	5	6	10	11	12	13
90° VERT. OFFSET	UPPER BEND	29	41	53	64	74	95	115	134	214	246	276	304
	LOWER BEND	7	10	13	16	19	25	30	35	57	66	74	83
45° VERT. OFFSET	UPPER BEND	12	19	24	29	34	39	48	56	89	102	114	126
	LOWER BEND	3	4	6	7	8	10	12	15	23	27	31	34
22.5° VERT. OFFSET	UPPER BEND	6	9	12	14	17	19	23	27	43	49	55	60
	LOWER BEND	1	2	4	4	4	5	6	7	11	13	15	16
11.25° VERT. OFFSET	UPPER BEND	3	4	6	7	8	9	11	13	21	24	27	30
	LOWER BEND	1	1	1	2	2	2	3	3	6	6	7	8
PLUG (DEAD END)		32	45	59	70	83	107	129	151	214	246	276	304
IN-LINE VALVE		32	45	45	45	45	55	65	80	110	125	140	155
TEE (BRANCH RESTRAINT)	4" X Ø	23	-	-	-	-	-	-	-	-	-	-	-
	6" X Ø	21	35	-	-	-	-	-	-	-	-	-	-
	8" X Ø	18	34	47	-	-	-	-	-	-	-	-	-
	10" X Ø	16	32	46	58	-	-	-	-	-	-	-	-
	12" X Ø	13	30	44	57	69	-	-	-	-	-	-	-
	16" X Ø	7	26	41	55	67	90	-	-	-	-	-	-
	20" X Ø	1	21	38	52	65	88	109	-	-	-	-	-
	24" X Ø	1	16	34	49	62	86	108	129	-	-	-	-
	30" X Ø	1	8	28	44	58	83	106	127	208	-	-	-
	36" X Ø	1	1	22	39	54	80	103	124	206	240	-	-
	42" X Ø	1	1	15	33	49	77	100	122	205	239	270	-
	48" X Ø	1	1	7	27	44	73	97	120	203	238	269	298
REDUCER (LARGER PIPE RESTRAINT)	6" X Ø	23	-	-	-	-	-	-	-	-	-	-	-
	8" X Ø	38	25	-	-	-	-	-	-	-	-	-	-
	10" X Ø	57	43	24	-	-	-	-	-	-	-	-	-
	12" X Ø	72	60	44	41	-	-	-	-	-	-	-	-
	16" X Ø	99	90	78	75	45	-	-	-	-	-	-	-
	20" X Ø	123	116	107	105	81	45	-	-	-	-	-	-
	24" X Ø	146	140	132	131	111	82	45	-	-	-	-	-
200psi	30" X Ø	209	204	197	188	177	153	116	75	-	-	-	-
	36" X Ø	243	236	233	226	217	196	168	135	74	-	-	-
	42" X Ø	273	270	265	259	252	234	211	183	133	72	-	-
	48" X Ø	301	298	294	289	283	268	249	226	183	131	71	-

NOTES:

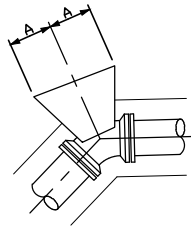
- THE DATA IN THE ABOVE TABLE ARE BASED UPON THE FOLLOWING INSTALLATION CONDITIONS:  
SOIL TYPE-SAND TEST PRESSURE-150 PSI/200 PSIDEPTH OF BURY-3'  
TRENCH TYPE-3 SAFETY FACTOR- 1.5 VERTICAL OFFSET-3'  
MINIMUM PIPE LENGTH ALONG TEE RUN-5'
- THE RESTRAINED PIPE LENGTHS APPLY TO DUCTILE IRON AND PVC PIPE.
- ALL JOINTS BETWEEN UPPER AND LOWER BENDS SHALL BE RESTRAINED.
- RESTRAINED PIPE LENGTHS APPLY TO PIPE ON BOTH SIDES OF VALVES AND FITTINGS.
- THE ABOVE SCHEDULE IS A GUIDE. CONTRACTOR MUST VERIFY/REVISE CALCS TO MEET VENDER/MANUFACTURERS INSTALLATION REQ'S AS PER SPECIFIC SITE AND SOIL CONDITIONS.

MECHANICAL THRUST RESTRAIN - MIN PIPE LENGTHS

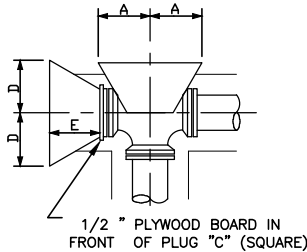
Daniel Eugene Shonk, State of Florida Professional Engineer License  
No. PE90263, This item has been digitally signed and sealed by Daniel  
Eugene Shonk on the date indicated here (1/26/2023). Printed copies of  
this document are not considered signed and sealed and the signature  
must be verified on any electronic copies.



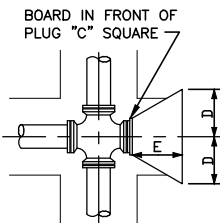
90° BEND



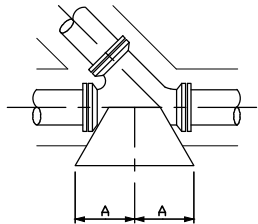
45°, 22.5° & 11.25° BENDS



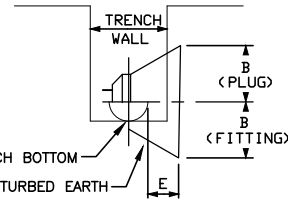
TEE WITH PLUG



CROSS WITH PLUG



LATERAL



TYPICAL SECTION

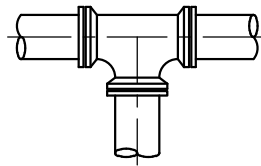
PIPE SIZE	HOLE DIMEN'S.	150 PSI TEST PRESSURE										
		90°	45°	22.5°	11.25°	LAT	TEE	PLUG				
4	10"	7"	10"	6"	3"	7"	7"	10"	7"	8"		
6	16"	10"	15"	8"	4"	10"	10"	12"	10"	8"		
8	20"	14"	18"	10"	5"	14"	14"	14"	14"	12"		
10	28"	16"	24"	14"	7"	16"	16"	16"	16"	14"		
12	30"	20"	26"	16"	8"	8"	20"	20"	18"	20"	20"	

NOTES:

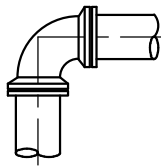
- THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED MATERIAL. WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE ALL LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTERBED MATERIAL.
- IN THE CASE OF FIRE HYDRANTS, THE BOARDS MAY BE OMITTED WHEN SOLID BEARING CAN BE OBTAINED.
- ON TEES AND BENDS, EXTEND THRUST BLOCK THE FULL LENGTH OF FITTING, PLACE WOOD BOARD IN FRONT OF ALL PLUGS BEFORE POURING CONCRETE.
- BACKFILL SHALL CONSIST ENTIRELY OF CLEAN SAND AND SMALL ROCK FRAGMENTS. ANY MUCK FOUND AROUND THE EXCAVATION SHALL BE REPLACED WITH COMPACTED ACCEPTABLE MATERIAL.
- THE FIGURES IN THIS TABLE ARE BASED ON 1500 POUNDS PER SQUARE FOOT SOIL BEARING AGAINST THE UNDISTURBED TRENCH WALL AND ARE TO REPRESENT THE MINIMUM VERTICAL PROJECTED AREA AT THE THRUST BLOCK IN PLANE PERPENDICULAR TO THE LINE BISECTING THE INCLUDED ANGLE OF THE FITTINGS.
- CONCRETE SHALL BE CLASS "I"
- CONTRACTOR SHALL WRAP ALL FITTINGS IN POLYETHYLENE FILM (8 MILS MINIMUM NOMINAL THICKNESS) PROVIDING MINIMUM OF ONE (1) FOOT OVERLAP, EACH SIDE OF FITTING.

THRUST BLOCK DETAIL

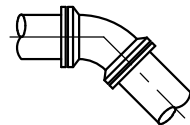
SCALE: N.T.S.



TEE & WYE



90° BEND



45° & 22 1/2° BEND

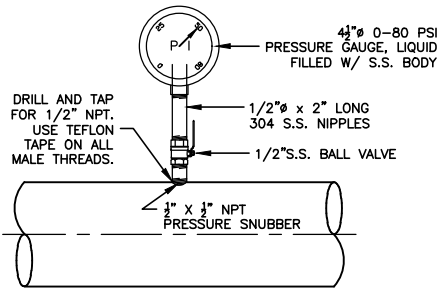
RESTRAINED PIPE LENGTH (LINEAL FEET)					
PIPE SIZE	TEE & WYE	90°BEND	45°BEND	22 1/2°BEND	11 1/4°BEND
6"	27	27	16	9	5
8"	34	34	20	11	6
10"	41	41	24	14	7
12"	48	48	28	16	8
14"	55	55	32	18	10
16"	62	62	35	20	11
18"	69	69	39	22	12
20"	75	75	42	24	13
24"	87	87	49	27	14
30"	104	104	57	31	17
36"	120	120	65	35	19
42"	134	134	72	39	21
48"	147	147	79	42	22
54"	160	160	85	45	24

NOTE:

THE FIGURES IN THIS TABLE ARE BASED ON 150 PSI TEST PRESSURE WITH 2.5 FEET OF COVER AND 2000 POUNDS PER SQUARE FOOT SOIL BEARING AGAINST UNDISTURBED TRENCH. A 20% SAFETY FACTOR HAS BEEN ADDED.

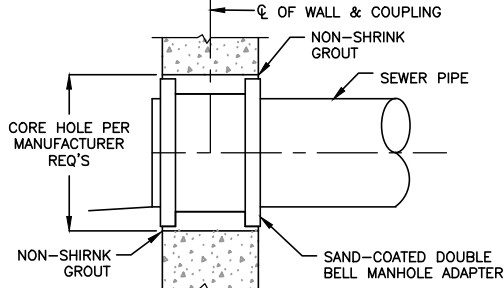
RESTRAINED JOINT DETAIL

SCALE: N.T.S.



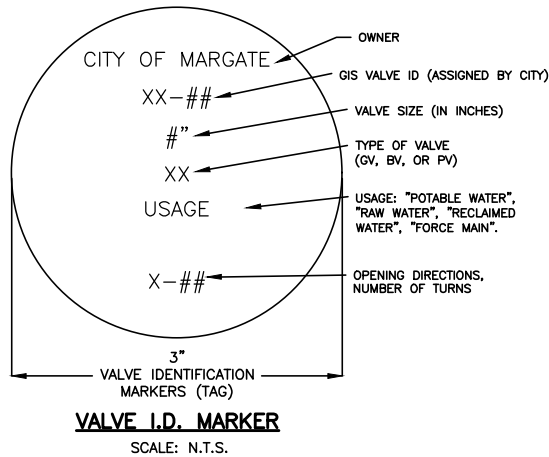
TYPICAL PRESSURE GAUGE

SCALE: N.T.S.



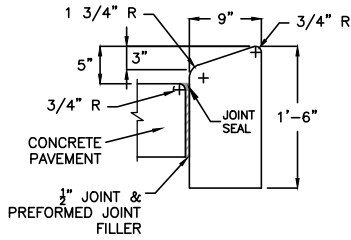
MANHOLE/WETWELL COUPLING DETAIL

SCALE: N.T.S.



VALVE I.D. MARKER

SCALE: N.T.S.



TYPE B CURB

SCALE: N.T.S.

NOTE: FOR USE ADJACENT TO CONCRETE OR FLEXIBLE PAVEMENT, CONCRETE SHOWN

PERMITTING

NO.	DATE	REVISION	BY
1	01/19/23	RE-ORGANIZED DETAILS	IKRS

Date:	10/08/2022
Designed:	KR
Drawn:	OM
Checked:	DS

APPROVED BY:	DANIEL E. SHONK, P.E.
DATE	
FLORIDA PROFESSIONAL ENGINEER NO.	90263

CRAIG A. SMITH & ASSOCIATES
CONSULTING ENGINEERS-PLANNERS-SURVEYORS
21045 COMMERCIAL TRAIL
BOCA RATON, FLORIDA 33486
(561) 314-4445
CERTIFICATE NO. LB0003110

PREPARED FOR:
THE CITY OF MARGATE
BROWARD COUNTY, FLORIDA

LIFT STATION No. 20
RENOVATION
STANDARDS DETAILS

FILE NAME: 30-22-033-C-07-DTLS.dwg
LAST SAVED: 01/19/23 - 12:46pm
CAS PROJECT NUMBER
08-22-033

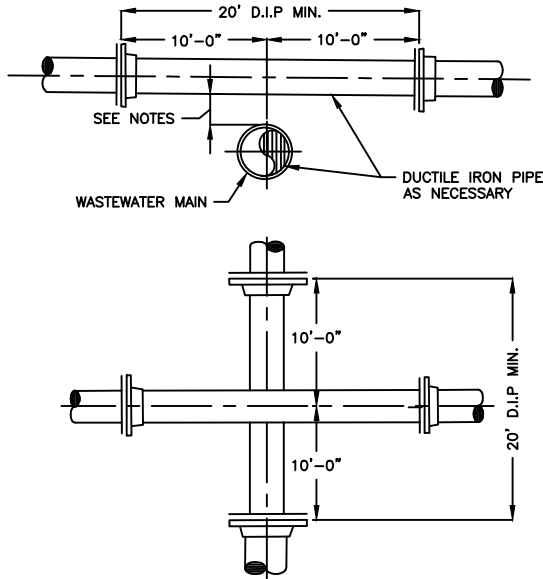
SHEET
C-07



\\cae-file\projects\Cities\_Villages\_Towns\Margate\08-22-033\30-22-033-C-08-DTLS.dwg, 1/25/2023 11:07 PM, tschmer, 1:2

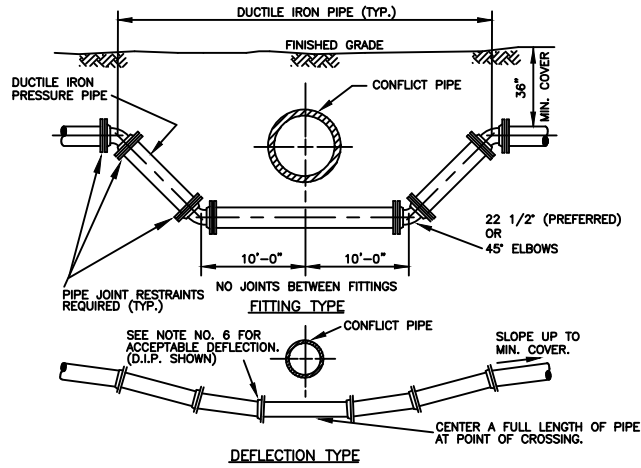
NOTES:

- HORIZONTAL SEPARATION REQUIREMENTS: IT IS PREFERRED FOR WATERMAINS TO BE INSTALLED WITH 10-FT CLEARANCE FROM ALL OTHER PIPELINES, WALL TO WALL (10-FT CLEARANCE IS REQUIRED BETWEEN THE WATERMAIN AND ANY ON-SITE SEWAGE TREATMENT OR DISPOSAL SYSTEM); WHEN 10-FT CLEARANCE CANNOT BE ACHIEVED, A MINIMUM OF 6-FT SHALL BE MAINTAINED, WALL TO WALL (6-FT CLEARANCE IS REQUIRED BETWEEN THE WATERMAIN AND ANY OTHER PRESSURIZED PIPELINE); WHEN 6-FT CLEARANCE CANNOT BE ACHIEVED, A MINIMUM OF 3-FT CAN BE APPROVED BY THE ENGINEER IF THE WATERMAIN IS LAID AT LEAST 6-INCHES ABOVE THE CROWN OF THE ADJACENT PIPELINE (THIS REQUIREMENT IS ONLY APPLICABLE FOR CLEARANCES BETWEEN WATERMAINS AND NEIGHBORING GRAVITY-TYPE SEWERS. OTHER SITUATIONS CAN BE APPROVED ON A CASE-BY-CASE BASIS). MINIMUM HORIZONTAL SEPARATIONS SHALL COMPLY WITH ALL REQUIREMENTS SET FORTH BY FDEP AND PART III OF CHAPTER 62-610, F.A.C. AND F.A.C. 62-555.314, OR LATEST VERSIONS.
- WATERMAIN CROSSING REQUIREMENTS: IT IS PREFERRED FOR WATERMAINS TO ALWAYS BE INSTALLED ABOVE ANY OTHER PIPELINE WITH A VERTICAL CLEARANCE OF 18-INCHES, WALL TO WALL; WHEN THIS PREFERENCE CANNOT BE ACHIEVED, A MINIMUM OF 12-INCHES MUST BE MAINTAINED ABOVE OR BELOW, WALL TO WALL; WHEN 12-INCHES ABOVE CANNOT BE ACHIEVED, A MINIMUM OF 6-INCHES SHALL BE MAINTAINED, WALL TO WALL (THIS REQUIREMENTS IS ONLY APPLICABLE FOR CLEARANCES BETWEEN WATERMAINS AND NEIGHBORING GRAVITY- OR VACUUM-TYPE SANITARY SEWERS OR STORM SEWERS). MINIMUM CROSSING REQUIREMENTS/VERTICAL SEPARATIONS SHALL COMPLY WITH ALL REQUIREMENTS SET FORTH BY FDEP AND PART III OF CHAPTER 62-610, F.A.C. AND F.A.C. 62-555.314, OR LATEST VERSIONS.
- WATERMAIN JOINTS SEPARATION REQUIREMENTS: IN PARALLEL PIPELINE INSTALLATIONS - IT IS PREFERRED FOR WATERMAIN JOINTS TO BE INSTALLED WITH AN OFFSET AS FAR AS POSSIBLE AWAY FROM JOINTS OF NEIGHBORING PIPELINES (WATERMAIN JOINTS SHALL BE INSTALLED ON-CENTER WITH PIPE SEGMENTS OF NEIGHBORING PIPELINES, TYPICALLY 10-FT); WHEN THIS PREFERENCE CANNOT BE ACHIEVED, A MINIMUM OF 6-FT FROM ALL JOINTS SHALL BE MAINTAINED (6-FT OFFSET IS REQUIRED BETWEEN THE WATERMAIN JOINTS AND THE JOINTS OF ANY OTHER PIPELINE); WHEN 6-FT OFFSET CANNOT BE ACHIEVED, A MINIMUM OF 3-FT FROM ALL JOINTS SHALL BE MAINTAINED (THIS REQUIREMENTS IS ONLY APPLICABLE FOR OFFSETS BETWEEN WATERMAIN JOINTS AND JOINTS OF NEIGHBORING VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCEMAINS OR RECLAIMED WATER PIPELINES). IN PERPENDICULAR PIPELINE INSTALLATIONS - IT IS REQUIRED FOR PIPE SEGMENTS TO BE INSTALLED ON-CENTER OF EACH OTHER WITH A MINIMUM OF 10-FT BETWEEN THE JOINTS OF EACH PIPE SEGMENT. MINIMUM PIPELINE JOINT SEPARATIONS SHALL COMPLY WITH ALL REQUIREMENTS SET FORTH BY FDEP AND PART III OF CHAPTER 62-610, F.A.C. AND F.A.C. 62-555.314, OR LATEST VERSIONS.
- WASTEWATER LATERALS SHALL CROSS UNDER POTABLE WATER MAINS WITH A MIN. 12" VERTICAL SEPARATION WHENEVER POSSIBLE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, A 20' SECTION OF DUCTILE IRON PIPE POTABLE WATER MAIN CENTERED ON THE CROSSING IS REQUIRED AND THE MINIMUM VERTICAL SEPARATION SHALL BE 6". WHERE THERE IS NO ALTERNATIVE TO A WASTEWATER LATERAL PIPE CROSSING OVER A POTABLE WATER MAIN, A MINIMUM 12" VERTICAL SEPARATION IS REQUIRED, THE LATERAL SHALL BE P.V.C. C-900 SDR18 OR BETTER, THE POTABLE WATER MAIN SHALL BE D.I.P. AND THE PIPE JOINTS SHALL BE EQUIDISTANT FROM THE POINT OF CROSSING.
- POTABLE WATER SERVICE LINES SHALL CROSS OVER WASTEWATER MAINS WITH MIN. 12" VERTICAL SEPARATION. WHERE THIS MIN. SEPARATION CAN NOT BE MAINTAINED, THE WATER SERVICE SHALL BE ENCASED IN A MIN. 10' LONG CASING CENTERED OVER THE CROSSING WITH MIN. 6" VERTICAL SEPARATION.



CROSSING DETAIL

SCALE: N.T.S.



NOTES:

- HORIZONTAL SEPARATION REQUIREMENTS: IT IS PREFERRED FOR WATERMAINS TO BE INSTALLED WITH 10-FT CLEARANCE FROM ALL OTHER PIPELINES, WALL TO WALL (10-FT CLEARANCE IS REQUIRED BETWEEN THE WATERMAIN AND ANY ON-SITE SEWAGE TREATMENT OR DISPOSAL SYSTEM); WHEN 10-FT CLEARANCE CANNOT BE ACHIEVED, A MINIMUM OF 6-FT SHALL BE MAINTAINED, WALL TO WALL (6-FT CLEARANCE IS REQUIRED BETWEEN THE WATERMAIN AND ANY OTHER PRESSURIZED PIPELINE); WHEN 6-FT CLEARANCE CANNOT BE ACHIEVED, A MINIMUM OF 3-FT CAN BE APPROVED BY THE ENGINEER IF THE WATERMAIN IS LAID AT LEAST 6-INCHES ABOVE THE CROWN OF THE ADJACENT PIPELINE (THIS REQUIREMENT IS ONLY APPLICABLE FOR CLEARANCES BETWEEN WATERMAINS AND NEIGHBORING GRAVITY-TYPE SEWERS. OTHER SITUATIONS CAN BE APPROVED ON A CASE-BY-CASE BASIS). MINIMUM HORIZONTAL SEPARATIONS SHALL COMPLY WITH ALL REQUIREMENTS SET FORTH BY FDEP AND PART III OF CHAPTER 62-610, F.A.C. AND F.A.C. 62-555.314, OR LATEST VERSIONS.
- WATERMAIN CROSSING REQUIREMENTS: IT IS PREFERRED FOR WATERMAINS TO ALWAYS BE INSTALLED ABOVE ANY OTHER PIPELINE WITH A VERTICAL CLEARANCE OF 18-INCHES, WALL TO WALL; WHEN THIS PREFERENCE CANNOT BE ACHIEVED, A MINIMUM OF 12-INCHES MUST BE MAINTAINED ABOVE OR BELOW, WALL TO WALL; WHEN 12-INCHES ABOVE CANNOT BE ACHIEVED, A MINIMUM OF 6-INCHES SHALL BE MAINTAINED, WALL TO WALL (THIS REQUIREMENTS IS ONLY APPLICABLE FOR CLEARANCES BETWEEN WATERMAINS AND NEIGHBORING GRAVITY- OR VACUUM-TYPE SANITARY SEWERS OR STORM SEWERS). MINIMUM CROSSING REQUIREMENTS/VERTICAL SEPARATIONS SHALL COMPLY WITH ALL REQUIREMENTS SET FORTH BY FDEP AND PART III OF CHAPTER 62-610, F.A.C. AND F.A.C. 62-555.314, OR LATEST VERSIONS.
- WATERMAIN JOINTS SEPARATION REQUIREMENTS: IN PARALLEL PIPELINE INSTALLATIONS - IT IS PREFERRED FOR WATERMAIN JOINTS TO BE INSTALLED WITH AN OFFSET AS FAR AS POSSIBLE AWAY FROM JOINTS OF NEIGHBORING PIPELINES (WATERMAIN JOINTS SHALL BE INSTALLED ON-CENTER WITH PIPE SEGMENTS OF NEIGHBORING PIPELINES, TYPICALLY 10-FT); WHEN THIS PREFERENCE CANNOT BE ACHIEVED, A MINIMUM OF 6-FT FROM ALL JOINTS SHALL BE MAINTAINED (6-FT OFFSET IS REQUIRED BETWEEN THE WATERMAIN JOINTS AND THE JOINTS OF ANY OTHER PIPELINE); WHEN 6-FT OFFSET CANNOT BE ACHIEVED, A MINIMUM OF 3-FT FROM ALL JOINTS SHALL BE MAINTAINED (THIS REQUIREMENTS IS ONLY APPLICABLE FOR OFFSETS BETWEEN WATERMAIN JOINTS AND JOINTS OF NEIGHBORING VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCEMAINS OR RECLAIMED WATER PIPELINES). IN PERPENDICULAR PIPELINE INSTALLATIONS - IT IS REQUIRED FOR PIPE SEGMENTS TO BE INSTALLED ON-CENTER OF EACH OTHER WITH A MINIMUM OF 10-FT BETWEEN THE JOINTS OF EACH PIPE SEGMENT. MINIMUM PIPELINE JOINT SEPARATIONS SHALL COMPLY WITH ALL REQUIREMENTS SET FORTH BY FDEP AND PART III OF CHAPTER 62-610, F.A.C. AND F.A.C. 62-555.314, OR LATEST VERSIONS.
- FITTINGS SHALL BE RESTRAINED.
- THE DEFLECTION TYPE CROSSING IS PREFERRED.
- DO NOT EXCEED 75% OF MANUFACTURERS RECOMMENDED MAXIMUM JOINT DEFLECTION FOR DUCTILE IRON PIPE. PVC PIPE CURVATURE MAY ONLY BE ACCOMPLISHED BY INSTALLING APPROPRIATE BENDS.
- ALL EXPOSED STEEL SHALL BE COATED WITH COAL-TAR EPOXY.
- POTABLE WATER SERVICE LINES SHALL CROSS OVER WASTEWATER MAINS WITH MIN. 12" VERTICAL SEPARATION. WHERE THIS MIN. SEPARATION CAN NOT BE MAINTAINED, THE WATER SERVICE SHALL BE ENCASED IN A MIN. 10' LONG CASING CENTERED OVER THE CROSSING WITH MIN. 6" VERTICAL SEPARATION.

WATERMAIN DEFLECTION

SCALE: N.T.S.

- SANITARY SEWERS, FORCE MAINS, SEWER LATERALS SHOULD ALWAYS CROSS UNDER WATER MAINS OR WATER SERVICES WHENEVER POSSIBLE. SANITARY SEWER, FORCE MAINS, SEWER LATERALS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE WHENEVER POSSIBLE.

WHERE SANITARY SEWERS, FORCE MAINS, SEWER LATERALS AND STORM SEWERS MUST CROSS A WATER MAIN WITH LESS THAN 18 INCHES VERTICAL DISTANCE. BOTH THE SEWER AND THE WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP) AT THE CROSSING (DIP IS NOT REQUIRED FOR STORM SEWERS). SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN ANY TWO JOINTS. ALL JOINTS OF THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED. A MINIMUM VERTICAL CLEARANCE OF 6 INCHES MUST BE MAINTAINED AT THE CROSSING.

ALL CROSSING SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND THE WATER MAIN JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING (PIPES CENTERED ON THE CROSSING).

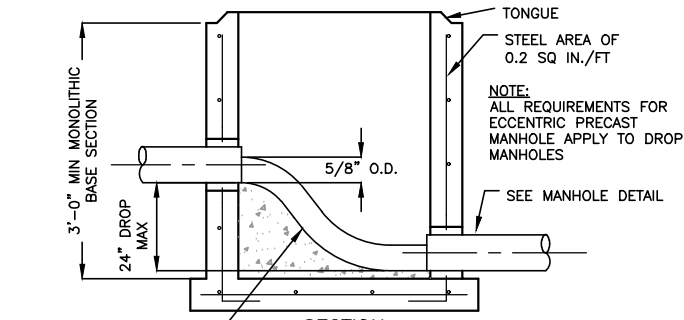
WHERE A NEW PIPE CONFLICTS WITH AN EXISTING PIPE WITH LESS THAN 18" VERTICAL CLEARANCE, THE NEW PIPE SHALL BE CONSTRUCTED OF DIP (EXCEPT STORM SEWERS) AND THE NEW PIPE SHALL BE ARRANGED TO MEET THE CROSSING REQUIREMENTS ABOVE.

- A MINIMUM 10 FEET HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN ANY TYPE OF SEWER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.

IN CASE WHERE IT IS NOT POSSIBLE TO MAINTAIN A VERTICAL DISTANCE OF 18 INCHES IN PARALLEL INSTALLATIONS, THE WATER MAIN SHALL BE CONSTRUCTED OF DIP AND THE SEWER OR THE FORCE MAIN SHALL BE CONSTRUCTED OF DIP (EXCEPT STORM SEWERS) WITH A MINIMUM VERTICAL DISTANCE OF 6 INCHES. THE WATER MAIN SHOULD ALWAYS BE ABOVE THE SEWER. JOINTS ON THE WATER MAIN SHALL BE LOCATED AS FAR APART AS POSSIBLE FROM JOINTS ON THE SEWER OR FORCE MAIN (STAGGERED JOINTS).

- MAXIMUM OBTAINABLE SEPARATION OF DOMESTIC WATER LINES SHALL BE PRACTICED. A MINIMUM HORIZONTAL SEPARATION OF 5 FEET (CENTER TO CENTER) OR 3 FEET (OUTSIDE TO OUTSIDE) SHALL BE MAINTAINED BETWEEN RECLAIMED WATER LINES AND POTABLE WATER MAINS AND BETWEEN SEWAGE RECLAIMED WATER LINES AND COLLECTION LINES. A MINIMUM VERTICAL CLEARANCE OF 18 INCHES MUST BE MAINTAINED BETWEEN RECLAIMED WATER LINE AND POTABLE WATER MAINS OR SEWAGE COLLECTION LINES AND SEWER LATERALS. AT CROSSINGS PROVISIONS OF F.A.C. RULE 17-604 AND 10 STATE STANDARD APPLY.

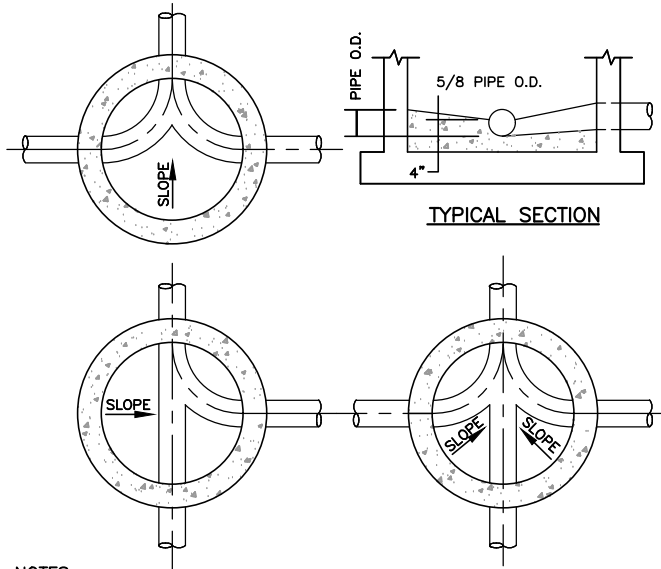
STANDARD SEPARATION STATEMENT



MANHOLE FLOW CHANNEL DROP (24" MAX DROP)

SCALE: N.T.S.

Daniel Eugene Shonk, State of Florida Professional Engineer License No. PE90263, This item has been digitally signed and sealed by Daniel Eugene Shonk on the date indicated here (1/26/2023). Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

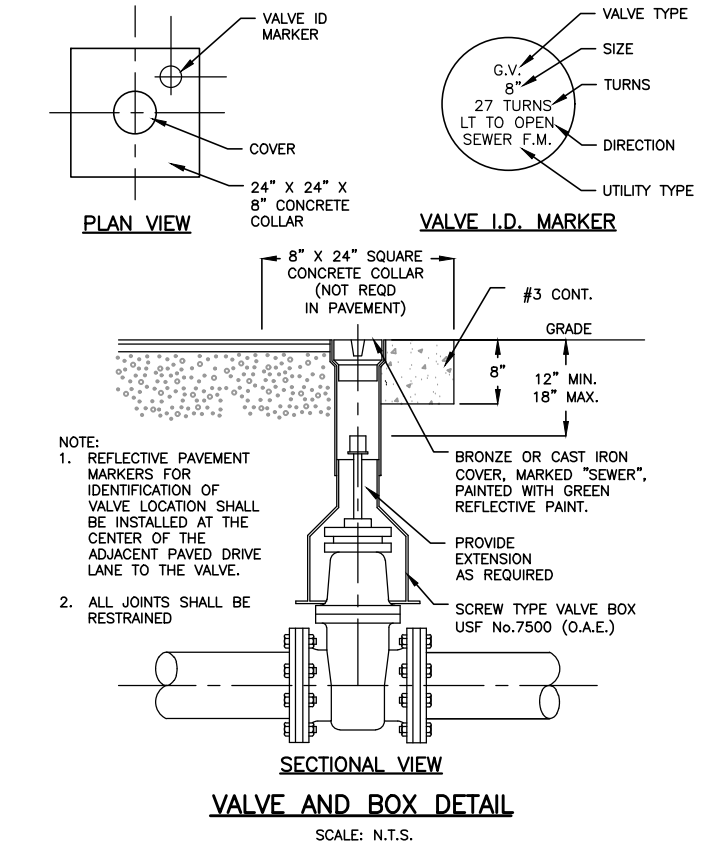


NOTES:

- INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS.
- SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOWS.
- CHANNELS TO BE FORMED IN ALL MANHOLES TO ACCEPT T.V. CAMERA.
- WHEN DIRECTIONAL CHANNELS EXCEEDING 45' OCCUR, AN EXTRA FLOW LINE ELEVATION DROP OF 0.05' ACROSS MANHOLE SHALL BE PROVIDED.

MANHOLE FLOW CHANNELS

SCALE: N.T.S.



PLAN VIEW

VALVE I.D. MARKER

SECTIONAL VIEW

VALVE AND BOX DETAIL

SCALE: N.T.S.

NOTE:

- REFLECTIVE PAVEMENT MARKERS FOR IDENTIFICATION OF VALVE LOCATION SHALL BE INSTALLED AT THE CENTER OF THE ADJACENT PAVED DRIVE LANE TO THE VALVE.
- ALL JOINTS SHALL BE RESTRAINED

BRONZE OR CAST IRON COVER, MARKED "SEWER", PAINTED WITH GREEN REFLECTIVE PAINT.

PROVIDE EXTENSION AS REQUIRED

SCREW TYPE VALVE BOX USF No.7500 (O.A.E.)

#3 CONT.

GRADE

12" MIN. 18" MAX.

8" X 24" SQUARE CONCRETE COLLAR (NOT REQD IN PAVEMENT)

24" X 24" X 8" CONCRETE COLLAR

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

URNS

27 TURNS LT TO OPEN SEWER F.M.

DIRECTION

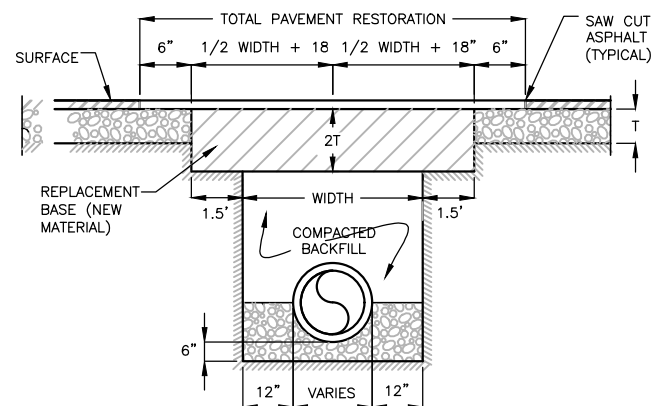
UTILITY TYPE

COVER

VALVE ID MARKER

VALVE TYPE

SIZE

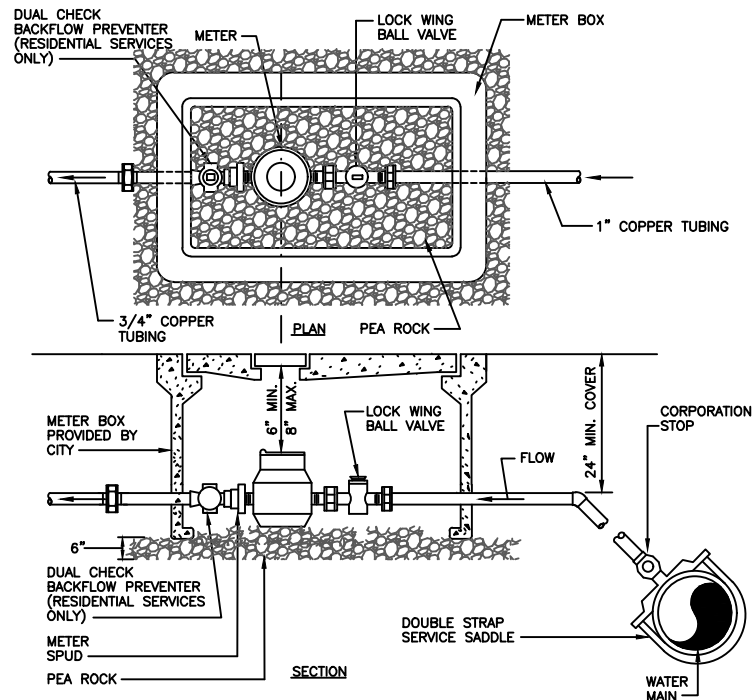


GENERAL NOTES:

1. REPLACED BASE MATERIAL OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE, MINIMUM 8", MAXIMUM 18".
2. BASE MATERIAL SHALL BE PLACED IN 6" MAXIMUM (LOOSE MEASUREMENT) LAYERS AND EACH LAYER THOROUGHLY ROLLED OR TAMPED TO 98% OF MAXIMUM DENSITY, PER AASHTO T-180.
3. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED.
4. SURFACE MATERIAL SHALL BE CONSISTENT WITH THE SURROUNDING SURFACE MATERIAL.
5. BASE MATERIAL SHALL HAVE A MINIMUM LBR OF 100 AND A MINIMUM CARBONATE CONTENT OF 70% (60% FOR LOCAL STREETS).
6. IF THE DITCH IS FILLED TEMPORARILY, IT SHALL BE COVERED WITH A 2" THICK ASPHALTIC CONCRETE PATCH TO KEEP THE FILL MATERIAL FROM RAVELING, UNTIL REPLACED WITH A PAVEMENT PATCH.
7. RESTORE STREETS AND DRIVEWAYS WITH A MINIMUM OF 8 INCHES OF LIMEROCK BASE AND 1 1/2 INCHES OF TYPE S-3 ASPHALT.

## PAVEMENT RESTORATION DETAIL

SCALE: N.T.S.

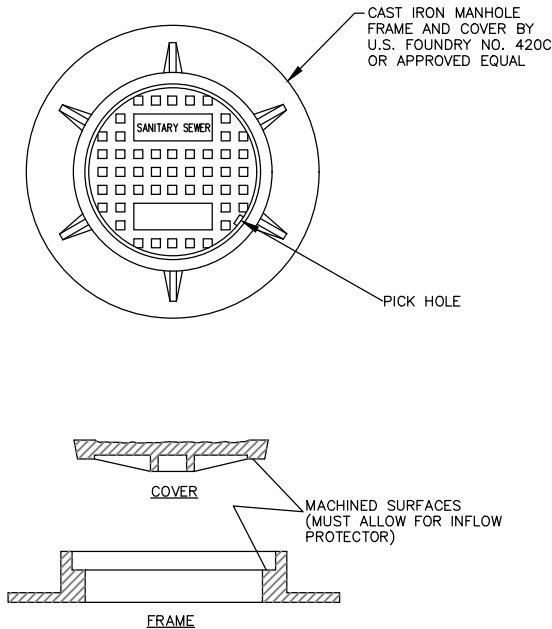


NOTES:

1. LOCATE BOX 12" OUTSIDE OF STREET R/W LINE.
2. CITY RESPONSIBILITY ENDS AT CUSTOMER SIDE OF METER OR AFTER DUAL CHECK, IF PRESENT.
3. METERS UP TO 2" SHALL BE FURNISHED AND INSTALLED BY CITY.  
(ALL OTHER WORK BY CUSTOMER)
4. MINIMUM RADIUS OF TUBING CURVE SHALL BE 14".

## WATER METER INSTALLATION

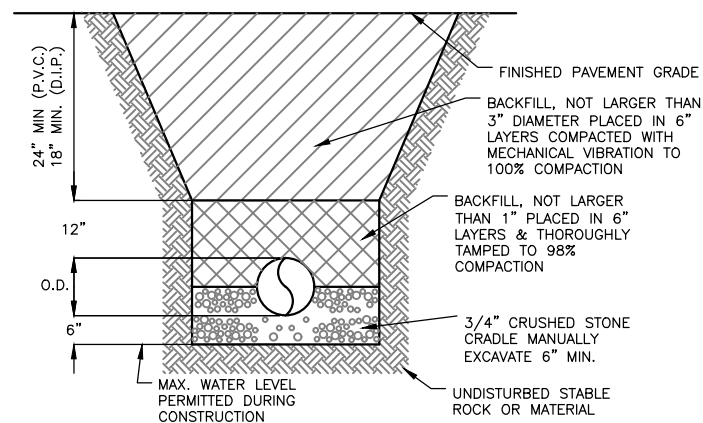
SCALE: N.T.S.



NOTES:

1. STANDARD FRAME AND COVER SIZE SHALL BE SEVEN INCHES (7"). A 4" FRAME MAY ONLY BE USED WITH PRIOR APPROVAL.
2. A STEEL MANHOLE RISER OR ADDITIONAL BRICKS (OR PRECAST CONCR. MANHOLE RINGS) MAY BE USED TO ELEVATE MANHOLE COVERS TO GRADE (MAX. 4" HEIGHT).
3. COVER SHALL FIT FLUSH WITH THE FRAME WITH THE INFLOW PROTECTOR INSTALLED.

SANITARY SEWER MANHOLE  
FRAME AND COVER DETAIL.

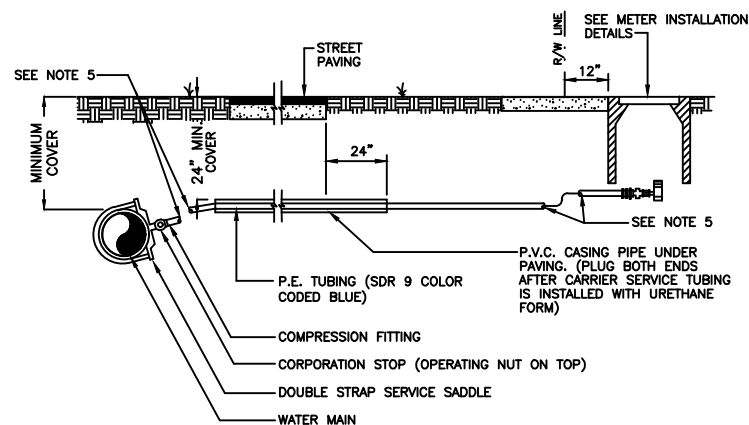


NOTE:

1. MAXIMUM DENSITY DETERMINED BY AASHTO T-99
2. MAXIMUM DEPTH TO BOTTOM OF PRESSURE MAINS SHALL NOT EXCEED SIX (6) FEET UNLESS OTHERWISE APPROVED BY THE ENGINEER.
3. CONTRACTOR TO COMPLY WITH OSHA TRENCH SAFETY REQUIREMENTS.

### TYPICAL TRENCH

SCALE: N.T.S.

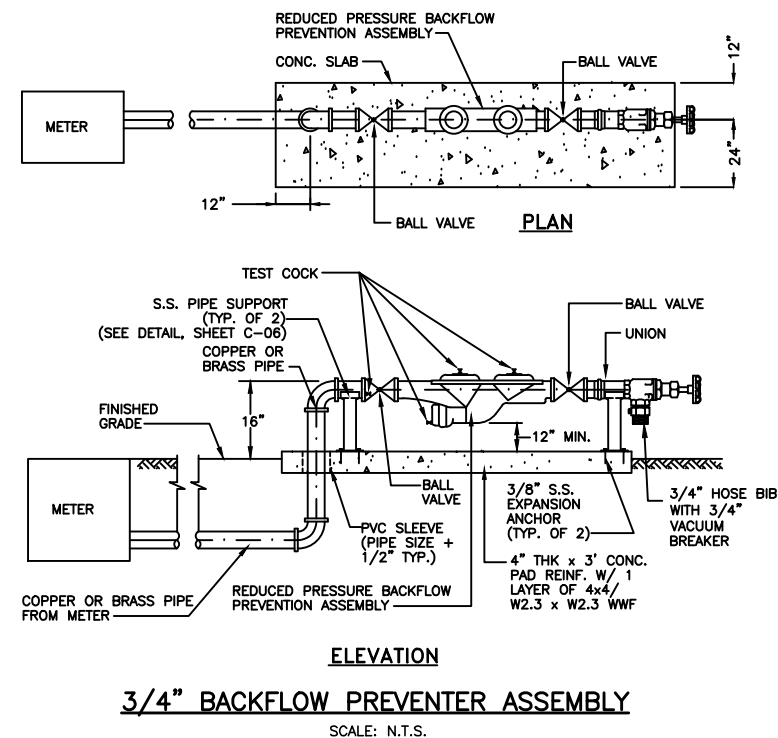


NOTES:

1. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE SPACED NOT LESS THAN 18" ON CENTER.
2. ALL TAPS INTO WATER MAINS REQUIRE A SERVICE SADDLE.
3. SERVICE PIPE SHALL BE SAME SIZE AS THE WATER METER USED EXCEPT THAT NO SERVICE PIPE SHALL BE SMALLER THAN 1".
4. APPROVED SCHEDULE 80 P.V.C. OR TYPE K COPPER TUBING MAY BE USED IN PLACE OF P.E..
5. FOR 1" SERVICE LINES, THE MINIMUM RADIUS SHALL BE 14"  
FOR 1 1/2" OR 2" SERVICE LINES, THE MINIMUM RADIUS SHALL BE 21"
6. THIS DETAIL APPLIES ONLY TO RESIDENTIAL ROADS WITH LESS THAN 60' R.O.W.  
(NO MEDIAN) OR WITHIN EASEMENTS.

### TYPICAL WATER SERVICE CONNECTION

SCALE: N.T.S.



Daniel Eugene Shonk,  
State of Florida  
Professional Engineer  
License No. PE90263,  
This item has been  
digitally signed and sealed  
by Daniel Eugene Shonk  
on the date indicated here  
(1/26/2023). Printed  
copies of this document  
are not considered signed  
and sealed and the  
signature must be verified  
on any electronic copies.

PERMITTING

1	01/19/23	RE-ORGANIZED/ADDED DETAILS	KRS
NO.	DATE	REVISION	BY

Date: 10/06/2022  
Designed: KR  
Drawn: OM  
Checked: DS

APPROVED BY: DANIEL E. SHONK, P.E.  
\_\_\_\_\_  
DATE \_\_\_\_\_  
FLORIDA PROFESSIONAL ENGINEER NO. 90263

**CRAIG A. SMITH & ASSOCIATES**  
CONSULTING ENGINEERS-PLANNERS-SURVEYORS

**CAS** 21045 COMMERCIAL TRAIL  
BOCA RATON, FLORIDA 33486  
(561) 314-4445  
CERTIFICATE NO. LB0003110 **CAS**

PREPARED FOR:

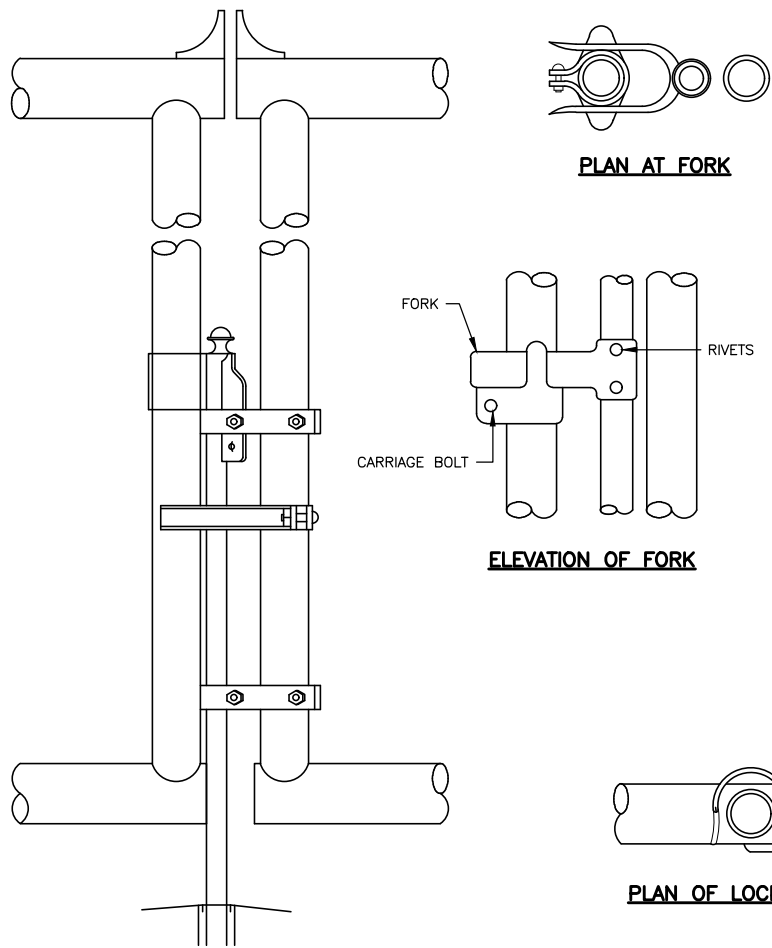
THE CITY OF MARGATE  
BROWARD COUNTY, FLORIDA

LIFT STATION No. 20  
RENOVATION  
STANDARDS FENCE DETAILS

FILE NAME: 30-22-033-C-09-DTLS.dwg  
LAST SAVED: 01/19/23 - 12:56pm

CAS PROJECT NUMBER  
08-22-033

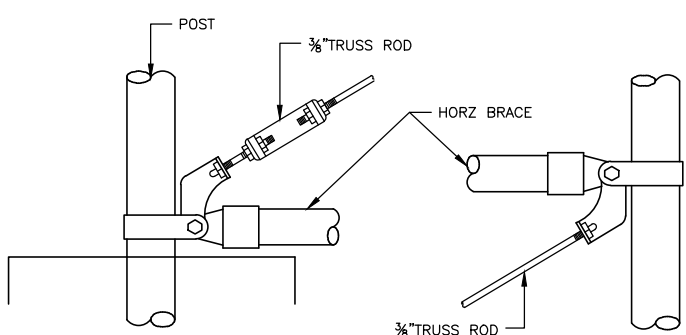
SHEET  
C-09



PLAN AT FORK

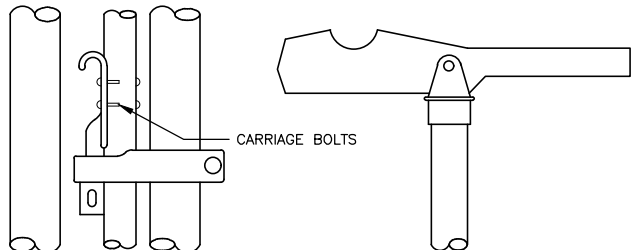
ELEVATION OF FORK

PLAN OF LOCK IN CLOSED POSITION

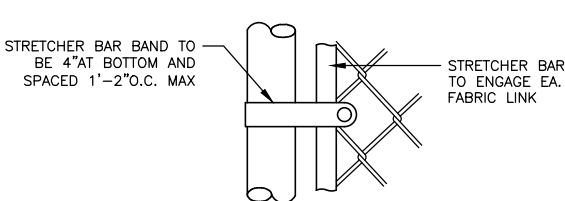


TRUSS ROD & BAND

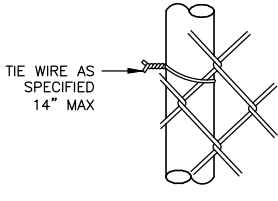
CLAMP FOR BRACE RAIL



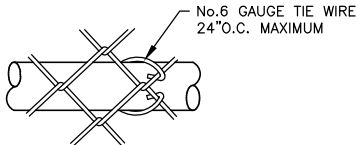
GATE KEEPER



END OR GATE POST DETAIL



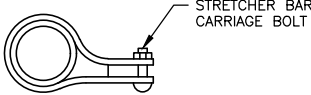
WIRE TIES FOR POST



WIRE TIES FOR BRACE RAIL



PLAN AT LOCK KEEPER



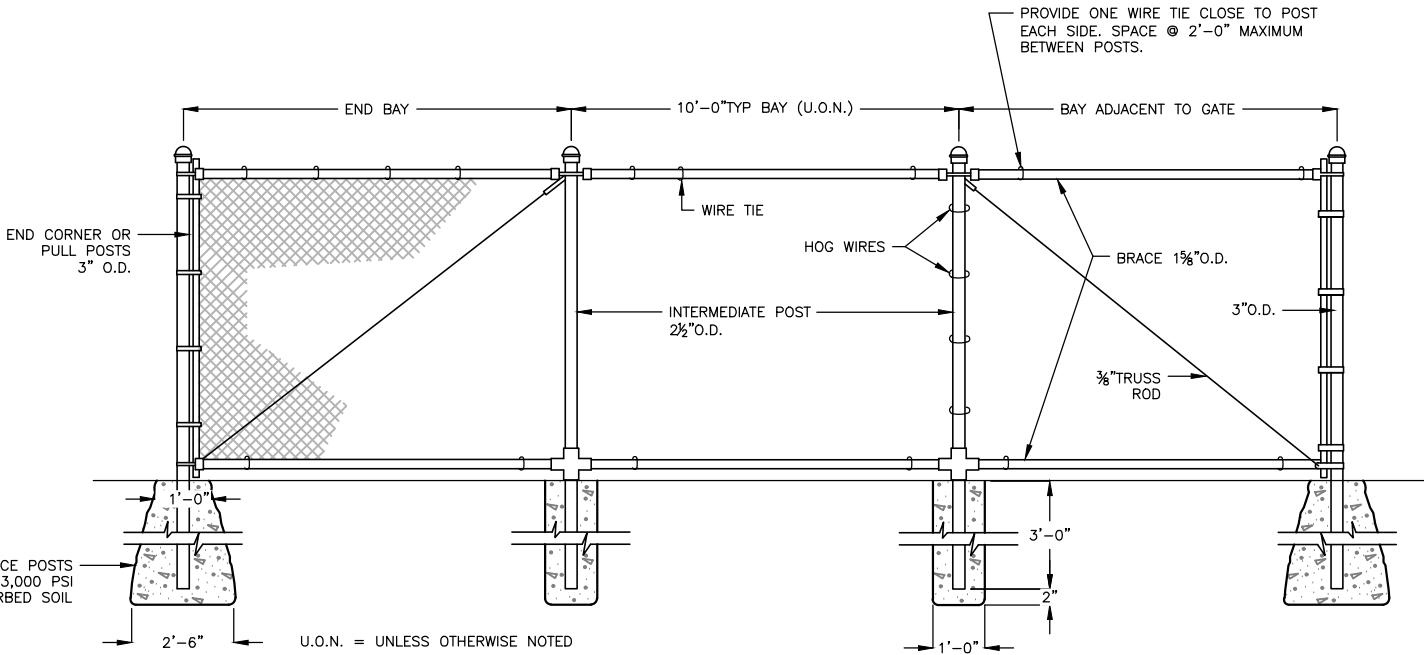
PLAN AT BRACE

ELEVATION OF LOCKING DEVICE FOR DOUBLE GATES

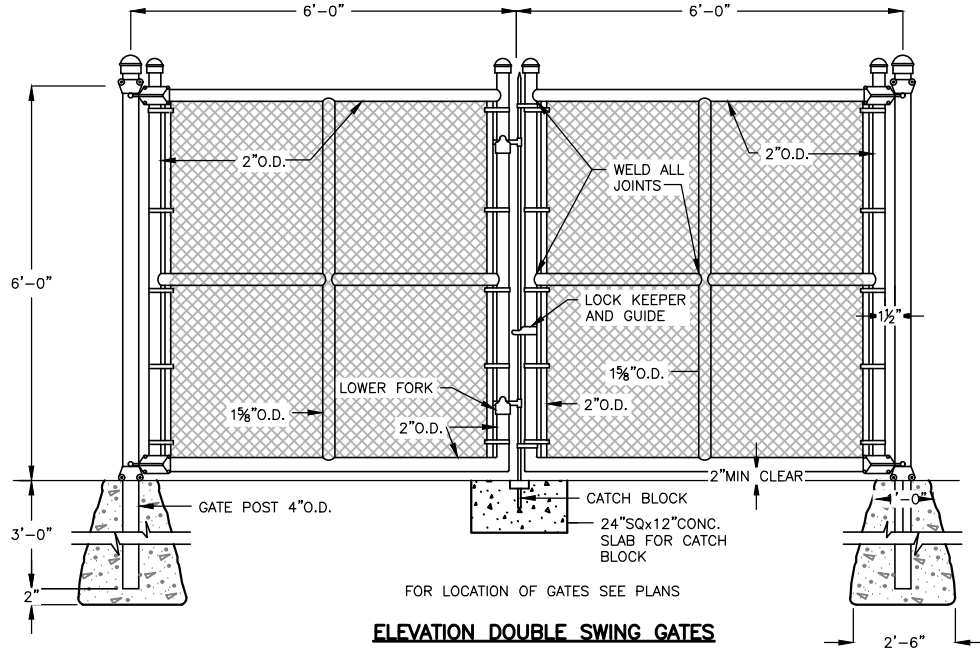
GENERAL NOTES:

1. ALL FABRIC TO BE GREEN VINYL COATED #9 GAGE WIRE WOVEN IN A 2" MESH TOP AND BOTTOM EDGE TO BE TWISTED AND BARBED.
2. HEIGHT OF FABRIC TO BE 6'-0"
3. GREEN PVC BOTTOM LOCKING PRIVACY SLAT SHALL BE INCLUDED WITH FENCE INSTALLATION.
4. CONTRACTOR SHALL INSTALL PLASTIC EDGING, WEEDBLOCK, AND 3/4" WASHED STONE INSIDE FENCED ENCLOSURE, AS DIRECTED BY THE CITY
5. CHAIN LINK FENCE SHALL HAVE GREEN COATED FINISH.

ALL CHAIN LINK FENCE POSTS SHALL BE SET IN 3,000 PSI CONCRETE IN UNDISTURBED SOIL



TYPICAL FENCE ELEVATION



ELEVATION DOUBLE SWING GATES

Daniel Eugene Shonk, State of Florida Professional Engineer License No. PE90263, This item has been digitally signed and sealed by Daniel Eugene Shonk on the date indicated here (1/26/2023). Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

PERMITTING

NO.	DATE	REVISION	BY
1	01/19/23	REVISED SHEET FROM C-09 TO C-10	KRS

Date:	10/08/2022
Designed:	KR
Drawn:	OM
Checked:	DS

APPROVED BY:	DANIEL E. SHONK, P.E.
DATE	
FLORIDA PROFESSIONAL ENGINEER NO.	90263

CRAIG A. SMITH & ASSOCIATES
CONSULTING ENGINEERS-PLANNERS-SURVEYORS
21045 COMMERCIAL TRAIL
BOCA RATON, FLORIDA 33486
(561) 314-4445
CERTIFICATE NO. LB0003110

PREPARED FOR:
THE CITY OF MARGATE
BROWARD COUNTY, FLORIDA

LIFT STATION No. 20
RENOVATION
STANDARDS FENCE DETAILS

FILE NAME: 30-22-033-C-10-DTLS.dwg
LAST SAVED: 01/19/23 - 12:41pm
CAS PROJECT NUMBER
08-22-033

SHEET
C-10

\\cae-file\projects\Cities\_Villages\_Towns\Margate\08-22-033\_15-20\PLANS\30-22-033-C-10-DTLS.dwg, 1/25/2023 12:11:54 PM, kschirmer, 1:2