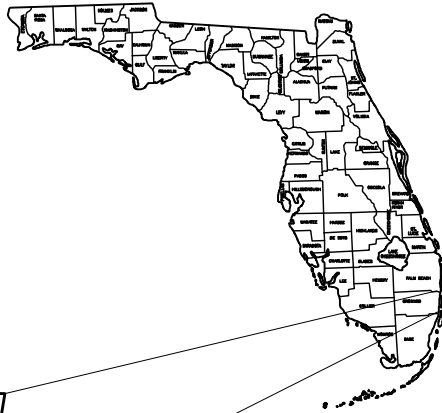
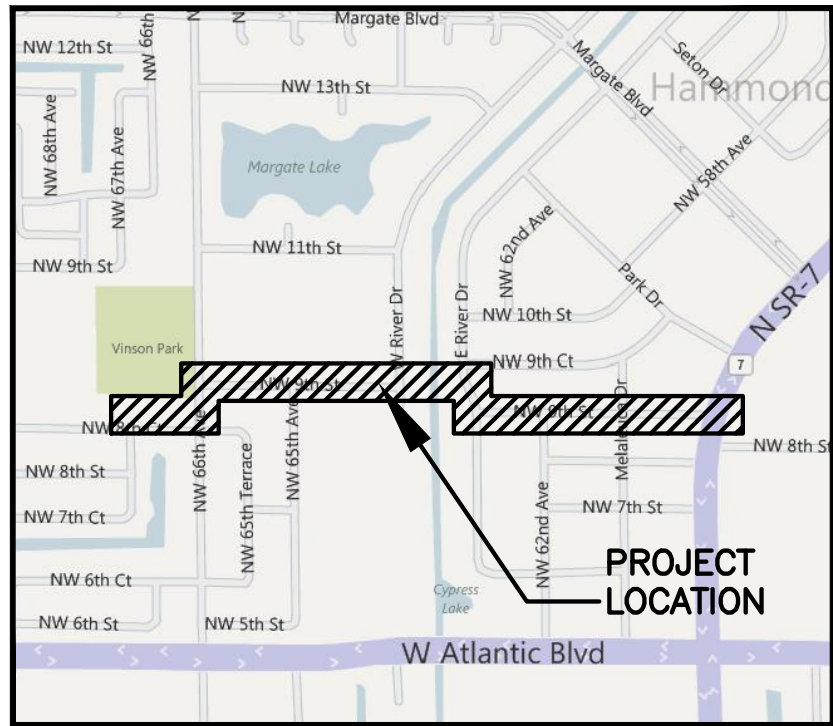


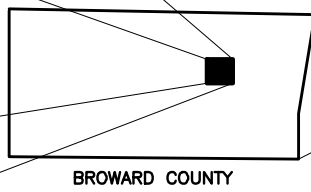
CITY OF MARGATE

SANITARY FORCE MAIN INSTALLATION

LOCATION MAP



VICINITY MAP
SCALE: N.T.S.



BROWARD COUNTY

CITY COMMISSION	
MAYOR	LESA PEERMAN
VICE MAYOR	JOANNE SIMONE
COMMISSIONER	BRIAN DONAHUE
COMMISSIONER	TOMMY RUZZANO
COMMISSIONER	FRANK B TALERICO

PREPARED FOR:
CITY OF MARGATE
PROJECT No. 11-1610



CRAIG A. SMITH & ASSOCIATES
CONSULTING ENGINEERS—PLANNERS—SURVEYORS
7777 GLADES ROAD, SUITE 410 — BOCA RATON, FLORIDA 33434
(561) 791-9280 E-MAIL: CASASOC@CRAIGASMITH.COM
CERTIFICATE OF AUTHORIZATION NUMBER: LB0003110



P:\Cities_Villages_Towns\Margate\11-1610-MARGATE-FM\Engineering\Plans\01-1610-G-01-LGND.dwg, 12/27/2013 2:04:20 PM, mmarenco, 1:2

GENERAL ABBREVIATIONS

ABRV	DESCRIPTION	ABRV	DESCRIPTION
AC	ASBESTOS CEMENT	MIN	MINIMUM
ALUM	ALUMINUM	MJ	MECHANICAL JOINT
ARV	AIR RELIEF VALVE	NPT	NATIONAL PIPE THREAD
BE	BURIED ELECTRIC	NTS	NOT TO SCALE
BFV	BUTTERFLY VALVE	NRTS	NO REVISIONS THIS SHEET
B/L	BASELINE	OC	ON CENTER
BSP	BACTERIOLOGICAL SAMPLE POINT BURIED	OE	OVERHEAD ELECTRIC
BT	BUREID TELEPHONE CABLE	OHW	OVERHEAD WIRE
CATV	CABLE TELEVISION	PC	POINT OF CURVATURE
CB	CATCH BASIN	PHDPE	PERFORATED HIGH DENSITY POLYETHYLENE
CIP	CAST IRON PIPE	PL	PROPERTY LINE
CL	CENTER LINE	PPD	POUNDS PER DAY
CONC	CONCRETE	PRB	POLLUTION RETARDANT BAFFLE
CV	CHECK VALVE	PROP	PROPOSED
DIA	DIAMETER	PSI	POUNDS PER SQUARE INCH
DIP	DUCTILE IRON PIPE	PV	PLUG VALVE
DIPS	DUCTILE IRON PIPE SIZE	PVC	POLY VINYL CHLORIDE
EP	EXISTING PAVEMENT EDGE	RCP	REINFORCED CONCRETE PIPE
EXIST	EXISTING	R.E.	RIM ELEVATION
F&I	FURNISH AND INSTALL	RED	REDUCER
FDEP	FLORIDA DEPT. OF ENVIRONMENTAL PROTECTION	REQD	REQUIRED
FH	FIRE HYDRANT	RJ	RESTRAINED JOINT
FM	FORCEMAIN	RWM	RAW WATER MAIN
FPL	FLORIDA POWER & LIGHT	R/W	RIGHT-OF-WAY LINE
G.E.	GRATE ELEVATION	SAN	SANITARY SEWER PIPE
GV	GATE VALVE	SD	STORM DRAIN
HDPE	HIGH DENSITY POLYETHYLENE	TEL	TELEPHONE
I.E.	INVERT ELEVATION	TYP	TYPICAL
LAT	LATERAL	UR	UTILITY RISER
LF	LINEAR FEET	BE	BURIED ELECTRIC
MAX	MAXIMUM	VCP	VITRIFIED CLAY PIPE
MFGR	MANUFACTURER	WL	WATER LINE
MH	MANHOLE	WM	WATER METER

SURVEY SYMBOL LEGEND

SYM.	DESCRIPTION	SYM.	DESCRIPTION
ARV	AIR RELEASE VALVE		MANHOLE (UNKNOWN)
	AERIAL TARGET		MONITORING WELL
	BACKFLOW PREVENTOR		NAIL & DISC
	BORING HOLE	PM	PARKING METER
	BENCH MARK	MB	MAIL BOX
BO	BLOW OFF	TEL	TELEPHONE RISER
	BOLLARD		SATELLITE DISH
CATV	CATV RISER		SIGN (1 POSTS)
	CATCH BASIN	SMH	SANITARY MANHOLE
	CURB INLET	SO	STUB OUT
	CONCRETE MONUMENT	SPR	SPRINKLER
CO	CLEAN OUT	SP	SAMPLE POINT
	COLUMN	SDMH	STORM DRAIN MANHOLE
	CONCRETE POWER POLE	SNS	SANITARY SERVICE
EJB	ELECTRIC JUNCTION BOX	STP	STAND PIPE
EM	ELECTRIC METER	SV	SANITARY VALVE
EMH	ELECTRIC MANHOLE	TMH	TELEPHONE MANHOLE
EMTR	ELECTRIC MOTOR		TRAVERSE POINT
	ELECTRICAL OUTLET	12	CITRUS TREE
FH	FIRE HYDRANT	12	GENERIC TREE
FP	FLAG POLE	12	OAK TREE
-	GUY WIRE	12	PINE TREE
GM	GAS METER	2'	PALM TREE
GMH	GAS MANHOLE		MANGROVE
	GROUND LIGHT	UB	UTILITY BOX
	GUY POLE	UR	UTILITY RISER
GSV	GAS VALVE	WS	WATER LINE SERVICE
	HANDICAP MARKER	WM	WATER METER
ICV	IRRIGATION CONTROL VALVE		WOOD POWER POLE
	IRON PIPE		WATER LINE REDUCER
	IRON ROD	WV	WATER VALVE
	LIGHT POLE CONCRETE	YD	YARD DRAIN
	LIGHT POLE METAL	10.20	GRADE EXISTING
	LIGHT POLE WOOD	19.25	GRADE PROPOSED

STANDARD SURVEY HATCH PATTERNS

SYM	DESCRIPTION	SYM	DESCRIPTION
	CONCRETE		STONE
	BRICK		

SHEET INDEX

NUMBER / SHEET		DESCRIPTION
00	G-00	COVER SHEET
01	G-01	CIVIL ABBREVIATIONS, INDEX & LEGEND SHEET
02	G-02	KEY SHEET
03	G-03	GENERAL NOTES
04	G-04	EXIST. FORCEMAIN ABANDONMENT PLAN
05-18	C-01 TO C-11	PLAN AND PROFILE
19-23	C-12 TO C-16	STANDARD DETAILS

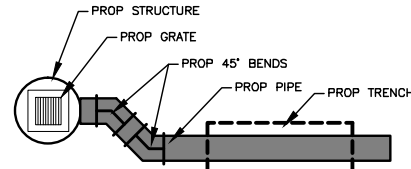
LINE WEIGHTS

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.



PIPE LEGEND

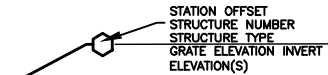


PIPE FITTINGS

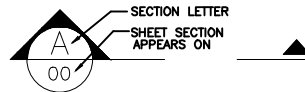
SYM	DESC	SYM	DESC
	11.25° BEND		45° BEND
	22.5° BEND		90° BEND
	TEE		WYE
	REDUCER		PLUG
	CAP		

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

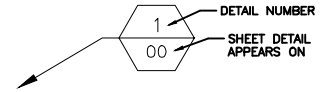
TAGS



STRUCTURE CALLOUT



SECTION SYMBOL



DETAIL SYMBOL

1	11/18/13	REVISED PER CITY COMMENTS	MM
NO.	DATE	REVISION	BY

Date:	11/01/12
Designed:	AC
Drawn:	MM
Checked:	PAK

APPROVED BY: PETER A. KUNEN, P.E.

DATE
FLORIDA PROFESSIONAL ENGINEER NO. 60730

CRAIG A. SMITH & ASSOCIATES
CONSULTING ENGINEERS-PLANNERS-SURVEYORS
7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
CERTIFICATE NO. LB0003110

PREPARED FOR:
CITY OF
MARGATE
BROWARD COUNTY, FL

SANITARY FORCE MAIN
INSTALLATION
CIVIL ABBREVIATIONS, INDEX
AND LEGEND SHEET

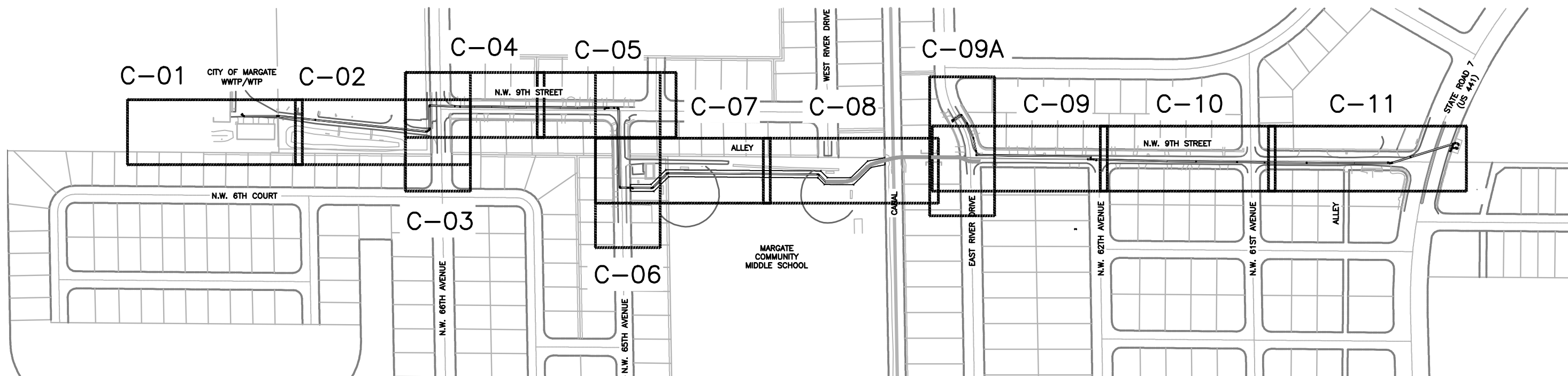
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CAS PROJECT NUMBER
11-1610

SHEET
G-01



0 75 150 300
HORIZONTAL GRAPHIC SCALE
24" X 36" SCALE: 1" = 150'-0"
11" X 17" SCALE: 1" = 300'-0"



1	11/18/13	REVISED PER CITY COMMENTS	MM
NO.	DATE	REVISION	BY

Date: 11/01/12
Designed: AC
Drawn: MM
Checked: PAK

APPROVED BY: PETER A. KUNEN, P.E.
DATE: _____
FLORIDA PROFESSIONAL ENGINEER NO. 60730

CRAIG A. SMITH & ASSOCIATES
CONSULTING ENGINEERS-PLANNERS-SURVEYORS
7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
CERTIFICATE NO. LB0003110

PREPARED FOR:
CITY OF MARGATE
BROWARD COUNTY, FL

**SANITARY FORCE MAIN
INSTALLATION
KEY SHEET**

FILE NAME: 02-1610-G-02-KEY.dwg
LAST SAVED: 09/27/13 - 3:18pm
CAS PROJECT NUMBER
11-1610

SHEET
G-02

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GENERAL NOTES

1.

THE MAINTENANCE OF TRAFFIC FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS, U.S. DOT, F.H.W.A. AND THE STATE OF FLORIDA MANUAL OF ROADWAY TRAFFIC DESIGN STANDARDS.
2.

THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC PLAN FOR APPROVAL TO THE CITY OF MARGATE PRIOR TO CONSTRUCTION.
3.

CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INCLUDING PREPARATION OF ALL PLANS REQUIRED TO OBTAIN THESE PERMITS.
4.

ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED.
5.

THE CONTRACTOR IS WARNED TO USE EXTREME CAUTION WHEN CONSTRUCTION IS NEAR OR AROUND ANY EXISTING FACILITIES, PARTICULARLY ELECTRICAL, GAS, AND PRESSURIZED PIPE.
6.

IF ABANDONED GAS, WATER AND SEWER SERVICE LATERALS ARE ENCOUNTERED (AND THEIR ABANDONMENT CONFIRMED) DURING EXCAVATION, THE SECTION IN THE EXCAVATED ENVELOPE WILL BE REMOVED AND THE STUB ON THE SIDE CONNECTED TO THE MAIN WILL BE CAPPED, PLUGGED OR OTHERWISE SEALED.
7.

STABILIZED SUBGRADE IN RIGHTS-OF-WAY SHALL BE COMPACTED TO 98% FDOT MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99(C) IN 8+ MAXIMUM LAYERS WITH A MINIMUM LIMEROCK BEARING RATIO (LBR) OF 40.
8.

LIMEROCK BASE MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 911 OF FDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES (2010).
9.

ASPHALTIC CONCRETE SURFACE COURSE SHALL CONFORM TO THE REQUIREMENTS OF SECTION 331 OF FDOT STANDARD SPECIFICATIONS (2010).
10.

PRIME COAT AND TACK COAT FOR BASE COURSE SHALL CONFORM TO THE REQUIREMENTS OF SECTION 300-1 THROUGH 300-7 OF FDOT STANDARD SPECIFICATIONS. PRIME COAT SHALL BE APPLIED AT A RATE OF 0.25 GALLONS PER SQUARE YARD UNLESS A VARIATION RATE IS APPROVED BY THE ENGINEER.
11.

THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ARE APPROXIMATE. IN ORDER TO PREVENT DELAY THE CONTRACTOR SHALL LOCATE AND EXPOSE ALL EXISTING UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO ALLOW REDESIGN BY THE ENGINEER IF SUCH UTILITIES ARE FOUND TO BE DIFFERENT THAN SHOWN ON THESE PLANS.
12.

CONTRACTOR SHALL CONTACT FDOT, THE CITY OF MARGATE AND THE UNDER GROUND UTILITIES NOTIFICATION CENTER 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
13.

CONTRACTOR SHALL NOTIFY CRAIG A. SMITH & ASSOCIATES AT (561) 791-9280 AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
14.

THE CONTRACTOR SHALL NOTIFY FLORIDA POWER AND LIGHT CO., AT&T BROADBAND, LEVEL 3, TECO PEOPLES GAS, ATLANTIC BROADBAND, AND ANY OTHER UTILITY COMPANY WHICH MAY HAVE THEIR UTILITIES WITHIN THE CONSTRUCTION AREAS BEFORE BEGINNING CONSTRUCTION.
15.

A PRE-CONSTRUCTION MEETING IS TO BE HELD BETWEEN FDOT, THE ENGINEER OF RECORD, THE CONTRACTOR, AND ALL OTHER INTERESTED PARTIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
16.

SHOP DRAWINGS FOR ALL MATERIALS BEING USED SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION. ANY ITEMS INSTALLED WITHOUT PRIOR APPROVAL BY THE ENGINEER SHALL BE SOLELY AT THE CONTRACTOR'S RISK. SHOULD THE AT RISK ITEM BE FOUND INSUFFICIENT OR BE REJECTED BY THE ENGINEER, THE CONTRACTOR WILL IMMEDIATELY REMOVE THE REJECTED ITEM AND REPLACE IT WITH A PROPERLY APPROVED ITEM AT NO COST TO THE CITY. IN ADDITION, THE COSTS OF ALL RELATED RE-INSPECTION, RE-EVALUATION AND ANY REQUIRED SURVEY, WILL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SUFFICIENT AMOUNTS TO COVER SUCH CHARGES WILL BE WITHHELD FROM ANY MONIES OWED TO THE CONTRACTOR.
17.

ALL LABOR, MATERIALS, AND METHODS OF CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE PLANS AND CONSTRUCTION STANDARDS AND SPECIFICATIONS. SUBSTITUTIONS AND DEVIATIONS FROM PLANS AND SPECIFICATIONS SHALL BE PERMITTED ONLY WHEN WRITTEN APPROVAL HAS BEEN ISSUED BY THE ENGINEER.
18.

CONSTRUCTION INSPECTION WILL BE PERFORMED BY THE ENGINEER AND IS REQUIRED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 48 HOURS BEFORE BEGINNING CONSTRUCTION AND AT LEAST 48 HOURS BEFORE REQUIRING INSPECTION OF EACH AND EVERY PHASE OF WORK.
19.

THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF APPROVED CONSTRUCTION PLANS ON THE JOB SITE DURING ALL PHASES OF CONSTRUCTION AND SHALL NOTE ANY AREAS WHERE THE CONSTRUCTION DEVIATED FROM THE DESIGN.
20.

ANY AND ALL PAVEMENT MARKINGS, SIGNS, MESSAGES OR RAISED PAVEMENT MARKERS DISTURBED OR DESTROYED AS A RESULT OF CONSTRUCTION OR CONTRACTOR'S OPERATIONS SHALL BE IMMEDIATELY REPLACED IN ACCORDANCE WITH FDOT STANDARDS. COSTS FOR THIS WORK ARE UNDERSTOOD TO BE INCLUDED IN THE LUMP SUM M.O.T. ITEM. PERMANENT THERMOPLASTIC STRIPING SHALL BE PLACED AT THE DIRECTION OF THE ENGINEER AND PAID FOR IN THE APPROPRIATE BID ITEMS.
21.

CONTRACTOR TO MAINTAIN ACCESS TO BUSINESS AND RESIDENTIAL LOCATIONS BY NORMAL MEANS AND METHODS I.E. TEMPORARY STEEL PLATES, TEMP LIMEROCK, ETC. ALL ASSOCIATED COSTS TO BE INCLUDED IN M.O.T. ITEM.
22.

THE CONTRACTOR SHALL BE RESPONSIBLE AT ALL TIMES THROUGHOUT THE DURATION OF CONSTRUCTION FOR THE PROTECTION OF EXISTING AND NEWLY INSTALLED UTILITIES FROM DAMAGE OR DISRUPTION OF SERVICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING SUCH MEASURES AS NECESSARY TO PROTECT THE HEALTH, SAFETY AND WELFARE OF THOSE PERSONS HAVING ACCESS TO THE WORK SITE.
23.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING LOCATIONS FROM ALL OTHER UTILITY FACILITIES.
24.

THE CONTRACTOR SHALL SCHEDULE INSPECTION AND TESTS A MINIMUM OF 24-48 HOURS IN ADVANCE.
25.

ALL FITTINGS SHALL BE DUCTILE IRON WITH MECHANICAL JOINTS AND CERAMIC EPOXY LINING FOR FORCEMAINS.
26.

ALL TRENCHING, PIPE-LAYING, BACKFILL AND PRESSURE TESTING MUST COMPLY WITH THE CITY OF MARGATE, BROWARD COUNTY PLANNING AND ENVIRONMENTAL REGULATIONS DIVISION AND FDEP STANDARDS. DISINFECTION SHALL NOT BE REQUIRED FOR SEWAGE FORCEMAINS.
27.

ALL ELEVATIONS ARE BASED ON NGVD OF 1929, UNLESS OTHERWISE NOTED.
28.

THE CONTRACTOR SHALL REPLACE ALL PAVING, STABILIZED EARTH, CURBS, DRIVEWAYS, SIDEWALKS, FENCES, MAIL BOXES, SIGNS, PAVEMENT MARKINGS AND OTHER IMPROVEMENTS WITH THE SAME TYPE OF MATERIAL THAT WAS REMOVED DURING THE CONSTRUCTION OR AS DIRECTED BY THE ENGINEER. SOD, FENCES, WALLS, ETC.SHALL BE REPLACED WITHIN 14 DAYS. CONCRETE DRIVEWAYS SHALL BE REPLACED FROM THE ADJACENT ROAD TO 2 FEET PAST CONSTRUCTION.
29.

CONTRACTOR SHALL PROVIDE ALL WARNING SIGNALS, SIGNS, LIGHTS AND FLAG PERSONS AS REQUIRED BY F.D.O.T. IN THE "MANUAL ON TRAFFIC CONTROL AND SAFE PRACTICES".
30.

CONTRACTOR SHALL SOD OR SEED & MULCH ENTIRE AREA DISTURBED BY CONSTRUCTION ACTIVITIES AS PER THE SPECIFICATIONS WITHIN 7 DAYS OF THE COMPLETION OF CONSTRUCTION IN THE AREA.
31.

ALL STRUCTURES, ROADWAYS, SIGNS, FENCES, AND AREAS AFFECTED BY THE WORK SHALL BE RESTORED TO ORIGINAL CONDITIONS.
32.

ALL WORK TO BE PERFORMED IN ACCORDANCE WITH UTILITY OWNER STANDARDS.
33.

ALL CONSTRUCTION AND RESTORATION WORK WITHIN FDOT RIGHT-OF-WAY SHALL CONFORM TO ALL PARTS FDOT DESIGN STANDARDS INDEX (2010), FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (2010), AND THE FDOT UTILITY ACCOMMODATION MANUAL (2010).
34.

ALL EXISTING DRAINAGE SYSTEMS SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR. ANY DAMAGE TO THE DRAINAGE SYSTEMS (STRUCTURES OR PIPES) SHALL BE REPAIRED/REPLACED BY THE CONTRACTOR AT NO COST TO THE CITY.
35.

THE CONTRACTOR SHALL CONTACT FDOT PRIOR TO ANY SUBSURFACE ACTIVITIES AND SHALL PROTECT EXISTING TRAFFIC SIGNAL POLES AND EQUIPMENT AND/OR EXISTING STREET LIGHTING, POLES, EQUIPMENT, AND CONDUIT AT ALL TIMES DURING CONSTRUCTION ACTIVITIES. ANY DAMAGES TO EXISTING EQUIPMENT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AT THEIR OWN COST, AND ALL RESTORATION WORK SHALL BE COORDINATED WITH FDOT.
36.

PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL COORDINATE WITH LEVEL 3 SERVICE FOR LOCATIONS OF ALL EXISTING FIBER OPTIC UTILITIES WITHIN THE STATE ROAD 7 CORRIDOR.
37.

ALL WORK LOCATED WITHIN THE LIMITS OF THE MARGATE SCHOOL PROPERTY SHALL ONLY BE PERFORMED WITHIN SUMMER MONTHS.

GENERAL PIPELINE NOTES

1.

ALL MATERIALS, INSTALLATION, TESTING AND SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS APPLICABLE TO PUBLIC RIGHT OF WAY UNDER FLORIDA DEPARTMENT OF TRANSPORTATION JURISDICTION AND BROWARD COUNTY PERD, FDEP MINIMUM STANDARDS AND THE TECHNICAL SPECIFICATIONS (WHEN APPLICABLE).
2.

LOCATION OF EXISTING UNDERGROUND UTILITIES HAS BEEN PREPARED FROM THE MOST RELIABLE INFORMATION AVAILABLE TO THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY LOCATION AND DEPTH OF ALL PERTINENT UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK.
3.

PIPE AND FITTINGS SHALL CONFORM TO THE CONTRACT SPECIFICATIONS SECTION 15105 PIPES AND TUBES.
4.

MINIMUM COVER FOR DUCTILE IRON PIPE SHALL BE 36". MINIMUM COVER FOR P.V.C. AND H.D.P.E. PIPE IS 36".
5.

ALL PRESSURE MAINS SHALL BE HYDROSTATICALLY PRESSURE TESTED FOR A PERIOD OF NOT LESS THAN 2 HOURS AT 150 PSI WITH AN ALLOWABLE LEAKAGE NOT TO EXCEED THE FORMULA, L = SD ^{1/2}/ 148,000
- IN WHICH

-L- EQUALS ALLOWABLE LEAKAGE IN GALLONS/HOUR,

-S- EQUALS LENGTH OF PIPE IN FEET,

-D- EQUALS NOMINAL DIAMETER OF PIPE IN INCHES,

-P- EQUALS AVERAGE TEST PRESSURE DURING TEST IN LBS/SQ. IN. ALL TESTING SHALL BE MADE IN ACCORDANCE WITH ANSI/AWWA C600-LATEST EDITION (HYDROSTATIC TESTS).
6.

COMPLETE "AS-BUILT" INFORMATION RELATIVE TO METERS, VALVES, FITTINGS, LENGTH OF PIPE AND ELEVATIONS, SHALL BE ACCURATELY RECORDED BY A PROFESSIONAL SURVEYOR REGISTERED IN THE STATE OF FLORIDA AND SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE WORK AS SPECIFIED IN SECTION 01720. FINAL APPROVAL OF THE PROJECT IS SUBJECT TO THE FINAL REVIEW AND APPROVAL OF THE "AS-BUILT" INFORMATION BY THE ENGINEER AND REGULATORY AGENCIES.
7.

ALL MECHANICAL JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS AND IN COMPLIANCE WITH AWWA STANDARDS.
8.

WHERE FORCE MAIN REQUIRES DEFLECTION, THE AMOUNT OF DEFLECTION PER PIPE JOINT SHALL NOT EXCEED 75% OF THE MANUFACTURES RECOMMENDED DEFLECTION. THE LENGTH OF EXISTING PIPE TO BE DEFLECTED SHALL BE APPROVED BY THE ENGINEER.
9.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, QUANTITIES AND DETAILS SHOWN ON THE DRAWINGS, SUPPLEMENTARY DRAWINGS, SCHEDULES OR OTHER DATA RECEIVED FROM THE ENGINEER AND SHALL NOTIFY HIM OF ALL OMISSIONS, ERRORS, CONFLICTS, AND DISCREPANCIES FOUND THEREIN. FAILURE TO DISCOVER OR TO CORRECT ERRORS, CONFLICTS OR DISCREPANCIES SHALL NOT RELIEVE THE CONTRACTOR OF FULL RESPONSIBILITY FOR UNSATISFACTORY WORK, FAULTY CONSTRUCTION OR IMPROPER OPERATION RESULTING THEREFROM, NOR FROM RECTIFYING SUCH CONDITION, AT HIS OWN EXPENSE.
10.

WHERE THE PROPOSED FORCE MAIN IS IN CONFLICT WITH OTHER EXISTING OR PROPOSED UTILITIES, THE NEW MAIN SHALL BE DEFLECTED IN ACCORDANCE WITH THE STANDARD UTILITY CROSSING DETAIL. THE SPECIAL UTILITY CROSSING DETAIL WITH BENDS SHALL ONLY BE USED WHEN APPROVED BY THE ENGINEER.
11.

COMPLIANCE TO "TRENCH SAFETY ACT" IS REQUIRED FOR ALL EXCAVATIONS IN EXCESS OF 5 FEET DEEP.
12.

ALL GATE VALVES AND AIR RELEASE VALVES TO CONFORM TO CITY, COUNTY AND STATE STANDARDS AND SPECIFICATIONS.
13.

ALL DIRECTIONALLY DRILLED PIPE SHALL BE HIGH DENSITY POLYETHYLENE PIPE (DIPS) WITH AN DR OF 11.
14.

CONTRACTOR TO GROUT FILL AND ABANDON IN PLACE EXISTING 12" FORCE MAIN. THE MAIN IS TO REMAIN ACTIVE UNTIL THE PROPOSED 20" FORCE MAIN IS INSTALLED, CERTIFIED, AND ACTIVATED.
15.

THE CONTRACTOR SHALL USE CAUTION WHILE REMOVING ANY ASBESTOS-CEMENT PIPE (ACP) AND FOLLOW CURRENT EPA AND OSHA GUIDELINES. PIPE SHALL BE DISCONNECTED AT JOINTS AND REMOVED AND DISPOSED OF WITHOUT BREAKING. IF THE EXISTING PIPE IS FRIABLE OR REQUIRES CUTTING, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE PIPE IN ACCORDANCE WITH EPA REGULATIONS. DISPOSAL OF ASBESTOS-CEMENT PIPE IS TO BE DONE IN ACCORDANCE WITH EPA REGULATIONS.
16.

THE CONTRACTOR IS RESPONSIBLE FOR ALL DEWATERING ACTIVITIES REQUIRED FOR CONSTRUCTION OF THIS PROJECT.

NOTES ON WATER-SEWER INSTALLATION

1.

A HORIZONTAL DISTANCE OF AT LEAST 6 FEET, AND PREFERABLY 10 FEET (OUTSIDE TO OUTSIDE), SHALL BE MAINTAINED BETWEEN GRAVITY OR PRESSURE SEWER PIPES AND WATER PIPES. THE MINIMUM HORIZONTAL SEPARATION CAN BE REDUCED TO 3 FEET FOR VACUUM-TYPE SEWERS OR FOR GRAVITY SEWERS WHERE THE BOTTOM OF THE SEWER PIPE IS AT LEAST 6 INCHES BELOW THE BOTTOM OF THE WATER PIPE. WHEN THE ABOVE SPECIFIED HORIZONTAL DISTANCE CRITERIA CANNOT BE MET DUE TO AN EXISTING UNDERGROUND FACILITY CONFLICT, SMALLER SEPARATIONS ARE ALLOWED IF:
A- THE SEWER PIPES ARE DESIGNED AND CONSTRUCTED EQUAL TO THE WATER PIPE AND PRESSURE TESTED AT 150 PSI.
B- THE SEWER IS ENCASED IN A WATERTIGHT CARRIER PIPE OR CONCRETE.
C- THE TOP OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER PIPE.
2.

A VERTICAL DISTANCE OF AT LEAST 12 INCHES (OUTSIDE TO OUTSIDE) SHALL BE MAINTAINED BETWEEN ANY WATER AND SEWER MAINS WITH SEWER PIPES PREFERABLY CROSSING UNDER WATER MAINS. THE MINIMUM VERTICAL SEPARATION CAN BE REDUCED TO 6 INCHES FOR VACUUM-TYPE SEWERS OR GRAVITY SEWERS WHERE THE SEWER PIPE IS BELOW THE WATER MAIN. THE CROSSING SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST 6 FEET FROM ALL JOINTS IN GRAVITY AND PRESSURE SEWER PIPES. THE DISTANCE CAN BE REDUCED TO 3 FEET FOR VACUUM-TYPE SEWERS. WHEN THE ABOVE SPECIFIED VERTICAL DISTANCE CRITERIA CANNOT BE MET DUE TO AN EXISTING UNDERGROUND FACILITY CONFLICT, SMALLER SEPARATIONS ARE ALLOWED IF:
A- THE SEWER PIPES ARE DESIGNED AND CONSTRUCTED EQUAL TO THE WATER PIPE AND PRESSURE TESTED AT 150 PSI.
B- THE SEWER IS ENCASED IN A WATERTIGHT CARRIER PIPE OR CONCRETE.
3.

IN HIGHLY CONGESTED AREAS, WHERE EITHER WATER OR SEWER FACILITIES ARE EXISTING AND THE SEPARATION REQUIREMENTS CANNOT BE MET, SPECIAL CONSIDERATION MAY BE GIVEN SUBJECT TO SUBMITTAL OF DOCUMENTATION SHOWING THAT THE PROPOSED ALTERNATIVE WILL RESULT IN AN EQUIVALENT LEVEL OF RELIABILITY AND PUBLIC HEALTH PROTECTION.
4.

FORCE MAIN SEWERS CONSTRUCTED IN A PUBLIC WELLFIELD PROTECTION AREA SHALL BE EITHER DUCTILE IRON OR REINFORCED CONCRETE PRESSURE SEWER PIPES. FOR DUCTILE IRON PIPE EXFILTRATION RATE SHALL NOT BE GREATER THAN THE ALLOWABLE LEAKAGE RATE SPECIFIED IN AMERICA WATER WORKS ASSOCIATION STANDARD (AWWAS) C600-82 AT A TEST PRESSURE OF 100 PSI. FOR REINFORCED CONCRETE PRESSURE SANITARY SEWER EXFILTRATION RATE SHALL NOT BE GREATER THAN HALF (1/2) THE ALLOWABLE LEAKAGE RATE SPECIFIED IN AWWA C600-82 AT A TEST PRESSURE OF 100 PSI.
5.

THE CONTRACTOR SHALL VERIFY NATURE, DEPTH, AND CHARACTER OF EXISTING UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
6.

ALL OTHER PUBLIC OR PRIVATE UTILITY FACILITIES SHALL BE CONSTRUCTED AT LEAST 5 FEET FROM ANY WATER AND SEWER MAIN AS MEASURED FROM THE OUTSIDE BELL OF THE WATER OF THE UTILITY PIPE.
7.

WHEN THE 5 FEET SEPARATION BETWEEN PROPOSED AND EXISTING LINE IS NOT POSSIBLE, THE CONTRACTOR SHALL HAND DIG OR EXPOSE THE WATER AND SEWER PIPES BEFORE PROCEEDING WITH POWER EQUIPMENT EXCAVATION.
8.

IN NO CASE SHALL A CONTRACTOR INSTALL UTILITY PIPES, CONDUITS, CABLES, ETC. IN THE SAME TRENCH PARALLEL AND ABOVE AN EXISTING WATER OR SEWER PIPE EXCEPT WHERE THEY CROSS. ANY DEVIATION FROM NOTES 6, 7 AND 8 SHALL BE APPROVED IN WRITING BY THE RESPONSIBLE WATER AND SEWER UTILITY.

1	11/18/13	REVISED PER CITY COMMENTS	MM
NO.	DATE	REVISION	BY

Date:	11/01/12
Designed:	AC
Drawn:	MM
Checked:	PAK

APPROVED BY:	PETER A. KUNEN, P.E.
DATE	
FLORIDA PROFESSIONAL ENGINEER NO.	60730

CRAIG A. SMITH & ASSOCIATES

CONSULTING ENGINEERS-PLANNERS-SURVEYORS



7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
CERTIFICATE NO. LB0003110



PREPARED FOR:
CITY OF
MARGATE
BROWARD COUNTY, FL

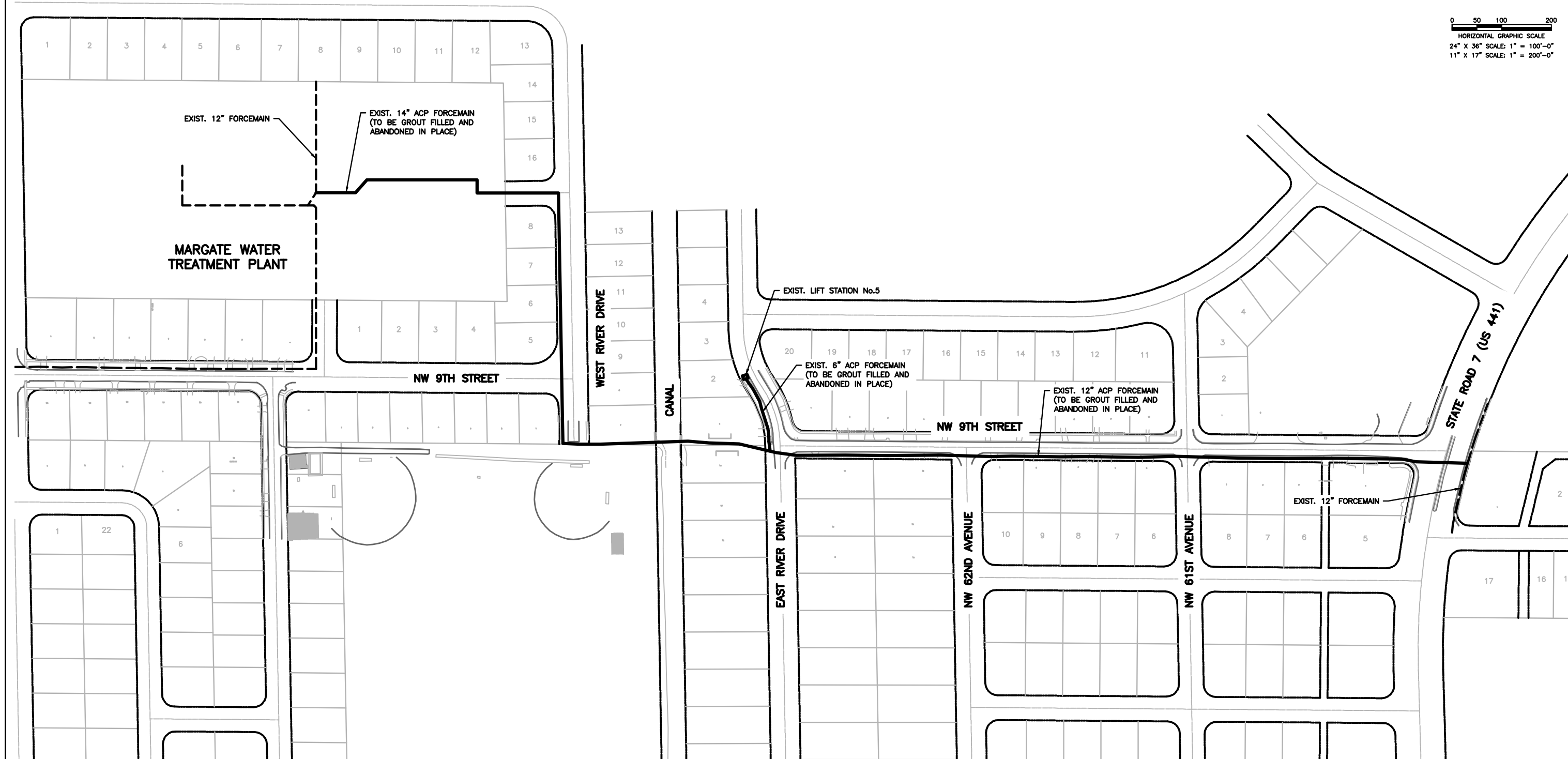
SANITARY FORCE MAIN
INSTALLATION
GENERAL NOTES

FILE NAME: 03-1610-G-03-NOTE.dwg
LAST SAVED: 12/26/13 - 2:23pm
CAS PROJECT NUMBER
11-1610

SHEET
G-03



0 50 100 200
HORIZONTAL GRAPHIC SCALE
24" X 36" SCALE: 1" = 100'-0"
11" X 17" SCALE: 1" = 200'-0"



NO.	DATE	REVISION	COMMENTS	BY
1	11/18/13	REVISED PER CITY	COMMENTS	MM

Date: 11/01/12
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DATE: _____
FLORIDA PROFESSIONAL ENGINEER NO. 60730

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7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
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CERTIFICATE NO. LB0003110

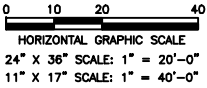
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MARGATE**
BROWARD COUNTY, FL

**SANITARY FORCE MAIN
INSTALLATION
EXISTING FORCEMAIN
ABANDONMENT PLAN**

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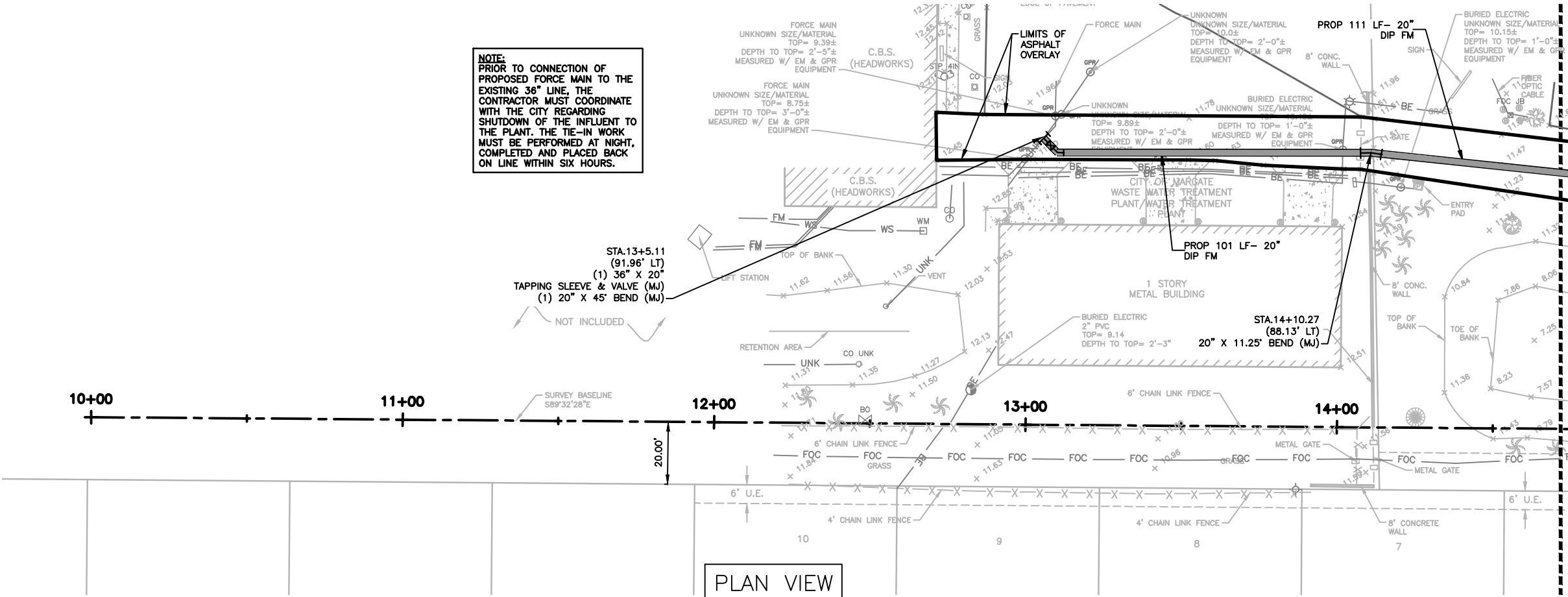
SHEET
G-04

NOTE:
PRIOR TO CONNECTION OF
PROPOSED FORCE MAIN TO THE
EXISTING 36" LINE, THE
CONTRACTOR MUST COORDINATE
WITH THE CITY REGARDING
SHUTDOWN OF THE INFLUENT TO
THE PLANT. THE TIE-IN WORK
MUST BE PERFORMED AT NIGHT,
COMPLETED AND PLACED BACK
ON LINE WITHIN SIX HOURS.

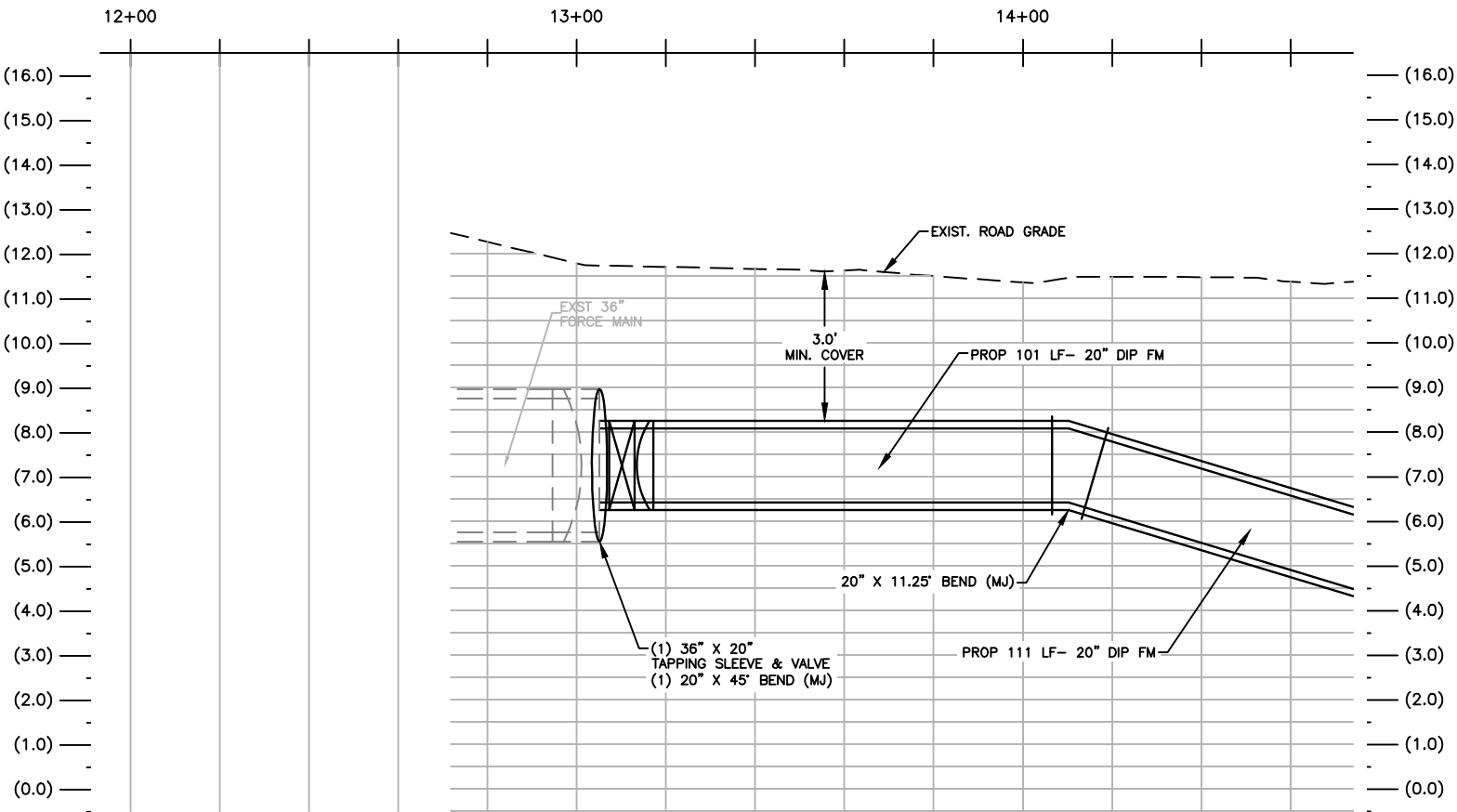


- NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR THE LIMITS OF TRENCH RESTORATION. (I.E. PAVEMENT, LIMEROCK & SUBBASE MATERIALS, CURBING, SIDEWALKS, AND SOD)
 2. PIPE TRENCH SAFETY REQUIREMENTS MUST BE ADHERED TO AS INDICATED IN DETAILS.
 3. CONTRACTOR RESPONSIBLE FOR WATER AND SEWER SERVICE CONNECTION ADJUSTMENTS, AS APPROPRIATE FOR ALL EXISTING SERVICE CONNECTIONS OVER THE ENTIRE PIPE ROUTE.

SEE SHEET C-02 FOR CONTINUATION



PLAN VIEW



PROFILE VIEW

1	11/18/13	REVISED PER CITY COMMENTS	MM	
NO.	DATE	REVISION	BY	

Date: 11/01/12
Designed: AC
Drawn: MM
Checked: PAK

APPROVED BY: PETER A. KUNEN, P.E.
DATE: _____
FLORIDA PROFESSIONAL ENGINEER NO. 60730

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7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
CERTIFICATE NO. LB0003110

PREPARED FOR:
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BROWARD COUNTY, FL

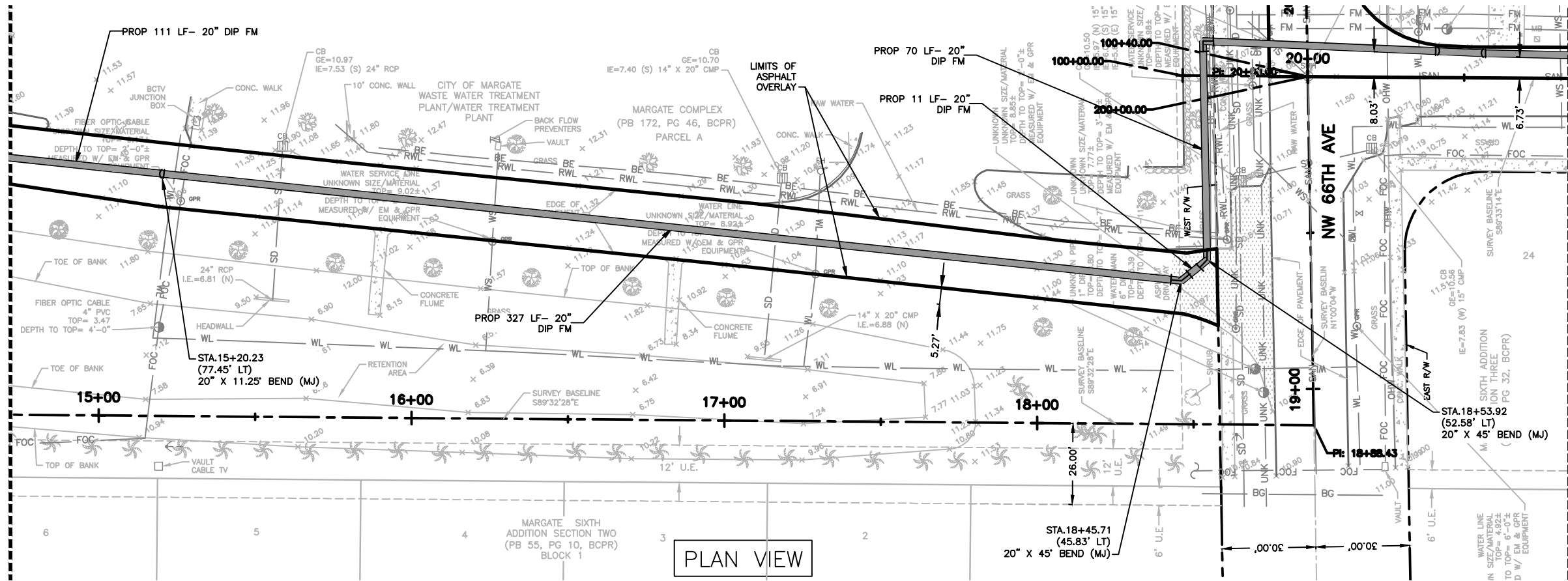
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INSTALLATION
PLAN AND PROFILE**

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CAS PROJECT NUMBER
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SHEET
C-01

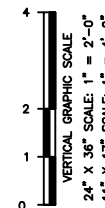
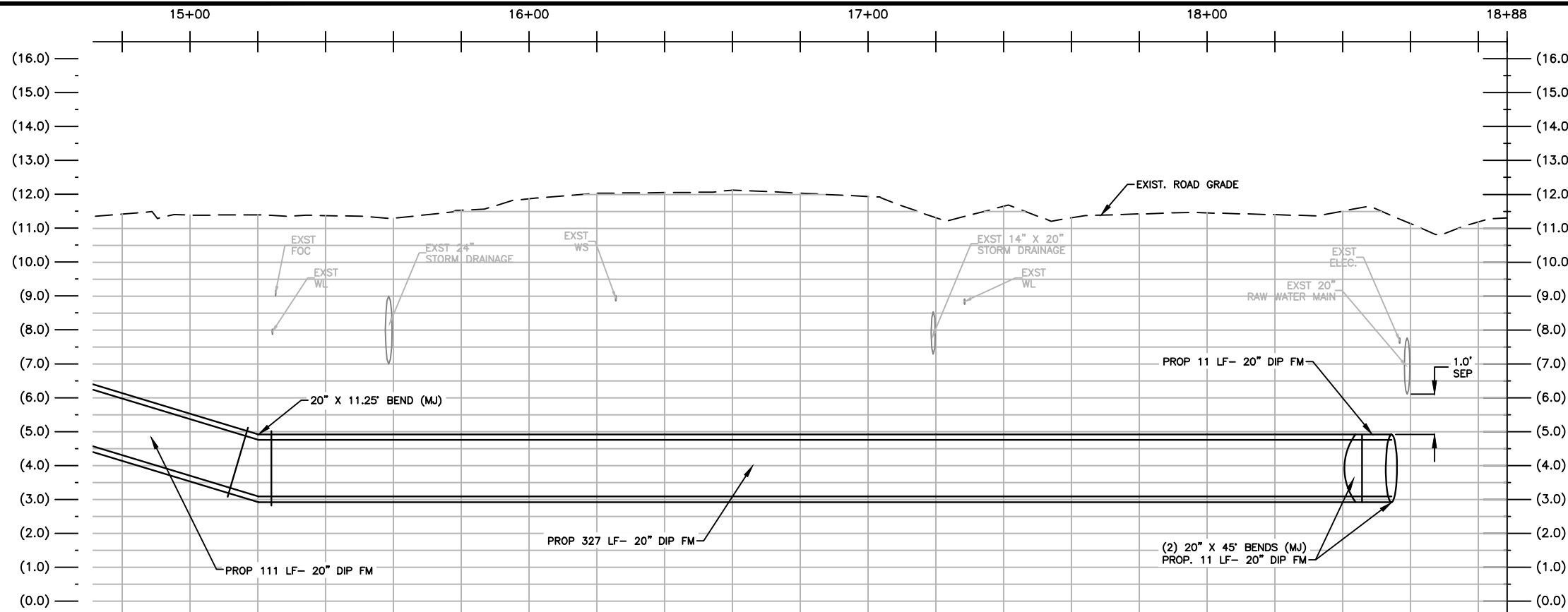
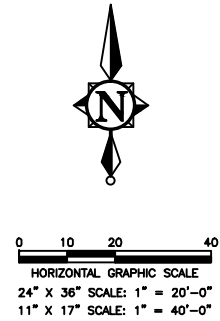
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SEE SHEET C-01 FOR CONTINUATION



SEE SHEET C-04 FOR CONTINUATION

- NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR THE LIMITS OF TRENCH RESTORATION. (I.E. PAVEMENT, LIMEROCK & SUBBASE MATERIALS, CURBING, SIDEWALKS, AND SOD)
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7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
CERTIFICATE NO. LB00031110

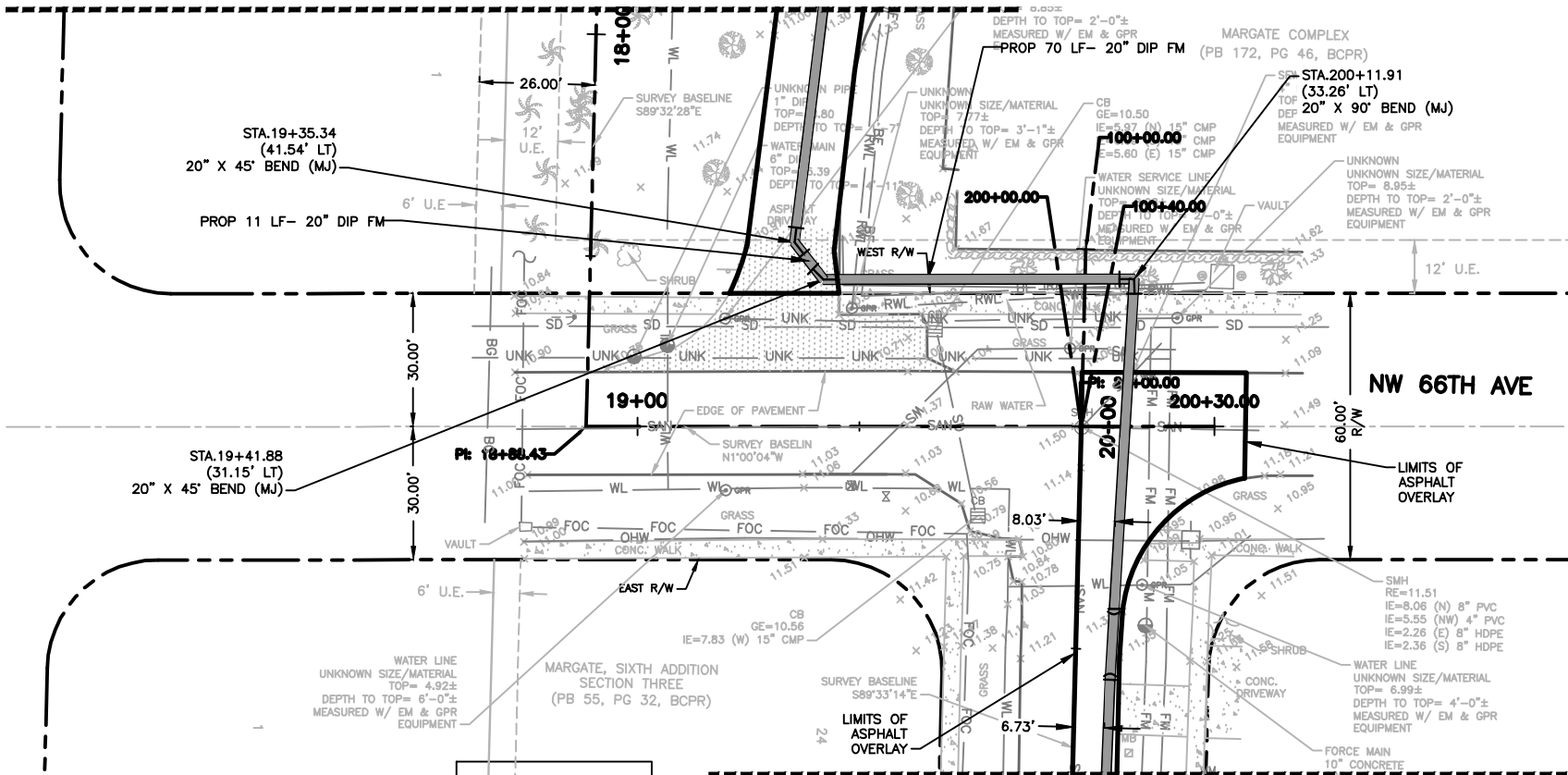
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LAST SAVED: 10/30/13 - 2:49pm
CAS PROJECT NUMBER
11-1610

SHEET
C-02

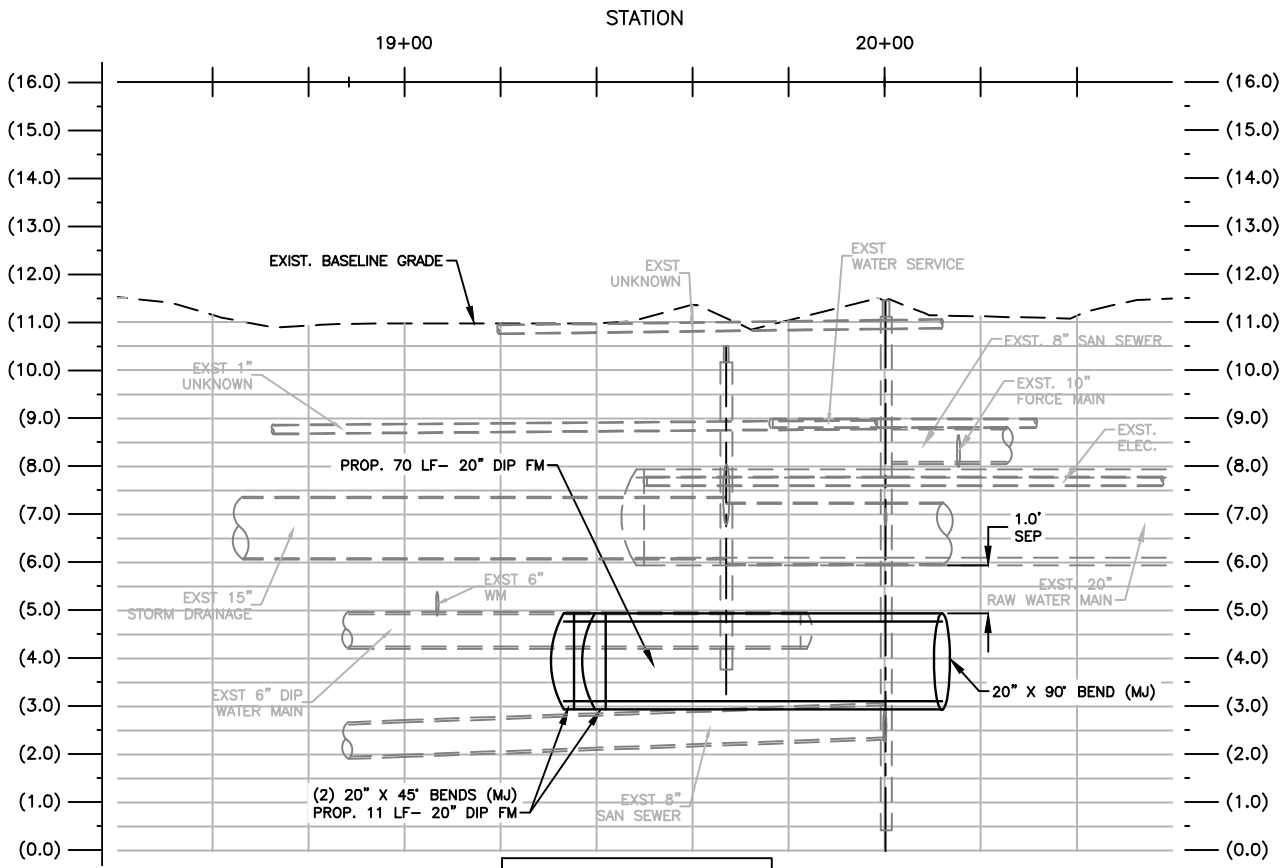
SEE SHEET C-02 FOR CONTINUATION



PLAN VIEW

SEE SHEET C-04 FOR CONTINUATION

- NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR THE LIMITS OF TRENCH RESTORATION. (I.E. PAVEMENT, LIMEROCK & SUBBASE MATERIALS, CURBING, SIDEWALKS, AND SOD)
 2. PIPE TRENCH SAFETY REQUIREMENTS MUST BE ADHERED TO AS INDICATED IN DETAILS.
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PROFILE VIEW

NO.	DATE	REVISION	BY
1	11/18/13	REVISED PER CITY COMMENTS	MM

Date: 11/01/12
Designed: AC
Drawn: MM
Checked: PAK

APPROVED BY: PETER A. KUNEN, P.E.
DATE: _____
FLORIDA PROFESSIONAL ENGINEER NO. 60730

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7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
CERTIFICATE NO. LB00031110

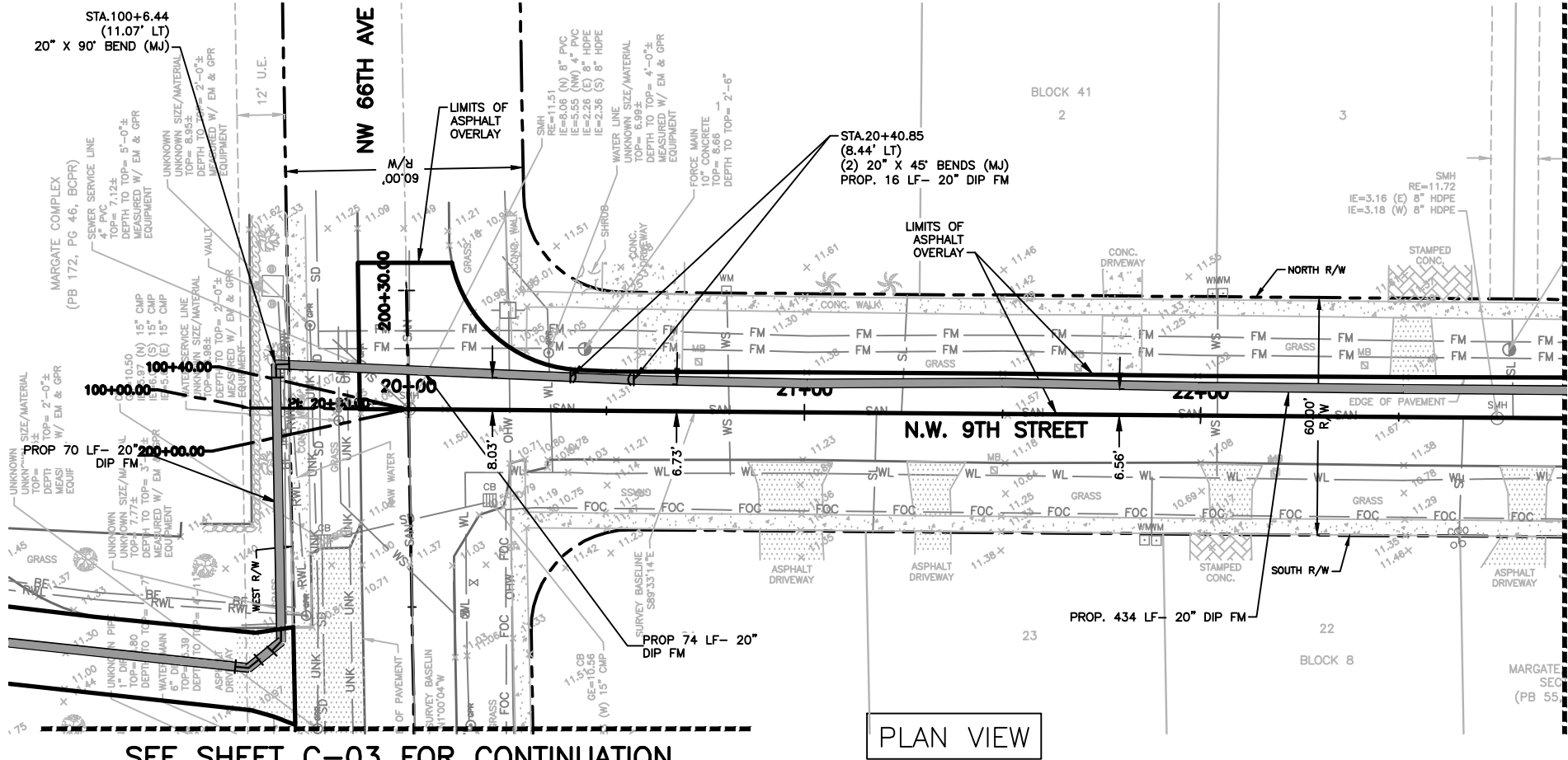
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PLAN AND PROFILE

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CAS PROJECT NUMBER
11-1610

SHEET
C-03

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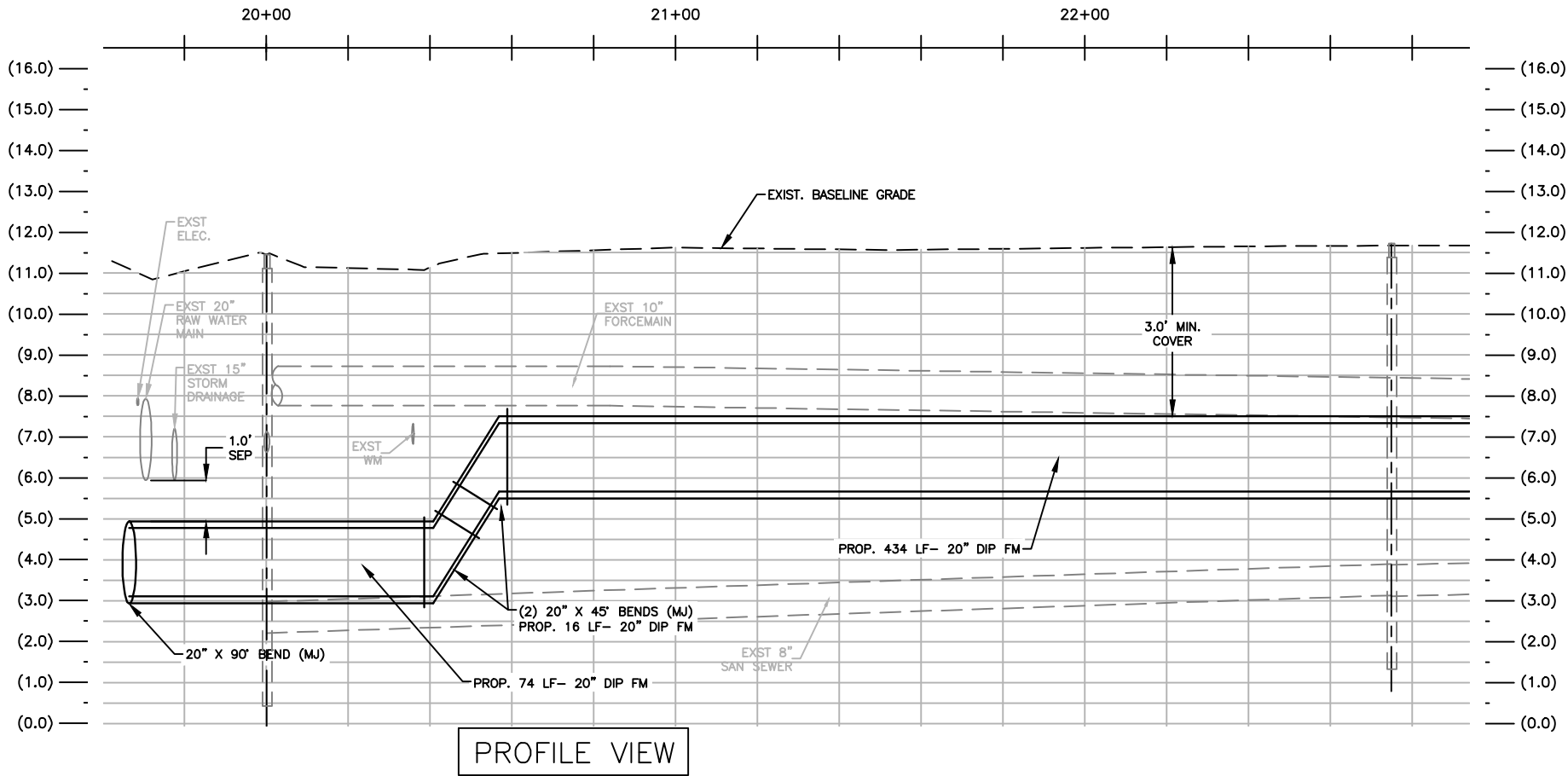
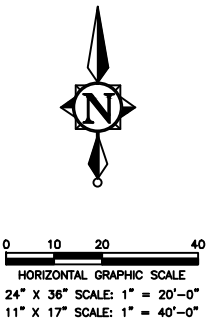


SEE SHEET C-03 FOR CONTINUATION

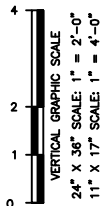
PLAN VIEW

SEE SHEET C-05 FOR CONTINUATION

- NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR THE LIMITS OF TRENCH RESTORATION. (I.E. PAVEMENT, LIMEROCK & SUBBASE MATERIALS, CURBING, SIDEWALKS, AND SOD)
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PROFILE VIEW



1	11/18/13	REVISED PER CITY COMMENTS	MM
NO.	DATE	REVISION	BY

Date: 11/01/12
Designed: AC
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DATE: _____
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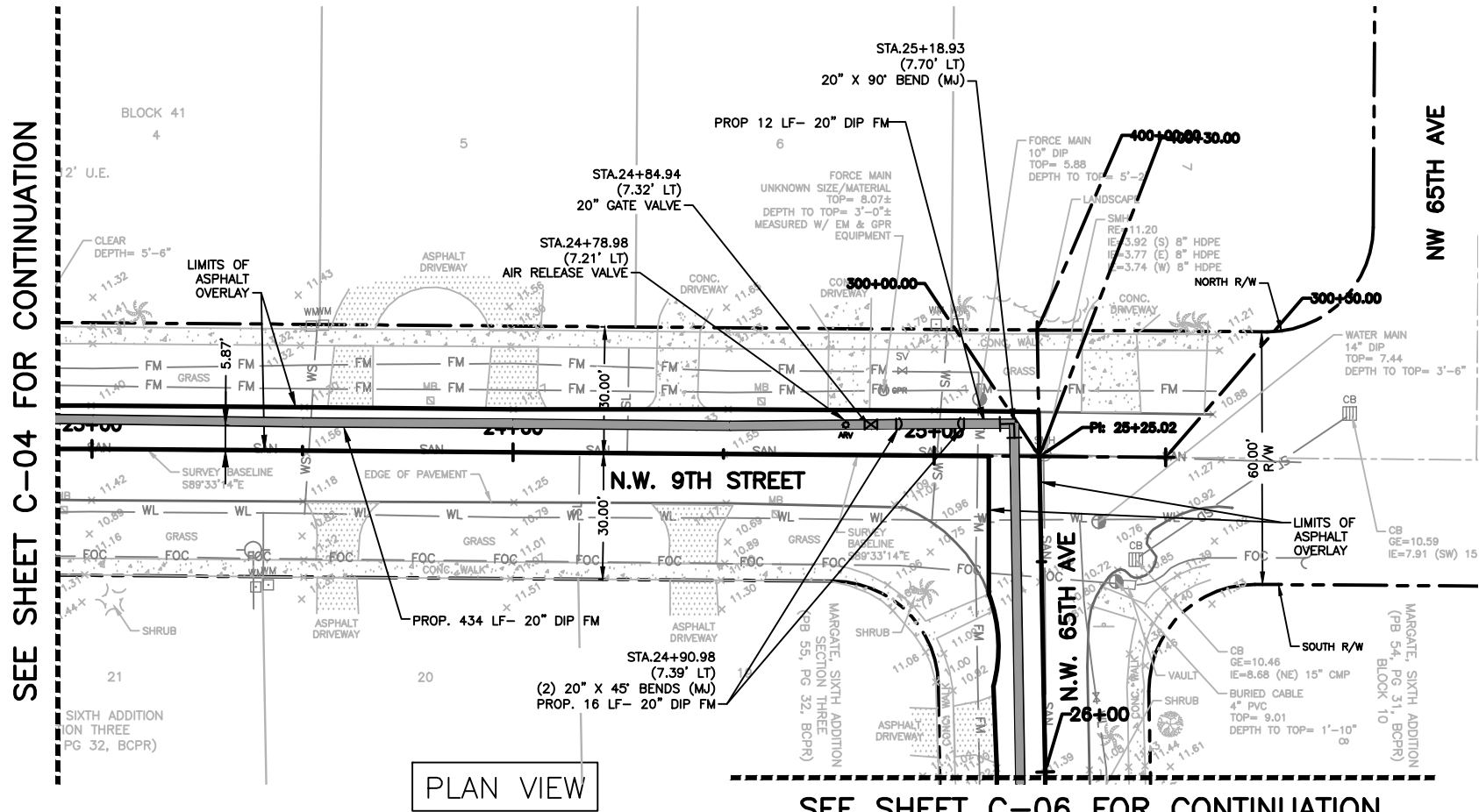
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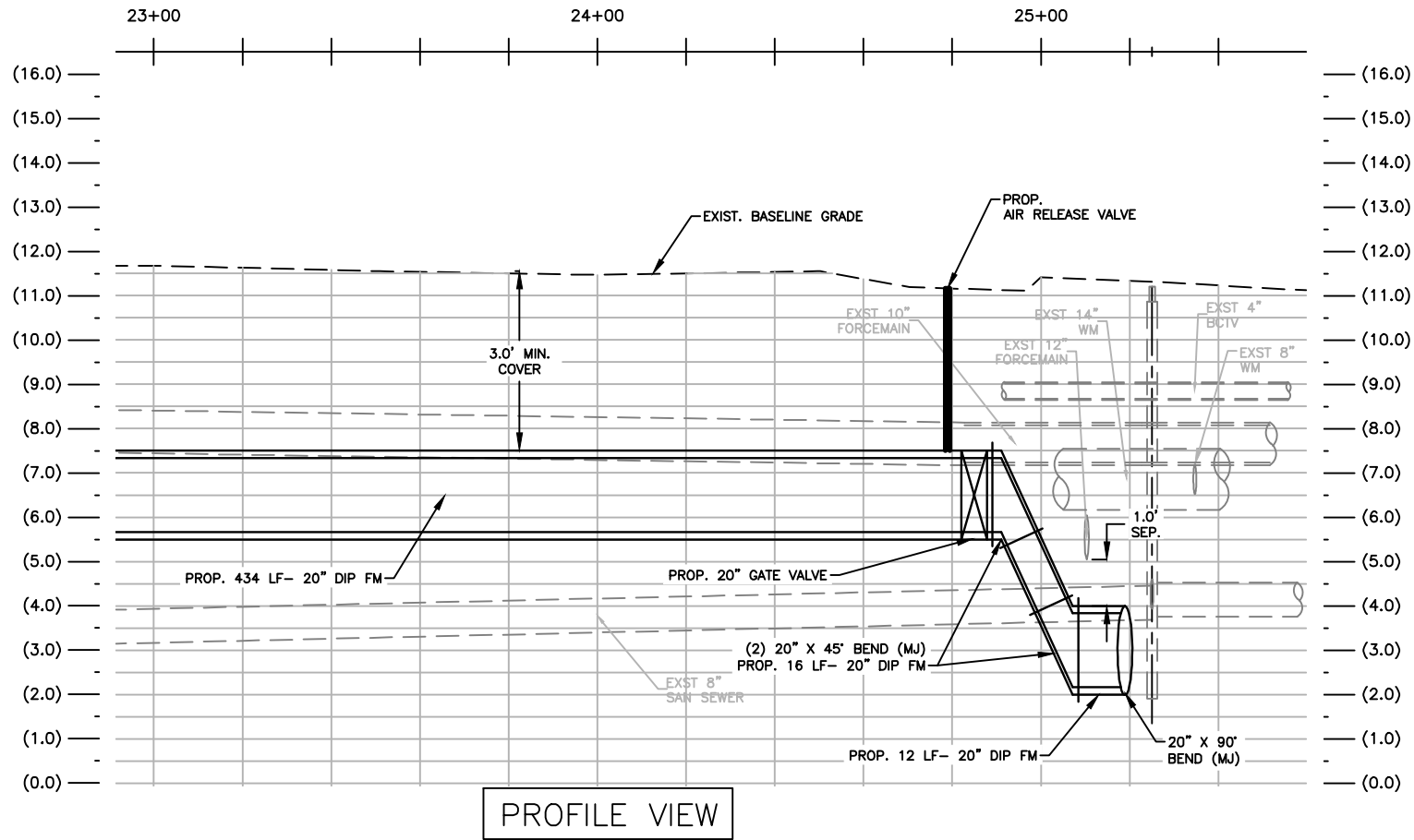
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CAS PROJECT NUMBER
11-1610

SHEET
C-04

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- NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR THE LIMITS OF TRENCH RESTORATION. (I.E. PAVEMENT, LIMEROCK & SUBBASE MATERIALS, CURBING, SIDEWALKS, AND SOD)
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FLORIDA PROFESSIONAL ENGINEER NO. 60730

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7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
CERTIFICATE NO. LB0003110

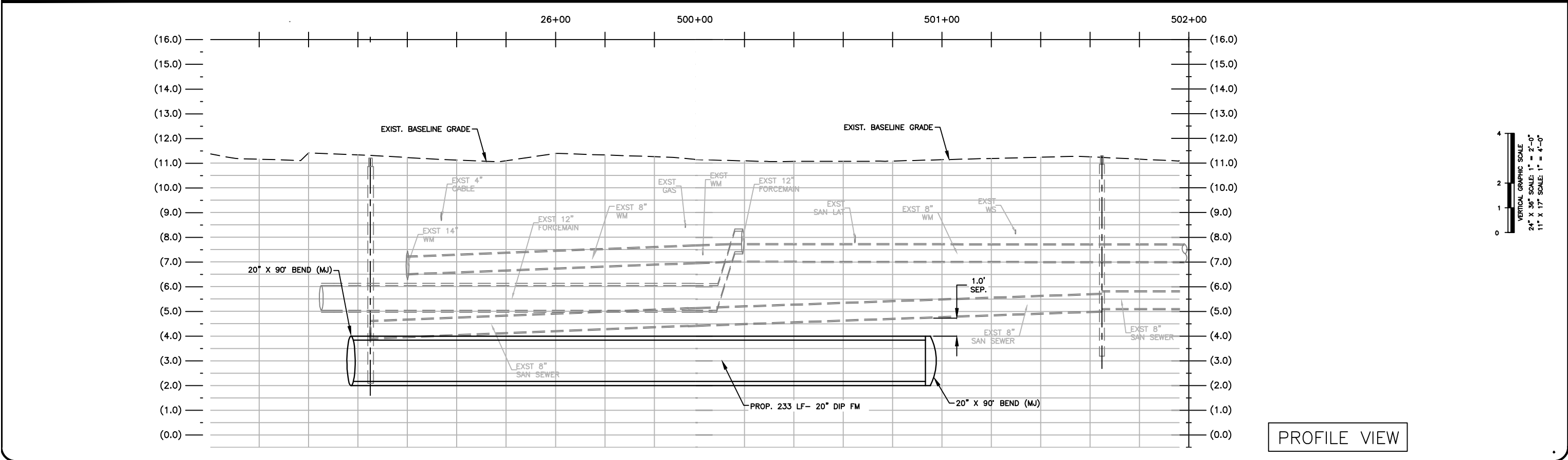
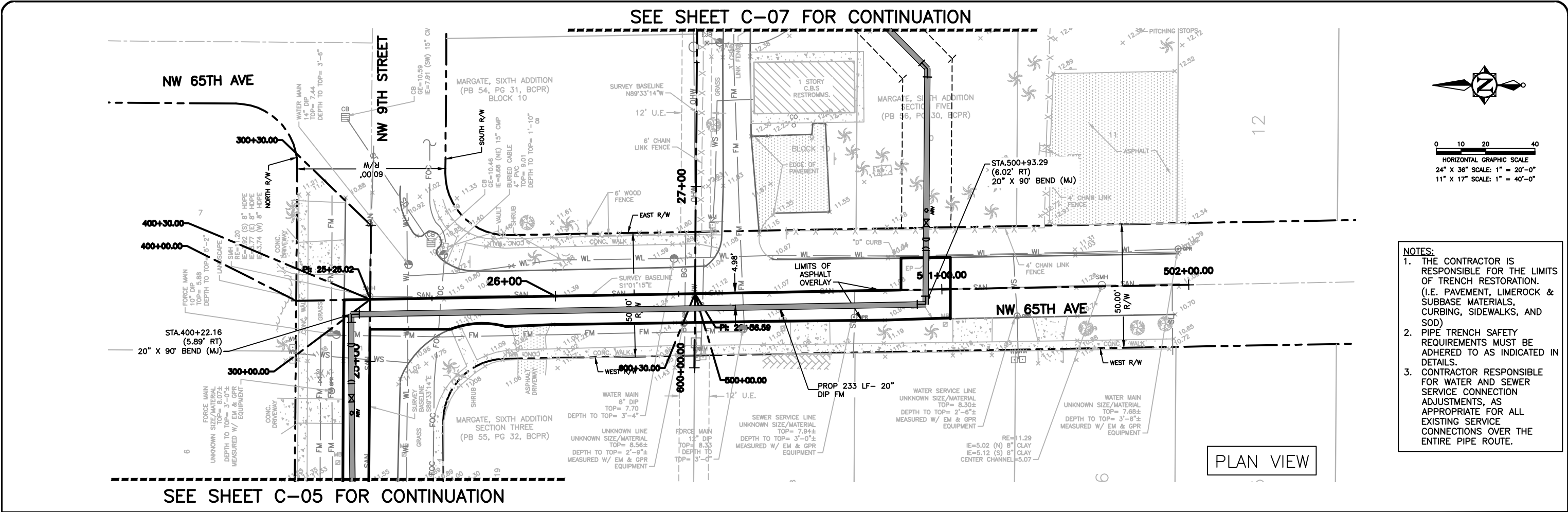
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CITY OF
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BROWARD COUNTY, FL

SANITARY FORCE MAIN
INSTALLATION
PLAN AND PROFILE

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11-1610

SHEET
C-05

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NO.	DATE	REVISION	BY
1	11/18/13	REVISED PER CITY COMMENTS	MM

Date: 11/01/12
Designed: AC
Drawn: MM
Checked: PAK

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BOCA RATON, FLORIDA 33434
(561) 314-4445
CERTIFICATE NO. LB00031110

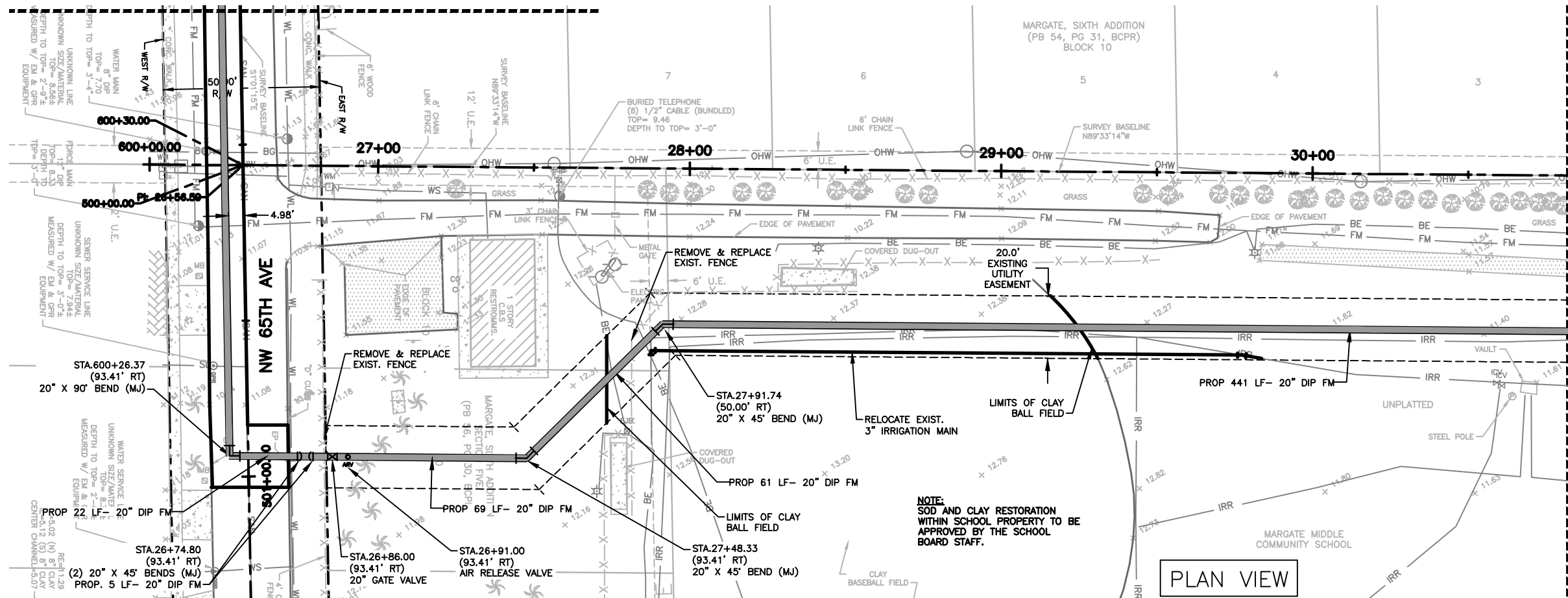
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BROWARD COUNTY, FL

SANITARY FORCE MAIN
INSTALLATION
PLAN AND PROFILE

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SHEET
C-06

SEE SHEET C-06 FOR CONTINUATION



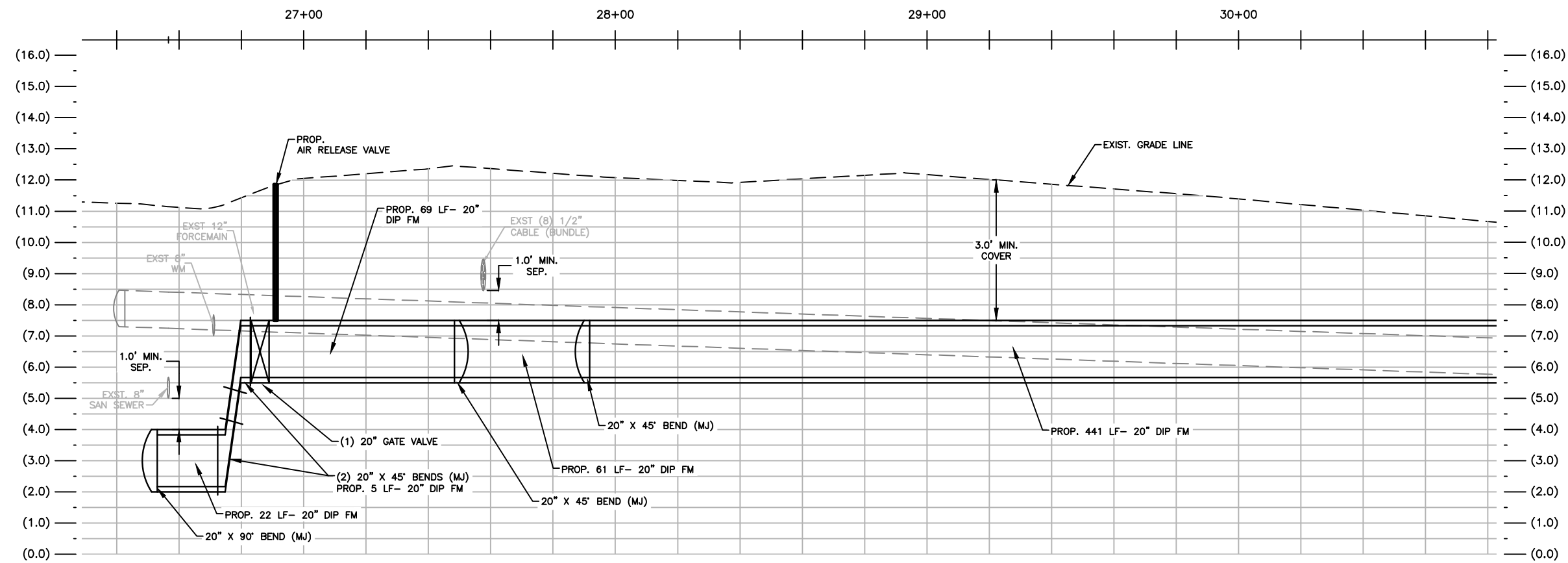
SEE SHEET C-08 FOR CONTINUATION

- NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR THE LIMITS OF TRENCH RESTORATION. (I.E. PAVEMENT, LIMEROCK & SUBBASE MATERIALS, CURBING, SIDEWALKS, AND SOD)
 2. PIPE TRENCH SAFETY REQUIREMENTS MUST BE ADHERED TO AS INDICATED IN DETAILS.
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NOTE:
SOD AND CLAY RESTORATION
WITHIN SCHOOL PROPERTY TO BE
APPROVED BY THE SCHOOL
BOARD STAFF.

PLAN VIEW

PROFILE VIEW



VERTICAL GRAPHIC SCALE
24" X 36" SCALE: 1" = 2'-0"
11" X 17" SCALE: 1" = 4'-0"

NO.	DATE	REVISION	BY
1	11/18/13	REVISED PER CITY COMMENTS	MM

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Drawn: MM
Checked: PAK

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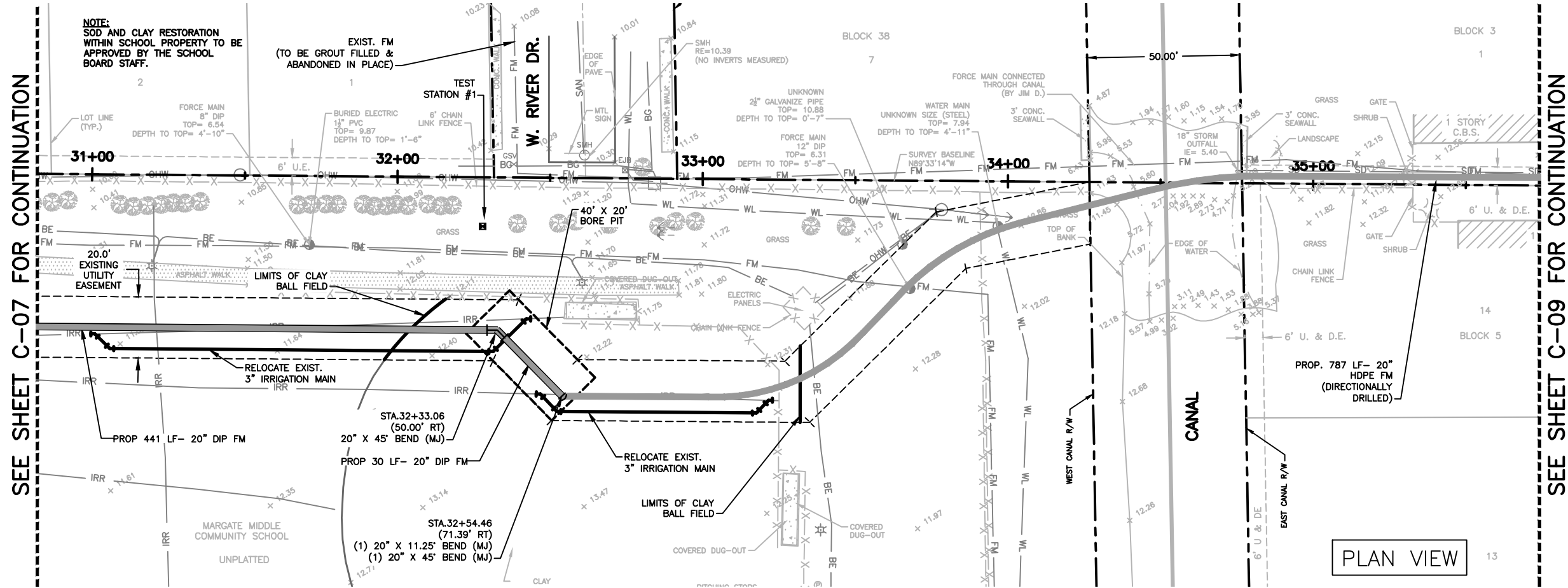
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CITY OF
MARGATE
BROWARD COUNTY, FL

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INSTALLATION
PLAN AND PROFILE

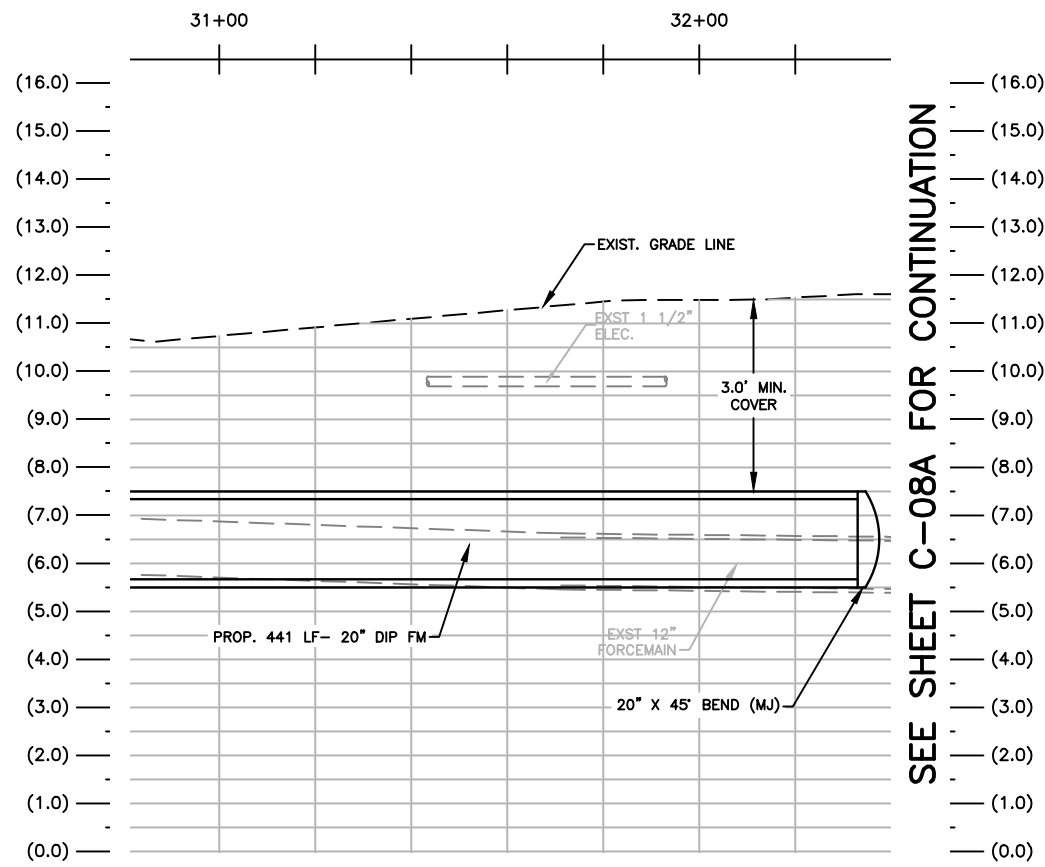
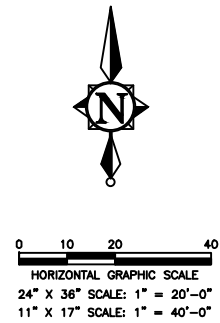
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11-1610

SHEET
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- NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR THE LIMITS OF TRENCH RESTORATION. (I.E. PAVEMENT, LIMEROCK & SUBBASE MATERIALS, CURBING, SIDEWALKS, AND SOD)
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1	11/18/13	REVISED PER CITY COMMENTS	MM	
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Date: 11/01/12
Designed: AC
Drawn: MM
Checked: PAK

APPROVED BY: PETER A. KUNEN, P.E.
DATE
FLORIDA PROFESSIONAL ENGINEER NO. 60730

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BOCA RATON, FLORIDA 33434
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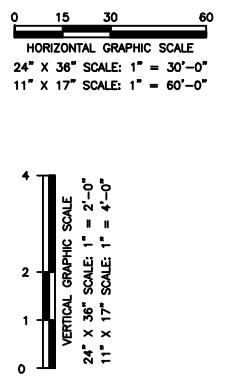
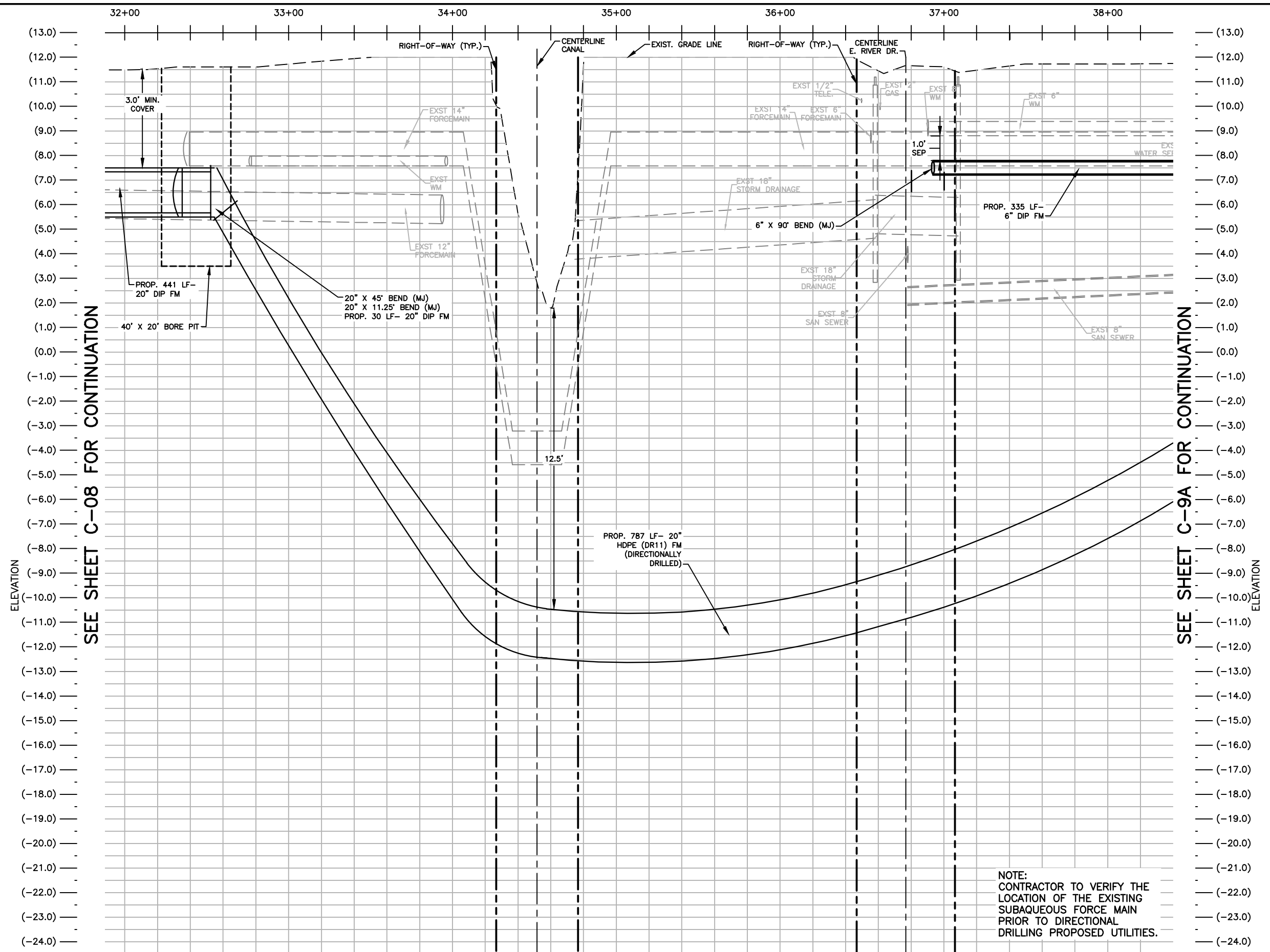
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MARGATE
BROWARD COUNTY, FL

SANITARY FORCE MAIN
INSTALLATION
PLAN AND PROFILE

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SHEET
C-08

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PROFILE VIEW

NO.	DATE	REVISION	COMMENTS	MM	BY
1	11/18/13	REVISED PER CITY	COMMENTS	MM	

Date: 11/01/12
Designed: AC
Drawn: MM
Checked: PAK

APPROVED BY: PETER A. KUNEN, P.E.
DATE: _____
FLORIDA PROFESSIONAL ENGINEER NO. 60730

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(561) 314-4445
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INSTALLATION
PROFILE VIEW**

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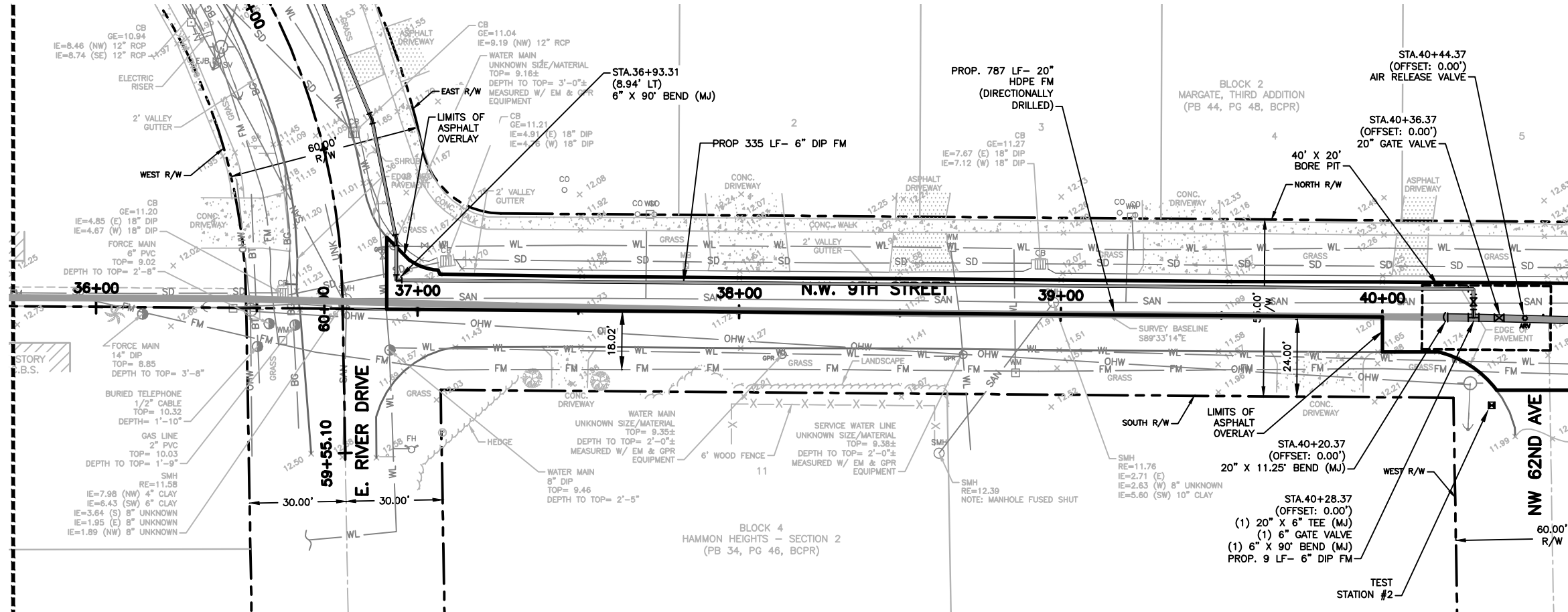
SHEET
C-8A



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HORIZONTAL GRAPHIC SCALE
24" X 36" SCALE: 1" = 20'-0"
11" X 17" SCALE: 1" = 40'-0"

SEE SHEET C-9B FOR CONTINUATION

SEE SHEET C-08 FOR CONTINUATION



SEE SHEET C-10 FOR CONTINUATION

- NOTES:
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PLAN VIEW

NOTE: SEE SHEET C-9A FOR PROFILE

1	11/18/13	REVISED PER CITY COMMENTS	MM
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DATE: _____
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MARGATE
BROWARD COUNTY, FL

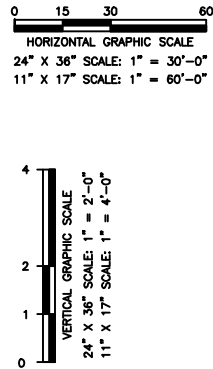
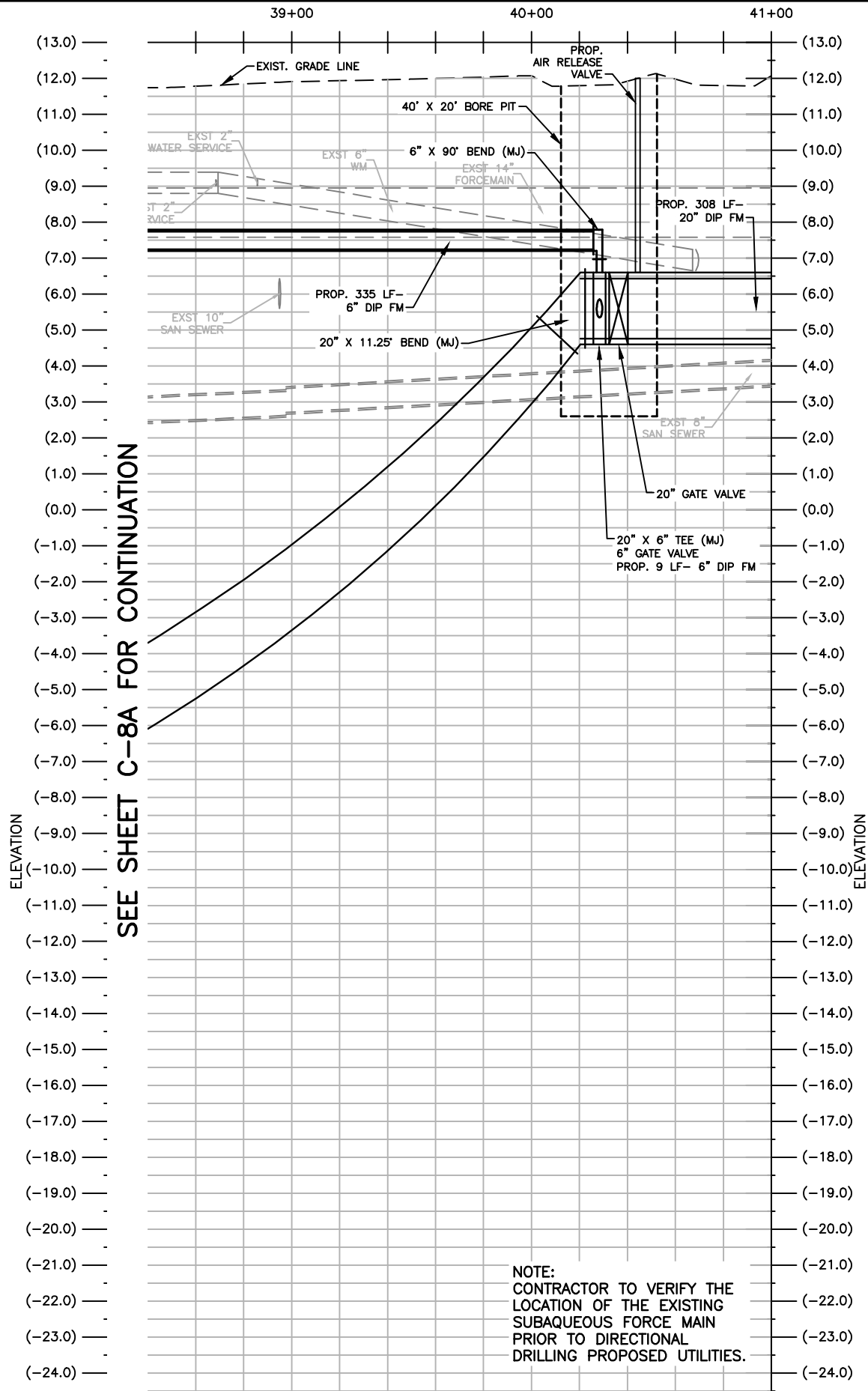
SANITARY FORCE MAIN
INSTALLATION
PLAN VIEW

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LAST SAVED: 10/31/13 - 6:15am
CAS PROJECT NUMBER
11-1610

SHEET
C-09

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PROFILE VIEW




1	11/18/13	REVISED PER CITY COMMENTS	MM	
NO.	DATE	REVISION	BY	

Date:	11/01/12
Designed:	AC
Drawn:	MM
Checked:	PAK

APPROVED BY:	PETER A. KUNEN, P.E.
DATE	
FLORIDA PROFESSIONAL ENGINEER NO.	60730

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

7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
CERTIFICATE NO. LB0003110



PREPARED FOR:

CITY OF
MARGATE
BROWARD COUNTY, FL

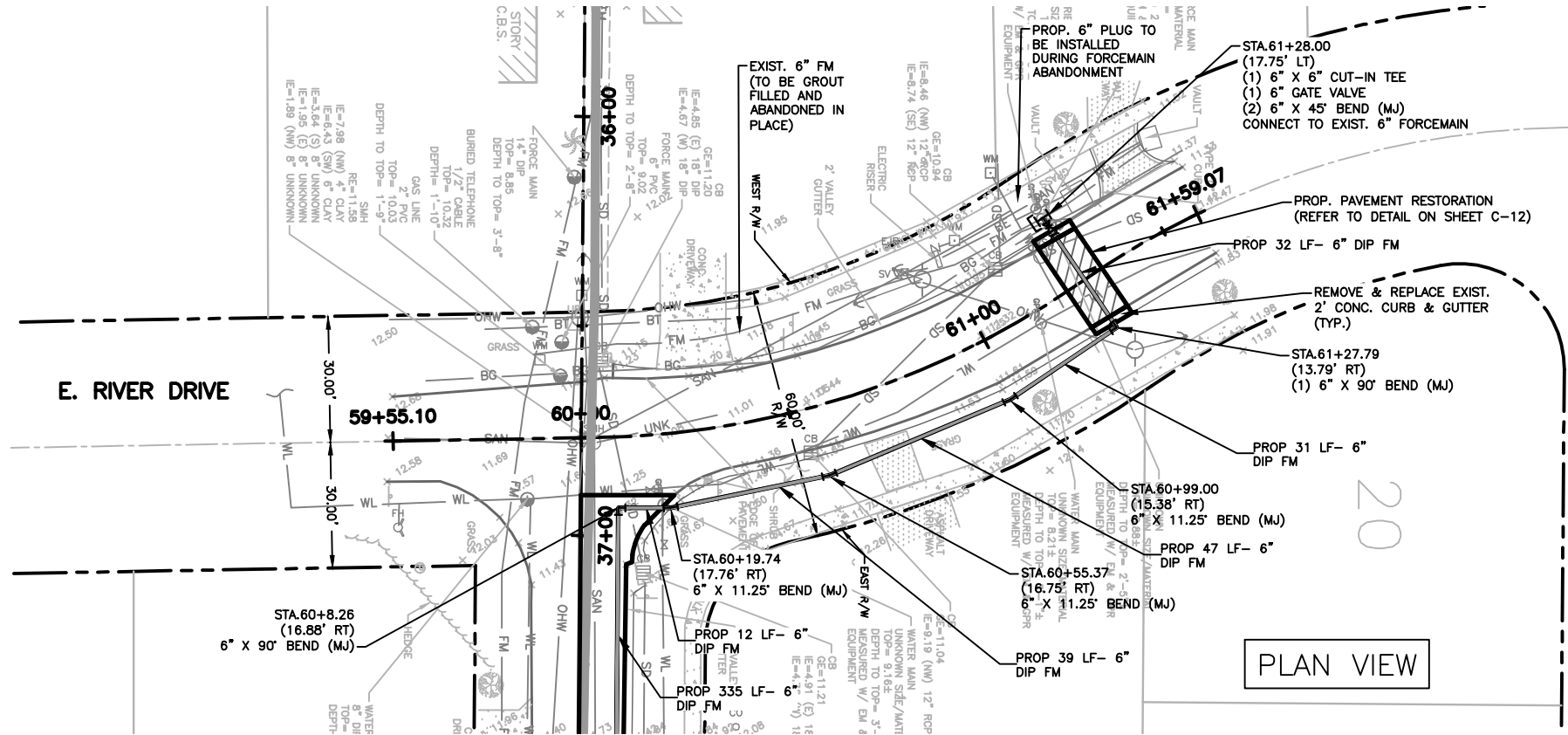
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INSTALLATION
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CAS PROJECT NUMBER
11-1610

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C-9A

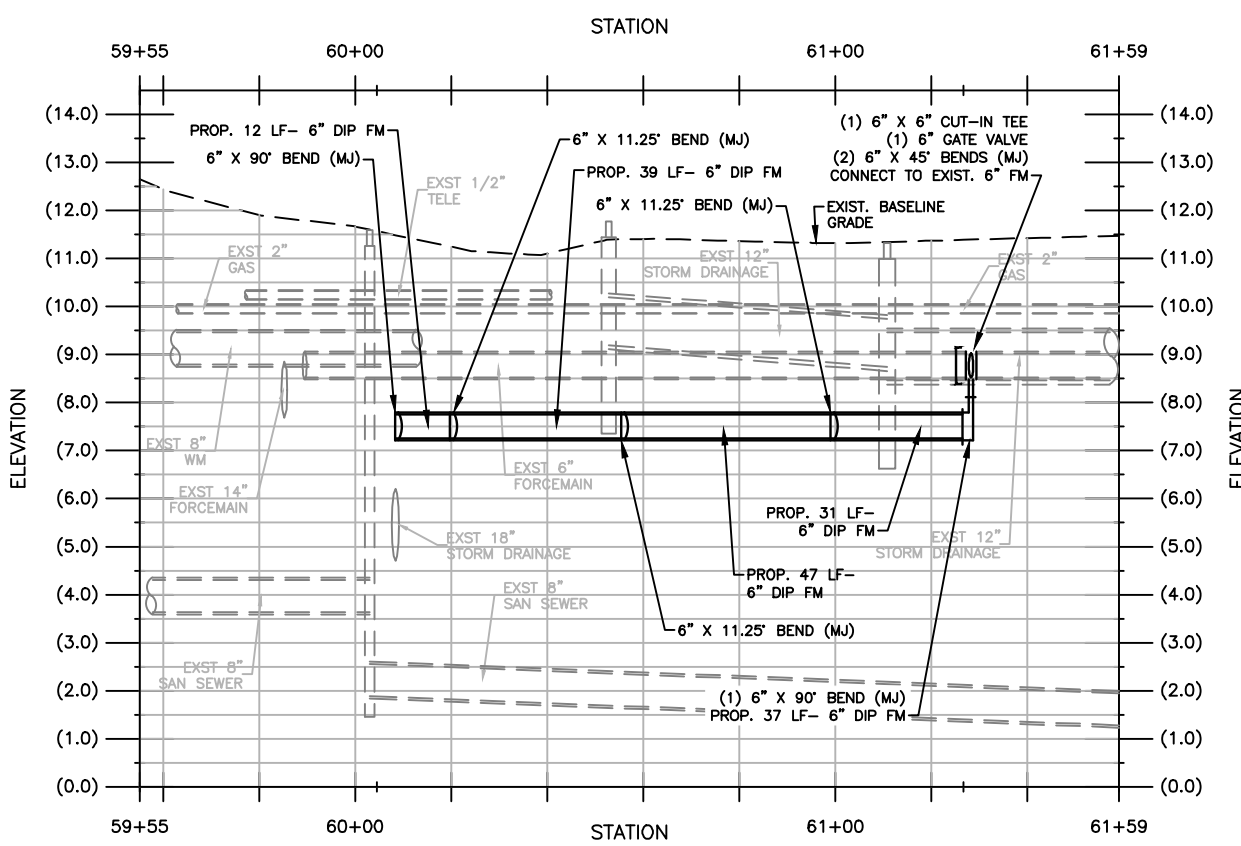
SEE SHEET C-08 FOR CONTINUATION



HORIZONTAL GRAPHIC SCALE
24" X 36" SCALE: 1" = 20'-0"
11" X 17" SCALE: 1" = 40'-0"

- NOTES:**
1. THE CONTRACTOR IS RESPONSIBLE FOR THE LIMITS OF TRENCH RESTORATION. (I.E. PAVEMENT, LIMEROCK & SUBBASE MATERIALS, CURBING, SIDEWALKS, AND SOD)
 2. PIPE TRENCH SAFETY REQUIREMENTS MUST BE ADHERED TO AS INDICATED IN DETAILS.
 3. CONTRACTOR RESPONSIBLE FOR WATER AND SEWER SERVICE CONNECTION ADJUSTMENTS, AS APPROPRIATE FOR ALL EXISTING SERVICE CONNECTIONS OVER THE ENTIRE PIPE ROUTE.

SEE SHEET C-09 FOR CONTINUATION



VERTICAL GRAPHIC SCALE
24" X 36" SCALE: 1" = 2'-0"
11" X 17" SCALE: 1" = 4'-0"

NO.	DATE	REVISION	BY
1	11/18/13	REVISED PER CITY COMMENTS	MM

Date: 11/01/12
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Drawn: MM
Checked: PAK

APPROVED BY: PETER A. KUNEN, P.E.
DATE: _____
FLORIDA PROFESSIONAL ENGINEER NO. 60730

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CONSULTING ENGINEERS-PLANNERS-SURVEYORS
7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
CERTIFICATE NO. LB0003110

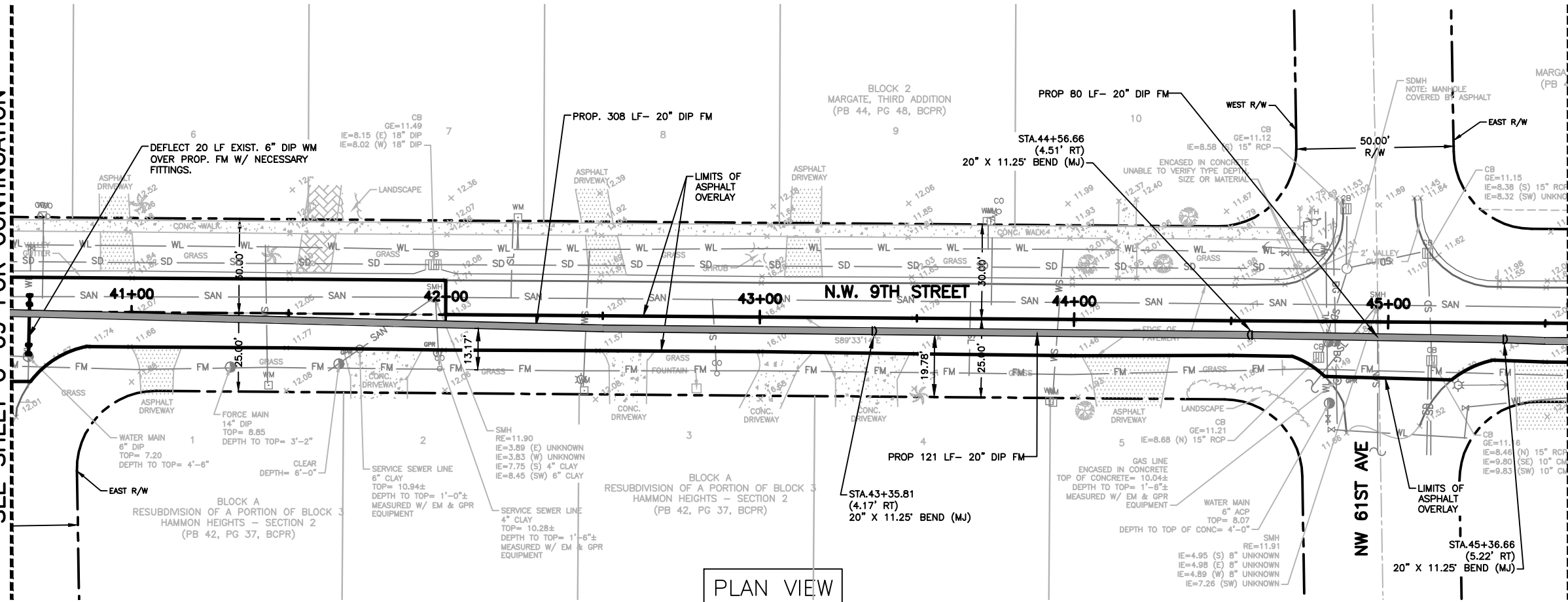
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**SANITARY FORCE MAIN
INSTALLATION
PLAN AND PROFILE**

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LAST SAVED: 11/20/13 - 10:45am
CAS PROJECT NUMBER
11-1610

SHEET
C-9B

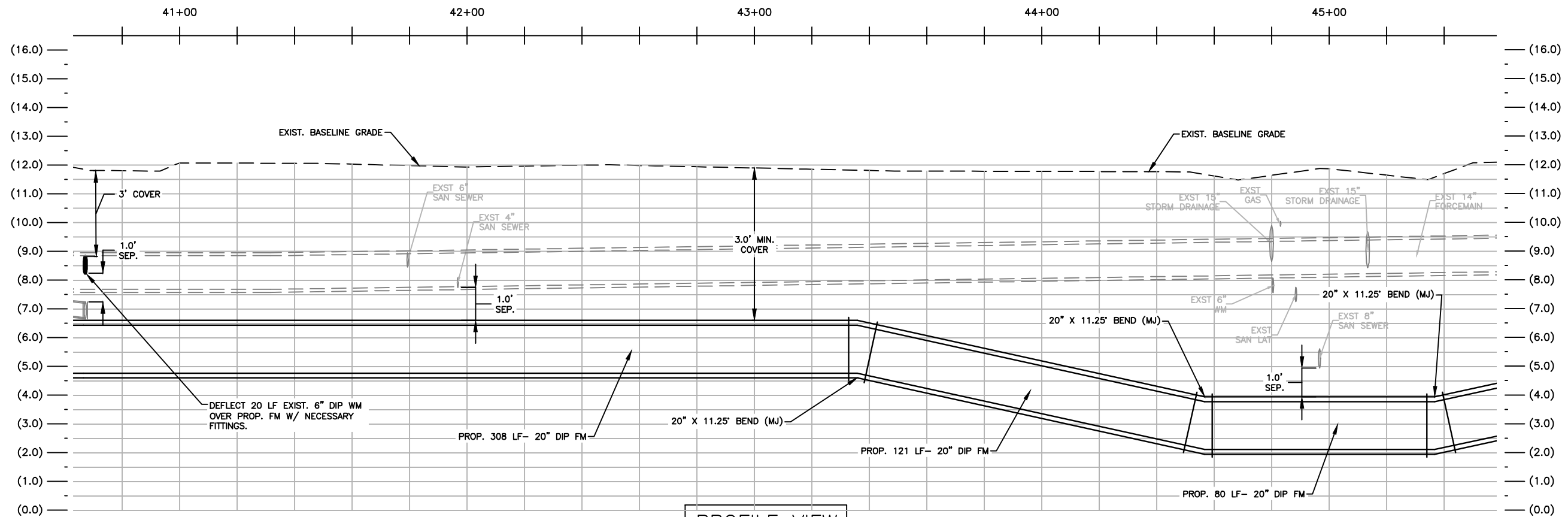
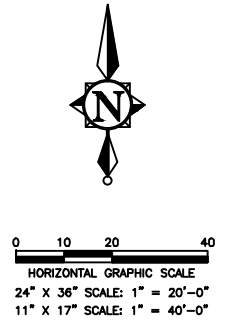
SEE SHEET C-09 FOR CONTINUATION



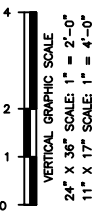
PLAN VIEW

SEE SHEET C-11 FOR CONTINUATION

- NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR THE LIMITS OF TRENCH RESTORATION. (I.E. PAVEMENT, LIMEROCK & SUBBASE MATERIALS, CURBING, SIDEWALKS, AND SOD)
 2. PIPE TRENCH SAFETY REQUIREMENTS MUST BE ADHERED TO AS INDICATED IN DETAILS.
 3. CONTRACTOR RESPONSIBLE FOR WATER AND SEWER SERVICE CONNECTION ADJUSTMENTS, AS APPROPRIATE FOR ALL EXISTING SERVICE CONNECTIONS OVER THE ENTIRE PIPE ROUTE.



PROFILE VIEW



1	11/18/13	REVISED PER CITY COMMENTS	MM
NO.	DATE	REVISION	BY

Date: 11/01/12
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7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
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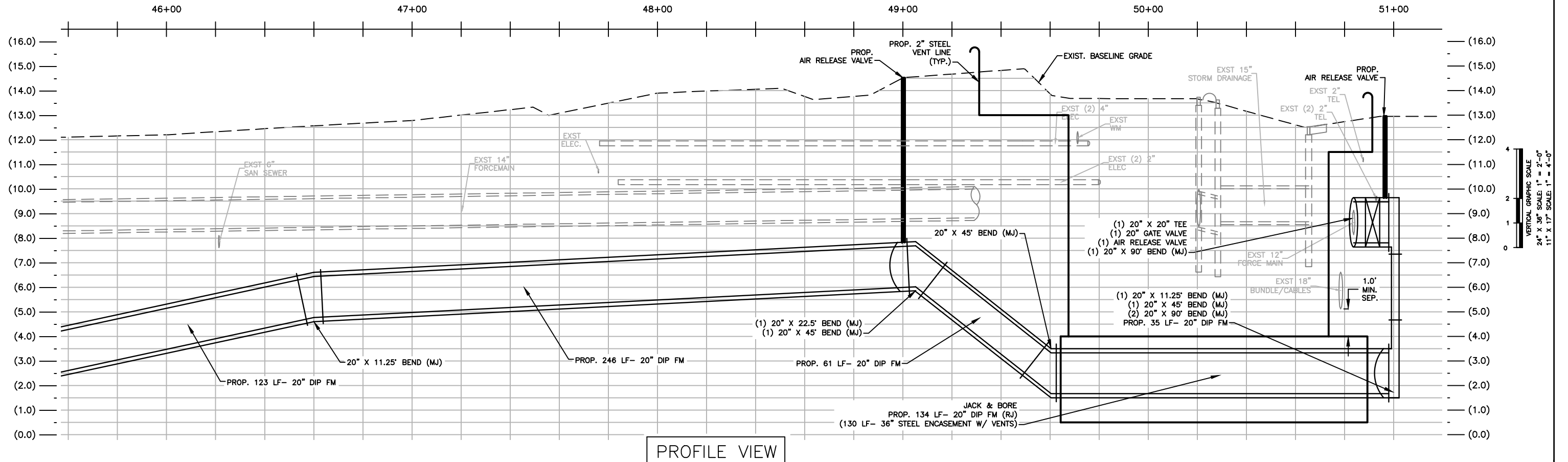
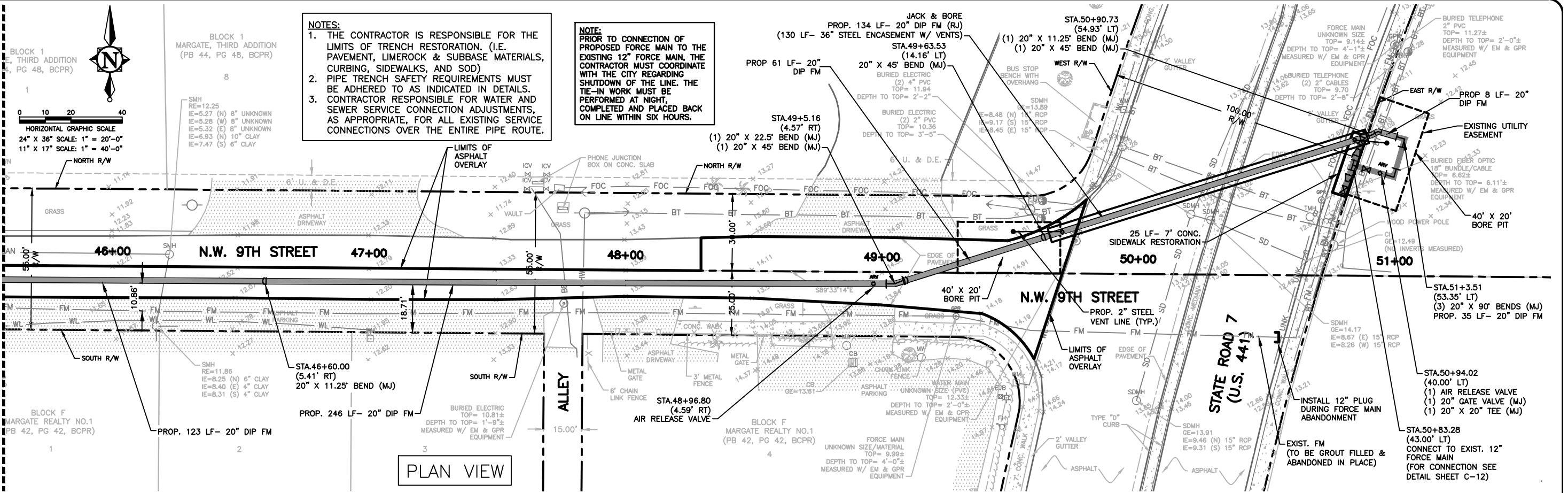
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SANITARY FORCE MAIN
INSTALLATION
PLAN AND PROFILE

FILE NAME: 16-1610-C-10-PAP.dwg
LAST SAVED: 11/01/13 - 2:19pm
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11-1610

SHEET
C-10

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1	11/18/13	REVISED PER CITY COMMENTS	MM
NO.	DATE	REVISION	BY


Date: 11/01/12
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APPROVED BY: PETER A. KUNEN, P.E.

DATE _____

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

 7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
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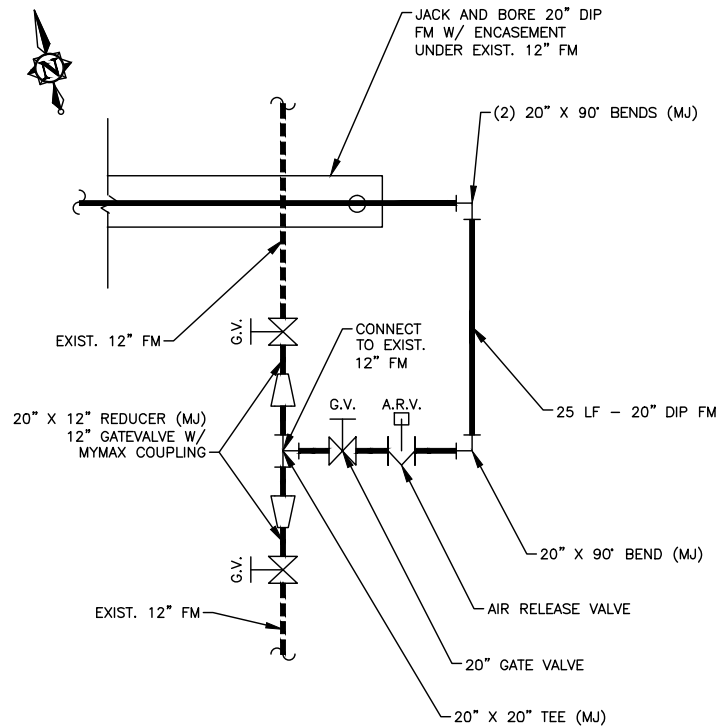
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SANITARY FORCE MAIN
INSTALLATION
PLAN AND PROFILE

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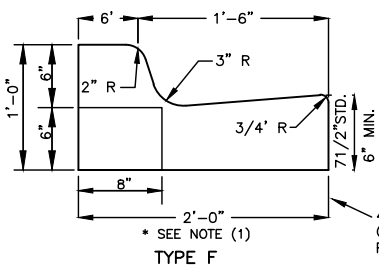
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11-1610

SHEET
- 11



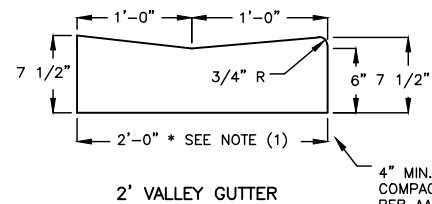
STATE ROAD 7
FORCE MAIN CONNECTION DETAIL

SCALE: N.T.S.

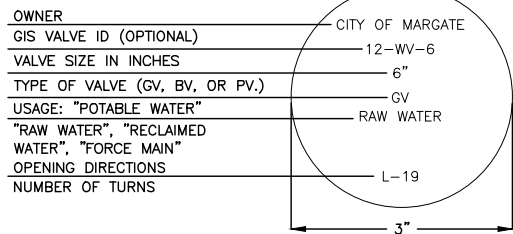


* NOTE (1):
WHEN USED ON HIGH OF ROADWAYS,
THE CROSS SLOPE OF THE GUTTER
SHALL MATCH THE CROSS SLOPE OF
THE ADJACENT PAVEMENT AND THE
THICKNESS OF THE LIP SHALL BE
6", UNLESS OTHERWISE SHOWN ON
PLANS.

4" MIN. LIMEROCK CURB PAD
COMPACTED TO 98% MAX. DENSITY
PER AASHTO T-180, LBR 100

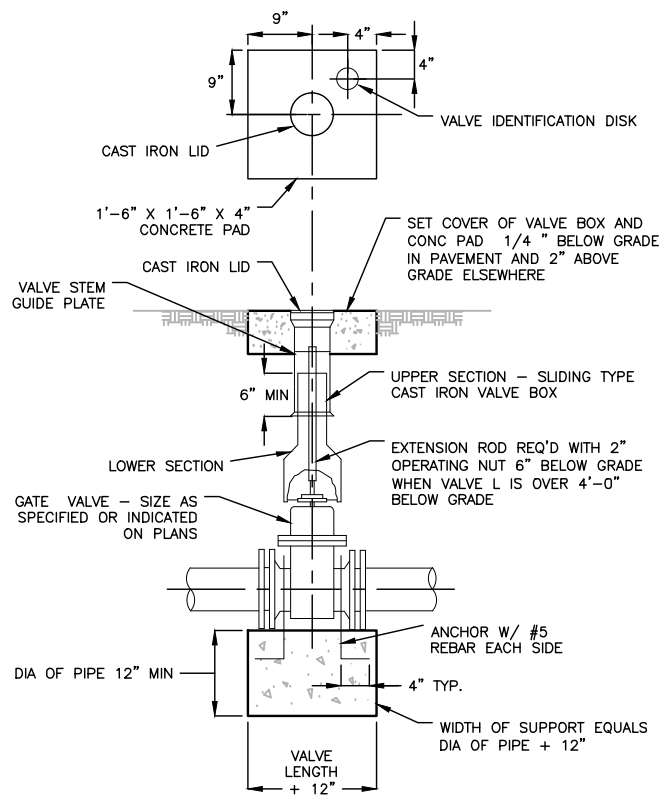


CURB AND GUTTER DETAILS



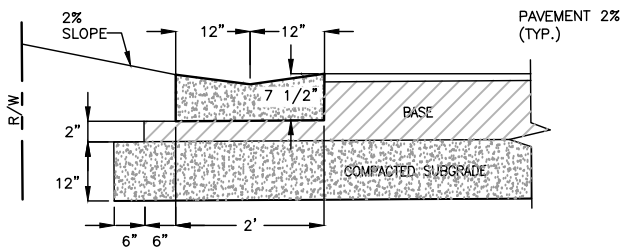
VALVE IDENTIFICATION MARKERS (TAG)

SCALE: N.T.S.



GATE VALVE BOX SETTING

SCALE: N.T.S.



2' VALLEY GUTTER

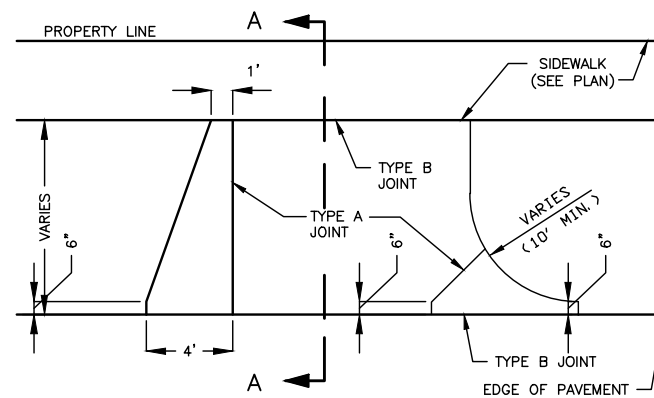
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LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314			
JOINT SHOWING AT CROSSINGS (FULL JOINT CENTERED)	CROSSINGS (1)	HORIZONTAL SEPARATION	OTHER PIPE
Alternate: 3 ft. minimum	Water Main 12 inches is the minimum, 6 inches is the minimum and 12 inches is preferred.	Water Main 3 ft. minimum	STORM SEWER, SANITARY SEWER, RECLAIMED WATER (2)
Alternate: 3 ft. minimum	Water Main 12 inches preferred 6 inches minimum	Water Main 10 ft. preferred 3 ft. minimum	VACUUM SANITARY SEWER
Alternate: 6 ft. minimum	Water Main 12 inches is the minimum, except for storm sewers, then 6 inches is the minimum and 12 inches is preferred.	Water Main 10 ft. preferred 6 ft. minimum (3)	GRAVITY OR PRESSURE, SANITARY SEWER, FORCE MAIN, RECLAIMED WATER (4)
			ON-SITE SEWAGE TREATMENT & DISPOSAL SYSTEM

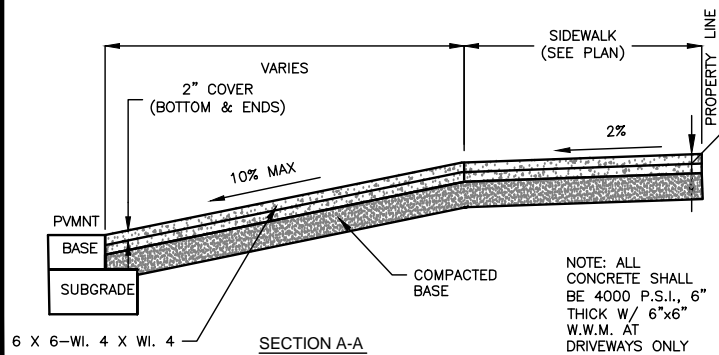
NOTES:
1. MINIMUM SEPARATION OF JOINTS OTHER PIPE, WHEN WATER MAIN, WATER OR BELOW OTHER PIPE, THE MINIMUM SEPARATION IS 12 INCHES.
2. RECLAIMED WATER RECLAIMED UNDER PART II OF CHAPTER 62-500, F.A.C.
3. 3 FT. GRAVITY SANITARY SEWER WHERE THE BOTTOM OF THE WATER MAIN IS LAY AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.
4. RECLAIMED WATER NOT RECLAIMED UNDER PART III OF CHAPTER 62-500, F.A.C.

PIPE SEPARATION DETAIL

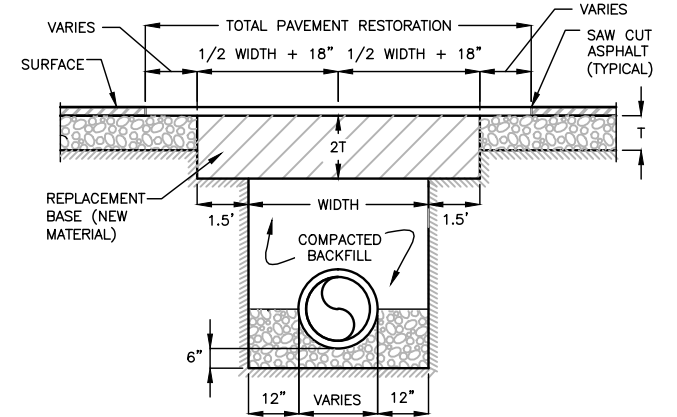
SCALE: N.T.S.



TYPICAL CONCRETE DRIVEWAY
FLARE TYPE "T" (OR) FLARE TYPE "R"



CONCRETE DRIVEWAY DETAIL

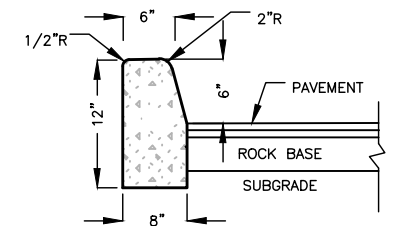


GENERAL NOTES:

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.

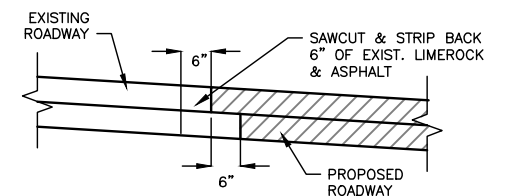
PAVEMENT RESTORATION DETAIL

SCALE: N.T.S.



MODIFIED TYPE "D" CURB

N.T.S.



ASPHALT TIE-IN DETAIL

SCALE: N.T.S.

NO.	DATE	REVISION	BY
1	11/18/13	REVISED PER CITY COMMENTS	MM

Date: 11/01/12
Designed: AC
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APPROVED BY: PETER A. KUNEN, P.E.
DATE
FLORIDA PROFESSIONAL ENGINEER NO. 60730

CRAIG A. SMITH & ASSOCIATES
CONSULTING ENGINEERS-PLANNERS-SURVEYORS
7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
CERTIFICATE NO. LBR00031110

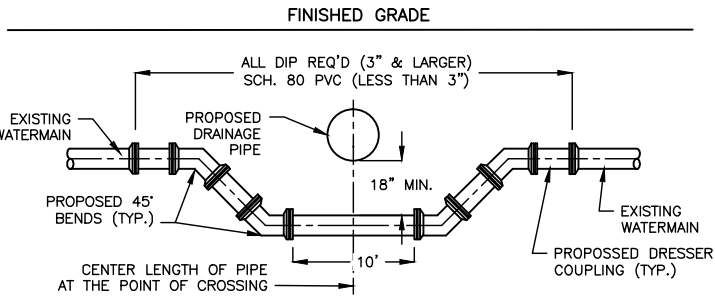
PREPARED FOR:
CITY OF
MARGATE
BROWARD COUNTY, FL

SANITARY FORCE MAIN
INSTALLATION
STANDARD DETAILS

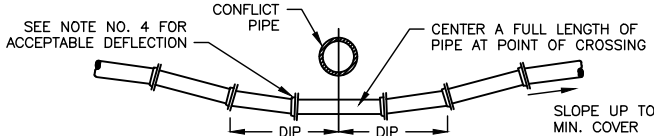
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FITTING TYPE



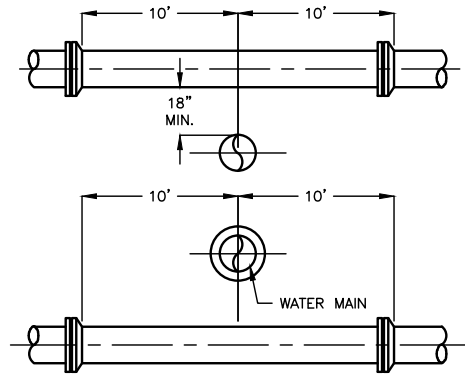
DEFLECTION TYPE

NOTES:

1. STORM SEWERS CROSSING UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MIN. VERTICAL DISTANCE OF EIGHTEEN (18) INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE. WHERE THIS MIN. SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND WATER MAIN JOINTS ARE EQUIDISTANT AND FROM THE POINT OF CROSSING WITH NO LESS THAN TEN (10) FEET BETWEEN ANY TWO JOINTS AND BOTH PIPES SHALL BE D.I.P. WHERE THERE IS NO ALTERNATIVE TO SEWER PIPES CROSSING OVER A WATER MAIN, THE CRITERIA FOR MIN. SEPARATION BETWEEN LINES AND JOINTS IN THE ABOVE SHALL BE REQUIRED AND BOTH PIPES SHALL BE D.I.P. IRRESPECTIVE OF SEPARATION. D.I.P. IS NOT REQUIRED FOR STORM SEWER.
2. MAINTAIN TEN (10) FEET HORIZONTAL DISTANCE BETWEEN WATER MAIN AND STORM SEWER, AS MINIMUM.
3. FITTINGS SHALL BE RESTRAINED WITH MEGALUG SERIES 1100 AS MANUFACTURED BY EBAA IRON INC. OR APPROVED EQUAL.
4. THE DEFLECTION TYPE CROSSING IS PREFERRED.
5. DO NOT EXCEED 75% OF MANUFACTURER'S RECOMMENDED MAX. JOINT DEFLECTION.
6. ALL EXPOSED TIE RODS/ STEEL SHALL BE COATED w/ COAL-TAR EPOXY.

TYPICAL UTILITY CROSSING

SCALE: N.T.S.

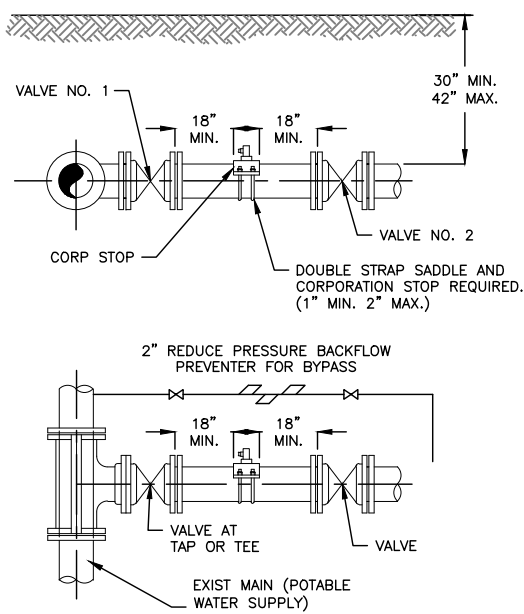


NOTES:

1. A WATER MAIN SHOULD CROSS OVER PIPES WHEREVER POSSIBLE. MAINTAINING A 36 INCH COVER FOR PVC, 30 INCH COVER FOR D.I.P. AND 18 INCH SEPARATION AS MINIMUMS.
2. WHEREVER A WATER MAIN CROSSES UNDER A SEWER MAIN, OR CROSSES OVER WITH LESS THAN 18 INCHES VERTICAL SEPARATION, THEN D.I.P. SHALL BE USED FOR BOTH PIPES FOR A DISTANCE OF 20 FEET CENTERED ON CROSSING WITH NO JOINTS WITHIN 10 FEET OF THE CROSSING.
3. 18 INCH SEPARATION SHOULD BE MAINTAINED BETWEEN ALL PIPES (STORM, SEWER, WATER) WHENEVER POSSIBLE. 12 INCHES IS THE ABSOLUTE MINIMUM SEPARATION WITH D.I.P. REQUIRED FOR ANY SEPARATION LESS THAN 18 INCHES.
4. MAINTAIN 10 FEET HORIZONTAL SEPARATION BETWEEN WATER AND SEWER AS A MINIMUM.
5. 3 FOOT HORIZONTAL CLEARANCE SHALL BE PROVIDED BETWEEN UTILITIES AND ANY OBSTRUCTIONS (CATCH BASINS, CONCRETE POLES, ETC.)
6. 5 FOOT HORIZONTAL CLEARANCE SHALL BE PROVIDED BETWEEN UTILITIES AND TREES.

UTILITY CROSSING GENERAL REQUIREMENTS

SCALE: N.T.S.

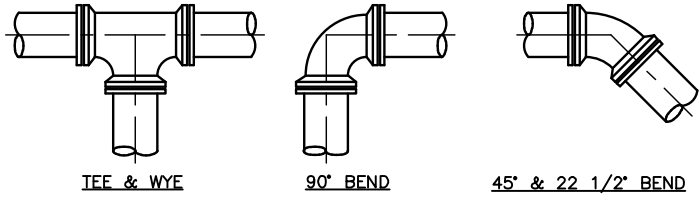


NOTES:

1. BOTH VALVES SHALL BE KEPT CLOSED EXCEPT FOR FILLING.
2. FLUSHING AND BACTERIOLOGICAL TESTING PURPOSES, THE CORPORATION STOP MAY BE USED FOR FEEDING CHLORINE SOLUTIONS, AND FOR VENTING DURING PRESSURE/LEAKAGE TESTS. THE OUA SHALL BE NOTIFIED BEFORE FILLING AND FLUSHING. VALVES ON
3. EXISTING SYSTEM SHALL BE OPERATED ONLY BY OUA PERSONNEL. AFTER BACTERIOLOGICAL CLEARANCE, VALVE NO. 2 IS TO BE
4. LEFT OPEN WITHOUT A VALVE BOX. PRESSURE TEST PUMP CONNECTS TO SERVICE LINE OR BLOWOFF.
5. NO EXTRA TAPS ARE PERMITTED UNLESS APPROVAL HAS BEEN BY THE OUA.

DOUBLE VALVE DETAIL

SCALE: N.T.S.



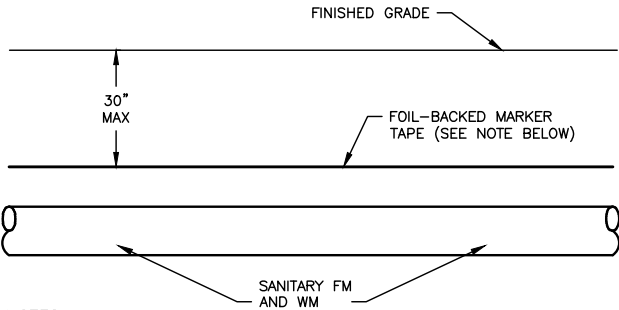
RESTRAINED PIPE LENGTH (LINEAL FEET)					
PIPE SIZE	TEE & WYE	90°BEND	45°BEND	22 1/2°BEND	11 1/4°BEND
6"	27	27	16	9	5
8"	34	34	20	11	6
10"	41	41	24	14	7
12"	48	48	28	16	8
14"	55	55	32	18	10
16"	62	62	35	20	11
18"	69	69	39	22	12
20"	75	75	42	24	13
24"	87	87	49	27	14
30"	104	104	57	31	17
36"	120	120	65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

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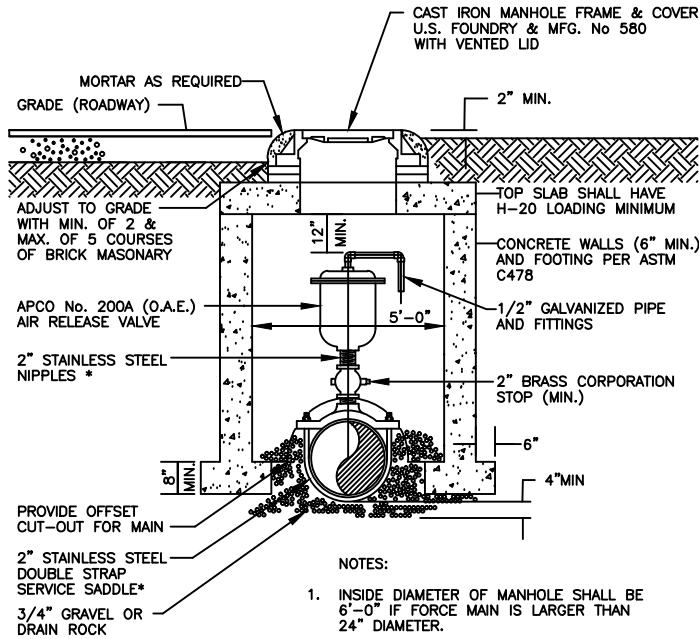


NOTES:

MARKING TAPE SHALL BE INSTALLED WITH ALL FORCE MAINS AND WATER MAINS CONTINUOUSLY FOR THE ENTIRE LENGTH OF THE LINE. THE TAPE SHALL BE FOIL-BACKED AND SHALL BE IMPRINTED WITH LEGEND APPROPRIATE TO THE PIPELINE. THE TAPE MUST CONFORM TO THOR's MagnaTec DETECTABLE WARNING TAPE, OR AN APPROVED EQUAL. MINIMUM WIDTH SHALL BE 6" AND THE MAXIMUM DEPTH OF BURIAL SHALL BE 30". COST OF MARKER TAPE SHALL BE INCLUDED IN THE LINEAL FOOT PRICE OF THE PIPE BID. WATER MAIN PIPING TO BE COLOR CODED BLUE. FORCE MAIN PIPING TO BE COLOR CODED GREEN.

MARKER TAPE DETAIL

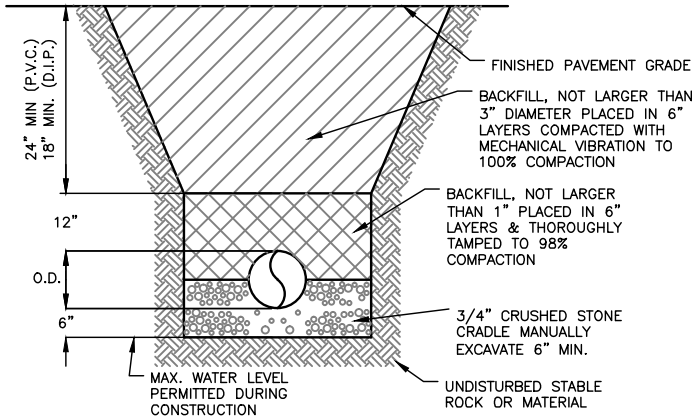
SCALE: N.T.S.



NOTES:

1. INSIDE DIAMETER OF MANHOLE SHALL BE 6'-0" IF FORCE MAIN IS LARGER THAN 24" DIAMETER.
2. PRECAST CONCRETE MANHOLE ENCLOSURE WITH DOGHOUSE TYPE OPENINGS AND NO BOTTOM.
3. ACTUAL LOCATION OF MANHOLE SHALL BE DETERMINED BY ENGINEER IN THE FIELD.
4. * FITTINGS MAY BE 1" FOR WATER MAIN 12" OR LESS.

AIR RELEASE VALVE



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.

STANDARD SEPARATION STATEMENT

1. SANITARY SEWERS, FORCEMAINS, SEWER LATERALS SHOULD ALWAYS CROSS UNDER WATER MAINS OR WATER SERVICES WHENEVER POSSIBLE. SANITARY SEWERS, 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, FORCEMAINS, SEWER LATERALS AND STORM SEWERS MUST CROSS A WATERMAIN 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 ON 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 CROSSINGS SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND THE WATERMAIN PIPE 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.

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

IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10-FOOT HORIZONTAL SEPARATION, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER OR FORCE MAIN AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.

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).

3. MAXIMUM OBTAINABLE SEPARATION OF DOMESTIC WATER LINES SHALL BE PRACTICED. A MINIMUM HORIZONTAL SEPARATION OF FIVE FEET (CENTER TO CENTER) OR THREE 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 STANDARDS APPLY.

NO.	DATE	REVISION	COMMENTS	BY
1	11/18/13	REVISED PER CITY	COMMENTS	MM

Date: 11/01/12
Designed: AC
Drawn: MM
Checked: PAK

APPROVED BY: PETER A. KUNEN, P.E.

DATE
FLORIDA PROFESSIONAL ENGINEER NO. 60730

CRAIG A. SMITH & ASSOCIATES
CONSULTING ENGINEERS-PLANNERS-SURVEYORS
7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
CERTIFICATE NO. LB0003110

PREPARED FOR:
CITY OF MARGATE
BROWARD COUNTY, FL

**SANITARY FORCE MAIN
INSTALLATION
STANDARD DETAILS**

FILE NAME: 19-1610-C-13-DTLS.dwg
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CAS PROJECT NUMBER
11-1610

SHEET
C-13

P:\Cities_Villages_Towns\Margate\11-1610-MARGATE-FW\Engineering\Plans\20-1610-C-14-DTLS.dwg, 11/22/2013 3:15:55 PM, mmarengo, 1:2

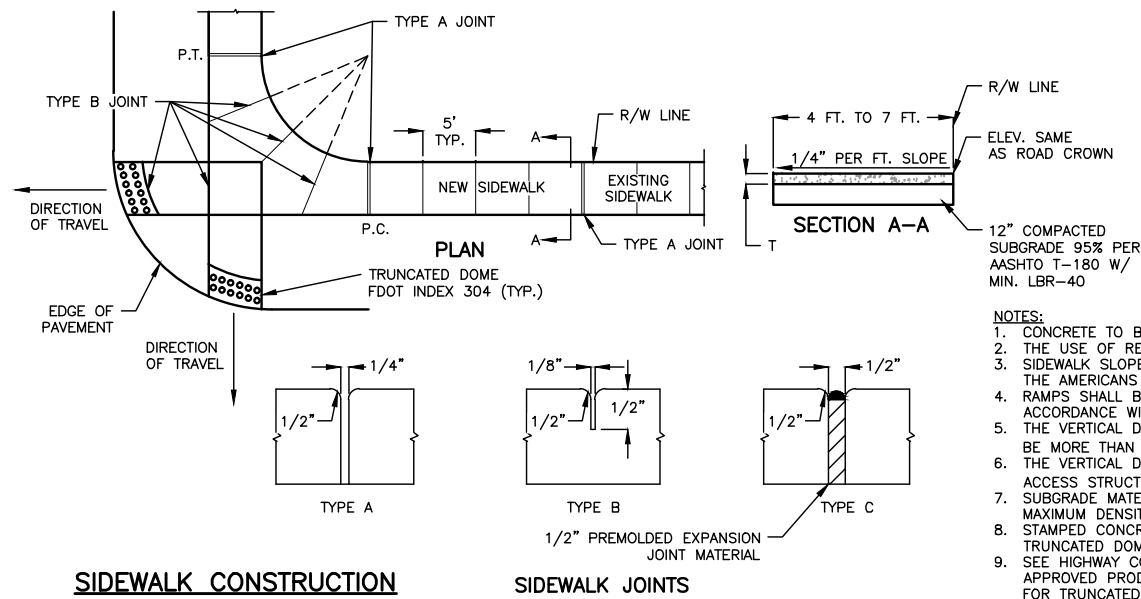
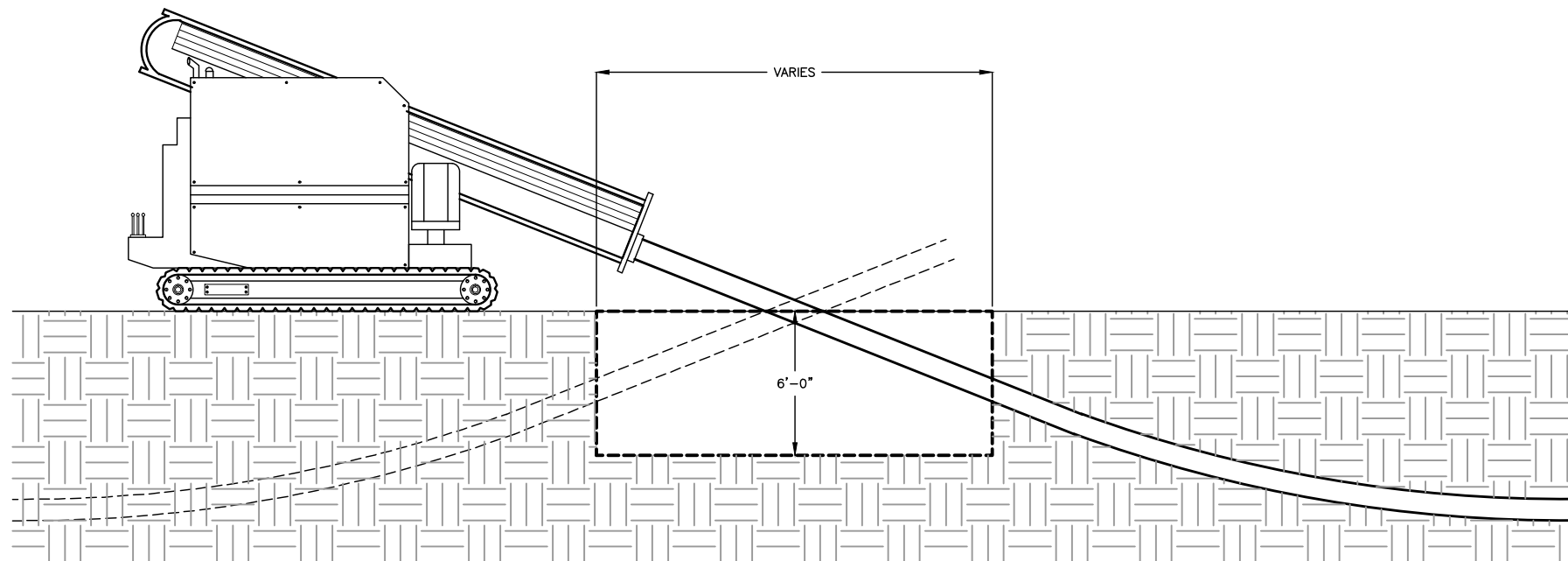
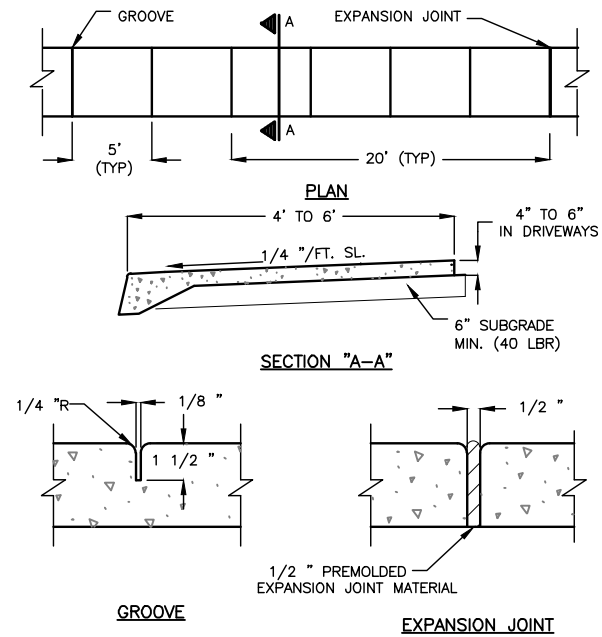


TABLE OF SIDEWALK JOINTS	
LOCATION	
A	P.C. AND P.T. OF CURVES. JUNCTION OF EXISTING AND NEW SIDEWALK
B	5'-0" CENTER TO CENTER ON SIDEWALK
C	WHERE SIDEWALK ABUTS CONCRETE CURBS, DRIVEWAYS, AND SIMILIAR STRUCTURES

TABLE OF SIDEWALK THICKNESS - T	
LOCATION	T
RESIDENTIAL AREAS	4"
AT DRIVEWAYS AND OTHER AREAS	6"

- NOTES:
1. CONCRETE TO BE CLASS 1,3000 P.S.I.
 2. THE USE OF REINFORCEMENT IS NOT PERMITTED
 3. SIDEWALK SLOPES SHALL MEET THE REINFORCEMENTS OF THE AMERICANS WITH DISABILITIES ACT.
 4. RAMPS SHALL BE PROVIDED AT ALL INTERSECTIONS IN ACCORDANCE WITH FDOT INDEX 304.
 5. THE VERTICAL DEVIATION FOR A NEW SIDEWALK SHALL NOT BE MORE THAN $\frac{1}{4}$ ".
 6. THE VERTICAL DEVIATION FOR A NEW MAINTENANCE ACCESS STRUCTURE COVER SHALL NOT BE MORE THAN $\frac{1}{4}$ ".
 7. SUBGRADE MATERIAL SHALL BE COMPACTED TO 100% OF MAXIMUM DENSITY, PER AASHTO T-99.
 8. STAMPED CONCRETE IS NOT ALLOWED IN LIEU OF TRUNCATED DOMES.
 9. SEE HIGHWAY CONSTRUCTION AND ENGINEERING DIVISION APPROVED PRODUCT LIST FOR ACCEPTABLE MATERIALS FOR TRUNCATED DOMES.



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CONSULTING ENGINEERS-PLANNERS-SURVEYORS
7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
(561) 314-4445
CERTIFICATE NO. LB0003110

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BROWARD COUNTY, FL

**SANITARY FORCE MAIN
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FILE NAME: 20-1610-C-14-DTLS.dwg
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SHEET
C-14

JACK & BORE – GENERAL NOTES

1. THE CONTRACTOR SHALL SUBMIT, FOR APPROVAL, TO THE ENGINEER AND THE GOVERNING AGENCY FOR THE RIGHT-OF-WAY, AND/OR OTHER AFFECTED AGENCIES HAVING JURISDICTION, COPIES OF PLANS SHOWING THE PROPOSED CONSTRUCTION METHODS AND MATERIALS PRIOR TO COMMENCING CONSTRUCTION. NO WORK SHALL BE DONE UNTIL THE CONTRACTOR HAS RECEIVED WRITTEN APPROVAL FROM ALL AGENCIES CONCERNED STATING THEIR CONCURRENCE IN THE PROPOSED CONSTRUCTION METHODS AND MATERIALS.
2. ALL CASING PIPE INSTALLATIONS SHALL REQUIRE A MANDATORY PRE-CONSTRUCTION CONFERENCE AT THE PROJECT SITE. THE PRECONSTRUCTION CONFERENCE ARRANGEMENTS SHALL BE MADE WITH THE ENGINEER OF RECORD, FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) AND THE CITY UTILITY DEPARTMENT AT LEAST ONE (1) WEEK PRIOR TO COMMENCEMENT OF CONSTRUCTION OPERATIONS FOR THE JACK AND BORE CROSSING THE RIGHT-OF-WAY.
3. ERECTION OR INSTALLATION OF APPROPRIATE SAFETY AND WARNING DEVICES SUCH AS BARRICADES AND LIGHTS SHALL BE REQUIRED AROUND ALL JACKING AND BORING PITS DURING THE COURSE OF CONSTRUCTION. SAID DEVICES SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE OF FDOT "MANUAL ON TRAFFIC CONTROL AND SAFE PRACTICES".
4. THE CONTRACTOR SHALL PROVIDE SUPPORT FOR CARRIER PIPE THROUGH THE CASING PIPE WITH STAINLESS STEEL CASING SPACERS WITH POLYMER RUNNERS AT 3 PER 20' LENGTH OF PIPE, CASCADE WATERWORKS MANUFACTURING CO. OR APPROVED EQUAL.
5. THE STEEL CASING PIPE SHALL CONFORM TO ASTM A-139 GRADE B LATEST REVISION.
6. THE CONTRACTOR SHALL VERIFY ALL DIMENSION, LOCATIONS AND ELEVATIONS OF EXISTING FACILITIES PRIOR TO CONSTRUCTION AND SHALL NOTIFY ALL UTILITY COMPANIES (BY USING SUNSHINE STATE ONE-CALL 1-800-432-4770) FOR LAYOUT OF EXISTING UNDERGROUND FACILITIES IN THE CONSTRUCTION AREA. LOCATION OF THE EXISTING UNDERGROUND FACILITIES ARE PLOTTED FROM ALL AVAILABLE RECORDS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF DATA SHOWN OR FOR LOCATION OF EXISTING UNDERGROUND NOT SHOWN.
7. THE OBJECTIVE OF USING THIS METHOD IS TO ENSURE NO UPHEAVAL, SETTLEMENT, CRACKING, MOVEMENT OR DISTORTION OF THE EXISTING GROUND SURFACE, ROADWAY PAVEMENT, ROADBED, UNDERGROUND UTILITIES OR STRUCTURES OF ANY TYPE. THE CONTRACTOR SHALL ADOPT ALL MEANS, IN ADDITION TO THOSE SPECIFIED, TO MEET THIS OBJECTIVE. THE CONTRACTOR SHALL BE RESPONSIBLE AND PAY FOR ANY AND ALL COSTS OF REPAIRS OR MAINTENANCE OF FDOT'S PROPERTY AND STRUCTURES DISTURBED OR DAMAGE DUE TO THE INSTALLATION OR CONSTRUCTION AFTER AFFECTS.
8. EXCAVATION, BACKFILLING, SHEETING AND BRACING, DEWATERING AND OTHER EARTHWORK ITEMS APPLICABLE TO JACKING AND BORING WITHIN STATE ROAD 7 (US 441) RIGHT-OF-WAY SHALL COMPLY WITH THE MINIMUM REQUIREMENTS OF FDOT AND THE CITY OF MARGATE UTILITY DEPARTMENT WHICH EVER IS MORE STRINGENT. THE BORE PIT SIZE WILL BE BASED ON THE AUGER AND THE SIZE OF THE CASING USED.
9. DUCTILE IRON PIPE SHALL BE CLASS 52 FOR 4 AND 6 INCH DIAMETER, PRESSURE CLASS 250 FOR 20 INCH AND PRESSURE CLASS 350 FOR 10 INCH DIAMETER. ALL FITTINGS FOR PRESSURE PIPE SHALL BE INSTALLED WITH RESTRAINED JOINT COLLARS SUCH AS MEG-A-LUG BY EBBA IRON COMPANY, INC. OR APPROVED EQUAL.
10. PRIOR TO BACKFILLING THE JACKING AND BORING PIT, THE CONTRACTOR SHALL RETAIN THE SERVICES OF A SURVEYOR AT HIS EXPENSE, TO DETERMINE THE FINAL HORIZONTAL AND VERTICAL LOCATIONS OF THE DIRECTIONAL BORING CROSSING WITHIN THE STATE ROAD 7 (US 441) RIGHT-OF-WAY. RECORD DRAWINGS SIGNED AND SEALED BY A CURRENT VALID STATE OF FLORIDA PROFESSIONAL LAND SURVEYOR SHALL BE GIVEN TO THE ENGINEER OF RECORD. THE DISTANCE TO THE NEAREST MILE POST MARKER TO THE NORTH OF THE INSTALLED DIRECTIONAL BORING CROSSING SHALL BE SHOWN ON THE RECORD DRAWING.
11. ALL MATERIALS USED FOR INSTALLATIONS WITHIN THE STATE ROAD 7 (US 441) RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH FDOT MINIMUM STANDARDS.
12. THE CASING PIPE SHALL BE INSTALLED UNDER THE ENTIRE WIDTH OF THE PAVEMENT ON STATE ROAD 7 (US 441) BY JACKING AND BORING; CASING PIPE INSTALLATION BY OPEN-CUT METHOD THROUGH THE RIGHT-OF-WAY IS NOT ALLOWED.
13. ALL WORK DONE ON FDOT RIGHT-OF-WAY IS SUBJECT TO INSPECTION AND DIRECTION OF THEIR ENGINEER.
14. ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT AWWA STANDARDS FOR PIPE LINES CONVEYING NONFLAMMABLE SUBSTANCES AND FDOT REQUIREMENTS AS PER UTILITY ACCOMMODATION GUIDE, JUNE 1993, DOCUMENT NO. 710-020-001-C. WHENEVER THERE IS A DIFFERENCE IN REQUIREMENTS THE MORE STRINGENT SHALL APPLY.
15. WELDING OF THE CASING PIPES SHALL CONFORM WITH AISC SPECIFICATIONS, SECTION 1-7-2. ALL FIELD JOINT WELDS SHALL ACHIEVE FULL PENETRATION, SINGLE-VEE GROOVE OR SINGLE-BEVEL GROOVE TYPE JOINTS.
16. THE CASING PIPE SHALL RECEIVE A BLACK BITUMINOUS COATING FOR PROTECTION AGAINST CORROSION IN ACCORDANCE WITH ASTM SPECIFICATION A139, LATEST.
17. THE CONTRACTOR SHALL CONTACT THE LOCAL LEVEL 3 OSP ENGINEER (954-218-6359) 48 HOURS PRIOR TO CONSTRUCTION.

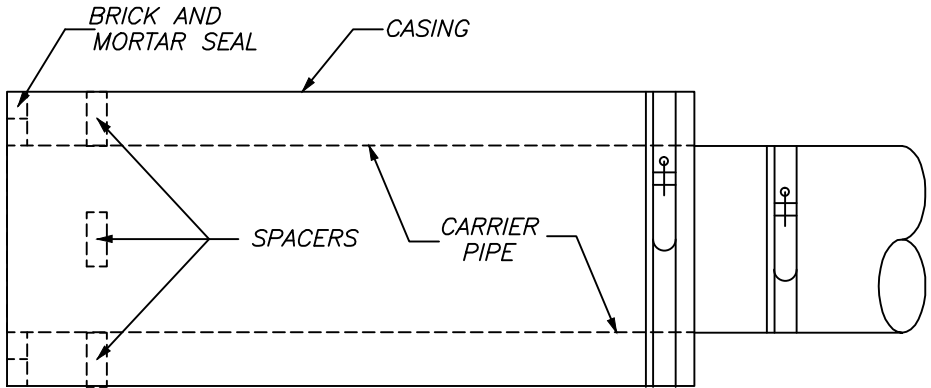
SPECIFICATIONS FOR CARRIER AND CASING PIPES

CARRIER PIPE			CASING PIPE
CONTENTS TO BE HANDLED	WATER	NONE	
OUTSIDE DIAMETER	DETERMINED BY PROJECT	SEE TABLE SHEET DTL-2	
PIPE MATERIAL	D.I.P.	STEEL	
SPECIFICATION AND GRADE	SEE NOTE No. 9	A.S.T.M. A 139, GRADE "B"	
WALL THICKNESS	DETERMINED BY MFG.	SEE TABLE SHEET DTL-2	
WORKING PRESSURE	150 P.S.I.	NONE	
TYPE OF JOINT	RESTRAINED MECH. JT.	WELDED	
COATING	BLACK BITUMINOUS	BLACK BITUMINOUS	
METHOD OF INSTALLATION	CASING SPACERS	BORE AND JACK	
PROTECTION AT ENDS OF CASING	N/A	BRICK AND MORTAR OR CASING END SEAL	

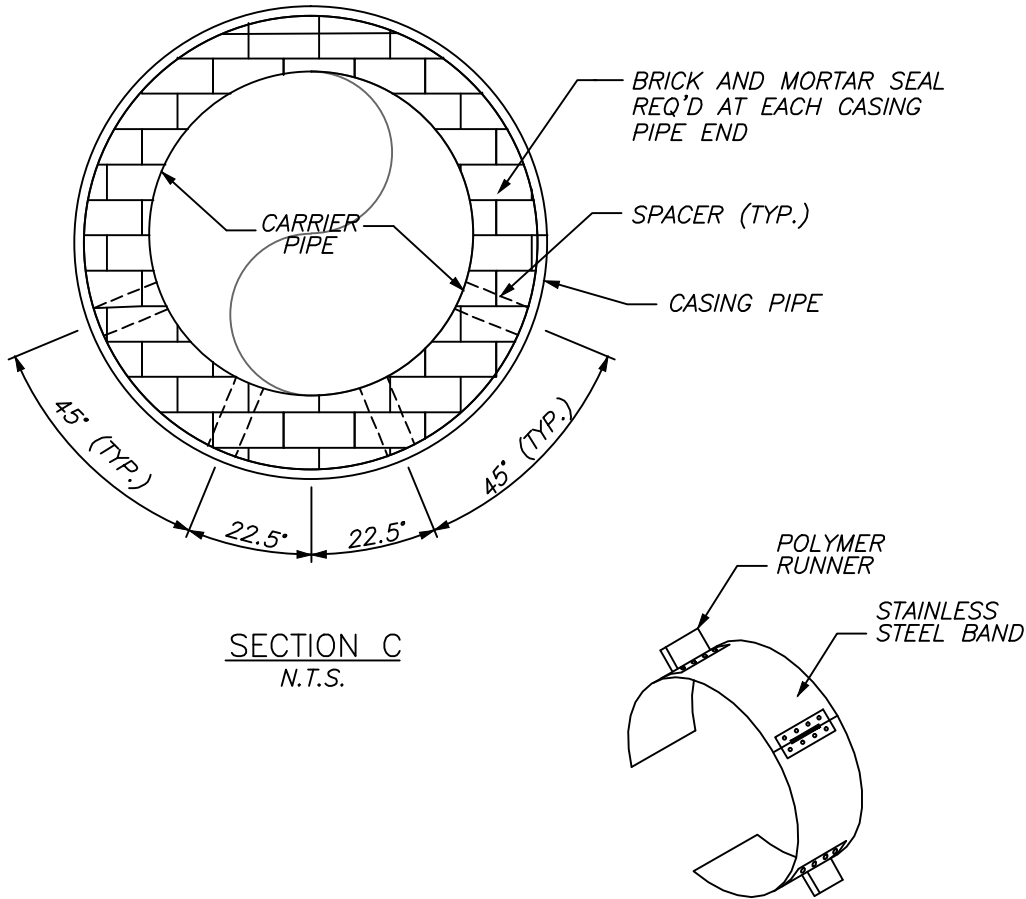
CARRIER PIPE SIZE	OUTSIDE DIAM. MECH. JOINT	NOMINAL DIAM. OF STEEL CASING PIPE	MINIMUM CASING THICKNESS
4"	9.56"	12"	0.375"
6"	11.12"	14"	0.375"
8"	13.37"	16"	0.375"
10"	15.62"	20"	0.375"
12"	17.88"	24"	0.375"
14"	20.25"	24"	0.375"
16"	22.50"	30"	0.375"
18"	24.75"	34"	0.375"
20"	27.00"	36"	0.375"
24"	31.50"	42"	0.500"
30"	39.12"	42"	0.500"
36"	46.00"	48"	0.500"
42"	53.12"	54"	0.500"
48"	60.00"	72"	0.500"

* NOTE:

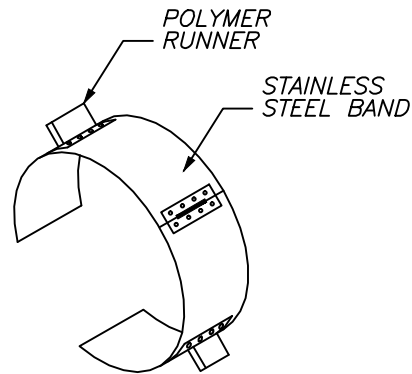
CONTRACTOR SHALL EXCAVATE BORING PIT AS NEEDED. THE WIDTH OF THE BORE PIT SHOULD BE BETWEEN 8 AND 12 FEET. THE LENGTH OF THE PIT DEPENDS ON THE AUGER AND LENGTH OF CASING USED. THE BORE PITS SHOULD BE BRACED AND SHORED APPROPRIATELY. THE UPPER 12" OF THE BOTTOM OF THE BORE PIT SHOULD BE OVER-EXCAVATED AND BACKFILLED WITH CRUSHED STONE (PREFERABLY #57 STONE) IN ORDER TO PROVIDE A WORKING PLATFORM AND SUPPORT TO THE EQUIPMENT.



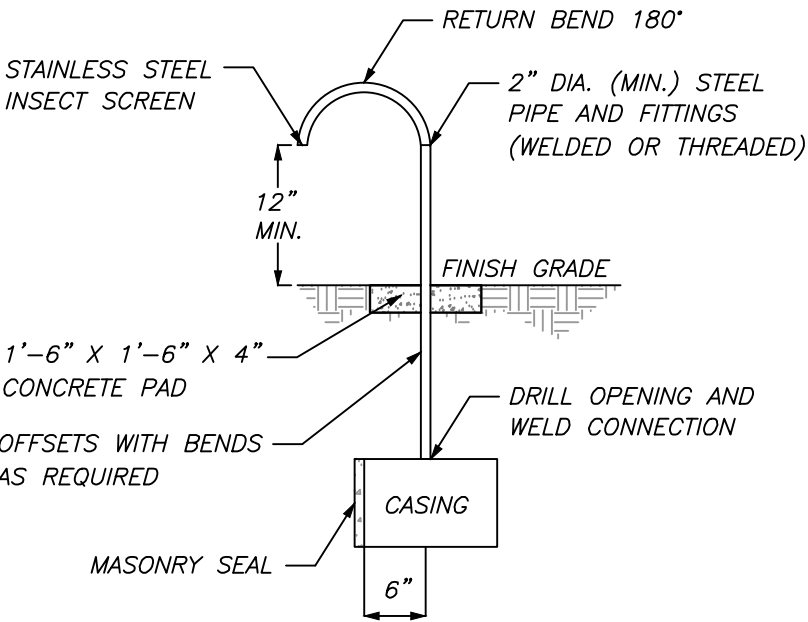
CASING SEAL DETAIL
N.T.S.



SECTION C
N.T.S.



CASING SPACERS DETAIL
N.T.S.



CASING VENT DETAIL
N.T.S.

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7777 GLADES ROAD, SUITE 410
BOCA RATON, FLORIDA 33434
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BROWARD COUNTY, FL

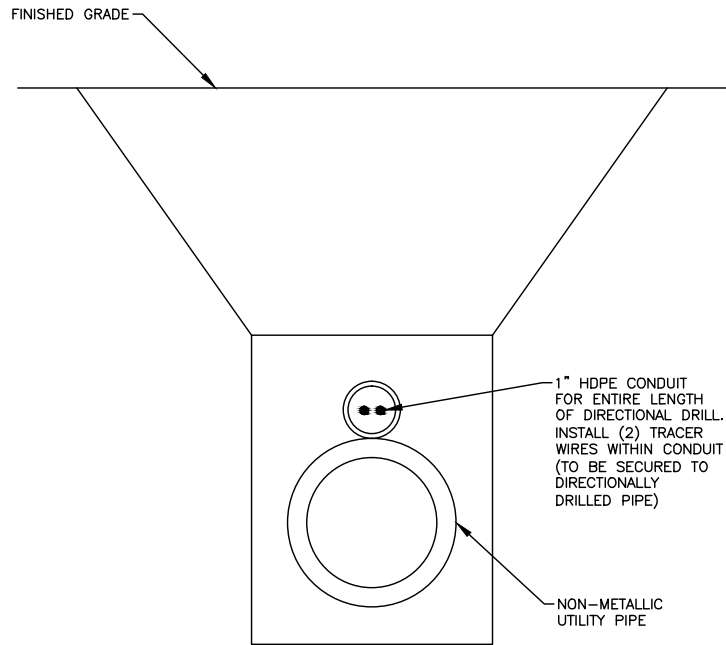
SANITARY FORCE MAIN
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FILE NAME: 21-1610-C-15-DTLS.dwg
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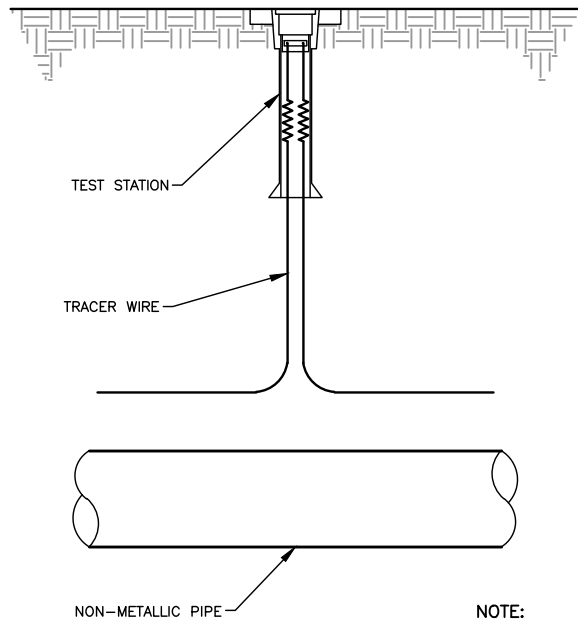
CAS PROJECT NUMBER
11-1610

SHEET
C-15

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TRACER WIRE INSTALLATION DETAIL

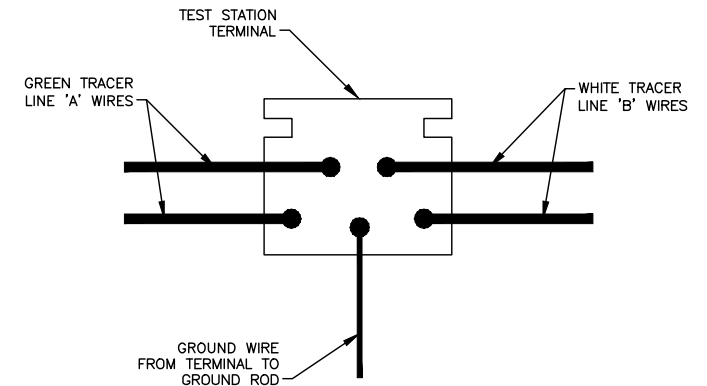
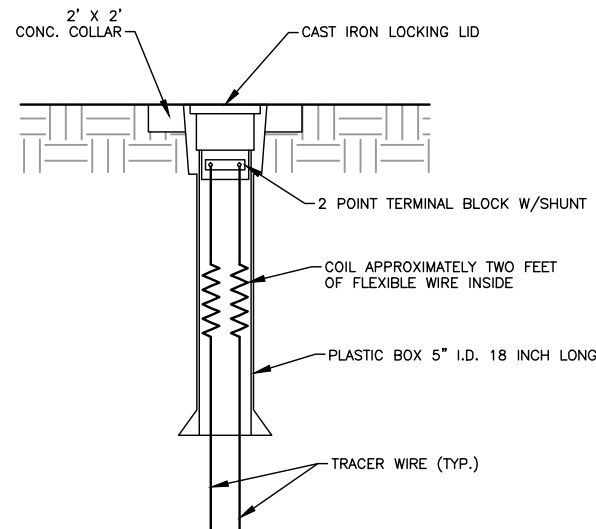


TEST STATION DETAIL

- NOTE:
1. TEST STATIONS WITH 5 WIRES SHALL HAVE 5 POINT BLOCK W/O SHUNT.
 2. TEST STATION LID SHALL BE MARKED "TEST" OR "TEST STATION". TEST STATIONS SHALL BE ONE OF THE FOLLOWING PRODUCTS OR AN APPROVED EQUAL:

FARWEST CORROSION CONTROL CO.
888-532-7937

3. A 10' GROUND ROD TO BE INSTALLED AT EACH TEST STATION AND GROUND WIRE TO BE CONNECTED TO TERMINAL.



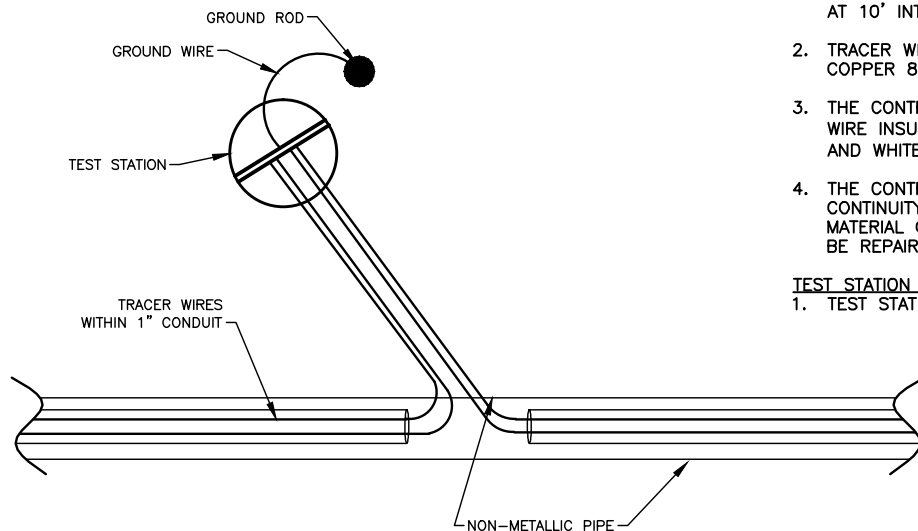
TRACER WIRE TERMINAL CONNECTION DETAIL

GENERAL NOTES:

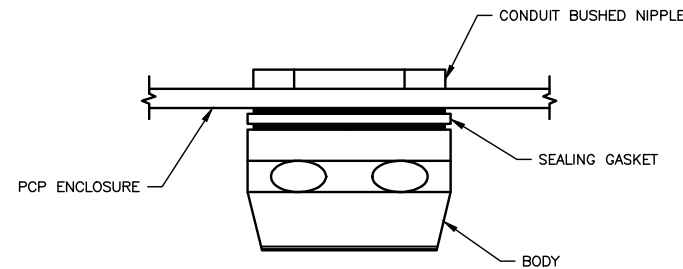
1. TRACER WIRE SHALL BE INSTALLED ABOVE ALL NEW NON-METALLIC UTILITY LINES. TRACER WIRE SHALL BE PLACED WITHIN 1" CONDUIT ON TOP OF PIPE AND SECURED TO PIPE AT 10' INTERVALS WITH NYLON STRAP.
2. TRACER WIRE SHALL BE INSULATED SINGLE STRAND, SOLID COPPER 8 AWG TW.
3. THE CONTRACTOR SHALL PULL TWO PAIR OF TRACER WIRES. WIRE INSULATION COLORS SHALL BE GREEN (TRACE LINE A) AND WHITE (TRACE LINE B).
4. THE CONTRACTOR SHALL TEST THE TRACER WIRE FOR CONTINUITY AFTER PLACING THE FIRST LIFT OF BACKFILL MATERIAL OVER WIRE. ANY DISCONTINUITIES IN THE WIRE SHALL BE REPAIRED PRIOR TO COMPLETING BACKFILL ABOVE UTILITY.

TEST STATION LOCATIONS:

1. TEST STATIONS SHALL BE INSTALLED AS INDICATED ON PLANS.

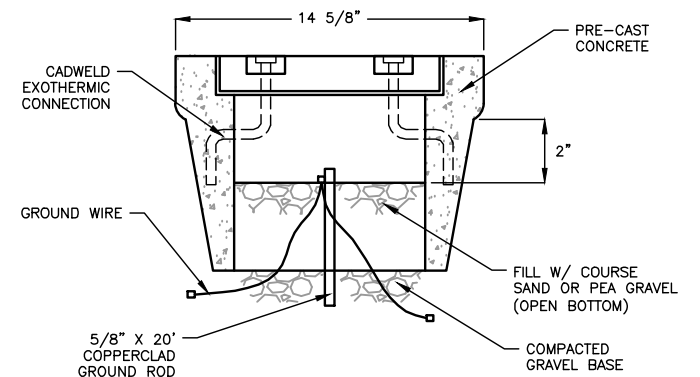
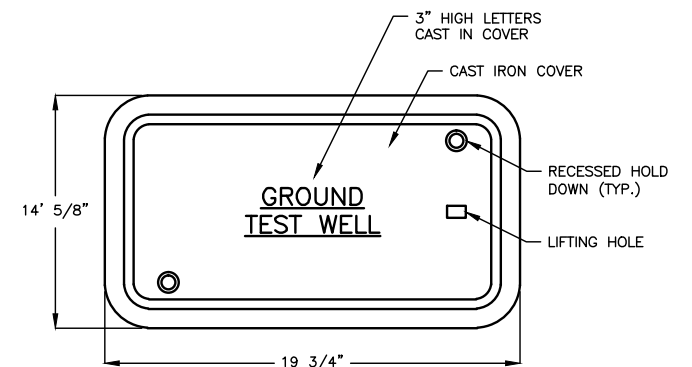


TYPICAL STATION DETAIL



CONDUIT HUB CONNECTION DETAIL

SCALE: N.T.S.



GROUND TEST WELL

SCALE: N.T.S.

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