



PREPARED FOR:
GAFF GROUP, INC.
660 S. STATE COLLEGE BLVD.
FULLERTON, CA 92831
(714) 998-9789

M MORRIS ENGINEERING AND CONSULTING, LLC
Civil Engineering and Land Development Consulting
6981 Professional Parkway East, Lakewood Ranch, Florida 34240 C.A.28780 941-444-6644 www.morrisengineering.net

NO.	DATE	REVISION DESCRIPTION	BY

DATE	03/11/15
PROJECT	SGC
DRAWING	SP
DRAWN	SPM
CHECKED	MJM

AERIAL SITE MAP
SOUTHGATE COURT
MANATEE COUNTY, FLORIDA

SCALE 1"=30'	
SEC.-TSP.-RNG. 27-355-18E	
SHEET 2	OF 8

MATTHEW J. MORRIS
FL LICENSE NO. 68434

NOTE:
ELEVATIONS SHOWN HEREON REFER TO NATIONAL GEODETIC VERTICAL DATUM (N.G.V.D.) 1929

EROSION SEDIMENT CONTROL NOTES:

- EXISTING SITE CONDITIONS CONSIST OF VACANT/RESIDENTIAL LAND. LAND CLEARING/DISTURBING ACTIVITIES SHALL CONSIST OF CLEARING EXISTING VEGETATION, EXCAVATION OF PROPOSED STORMWATER MANAGEMENT VAULT AND PLACEMENT/EMBANKMENT OF EXCAVATED MATERIAL.
- ALL EXCAVATED MATERIAL WILL BE UTILIZED ON-SITE TO PROVIDE MATERIAL TO ACHIEVE FINISHED GRADES PER PLAN. ANY REMAINING MATERIAL SHALL BE REMOVED FROM SITE.
- ALL AREAS ARE TO BE GRADED WITH A 4:1 MAXIMUM SLOPE.
- ANY DISTURBED AREAS WHERE CONSTRUCTION WILL BE ON-GOING AND FINAL GRADE WILL NOT BE ACHIEVED WITHIN FOURTEEN (14) DAYS SHALL BE SODDER OR HYDRO-SEEDED TO PROVIDE STABILIZATION.
- ALL EROSION AND SEDIMENT CONTROLS DEPICTED ON THIS PLAN SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY LAND DISTURBING ACTIVITIES.
- EROSION AND SEDIMENT CONTROL DEVICES SHALL BE VISUALLY INSPECTED WEEKLY, OR AFTER SIGNIFICANT (0.5" OR GREATER) RAINFALL EVENTS. ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER; IF A REPAIR IS NECESSARY, IT SHALL BE CORRECTED AS SOON AS POSSIBLE, BUT IN NO CASE LATER THAN 7 DAYS AFTER THE INSPECTION. A MAINTENANCE INSPECTION REPORT WILL BE MADE AFTER EACH INSPECTION. A COPY OF THE REPORT FORM TO BE COMPLETED BY THE INSPECTOR IS ATTACHED.
- CONSTRUCTION TRAFFIC SHALL ENTER VIA THE PROPOSED ENTRANCE, AND SHALL BE MARKED ACCORDINGLY. SOIL TRACKING PREVENTION DEVICES SHALL BE INSTALLED PRIOR TO DISTURBANCE OF ANY LAND WITHIN THE PROJECT.
- FUGITIVE PARTICULATE ABATEMENT METHODS SHALL CONSIST OF THE FOLLOWING:
 - USE OF WATER TRUCKS TO CONTROL DUST ON-SITE DUE TO HIGH WINDS AND TRUCK TRAFFIC.
 - ENSURE THAT ALL OPEN BODIED TRUCKS TRANSPORTING MATERIAL THAT MAY EMIT PARTICLES INTO THE AIR ARE COVERED AT ALL TIMES.
 - ENSURING THAT ALL CONSTRUCTION TRAFFIC ENTERS AND EXITS THE SITE AT THE DESIGNATED CONSTRUCTION ENTRANCE ONLY AND ARE WASHED DOWN AS NECESSARY TO REDUCE PARTICULATE MATTER.
- CONTRACTOR SHALL PROVIDE ENGINEER AND CITY OF SARASOTA WITH A 24-HOUR, 7-DAY EMERGENCY CONTACT NUMBER FOR ANY EROSION AND SEDIMENTATION CONCERNS.
- THERE ARE NO WATER QUALITY MONITORING REQUIREMENTS FOR THIS PROJECT DURING CONSTRUCTION.

OWNER'S CERTIFICATION:

I, MATTHEW J. MORRIS, AGENT FOR GAFF GROUP INC., HAVE REVIEWED THE EROSION AND SEDIMENT CONTROL DETAILS AND AGREE TO REQUIRE THE GENERAL CONTRACTOR TO ADHERE TO THE BEST MANAGEMENT PRACTICES THROUGHOUT THE DURATION OF THE CONSTRUCTION PROCESS.

SIGNED _____

DATE _____

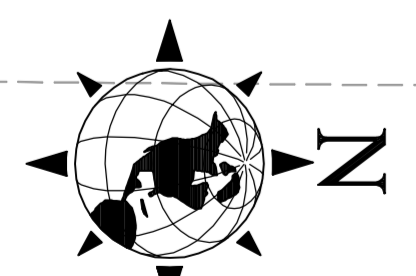
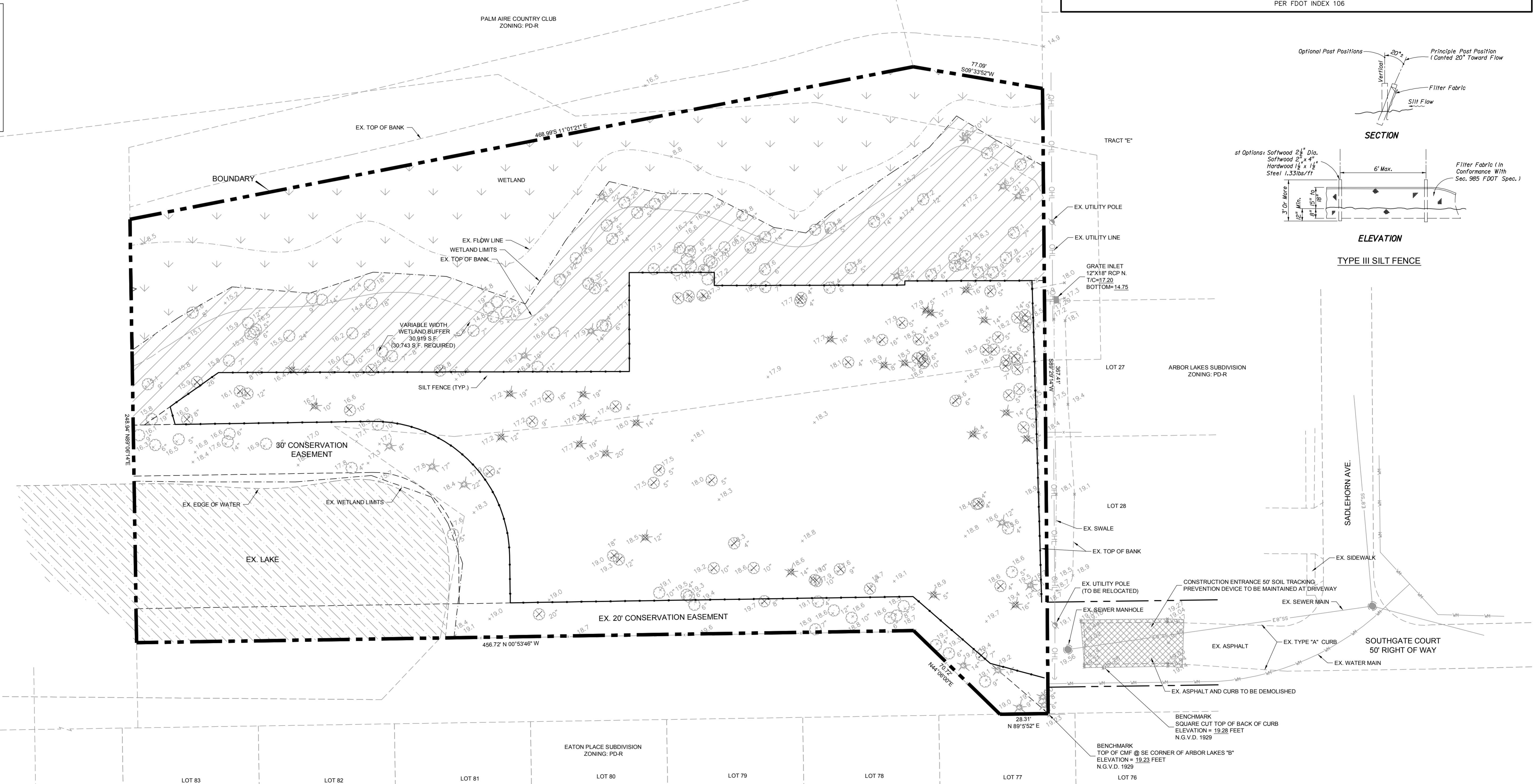
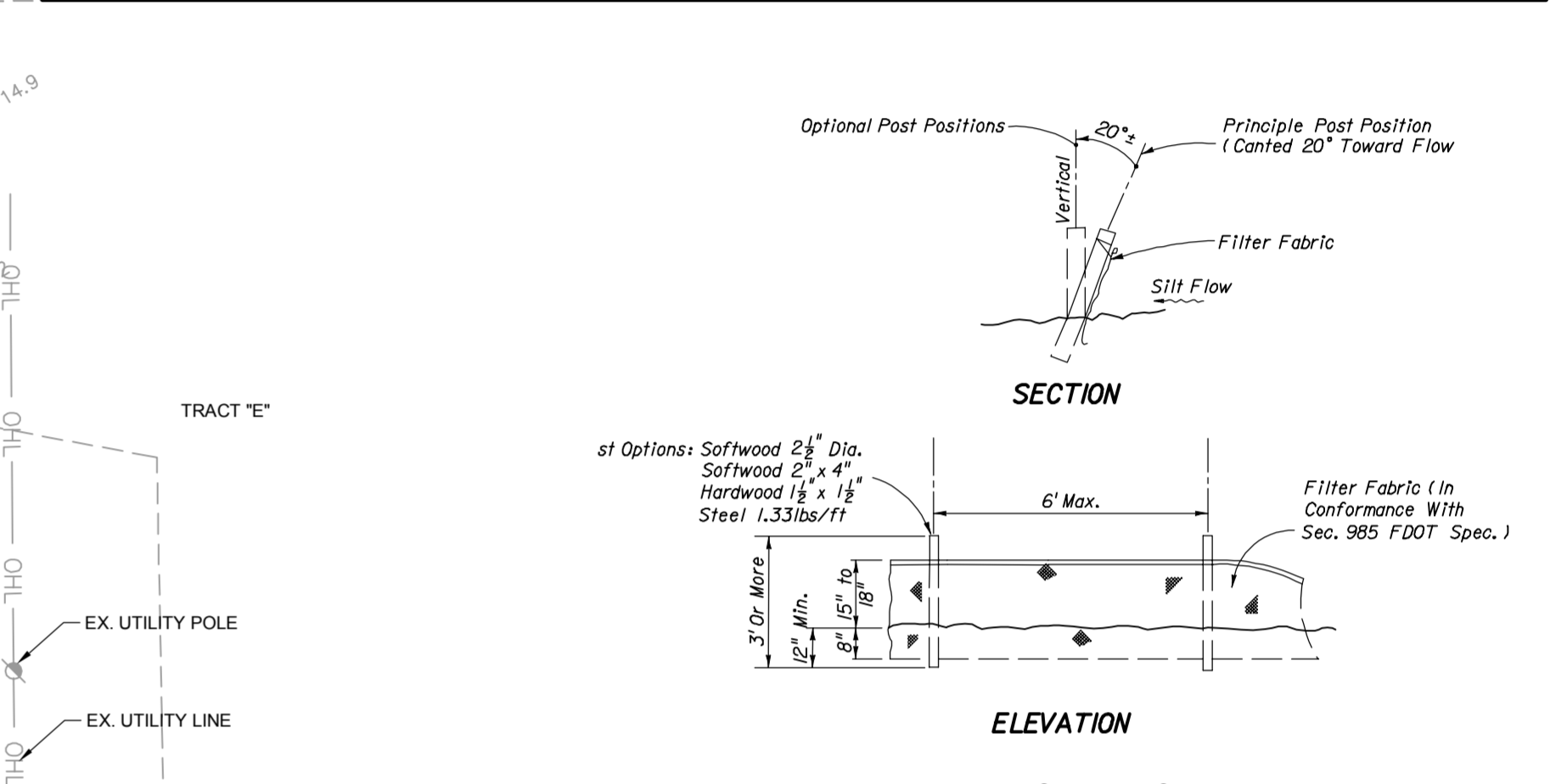
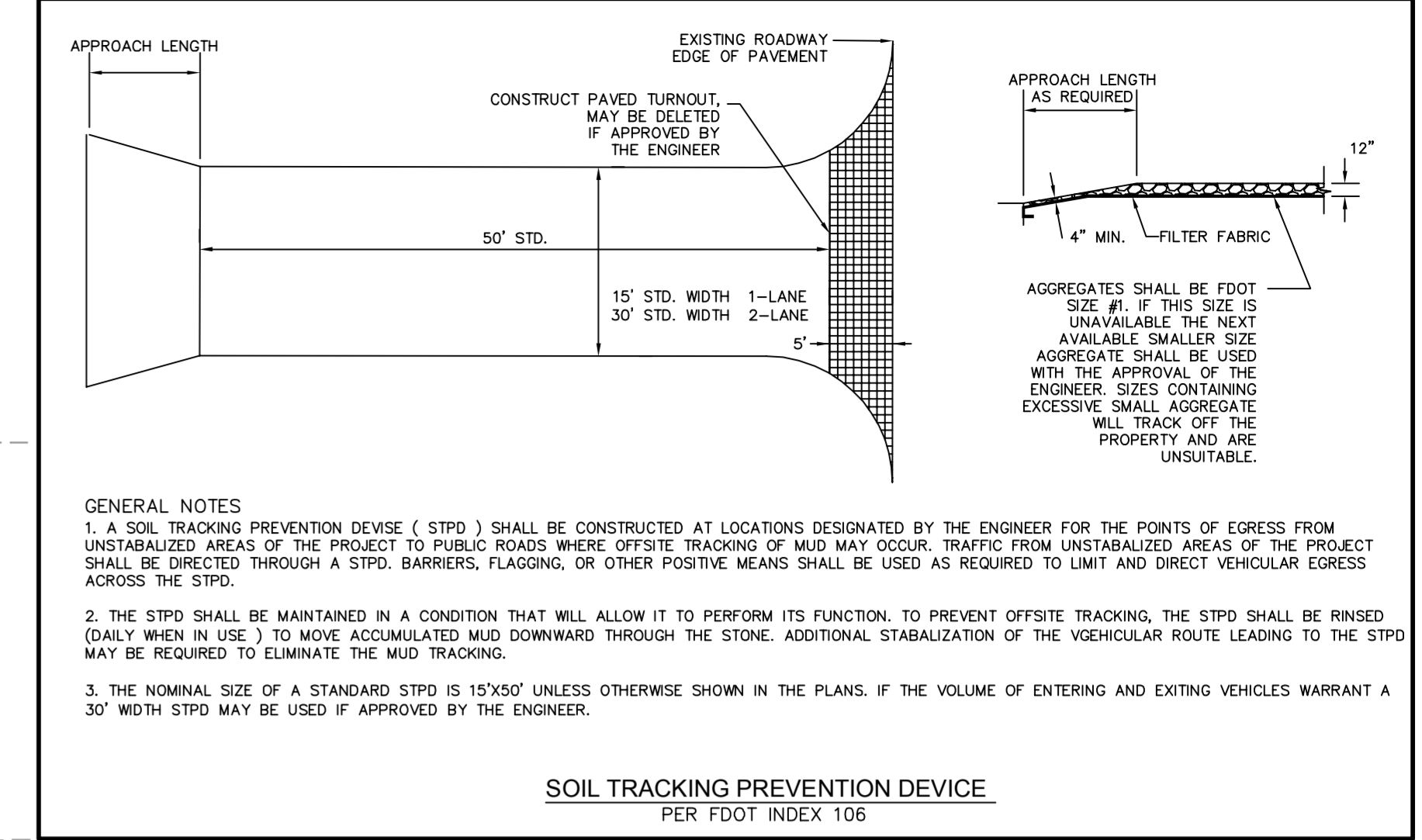
ELEVATION NOTE:

ALL ELEVATIONS SHOWN ON THIS PLAN REFER TO NATIONAL GEODETIC VERTICAL DATUM 1929. ELEVATION EQUATION FOR NORTH AMERICAN VERTICAL DATUM 1988 IS AS FOLLOWS:

BENCH MARK #1:
ELEVATION = 19.23 FEET N.G.V.D. 1929
ELEVATION = 18.24 FEET N.A.V.D. 1988

BENCH MARK #2:
ELEVATION = 19.28 FEET N.G.V.D. 1929
ELEVATION = 18.29 FEET N.A.V.D. 1988

FACTOR TO ADJUST ALL ELEVATIONS SHOWN HEREON TO N.A.V.D. 1988 = -0.99



PREPARED FOR:
GAFF GROUP, INC.
660 S. STATE COLLEGE BLVD.
FULLERTON, CA 92831
(714) 998-9789

M MORRIS ENGINEERING AND CONSULTING, LLC
Civil Engineering and Land Development Consulting
6981 Professional Parkway East, Lakewood Ranch, Florida 34240 C.A.28780 941-444-6644 www.morrisengineering.net

NO.	DATE	REVISION DESCRIPTION	BY

DATE	03/11/15
PROJECT	SGC
DRAWING	EX COND - BMP
DRAWN	SPM
CHECKED	MJM

EXISTING CONDITIONS - BEST MANAGEMENT PRACTICES PLAN
SOUTHGATE COURT
MANATEE COUNTY, FLORIDA

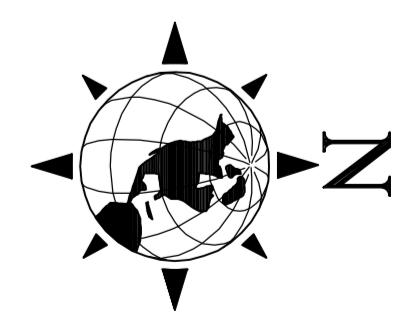
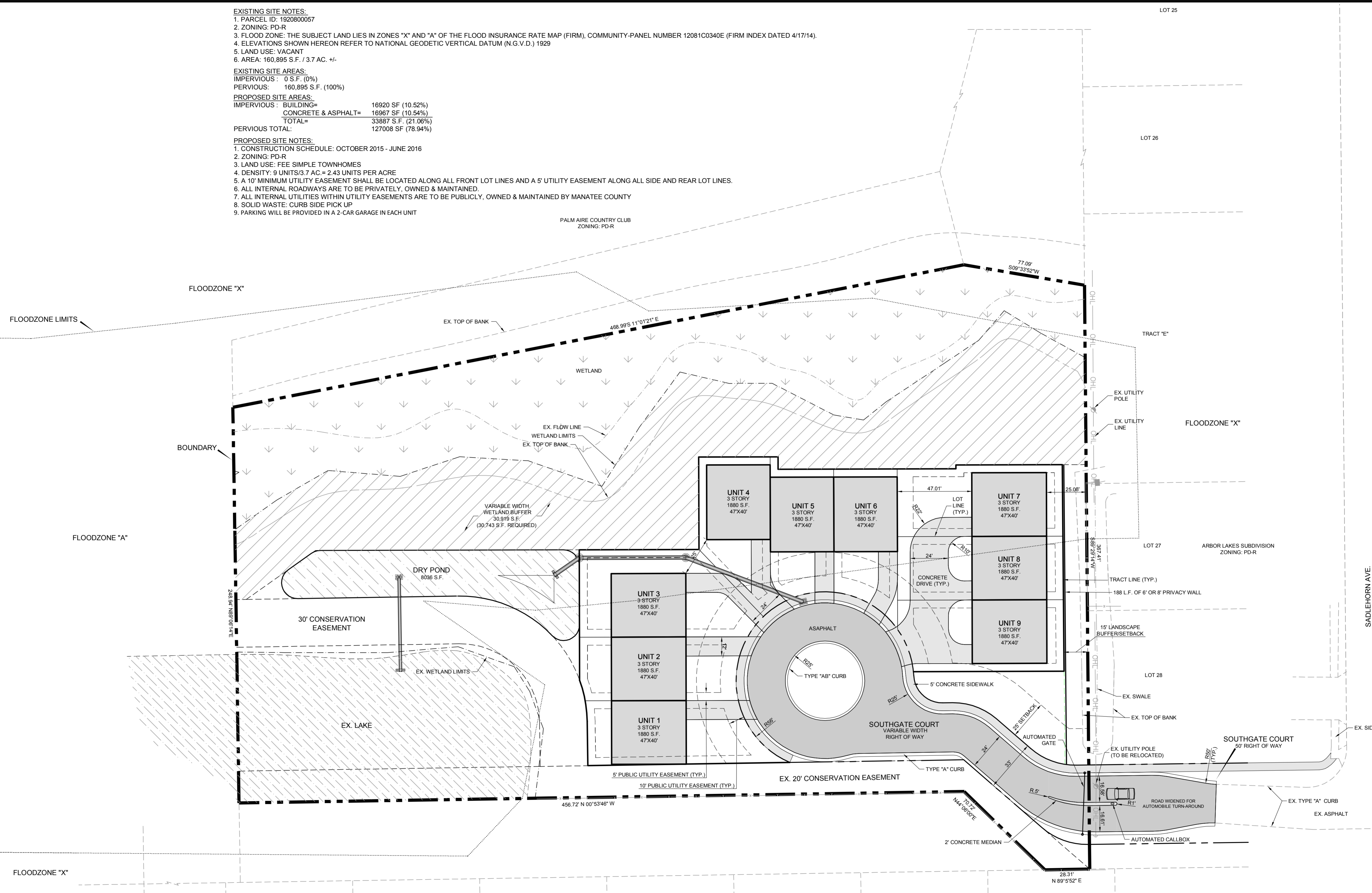
SCALE		1"=30'
SEC.-TSP.-RNG.		27-355-18E
SHEET	OF	
3	8	
MATTHEW J. MORRIS FL LICENSE NO. 68434		

EXISTING SITE NOTES:
 1. PARCEL ID: 192080057
 2. ZONING: PD-R
 3. FLOOD ZONE: THE SUBJECT LAND LIES IN ZONES "X" AND "A" OF THE FLOOD INSURANCE RATE MAP (FIRM), COMMUNITY-PANEL NUMBER 12081C0340E (FIRM INDEX DATED 4/17/14).
 4. ELEVATIONS SHOWN HEREON REFER TO NATIONAL GEODETIC VERTICAL DATUM (N.G.V.D.) 1929
 5. LAND USE: VACANT
 6. AREA: 160,895 S.F. / 3.7 AC. +/-

EXISTING SITE AREAS:
 IMPERVIOUS: 0 S.F. (0%)
 PERVIOUS: 160,895 S.F. (100%)

PROPOSED SITE AREAS:
 IMPERVIOUS: BUILDING= 16920 SF (10.52%)
 CONCRETE & ASPHALT= 16967 SF (10.54%)
 TOTAL= 33887 S.F. (21.06%)
 PERVIOUS TOTAL: 127008 SF (78.94%)

PROPOSED SITE NOTES:
 1. CONSTRUCTION SCHEDULE: OCTOBER 2015 - JUNE 2016
 2. ZONING: PD-R
 3. LAND USE: FEE SIMPLE TOWNHOMES
 4. DENSITY: 9 UNITS/3.7 AC. = 2.43 UNITS PER ACRE
 5. A 10' MINIMUM UTILITY EASEMENT SHALL BE LOCATED ALONG ALL FRONT LOT LINES AND A 5' UTILITY EASEMENT ALONG ALL SIDE AND REAR LOT LINES.
 6. ALL INTERNAL ROADWAYS ARE TO BE PRIVATELY OWNED & MAINTAINED.
 7. ALL INTERNAL UTILITIES WITHIN UTILITY EASEMENTS ARE TO BE PUBLICLY OWNED & MAINTAINED BY MANATEE COUNTY
 8. SOLID WASTE: CURB SIDE PICK UP
 9. PARKING WILL BE PROVIDED IN A 2-CAR GARAGE IN EACH UNIT



PREPARED FOR:
GAFF GROUP, INC.
 660 S. STATE COLLEGE BLVD.
 FULLERTON, CA 92831
 (714) 998-9789

M MORRIS ENGINEERING AND CONSULTING, LLC
 Civil Engineering and Land Development Consulting
 6981 Professional Parkway East, Lakewood Ranch, Florida 34240 C.A.28780 941-444-6644 www.morrisengineering.net

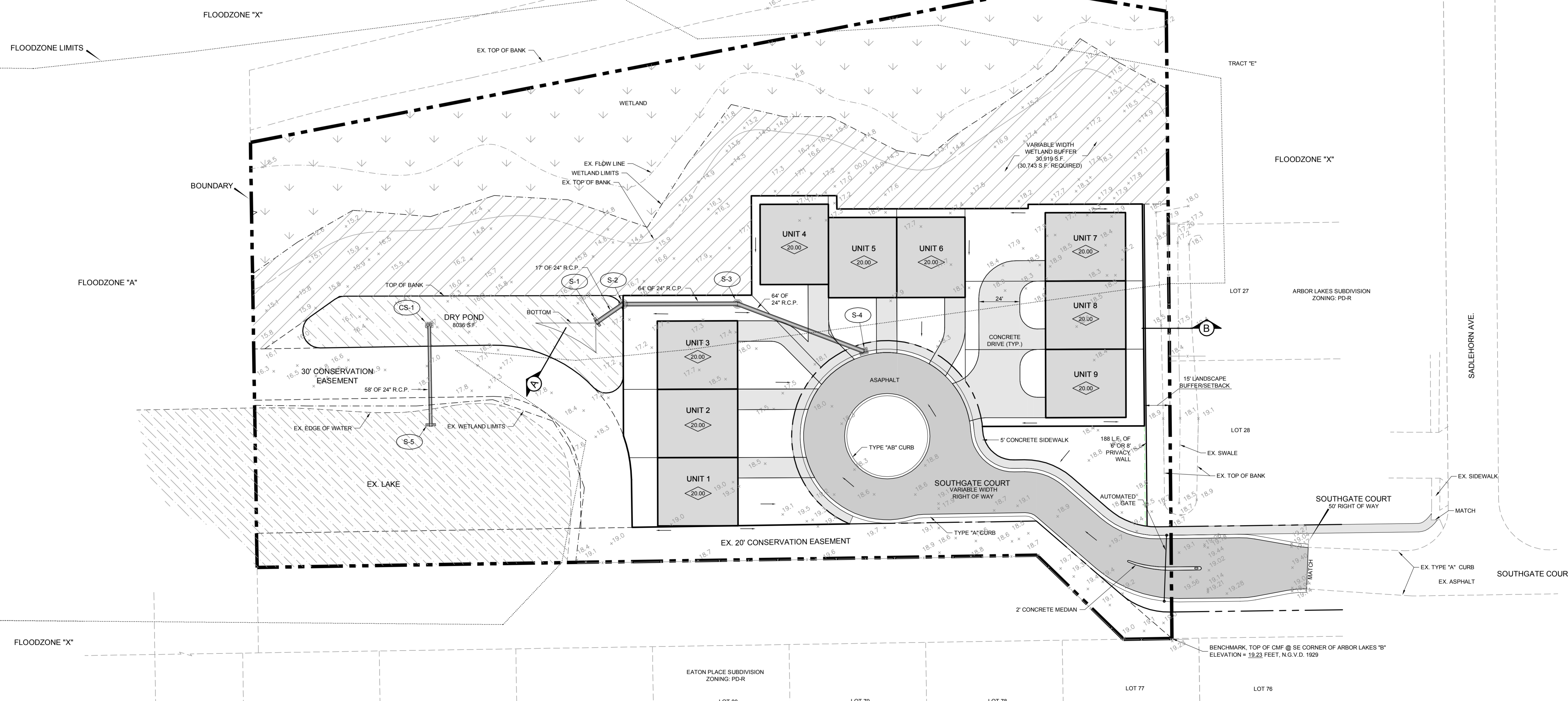
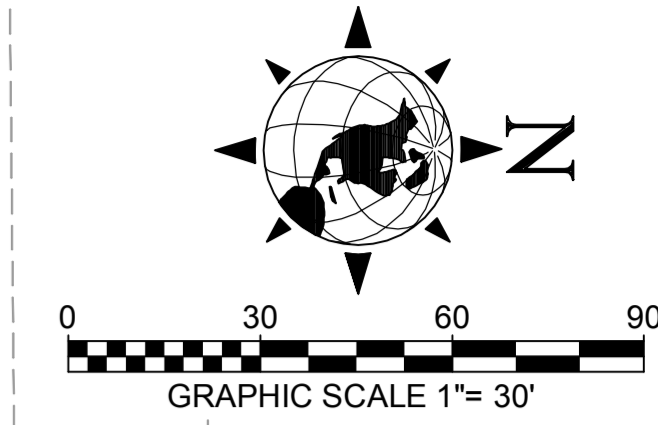
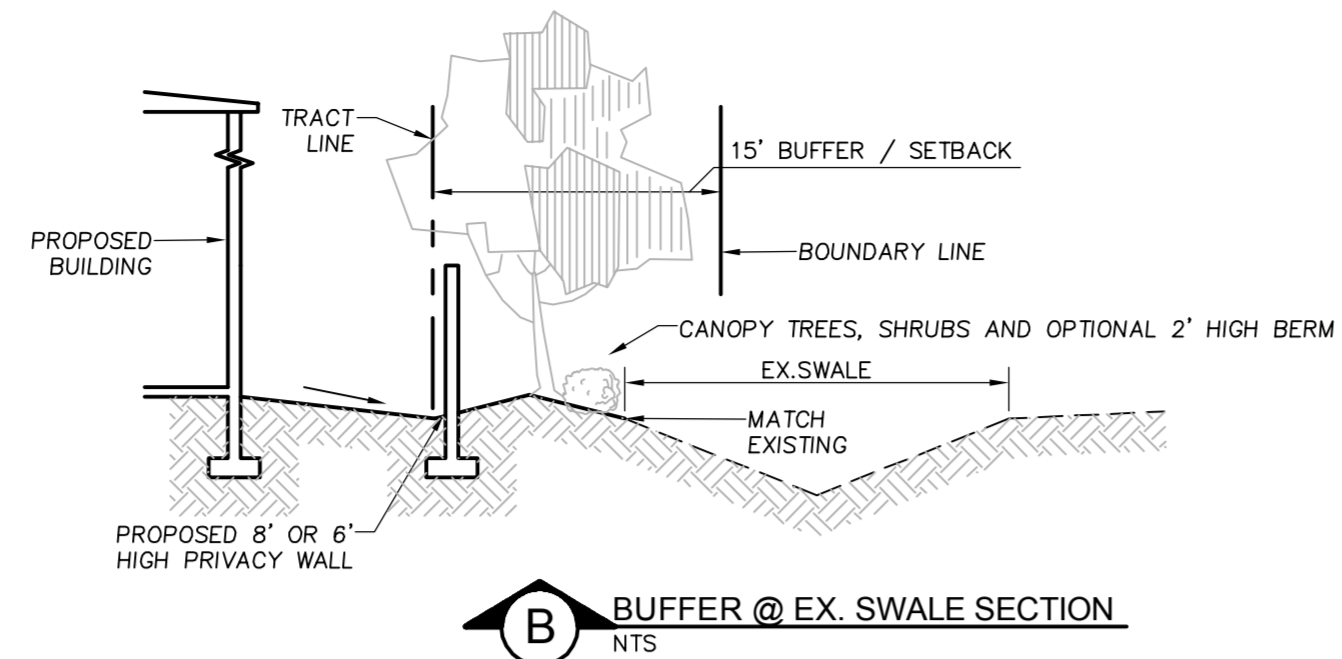
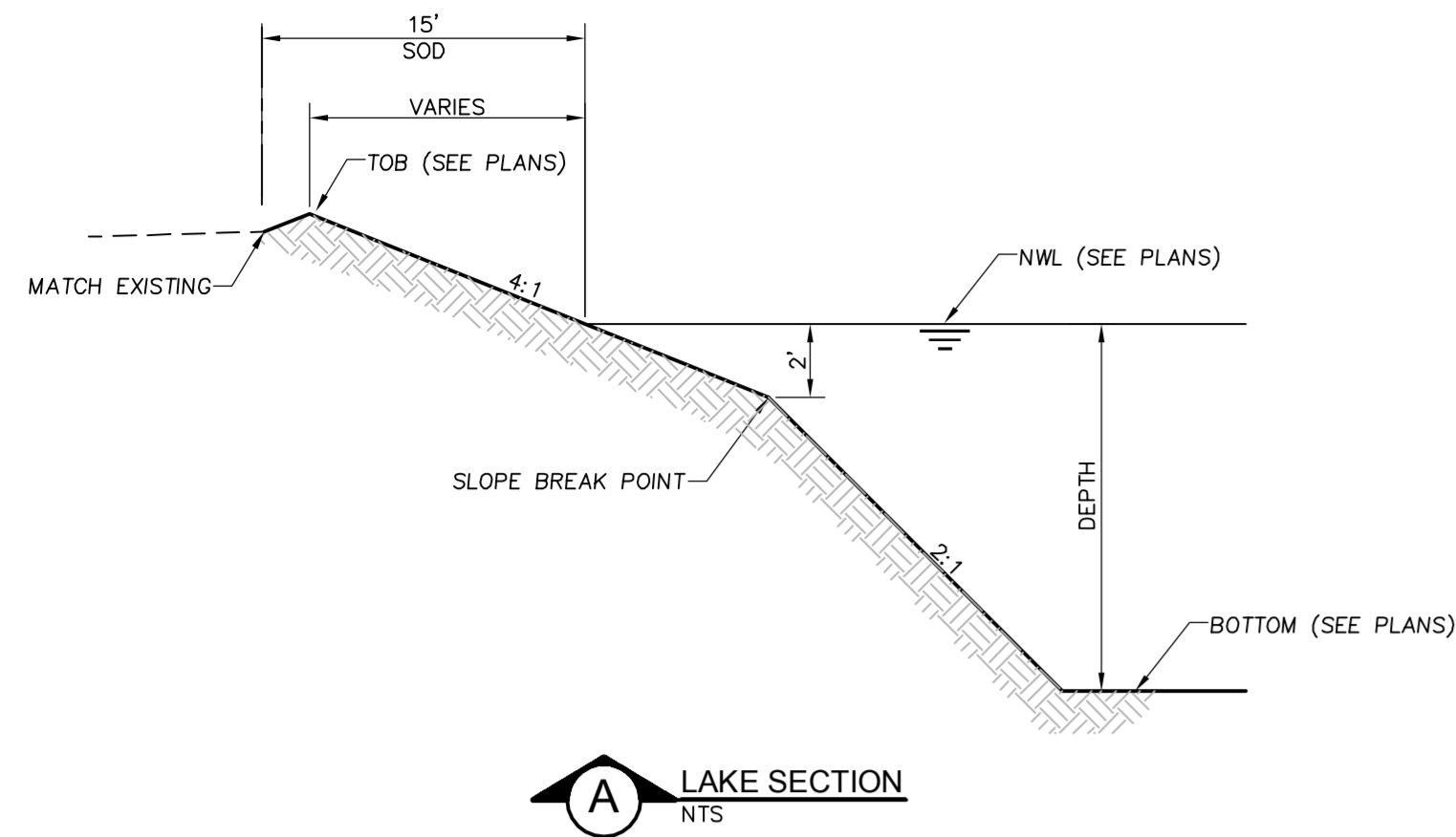
NO.	DATE	REVISION DESCRIPTION	BY

DATE	03/11/15
PROJECT	SGC
DRAWING	SP
DRAWN	SPM
CHECKED	MJM

SITE PLAN
SOUTHGATE COURT
 MANATEE COUNTY, FLORIDA

SCALE	1"=30'
SEC.-TSP.-RNG.	27-355-18E
SHEET	4
OF	8

MATTHEW J. MORRIS
 FL LICENSE NO. 68434



DRAINAGE STRUCTURE TABLE	
S-1	END WALL FOOT INDEX 250
S-2	4'0" JUNCTION MH FOOT INDEX 200/201
S-3	4'0" JUNCTION MH FOOT INDEX 200/201
S-4	CURB INLET (26"x4")
CS-1	CONTROL STRUCTURE TYPE C, FOOT INDEX 232
S-5	END WALL FOOT INDEX 250

PREPARED FOR:
GAFF GROUP, INC.
660 S. STATE COLLEGE BLVD.
FULLERTON, CA 92831
(714) 998-9789

M MORRIS ENGINEERING AND CONSULTING, LLC
Civil Engineering and Land Development Consulting
6981 Professional Parkway East, Lakewood Ranch, Florida 34240 C.A. 28780 941-444-6644 www.morrisengineering.net

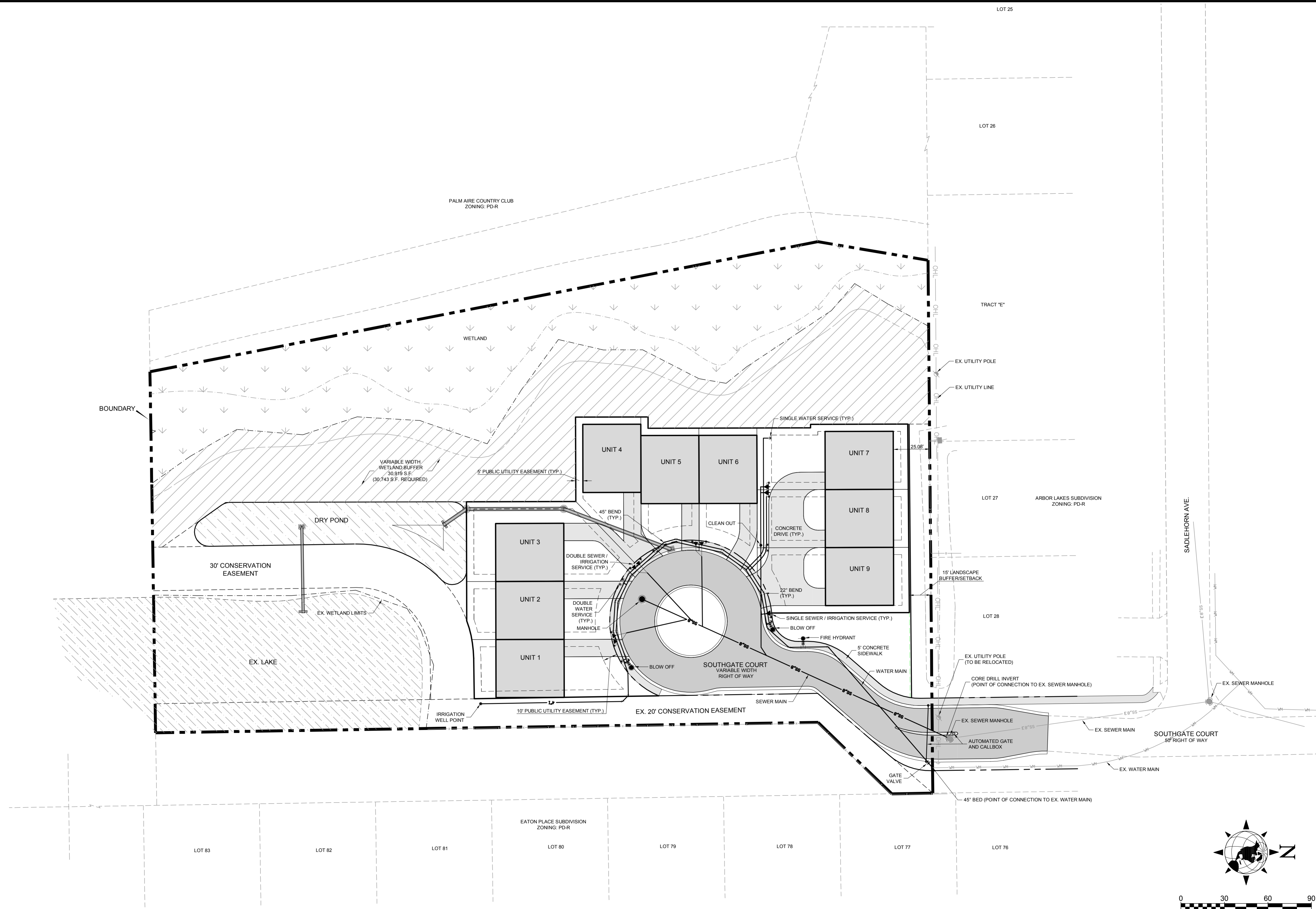
NO.	DATE	REVISION DESCRIPTION	BY

DATE	03/11/15
PROJECT	SGC
DRAWING	PGD
DRAWN	SPM
CHECKED	MJM

PAVING, GRADING, AND DRAINAGE PLAN
SOUTHGATE COURT
MANATEE COUNTY, FLORIDA

SCALE	1"=30'
SEC.-TSP.-RNG.	27-355-18E
SHEET	5
OF	8

MATTHEW J. MORRIS
FL LICENSE NO. 68434



PREPARED FOR:
GAFF GROUP, INC.
 660 S. STATE COLLEGE BLVD.
 FULLERTON, CA. 92831
 (714) 998-9789

M **MORRIS ENGINEERING AND CONSULTING, LLC**
 Civil Engineering and Land Development Consulting
 6981 Professional Parkway East, Lakewood Ranch, Florida 34240 C.A.28780 941-444-6644 www.morrisengineering.net

NO.	DATE	REVISION DESCRIPTION	BY

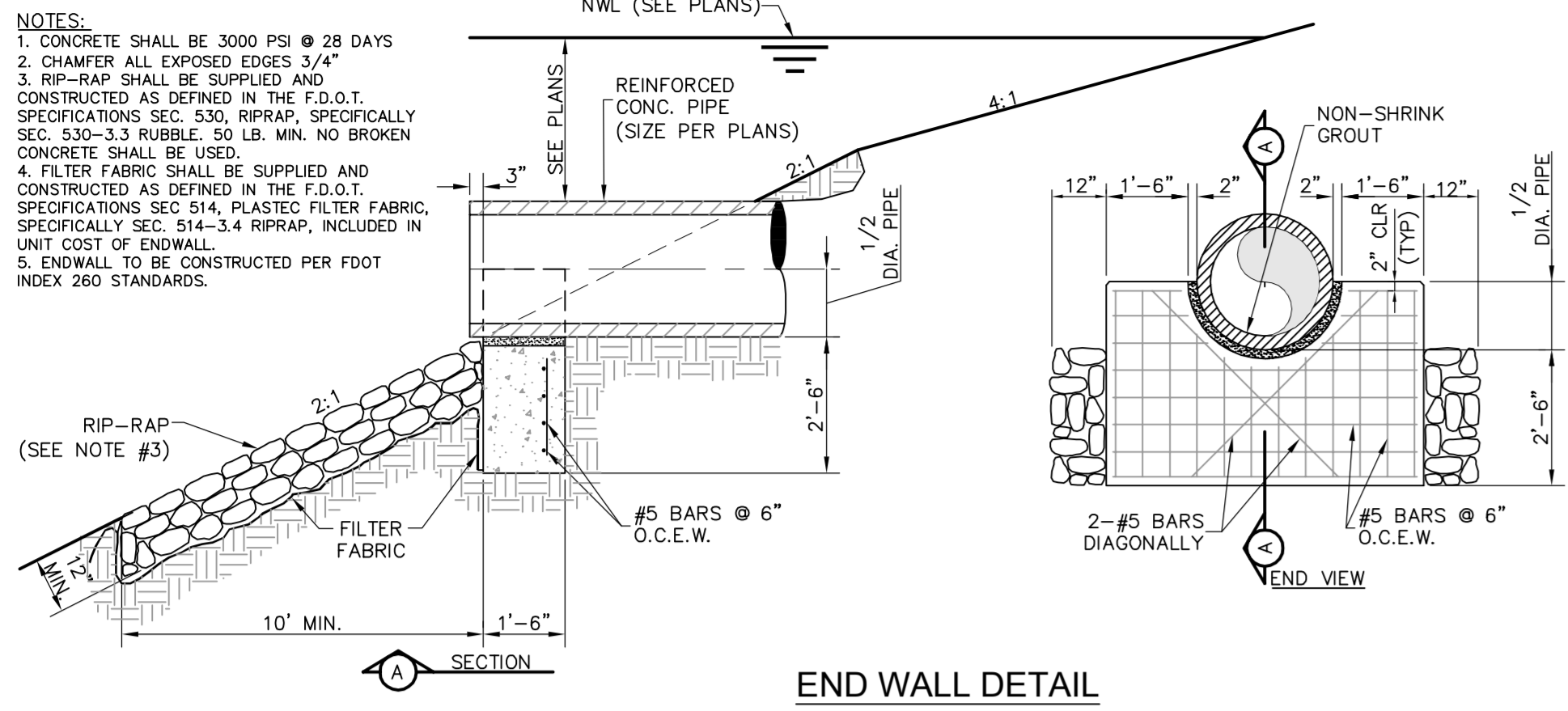
DATE	03/11/15
PROJECT	SGC
DRAWING	UT
DRAWN	SPM
CHECKED	MJM

UTILITY PLAN
SOUTHGATE COURT
 MANATEE COUNTY, FLORIDA

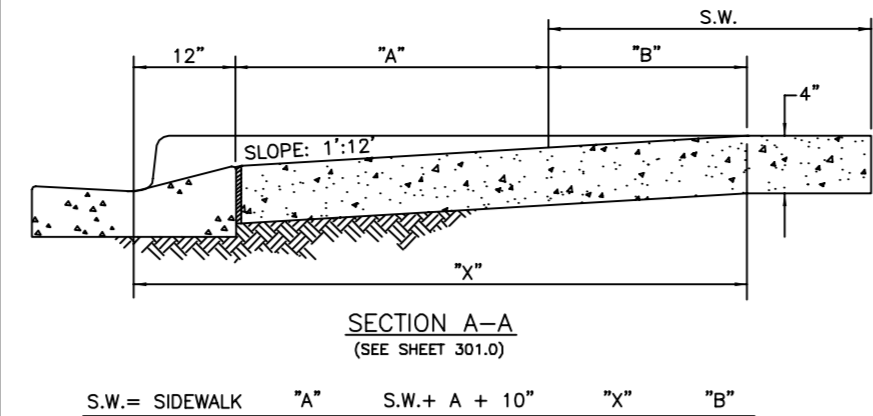
SCALE	
1" = 30'	
SEC.-TSP.-RNG.	
27-355-18E	
SHEET	OF
6	8

MATTHEW J. MORRIS
 FL LICENSE NO. 68434

- NOTES:
1. CONCRETE SHALL BE 3000 PSI @ 28 DAYS
 2. CHAMFER ALL EXPOSED EDGES 3/4"
 3. RIP-RAP SHALL BE SUPPLIED AND CONSTRUCTED AS DEFINED IN THE F.D.O.T. SPECIFICATIONS SEC. 530, RIPRAP, SPECIFICALLY SEC. 530-3.3 RUBBLE, 50 LB. MIN. NO BROKEN CONCRETE SHALL BE USED.
 4. FILTER FABRIC SHALL BE SUPPLIED AND CONSTRUCTED AS DEFINED IN THE F.D.O.T. SPECIFICATIONS SEC. 514, PLASTIC FILTER FABRIC, SPECIFICALLY SEC. 514-3.4 RIPRAP, INCLUDED IN UNIT COST OF ENDWALL.
 5. ENDWALL TO BE CONSTRUCTED PER FDOT INDEX 260 STANDARDS.

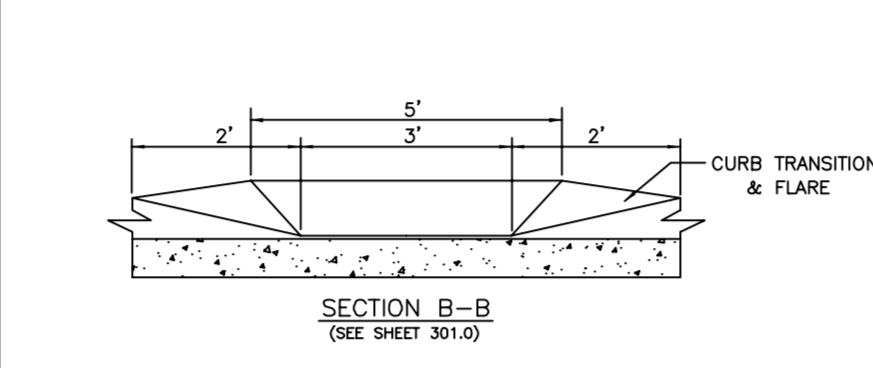


END WALL DETAIL



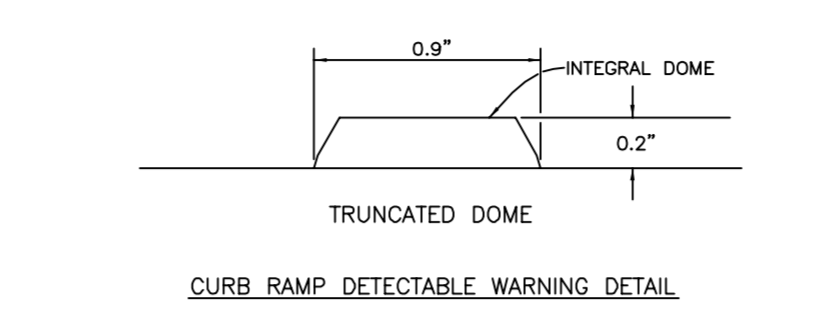
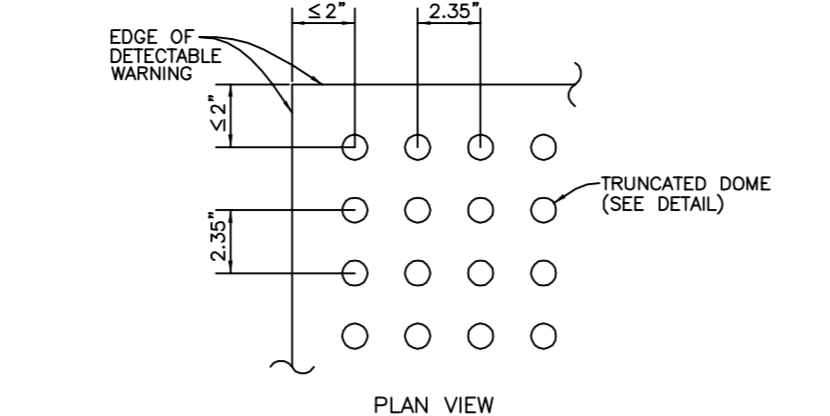
S.W. = SIDEWALK "A" S.W. + A + 10" "X" "B"

5'-0"	5.8'	5.8'	5'
6'-0"	6.8'	6.8'	6'
7'-0"	7.8'	7.8'	6.5'
8'-0"	8.8'	7.3'	6.5'
9'-0"	9.8'	8.3'	6.5'
10'-0"	10.8'	8.1'	4.8'
11'-0"	11.8'	8.2'	4.4'
12'-0"	12.8'	9.3'	8.4'
13'-0"	13.8'	8.6'	3.8'
14'-0"	14.8'	8.7'	3.4'
15'-0"	15.8'	9.1'	3.1'



SECTION B-B CURB TRANSITION & FLARE

MANATEE COUNTY	HANDICAPPED RAMP SHEET 2	302.2
REVISION DATE	6/12/07	
DATE OF B.O.C.C. APPROVAL		



NOTES:

DETECTABLE WARNINGS ON WALKING SURFACES

THE DETECTABLE WARNING SHALL EXTEND THE FULL WIDTH AND DEPTH OF THE CURB RAMP. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 2.35 INCH AND A HEIGHT OF NOMINAL 0.2 INCH AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 INCH AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.

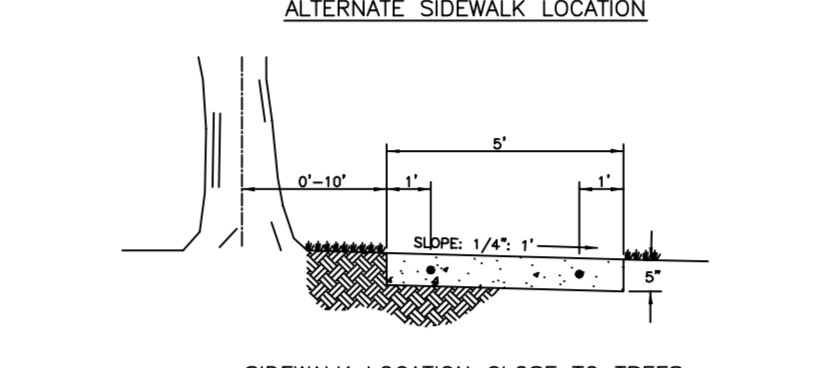
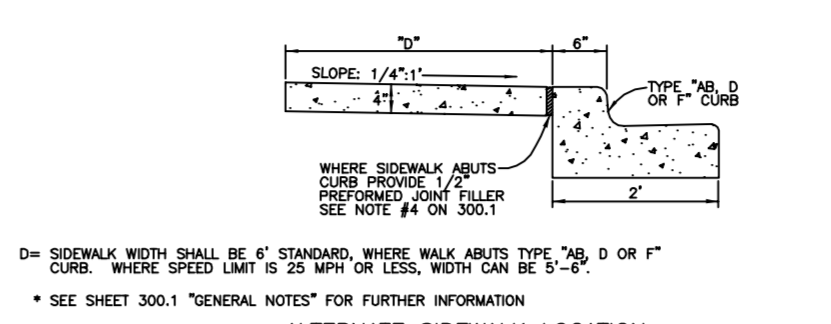
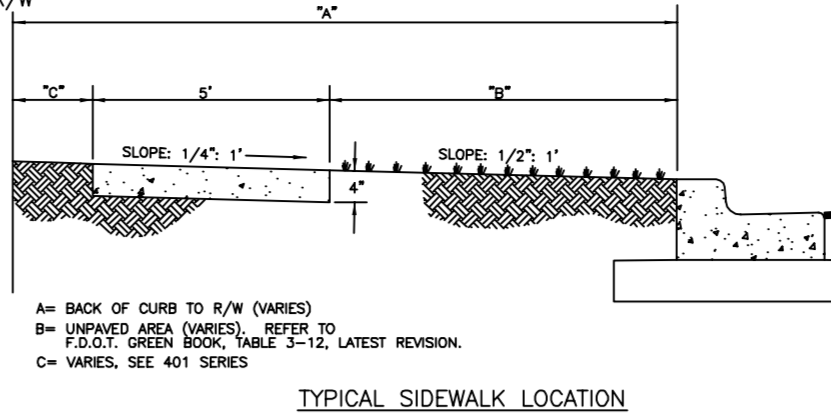
THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE. DETECTABLE WARNINGS USED ON INTERIOR SURFACES SHALL DIFFER FROM ADJOINING WALKING SURFACES IN RESILIENCY OF SOUND-ON-CONTACT.

THE MATERIAL USED TO PROVIDE CONTRAST SHOULD CONTRAST BY AT LEAST 70%. CONTRAST = [(B1-B2)/B1] x 100

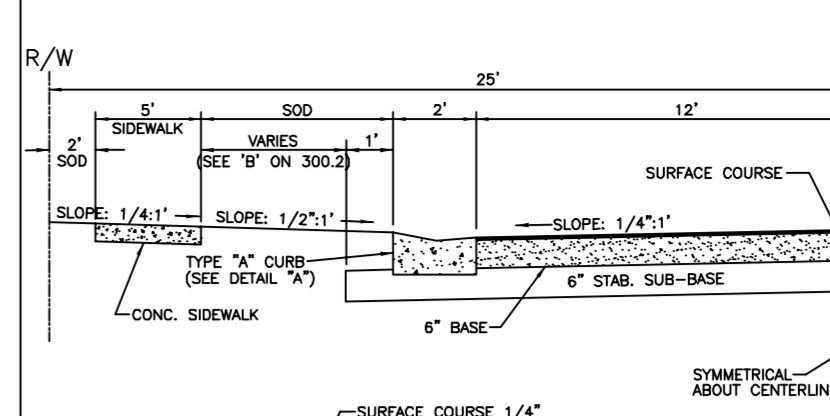
WHERE B1 = LIGHT REFLECTANCE VALUE (LRV) OF THE LIGHTER AREA AND B2 = LIGHT REFLECTANCE VALUE (LRV) OF THE DARKER AREA.

NOTE THAT IN ANY APPLICATION BOTH WHITE AND BLACK ARE NEVER ABSOLUTE, BUT, B1 NEVER EQUALS 100 AND B2 IS ALWAYS GREATER THAN 0.

MANATEE COUNTY	CURB RAMP DETECTABLE WARNINGS	302.3
REVISION DATE	6/12/07	
DATE OF B.O.C.C. APPROVAL		



MANATEE COUNTY	SIDEWALK REQUIREMENTS	301.1
REVISION DATE	6/12/07	
DATE OF B.O.C.C. APPROVAL		



NOTES:

A) Asphalt concrete surface course shall be laid in two lifts. The first lift shall be 1" Type S-1 or S-1. The second lift shall be 3/4" Type S-1. A performance bond shall be required if the second lift is delivered beyond acceptance of the road.

B) Base course shall consist of 4-1/2" compacted sand asphalt base (1200 lbs. stab.) or 6" Compacted stone shell compacted to 95% density (1000 lbs. stab.) or 6" soil cement.

C) 6" stabilized sub-base shall meet minimum LBR 40, 588 1180 ASHTO.

D) On new construction, sanitary sewer may be placed on centerline of R/W if desired. All laterals to be installed at the same time as sanitary sewer main line.

E) See section 201.0 for curb and gutter types.

F) No portion of drainage pipe shall be allowed in sub-base. Minimum cover is required on storm drain.

G) Sidewalk shall be 1' or 2' inside R/W line, with 2' preferable. To be constructed per section 300.1.

H) Laboratory tests are required to substantiate structural section design. Specifications shown on the sheet are minimum requirements.

I) If sidewalks are not required, only 2" of soil is required back of curb. Hydrant balance of right-of-way.

J) Siding shall be installed per section 400.1 (B).

K) Or approved equal, meeting same structural number.

MANATEE COUNTY	LOCAL URBAN RESIDENTIAL	401.8
REVISION DATE	6/12/07	
DATE OF B.O.C.C. APPROVAL		

- GENERAL NOTES
1. ALL REFERENCED STANDARDS SHALL BE LATEST REVISION.
 2. CONCRETE SHALL BE CLASS "1" AS SPECIFIED IN SECTION 345 OF F.D.O.T. SPECIFICATIONS.
 3. SEE SECTION 425-2.2 "NORM" OF FLORIDA D.O.T. SPECIFICATIONS.
 4. IRON CASTING SHALL BE AS SPECIFIED IN SECTION 862-8 OF F.D.O.T. SPECIFICATIONS. SEE SECTION 425-3.
 5. ALL REINFORCEMENT STEEL SHALL BE AS SPECIFIED IN SECTIONS 415 & 831.1 OF F.D.O.T. SPECIFICATIONS.
 6. SEE FLORIDA D.O.T. SPECIFICATIONS FOR GRADINGS.
 7. SEE FLORIDA D.O.T. SPECIFICATIONS FOR SECTION 125 "EXCAVATION FOR STRUCTURES."
 8. PRECAST TOP AND BOTTOM TO BE F.D.O.T. STANDARDS WITH MINIMUM TRAFFIC BEARING 8" THICKNESS.
 9. ALL STORMWATER PIPE SHALL BE INSTALLED BEHIND THE CURB OR EDGE OF PAVEMENT AND WITHIN THE RIGHT OF WAY AND WITHIN THE DRAINAGE EASEMENTS.
 10. THE FOLLOWING IS THE ORANGE STRUCTURE WALL MINIMUM THICKNESS:

PRECAST BLOCK	8" EITHER WAY
NON-TRAFFIC 6"	8" EITHER WAY
- NOTE: FOR ORANGE STRUCTURES WITH PIPE DIAMETERS UP TO AND INCLUDING 24", 6" PRECAST WALLS ARE ACCEPTABLE FOR TRAFFIC BEARING.

PIPE SIZE	TYPE	"C"	"D"	"E"	"F"	"G"	"H"
15"	RCP	2'8"	4'	5'	4'	5'4"	6'4"
12"x18"	RCP	-	-	-	-	-	-
18"	RCP	-	-	-	-	-	-
14"x23"	RCP	-	-	-	-	-	-
24"	RCP	3'4"	4'8"	5'8"	-	-	-
19"x30"	RCP	4'	5'4"	6'4"	-	-	-
30"	RCP	-	-	-	-	-	-
24"x38"	RCP	5'	6'4"	7'4"	-	-	-
36"	RCP	5'	6'4"	-	-	-	-
66"	RCP	8'5"	9'9"	10'9"	4'8"	6'0"	7'0"

MANATEE COUNTY	DRAINAGE CONTROL SHEET	202.0
REVISION DATE	6/12/07	
DATE OF B.O.C.C. APPROVAL		



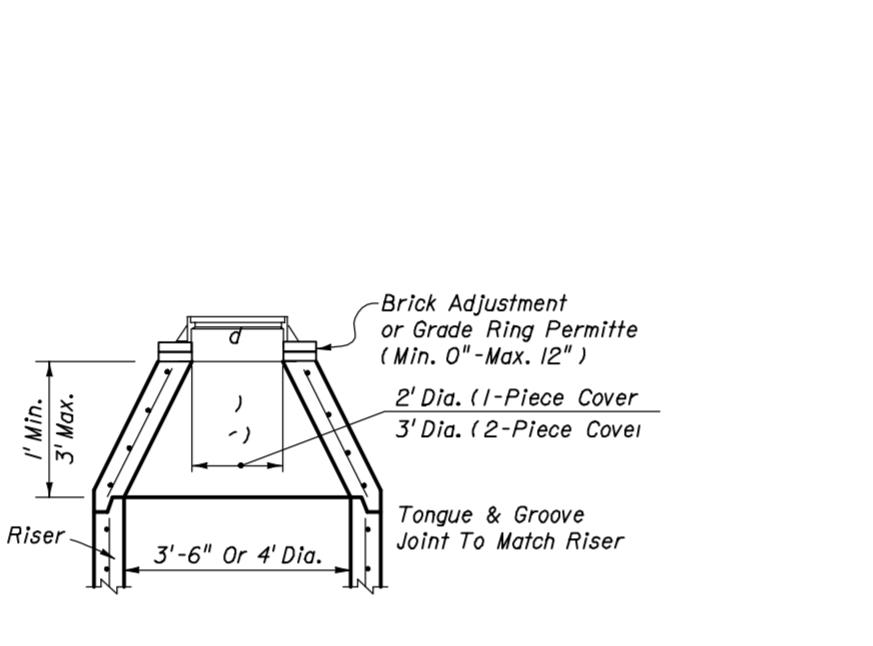
PRECAST CONCENTRIC CONE TYPE B MANHOLE TOPS



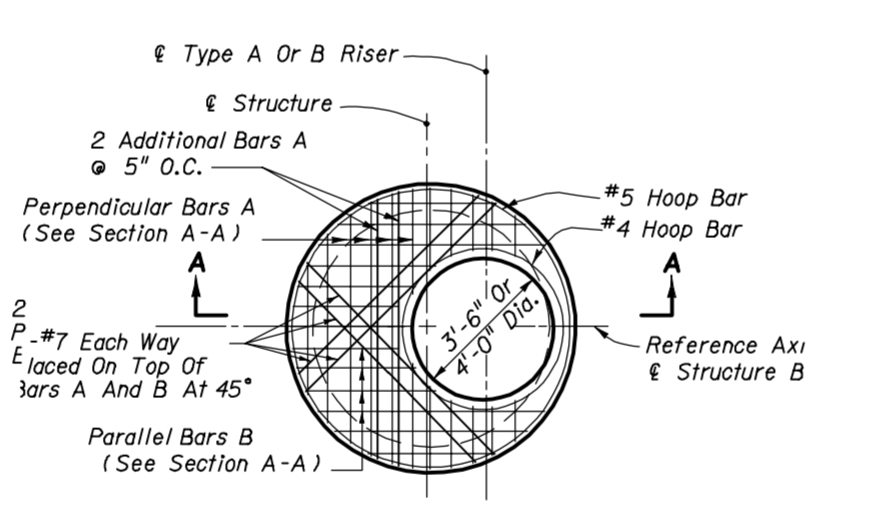
TOP SLAB REINFORCING STEEL DIAGRAM (ALTERNATE A)



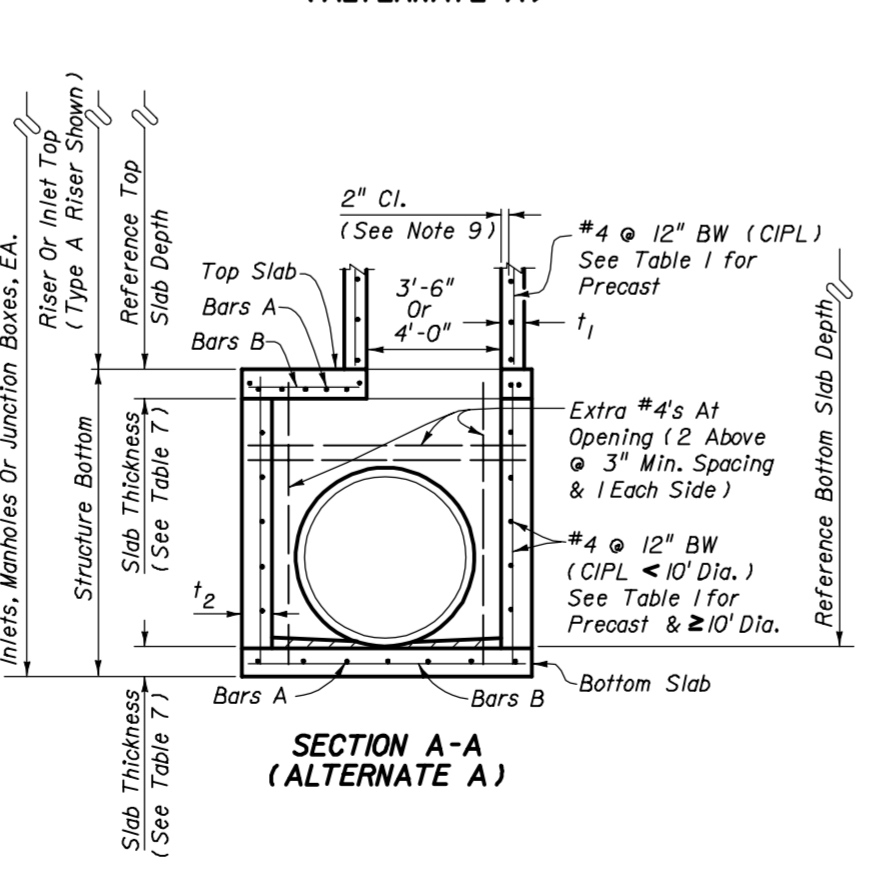
JUNCTION MANHOLE DETAIL FDOT INDEX 200/201



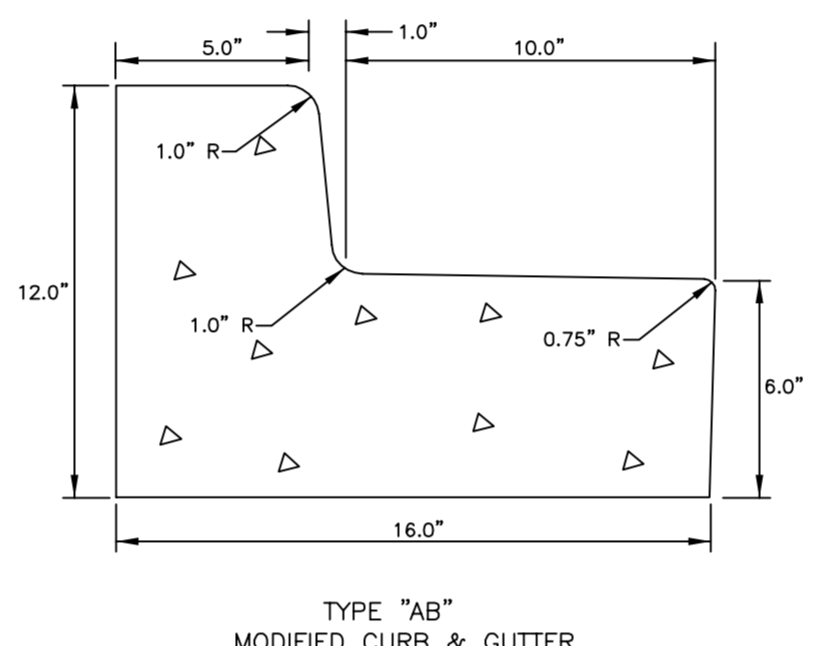
TYPE "AB" MODIFIED CURB & GUTTER



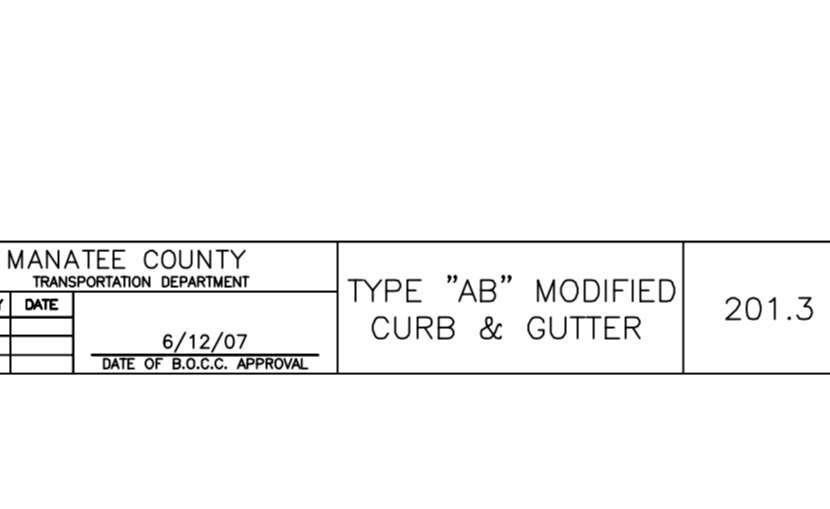
TYPE A MIAMI CURB & GUTTER



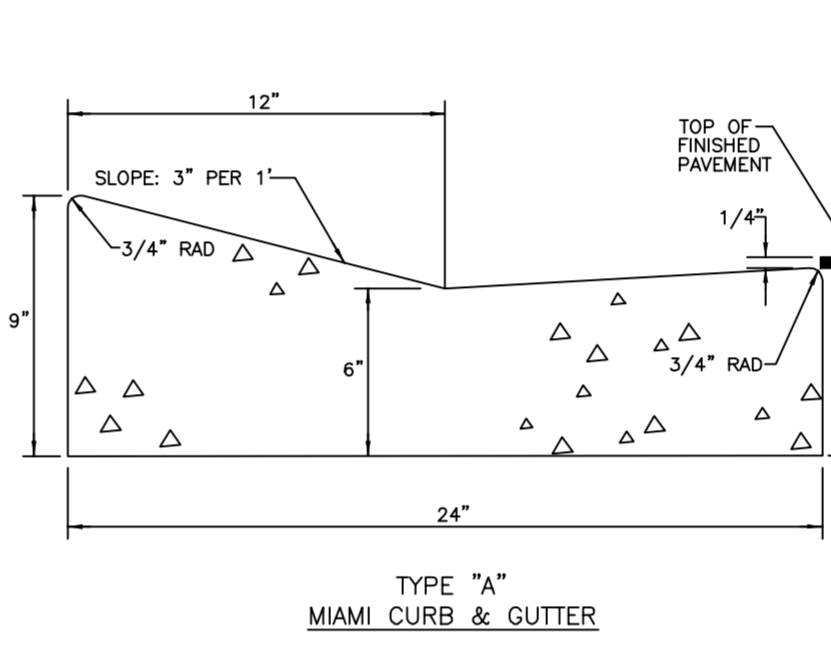
RESIDENTIAL CURB-DE-SAC



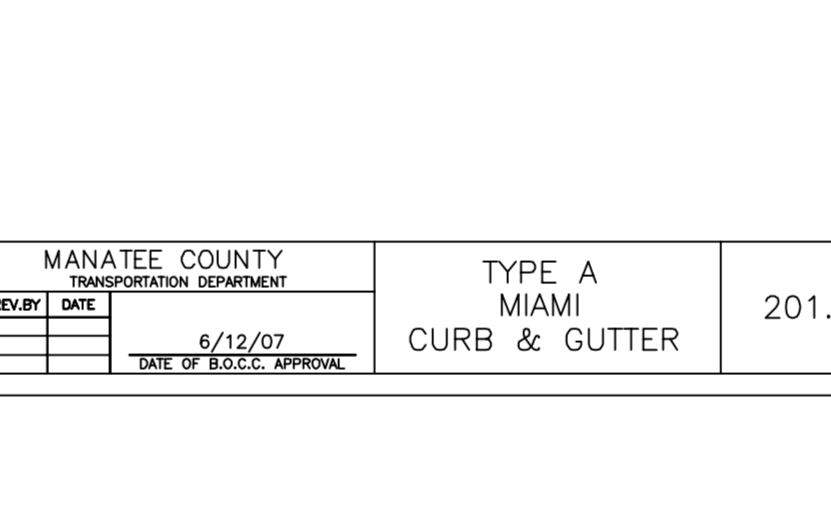
INDUSTRIAL CURB-DE-SAC



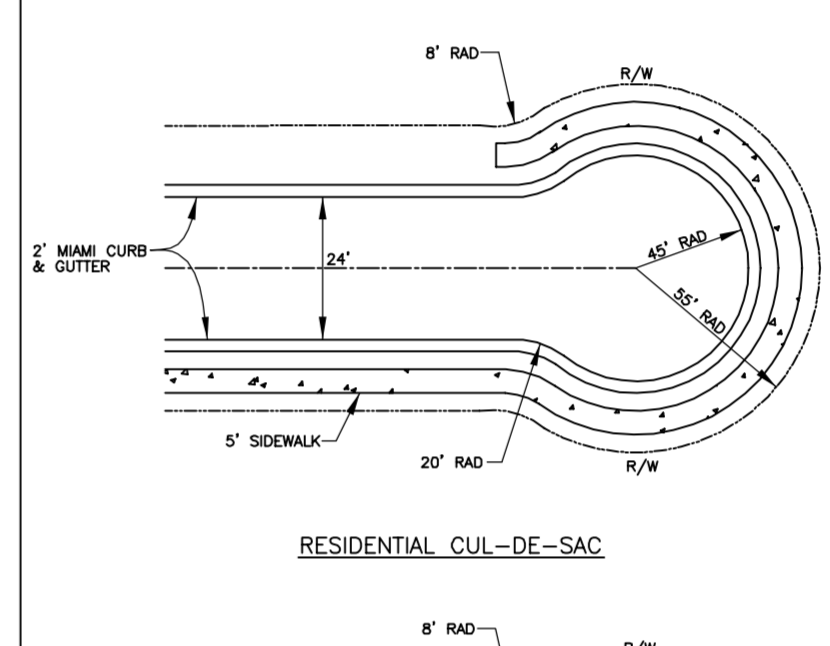
TYPICAL CONC. BLOCK BOX



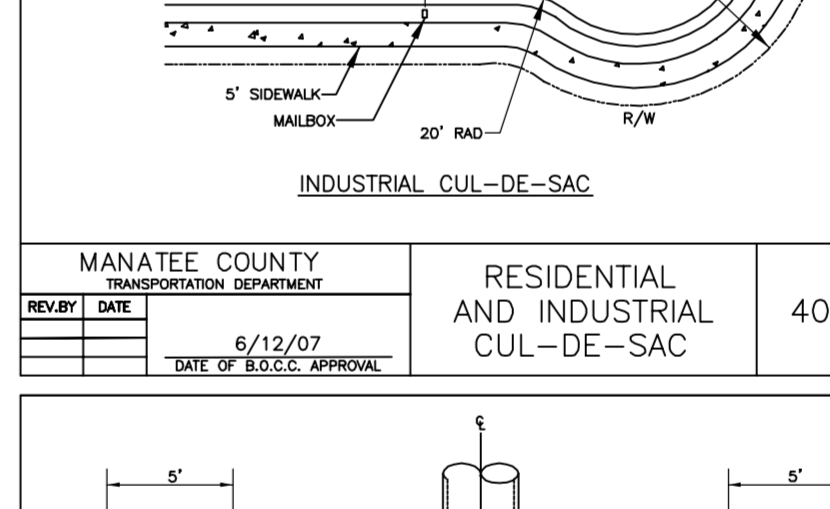
ROAD CONNECTION DETAIL



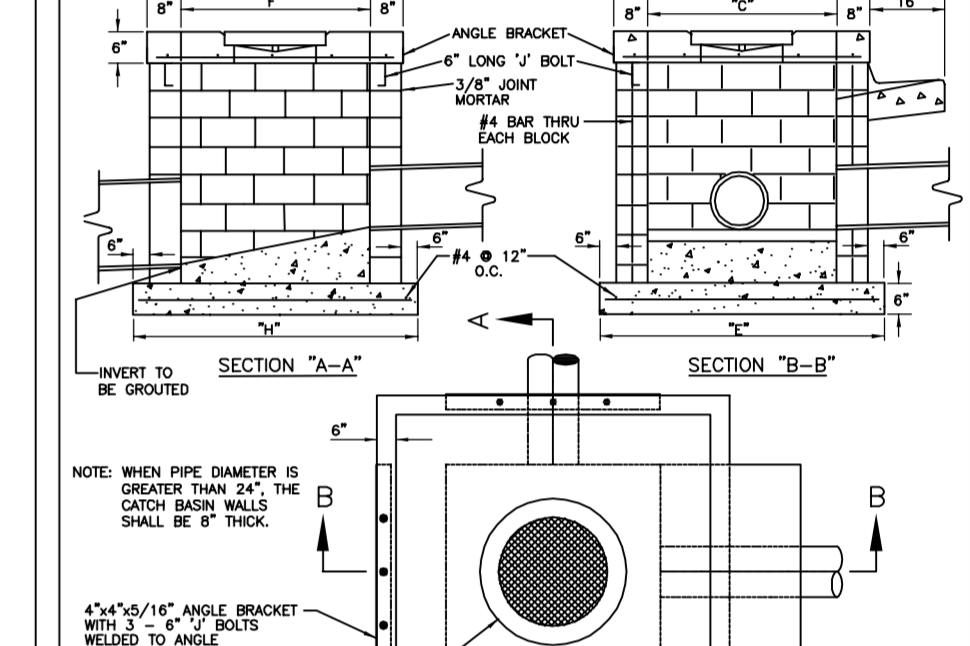
CURB INLET



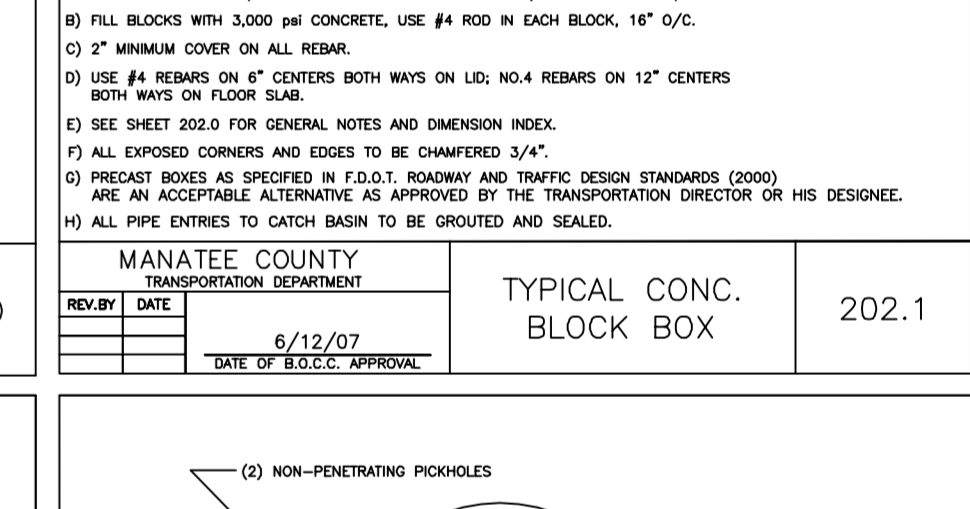
ACCESS COVER FOR STORMWATER JUNCTION BOX (PRIVATE)



ROAD CONNECTION DETAIL



ROAD CONNECTION DETAIL



ROAD CONNECTION DETAIL

GAFF GROUP, INC.
660 S. STATE COLLEGE BLVD.
FULLERTON, CA 92831
(714) 998-9789

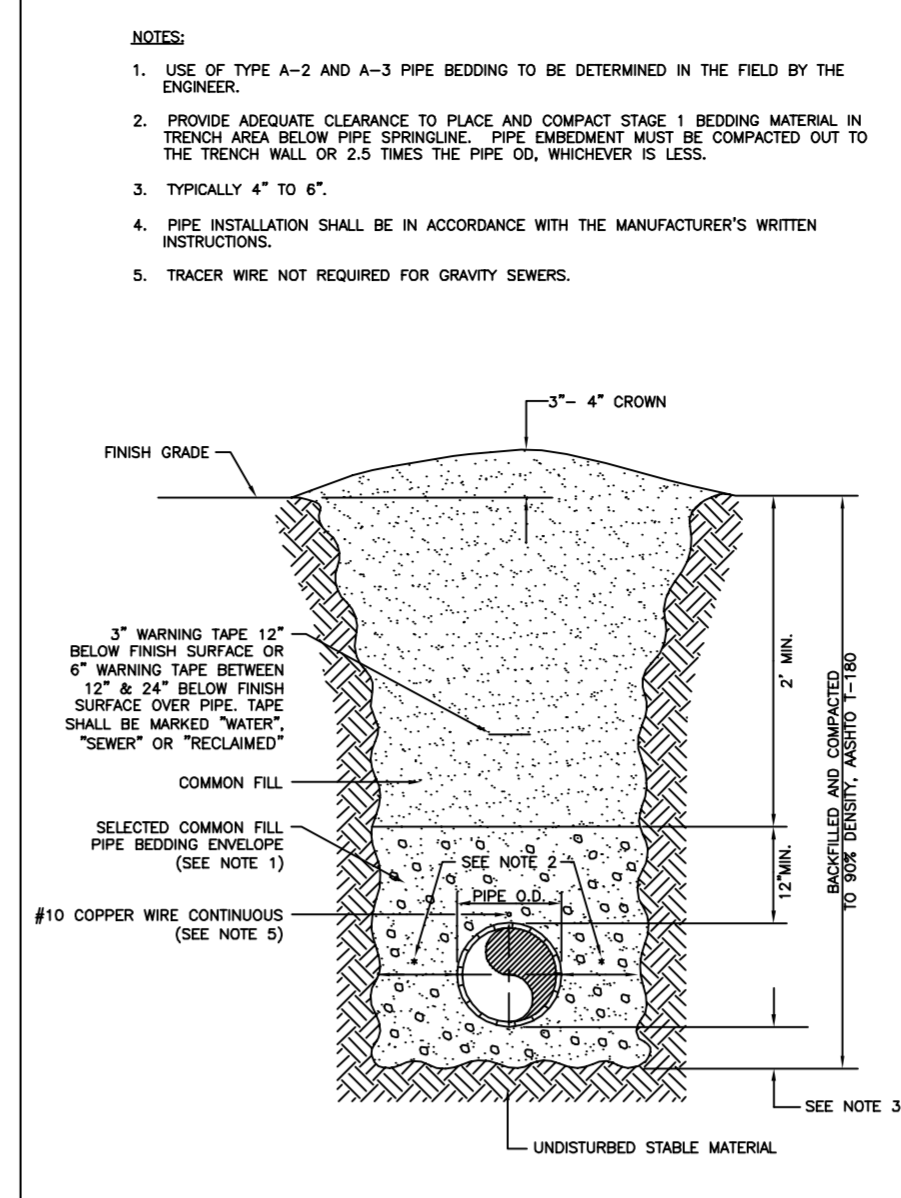
MORRIS ENGINEERING AND CONSULTING, LLC
Civil Engineering and Land Development Consulting
6981 Professional Parkway East, Lakewood Ranch, Florida 34240 C.A.28780 941-444-6644 www.morriseng.com

NO.	DATE	REVISION DESCRIPTION	BY

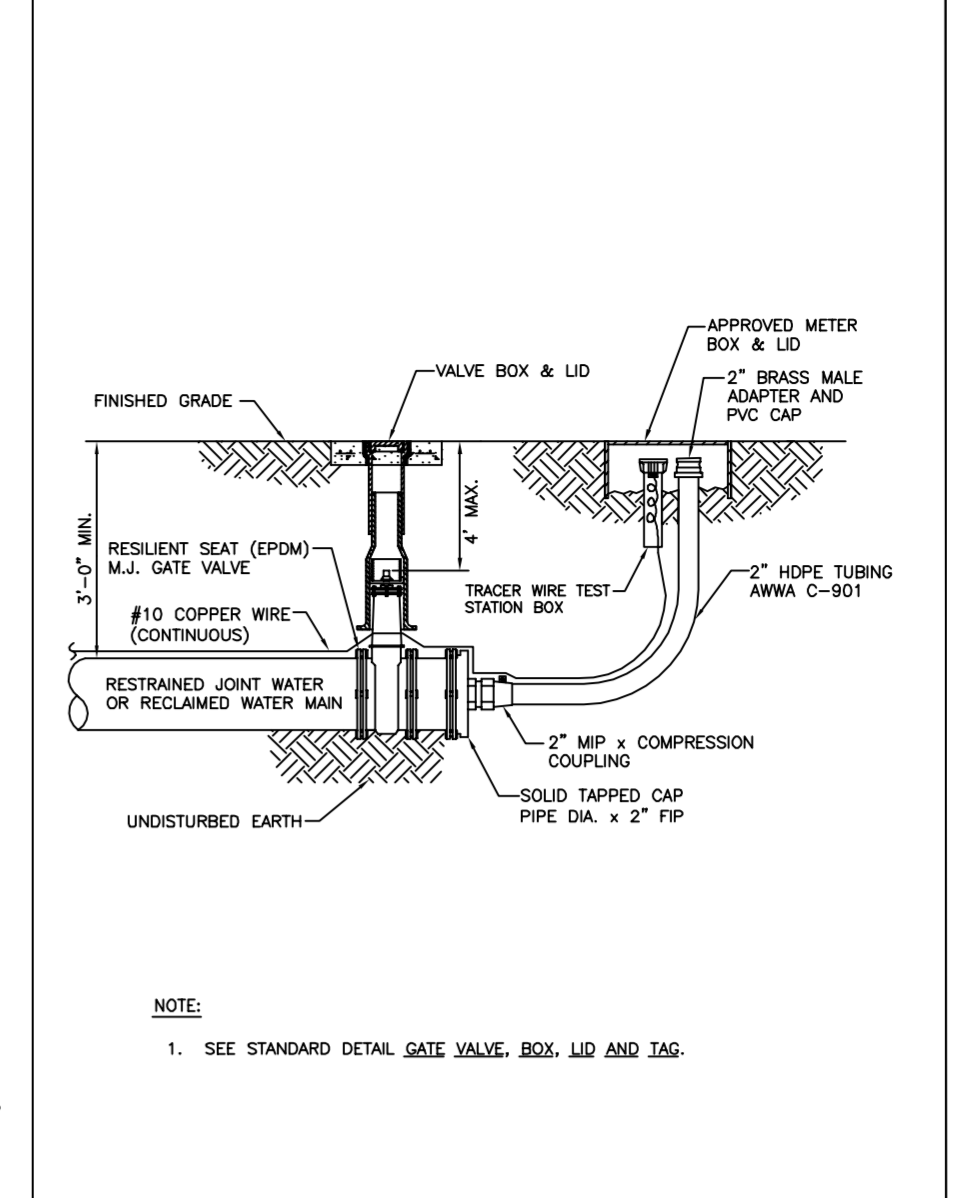
DATE 03/11/15
PROJECT SGC
DRAWING PGD-DT
DRAWN SPM CHECKED MJM

PAVING GRADING AND DRAINAGE DETAILS
SOUTHGATE COURT
MANATEE COUNTY, FLORIDA

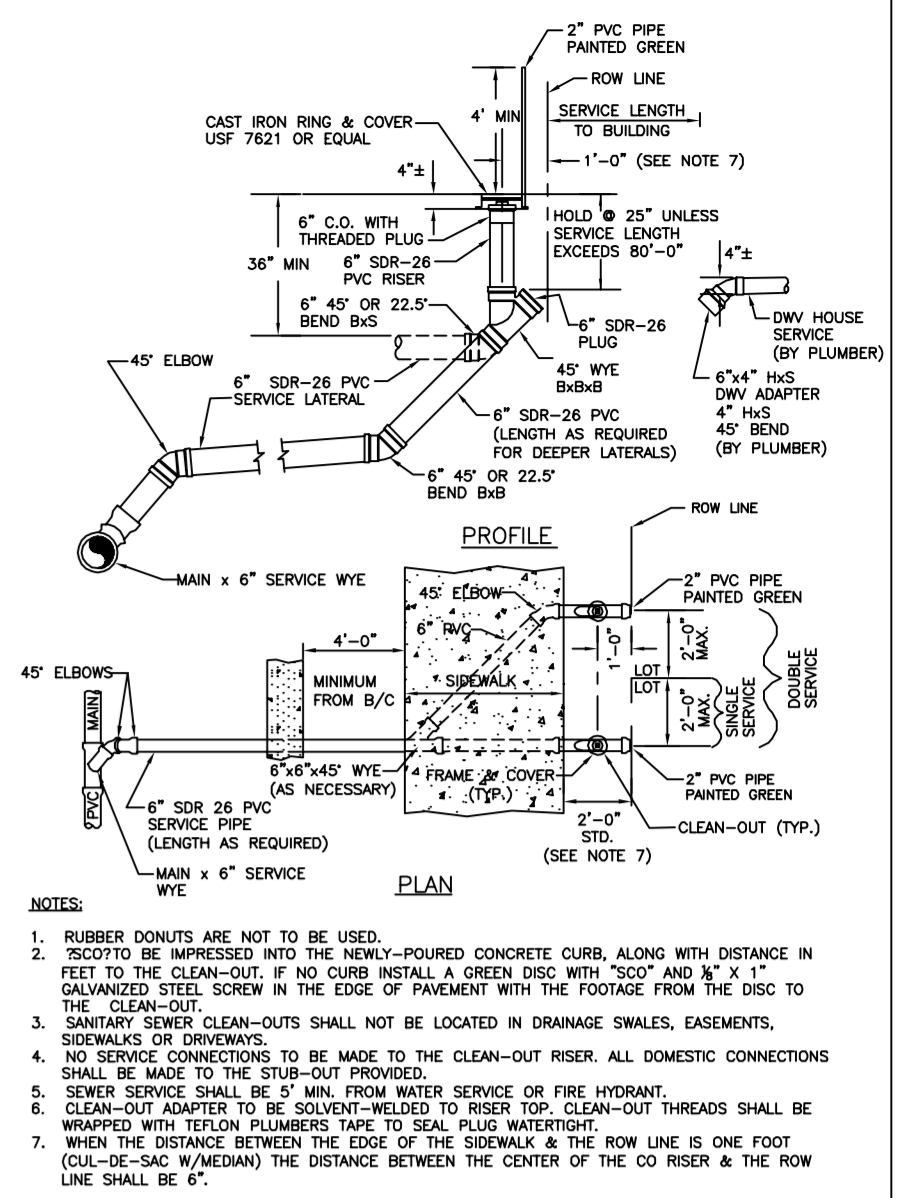
SCALE NTS
SEC.-TSP.-RNG. 27-355-18E
SHEET 7 OF 8
MATTHEW J. MORRIS
FL LICENSE NO. 68434



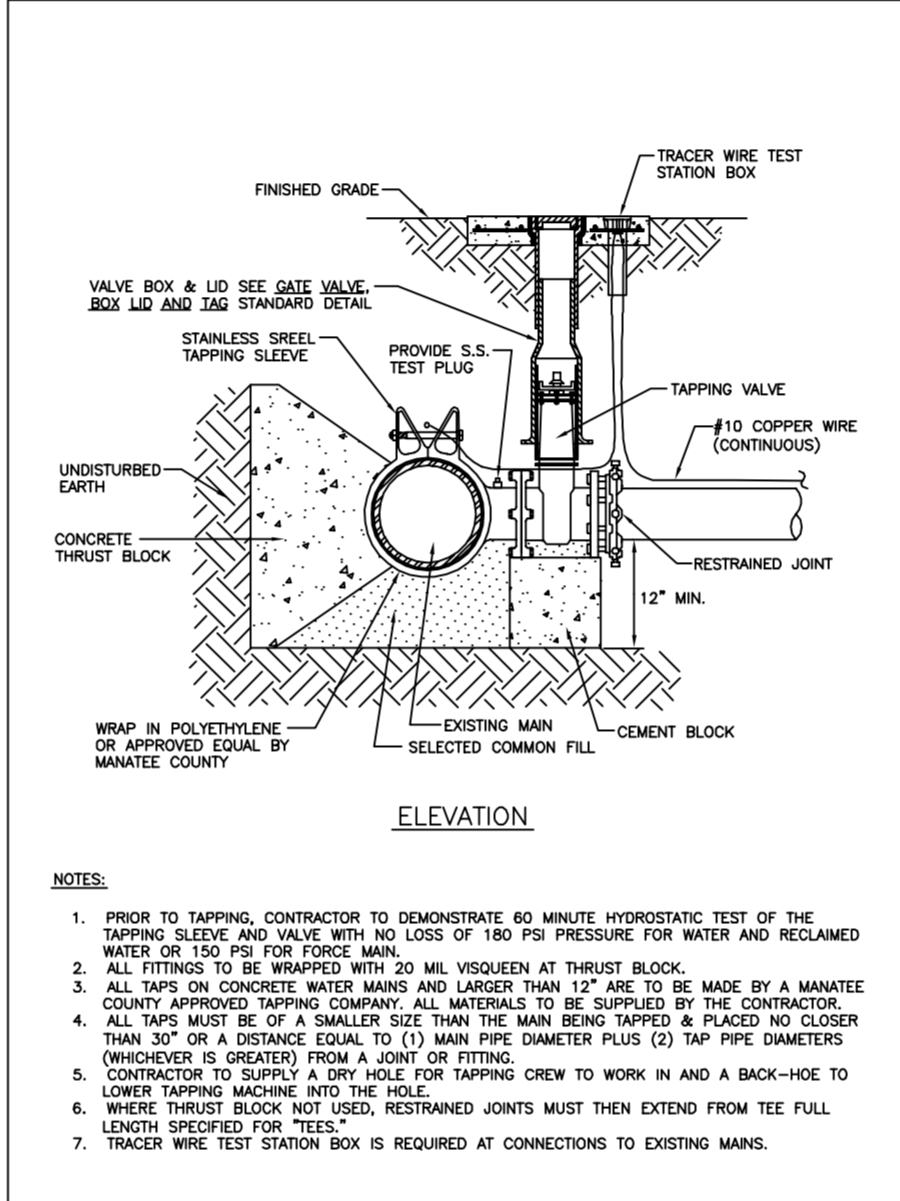
MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING UG-11
 REV. DATE: MAY 10, 2011
 DATE OF APPROVAL: MAY 10, 2011
 PAGE 111



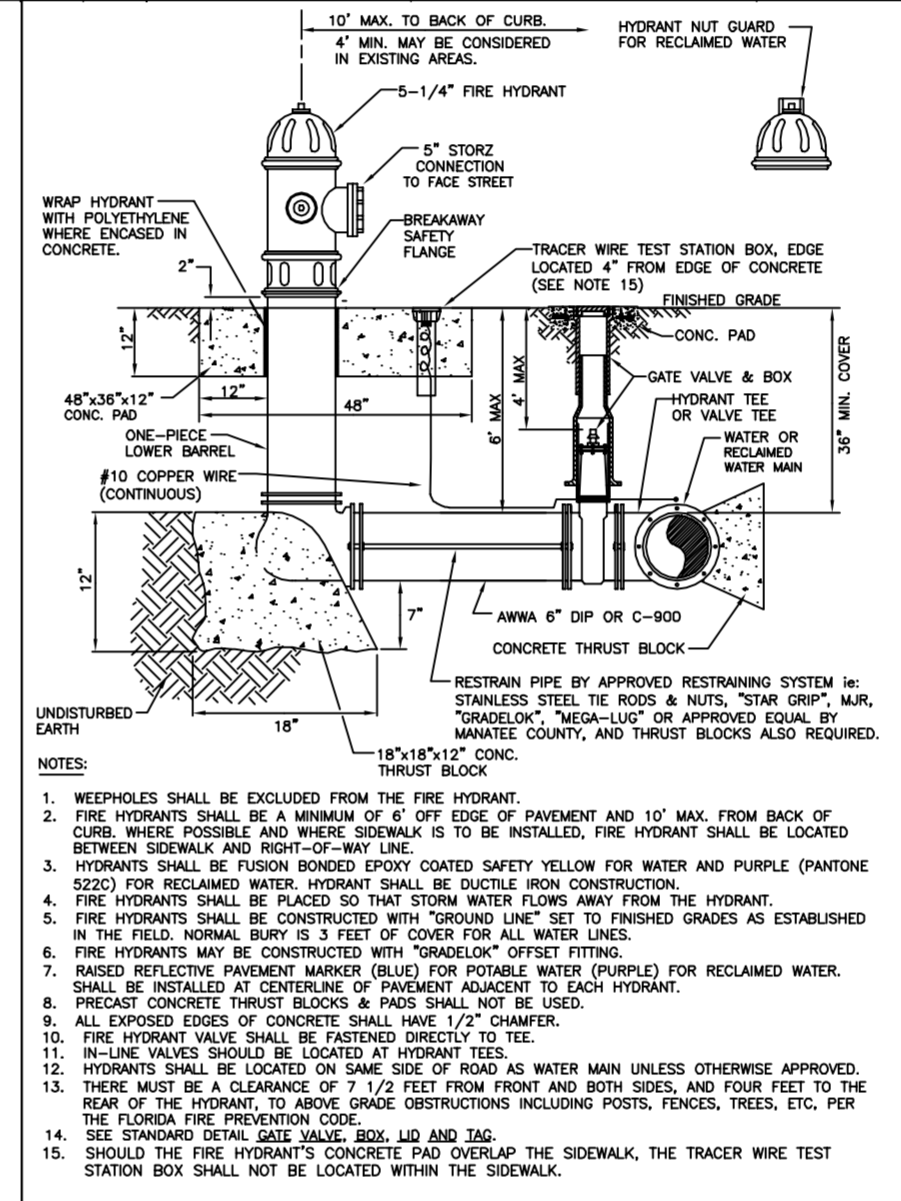
MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 2\"/>
 REV. DATE: MAY 10, 2011
 DATE OF APPROVAL: MAY 10, 2011
 PAGE 125



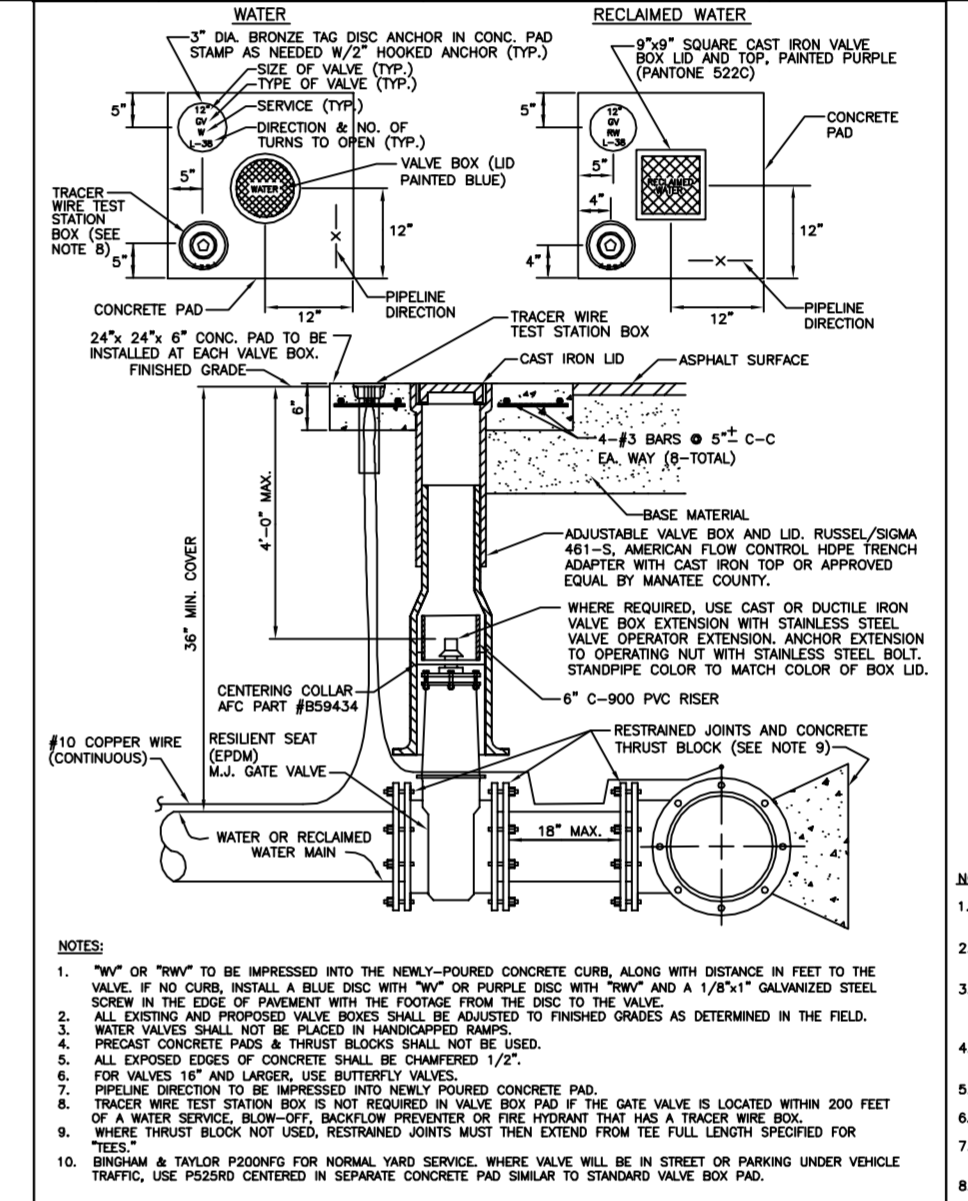
MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 SINGLE AND DOUBLE SERVICE CONNECTION US-13
 REV. DATE: MAY 10, 2011
 DATE OF APPROVAL: MAY 10, 2011
 PAGE 153



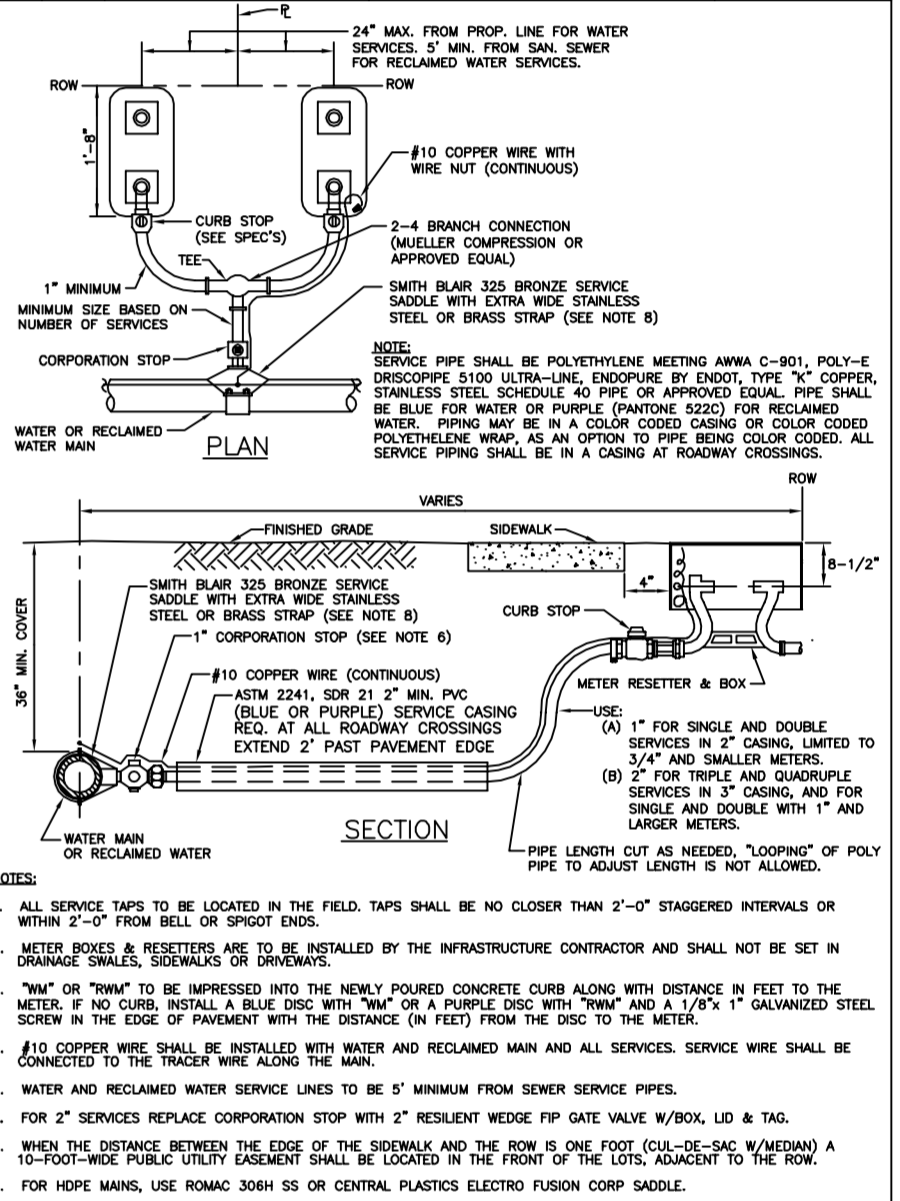
MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 TAPPING SLEEVE AND VALVE UW-4
 REV. DATE: MAY 10, 2011
 DATE OF APPROVAL: MAY 10, 2011
 PAGE 122



MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 FIRE HYDRANT ASSEMBLY UW-5
 REV. DATE: MAY 10, 2011
 DATE OF APPROVAL: MAY 10, 2011
 PAGE 123



MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 GATE VALVE, BOX, LID AND TAG UW-2
 REV. DATE: MAY 10, 2011
 DATE OF APPROVAL: MAY 10, 2011
 PAGE 120



MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 TYPICAL SERVICE CONNECTION UW-19
 REV. DATE: MAY 10, 2011
 DATE OF APPROVAL: MAY 10, 2011
 PAGE 137

THRUFAST BLOCK DIMENSIONS IN. x d. inches

PIPE SIZE (IN.)	90° BEND	45° BEND	22.5° BEND	11.25° BEND	TEE	45° WYE
4	1.5	3.3	1.1	3.3	0.8	3.3
6	2.2	5.3	1.6	3.3	1.2	3.3
8	2.9	7	2.1	5	1.5	3.3
10	3.5	8.3	2.6	6.3	1.9	4.3
12	4.2	10	3.1	7.3	2.2	5.3
14	4.9	11.3	3.6	8.3	2.6	6.3
16	5.5	13.3	4.1	9.3	2.9	7
18	6.2	15	4.6	11	3.3	8
20	6.9	16.3	5.0	12	3.6	8.3
24	8.2	19.3	6.0	14.3	4.3	10
30	10.1	24.3	7.5	18	5.3	12
36	12.1	29	8.9	21.3	6.4	15

REINFORCEMENT MAT SCHEDULE

FOR DIM. 7\"/>

MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 CONCRETE THRUST BLOCKS UG-7
 REV. DATE: MAY 10, 2011
 DATE OF APPROVAL: MAY 10, 2011
 PAGE 107

REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DR-18 PVC PIPE

MAIN PIPE SIZE	HORIZ. BENDS	TEES		REDUCERS		PLUGS & VALVES	
		SIZE LENGTH	SIZE LENGTH	SIZE LENGTH	SIZE LENGTH		
24	90°	38	18	24	12	18	12
20	90°	32	16	20	10	15	10
16	90°	27	13	16	8	12	8
12	90°	22	10	12	6	10	6
8	90°	18	8	8	4	8	4
4	90°	14	6	6	3	6	3

REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (NON-WRAPPED)

MAIN PIPE SIZE	HORIZ. BENDS	TEES		REDUCERS		PLUGS & VALVES	
		SIZE LENGTH	SIZE LENGTH	SIZE LENGTH	SIZE LENGTH		
36	90°	42	20	28	14	20	14
30	90°	37	18	24	12	18	12
24	90°	31	15	20	10	15	10
20	90°	27	13	18	9	13	9
16	90°	22	11	15	7	11	7
12	90°	18	8	12	6	9	6
8	90°	14	7	9	5	7	5
4	90°	11	5	7	4	5	4

MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 RESTRAINED LENGTHS FOR PVC PIPE UG-8
 REV. DATE: MAY 10, 2011
 DATE OF APPROVAL: MAY 10, 2011
 PAGE 108

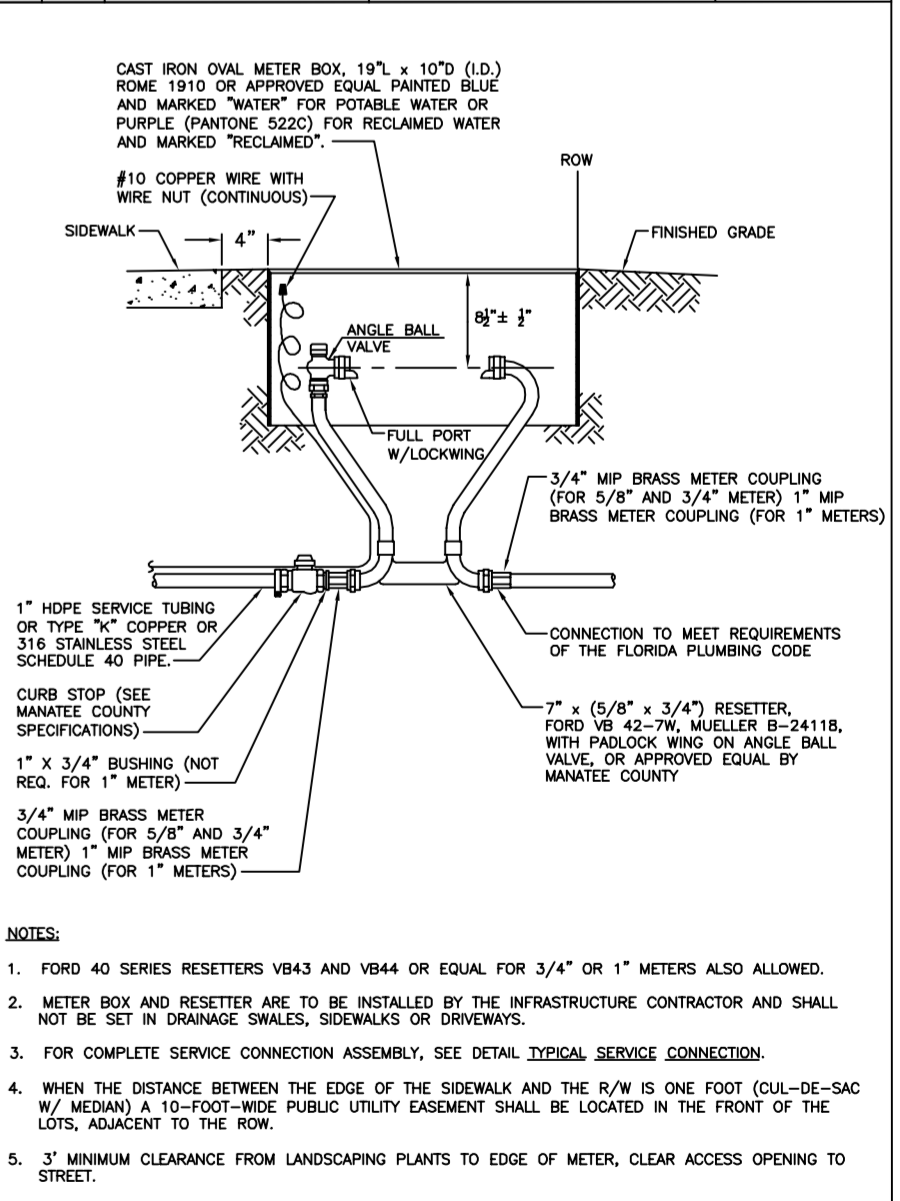
REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (POLY-WRAPPED)

MAIN PIPE SIZE	HORIZ. BENDS	TEES		REDUCERS		PLUGS & VALVES	
		SIZE LENGTH	SIZE LENGTH	SIZE LENGTH	SIZE LENGTH		
36	90°	42	20	28	14	20	14
30	90°	37	18	24	12	18	12
24	90°	31	15	20	10	15	10
20	90°	27	13	18	9	13	9
16	90°	22	11	15	7	11	7
12	90°	18	8	12	6	9	6
8	90°	14	7	9	5	7	5
4	90°	11	5	7	4	5	4

REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (NON-WRAPPED)

MAIN PIPE SIZE	HORIZ. BENDS	TEES		REDUCERS		PLUGS & VALVES	
		SIZE LENGTH	SIZE LENGTH	SIZE LENGTH	SIZE LENGTH		
36	90°	42	20	28	14	20	14
30	90°	37	18	24	12	18	12
24	90°	31	15	20	10	15	10
20	90°	27	13	18	9	13	9
16	90°	22	11	15	7	11	7
12	90°	18	8	12	6	9	6
8	90°	14	7	9	5	7	5
4	90°	11	5	7	4	5	4

MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 RESTRAINED LENGTHS FOR DIP UG-9
 REV. DATE: MAY 10, 2011
 DATE OF APPROVAL: MAY 10, 2011
 PAGE 109



MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 METER BOX ASSEMBLY FOR 5/8\"/>
 REV. DATE: MAY 10, 2011
 DATE OF APPROVAL: MAY 10, 2011
 PAGE 135