INDEX OF SANITARY SEWER SYSTEM

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MANHOLE FRAME RING

NOTES:
1. US FOUNDRY 170 E MANHOLE FRAME.
2. MATERIAL= ASTM--A48 CLASS 35A GRAY IRON.
3. FRAME WT.= 150 lbs. APPROX.
MANHOLE COVER

(2) NON PENETRATING PICKHOLES

TOP VIEW

23-3/4"

1-1/4"

CUT AWAY

BOTTOM VIEW

NOTES
1. US FOUNDRY—170 E MANHOLE COVER
2. COVER WT. 130 LBS (APROX.)
3. RING WT. 150 LBS (APROX.)
4. MATERIAL: ASTM–A48 CLASS 358 GRAY IRON.

CITY OF PUNTA GORDA
UTILITY DEPARTMENT
326 W. MARION AVE.
PUNTA GORDA, FL 33950
(941) 575–3339  (941) 575–5006 FAX
E–MAIL: utility@ci.punta-gorda.fl.us

SANITARY SEWER
MANHOLE COVER

SS–2
REV BY TIM S DATE 07/09/08
NOTES:

1. MANHOLE SHALL CONFORM TO A.S.T.M. C-478, CONCRETE SHALL BE CLASS "A" TYPE II, 4000 PSI.
2. INTERIOR/EXTERIOR OF MANHOLE SHALL BE COATED WITH 2 COATS OF BITMASTIC (COAL TAR EPOXY)
3. INTERIOR OF MASTER-MANHOLES SHALL BE COATED WITH "L.E.T." OR "SEWER-COAT".
4. ALL EXTERIOR JOINTS SHALL BE WRAPPED WITH CONSEAL CS-212 FLEXIBLE JOINT SEALANT.
5. FLEXIBLE GASKET CONNECTIONS FOR CONNECTING PIPES SHALL MEET THE A.S.T.M. C-923 REQUIREMENTS.
6. FOR MANHOLE FRAME RING & COVER INFO, SEE DETAIL SS-1.
7. ADJUSTING RINGS SHALL BE MADE OF SOLID CONCRETE, NOT BRICKS.
8. INVERT BENCH SHALL BE SOLID CONCRETE NO RED BRICK FILLERS.
9. FOR INVERT FLOW DESIGN AND CONSTRUCTION, SEE DETAIL SS-4
CHANNELIZATION OF MANHOLE INVERT

MINIMUM DROP FROM INLET INVERT TO OUTLET INVERT EQUAL 0.10 FEET

PLAN OF INVERT AND FLOW CHANNELS
DEPTH OF CHANNELIZATION SHALL BE EQUAL TO 0.8 OF PIPE DIA. (MIN.)

SLOPE SHELF WITH 1"/FT SLOPE FROM WALL TO CHANNEL

BENCH SHALL BE CAST SOLID CONCRETE

NO RED BRICKS

SPILLWAY

TYPE II CONCRETE FILL

INFLOW PIPE

OUTFLOW PIPE

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SANITARY SEWER
MANHOLE FLOW CHANNELS

SS-4

REV BY DATE
TIM S 04/23/08
TYPICAL OUTSIDE DROP MANHOLE

SEE PUNTA GORDA DETAIL SS-3 FOR TYPICAL MANHOLE CONSTRUCTION STANDARDS

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SANITARY SEWER
MANHOLE DROP 2.5\' OR GREATER

SS-5
REV BY TIM S DATE 04/23/08
TYPICAL INSIDE DROP MANHOLE

NOTES:

1. ALL PIPING ENTERING EXISTING STRUCTURES SHALL BE ACCOMPLISHED BY MECHANICAL ROTARY CORE BORING. AFTER INSTALLATION OF PIPING, ALL PIPE OPENINGS SHALL HAVE RESILIENT SEALS AS PER ASTM C-923.

2. ALL FITTINGS SHALL BE AWWA C-907, DROP PIPE SHALL BE AWWA C-900 (CLASS 150, DR 18) WITH PIPE BELL RESTRAINTS.

3. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.

4. MANHOLES THAT HAVE A FORCE MAIN ENTERING SHALL HAVE INTERIOR COATED WITH I.E.T. OR SEWER COAT.

5. MANHOLES WITH NEW GRAVITY INSIDE DROP SHALL BE RECOATED WITH BITMASTIC.

6. ADAPTORS CONNECTING DIFFERENT PIPING MUST BE MANUFACTURED FOR THIS PURPOSE; SUBMIT DETAILS TO ENGINEER FOR APPROVAL.

7. FOR WET WELL INSTALLATIONS, 45° BEND SHALL BE OMITTED. INVERT OF FORCE MAIN SHALL EXTEND TO "PUMP OFF" LEVEL.

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SANITARY SEWER
SS-6
FORCE MAIN INSIDE DROP CONNECTION

REV BY: TIM S DATE: 04/23/08
NOTE: 1. ALL FITTINGS SHALL BE PVC PUSH ON GASKETED TYPE
NOTES:

1. PVC PIPE AND FITTINGS SHALL BE PUSH JOINT WITH RUBBER GASKET PER ASTM D 3034.

2. WHEN SERVICE LINE IS INSTALLED BY DIRECTIONAL DRILL METHOD MINIMUM PIPE SLOPE SHALL BE 2% AND PIPE MATERIAL MAY BE PVC D 1785 SCHEDULE 40 OR HDPE SDR 25.

NEW SERVICE LATERAL
INSTALLED IN EXISTING MAIN
SEWER CLEAN-OUT COVERS

COMMERCIAL:
ALL AREAS, USE CAST IRON HAND HOLE AND COVER (U.S. FOUNDRY 7621 OR EQUAL) WITH REINFORCED 30" X 30" CONCRETE PAD.

RESIDENTIAL:
TRAFFIC AREAS, USE CAST IRON HAND HOLE AND COVER (7621 OR EQUAL) W/PAD.

NON TRAFFIC AREAS, USE PLASTIC METER BOX AND COVER MARKED "SEWER".

USF 7621 REVERSIBLE HANDHOLE RING AND COVER

COVERS ARE MARKED WITH "S"

<table>
<thead>
<tr>
<th>COVER LOAD</th>
<th>COVER TYPE</th>
<th>TOTAL WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FE HEAVY DUTY</td>
<td>20</td>
<td>45</td>
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GREEN WEATHER COVER
MANUFACTURED BY WEATHER PLUS CORP
MODEL RARVH30G
OR APPROVED EQUAL

A.R.I. D-025 COMBINATION
AIR VALVE, SHORT VERSION

2" STAINLESS STEEL BALL
VALVE AND NIPPLES
FINISH GRADE

OFFSET DISTANCE
TO BE DETERMINED
IN FIELD

2" SCH. 80 PVC PIPE AND
FITTINGS BELOW GROUND.

2" STAINLESS STEEL BALL VALVE AND NIPPLES

SERVICE SADDLE EPOXY COATED
STAINLESS STEEL STRAPS

FOR MAIN

NOTES:
1. AIR RELEASE VALVES ARE REQUIRED ON 4" AND LARGER FORCE MAINS.
2. WHERE POSSIBLE ARV IS TO BE MOUNTED ABOVE GROUND.
3. ARV TO BE SIZED ACCORDING TO MANUFACTURER’S RECOMMENDATION FOR FORCE MAIN SIZE.

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SANITARY SEWER
FORCE MAIN
AIR RELEASE VALVE

SS-10

REV BY DATE
TIM S 03/07/11
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UTILITY DEPARTMENT
326 W. MARION AVE.
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SANITARY SEWER
GREASE TRAP DESIGN

REV BY date
T.S. 01/29/08

NOTES:
1. CONCRETE: 4,500 P.S.I. 28 DAY COMPRRESSIVE STRENGTH
2. REBAR: ASTM A-615 GRADE 60
3. MESH: ASTM A-185 GRADE 65
4. DESIGN: = CHARLOTTE COUNTY CODE (AS AMENDED) SEC. 3-8-150
   = FLORIDA BUILDING CODE — PLUMBING, CHAPTER 10
   = PLUMBING AND DRAINAGE INSTITUTE G-101
   = ASTM C-857 MINIMUM STRUCTURAL DESIGN LOADING FOR
     UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES
     = 6-INCH MINIMUM WALL THICKNESS
     = PREVENT FLOTATION WHEN EMPTY
5. LOAD: H-20 TRUCK WHEEL w/ 30% IMPACT PER A.A.S.H.T.O.
6. COMPLETE STRUCTURE AND PIPING TO BE WATERTIGHT.
7. FILL W/ CLEAN WATER PRIOR TO START UP OF SYSTEM.
8. CONTRACTOR TO SUPPLY AND INSTALL ALL PIPING, SANITARY TEES,
   AND CLEANOUTS FOR CLEANING TOWARDS INTERCEPTORS AND FOR
   CLEANING AWAY FROM INTERCEPTOR ON BOTH THE INLET AND OUTLET.
   (ALT: DUAL SWEET CLEAN OUTS)
9. GRAY WATER ONLY — BLACK WATER SHALL BE CARRIED BY
   SEPARATE SEWER TO A POINT DOWNSTREAM OF THE GREASE INTERCEPTOR.
10. MULTIPLE TANKS MAY BE REQUIRED PER THE SIZING FORMULA.
    (MULTIPLE TANKS SHALL BE IN SERIES)
GREASE INTERCEPTOR SIZING FORMULA

(PER FLORIDA BUILDING CODE)

\[(S) \times (GS) \times (HR/12) \times (LF) = \text{EFFECTIVE CAPACITY OF GREASE INTERCEPTOR IN GALLONS}\]

*NOTE: IF DISCHARGED INTO PUBLIC UTILITY, MULTIPLY FINAL GALLONS BY 0.75.*

1. "S" = NUMBER OF SEATS IN DINING AREA.
2. "GS" = GALLONS OF WASTE WATER PER SEAT. (USE 25 GALS. FOR RESTAURANTS WITH CHINA DISHES AND/OR AUTOMATIC DISHWASHER. USE 10 GALS. FOR RESTAURANTS WITH PAPER OR BASKETS AND NO DISHWASHER.)
3. "HR" = NUMBER IN HOURS RESTAURANT IS OPEN.
4. "LF" = LOADING FACTOR. (USE 2.00 FOR INTERSTATE HIGHWAY; 1.50 OTHER FREEWAYS; 1.25 RECREATIONAL AREA; 1.00 MAIN HIGHWAY; 0.75 OTHER HIGHWAY.)

**OTHER ESTABLISHMENTS WITH COMMERCIAL KITCHENS**

\[(M) \times (GM) \times (LF) = \text{EFFECTIVE CAPACITY OF GREASE INTERCEPTOR IN GALLONS}\]

*NOTE: IF DISCHARGED INTO PUBLIC UTILITY, MULTIPLY FINAL GALLONS BY 0.75.*

1. "M" = MEALS PREPARED PER DAY.
2. "GM" = 5 GALLONS OF WASTE WATER PER MEAL
3. "LF" = LOADING FACTOR. (USE 1.00 WITH DISHWASHING MACHINE; 0.75 WITHOUT DISHWASHING MACHINE.)
NOTES:
1. ALL EQUIPMENT FURNISHED FOR THE PUMP STATION SHALL CONFORM TO CITY OF PUNTA GORDA UTILITY DEPARTMENT STANDARDS.
2. POWER TO BE SUPPLIED AS DIRECTED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH PROVIDING TEMPORARY AND PERMANENT ELECTRICAL SERVICE.
3. ALL CONDUIT ENTERING THE CONTROL PANEL SHALL BE SEALED WITH INDUSTRIAL FOAM.
4. ALL P.V.C. CONDUIT SHALL BE SCHEDULE 80.
5. CONTROL PANEL ENCLOSURE TO BE NEMA 4X STAINLESS STEEL WITH RAIN SHIELD.
6. ALL MOUNTING HARDWARE AND BRACKETS SHALL BE STAINLESS STEEL OR ALUMINUM.
7. METER CAN SHALL BE ALUMINUM, MAIN BREAKER SHALL BE STAINLESS STEEL W/ EXTERNAL DISCONNECT.