LINE LOCATION TAPE 12” OR LESS FROM FINISHED GRADE (LAST LIFT)

FINISHED GRADE IN UNPAVED AREAS SEE NOTE BELOW

SELECT BACKFILL IN 6” LIFTS TO >95% COMPACTED, 42” COVER MINIMUM

#10 COPPER LOCATING WIRE

UNDISTURBED TRENCH WALL

COMPACTED 3/8” PEA GRAVEL

NEW PIPE

NOTE:

SELECT BACKFILL SHALL CONTAIN NO MORE THAN 2” DIAMETER ROCK FROM SPOILS.
TRENCH WIDTH + 4'

2" HMAC (TYPE D) W/ TACK COAT & PRIME COAT

SAW CUT EXISTING PAVEMENT MINIMUM DEPTH 2"

EXISTING PAVEMENT MINIMUM DEPTH

FLOWABLE FILL OR CONTROLLED LOW STRENGTH CONCRETE (60 PSI, MIN.)
LINE LOCATION TAPE
#10 COPPER LOCATING WIRE
COMPACTED 3/8" PEA GRAVEL
NEW PIPE

NOTES:

1. IF SAW CUT LINE FALLS WITHIN 2’ OF CURB OR STRUCTURE, REMOVE AND REPLACE PAVEMENT TO THE CURB OR STRUCTURE.

2. DETAIL SHALL ALSO BE USED FOR ELECTRICAL DUCTBANK.
UNPAVED AREA

PAVED AREA

TOP OF CASING LID TO BE FLUSH WITH SURFACE IN PAVED AREAS, OR 2" ABOVE GRADE IN UNPAVED AREAS

Casing shall be Screw-Adjustable (Tyler or Equal)

Minimum 2’x2’x6” Concrete (3,000 PSI) Collar w/#4@12” OCEW

Pavement and Base Thickness (Minimum 6”)

- 12” Minimal overlap of undisturbed material
- Standard Valve Stem Extension (Fasten to operating nut)
- Valve Casing per Lakeway Mud Standards (Screw-Adjustable Type)

Valve Casing Ring and Lid

#4@12” OCEW, TYP

12” Max

1”

3/4”

Locating Wire

Mechanical Joint

3000 PSI Concrete Blocking Pad

Notes:

1. Valves in potable and reuse service shall be resilient wedge gate valves by American AVK Company.

2. Valves in raw wastewater service shall be eccentric resilient plug type with cast iron body, acrylonitrile-butadiene (NBR) plug, welded-in nickel seat. Provide worm gear actuator with 2” square nut. Actuator shall have radial shaft and roller thrust bearings. Plug valves shall be by Valmatil or approved equal.

3. Valves in wastewater force mains 3” diameter and below shall be 304 Stainless Steel Ball Type with 2” operating nut.

4. Valve casing, ring, lid, etc., shall be designed for HS-20 loading where installed in paved areas.

5. Strip 6’ of #10 Copper Wire (Each Direction) and wrap around each valve box.

LAKeway MUNICIPAL UTILITY DISTRICT
LAKEWAY, TEXAS

Scale: NTS
Date Issued: May 29, 2007
Rev. # Date By Remarks
1 7-09 BAP NOTE 5, LOCATING WIRE

STANDARD DETAIL
G-3
NOTES:

1. OUT OF EXIST PIPELINE, CUT ONLY THE LENGTH OF PIPE NECESSARY TO EQUAL OVERALL LENGTH OF FITTING TO BE INSERTED PLUS 10"+/− FOR INSERTING CUTTING-IN SLEEVE.

2. WRAP ALL IN 8 MIL PLASTIC.
CONCRETE SHALL BE CLASS D, 2500 PSI

WRAP FITTINGS IN 8 MIL PLASTIC, TYPICAL

ADEQUATE TO CLEAR JOINT AND BOLTS

MAIN

HORIZONTAL BEND

6" - 12"

PIPE O.D.

2" + 4"

2"

6" - 12"

TEE/OUTLET

PIPE O.D.

2" + 4"

2"

6" - 12"

OUTLET O.D. MIN.

O.D. / 2

TRENCH WIDTH

MAIN

O.D. + 4" O.D. + 6"

O.D. + 1 1/2" O.D. + 6"

VERTICAL BEND

NO. 5 REBAR

VERTICAL BEND

THRUST BLOCK DESIGN AS FOLLOWS:

A. PRESSURE OF 150 PSI (ACTUAL IF HIGHER) + 50% SURGE ALLOWANCE
B. MAXIMUM SOIL BEARING

SOIL TYPE

LIMESTONE
UNDISTURBED SOIL,
CALICHE
LOOSE OR SPONGY SOIL

PRESSURE

4000 LBS/SQ FT
2000 LBS/SQ FT
1500 LBS/SQ FT

LAKEWAY MUNICIPAL UTILITY DISTRICT
LAKEWAY, TEXAS

THRUST BLOCKING

STANDARD DETAIL

G-5
**SPECIAL UTILITY CROSSING — FITTING TYPE**

*24" MINIMUM CLEARANCE REQUIRED FOR WATER AND WASTEWATER MAIN CROSSINGS. 12" MINIMUM CLEARANCE REQUIRED FOR OTHER TYPE UTILITIES CROSSING. RETAIN SEPARATION DISTANCE, REFER TO TAC 290.44. THE DEFLECTION TYPE CROSSING SHALL BE USED WHERE POSSIBLE. ONLY UNDER SPECIFIC ORDERS BY THE ENGINEER WILL THE FITTING TYPE CROSSING BE ALLOWED. CONSTRUCT STANDARD CROSSING USING 75% OF MANUFACTURERS RECOMMENDED MAXIMUM JOINT DEFLECTION. AIR RELEASE VALVES MAY BE REQUIRED.*

**STANDARD UTILITY CROSSING — DEFLECTION TYPE**

NOTE: AIR RELEASE VALVES MAY BE REQUIRED
**TYPICAL SECTION WITH CASING SPACERS**

- **Stainless Steel Casing Spacer (Typ)**
- **Encasement Pipe**
- **Carrier Pipe**
- **CASCADE CASING SPACER SYSTEM (WATER WORKS MFG., YORKVILLE, ILLINOIS) OR AN APPROVED ALTERNATE (STAINLESS STEEL CASING SPACERS WITH HDPE SLEDS – NO WOOD).**

**Centerline Profile**

- **Spacing shall be in accordance with T.C.E.Q. (Every 5 feet, minimum)**
- **MIn. dist. from ends 12”**
- **Encasement pipe ends shall be sealed with boot on each end**

**LAKEWAY MUNICIPAL UTILITY DISTRICT**

LAKEWAY, TEXAS

Scale: NTS
Date Issued: May 29, 2007
Rev. # Date By Remarks

ENCASEMENT DETAIL WITH CASING SPACERS

STANDARD DETAIL G-7
FINISHED GRADE

BACKFILL AS SPECIFIED

PIPELINE

3' MIN OR TO FINISHED GRADE, WHICHEVER IS LESS

PIPE OD

18' MIN (NOTE 3)

3500 PSI CONCRETE COLLAR. KEYED INTO UNDISTURBED EARTH.

#5 VERTICAL @ 6" CC EACH FACE

#5 HORIZONTAL @ 6" CC EACH FACE

UNDISTURBED EARTH

12" MIN TRENCH WIDTH 12" MIN TRENCH WIDTH
(NOTE 2)
(NOTE 2)

2 #5 EXTRA EACH FACE AROUND OPENING

NOTES:

1. LOCATE CONCRETE PIPE COLLARS WHERE INDICATED ON PLANS AND OR PROFILES.
2. DIMENSION SHALL BE ONE-THIRD OF PIPELINE DIAMETER, BUT 12" MINIMUM.
3. DIMENSION SHALL BE ONE-THIRD OF PIPELINE DIAMETER, BUT 18" MINIMUM.
4. PLACE RETARDS SUCH THAT THE TOP 12" OF RETARD AT LOWER ELEVATION OVERLAPS BOTTOM 12" OF THE NEXT RETARD AT UPPER ELEVATION.
NOTES:

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 18”.

2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CAN NOT BE TRENCHED INTO THE SURFACE (E.G. PAVEMENT), THE FABRIC FLAP SHALL BE WEIGHTED DOWN WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.

3. THE TRENCH MUST BE A MINIMUM OF 6” DEEP AND 6” WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST.

5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPED STORM FLOW OR DRAINAGE.

7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6”. THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

8. ALL EROSION CONTROL MEASURES MUST CONFORM TO LCRA REQUIREMENTS FOR NON-POINT SOURCE POLLUTION.
NOTES:

1. STONE SIZE: 3–5" OPEN GRADED ROCK.

2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 50’.

3. THICKNESS: NOT LESS THAN 8”.

4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.

5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.

6. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.

7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
EXTEND 2'-0" MINIMUM BEYOND INLET OPENING AT EACH END

FLOW

FLOW

20 lb SANDBAGS AT 3' O.C.

MINIMUM 4" HIGH CLEAR OPENING

20 lb SANDBAGS AT 3' O.C.
(SEE NOTE 1)

NOTES:

1. WHERE MINIMUM CLEARANCES CAUSE TRAFFIC TO DRIVE IN THE GUTTER, THE CONTRACTOR MAY SUBSTITUTE A 1" X 4" BOARD SECURED WITH CONCRETE NAILS 3' O.C. NAILED INTO THE GUTTER IN LIEU OF SANDBAGS TO HOLD THE FILTER DIKE IN PLACE. UPON REMOVAL, CLEAN ANY DIRT/DEBRIS FROM NAILING LOCATIONS, APPLY CHEMICAL SANDING AGENT AND APPLY NON-SHRINK GROUT FLUSH WITH SURFACE OF GUTTER.

2. A SECTION OF FILTER FABRIC SHALL BE REMOVED AS SHOWN ON THIS DETAIL OR AS DIRECTED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR HOG RINGS AT THIS LOCATION.

3. DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 2".

4. CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY REMOVE THE INLET PROTECTIONS IF THE STORM-WATER BEGINS TO OVERTOP THE CURB.

5. INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.
NOTES:

1. CONTRACTOR SHALL REFER TO BURIED VALVE, VALVE BOX AND COVER DETAIL FOR ADDITIONAL REQUIREMENTS.

2. VALVES IN POTABLE AND REUSE SERVICE SHALL BE RESILIENT WEDGE GATE VALVES BY AMERICAN AVK COMPANY.

3. VALVES IN RAW WASTEWATER SERVICE SHALL BE ECCENTRIC RESILIENT PLUG TYPE WITH CAST IRON BODY, ACRYLONITRILE–BUTADIENE (NBR) PLUG, WELDED–IN NICKEL SEAT. PROVIDE WORM GEAR ACTUATOR WITH 2" SQUARE NUT. ACTUATOR SHALL HAVE RADIAL SHAFT AND ROLLER THRUST BEARINGS. PLUG VALVES SHALL BE BY VALMATIL OR APPROVED EQUAL.

4. VALVES IN WASTEWATER FORCE MAINS 3" DIAMETER AND BELOW SHALL BE 304 STAINLESS STEEL BALL TYPE WITH 2" OPERATING NUT.
NOTES:

1. CONTRACTOR SHALL REFER TO BURIED VALVE, VALVE BOX AND COVER FOR ADDITIONAL REQUIREMENTS.

2. OUT OF EXIST PIPELINE, CUT ONLY THE LENGTH OF PIPE NECESSARY TO EQUAL OVERALL LENGTH OF FITTING TO BE INSERTED PLUS 10"+/- FOR INSERTING CUTTING-IN SLEEVE.

3. WRAP ALL IN 8 MIL PLASTIC.
HOT-BOX, MODEL(TM) #PLR1 POLY ROK, GRANITE COLOR

1" VENT-O-MAT SERIES RBX MODEL 025RBx2511 COMBINATION AIR VALVE WITH TYPE 304 SST BODY AND TYPE 316 INTERNALS.

1" STREET ELBOW
1"x4" NIPPLE
1" 90' ELBOW
1" TEE
1" CLOSE NIPPLE
1" BALL VALVE

CONCRETE BASE (SEE NOTE 1)
1"x12" NIPPLE
1" COMPRESSION x THREAD ADAPTER

1" TYPE K CERRO ALLOY C122 SEAMLESS COPPER TUBING. RISING SLOPE (MIN. OF 0.50%). DO NOT EXCEED MIN. BEND RADIUS.

1" CORP STOP W/ COMPRESSION COUPLING FORD #F1000-4

1" ROCKWELL STAINLESS STEEL SERVICE SADDLE #3/3

WATER MAIN

NOTE:

1. CONCRETE FOUNDATION 6" THICK, REINFORCED W/ #3 REBAR 6" OCEW. DIMENSIONS 40"x27".

2. ALL VALVES, NIPPLES AND FITTINGS SHALL BE BRASS UNLESS NOTED.

3. INSTALL AND ESTABLISH 3-(5) GALLON TEXAS SAGE SHRUBS TO SCREEN EACH AIR RELEASE ENCLOSURE.

LAKEWAY MUNICIPAL UTILITY DISTRICT
LAKEWAY, TEXAS

AIR RELEASE FOR WATER SERVICE

STANDARD DETAIL W-1
HYDRO-GUARD AUTOMATIC FLUSH VALVE AS MANUFACTURED BY ENVIRONMENTAL ENHANCEMENT AND TECHNOLOGIES USA, INC.

BURIED VALVE, VALVE BOX & COVER (NOTE 1)

PROPERTY LINE

FINISHED GRADE

HYDRO-GUARD BASE

6" MORTAR

6" PVC PIPE

2" BRASS PIPE

WASHED SAND FILL

2" M.J. MEGA LUG CAP TAPPED FOR 2" N.P.T. THREAD

2" C.I. M.J. 90° BEND

CONCRETE BLOCKING

TRANSITION GASKET

FROM MAIN

2" P.V.C.

2" GATE VALVE

2" MJ MEGA LUG (TYP.)

ELEVATION

NOTE:

1. CONTRACTOR SHALL REFER TO BURIED VALVE, VALVE BOX AND COVER DETAIL FOR ADDITIONAL REQUIREMENTS.
FLUSH VALVE

3000 PSI CONC. KICKER BLOCK Poured Behind Hydrant — Full Width Between Back of Hydrant & Undisturbed Earth at End of Trench Excavation. Do Not Block Hydrant Drain, to Bear on Undisturbed Earth.

MIN. 3 CU. FEET GRANULAR BACKFILL UNDER HYDRANT FOR DRAINAGE (3/8” PEA GRAVEL) 6” PIPE — 18” MIN. LAYING LENGTH

C.I.M.J. ANCHORING TEE

3000 PSI CONC. BLOCKING BEHIND TEE

NOTES:

1. VALVE BOXES TO BE SET FLUSH WITH PAVEMENT SURFACE WHEN SET IN ROADWAY.

2. HYDRANT DRAIN TO BE LEFT CLEAN AND OPERABLE.

3. WHEN HYDRANT IS TO BE LOCATED BEHIND CURB AND GUTTER, IT SHALL BE SET AT A DISTANCE OF 4’ FROM CENTER LINE TO BACK OF CURB.

4. AMERICAN AVK SERIES 27 DRY BARREL FIRE HYDRANT OR APPROVED EQUAL.

5. CONTRACTOR SHALL REFER TO BURIED VALVE, VALVE BOX & COVER DETAIL FOR ADDITIONAL REQUIREMENTS.

6. ALL FITTINGS AND VALVES USE MEGA–LUG OR EQUAL MECHANICAL JOINTS.

7. ALL HYDRANTS SHALL BE PAINTED PER LMUD SPECS.
NOTE:

1. CONTRACTOR SHALL REFER TO BURIED VALVE, VALVE BOX AND COVER FOR ADDITIONAL REQUIREMENTS.
SEE PLANS FOR WIDTHS OF R.O.W. AND ROADWAY - VARIES

SEE PLANS FOR WATER MAIN ASSIGNMENT

SIZE AND TYPE OF SERVICE AS SPECIFIED OR NOTED

TAP MAIN @ 45° ANGLE

METER BOX AS SPECIFIED

PROPERTY PIN

36" MIN.
1. PRV REQUIRED FOR LINE PRESSURES >80 PSI.

NOTE:

REDUCED PRESSURE ZONE PLAN SCHEMATIC

BALL VALVE (TYP OF 2)
POLY ROK PLR1

CENTER ASSEMBLY IN ENCLOSURE

REDUCED PRESSURE ZONE BACKFLOW PREVENTION ASSEMBLY

UNION (TYP OF 2)
40"x30"x6" PAD (3000 PSI CONCRETE)

DRAIN PORT – PROVIDE POSITIVE DRAINAGE OUT OF ENCLOSURE

BRASS (TYP)
FLOW

FLOW

FLOW

CONCRETE BLOCKING FOR PIPE 2-INCH OR LARGER (TYP)

LAKEWAY MUNICIPAL UTILITY DISTRICT
LAKEWAY, TEXAS

IRRIGATION SERVICE DETAIL

STANDARD DETAIL W-6
NOTES:

1. ALL FITTINGS STAINLESS STEEL (SS) OR POLYETHYLENE (PE) AS NOTED.

2. COMBINATION AIR VALVE SHALL BE VALMATIC 801A 2x1" WITH TEFLOM COATED INTERNALS.

3. 3000 PSI CONCRETE, #3 REBAR 6" OCEW. DIMENSIONS: 40"x27"x6".

LAKEWAY MUNICIPAL UTILITY DISTRICT
LAKEWAY, TEXAS

AIR RELEASE FOR WASTEWATER FORCE MAIN

STANDARD DETAIL
WW-1
SAWCUT EXISTING PAVEMENT TO ACHIEVE SMOOTH EDGE

EXISTING PAVEMENT SURFACE COURSE

SAWCUT EXISTING DRIVES AS NECESSARY

EXISTING DRIVE OR SOIL

SELECT BACKFILL OR 60 PSI FLOWABLE CONCRETE

CONCRETE RIBBON CURB W/ 2-#4 BARS, 3000 PSI CONCRETE

NOTE:
CONSTRUCTION JOINTS REQUIRED FOR EVERY 40 LF AND EDGES ON EVERY DRIVEWAY.

PARTIAL PLAN VIEW

CROSS SECTION A-A'

LINE LOCATION TAPE

#10 COPPER LOCATING WIRE

PEA GRAVEL FOR BEDDING MATERIAL

EXISTING PAVEMENT SURFACE COURSE

2" OR 3" PRESSURE SEWER LINE

LAKEWAY MUNICIPAL UTILITY DISTRICT
LAKEWAY, TEXAS

Scale: NTS
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TRENCH WITH RIBBON CURB

STANDARD DETAIL WW-2
TRENCH AND PAVEMENT REPAIR DETAIL
PIPES 4” AND SMALLER IN DIAMETER

LAKEWAY MUNICIPAL UTILITY DISTRICT
LAKeway, TEXAS

MIN. 2” C.O.A ITEM 340, TYPE D
HMAC COMPACTED TO 91–96% OF TEX–207–F/TEX –227–F

SAW CUT EXISTING PAVEMENT
EXISTING PAVEMENT SURFACE COURSE

MIN. 2’–6” H.M.A.C.

60 PSI FLOWABLE CONCRETE IN ACCORDANCE WITH C.O.A. ITEM 402S, TO BE BROUGHT UP TO WITHIN 2” OF DRIVING SURFACE. APPLY TACK COAT PRIOR TO PAVING

#10 COPPER WIRE

3/8” PEA GRAVEL FOR BEDDING MATERIAL TO A MIN. OF 6” OVER TOP OF PIPE. FILL TRENCH TO WITHIN 14” OF TOP OF EXISTING PAVEMENT

LINE LOCATION TAPE

2”–4” PIPE

PIPE O.D.

8” MIN.
**NOTE:**

Plug valve shall be eccentric resilient plug type with cast iron body, acrylonitrile – butadiene (NBR) plug, welded-in nickel seat. Provide worm gear actuator with handwheel. Actuator shall have radial shaft and roller thrust bearings. Plug valves shall be by Valmatic or approved equal.
NOTE: ALL PLUG VALVES SHALL BE 100% FULL-PORTED ECCENTRIC RESILIENT PLUG TYPE WITH CAST IRON BODY, ACRYLONITILE-BUTADIENE (NBR) PLUG, WELDED-IN NICKEL SEAT. PROVIDE WORM GEAR ACTUATOR WITH HAND WHEEL. ACTUATOR SHALL HAVE RADIAL SHAFT AND ROLLER THRUST BEARINGS. PLUG VALVES SHALL BE VALMATIC OR APPROVED EQUAL. ALL FITTINGS SHALL BE RESTRRAINED (MEGALUG OR ENGINEER-APPROVED EQUAL).
FINISHED GRADE

1/4 PIPE OD
12" MIN OR
1/4 PIPE OD
WHICHERVER IS
GREATER

12" MIN

CONCRETE CRADLE FOR
ALL HORIZONTAL VALVE
SIZES (3000 PSI MIN)

NOTES:

1. CONTRACTOR SHALL REFER TO BURIED VALVE, VALVE BOX AND COVER DETAIL FOR ADDITIONAL REQUIREMENTS.

2. VALVES IN POTABLE AND REUSE SERVICE SHALL BE RESILIENT WEDGE GATE VALVES BY AMERICAN AVK COMPANY.

3. VALVES IN RAW WASTEWATER SERVICE SHALL BE ECCENTRIC RESILIENT PLUG TYPE WITH CAST IRON BODY, ACRYLONITRILE–BUTADIENE (NBR) PLUG, WELDED–IN NICKEL SEAT. PROVIDE WORM GEAR ACTUATOR WITH 2" SQUARE NUT. ACTUATOR SHALL HAVE RADIAL SHAFT AND ROLLER THRUST BEARINGS. PLUG VALVES SHALL BE BY VALMATIL OR APPROVED EQUAL.

4. VALVES IN WASTEWATER FORCE MAINS 3" DIAMETER AND BELOW SHALL BE 304 STAINLESS STEEL BALL TYPE WITH 2" OPERATING NUT.
EXISTING PAVEMENT

FRP NECK TO EXTEND INSIDE GRADE RINGS.
GRADE RINGS TO EXTEND A MINIMUM OF 1" PAST FLAT SURFACE OF MANHOLE CONE.

COMPACTED BACKFILL & PLACED IN 12" LIFTS.

FIBERGLASS MANHOLE

FIBERGLASS INVERT AND BENCH FACTORY INSTALLED, SLOPE BENCH 1" PER FOOT

ANTI-FLotation FLANGE

REINFORCED CONCRETE BASE TO COUNTERACT FLotation, SUBMIT CALCULATIONS.

PROVIDE MIN. 6 INCHES OF CRUSHED STONE OR PEA GRAVEL LEVELING COURSE

MANHOLE DIAMETER +12" MIN. EA SIDE

#4 ANCHORS TIED INTO REINF. PRIOR TO POUR

SCHEDULE FOR DROP MANHOLE

<table>
<thead>
<tr>
<th>INLET PIPE DIAMETER &quot;D&quot;</th>
<th>DROP PIPE DIAMETER &quot;d&quot;</th>
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<tbody>
<tr>
<td>8&quot;</td>
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NOTES:

CONNECTIONS TO EXISTING FRP MANHOLES SHALL BE INSERTA TEE OR EQUAL. SUBMIT PROPOSED INSTALLATION FOR APPROVAL.

CONTRACTOR SHALL SUBMIT SKETCH FOR EACH MANHOLE SHOWING PENETRATION ELEVATIONS. ALSO SUBMIT GRADE RINGS, ADHESIVE, SHRINK WRAP, AND MANHOLE COVER. COA COVER NOT ACCEPTABLE.
UNPAVED AREA  PAVED AREA

STANDARD CLEANOUT BOX—SIMGA / RUSSELL SVB–287 OR APPROVED EQUAL.

2" FINISHED GRADE

3000 P.S.I. CONC.
2‘–0”x2’–10”

45° BEND

6” PIPE (TYPE AS SPECIFIED)

3000 P.S.I. CONC.

NEOPRENE CAP W/SST CLAMP (FERNCO OR EQUAL)

4” HMAC

ROAD BASE

SIZE AS SPECIFIED MAIN LINE

LAKEWAY MUNICIPAL UTILITY DISTRICT
LAKEWAY, TEXAS

END OF MAIN WASTEWATER CLEANOUT

STANDARD DETAIL
WW-8
LAKEWAY MUNICIPAL UTILITY DISTRICT
LAKEWAY, TEXAS

Scale: NTS
Date Issued: May 29, 2007
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LID MARKED "LAKEWAY MUD"

24” ROUND VALVE BOX EAST
JORDAN IRON WORKS STD. BOX
#548P24 OR 548P36

1 1/4” MALE ADAPTER

1 1/4” PVC SCH 40 SERVICE LINE

# 10 COPPER WIRE W/ PVC JACKET

VINYL TAPE
1 1/4” MALE ADAPTER
1 1/4” CHECK VALVE 304 SS
1 1/4” DIA. 6” LG. 304 SS NIPPLE
1 1/4” SS BALL VALVE, FIP X FIP

2’ TYP.

PROPERTY LINE
± 5’

6” OF PEA GRAVEL

4” PVC SDR 21 SLEEVE UNDER STREET PVMT.

SLEEVE SEAL, TYP.-

6”

6” OF PEA GRAVEL

SHUT OFF VAULT

BURIED VALVE, VALVE BOX & COVER (NOTE 1)
1 1/4” 304 SS BALL VALVE W/ C.I. VALVE BOX ACCESS, AND 2” SQUARE NUT
1 -1/4” PVC SCH 40 PRESSURE SERVICE LINE, SLEEVE ENCASED.

NOTE:
1. CONTRACTOR SHALL REFER TO BURIED VALVE, VALVE BOX AND COVER FOR ADDITIONAL REQUIREMENTS.

CONNECTION TO PRESSURE LINE

1 1/4” 304 SS NIPPLE, 6” LG.
1 1/4” SS TAPPING SADDLE FOR PVC OR TEE IN LINE WITH THREADED SIDE OUTLET
FORCE MAIN
1 1/4” MALE ADAPTER

G-3

SPACER
ITEM NO. | NO. REQ'D. | SIZE AND DESCRIPTION | MATERIAL SPEC'S.
--- | --- | --- | ---
1 | 1 | MAIN SIZE X 3" OR 2" REDUCER (WHEN REQ'D) | PVC SOCKET WELD JOINT SDR 21/200 PSI
2 | 1 | 2" - 90° ELBOW | PVC SOCKET WELD JOINT SDR 21/200 PSI
3 | 1 | 2" X REQ'D LENGTH RISER | SDR 21
4 | 1 | SOCKET X THREADED PVC MALE ADPT. | SDR 21
5 | 2 | 2" - 90° SCRD. ELL | SCH. 40 304 SS
6 | 1 | 2" SCRD. CAP | SCH. 40 304 SS
7 | 1 | 2" SCRD. SWING CHECK VALVE | 304 SS
8 | 1 | 2" SCRD. BALL VALVE | 304 SS
9 | 1 | 2" DIA. X 10" NIPPLE | SCH. 40 304 SS
10 | 3 | 2" SHORT NIPPLES | SCH. 40 304 SS
11 | 1 | METER BOX | EAST JORDAN R-548P 24 - 30" LID #32143107
12 | 1 | #10 COPPER WIRE W/ PVC JACKET | 

NOTE: FOR EACH FLUSH VALVE ASSEMBLY, PROVIDE SST BALL VALVE WITH 2" SQUARE OPERATING NUT 2' UPSTREAM OF TEE ON FORCE MAIN.
REQUIRED GRINDER PUMP INSTALLATION

1. 2 HP. BARNES CENTRIFUGAL PUMP, MODEL NO. OGP OR OGVH, SIMPLEX GRINDER PUMP. THE DISTRICT WILL AID IN DETERMINING PUMP HEAD REQUIREMENTS.

2. ACCESSWAY, COVER, AND PUMP TANK TO BE FIBERGLASS REINFORCED POLYESTER (F.R.P.)

3. LIFTING EYES— FOR LIFTING COMPLETE GRINDER PUMP.

4. ELECTRICAL ENTRY BUSHINGS FOR LEADS FROM GRINDER PUMP AND FLOATS TO THE CONTROL PANEL (ITEM 6) DUCK SEAL FLEXIBLE CLAY BOTH ENDS OF 1.5” CONDUIT.

5. GRINDER PUMP AND ALARM LEADS — CIRCUIT TO BE RUN IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES. (ALL POWER AND FLOAT LEADS MUST BE 1.5-INCH MINIMUM CONDUIT).

6. RAINPROOF (NEMA 3R OR 4X) CONTROL PANEL — WITH CIRCUIT BREAKERS OR DISCONNECT SWITCH AND HIGH WATER ALARM, FLASHING BECON MOUNTED ON EXTERIOR OF PANEL. NOTE: PUMP POWER AND CONTROL POWER ARE ON SEPARATE SUPPLY BREAKERS.

7. TANK INLET — 4” PIPE GROMMET 420P-4 (5” HOLE), TANK OUTLET 420P-1.25 (2” HOLE).

8. TANK VENT — TANK MUST BE VENTED THRU THE HOUSE SERVICE LINE.

9. GRAVITY SERVICE LINE — 4” DRAIN WASTE VENT W/ COMBINATION POP-UP RELIEF VALVE ON DUAL SWEEP CLEAN OUT. IF GREATER THAN 12” BELOW GRADE, THEN 2 CLEAN-OUT SWEEPS ARE REQUIRED.

ADDITIONAL REQUIREMENTS, SEE STANDARD DETAIL WW-11A.

LAKEWAY MUNICIPAL UTILITY DISTRICT
LAKEWAY, TEXAS

TYPICAL GRINDER PUMP INSTALLATION (SHEET 1 OF 2)
INSIDE BASIN

304 SS UNION
304 SS NIPPLE
1-1/4" 304 SS TEE
W/ 304 SS CAP

INSIDE VALVE VAULT

6" 304 SS NIPPLE
304 SS NIPPLE
1-1/4" SS CHECK VALVE
PIPE GROMMET MARLOW A82U
1-1/4" SCH. 40 304 SS PIPE TO PUMP

1-1/4" SS BALL VALVE
1-1/4" PVC FM ADAPTER COUPLING
AND 1 1/4" PVC SCH 40 SERVICE LINE

1-1/4" SCH. 40 304 SS DISCHARGE PIPE, 6" LG.

DISCHARGE PIPING - AT GRINDER PUMP

CONTINUED NOTES:

10. DISCHARGE OUTLET – 1 1/4" MALE PIPE THREAD W/ 1 1/4" PVC ADAPTER BUSHING.

11. GRINDER PUMP DISCHARGE LINE WITH GROMMET – 1 1/4" SCH 40 304 SS NOMINAL PIPE SIZE.

12. CONCRETE ANCHOR: 900 LBS. (6 CU.FT.) PLUS 600 BLS. (4 CU.FT.) PER FOOT OF ACCESSWAY. EXAMPLE: W/2’ ACCESSWAY – 900+1200=2100 lbs. (14 CU.FT.). SLEEVE OVER INLET LINE IS REQUIRED IF ANCHOR IS POURED TO A LEVEL ABOVE THE INLET. (REQUIRED IN FLOOD PLAIN AS DESIGNATED BY BUILDING INSPECTOR)

13. BEDDING MATERIAL – 6” MINIMUM, ROUNDED AGGREGATE (PEA GRAVEL).

14. FINISHED GRADE – GRADE LINE TO BE 8” BELOW TOP OF ACCESSWAY AND SLOPE AWAY FROM ACCESSWAY OPENING.

15. 4” COMBINATION POP-UP RELIEF VALVE / CLEAN-OUT SET IN 4” PVC ADAPTER. POP-UP RELIEF VALVE SHALL BE 4” ABOVE GROUND AND 4” BELOW TOP OF TANK.

16. EAST JORDAN IRON WORKS VALVE BOX, STD. BOX #548P24 W/ “LAKEWAY” CAST IN LID.

17. WHERE PUMP IS LOCATED ABOVE MAIN LINE GRADE AT STREET, INSTALL 1-1/4” TEE AND BALL VALVE TO PIPE RETURN TO TANK THROUGH GROMMET.

18. ALL DISCHARGE PIPING, FITTINGS AND HARDWARE TO BE SCH. 40 304 STAINLESS STEEL

LAKEWAY MUNICIPAL UTILITY DISTRICT
LAKEWAY, TEXAS

Scale: NTS
Date Issued: May 29, 2007
Rev. Date By Remarks

TYPICAL GRINDER PUMP INSTALLATION (SHEET 2 OF 2)

STANDARD DETAIL
WW-11A
DOUBLE SERVICES SHALL INCLUDE A 6X6X6 TEE-WYE WHICH CANNOT BE INSTALLED UNDER PAVEMENT. MAX. ALLOWABLE BEND IS 45°

INITIAL HEIGHT TO BE 3' MINIMUM. FINAL HEIGHT AFTER HOME CONSTRUCTION SHALL BE 6" ABOVE FINISHED GRADE.

6" S.D.R. 26 P.V.C. PIPE

BEDDING MATERIAL

EXTEND 4" SERVICE TO CENTERLINE OF CLEANOUT

6X6X6" TWO-WAY CLEANOUT TEE

BRANCH AT MAIN TEE-WYE REQUIRED

MAIN WASTEWATER

6" NIPPLE

6" P.V.C. OUT OF TEE-WYE TO BE @ 1% GRADE UNDER PAVEMENT

6"x4" FERNCO

BENCH CONCRETE

6" P.V.C. OUT OF TEE-WYE TO BE
NOTE:

DO NOT USE 6X6X6 TEE-WYE FOR SINGLE SERVICE. WATER SERVICE CAN BE STRAIGHT IF WASTEWATER SERVICES ARE NOT PRESENT.
REUSE MAIN

6" TEE

1-1/2" MALE THREAD BY COMPRESSION PE FITTING

6"x1-1/2" BUSHING W/ FEMALE THREAD

1-1/2" MALE THREAD BY COMPRESSION PE FITTING

1-1/2" PE TUBING (NOTE 1)

1-1/2" BRASS ANGLESTOP (FEMALE THREAD x FLG)

1-1/2" x24" BRASS NIPPLE (FLG x MALE THREAD)

1-1/2" BACKFLOW PREVENTER WALTS #007M1 QTDC

METER BOX EJIW #1730

PRESSURE RELIEF VALVE

BED BOTH BOXES IN 3/8" PEA GRAVEL

1-1/2" BRASS GATE VALVE (OWNERS SHUT-OFF)

NOTES:

1.) BLACK PE TUBING (150 PSI) W/ PURPLE STRIPE OR PURPLE TUBING. NO PE WRAP. PROVIDE PURPLE MARKING WITH PURPLE 3M TAPE OR EQUAL.

2.) ALL FITTINGS AND LINES 1-1/2" UNLESS SPECIFIED OTHERWISE.

3.) BOX LIDS SHALL BE PAINTED SAFETY PURPLE.

4.) PROVIDE 1-1/2" PRESSURE REDUCING VALVE BY WATTS OR EQUAL UNLESS OTHERWISE SPECIFIED.

5.) LMUD SHALL FURNISH METER BOX LID TO CONTRACTOR AT COST. LID SHALL HAVE "LAKEWAY MUNICIPAL UTILITY DISTRICT".

LAKEWAY MUNICIPAL UTILITY DISTRICT
LAKEWAY, TEXAS

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1 7-09 BAP 36" BOX AND NOTES
1" PE TUBING WITH PURPLE STRIPE. PROVIDE PURPLE MARKING WITH PURPLE 3M TAPE OR EQUAL. RISING SLOPE (MIN. OF 0.50%). DO NOT EXCEED MIN. BEND RADIUS.

1" MALE THREAD BY COMPRESSION PE FITTING

6"x6" TEE WITH 6"x1" BUSH-TO-THREAD

6" REUSE MAIN

NOTE:

1. CONCRETE FOUNDATION 6" THICK, REINFORCED W/ #3 REBAR 6" OCEW. DIMENSIONS 40"x27".

2. ALL VALVES, NIPPLES AND FITTINGS SHALL BE TYPE 304 STAINLESS STEEL UNLESS NOTED.

3. INSTALL AND ESTABLISH 3--(5) GALLON TEXAS SAGE SHRUBS TO SCREEN EACH AIR RELEASE ENCLOSURE.

LAKEWAY MUNICIPAL UTILITY DISTRICT
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AIR RELEASE FOR REUSE SERVICE

STANDARD DETAIL
R-2