ALL JOINTS SHALL BE WATERPROOFED

CONCRETE BASE

SHAPED CHANNELS IN CONCRETE BASE

CONTOUR FLOWLINE & SIDES OF MANHOLE

CONCRETE BASE

PIPE / MANHOLE CONNECTION (TYP.)
(SEE NOTE 1 BELOW)

GROUT GRADE RING INTO PLACE (TYP.)
GRADE RINGS AS REQ'D (12" MAX.)

GROUT ALL JOINTS ON PRECAST CONCRETE SECTION

PRECAST CONCRETE MANHOLE SECTION

GROUT IN CONCRETE BASE 6"

CUT PIPE BEFORE PLACING IN CONCRETE BASE

CONCRETE BASE 9" MIN. THICKNESS REQ'D UNDER PIPE

MANHOLE FLOOR

FOUNDATION TO REST ON FIRM (UNDISTURBED) SOIL ON 6" MIN. DEPTH OF 1" MAX.
GRADED ROCK WHEN DIRECTED BY CITY ENGINEER

12 ;1 TYP.

SECTION A-A

INSTALL 1/4" TO 1/2" LOWER THAN ASPHALT SURFACE (SEE ALSO NOTES 3, 5 & 6 BELOW)

GRADED RINGS AS REQ'D (12" MAX.)

GROUT GRADE RING INTO PLACE (TYP.)

MANHOLE STEPS (COPOLYMER POLYPROPYLENE PLASTIC)
INSTALLATION OF STEPS SHALL BE WATERPROOF

GROUT ALL JOINTS ON PRECAST CONCRETE SECTION

PRECAST CONCRETE MANHOLE SECTION

GROUT IN CONCRETE BASE

ALL JOINTS SHALL BE WATERPROOFED 6" MAX.

CUT PIPE BEFORE PLACING IN CONCRETE BASE

CONCRETE BASE 9" MIN. THICKNESS REO'D UNDER PIPE

FOUNDATION TO REST ON FIRM (UNDISTURBED) SOIL ON 6" MIN. DEPTH OF 1" MAX.
GRADED ROCK WHEN DIRECTED BY CITY ENGINEER

NOTES:

1. INSTALL NEOPRENE BOOT WITH STAINLESS STEEL BANDS & GROUT INSIDE OF MANHOLE FOR SANITARY SEWER PIPE CONNECTIONS. GROUT INSIDE & OUTSIDE PIPE CONNECTIONS FOR STORM DRAIN & OTHER DRAINAGE PIPES.

2. INSTALL 8" THICK CONCRETE FIELD JOINT AROUND ALL STORM DRAINAGE PIPES (TYP.). INSTALL AROUND ALL CONCRETE SEWER PIPES 18" DIA. & LARGER.

3. MANHOLE RING & COVER SHALL MATCH GRADE & CROSS SLOPE OF ROADWAY. ("TWIST", ROTATING OR ADJUSTABLE MANHOLE RING & COVER MAY BE REQUIRED).

4. LARGER MANHOLES MAY BE REQUIRED DEPENDING ON PIPE SIZINGS AND ORIENTATION WITHIN MANHOLE.

5. TOP OF MANHOLE COVER SHALL BE SET TO FINAL GRADE PRIOR TO PAVING. CONCRETE COLLARS MAY BE ALLOWED, BUT ONLY AFTER PRIOR APPROVAL OF LEHI CITY STREET DEPARTMENT. IF APPROVED, CONCRETE COLLARS SHALL BE 12" MIN. WIDE (FROM EDGE OF MANHOLE RING) AND 12" MIN. THICKNESS.

6. IN NON-PAVED AREAS, A 12" THICK BY 12" WIDE (FROM EDGE OF MANHOLE RING) CONCRETE COLLAR SHALL BE PROVIDED FLUSH WITH THE TOP OF THE MANHOLE COVER.

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STANDARD DETAIL LINE MANHOLE (SEWER AND STORM DRAIN)

SEWER / DRAIN-1
FINISHED GRADE

B

12" MAX.

TY P.

ALL JOINTS SHALL BE WATERPROOFED

CONCRETE BASE

SHAPED CHANNELS
IN CONCRETE BASE

CONCRETE FIELD JOINT (TYP.)
SEE NOTE 2 BELOW

30" MANHOLE RING, FRAME AND COVER
MARKED "SEWER" OR "STORM DRAIN"

SECTION B-B

INSTALL 1/4" TO 1/2" LOWER THAN ASPHALT SURFACE
(SEE ALSO NOTES 3, 5 & 6 BELOW)

GRADE RINGS AS REQ'D
(12" MAX.)

GROUT GRADE RING INTO PLACE (TYP.)

MANHOLE STEPS
(COPOLYMER POLYPROPYLENE
PLASTIC) INSTALLATION OF
STEPS SHALL BE
WATERPROOF.

GROUT ALL JOINTS ON PRECAST
CONCRETE SECTION

PRECAST CONCRETE MANHOLE SECTION
GROUT IN CONCRETE BASE

ALL JOINTS SHALL BE WATERPROOFED

CUT PIPE BEFORE PLACING
IN CONCRETE BASE

CONCRETE BASE
9" MIN. THICKNESS
REQ'D UNDER PIPE

FOUNDATION TO REST ON FIRM
UNDISTURBED SOIL ON 6" MIN.
DEPTH OF 1" MAX. GRADED ROCK
WHEN DIRECTED BY CITY ENGINEER

PIPE / MANHOLE CONNECTION (TYP.)
SEE NOTE 2 BELOW

NOTES:

1. INSTALL NEOPRENE BOOT WITH STAINLESS STEEL BANDS & GROUT INSIDE OF
MANHOLE
FOR SANITARY SEWER PIPE CONNECTIONS. GROUT INSIDE & OUTSIDE PIPE
CONNECTIONS
FOR STORM DRAIN & OTHER DRAINAGE PIPES.

2. INSTALL 8" THICK CONCRETE FIELD JOINT AROUND ALL STORM DRAINAGE PIPES
(TYP.).
INSTALL AROUND ALL CONCRETE SEWER PIPES 18" DIA. & LARGER.

3. MANHOLE RING & COVER SHALL MATCH GRADE & CROSS SLOPE OF ROADWAY.
("TWIST", ROTATING OR ADJUSTABLE MANHOLE RING & COVER MAY BE REQUIRED).

4. LARGER MANHOLES MAY BE REQUIRED DEPENDING ON PIPE SIZINGS AND ORIENTATION
WITHIN MANHOLE.

5. TOP OF MANHOLE COVER SHALL BE SET TO FINAL GRADE PRIOR TO PAVING. CONCRETE
COLLARS MAY BE ALLOWED, BUT ONLY AFTER PRIOR APPROVAL OF LEHI CITY STREET
DEPARTMENT. IF APPROVED, CONCRETE COLLARS SHALL BE 12" MIN. WIDE (FROM
EDGE OF MANHOLE RING) AND 12" MIN. THICKNESS.

6. IN NON-PAVED AREAS, A 12" THICK BY 12" WIDE (FROM EDGE OF MANHOLE RING)
CONCRETE COLLAR SHALL BE PROVIDED FLUSH WITH THE TOP OF THE MANHOLE COVER.

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STANDARD DETAIL
JUNCTION MANHOLE
(SEWER AND STORM
DRAIN)

SEWER / DRAIN-2
NOTES:

1. DROP MANHOLES MAY BE REQUIRED FOR PIPES ENTERING 24" OR MORE ABOVE THE INVERT OF THE MANHOLE. EXTERNAL DROP MANHOLES MAY BE USED ONLY AS APPROVED BY WATER AND WASTEWATER SUPERINTENDENT.

2. LATERAL SHALL NOT ENTER MANHOLES UNLESS OTHERWISE APPROVED BY CITY ENGINEER AND CITY PUBLIC WORKS DIRECTOR.

3. INSTALL 8" THICK CONCRETE FIELD JOINT AROUND PIPE (TYP.)
STANDARD MANHOLE
(SEE LINE OR JUNCTION
MANHOLE DETAILS)

INLET PIPE

NON-SHRINK CONCRETE
GROUT OR PRE-CAST
CONCRETE PILLOW BLOCK

STAINLESS STEEL U-BOLT FLAT
WASHERS, LOCK WASHERS, AND
HEX NUTS. PER 4' PIPE SECTION,
MIN. 2 PER MANHOLE

8" PVC 90° SHORT BEND

30" MANHOLE RING, FRAME AND COVER
MARKED "SEWER" OR "STORM DRAIN"

STANDARD MANHOLE
(SEE LINE OR JUNCTION
MANHOLE DETAILS)

8" PVC TEE

NOTCH PIPE

8" PVC DROP PIPE

CORE AND BOOT
(SEE LINE OR JUNCTION
MANHOLE DETAILS)

CONCRETE FIELD JOINT (TYP.)
SEE NOTE 3 BELOW

NOTES:
1. INTERNAL DROP MANHOLES MAY BE USED ON 8" OR 10" PIPES ONLY AS APPROVED BY WATER AND WASTEWATER SUPERINTENDENT.
2. LATERAL SHALL NOT ENTER MANHOLES UNLESS OTHERWISE APPROVED BY CITY ENGINEER AND CITY PUBLIC WORKS DIRECTOR.
3. INSTALL 8" THICK CONCRETE FIELD JOINT AROUND STORM DRAINAGE PIPE (TYP.).
CLEANOUT AND PIPE TO REST ON UNDISTURBED EARTH OR MECHANICALLY COMPACTED FILL OF MAXIMUM DENSITY

CLEANOUT PIPE

GROUND OR STREET SURFACE

WATER TIGHT PLUG OR CAP REQ'D

4' MANHOLE CONE

STANDARD MANHOLE: (SEE LINE OR JUNCTION MANHOLE DETAILS)

MANHOLE RING, FRAME, AND COVER MARKED "SEWER".

STANDARD DETAIL

"TEMPORARY" SEWER MAIN CLEANOUT

SEWER / DRAIN-5
STRUCTURE

END CAP OR LID SHALL BE CAST IRON FOR DETECTION PURPOSES

SEWER PIPE FROM HOUSE 4" OR 6" SEWER PIPE AS SHOWN ON PLANS (5' MAX. LENGTHS)

CAST IRON CLEANOUT PIPE AND WYE

CAST IRON CLEANOUT WYE IF LATERAL IS ENDED AT PROPERTY LINE.

SEWER PIPE AND WYE WATER TIGHT PLUG IF ENDED AT PROPERTY LINE

LINE TO BE INSTALLED BY OWNER LINE TO BE INSTALLED BY CONTRACTOR

NOTE:
MAXIMUM DISTANCE BETWEEN CLEANOUTS: 50 FEET

MAXIMUM DISTANCE BETWEEN CLEANOUTS: 50 FEET

INSTALL AN APPROVED PRECAST WYE ON ALL NEW MAIN LINE CONSTRUCTION. INSERTA TEE OR APPROVED EQUAL ON EXISTING LINES

4" MIN. PVC SEWER PIPE

UNIFORMLY CUT HOLE (EXISTING LINES)

2% MIN. SLOPE (1/4" IN 1 FOOT)

LATERALS SHALL NOT ENTER MANHOLES UNLESS OTHERWISE APPROVED BY CITY ENGINEER

SEWER LATERAL DETAIL

END CAP OR LID SHALL BE CAST IRON FOR DETECTION PURPOSES

SEWER MAIN

LEHI
Pioneering Utah's Future

STANDARD DETAIL
SEWER LATERAL DETAIL
NOTES:
1. AN ENGINEERED PRECAST BOX MAY BE ALLOWED AS APPROVED BY THE CITY.
2. FOR DEPTHS NOT TO EXCEED 5', OTHERWISE USE STANDARD LINE OR JUNCTION MANHOLE.
3. MANHOLE RING & COVER SHALL MATCH GRADE & CROSS SLOPE OF ROADWAY.
   (TWIST, ROTATING OR ADJUSTABLE MANHOLE RING & COVER MAY BE REQUIRED).
4. VENTED RING, COVER & BOX SHALL BE CAPABLE OF SUPPORTING TRAFFIC LOADS. RING & COVER MAY BE
   SUBSTITUTED WITH A GRATED LID WHEN OUTSIDE OF PAVED ROADWAY AREAS (AS APPROVED BY THE CITY
   ENGINEER OR PUBLIC WORKS DIRECTOR), BUT SHALL ALSO BE CAPABLE OF SUPPORTING TRAFFIC LOADS.
5. 3'X3' I.D. CLEANOUT BOX MAY BE REQUIRED IF MORE THAN ONE PIPE ENTERS / EXITS BOX.
6. BMP "SNOUT" MAY BE REQUIRED WITHIN STORM DRAINAGE BOXES TO MEET STORM WATER QUALITY
   REQUIREMENT. CLEAN OUT BOX DEPTH SHALL BE MODIFIED TO MEET "SNOUT" MANUFACTURER'S GUIDELINES.
   ORIFICE PLATES SHOULD NOT BE INSTALLED BEHIND "SNOUT" HOODS.
NOTES:

1. ALL FRAMES AND GRATES TO BE GALVANIZED.
2. ALL GRATES TO BE BICYCLE SAFE.
3. COMBO BOX REQUIRED IF MORE THAN ONE PIPE IS TO BE LOCATED WITHIN INLET BOX, BOX DEPTH EXCEEDS 5', OR IF "SNOUTS" ARE REQUIRED TO MEET STORM WATER QUALITY REQUIREMENTS.
4. MANHOLE STEPS SHALL NOT BE PLACED WITHIN INLET BOXES.
5. CURB FACE OPENING: MAKE OPENING AT LEAST 4 INCHES HIGH. PROVIDE AT LEAST A 2 INCH DROP FROM THE CONCRETE GUTTER FLOWLINE TO THE TOP OF THE GRATE AT THE CURB FACE OPENING.
NOTES:

1. UNTREATED BASE COURSE: PROVIDE MATERIAL SPECIFIED IN APWA SECTION 02060. DO NOT USE GRAVEL OR SEWER ROCK. PLACE PER APWA SECTION 02321 ON ALL SIDES OF BOX. COMPACT PER APWA SECTION 02324 TO MODIFIED PROCTOR DENSITY OF 95% OR GREATER. MAXIMUM LIFT THICKNESS IS 8 INCHES BEFORE COMPACTION.

2. BACKFILL: PROVIDE AND PLACE PER APWA SECTION 02321 ON ALL SIDES OF BOX. COMPACT PER APWA SECTION 02324 TO MODIFIED PROCTOR DENSITY OF 95% OR GREATER. MAXIMUM LIFT THICKNESS IS 8-INCHES BEFORE COMPACTION.

3. REINFORCEMENT: ASTM A 615, GRADE 60, DEFORMED STEEL. SEE APWA SECTION 03200 REQUIREMENTS. 4. CONCRETE: CLASS 4000 PER APWA SECTION 03304. PLACE PER APWA SECTION 03310. CURE PER APWA SECTION 03390

5. MANHOLE STEPS: PROVIDE COPOLYMER POLYPROPYLENE PLASTIC COATED MANHOLE STEPS IN BOXES OVER FOUR FEET DEEP. PLACE BOTTOM STEP SIX INCHES ABOVE BOTTOM OF FLOOR. INSTALLATION OF STEPS SHALL BE WATERPROOFED.

6. CURB FACE OPENING: MAKE OPENING AT LEAST 4 INCHES HIGH. PROVIDE AT LEAST A 2 INCH DROP FROM THE CONCRETE GUTTER FLOWLINE TO THE TOP OF THE GRATE AT THE CURB FACE OPENING.

7. BMP "SNOUT" MAY BE REQUIRED WITHIN STORM DRAINAGE BOXES TO MEET STORM WATER QUALITY REQUIREMENTS. COMBO BOX DEPTH SHALL BE MODIFIED TO MEET "SNOUT" MANUFACTURER'S GUIDELINES. ORIFICE PLATES SHOULD NOT BE INSTALLED BEHIND "SNOUT" HOODS.

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STANDARD DETAIL
COMBO BOX DETAIL
SEWER / DRAIN-9
NOTE:
1. Alternative sump designs may be required depending on ground water table.

NOTE:
NOT ALLOWED EXCEPT AS INDICATED IN DESIGN STANDARDS AND SPECIFICATIONS
**Plan**

- **Install 3" perforated PVC pipe (white color)**
- **Install cleanout at every corner**
- **Install 3" solid PVC pipe (white color)**
- **Tie into storm drain at top of pipe elevation**

**Section**

- **Cleanout**
- **4' x 4' knock out section for future sump pump placement**
- **4" concrete slab**
- **3/4" gravel**
- **Install 3" perforated PVC pipe (white color)**
- **Filter fabric**
- **Install 3" solid PVC pipe (white color)**
- **Connect to main with an inserta**
- **2% min. grade**
- **City storm drain**

**Note:**

1. Subsurface drain figures shown above are for reference only. A site-specific geotechnical report shall be submitted showing the depths, sizes, and locations of all proposed subsurface drainage piping.

**Note:** Only allowed as authorized or directed by the Public Works Department.
NOTE:

1. USE TRASH RACK FOR INLETS ONLY, NOT REQUIRED ON OUTLETS.

2. OPENING BETWEEN THE BARS SHALL NOT EXCEED 2".

3. HYDRAULIC DESIGN CALCULATIONS MAY BE REQUIRED FOR HEADWALL / RIP-RAP DESIGN APPROVALS.

4. HEADWALL, GRATING, RIP-RAP SIZING AND FLOW CALCULATIONS MUST BE APPROVED BY LEHI CITY ENGINEER PRIOR TO CONSTRUCTION.