

**BOISE CITY PUBLIC WORKS
SEWER DESIGN & CONSTRUCTION CHECKLIST
June 2010**

PREFACE: The purpose of this document is to outline the requirements of Developers, Consulting Engineers and Contractors for the design and construction of Boise City sanitary sewers. It is suggested that this checklist be utilized to streamline the sewer design and construction process for all parties involved.

I. PRELIMINARY DESIGN

A. Predesign Meeting with Public Works Design Staff (optional).

- | Yes | No | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Reviewed sewer master plan. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Reviewed existing sewer locations & elevations. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Discussed sewer extension policy. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Discussed sewer development review and inspection fees. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Obtained City benchmark data (NAVD 1988 DATUM). |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Discussed Easement Requirements. |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Received current copy of City Standard Notes. |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Obtain manhole numbers by email from (bedney@cityofboise.org) with the Subject line as: Sewer Manhole Request for (name of subdivision). Request coordinates for the section corners of the Township, Range and Section of the project location. Coordinates as requested will be returned by email. Orient your drawing to fit the supplied coordinates so they can be brought into Boise City's GIS system. Return as an email attachment, a .dxf file of the subdivision boundary, lot lines, right-of-way layout, sewer lines and manholes with adjusted coordinates. (no polylineZ (elevations), zip files, legend graphics or text) A .pdf view of the sewer layout with the new manhole numbers will be emailed back to you. |

II. DESIGN

A. General

- | Yes | No | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. 2 full size sets of plans submitted for initial review. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Comply with DEQ minimum requirements for Wastewater Collection Systems. http://www.deq.state.id.us/water/assist_business/engineers/checklists/ww_collection_system.doc |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Plans stamped by registered Idaho Professional Engineer. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Plans are scaleable and readable when reduced to 11"x17". |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. City Standard Notes included on plans. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Legend delineated. |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Elevations tied to NAVD 1988 Datum - clearly show this on the plans. |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Right of Way delineated & has been obtained. |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Vicinity map delineated on plans (show major streets). |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. Each sheet has North Arrow, Graphic Scale, Date, Title Block & Sheet Numbers. |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. An overall map of the project delineating sewer lines, sewer manholes (with numbers), streets, lots lines and sheet index (for plans in excess of one sheet). |
| <input type="checkbox"/> | <input type="checkbox"/> | 12. Stationing shown along centerline of sewer. |
| <input type="checkbox"/> | <input type="checkbox"/> | 13. Easements shown on sewer plans. |
| <input type="checkbox"/> | <input type="checkbox"/> | 14. For construction in ground water, provide buoyancy calculations. |
| <input type="checkbox"/> | <input type="checkbox"/> | 15. Drawing at appropriate scale of 1" = 10', 20' 40' or 50' Horizontal; 1" = 2' or 5' Vertical. |

B. Manholes

- | Yes | No | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Manholes have City of Boise Numbers shown clearly in Plan & Profile. See I.8. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Truck access provided for each manhole. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Manhole angles shown. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Cleanouts required on ALL stubbed line segments that will be extended in the future. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. No cast-in-place manholes allowed without approval from public works department. |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Drop manholes are not allowed without approval from public works department. |

B. Manholes continued...

Yes No

- 7. Invert elevations shown at all Manholes (in & out).
- 8. For construction in ground water, Coal tar epoxy (two coats), or equivalent, required on manholes.

C. Sewer Mainline(s)

Yes No

- 1. Match crowns of pipes with different diameter.
- 2. Pipe length shown (center of Manhole to center of Manhole).
- 3. Pipe grade shown in % (calculated from inside face of Manhole).
- 4. Pipe slope shall comply with 10 states standard minimum slope unless otherwise approved.
- 5. Pipeline located in sewer Right of Way corridor, (5' N & E, 10' S & W) with dimension from center line of Right of Way delineated.
- 6. Where possible 8" pipe designed with slopes to provide for 2 feet per second peak hour design flow velocities or a minimum of 0.6%. Where 0.6% slopes cannot be achieved, the last upstream segment between manholes of sewer lines shall be constructed at 0.6%. (Assume Manning's Coefficient of 0.012)
- 7. Pipeline extended to adjacent property.
- 8. Water line quality pipe when wells or water line separation can not meet state drinking water requirements.

D. Sewer Service Lines

Yes No

- 1. Each buildable lot has a service line.
- 2. Service line horizontal location, length, size & invert elevation shown on plans and each buildable lot has a service line.
- 3. Service lines shown at the center of each lot.
- 4. Service lines at 2% min. slope.
- 5. Service lines at minimum depth of 6½' deep at property line. With prior approval from Boise City, service line depths can be reduced to 5½' where bedrock or groundwater is encountered.
- 6. Service lines at a 90° to mainline or connected to manholes where possible at ends of cul-de-sacs.
- 7. Service connections shall not be closer than 6' apart at mainline.
- 8. Where existing sewer depths, grade, and topographical features will not allow 6.5' of depth at the property line on proposed service lines, the water main shall be shown in the sewer profile with sewer service line crossings of the water main also shown in the profile.
- 9. If the designer chooses to use water class quality pipe where the vertical separation between a sewer service and water main is less than 18-inches, the entire service from the main to the end of the service shall be water quality pipe.

E. Plan & Profile

- 1. Existing utilities (water, sewer, power, irrigation, ect.) shown on plan & profile.
- 2. Proposed utilities (storm drains, water lines, pressure irrigation, ect.) shown on plan & profile.
- 3. Pipe sizes shown on plan and profile (sizes in accordance with master plan).
- 4. Surface repair delineated (area & type).
- 5. Property corner survey monuments shown on Plans.
- 6. Existing wells shown on sewer plans.

C. If Applicable

Yes No N/A

- 1. Preliminary Plat approved or recommendation to County for approval (all Plats).
- 2. For hillside projects, grading plan approved.
- 3. Executed offsite/oversizing reimbursement agreement.
- 4. County Plats only – P.D.S. confirmation of County adoption of Boise City's recommended conditions of approval.

III. EASEMENT ACQUISITION

Yes No N/A

- 1. Submit legal description and drawing of the easement for review by Boise City prior to execution. (Refer to Boise City Public Works Minimum Standards for Land and Easement Descriptions).
- 2. Use Standard City of Boise easement document and 8½" x 11" drawing with Boise City standard title block.
- 3. Name and address of Grantor shown on easement drawing.
- 4. After Boise City review and approval submit a fully executed document for City Council approval and subsequent recording by the City of Boise.

IV. CONSTRUCTION

A. Prior to Construction

Yes No N/A

- 1. Plans approved by Public Works Department.
- 2. Notice to Proceed letter sent to contractor, and returned with signature.
- 3. Contract, Bonds, Insurance and all related documents signed.
- 4. Preconstruction meeting held with all utilities.
- 5. TBM's set in field and clearly flagged and visible from any direction.
- 6. Construction staking complete, City inspector provided with field notes, cut sheets, and Bench Mark data.
- 7. Property corner survey monuments which may be affected by construction are referenced (tied down) by a licensed surveyor to allow for replacement after construction.
- 8. Public Works inspector notified. Contact Dan Erskin @ 440-4703 at least 48 hours prior to construction.
- 9. Install a plug or plugs at the downstream end(s) of project until after final acceptance.
- 10. Digline notified 48 hours in advance of construction (Phone No. 811).

B. If Applicable Prior to Construction

Yes No N/A

- 1. Contact Boise Public Works Inspection section for copies of the approved set of plans.
- 2. ACHD permit acquired if necessary.
- 3. Signing and detour plan approved by ACHD.
- 4. Informational signs posted in accordance with ACHD permit requirements.

C. Prior to Paving

Yes No N/A

- 1. Lines have passed a mandrel test and are accepted by the City of Boise. (30 days after backfilling is completed unless otherwise approved).
- 2. Sewer manhole grade ring adjustments shall be such that the finish grade elevation of the ring and cover does not exceed 21" inches above the top of the manhole cone.
- 3. Acceptable compaction results are verified/received from ACHD or private firm (whichever is acceptable).
- 4. Lines have passed a final Air Test after all utilities are in.
- 5. 100% of manholes have passed a Vacuum or Hydrostatic test.
- 6. Lines have been CCTV'd and are accepted by City of Boise.

D. Final Completion

Yes No N/A

- 1. Received a punch list letter by City of Boise Inspector.
- 2. Remove downstream plug or plugs.
- 3. Final Punchlist items complete.
- 4. Final line cleaning.
- 5. Surface repair completed and accepted by appropriate authority.

E. Warranty

- | Yes | No | N/A | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. One year warranty inspection. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. Warranty repairs required. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. Warranty repairs complete. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4. Warranty letter signed and sent out. |

Standard Notes to Contractor

1. Subdivisions with roof drains:

"The contractor shall color roof drain markers to clearly differentiate roof drain markers from sewer service markers."

2. Pipe sleeves through seepage beds:

"Contractor shall sleeve sewer services through seepage beds such that no joints in the pipe sleeve occur within the seepage bed, and the sleeve extends a minimum of 5 feet outside of the seepage bed on either side. Sleeves shall be composed of SDR-35 PVC, equivalent or greater quality material. Spacers (or approved equivalent) and rubber end seals shall be required to support the service line and prevent leaking into the sleeve."

3. Sewer Service Labels:

"Sewer service length and invert elevation shall be labeled on drawings according to ISPWC SD-511A or clearly noted when labeled differently."