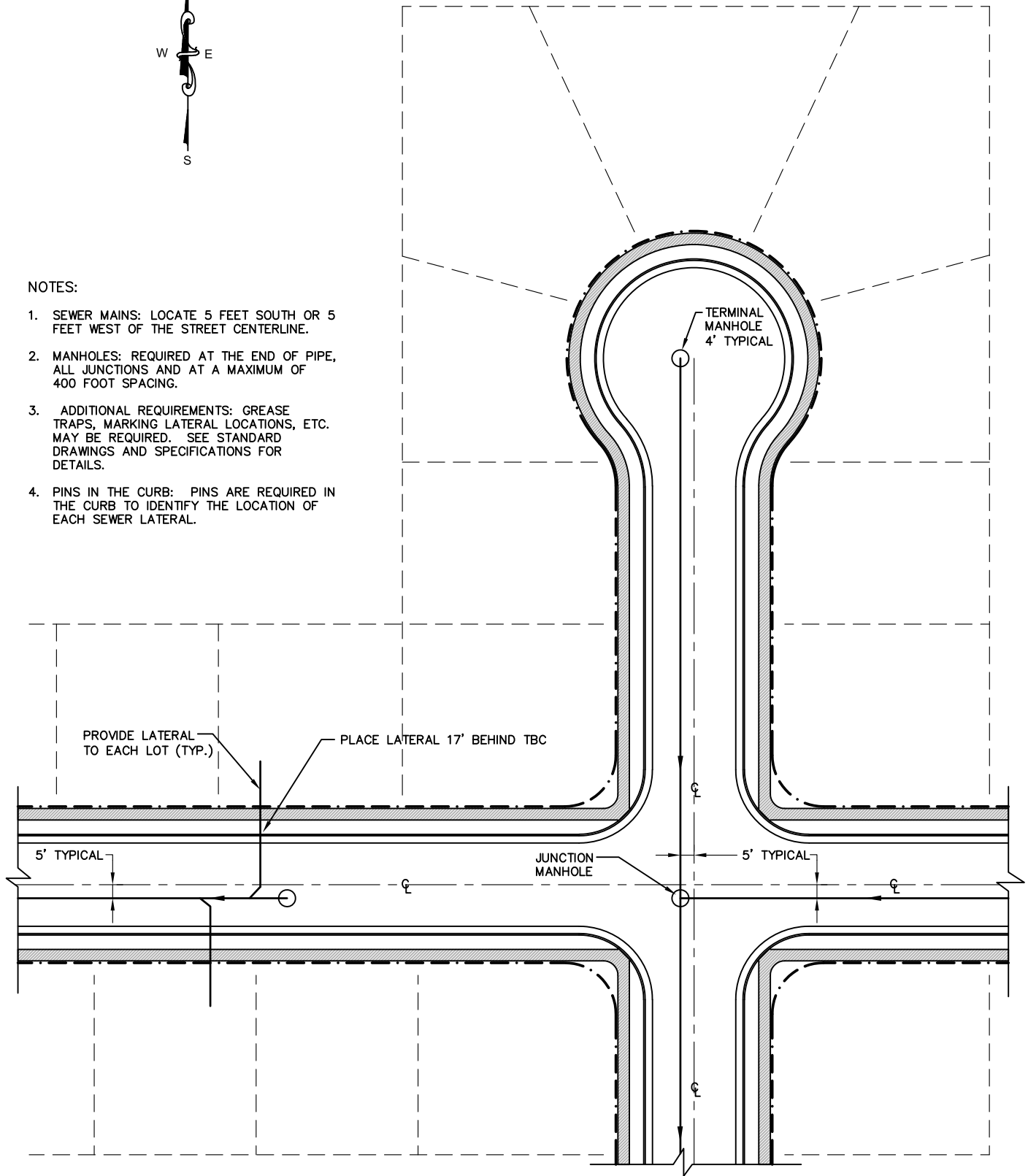




NOTES:

1. SEWER MAINS: LOCATE 5 FEET SOUTH OR 5 FEET WEST OF THE STREET CENTERLINE.
2. MANHOLES: REQUIRED AT THE END OF PIPE, ALL JUNCTIONS AND AT A MAXIMUM OF 400 FOOT SPACING.
3. ADDITIONAL REQUIREMENTS: GREASE TRAPS, MARKING LATERAL LOCATIONS, ETC. MAY BE REQUIRED. SEE STANDARD DRAWINGS AND SPECIFICATIONS FOR DETAILS.
4. PINS IN THE CURB: PINS ARE REQUIRED IN THE CURB TO IDENTIFY THE LOCATION OF EACH SEWER LATERAL.



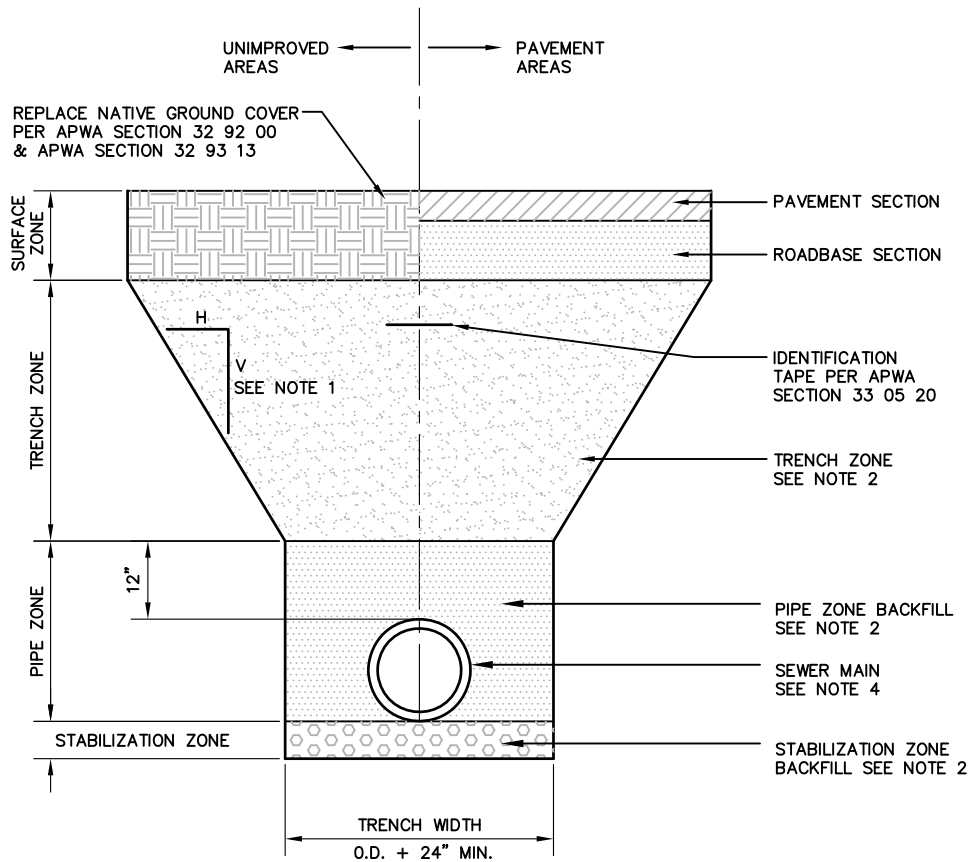
DRAWING UPDATED JANUARY 2020

City of West Jordan, Utah



# RESIDENTIAL SEWER INSTALLATION

PLAN  
SS-15

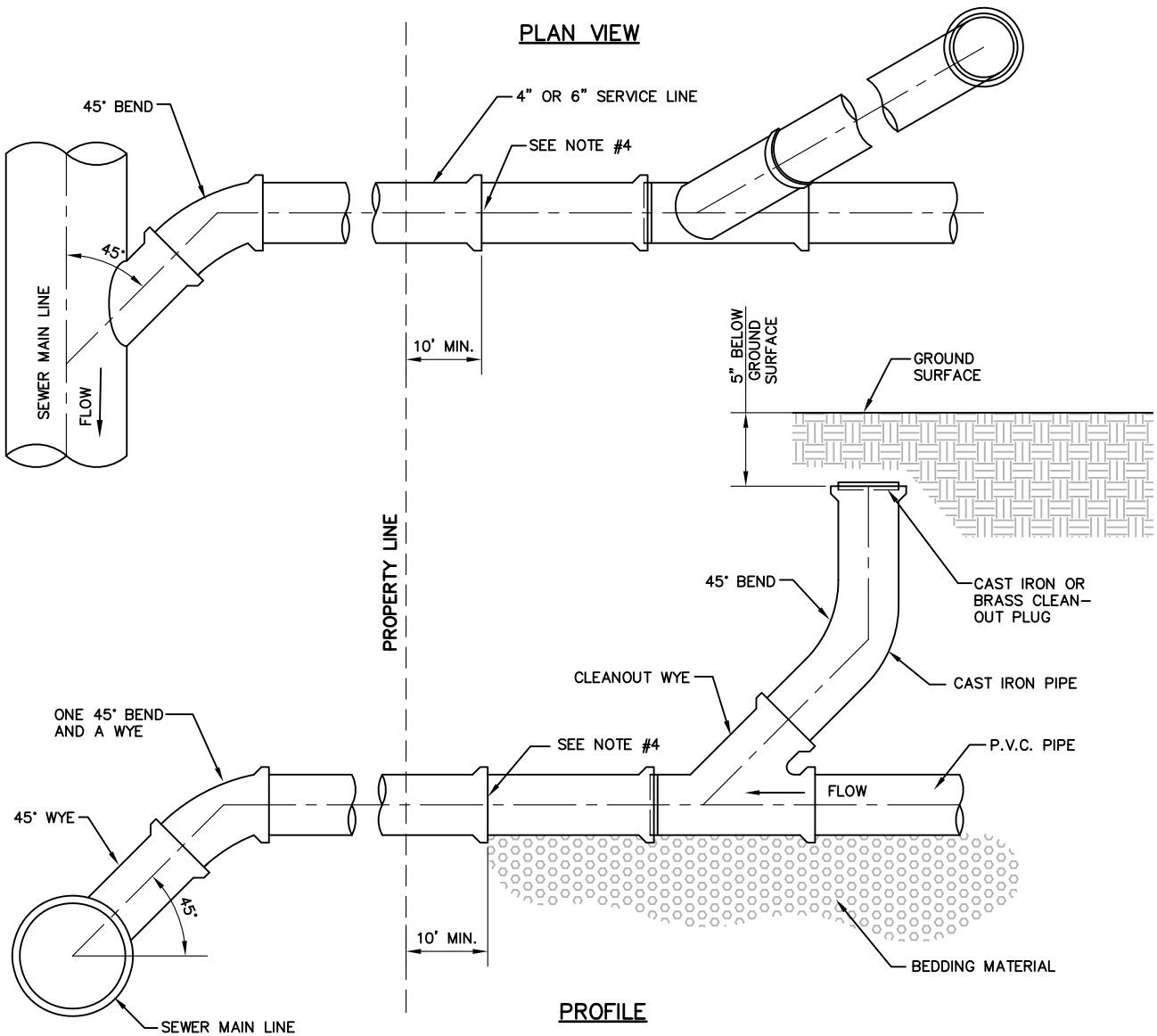


NOTES:

1. EXCAVATION: TRENCH EXCAVATION PER APWA SECTION 31 23 16. EXCAVATION PROTECTION SHALL BE PROVIDED IN ACCORDANCE WITH OSHA AND UOSH SAFETY STANDARDS AND WITH APWA 31 41 00.
2. BACKFILL: BACKFILL OPERATIONS SHALL COMPLY WITH APWA 33 05 20 "BACKFILLING TRENCHES". BACKFILL MATERIALS SHALL COMPLY WITH APWA 31 05 13 "COMMON FILL" AND 32 11 23 "AGGREGATE BASE COURSE" WITH MATERIAL SELECTION AS FOLLOWS:

	UNIMPROVED AREAS	PAVEMENT AREAS
STABILIZATION ZONE	1" MINUS SEWER ROCK	1" MINUS SEWER ROCK
PIPE ZONE	1" MINUS SEWER ROCK	1" MINUS SEWER ROCK
TRENCH ZONE	GRANULAR BACKFILL BORROW	GRANULAR BACKFILL BORROW
SURFACE ZONE	NATIVE TOP SOIL REPLACE VEGETATION TO PRECONSTRUCTION CONDITION	UNTREATED BASE COURSE PAVEMENT RESTORATION PER ROAD SPECIFICATIONS

3. COMPACTION OF BACKFILL MATERIALS SHALL COMPLY WITH APWA 31 23 26. SUBMISSION OF QUALITY ASSURANCE TEST DATA MAY BE REQUESTED BY ENGINEER AT ANY TIME. CONTRACTOR IS TO PROVIDE RESULTS OF TESTS IMMEDIATELY UPON REQUEST.
4. INSTALLATION OF PIPE: INSTALL PIPE PER APWA 33 31 00 "SANITARY SEWERAGE SYSTEMS". INSTALL PIPE ON STABLE FOUNDATION WITH UNIFORM BEARING.
5. PAVEMENT RESTORATION: DO NOT INSTALL PAVEMENT OR ROAD BASE SECTION UNTIL TRENCH COMPACTION IS ACCEPTED BY ENGINEER.

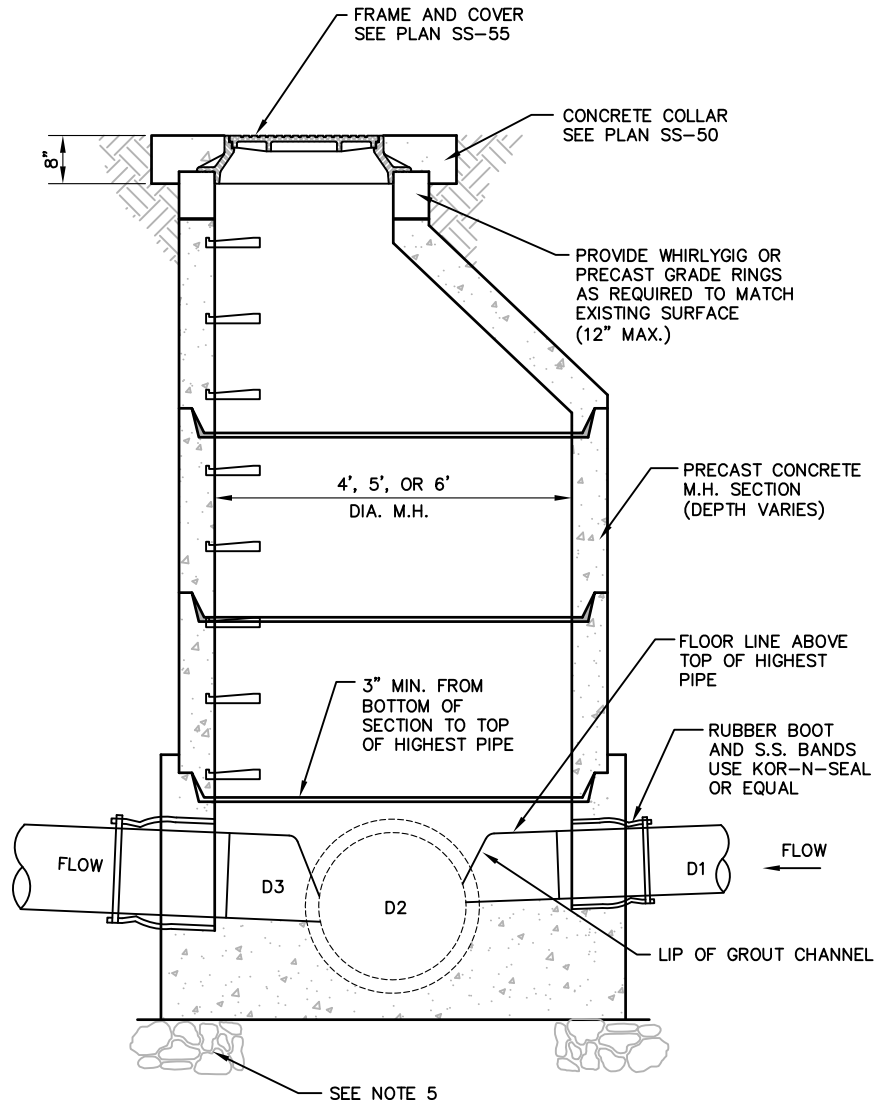


**NOTES:**

1. **INSPECTION:**
  - A. PRIOR TO INSTALLATION, SECURE ACCEPTANCE BY ENGINEER FOR ALL PIPE, FITTINGS, AND COUPLINGS.
  - B. PRIOR TO BACKFILLING SEWER LATERAL, SECURE INSPECTION OF INSTALLATION BY ENGINEER.
2. **INSTALLATION:**
  - A. PROVIDE WEST JORDAN CITY UTILITIES DEPARTMENT APPROVED WYE OR TEE WITH APPROPRIATE DONUT.
  - B. TAPE WRAP PIPE AS REQUIRED BY SOIL CONDITIONS.
  - C. CORE OUT PLUG IN SEWER MAIN. DO NOT BREAK INTO SEWER MAIN TO MAKE CONNECTION.
  - D. CONSTRUCT 4 INCH LATERALS WITH MINIMUM 2% SLOPE.
  - E. CONSTRUCT 6 INCH LATERALS WITH MINIMUM 1% SLOPE.
3. **BACKFILL:** INSTALL AND COMPACT ALL BACKFILL MATERIAL PER APWA SECTION 33 05 20.
4. **LOCATION:** CONTRACTOR TO MARK LATERAL WITH A PIN IN THE CURB AND RECORD LOCATION.



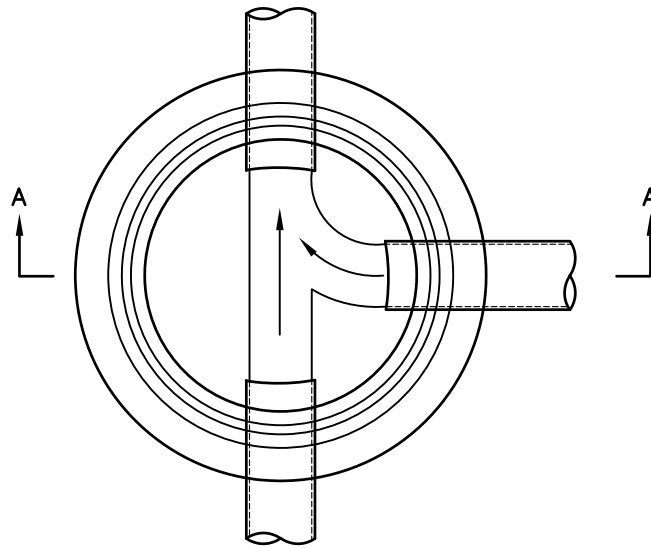
# SANITARY SEWER LATERAL



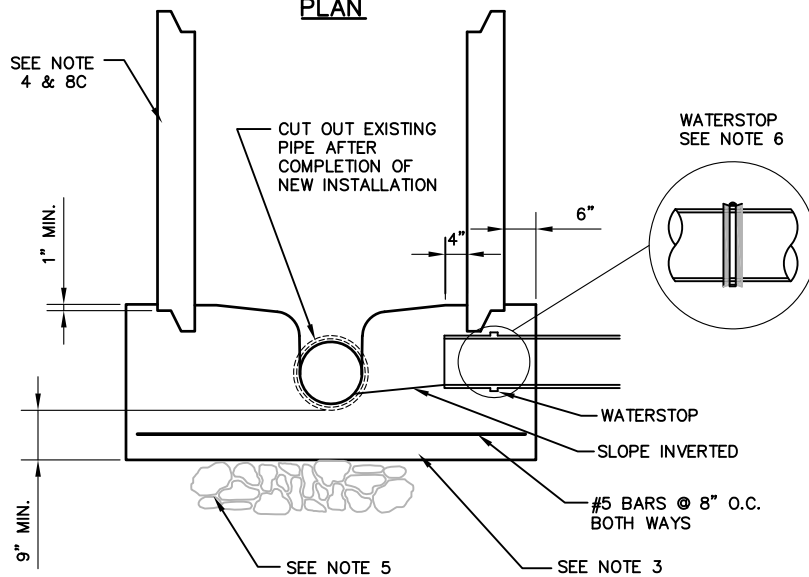
WALL THICKNESS (T)	
SSMH DIA	T (INCHES)
4'	5"
5'	6"
6'	7"

**NOTES:**

1. SELECT FILL: USE OF UNTREATED BASE COURSE GRADE 1 PER APWA SECTION 32 11 23. USE OF SEWER ROCK OR RECYCLED AGGREGATE REQUIRES ENGINEER'S WRITTEN APPROVAL.
2. BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER APWA SECTION 33 05 20.
3. CONCRETE: CLASS 4,000 PER APWA SECTION 03 30 04 FOR BOTH PRECAST AND CAST IN PLACE APPLICATIONS. APPLY A SEALING/CURING COMPOUND PER APWA SECTION 03 39 00.
4. REDUCING RISER: WHEN A DEPTH OF MANHOLE FROM PIPE INVERT TO FINISH GRADE EXCEEDS 6'-7", USE A REDUCING RISER SECTION.
5. FOUNDATION: FOUNDATION TO REST ON 12" OF 1 1/2" MAXIMUM GRADED ROCK OR ON FIRM UNDISTURBED SOIL.
6. JOINTS: PLACE FLEXIBLE GASKET TYPE SEALANT IN MANHOLE JOINTS.
7. FINISH: PROVIDE SMOOTH AND NEAT FINISHES ON THE INTERIOR OF CONES, SHAFTS, AND RINGS. IMPERFECT MOLDINGS OR HONEYCOMBS WILL NOT BE ACCEPTED.
8. INVERTS: INVERTS OF D1 AND D3 SHALL MATCH THE 0.75 DEPTH POINT OF D2 UNLESS OTHERWISE APPROVED BY CITY.



PLAN



SECTION A-A

NOTES:

1. SELECT FILL: USE OF UNTREATED BASE COURSE GRADE 1 OR GRADE 3/4 PER APWA SECTION 31 05 13. USE OF SEWER ROCK OR RECYCLED AGGREGATE REQUIRES ENGINEER'S WRITTEN APPROVAL.
2. BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER APWA SECTION 31 23 23.
3. CONCRETE: CLASS 4,000 PER APWA SECTION 03 30 04 FOR BOTH PRECAST AND CAST IN PLACE APPLICATIONS. APPLY A SEALING/CURING COMPOUND PER APWA SECTION 03 39 00.
4. MANHOLE SECTION: USE A STEEL REINFORCED CONCRETE MANHOLE SECTION CONFORMING TO ASTM C-478 CAST INTO BASE.
5. FOUNDATION: FOUNDATION TO REST ON 6" OF 1 1/2" MAXIMUM GRADED ROCK OR ON FIRM UNDISTURBED SOIL WHEN DIRECTED BY ENGINEER AND INDICATED BY SOILS REPORT.
6. WATERSTOP: SHALL BE 1/2" 300 SERIES NONMAGNETIC STAINLESS STEEL CONFORMING TO ASTM A167 AND RUBBER GASKET MEETING ASTM C-443.
7. JOINTS: PLACE FLEXIBLE GASKET TYPE SEALANT IN MANHOLE JOINTS.
8. BASE OF MANHOLE:
  - A. THIS MANHOLE BASE IS TO BE USED FOR A CONNECTION TO AN EXISTING LINE OR AS AN ALTERNATE TO A PRECAST MANHOLE BASE.
  - B. INVERT SHALL BE SMOOTH AND "U" SHAPED AND MATCH THE SPRING LINE OF THE PIPE.
  - C. THE FIRST PRECAST MANHOLE SECTION SHALL BE CAST INTO THE BASE. THE REMAINDER OF THE MANHOLE CONSTRUCTION SHALL CONFORM TO PLAN SS-035.

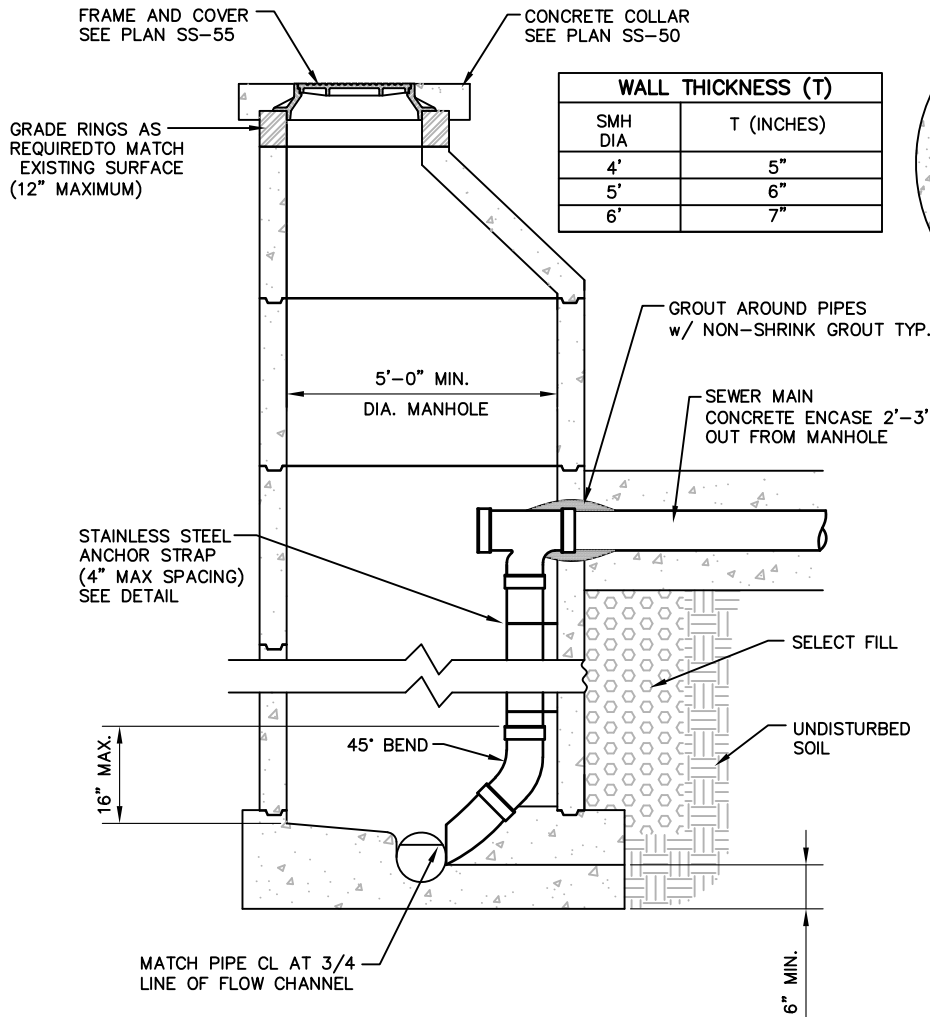
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City of West Jordan, Utah

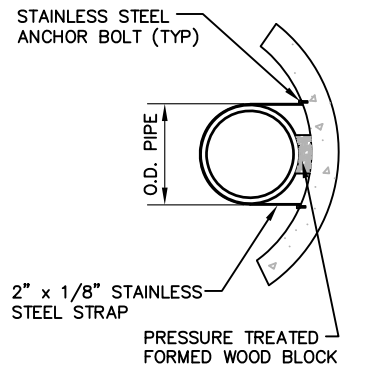
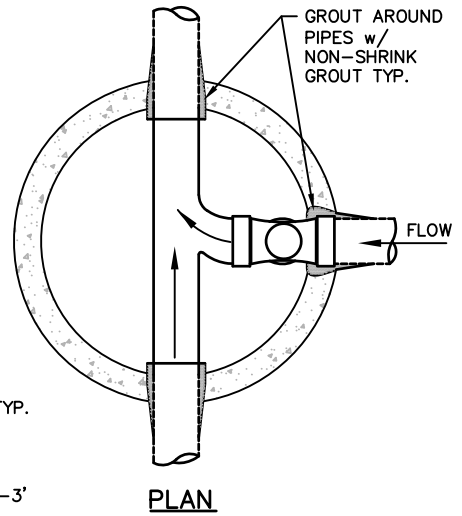


# SANITARY SEWER CAST IN PLACE MANHOLE BASE

PLAN  
SS-40



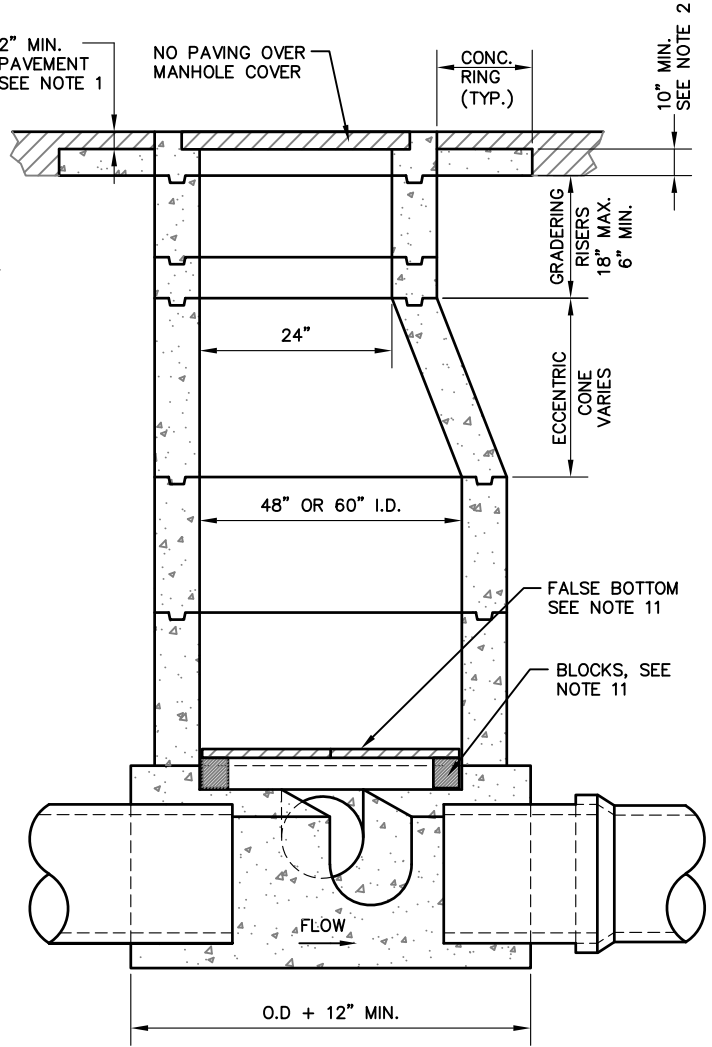
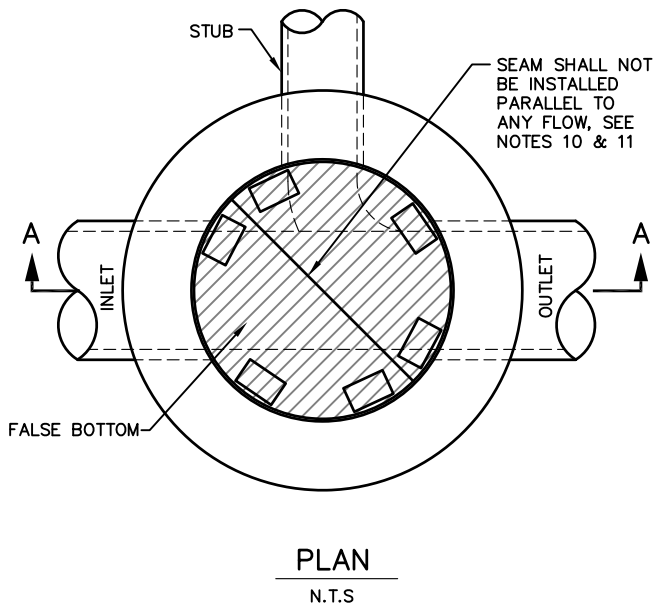
WALL THICKNESS (T)	
SMH DIA	T (INCHES)
4'	5"
5'	6"
6'	7"



**ANCHOR STRAP DETAIL**

**NOTES:**

1. SELECT FILL: USE OF UNTREATED BASE COURSE GRADE 1 OR GRADE 3/4 PER APWA SECTION 32 11 23. USE OF SEWER ROCK OR RECYCLED AGGREGATE REQUIRES ENGINEER'S WRITTEN APPROVAL..
2. BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER APWA SECTION 33 05 20.
3. CONCRETE: CLASS 4,000 PER APWA SECTION 03 30 04 FOR BOTH PRECAST AND CAST IN PLACE APPLICATIONS. APPLY A SEALING / CURING COMPOUND PER APWA SECTION 03 39 00.
4. FOUNDATION: FOUNDATION TO REST ON 12" OF 1 INCH MAXIMUM GRADED ROCK OR ON FIRM UNDISTURBED SOIL.
5. JOINTS: PLACE FLEXIBLE GASKET TYPE SEALANT IN MANHOLE JOINTS.
6. FINISH: PROVIDE SMOOTH AND NEAT FINISHES ON THE INTERIOR OF CONES, SHAFTS, AND RINGS. IMPERFECT MOLDINGS OR HONEYCOMBS WILL NOT BE ACCEPTED.



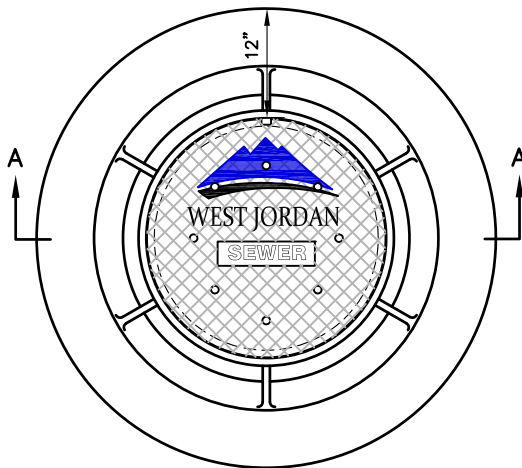
**SECTION A-A**  
N.T.S.

**NOTES:**

1. PAVEMENT MIX DESIGN FOR MANHOLE RINGS SHALL BE 1/2 INCH.
2. MIX DESIGN FOR CONCRETE RING SHALL BE CLASS 4000 PER APWA SECTION 03-30-04.
3. EDGES OF THE PAVING SHALL BE SEALED.
4. MANHOLE SHALL BE SET TO GRADE PER APWA SECTION 33-05-14.
5. THE FINISH SURFACE OF THE MANHOLE SHALL NOT VARY MORE THAN 1/8 INCH IN 10 FEET.
6. ALL MANHOLES SHALL BE LOWERED PRIOR TO PAVING. ANY MANHOLE WHERE EXISTING DEBRIS IS DISCOVERED BEFORE CONTRACTOR HAS WORKED ON IT MUST NOTIFY THE CITY INSPECTOR PRIOR TO BEGINNING WORK.
7. NO VERTICAL JOINTS WILL BE ALLOWED AT THE END OF THE WORK DAY. ALL SURFACES WILL BE COLD MIXED, FINAL PAVED, OR PLATED.
8. THE CONTRACTOR SHALL PLACE A FALSE BOTTOM BEFORE ANY DEMOLITION WORK AND REMAIN UNTIL RECONSTRUCTION IS COMPLETE.
9. FALSE BOTTOM IS TO BE CONSTRUCTED OF 1" MARINE GRADE MOISTURE-RESISTANT PLYWOOD OR CITY APPROVED EQUAL. THE PLYWOOD IS CUT TO A 4' OR 5' DIAMETER CIRCLE TO FIT THE BOTTOM AND THEN CUT IN HALF. THE FALSE BOTTOM IS THEN PLACED IN THE MANHOLE WITH SEAM CROSSING THE FLOW OR IN SUCH A MANNER TO PROTECT THE SEWER SYSTEM FROM ANY DEBRIS.
10. FALSE BOTTOM IS TO BE PLACED ON BLOCKS AT A MINIMUM OF 1" ABOVE ALL SEWAGE INLETS TO THE MANHOLE, FALSE BOTTOM SHALL BE CONNECTED TO THE BLOCKS VIA NAILS OR STAPLES TO PREVENT THE BLOCK FROM FALLING INTO THE SEWAGE FLOW. BLOCKS SHALL NOT OBSTRUCT ANY PART OF THE SEWAGE FLOW.
11. ALL DEBRIS SHALL BE REMOVED FROM MANHOLE PRIOR TO CONSTRUCTING FALSE BOTTOM. ALL DEBRIS SHALL BE REMOVED FROM MANHOLE EACH TIME THE MANHOLE IS WORKED ON. MANHOLE MUST BE CLEARED OF ALL DEBRIS BEFORE TURNING IT BACK TO THE CITY FOR FINAL ACCEPTANCE.
12. FALSE BOTTOMS MUST BE APPROVED BY THE CITY PRIOR TO INSTALLATIONS.
13. ANY DAMAGE TO THE SEWER PIPE, OVERFLOWS, BLOCKAGES, OR FAILURES OF FALSE BOTTOM SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR.



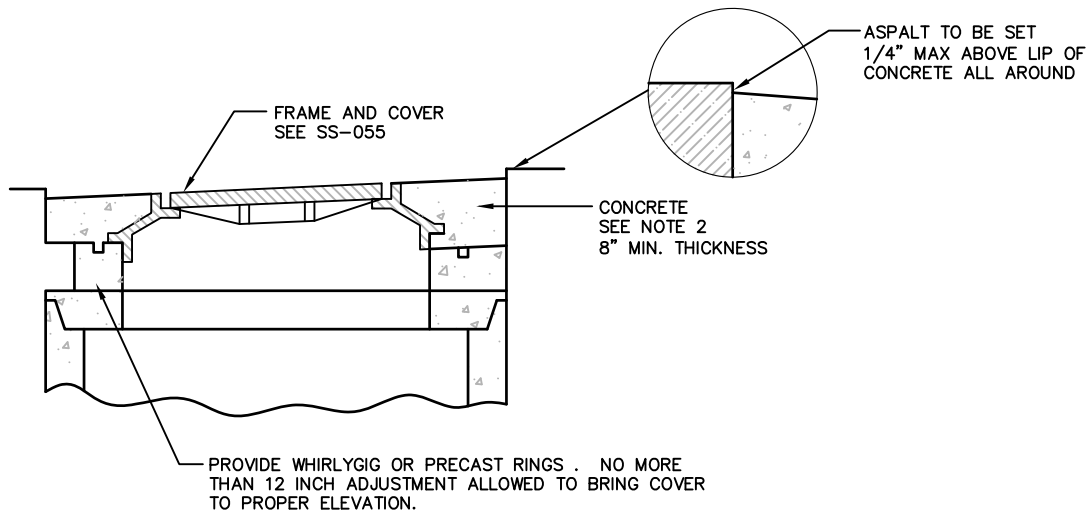
**FALSE BOTTOM MANHOLE**



**PLAN**

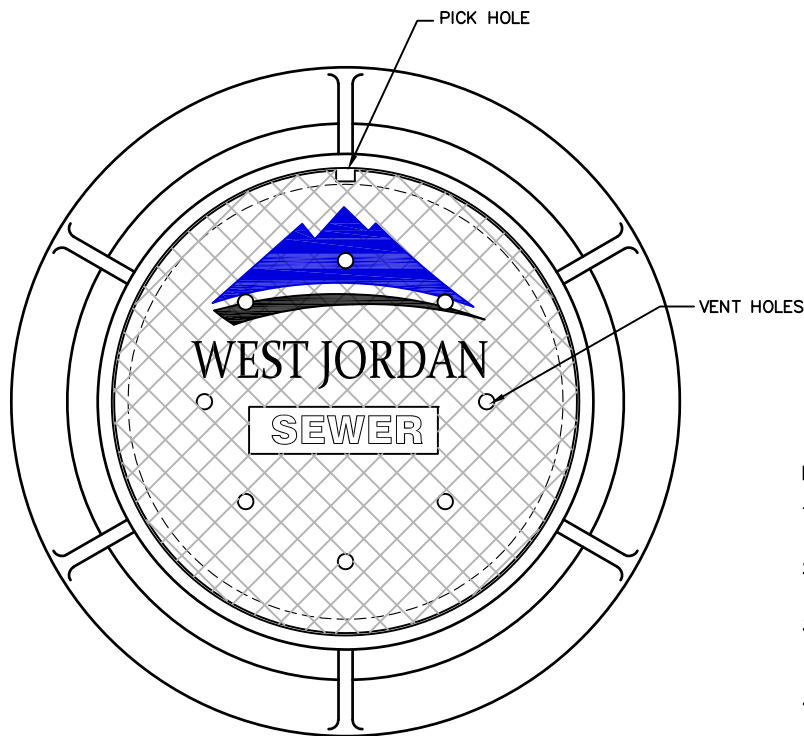
**NOTES:**

1. ADJUST TO GRADE: ADJUST INCIDENTAL STRUCTURE TO GRADE PER APWA SECTION 33 05 14.
2. CONCRETE: CLASS 4,000 PER APWA SECTION 03 30 04. APPLY A SEALING/CURING COMPOUND PER APWA SECTION 03 39 00 OR USE AN ACCEPTABLE ALTERNATE CURING METHOD.
3. JOINTS: PROVIDE A NEAT STRAIGHT JOINT BETWEEN EXISTING AND NEW ASPHALT CONCRETE SURFACES. PROVIDE CONCENTRIC CIRCLE OR STRAIGHT EDGE CUT. CLEAN EDGES OF ALL DIRT, OIL AND LOOSE DEBRIS.



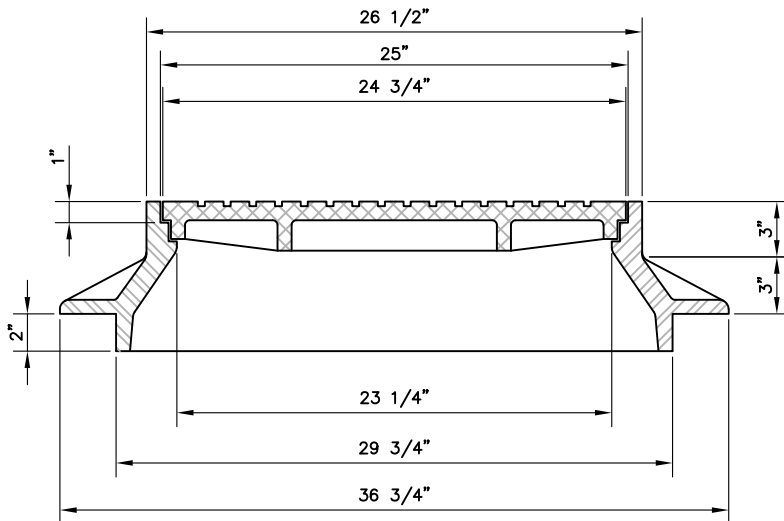
**SECTION A-A**



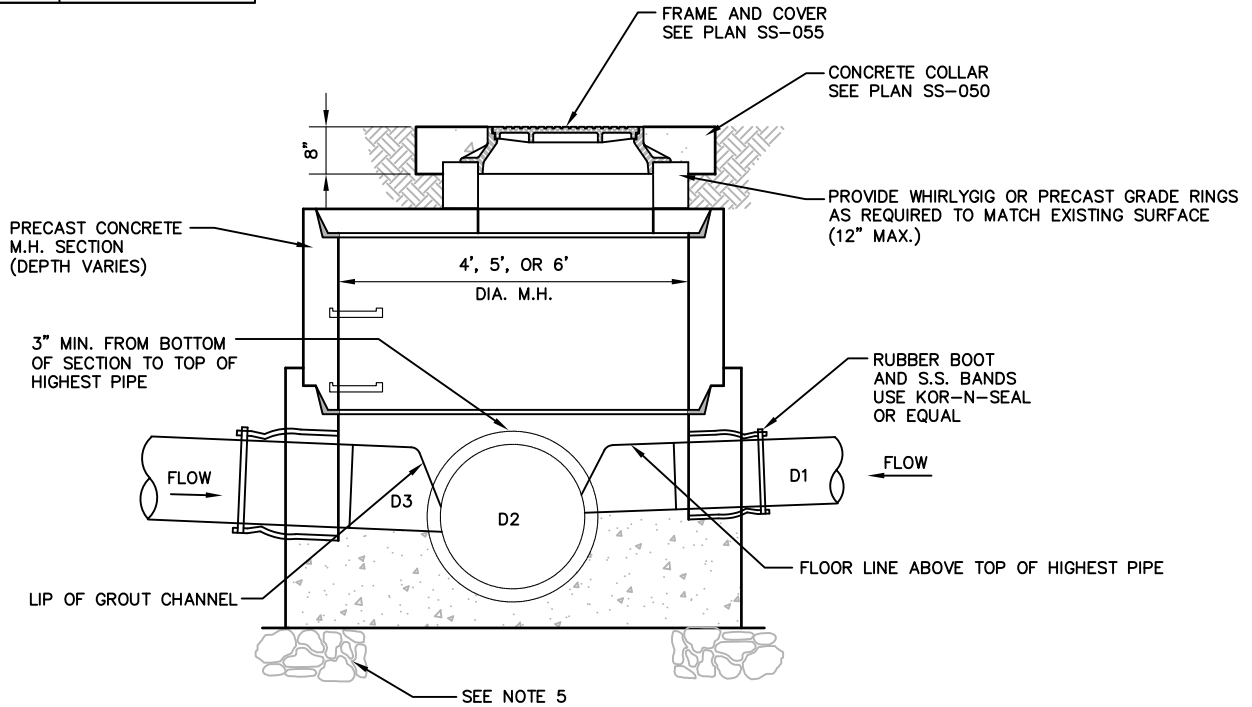


NOTES:

1. CASTINGS: GRAY IRON CLASS 30 MINIMUM PER ASTM A 48.
2. COATINGS: EXCEPT MACHINED SURFACES, COAT ALL METAL PARTS WITH ASPHALTUM PAINT.
3. INSCRIPTIONS: CAST THE WORDS "WEST JORDAN" AND "SEWER" ON THE COVER FLUSH WITH THE SURFACE FINISH.
4. HEAT NUMBER: PLACE FOUNDRY AND HEAT NUMBER ON THE INSIDE OF THE FRAME AND ON THE BOTTOM OF THE COVER.
5. FIT: GIVE THE FRAME AND COVER A MACHINE FINISH SO THE COVER WILL NOT ROCK.
6. LOCKING: PROVIDE COVERS FOR MANHOLES LOCATED IN EASEMENTS, RIGHTS OF WAY, ALLEYS PARKING LOTS, AND ALL OTHER PLACES EXCEPT PAVED STREETS, WITH ALLEN SOCKET SET SCREW LOCKING DEVICES. DRILL AND TAP TWO HOLES TO A DEPTH OF 1 INCH AT 90 DEGREES TO PRY AND INSTALL 3/4" X 3/4" INCH ALLEN SOCKET SET SCREWS.
7. VENTILATION: STANDARD IS FOR VENTED MANHOLE EXCEPT AS NEEDED FOR PROBLEMS.



WALL THICKNESS (T)	
SSMH DIA	T (INCHES)
4'	5"
5'	6"
6'	7"



NOTES:

1. SELECT FILL: USE OF UNTREATED BASE COURSE GRADE 1 PER APWA SECTION 32 11 23. USE OF SEWER ROCK OR RECYCLED AGGREGATE REQUIRES ENGINEER'S WRITTEN APPROVAL.
2. BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER APWA SECTION 33 05 20.
3. CONCRETE: CLASS 4,000 PER APWA SECTION 03 30 04 FOR BOTH PRECAST AND CAST IN PLACE APPLICATIONS. APPLY A SEALING/CURING COMPOUND PER APWA SECTION 03 39 00.
4. FOUNDATION: FOUNDATION TO REST ON 12" OF 1 1/2" MAXIMUM GRADED ROCK OR ON FIRM UNDISTURBED SOIL.
5. JOINTS: PLACE FLEXIBLE GASKET TYPE SEALANT IN MANHOLE JOINTS.
6. FINISH: PROVIDE SMOOTH AND NEAT FINISHES ON THE INTERIOR OF CONES, SHAFTS, AND RINGS. IMPERFECT MOLDINGS OR HONEYCOMBS WILL NOT BE ACCEPTED.
7. INVERTS: INVERTS OF D1 AND D3 SHALL MATCH THE 0.75 DEPTH POINT OF D2 UNLESS OTHERWISE APPROVED BY CITY.

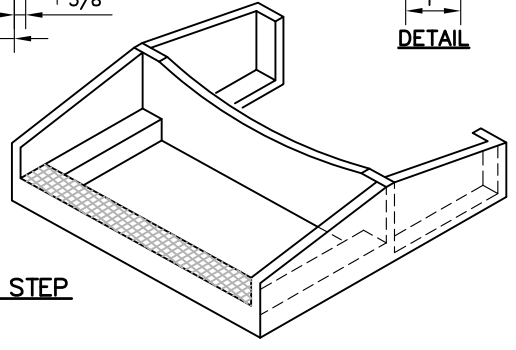
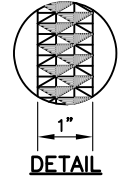
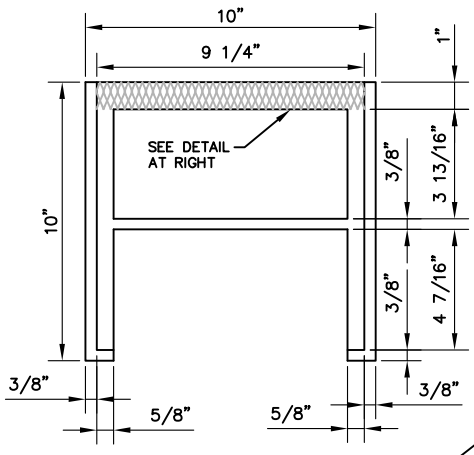
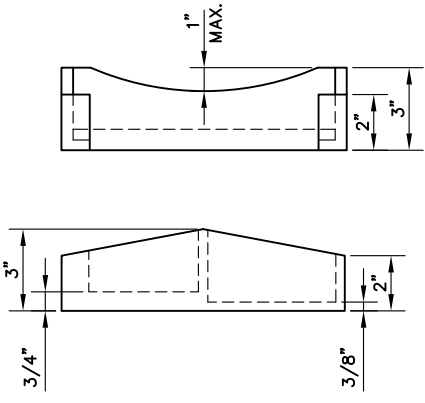
DRAWING UPDATED JANUARY 2020

City of West Jordan, Utah



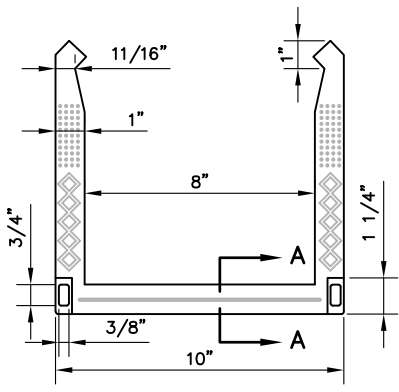
# SHALLOW MANHOLE

PLAN  
SS-65



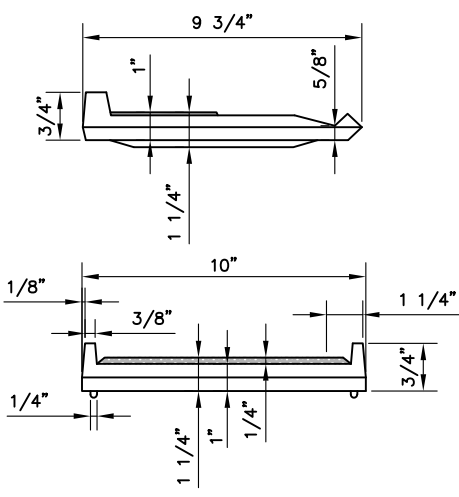
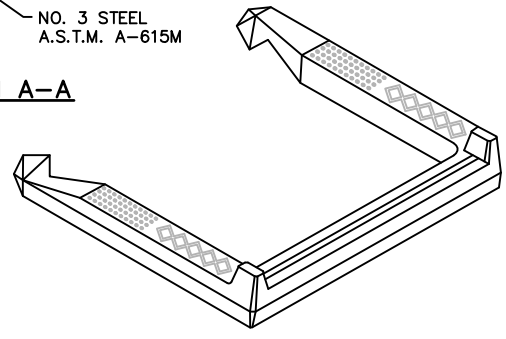
- NOTES**
1. ALL DIMENSIONS ARE MINIMUM EXCEPT WHERE NOTED.
  2. CASTING AS PER SECT. 787.

**CAST IRON MANHOLE STEP**



- POLYPROPYLENE PLASTIC
- NO. 3 STEEL  
A.S.T.M. A-615M

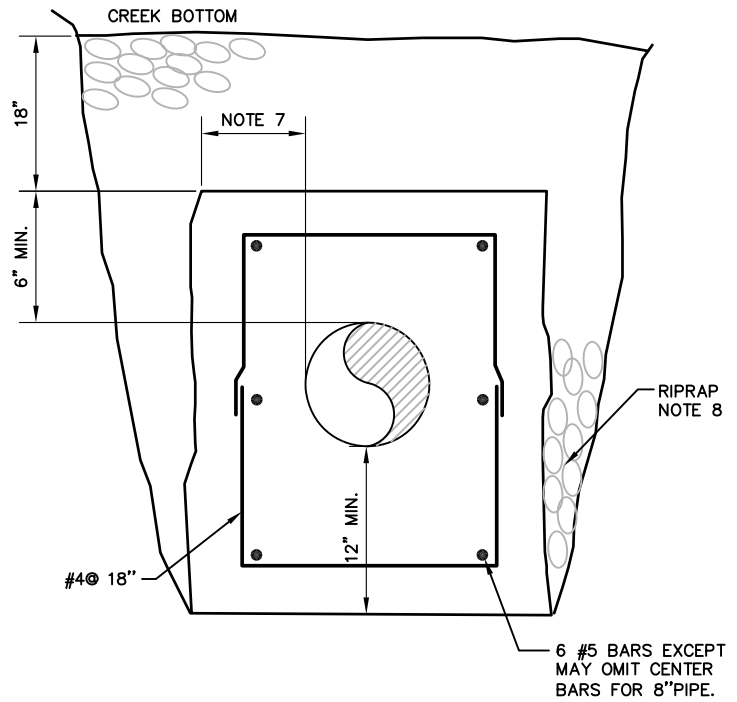
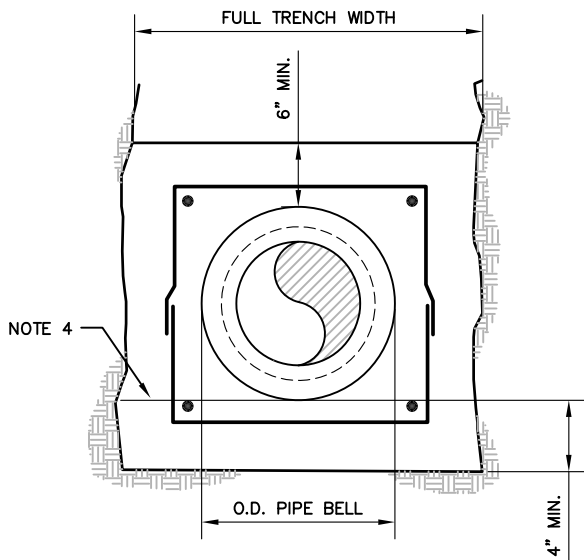
**SECTION A-A**



- NOTES**
1. STEPS SHALL BE PLACED INTO WET CONCRETE WALL DURING MANUFACTURE OR MORTARED INTO HOLES AFTER CONCRETE HAS SET.
  2. POLYPROPYLENE MUST MEET REQUIREMENTS OF A.S.T.M. 2146, TYPE II, GRADE 16906.

**POLYPROPYLENE MANHOLE STEP**



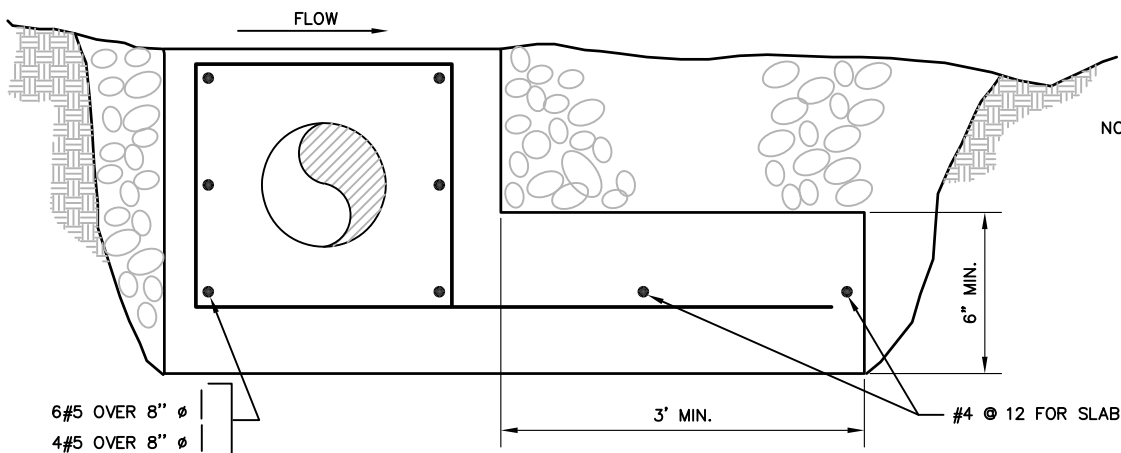


NOTES:

1. ALL REBARS #4; STIRRUPS @ 24"
2. ALL REBARS USE 3" CLEAR.
3. WRAP PIPE WITH 15#/100 SF ROOFING PAPER OR AS APPROVED (NOT REQUIRED PLASTIC PIPE).
4. OPTIONAL CONSTRUCTION JOINT.
5. EACH JOINT TO BE TIED DOWN TO PREVENT FLOATING.
6. CONCRETE TO BE VIBRATED.
7. 6" MIN. TYP. BOTH SIDES
8. 6" MIN. RIPRAP CHOCKED WITH SAND AS REQUIRED.
9. DEPTH OF CONCRETE SHALL BE TO FIRM FOUNDATION.
10. OTHER DETAILS AS SHOWN FOR TYPE A.

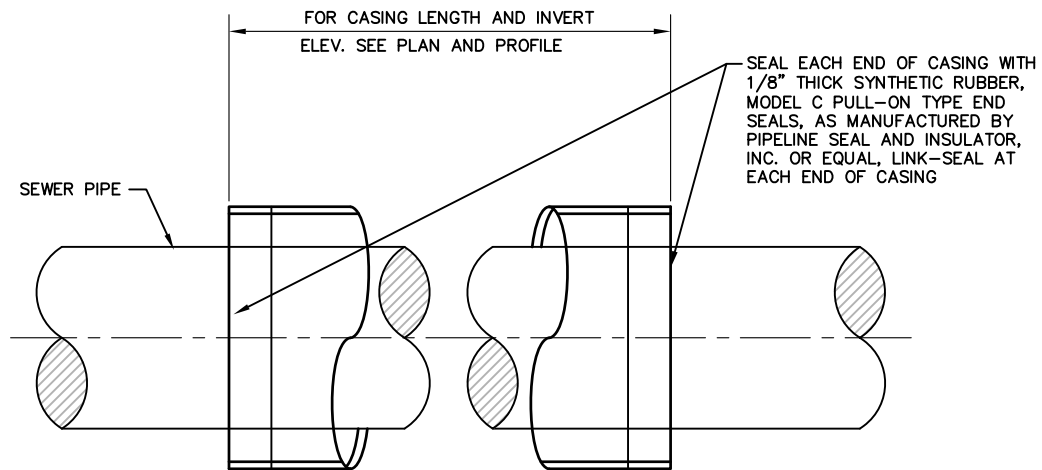
TYPE A ENCASEMENTS

TYPE B—FOR DRAINAGE COURSE



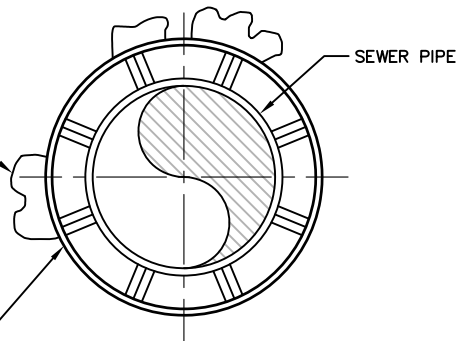
NOTE:  
OTHER DETAILS  
PER TYPE B

TYPE C—DRAINAGE COURSE



ANY VOIDS CREATED BY BORING, JACKING, OR TUNNELING SHALL BE FILLED BY PRESSURE GROUTING.

CASING SPACERS MANUFACTURED BY PIPELINE SEAL AND INSULATOR, INC. MODEL S12G-2 SPACED EVERY 5' TO CENTER THE PIPE INSIDE THE CASING. PIPE THROUGHOUT THE LENGTH OF THE CASING SHALL BE AT A CONTINUOUS GRADE AS SHOWN IN DRAWINGS.



**SECTION**

MINIMUM WALL THICKNESS OF CASINGS	
DIAMETER	WALL THICKNESS
12" AND UNDER	0.188"
14"–18"	0.312"
20"–22"	0.375"
24"–26"	0.438"
28"–32"	0.500"
34"–42"	0.562"

LARGER CASINGS AS DIRECTED BY THE CITY ENGINEER.

**NOTES:**

1. CASING PIPES SHALL BE REQUIRED AS INDICATED ON THE DRAWINGS AND/OR WHERE REQUIRED BY THE CITY INSPECTOR OR ENGINEER.
2. THE CASING PIPE SHALL BE SIZED TWICE DIAMETER OF CARRIER PIPE.
3. CARRIER PIPE SHALL BE TESTED BEFORE SEALING THE ENDS OF THE CASING.
4. SPACERS SHALL BE SECURELY ATTACHED TO CARRIER PIPE PER MANUFACTURER'S REQUIREMENTS.
5. CASING PIPE SHALL BE WELDED STEEL, ASTM A53, GRADE B OR APPROVED EQUIVALENT.