

GENERAL CONSTRUCTION NOTES

- The Contractor is responsible for the location of all utilities and must have all utilities located prior to commencing any excavation. The Contractor shall verify the invert and flowline elevations of all water lines, sanitary sewers, storm drains, drainage structures, and surface drainage courses prior to laying any new pipe. The Contractor must call OKIE at (405) 840-5032 to have all public utilities (water and sanitary sewer lines) and franchised utilities (electric lines, telephone cables, fiber optic lines, cable television, gas lines, and oil pipelines) located at least two (2) days prior to starting construction.
- The Contractor is responsible for the protection of all utility lines and structures, whether shown or not, both public and private. Any damage to the utility line or structure, because of the Contractor's actions, shall be repaired solely at the Contractor's expense to a condition as good or better than that prior to the damage.
- The Contractor must call 9-1-1 IMMEDIATELY if a natural gas pipeline is cut, damaged or otherwise disturbed. The Midwest City Fire Department and Oklahoma Natural Gas Company must inspect the pipe before work can resume at that location.

The Contractor must notify the following persons at least forty-eight (48) hours in advance of placing or removing any barricades or otherwise modifying existing traffic control devices or placing any temporary traffic control device:

Engineer (405) 739-1215  
 Construction inspector (405) 739-1267

The Contractor must notify all affected city utility customers at least two (2) working days prior to anticipated service interruption during construction. Streets temporarily closed to through traffic during construction shall remain open to local traffic to the maximum extent practical during the work. Detour routes shall be furnished by the Engineer. The Contractor shall furnish and erect all detour signage as directed.

Where work is carried on, in, or adjacent to any street, alley, or public place, the Contractor shall, at his own expense, furnish and erect such barricades, fences, lights, and/or other protective barriers, and take such other precautionary measures for the protection of persons or property and of the work as are necessary. A sufficient number of barricades shall be erected to keep vehicles from being driven into any work under construction. Failure to comply with this requirement will result in the Engineer shutting down the work until the Contractor has provided the necessary protection. All such barricades and signs and the use thereof shall be in the strict compliance with the Manual on Uniform Traffic Control Devices, Part VI - Temporary Traffic Control

All construction materials and work shall conform to the applicable City of Midwest City and the Oklahoma Department of Transportation (ODOT) standards and specifications with the additional supplements, as referenced in the project documents.

All elevations shown are on the Mean Sea Level (M.S.L.) datum. All dimensions to curb are to the back of curb. All dimensions to street "centerlines" are to the centerline of the right-of-way or section line.

The Contractor shall develop and make all detail surveys needed for construction. The cost of the construction survey and staking shall be included in the price bid for other items of work.

All fences removed as a result of the Contractor's actions shall be replaced in kind with fencing equal to or better than the original fence. All costs for fence removal and replacement shall be included in the price bid for other items of work.

All work not classified as a contract pay item shall be considered incidental construction and the cost for such shall be included in the price bid for other items of work.

All removed salvageable items shall remain the property of the City and shall be stockpiled in an area within the project limits designated by the Engineer for collection by city forces.

All ditches disturbed during construction shall be reshaped and sloped to drain. Solid slab sod shall be used in all areas where solid has been exposed and positive means of sod stabilization shall be used to prevent displacement of sod by storm waters.

Erosion control devices in the form of sediment fences are required at driveway culverts, street culverts, drainage structures, storm sewer manholes, and sanitary sewer manholes located in ditches where soil has been disturbed. Those items shall be placed as directed by the Engineer and the cost shall be included in other items.

Sediment control for utility construction is required. Trenches must be backfilled at the end of each day's work. No more trench shall be opened than can be completed in the same day unless temporary silt fence is placed immediately downstream of any area intended to remain disturbed for more than one day. Excavated materials shall be placed on the high side of the trench.

City personnel are not permitted to enter any trench or excavation more than five (5) feet deep, for any reason, unless it is sloped or shored in accordance with 29 CFR 1926 OSHA subpart P, "Excavation and Trenches."

All disturbed, unpaved areas within easements and right-of-way shall be seeded, fertilized, and watered in accordance with ODOT specifications section 232, "Seeding", as required under the "Revegetation" pay item if provided or as noted otherwise on the plans. Seeded areas shall be repaired and maintained until all portions of the project are complete and approved for final acceptance. All other areas disturbed as a result of the Contractor's actions shall be restored in a manner acceptable to the Engineer to a condition as good or better than that prior to the disturbance at no expense to the City.

The City shall furnish bacteriological water line testing at no expense to the Contractor for municipally funded projects.

SANITARY SEWER LINE MATERIALS AND CONSTRUCTION NOTES

SS1. All sanitary sewer lines shall be leakage tested in accordance with the requirements of Oklahoma Administrative Code (OAC) title 252, chapter 656, Water Pollution Control Construction Standards 252:656-5-5. All flexible sewer pipe shall be deflection tested after the final backfill has been in place for at least 30 days. Deflection tests shall be in accordance with 252:656-5-5(a). The mandrel used shall be furnished by the Midwest City Engineering Division. Leakage test shall be in accordance with 252:656-5-(b).

SS2. Manhole steps are not required and shall not be installed. Ladders in lieu of manhole steps are not required.

SS3. Watertight frames and covers shall be provided on all manholes. All interior manhole surfaces shall be protected against corrosion using a coal tar epoxy lining or an approved equal.

SS4. Manholes noted for demolition shall be removed in their entirety. All sewers entering and leaving demolished manholes noted to be abandoned, shall be removed to the nearest pipe joint outside the manhole or to a point 10 feet from the manhole, whichever is less, and permanently plugged with concrete. All sewer pipe plugs must be watertight. Frames and covers from demolished manholes shall remain the property of the city.

SS5. Granular backfill shall be placed in all trenches up to ground level where sewer lines cross below proposed or existing pavements. Pavement cuts shall be restored in accordance with the city's standard details.

SS6. All new sewerline shall have be installed with a continuous tracer wire. Wire shall be a minimum of 12 gauge solid copper with thermoplastic insulation recommended for direct burial. Wire connectors shall be 3M DBR or approved equal, and be watertight. Access points for wire shall be located at all valve boxes, terminal ends, and every 500 ft of continuous runs. Access points shall consist of a box securely fastened to valves containing a loop of wire. Tracer wire shall be laid flat and securely affixed to pipe at 10 ft intervals. Contractor is required to test continuity of tracer wire in presence of inspector.

PAVING CONSTRUCTION NOTES

P1. All construction and materials shall be in accordance with the "Standard Specifications for Construction of Public Improvements" Midwest City, Oklahoma and shall be under the supervision of the development services department.

P2. Any construction items that are not listed in the summary of quantities shall be considered incidental construction items. The cost of incidental construction items shall be included in the cost of other bid items.

P3. Paving subgrade shall be compacted to a density of at least 95% of the minimum dry density obtained by the standard compaction test (ASTM D-698). Test reports shall be submitted to the Midwest City Engineer's office.

P4. Refer to the standard typical sections for concrete paving design standards sheet for residential collector street paving.

P5. The Contractor shall be responsible for contacting and coordinating with all public or private utility companies in the vicinity of construction.

P6. The Contractor shall be responsible for furnishing and maintaining construction traffic control signs and devices as required by the City of Midwest City and the latest edition of Part VI of the Manual of Uniform Traffic Control Devices (M.U.T.C.D.).

P7. The Contractor shall be responsible for the replacement or repair of traffic control devices damaged due to construction. The Contractor shall coordinate all work through the City of Midwest City Engineer. New materials shall be submitted for review and approval prior to use.

P8. Unless otherwise specified, the Contractor shall be responsible for his own construction staking.

P9. All pavement removal contiguous to pavement remaining shall be sawed in straight lines to the full depth of the existing pavement. All debris from the removal operations shall be removed from the site at the time of excavation. Stockpiling of debris will not be permitted.

P10. In areas of excavation, the subgrade shall be scarified to the depth shown on the detail, and recompacted to a dry density of at least 95% of the maximum dry density obtained by the standard compaction test (ASTM D-698) at a water content within 3% of optimum.

P11. Unless otherwise stated in the general conditions, the Contractor shall be responsible for all testing. The results of the test shall be forwarded to the engineer for his review and approval. The soils laboratory shall determine the suitability of existing on site material prior to beginning construction.

PIPE SIZE	DUCTILE IRON PIPE RESTRAIN LENGTH (FT.)										Tee	Plug	Reducer				
	90° BEND				45° BEND								X6"	X8"	X12"	X16"	X24"
	11.25°	22.5°	45°	90°	11.25°		22.5°		45°								
6"	20	20	20	20	▲	▼	▲	▼	▲	▼	20	40	N	20	40	60	80
8"	20	20	20	20	20	20	20	20	20	20	20	40	20	N	40	60	80
12"	20	20	20	40	20	20	20	20	20	20	20	40	40	40	N	40	60
18"	20	20	20	40	20	20	20	20	40	20	40	60	60	60	40	N	40
24"	20	20	20	60	20	20	20	20	60	20	60	80	80	80	60	40	N

WATER LINE MATERIALS AND CONSTRUCTION NOTES

W1. Water line shall be cement mortar lined ductile iron pipe manufactured in accordance with AWWA C151. water line fittings shall be cement mortar lined ductile iron manufactured in accordance with AWWA C11 Cement mortar lining for pipe and mittings shall be in accordance with AWWA C104. Joints for pipe and fittings shall be in accordance with AWWA C111. All 6" diameter water lines shall be thickness class 51 unless noted otherwise. All water lines larger than 6" shall be thickness class 50 unless noted otherwise

W2. All water line fittings and valves shall be physically restrained by means of restrained joint fittings. This v be accomplished by use of "megalug" joint restraint products or approved equal. Pipe joints that lie withi "restrained length", as indicated in the "ductile iron pipe restrained length" table of the specifications will be restrained by "megalug" products, or an approved equal, if mechanical joint pipe is available. The use of manufacturers' "restrained joint" gaskets for use in push-on ductile iron pipe, such as american fast-grip gaskets, or an approved equal, is also acceptable.

W3. Granular backfill shall be placed in all trenches up to ground level where water lines cross below proposed existing pavements. Pavement cuts shall be restored in accordance with Midwest City's standard details

W4. Fire hydrants shall meet or exceed all applicable requirements of ANSI/AWWA C502. Hydrants shall be dry barrel type having one (1) pumper nozzle and two (2) hose nozzles. Fire hydrants shall be Mueller "Centurian", Kennedy "Guardian", U.S. Pipe and Foundry "Metropolitan", American Cast Iron Pipe "Amer Darling", Clow "Medallion", EJ "Water Master", or an approved equal. All hydrants provided for fire prote shall receive two (2) coats of Red paint. All hydrants installed for flushing dead end lines and noted as s on the plans shall be installed with the steamer nozzle.

W5. All water lines shall be pressure and leakage tested and disinfected in accordance with the requirements Oklahoma Administrative Code (OAC) title 252, chapter 625, Public Water Supply Construction Standard 252:625-17-4 (5) and (6). Pressure and leakage testing shall be in accordance with AWWA C600. All n cleaned, or repaired water lines shall be disinfected in accordance with OAC 252:630, Public Water Supp Operation.

W6. All water line installed within a casing pipe shall be supported by means of permanently attached skids o casing spacers. Casing spacers shall be Advanced Products and Systems (APS) Inc., steel band casing spacer model SI or an approved equal. Casing spacers shall be at least 11" long and runners shall be a least 1" wide. Spacers shall be installed within 1' of all joints on both sides of the joint and at intervals al the pipe barrel not exceeding 12' on center. Spacers will be installed in accordance with the manufactur recommendations. All casing ends will be sealed utilizing a modular mechanical seal and all casings will have at least one (1) 2" vent pipe. All pipe joints within the casing pipe must be restrained.

W7. All air relief valves shall be 2" Combination vaccum/release valves.

W8. Meter boxes shall be constructed of U.V. stabilized high density polyethylene and shall conform generall the minimum requirements provided in the appendix of the project specifications. Meter boxes shall hav minimum tap opening of 12" and a locking cast iron lid.

W9. Service lines shall be 1" type polly tubing manufactured in accordance with AWWA C800. Splices in nev service lines are not permitted. Corporation stops shall be 1" straight body ball type valves with an AWW standard tapered threaded inlet and tube compression type outlet. Corporation stops shall be Ford FB1000-4-NL (with grip joint outlet connection), A.Y. McDonald 747-01T, Mueller 300 part number P-15C with "CC" inlet and "110" outlet, or an approved equal. Meter valves shall be 1" - 90° angle ball type valv having padlock wings with a tube compression type inlet and coupling nut outlet for connection to 5/8" X 1" water meters. Meter valves shall be Ford BA43-444W-NL (with grip joint outlet connection) A.Y. McD 746-02T, Mueller 300 part number B-24258 with "110" inlet, or an approved equal.

W10. All existing water lines having a diameter larger than 2" shall be disconnected from the distribution syste and shall be plugged with concrete. Disconnected water lines 2" in diameter and smaller shall be permanently capped in a manner acceptable to the Engineer.

W11. All new waterline shall have be installed with a continuous tracer wire. Wire shall be a minimum of 12 ga solid copper with thermoplastic insulation recommended for direct burial. Wire connectors shall be 3M DBR or approved equal, and be watertight. Access points for wire shall be located at all valve boxes, terminal ends, and every 500 ft of continuous runs. Access points shall consist of a box securely fastened to valv containing a loop of wire. Tracer wire shall be laid flat and securely affixed to pipe at 10 ft intervals. Contractor is required to test continuity of tracer wire in presence of inspector.

CASING SIZE TABLE	
NOMINAL INSIDE PIPE DIA.	CASING SIZE INSIDE DIA.
4	8 - 10
6	10 - 12
8	14 - 16
10	16 - 18
12	18 - 20
15	20 - 22
18	24 - 26
24	31 - 33