

Erosion Control Notes

- EN #1 The Contractor shall assume complete responsibility for controlling all siltation and erosion of the project area. The Contractor shall use whatever means necessary to control erosion and siltation including, but not limited to, staked straw bales and/or siltation fabric fences (possible methods of control are detailed in the plan). Control shall commence with the clearing operations and be maintained throughout the project until acceptance of the work by City of O'Fallon and as needed by MoDOT. The Contractor responsibilities include all design and implementation as required to prevent erosion and the depositing of silt. The City of O'Fallon and as required by MoDOT may at their option direct the Permittee in his methods as deemed fit to protect property and improvements. Any depositing of silt or mud on new or existing pavement shall be removed immediately. Any depositing of silts or mud in new or existing storm sewers and/or swales shall be removed after each rain and affected areas cleaned to the satisfaction of the City of O'Fallon and as required by MoDOT.
- EN #2 All erosion control systems are to be inspected and corrected weekly, especially within 48 hours of any rain storm resulting in one-half inch of rain or more. Any silt or debris leaving the site and affecting public right of way or storm water drainage facilities shall be cleaned up within 24 hours after the end of the storm.
- EN #3 Erosion control devices (silt fence, sediment basin, etc.) shall be in accordance with St. Charles County Soil and Water Conservation District Erosion and Sediment Control guidelines.
- EN #4 Graded areas shall be seeded and mulched (strawed) within 14 days of stopping land disturbance activities. Unless it can be shown to the City Engineer that weather conditions are not favorable, vegetative growth is to be established within 6 weeks of stopping grading work on the project. The vegetative growth established shall be sufficient to prevent erosion and the standard shall be as required by EPA and DNR. (70% coverage per square foot) Ord. 5242, Section 405.070
- EN #5 Erosion and sediment control plans should be considered a general guideline. The contractor is responsible to insure that erosion and sediment is not transported offsite. The contractor is responsible for additional erosion and sediment control measures required to accomplish this objective at no additional cost to the owner.

Grading Notes

- GRN #1 When grading operations are complete or suspended for more than 14 days, permanent grass must be established at sufficient density to provide erosion control on site. Between permanent grass seeding periods, temporary cover shall be provided according to St. Charles Soil and Water Conservation District - Model Sediment and Erosion Control Regulations. All finished grades (areas not to be disturbed by improvements) in excess of 20% slopes (5:1) shall be mulched and tacked at a rate of 100 pounds per 1000 square feet when seeded.
- GRN #2 No slopes shall exceed 3 (horizontal) : 1 (vertical) unless otherwise approved by the soils report and specifically located on the plans and approved by the City Engineer.
- GRN #3 All trench back fills under paved areas shall be granular back fill, and compacted mechanically. All other trench back fills may be earth material (free of large clods, or stones) and compacted. Granular material and earth material associated with new construction outside of pavements may be jetted, taking care to avoid damage to newly laid sewers. The jetting shall be performed with a probe route on not greater than 7.5 foot centers with the jetting probe centered over and parallel with the direction of the pipe. Trench widths greater than 10 feet will require multiple probes every 7.5 foot centers.
 - a) Depth, Trench back fills less than 8 feet deep shall be probed to a depth extending half the depth of the trench back fill, but not less than 3 feet. Trench back fill greater than 8 feet in depth shall be probed to half the depth of the trench back fill but not greater than 8 feet.
 - b) Surface Bridging. The contractor shall identify the locations of the surface bridging (the tendency for the upper surface to crust and arch over the trench rather than collapse and consolidate during the jetting process). The contractor shall break down the bridged areas using an appropriate method such as wheels or bucket of a backhoe. When surface crust is collapsed, the void shall be back filled with the same material used as trench back fill and jetted. Compaction of the materials within the sunken/jetted area shall be compacted such that no further surface subsidence occurs.
- GRN #4 Site grading.
 - a. Within City right-of-way. Material is to be placed in eight (8) inch to twelve (12) inch loose lifts and compacted per the approved compaction requirements. One (1) compaction test will be performed every two hundred fifty (250) feet along the centerline for each lift.
 - b. Outside of City right-of-way. Material is to be placed in eight (8) inch to twelve (12) inch loose lifts and compacted per the approved compaction requirements. One (1) compaction test will be performed at two (2) foot vertical intervals and approximately every one thousand (1,000) cubic yards.
- GRN #5 Contractor shall be responsible for final site grading. Excess soil and spoil material shall be disposed of by the contractor off-site, at no additional cost to the owner.
- GRN #6 Contractor to regrade areas as necessary within the construction limits to allow proper drainage to existing and proposed storm sewer structure and drainage outlets.

Traffic Control Notes

- TCN #1 Contractor to provide traffic control plan to City of O'Fallon and MoDOT as applicable for all lane closures or traffic disturbing construction activities.

GENERAL NOTES

- GN #1 The Contractor is responsible to call Missouri One Call and The City of O'Fallon for the location of utilities. Contact the City of O'Fallon at (636) 379-3814 for the location of City maintained cable for street lights and traffic signals. Call Missouri One Call at 1-800-DIG-RITE (1-800-344-7483) for all other utilities.
- GN #2 All proposed utilities and/or utility relocations shall be located underground.
- GN #3 All construction operations and work zone traffic control within the right of way will follow MoDOT or M.U.T.C.D. standards whichever is more stringent.
- GN #4 Materials such as trees, organic debris, rubble, foundations and other deleterious material that are not to be reused, shall be removed from the site and disposed of in compliance with all applicable laws and regulations. If the material listed previously are reused, a letter from a soil Engineer must clarify amount, location, depth, ect. and must be approved with the construction plans. Landfill tickets for such disposal shall be maintained on file by the developer. Burning on site shall be allowed only by permit from the local fire district. If a burn pit is proposed, the location and mitigation shall be shown on the grading plan and documented by the soils engineer.
- GN #5 Twenty-four (24) hours prior to starting any of the work covered by the above plans and after approval thereof, the developer shall make arrangements with the Construction Inspection Office to provide for inspection of the work, sufficient in the opinion of the City Engineer, to assure compliance with the plans and specifications as approved.
- GN #6 The City Engineer or their duly authorized representative shall make all necessary inspections of City infrastructure, escrow items or infrastructure located on the approved plans.
- GN #7 All utility information on plans is based on information provided by individual utilities, GIS records, or field located by individual utilities. All existing utilities to be field located by the contractor prior to construction. Vertical and horizontal location to be confirmed. Necessary pipe modifications to be made by the contractor at no additional cost to the owner. Individual utility services were not located in all locations.
- GN #8 Contractor to comply with all permit & statutory requirement, including but not limited to Missouri Department Of Natural Resources (DNR), City Of O'Fallon, & other applicable local, state, & federal agencies.
- GN #9 Contractor to coordinate and pay any costs for the power utility to hold power poles and/or provide temporary service if required during construction.
- GN #10 Contractor to coordinate with utility owner to protect, relocate, etc. any existing utilities and services which are impacted by the proposed water mains or excavation. All costs shall be the contractor's responsibility unless indicated otherwise in the plans and specifications.
- GN #11 Contractor to provide compacted structure backfill around proposed and existing piping at all open-cut utility crossings (Unless concrete cradles specifically indicated in the plans) to adequately support and protect each conduit.
- GN #12 Traffic control and signage to be utilized in accordance with the manual of uniform traffic control, latest revision. contractor shall adhere to MoDOT and local maintenance of traffic requirements.
- GN #13 Contractor to protect and repair all damaged field and drainage tile encountered during construction at no additional cost to the owner.
- GN #14 Contractor to test all new water mains in accordance with Missouri DNR permit requirements, City of O'Fallon requirements, and contract specifications.
- GN #15 Contractor shall be responsible for preserving existing right-of-way markers, survey monuments, property corners, etc. and contractor shall be responsible for resetting any disturbed markers at no additional cost to the owner.
- GN #16 The contractor is completely responsible for all cost associated with developing and implementing a dewatering plan. The contractor shall submit the complete and detailed dewatering plan to the engineer and owner for review and approval. The plans shall allow for traffic control and will not allow drive or roadway closure.
- GN #17 The contractor is responsible for complete familiarity with site, subsurface conditions, groundwater, etc.
- GN #18 The contractor shall have a copy of the contract documents and required construction permits onsite at all times.
- GN #19 All concrete and asphalt drives shall be protected during construction. Any damage to existing concrete and asphalt drives that occurs as a result of the construction shall be repaired by contractor at no additional expense to the owner or city.
- GN #20 All pavement shall be removed and replaced to the nearest joint.

Water Notes

- WN # 1 Fire hydrants shall be a maximum of 600' apart. Local fire district approval is required.
- WN # 2 Coordinate with the City of O'Fallon on the location of water meters.
- WN # 3 All water main must have a minimum of 42" of cover. (City water mains)
- WN # 4 Provide water valves to isolate the system.
- WN # 5 All water mains shall be class 200 SDR 21 or equal with #12 copper locator/tracer wires
- WN # 6 DISINFECTING:
 - Disinfecting shall be accomplished by placing sufficient hypo chlorite granule (HTH) in each section of pipe to achieve a chlorine residual in the pipeline, upon initial filling, of 50 mg/L (PPM). HT, tablets will not be allowed. Following completion of the pipeline, it shall be slowly filled with water and a sample will be taken immediately and the chlorine residual must be 50 mg/L or greater. The solution shall be allowed to stand for 24 hours and a sample shall then be taken. The chlorine residual after 24 hours shall be 30 mg/L or greater. If the piping shows insufficient chlorine residuals in either test, the piping shall be re-chlorinated by the injection of hypo chlorite solution until satisfactory results are achieved. All disinfecting shall be done by the contractor. Only the testing to determine the chlorine residual will be done by the City.
- WN # 7 PRESSURE TESTING:
 - Immediately following disinfection, the piping shall be pumped to a pressure (at the lowest point in the project) of 150 psi or higher where the working pressure is higher than 150 PSI as determined by the City. In such cases, the pressure shall be as specified by the City and two pressure tests shall be conducted. The first test shall be with the fire hydrant auxiliary valve open and be to 150 PSI. The second test shall be with the fire hydrant auxiliary valve closed and be to the higher pressure as directed by the City. All pumping equipment and pressure gauges shall be provided by the contractor. After achieving the test pressure, the piping shall be left closed for a period of two (2) hours. At the end of this time the pressure drop shall not exceed 2 psi. In addition, if the pressure appears, in judgment of the City's representative, to be continuing to drop, the test shall be continued for another two (2) hours and if any further drops occur, the test shall be considered a failure. If the pressure test fails, the contractor will be required to find and correct the source of the leakage. If this requires draining of the pipeline, when the leakage is corrected, the pipeline must be re-disinfected and the pressure tested again until satisfactory result are achieved. Any MDNR required dechlorination will be performed by the contractor.
- WN # 8 All tops for valves, meters, and manholes are to be constructed to within 1 inch (0.08') of finish grade. Adjacent grading shall be completed in accordance with the project manual and specifications.
- WN # 9 BACTERIOLOGICAL TESTING:
 - After satisfactory disinfection and pressure testing, a sample shall be taken by the contractor in the presence of a City representative and submitted to a laboratory approved by the Missouri Department of Natural Resources and the City for bacteriological analysis. After 24 hours, a second sample shall be taken in a like manner and submitted for analysis. The two samples taken on consecutive days, a minimum of 24 hours apart, must be found to be "safe" by the testing laboratory, and copies of the test results must be supplied to the City. If the samples are not found to be "safe" further flushing and/or disinfection as directed by the City shall be conducted by the contractor until "safe" samples on two consecutive test days are achieved. Following successful bacteriological testing and a determination by the City that the samples are "safe", the mains may be placed into service
- WN # 10 All proposed water main shall be horizontal direction drill (HDD) unless otherwise indicated on the plans.
- WN # 11 Existing water mains and water services shall be preserved and protected during construction. Existing services shall remain in service until the proposed water main work and testing is complete. Services shall then be transferred to new water main. The existing water main shall be retired as applicable.
- WN # 12 Required fittings and appurtenances may not be shown on the drawings. All water main fittings and appurtenances are to be provided and installed by contractor.
- WN # 13 Final locations of all hydrants and valves shall be approved by the city personnel in the field.
- WN # 14 Valve stem riser shall be required where operation nut exceeds four feet in depth
- WN # 15 Contractor shall restore and / or replace paving, curbing, sidewalks, gutters, landscaping, fencing, paints, coatings, and other disturbed areas or structures to a condition equal to that before work began and to the satisfaction of the owner. Contractor shall furnish all labor and materials incidental thereto.

CITY OF O'FALLON, MISSOURI
WEST TERRA WATER MAIN
EXTENSION



ENGINEER SIGNATURE
BLOCK



[Signature]
12/22/2016

GENERAL NOTES

CITY OF O'FALLON WATER DISTRIBUTION