

## GENERAL CONSTRUCTION NOTES

1. Site address is # through # Highway N, O'Fallon, Missouri 63366
2. Site has been cleared of trees and substantial vegetation
3. Contractor shall strip vegetation in areas to be cut and filled.
4. Fill and cut slopes shall not be steeper than three horizontal to one vertical
5. Fills shall be placed in horizontal layers not to exceed eight inches in thickness, loose measure, and compacted to 90 % of maximum dry density as determined by the Modified AASHTO T-180 Compaction Test.
6. Sediment control measures shall be installed and implemented before grading begins. Contractor shall follow guidelines in the model sediment and erosion control regulations by the St. Charles soil and water conservation district.
7. 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 bales and/or siltation fabric fences (possible methods of control are detailed in the plan). Control shall commence with grading and be maintained throughout the project until acceptance of the work by the Owner and/or the City of O'Fallon and/or MODOT. The Contractor's responsibilities include all design and implementation as required to prevent erosion and the depositing of silt. The Owner and/or the City of O'Fallon and/or MODOT may at their option direct the Contractor in his methods as deemed fit to protect property and improvements. Any depositing of silts or mud on new or existing pavement or in new or existing storm sewers or swales shall be removed after each rain and affected areas cleaned to the satisfaction of the Owner and/or the City of O'Fallon and/or MODOT.
8. Erosion control shall not be limited to that shown on the plans. Contractor shall implement all means necessary to prevent siltation and erosion from entering natural streams, adjacent roadways, storm sewers, ditches and downstream properties.
9. All erosion control systems shall be inspected and necessary corrections made within 24 hours of any rainstorm resulting in one-half inch of rain or more.
10. No graded area is to remain bare for more than six months without being seeded and mulched.
11. Site is outside the one hundred year floodplain as shown on FIRM 29183C0239 and 29183C0240 dated 8-2-96.
12. All low areas shall be graded to allow drainage.
13. No grading will be performed on MoDOT or City right of way, nor within 25' of the south property line.
14. Project Benchmark: Elevation - 544.92' (USGS)  
Top of sanitary manhole, 40 feet northwest of rear lot corner 46B/47B per Duckett Creek sewer as-built

## GRADING SPECIFICATIONS

### General:

The work shall consist of furnishing all material, equipment, and labor necessary to perform all work required to grade the site to the elevations, lines, and cross-sections shown on the plans and as herein specified. The Contractor is directed to the plans for special notes, details, or standard specifications. Grading shall comply with the City of O'Fallon ordinances.

### Maintenance:

The Contractor is responsible to repair and re-establish grades in settled, eroded, rutted, or otherwise damaged areas. In damaged compacted areas, the Contractor shall scarify the surface, reshape, and compact to required density prior to final acceptance by the Owner. Maintenance shall continue until site is finish graded, seeded & mulched.

### Materials:

Quantities of materials to be excavated and handled in order to completely perform all work are determined by the Contractor based on the Plans and his site observation. The Contractor shall examine and conduct his grading operations in strict accordance with recommendations outlined in the *Exploration of Subsurface Conditions* prepared by XXXX dated XXXX 2001 and subsequent addendums. The Geotechnical Engineer will determine what materials are suitable for use in the project and what are not suitable.

Rock excavation shall be defined as that material which cannot be removed by normal earth moving equipment when equipped with the proper ripper, blades, or teeth.

### Equipment:

Contractor shall provide sufficient earthmoving and compaction equipment to properly load, haul, spread, adjust moisture, and compact earth and/or rock fills to meet the requirements of these specifications and the schedule established in the contract documents. Equipment shall be in good working order and capable of obtaining the results required by the plans and specifications.

Tamping rollers must have a drum diameter (without feet), of at least five feet and be of a type so that the weight of the roller can be adjusted to provided foot contact pressures ranging from 200 to 500 pounds per square inch. They shall be equipped with approved cleaners and shall have tamping feet symmetrically staggered over its cylindrical surface. Each tamping foot shall project a minimum of six inches from the roller's cylindrical surface. Larger equipment may be required, if needed, to properly compact materials which are available onsite.

### Site Preparation:

Before any earthwork is begun, the Contractor shall prepare the site by fencing off those areas of the site which are not to be disturbed; stripping vegetation in the cut and fill areas; by properly disposing of cleared trees, stumps, trash, debris and other objectionable materials; by benching of existing slopes on which fill is to be placed and by construction of siltation devices and basins. After all vegetation, organic soils, and debris has been removed, fill areas shall be scarified and disced to a minimum depth of eight (8") inches and recompact to 90 percent of the maximum dry density as determined by the Modified AASHTO Compaction Test or ASTM D1557-78.

### Placement and Fill:

Fill material shall be spread evenly in horizontal lifts of not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 6 inches in loose depth for materials compacted by hand operated tampers. Before compacting, the moisture content shall be adjusted by either aerating or moistening such that layer is brought within the limits established by the laboratory moisture density relationship (Modified AASHTO Compaction Test, or ASTM D1557-78).

Each layer shall then be compacted to the required density by multiple passes with approved compaction equipment. Compactive effort will be uniform over the entire layer with sufficient overlap on each pass to insure continuity of compaction. Compaction shall continue until the required density is obtained. Construction of fills on slopes in 1V:5H or steeper shall be over-extended beyond the proposed slope face and the fill cut back so that a uniformly compacted layer is exposed on the outside face.

Fill shall not be placed on surfaces that are muddy, frozen, nor contain frost or ice.

### Degree of Compaction:

Each horizontal lift fill shall be compacted to the following densities in accordance with the Modified AASHTO Compaction Test or ASTM D1557-78. Compaction of rock fill shall be based on the relative maximum density as determined by ASTM D4253 and D4254.

- a) Earth fills containing less than 50 percent rock shall be compacted to a minimum of 90 percent of the maximum dry density.
- b) Earth fills containing more than 50 percent rock shall be compacted until the material no longer pumps under the wheel action of a loaded 15 cubic yard scraper.
- c) Granular materials shall be compacted to a minimum of 75 percent of relative maximum density.

### Soft Areas:

Soft soils shall be excavated until firm soil is encountered. Excavated areas shall be backfilled in accordance with these specifications.

### Control of Surface Water and Erosion:

Construction of fills and excavation of borrow areas shall be performed in such a manner that rapid drainage of surface is maintained at all times. Stormwater shall be conveyed around and away from excavation by constructing and maintaining temporary drainage ditches or diversions. Contractor shall install and maintain antisiltation devices along the outside, downstream limits of the project. The Contractor shall construct and maintain temporary siltation ponds as necessary to reduce and minimize silt of undisturbed site area, adjacent property, or storm sewers. Damage to adjacent property due to Contractor's grading operations or neglect in providing adequate siltation control will be corrected at Contractor's expense.

### Finish Slopes and Elevations:

Cut and fill areas shall be finished to the required elevation, line, and grade as shown on the plans. These surfaces shall be smooth, compacted, and free from all ruts and depressions. All ditches and swales shall be finished to drain readily. Provide roundings at top and bottom of banks and at other breaks in grade. Final subgrade elevations shall not exceed plus or minus 0.20' variation from the elevations shown on the plans.

### Observation and Testing:

The Geotechnical Engineer shall be notified when grading operations are to begin so that they have adequate opportunity to observe the Contractor's grading operations and make the necessary tests to determine that fill is placed in accordance with the plans and specifications. The Geotechnical Engineer will make density tests on each layer to determine that the fill is placed to the specified degree of compaction. The Geotechnical Engineer is responsible for determining the quality of the fill. If the quality does not meet the specifications, the Geotechnical Engineer will promptly notify the Contractor and Owner of the deficient work. The Contractor shall cease his work until the deficiency is corrected to the satisfaction of the Owner. Observation and testing by the Geotechnical Engineer will be at the direction of the Owner and at his sole expense.

### Subsurface Conditions:

Test holes have been drilled at the locations shown in the *Exploration of Subsurface Conditions*. The information given in the logs of these holes applies only to the conditions encountered at the indicated location and to the depths to which the borings were made. It shall be the responsibility of the Contractor to conduct additional investigations as he may deem necessary for planning and executing the work. A copy of the *Exploration of Subsurface Conditions* prepared by XXXX dated XXXX 2001, and subsequent addendums, will be made available for contractor's inspection. All recommendations contained in this document relating to excavations, slope stability, proofrolling, fills and backfill shall be considered as a part of these specifications and followed in the performance of this work. Developer must supply City construction inspectors with soils reports prior to or during site soil testing.

### Verification of Final Grades:

The Owner will provide and pay for all engineering and surveying required to verify that final elevations conform to elevations and tolerances as shown on the plans and herein specified. Areas which are not in compliance will be brought into compliance by the Contractor. Non-compliance areas shall be disced or scarified before placing additional fill. Reverification of non-compliance areas will be at the expense of the Contractor.

### Explosives:

The use of explosives will not be permitted.

### Benching:

Where fills are to be placed on existing slopes with an inclination steeper than five (5) horizontal to one (1) vertical, contractor shall cut horizontal benches in the existing slope prior to the placement of fill to help maintain the slope's integrity. Benches shall be at least two (2) feet wider than the earthmover used to construct the site fills.

### Stability of Excavations:


Slope sides of excavations to comply with local Codes or Ordinances having jurisdiction. The Geotechnical Engineer recommends that temporary cuts in soil with a vertical height of less than six (6') feet, may be 1 vertical to 1 horizontal. Deeper excavations should be specifically reviewed by the Geotechnical Engineer, for side slope stability. Where sloping of excavation side slopes are not possible, Contractor shall provide and install adequate shoring and bracing which will withstand the expected earth loads, plus a reasonable factor of safety. Bracing and shoring shall be used as required by applicable Codes and Ordinances.

### Protection and Cleanup:

Upon completion and acceptance of site grading, the Contractor shall remove all construction equipment, materials, and debris. Unsuitable fill materials shall be removed from the site or placed onsite in a manner acceptable to the Owner. The project site shall be free of timber, rubbish, trash or debris. Upon establishment of ground cover, contractor shall remove temporary siltation basins and drainage ditches and dispose of silt material in an appropriate manner. Removal of siltation in storm sewers caused by Contractor's operations will be his responsibility.

### Existing Uncompacted Fill

The *Exploration of Subsurface Conditions* discovered areas of uncompacted fills within the project limits. Uncompacted fills which are within the influence of the proposed building construction (plus an additional ten feet) shall be removed and replaced in accordance with the plans and these specifications.

REVISIONS	
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