

# A GRADING PLAN FOR THE CROSSINGS COMMERCIAL DEVELOPMENT A TRACT OF LAND IN SECTION 21, 22, U.S. SURVEY 63 AND 3070, TOWNSHIP 47 NORTH, RANGE 3 EAST, ST. CHARLES COUNTY, MISSOURI

ENG. FILE COPY  
**APPROVED**  
AS NOTED  
FOR GRADING  
9.30.99  
*[Signature]*  
Chaps. Lunsford

### GRADING NOTES

- A Geotechnical Engineer shall be employed by the owner and be on site during grading operations. All soils tests shall be verified by the Geotechnical Engineer concurrent with the grading and backfilling operations.
- The grading contractor shall perform a complete grading and compaction operation as shown on the plans, stated in these notes, or reasonably implied therefrom, all in accordance with the plans and notes as interpreted by the Geotechnical Engineer.
- The Contractor shall notify the Soils Engineer at least two days in advance of the start of the grading operation.
- The Soils Engineer shall observe and test the placement of the fill to verify that specifications are met. A series of fill density tests will be determined on each lift of fill. Interim reports showing fill quality will be made to the Owner at regular intervals.
- The Soils Engineer shall notify the Contractor of rejection of a lift of fill or portion thereof. The Contractor shall rework the rejected portion of fill and obtain notification from the Soils Engineer of its acceptance prior to the placement of additional fill.
- All areas to receive fill shall be scarified to a depth of not less than 6 inches and then compacted in accordance with the specifications given below. Natural slopes steeper than 1 vertical to 5 horizontal to receive fill shall have horizontal benches, cut into the slopes before the placement of any fill. The width and height to be determined by the Soils Engineer. The fill shall be loosely placed in horizontal layers not exceeding 8 inches in thickness and compacted in accordance with the specifications given below. The Soils Engineer shall be responsible for determining the acceptability of soils placed. Any unacceptable soils placed shall be removed at the Contractor's expense.
- The sequence of operation in the fill areas will be fill, compact, verify acceptable soil density, and repetition of the sequence. The acceptable moisture contents during the filling operation are those at which satisfactory dry densities can be obtained. The acceptable moisture contents during the filling operation in the remaining areas are from 2 to 5 percent above the optimum moisture control.
- The surface of the fill shall be finished so that it will not impound water. If at the end of a days work it would appear that there may be rain prior to the next working day, the surface shall be finished smooth. If the surface has been finished smooth for any reason, it shall be scarified before proceeding with the placement of succeeding lifts. Fill shall not be placed on frozen ground, nor shall filling operations continue when the temperature is such as to permit the layer under placement to freeze.
- Fill and backfill should be compacted to the criteria specified in the following table:

CATEGORY	MINIMUM PERCENT COMPACTION
Fill under pavement	90%
Natural subgrade	88%
Pavement subgrade	90%
Pavement base course	90%

Measured as a percent of the maximum dry density as determined by modified Proctor Test (ASTM-D-1557). Moisture content must be within 2 percent below or 4 percent above optimum moisture content if fill is deeper than 10 feet.

### GENERAL NOTES

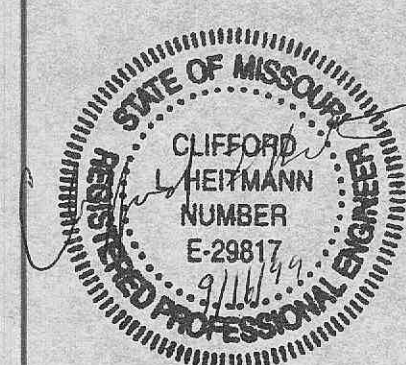
- Underground utilities have been plotted from available information and therefore their locations shall be considered approximate only. The verification of the location of all underground utilities, either shown or not shown on these plans shall be the responsibility of the contractor, and shall be located prior to any grading or construction of the improvements.
- All manhole tops built without elevations furnished by the Engineer will be the responsibility of the sewer contractor.
- 8" P.V.C. sanitary sewer pipe shall meet the following standards. A.S.T.M.-D-3034 SDR-35, with wall thickness compression joint A.S.T.M.-D-3212. An appropriate rubber seal waterstop as approved by the sewer district shall be installed between P.V.C. pipe and masonry structures.
- All filled places, including trench backfills, under buildings, proposed storm and sanitary sewer lines and/or paved areas, shall be compacted to 90% maximum density as determined by the "Modified AASHTO T-180 Compaction Test," (A.S.T.M.-D-1557). All filled places within public roadways shall be compacted to 95% of maximum density as determined by the "Standard Proctor Test AASHTO T-99, Method C" (A.S.T.M.D.-698).
- All trench backfills under paved areas shall be granular backfill, and shall be compacted to 90% of the maximum density as determined by the "Modified AASHTO T-180 Compaction Test," (A.S.T.M.-D.-1557). All other trench backfills may be earth material (free of large clods or stones). All trench backfills shall be water jetted.
- No area shall be cleared without the permission of the Project Engineer.
- All grades shall be within 0.2 feet of those shown on the grading plan.
- No slope shall be steeper than 3:1 or as called for in the soils report for the project. All slopes shall be sodded or seeded and mulched.
- All construction and materials used shall conform to current City of O'Fallon Standards.
- All P.V.C. sanitary sewer is to be SDR-35 or equal with clean 1/2" to 1" granular stone bedding uniformly graded. This bedding shall extend from 4" below the pipe to the springline of the pipe. Immediate backfill over pipe shall consist of same size "clean" or minus stone from springline of pipe to 6" above the top of pipe.
- All soils test shall be verified by a Soils Engineer concurrent with the grading and backfilling operations.
- A 30' building line shall be established along all Public Right-Of-Way.
- All water lines shall be laid at least 10 feet horizontally, from any sanitary sewer, storm sewer, or manhole. Whenever water lines must cross sanitary sewers, laterals, or storm drains the water line shall be laid at such an elevation that the bottom of the water line is above the top of the drain or sewer. A full length of water pipe shall be centered over the sewer line to be crossed so that the joints will be equally distant from the sewer and as remote therefrom as possible. The vertical separation shall be maintained for that portion of the water line located within 10 feet horizontally, of any sewer or drain it crosses.
- All PVC water pipe 6" and larger in size shall be Class C-900 per City of O'Fallon Water Company Specifications. All other mains shall have a minimum pressure rating of PR-200 or SDR-21.
- Water lines, valves, sleeves, meters, and fittings shall meet all specifications and installation requirements of the City of O'Fallon.
- All water hydrants and valves shall be ductile iron and installed in accordance with plans and details. All ductile iron pipe for water mains shall conform to A.W.W.A. Specifications C-106 and/or C-108. The ductile iron fittings shall conform to A.W.W.A. Specification CC-110. All rubber gasket joints for water ductile iron pressure pipe and fittings shall conform to A.W.W.A. Specification C-111.
- All sanitary manholes shall be waterproofed on the exterior in accordance with Missouri Department of Natural Resources specifications 10 CSR-8.120 (7)E.
- Brick will not be used in the construction of sanitary sewer manholes.
- All pipes shall have positive drainage through manholes. No flat base structures are allowed.
- All sanitary sewer manholes to be 48 inch minimum inside diameter in accordance with Missouri Department of Natural Resources specification 10 CSR 20-8.
- The City of O'Fallon shall be notified 48 hours prior to construction for coordination and inspection.

### DEVELOPMENT NOTES

- EXISTING ZONING: R-4 (RESIDENTIAL) AND C-2 (COMMERCIAL)
- CURRENT OWNER OF PROPERTY: T.R. HUGHES INC.  
239 FOX HILL ROAD  
ST. CHARLES, MO 63301  
(314) 940-9300
- SITE IS SERVED BY THE FOLLOWING UTILITY COMPANYS:  
City of O'Fallon Sewer & Water  
Ameren Union Electric Company  
St. Charles Gas Company  
G.T.E. Telephone Company  
O'Fallon Fire Protection District
- PER F.I.R.M. FLOOD INSURANCE RATE MAP FOR ST. CHARLES COUNTY AND UNINCORPORATED AREA MAP NUMBER 29183C0235 E DATED AUGUST 2, 1996, THIS TRACT LIES WITHIN ZONE "X" DEFINED AS AREA DETERMINED TO BE OUTSIDE THE 500-YEAR FLOODPLAIN.
- ALL EXISTING STORM AND SANITARY STRUCTURE TOPS SHALL BE ADJUSTED TO GRADE BY THE CONTRACTOR. MANHOLES MAY BE RAISED USING COURSES OF BRICK OR APPROVED GRADE RING(S), PROVIDED THE TOTAL ADJUSTMENT OF THE MANHOLE DOES NOT EXCEED 12 INCHES, (INCLUDING EXISTING RINGS OR COURSES OF BRICK). FOR MANHOLES WHICH WILL EXCEED THE MAXIMUM OF 12 INCHES, THE TRANSITION SECTION OF THE STRUCTURE SHALL BE REMOVED AND THE BOTTOM SECTION RAISED USING THE SAME MATERIAL AS THE EXISTING STRUCTURE. MANHOLES MAY BE LOWERED BY REMOVING THE TRANSITION SECTION, AND LOWERING THE EXISTING BOTTOM SECTION BY SAWCUTTING THE EXISTING CAST-IN-PLACE CONCRETE, REMOVING THE REQUIRED COURSES OF BRICK, OR REMOVING THE PRECAST RISER SECTION AS APPROPRIATE.
- TREE PRESERVATION DURING GRADING OPERATIONS:  
AREA OF EXISTING TREES ±3.49 ACRES  
AREA OF TREES TO BE REMOVED ±0.73 ACRES  
AREA OF TREES SAVED ±2.76 ACRES  
PERCENTAGE OF TREES REMOVED 21%  
  
TREE REQUIREMENTS:  
(AREA OF EXISTING TREES) X 80% = 2.79 ACRES  
(AREA OF EXISTING TREES) - (PREVIOUS LINE) = 0.70 ACRES  
(AREA OF TREES REQUIRED) - (AREA OF TREES SAVED) = 0 ACRES  
  
NO ADDITIONAL TREE PLANTING REQUIRED
- ACCESS TO THE NEW CITY ROAD WILL NOT BE GRANTED UNTIL IT IS OPENED TO THE PUBLIC.
- THE PROPOSED STORM SEWERS WITHIN THE FUTURE CITY RIGHT-OF-WAY WILL BE INSTALLED AT THE DEVELOPERS RISK AS THE FINAL GRADES OF DEVELOPMENT HAVE NOT BEEN APPROVED.

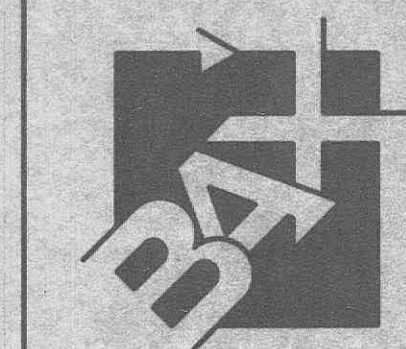
PREPARED FOR: T.R. HUGHES  
239 FOX HILL ROAD  
ST. CHARLES, MO 63301  
(314) 940-9300

DISCLAIMER OF RESPONSIBILITY  
I hereby certify that the documents intended to be authorized by my seal are limited to this sheet, and I hereby disclaim any responsibility for all other drawings, specifications, conditions, figures or other documents, instruments relating to or intended to be used for any part or parts of the construction or engineering project or survey.



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REVISIONS



**ENGINEERING  
PLANNING  
SURVEYING**  
1052 South Cloverleaf Drive  
St. Peters, MO. 63376-6445  
314-928-5552  
FAX 928-1718

**GRADING QUANTITY**  
80,125 cu.yds.  
(INCLUDES 15% SHRINKAGE)

THE ABOVE YARDAGE IS AN APPROXIMATION ONLY, NOT FOR BIDDING PURPOSES. CONTRACTORS SHALL VERIFY QUANTITIES PRIOR TO CONSTRUCTION.

IT IS THE INTENTION OF THE ENGINEERING FOR THE EARTHWORK TO BALANCE ON-SITE. THE ENGINEER SHALL BE NOTIFIED IF ANY DIFFICULTIES ARISE IN ACHIEVING THE BALANCE.

8-27-99  
DATE  
97-92031  
PROJECT NUMBER  
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SHEET OF  
92031CON.DWG  
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DRAWN CHECKED