



# A SET OF CONSTRUCTION PLANS FOR KNAUST BUSINESS PARK AT KEATON CROSSING

## A TRACT OF LAND BEING PART OF LOT 15 OF "JOHN D. COALTERS HOWELL PRAIRIE TRACT", IN U.S. SURVEY 1669, TOWNSHIP 46 NORTH, RANGE 3 EAST OF THE FIFTH PRINCIPAL MERIDIAN, ST. CHARLES COUNTY, MISSOURI

### STANDARD SYMBOLS & ABBREVIATIONS

TREE OR BUSH	⊙
LIGHT POLE	—●—
SANITARY SEWER & MANHOLE	—S—
STORM SEWER & INLET	—SI—
MAILBOX	—M—
ELECTRIC LINE	—E—
GAS LINE	—G—
WATER LINE	—W—
TELEPHONE LINE	—T—
CABLE TV LINE	—CATV—
OVERHEAD WIRE	—OH—
UTILITY POLE	—U—
UTILITY POLE W/ DOWN GUY	—U/G—
FIRE HYDRANT	—FH—
WATER VALVE	—WV—
WATER METER	—WM—
GAS VALVE	—GV—
ROAD SIGN	—RS—
TELEPHONE PEDESTAL	—TEL PED—
FENCE	—F—

### PRINCIPLES & STANDARDS:

- All excavations, grading, or filling shall have a finished grade not to exceed a 3:1 slope (33%). Steeper grades may be approved by the designated official if the excavation is through rock or the excavation or the fill is adequately protected (a designed head wall or toe wall may be required). Retaining walls that exceed a height of four (4) feet shall require the construction of safety guards as identified in the appropriate section(s) of the adopted BOCA Codes and must be approved by the Building Department. Permanent safety guards will be constructed in accordance with the appropriate section(s) of the adopted BOCA Codes.
- Sediment and erosion control plans for sites that exceed 20,000 square feet of grading shall provide for sediment basins, silt traps or filters, stacked straw bales or other approved measures to remove sediment from run-off waters. The design to be approved by the Designated Official. Temporary siltation control measures (structural) shall be maintained until vegetative cover is established at a sufficient density to provide erosion control on the site.
- Where natural vegetation is removed during grading, vegetation shall be reestablished in such a density as to prevent erosion. Permanent type grasses shall be established as soon as possible during the next seeding period after grading has been completed.
- When grading operations are completed or suspended for more than 30 days permanent grass must be established at sufficient density to provide erosion control on the site. Between permanent grass seeding periods, temporary cover shall be provided according to the City Engineer's recommendations. All finished grades (areas not to be disturbed by future improvement) in excess of 20% slopes (5:1) shall be mulched and topped at the rate of 100 pounds per 1,000 square feet, when seeded.
- Provisions shall be made to accommodate the increased runoff caused by changed soils and surface conditions during and after grading. Unvegetated open channels shall be designed so that gradients result in velocities of 2 fps (feet per second) or less. Open channels with velocities more than 2 fps and less than 5 fps shall be established in permanent vegetation by use of commercial erosion control blankets or lined with rock rip rap or concrete or other suitable materials as approved by the City Engineer. Detention basins, diversions, or other appropriate structures shall be constructed to prevent velocities above 5 fps.
- The adjoining ground to development sites (lots) shall be provided with protection from accelerated and increased surface water, silt from erosion, and any other consequence of erosion. Run-off water from developed areas (parking lots, paved sites and buildings) above the area to be developed shall be directed to diversions, detention basins, concrete gutters and/or underground outlet systems. Sufficiently anchored straw bales may be temporarily substituted with the approval of the City Engineer.
- Development along natural watercourses shall have residential lot lines, commercial or industrial improvements, parking areas or driveways set back a minimum of 25 feet from the top of the existing stream bank. The watercourse shall be maintained and made the responsibility of the subdivision trustees or in the case of a site plan by the property owner. Permanent vegetation should be left intact. Variations include designed stream bank erosion control measures and shall be approved by the City Engineer. FEMA and U.S. Army Corps of Engineers guidelines shall be followed where applicable regarding site development areas designated as flood plains and wetlands.
- All lots shall be seeded and mulched at the minimum rates defined in Appendix A or added before an occupancy permit shall be issued except that a temporary occupancy permit may be issued by the Building Department in cases of undue hardship because of unfavorable ground conditions.

### VEGETATIVE ESTABLISHMENT For Urban Development Sites APPENDIX A

Seeding Rates:	
Permanent:	
Tall Fescue	= 30 lbs./ac.
Smooth Brome	= 20 lbs./ac.
Combined Fescue & Brome	= 15 lbs./ac. and Brome @ 10 lbs./ac.
Temporary:	
Wheat or Rye	= 150 lbs./ac. (3.5 lbs. per square foot)
Oats	= 120 lbs./ac. (2.75 lbs. per square foot)
Seeding Periods:	
Fescue or Brome	= March 1 to June 1
	August 1 to October 1
Wheat or Rye	= March 15 to November 1
Oats	= March 15 to September 15
Mulch Rates:	
	700 lbs. per 1,000 sq. feet (4,356 lbs. per acre)
Fertilizer Rates:	
Nitrogen	30 lbs./ac.
Phosphate	30 lbs./ac.
Potassium	30 lbs./ac.
Lime	600 lbs./ac. ENM*
* ENM = effective neutralizing material as per State evaluation of quarried rock.	

### GENERAL NOTES:

- Underground utilities have been plotted from available information and therefore locations shall be considered approximate only. The verifications 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 improvements.
- Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing or proposed sanitary and storm sewers, including building laterals.
- All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match pre construction conditions.
- All fill, including places under proposed storm and sanitary sewer lines and paved areas within and off the road right-of-way shall be compacted to 90% of maximum density as determined by the "Standard Proctor Test (ASTM-D-698)". All tests shall be verified by a Soils Engineer concurrent with grading and back filling operations. The compacted fill shall be free of rutting and shall be non-yielding and non-pumping during proof rolling and compaction. All trench backfills in paved areas shall be granular fill.
- The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system.
- All sanitary sewer flowlines and tops built without elevations furnished by the engineer will be the responsibility of the sewer contractor.
- Easements shall be provided for all public sanitary sewers, storm sewers and utilities on the record plat. See record plat (if required) for location and size of easement.
- All construction and materials shall conform to the current construction standards of the City of O'Fallon.
- The City of O'Fallon shall be notified at least 48 hours prior to start of construction for coordination and inspection.
- All sanitary sewer building connections have been designed so that the minimum vertical distances from the low point of the basement to the flowline of a sanitary sewer at the corresponding building connection is not less than the diameter of the pipe plus the vertical distance of 2-1/2 feet. (Unless otherwise noted).
- All sanitary sewer manholes shall be waterproofed on the exterior in accordance Missouri Dept. Of Natural Resources specifications 10 CSR-8120(7)(E).
- All PVC sanitary sewer pipe is to be SDR-35 or equal with "clean" 1/2 inch to 1 inch granular stone bedding uniformly graded. This bedding shall extend from 4 inches below the pipe to springline of pipe. Immediate back fill over pipe shall consist of some size "clean" or "minus" stone from springline of pipe to 6 inches above the top pipe. (Note: All P.V.C. Force Main shall be C-900, Class 200 P.V.C.)
- All sanitary and storm sewer trench backfills shall be water jetted. Granular back fill will be used under pavement areas.
- All pipes shall have positive drainage through manholes. No flat base structures are allowed.
- Brick shall not be used on sanitary sewer manholes.
- All PVC 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. (Note: All P.V.C. Force Main shall be C-900, Class 200 P.V.C.)
- All sanitary and storm sewers shall meet all specifications and installation requirements of the local governing authority.
- Storm sewers 18 inch diameter and smaller shall be A.S.T.M. C-14 unless otherwise shown on the plans.
- Storm sewers 21 inch diameter and larger shall be A.S.T.M. C-76, Class III minimum, unless otherwise shown on the plans.
- All storm sewer pipe in the right-of-way shall be reinforced concrete pipe (A.S.T.M. C-76, Class III minimum).
- All storm sewer pipe shall be "10-ring" pipe.
- All water lines shall be laid at least 10 feet horizontally from any sanitary 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 18 inches 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. This vertical separation shall be maintained for that portion of the water line located within 10 feet, horizontal, of any sewer or drain it crosses.
- All water lines shall be C-900 Class 200 P.V.C.
- The grading yardage shown on these drawings is an approximation only, and not for bidding purposes. The contractor shall verify quantities prior to construction.
- All sanitary sewer laterals shall be a minimum of 6 inches in diameter.
- All sewer construction and materials to be in accordance with the Metropolitan St. Louis Sewer District Standard Construction Specifications for Sewers and Drainage Facilities, 2000.
- Maintenance of the sewers designated as "public" shall be the responsibility of the Metropolitan St. Louis Sewer District upon dedication of the sewers to the district.
- All construction methods and practices to conform with OSHA Standards.
- All sign locations and sizes must be approved separately through the Planning Division.
- All sign post and backs and bracket arms shall be painted black using Corboline Rustbond Penetrating Sealer SO and Carboline 133 HB paint (or equivalent as approved by City and MoDOT). Signs designating street name shall be on the opposite side of the street from traffic control signs.

### 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 back filling operations.
- The grading contractor shall perform a complete grading and compaction operation as shown on the plans, stated in list notes, or reasonably implied there from, 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.
- All areas shall be allowed to drain. All low points shall be provided with temporary ditches.
- A sediment control plan that includes monitored and maintained sediment control basins and/or straw bales should be implemented as soon as possible. No graded area is to be allowed to remain bare over the winter without being seeded and mulched. Care should be exercised to prevent soil from damaging adjacent property and silting up existing downstream storm drainage system.
- Any existing trash and debris currently on this property must be removed and disposed of off-site.
- Soft soil in the bottom and banks of any existing or former pond sites or tributaries should be removed, spread out and permitted to dry sufficiently to be used as fill. None of this material should be placed in proposed right-of-way locations or on storm sewer locations.
- Site preparation includes the clearance of all stumps, trees, bushes, shrubs, and weeds; the grubbing and removal of roots and other surface obstructions from the site; and the demolition and removal of any non-made structures. The unsuitable material shall be properly disposed of off-site. Topsoil and grass in the fill areas shall be thoroughly diced prior to the placement of any fill. The Soils Engineer shall approve the dicing operation.
- Compaction equipment shall consist of tamping rollers, pneumatic-tire rollers, vibratory roller, or high speed impact type drum rollers acceptable to the Soils Engineer. The roller shall be designed so as to avoid the creation of a layered fill without proper blending of successive fill layers.
- 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 8 percent above the optimum moisture content.
- 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.
- All siltation control devices shall be inspected by the contractor after any rain of 1/2" or more with any appreciable accumulation of mud to be removed and siltation measures repaired where necessary.
- No slope shall be steeper than (Horizontal:Vertical). All slopes shall be added or seeded and mulched.
- Fill and back fill shall be compacted to the criteria specified in the following table:

CATEGORY	MINIMUM PERCENT COMPACTION %
Fill in building areas below footings	95 %
Fill under slabs, walks, and pavement	95 %
Fill other than building areas	90 %
Natural sub grade	90 %
Pavement sub grade	90 %
Pavement base course	90 %

- Measured as a percent of the maximum dry density as determined by Standard Proctor Test (ASTM-D-698). Moisture content must be within 2 percent below or 4 percent above optimum moisture content if fill is deeper than 10 feet.
- Any contaminated soil encountered during excavation shall be hauled and placed as directed by the owners environmental engineering representative.
  - 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, stacked straw 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 to mud on new or existing pavement or in new or existing storm sewers or ditches 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.

### SHEET INDEX:

SHEET 1	COVER SHEET
SHEET 2	SITE PLAN
SHEET 3	GRADING PLAN
SHEET 4	DRAINAGE PLAN
SHEET 5	CONSTRUCTION DETAILS

### DEVELOPMENT NOTES:

- Area of tract: 2.78 Acres
- Area of improvement: 0.4649 Acres
- Current Zoning: C-0 Commercial Office
- Proposed Use: General Office
- Area of building: 6,261 sq.ft.
- Required building & parking requirements:  
Front yard = 25 feet  
Side yard = 10 feet  
Rear yard = 35 feet  
Parking = 10 feet (per 500 sq. ft.) perimeter
- Parking Requirements & Fractions:  
Total building area = 6,261 sq. ft.  
1 space/300 sq. ft.  
Office space 6,261 sq. ft. / 300 sq. ft. = 21 spaces  
Total Parking Required (proposed building) = 21 spaces  
Total Parking Required (existing building) = 1 space  
Total Parking Required (existing building) = 22 spaces  
Total Parking Required (proposed building) = 23 spaces  
Total Parking Provided: 90 (including 67 existing)
- Landscape Requirements:  
Interior Landscape Requirements:  
90 spaces x 270 = 24,300 sq. ft. x 0.08 = 1,944 sq. ft.  
Total Interior Landscape Required = 1,944 sq. ft.  
Total Interior Landscape Provided = 1,523 sq. ft.
- Open Space Landscape Requirements:  
76,751 sq. ft. / 3,000 sq. ft. = 25.58 = 26 trees  
Total Open Landscape Required = 26  
Trees, Bufferyard Landscape Requirements:  
357.74 (17,100 Lf. = 357.74 units) = 7 units  
Total Bufferyard Landscape Required = 7 units = 70 shrubs and 14 trees  
(1 Unit = 2 canopy trees (2 to 3.5 inch caliper) or 2 Evergreen trees (6 to 8 feet tall) and 10 shrubs (18 to 24 inches tall or 3 to 4 feet wide))
- This property is served by the following utilities:  
Duckett Creek Sanitary Sewer District  
AmerenUE Company  
Laclede Gas Company  
Missouri American Water Company  
Southwestern Bell Telephone Company
- Flood Note:  
According to the Flood Insurance Rate Map of the City of O'Fallon, (Community Panel Number 29183 C-04-10 E dated August 2, 1996) this property lies within Zone X Zone X is defined as an area outside the 500 year floodplain.
- Site Coverage Calculations:  
Building = 15,521 sq. ft. = 13%  
Pavement = 36,604 sq. ft. = 30%  
Green Space = 68,972 sq. ft. = 57%
- Existing detention basin was designed to accommodate run-off.
- Developer must supply City construction inspectors with soil reports prior to or during site soil testing.
- Lighting values will be reviewed on site prior to the final occupancy inspection. Corrections will need to be made if not in compliance with City standards.
- All new utilities will be located underground.
- New mechanical units will be located on the roof of proposed building and be screened on all sides.
- When electric service is established all transformers shall be screened from view except for access point on transformers.

### REFERENCE BENCHMARK

BENCHMARK RM 57 ELEVATION 548.01 "CHISELED SQUARE" ON SOUTHWEST END SOUTH SIDE ADJACENT TO ADJACENT TO ADJACENT TO ADJUNCTION OF U.S. HIGHWAY 40 AND COUNTY HIGHWAY K, FEMA MAP # 29183D-430 E

### SITE BENCHMARK

ELEVATION 560.07 CHISELED SQUARE IN CENTER OF TELEPHONE CABLE PEDESTAL 75' WEST OF CENTERLINE OF HIGHWAY K AND 75' SOUTH OF CENTERLINE OF GRAVEL ROAD ACCESSING SITE

### GRADING QUANTITIES:

**460 C.Y. CUT**  
**348 C.Y. FILL (INCLUDES 15% SHRINKAGE)**  
**112 C.Y. EXCESS**

THE ABOVE GRADING QUANTITY IS APPROXIMATE ONLY, NOT FOR BIDDING PURPOSES. CONTRACTOR SHALL VERIFY QUANTITIES PRIOR TO CONSTRUCTION.

PREPARED FOR: JAMES B KNAUST  
 P.O. BOX 383  
 WENTZVILLE, MISSOURI 63385  
 (314) 559-8438  
**KNAUST OFFICE**  
**PARK**

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