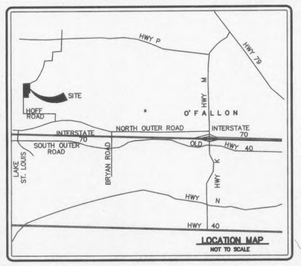
A SET GRADING PLAN FOR "GRANT INDUSTRIAL PARK"
A TRACT OF LAND BEING PART OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 24, TOWNSHIP 47 NORTH, RANGE 2 EAST OF THE FIFTH PRINCIPAL MERIDIAN ST. CHARLES COUNTY, MISSOURI



PRINCIPLES & STANDARDS:

1. 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.

2. Sediment and erosion control plans for sites that exceed 20,000 square feet of grading shall provide for sediment or debris basins, silt traps or filters, staked 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.

3. 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.

4. When grading operations are completed or suspended for more than 14 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 tacked at the rate of 100 pounds per 1,000 square feet when seeded.

5. 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 that 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.

6. 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.

7. 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. Variances will 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.

8. All lots shall be seeded and mulched at the minimum rates defined in Appendix A or sodded 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 @ 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:
100 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.

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O'FALLON NOTES

1. 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.

2. All filled places under proposed storm and sanitary sewer, proposed roads, and/or paved areas shall be compacted to 95% of the maximum density as determined by the "Modified AASHTO T-180 Compaction Test. or 100% of maximum density as determined by the standard Proctor Test AASHTO T-99. All fill placed in proposed roads shall be compacted from the bottom of the fill up. All test shall be verified by a soils engineer concurrent with grading and backfilling operations. Ensure the moisture content of the soil in the fill areas is to correspond to the compactive effort as defined by the Standard or Modified Proctor Test. Optimum moisture content shall be determined using the same test that was used for compaction. Soil compaction curves shall be submitted to The City of O'Fallon prior to the placement of fill. Proof rolling may be required to verify soil stability at the discretion of The City of O'Fallon.

3. No area shall be cleared without the permission of the Project Engineer.

4. The City of O'Fallon shall be notified 48 hours prior to construction for coordination and inspection.

5. All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match pre-construction conditions.

6. All construction and materials shall conform to the current construction standards of the City of O'Fallon.

7. Any permits, licenses, easements, or approvals required to work on public or private properties or roadways are the responsibility of the developer.

8. No slopes shall exceed 3(Horizontal) : 1(Vertical).

9. 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 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.

10. Erosion control systems shall not be limited to what is shown on the plan. Whatever means necessary shall be taken to prevent siltation and erosion from entering natural streams and adjacent roadways, properties and ditches.

11. All building mounted lights shall be pointed downward and fully screened to prevent light from spilling over onto adjacent properties.

12. All ground and roof hvac mechanical units to be screened from view.

13. The Developer must supply City Construction Inspectors with soil reports prior to or during site soil testing.

14. All paving to be in accordance with St. Charles County standards and specifications except as modified by the City of O'Fallon ordinances.

15. All sidewalks, curb ramps, ramps and accessible parking spaces shall be constructed in accordance with the current approved "Americans with Disabilities Act Accessibility Guidelines" (ADAAG) along with the required grades, construction materials, specifications and signage. If any conflict occurs between the above information and the plans, the ADAAG guidelines shall take precedence and the contractor prior to any construction shall notify the Project Engineer. Insure at least one 8' wide handicap access aisle is provided and curb ramps do not project into handicap access aisles.

16. Brick shall not be used in the construction of storm or sanitary sewer structures.

17. The Contractor shall insure all storm and sanitary sewer joint shall be gasketed O-Ring Type.

18. Lighting values will be reviewed on the site prior to the final occupancy inspection. Corrections will need to be made if not in compliance with City standards.

19. All proposed fencing requires a separate permit through the Planning Division.

20. All sign locations and sizes must be approved separately through the Planning Division.

21. All sign post and backs and bracket arms shall be painted black using Carboline Rustbond Penetrating Sealer SG and Carboline 133 HB paint (or equivalent as approved by the City of O'Fallon and MoDOT). Sign designating street names shall be on the opposite side of the street from traffic control signs.

22. All new utility line shall be located underground.

23. All erosion control systems shall be inspected and necessary corrections shall be made within 24 hours of any rainstorm resulting in one-half inch of rain or more.

24. All graded areas that are to remain bare for over 2 weeks shall be seeded and mulched per DNR requirements.

25. Rip-rap shown at flared ends will be evaluated in the field after installation for effectiveness and field modificied if necessary to reduce erosion on and off-site.

26. Marking to be provided on storm sewer inlets. The City will allow the following markers and adhesive procedures only as shown in the table below. "Peel and Stick" adhesive pads will not be allowed.

Manufacturer	Size	Adhesive	Style	Message (Part #)	Website
ACP International	3 7/8"	Epoxy	Crystal Cap	No Dumping Drains To Waterways (SD-W-CC)	www.acpinternational.com
DAS Manufacturing, Inc.	4"	Epoxy	Standard	No Dumping Drains To Stream (#SDS)	www.dasmanufacturing.com

O'FALLON NOTES (CONTINUED)

27. Developer must supply City Construction inspectors with soil reports prior to or during site soil testing. The soil report will be required to contain the following information on soil test curves (Proctor reports) for projects within the City:
1. Maximum dry density
2. Optimum moisture content
3. Maximum and minimum allowable moisture content
4. Curve must be plotted to show density from a minimum of 90% Compaction and above as determined by the "Modified AASHTO T-180 Compaction Test" (A.S.T.M.-D-1157) or from a minimum of 95% as determined by the "Standard Proctor Test AASHTO T-99, Method C" (A.S.T.M.-D-698). Proctor type must be designated on document.
5. Curve must have at least 5 density points with moisture content and sample locations listed on document.
6. Specific gravity.
7. Natural moisture content.
8. Liquid limit.
9. Plastic limit.
Be advised that if this information is not provided to the City's Construction Inspector the City will not allow grading or construction activities to proceed on any project site.

28. Trees, organic debris, rubble, foundations and other deletrious material shall be removed for the site and disposed in compliance with all applicable laws and regulations. Landfill tickets for such disposal shall be maintained on file by the developer. Burning on site shall be allowed only be permit from the local fire district. If a burn pit is proposed the location and mitifation shall be shown on the grading plan and documented by the soils engineer.

29. HDPE pipe is to be N-12WT or equal and to meet ASTM F1417 water tight field test.

30. If there are any physical changes to MoDot's right of way, such as grading or entrance modification, MoDOT requests the opportunity to review the plans, there may be improvements to the roadway required to support the proposed development within MoDOT's Access Management Guidelines.

31. Connections at all sanitary or storm structure to be made with A-lock joint or equal.

32. All sanitary laterals and sanitary mains crossing under pavement must have the proper rock backfill and to required compaction.

33. All construction methods and materials used on this site shall conform to current OSHA standards.

34. This site shall be ADA compliant.

GRADING NOTES:

1. 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.

2. The grading contractor shall perform a complete grading and compaction operation as shown on the plans, stated in these notes, or reasonably implied there from, all in accordance with the plans and notes as interpreted by the Geotechnical Engineer.

3. The Contractor shall notify the Soils Engineer at least two days in advance of the start of the grading operation.

4. All areas shall be allowed to drain. All low points shall be provided with temporary ditches.

5. 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.

6. Any existing trash and debris currently on this property must be removed and disposed of off-site.

7. 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.

8. 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 man-made structures. The unsuitable material shall be properly disposed of off-site. Topsoil and grass in the fill areas shall be thoroughly disced prior to the placement of any fill. The Soils Engineer shall approve the discing operation.

9. Compaction equipment shall consist of tamping rollers, pneumatic-tired 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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.

15. No slope shall be steeper than 3(Horizontal):1(Vertical). All slopes shall be sodded or seeded and mulched.

16. Any contaminated soil encountered during excavation shall be hauled and placed as directed by the owners environmental engineering representative.

17. The location of and details for all siltation control devices (silt fences and sediment basins) must follow the "St. Charles County Soil and Water Conservation District Erosion and Sediment Control" guidelines.

GRADING QUANTITIES:

27,315 C.Y. CUT (INCLUDES SUBGRADES)
23,684 C.Y. FILL (INCLUDES 15% SHRINKAGE)
3,632 C.Y. EXCESS

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

U.S.G.S. BENCHMARKS

REFERENCE BENCHMARK – RM46 ELEV. 469.17 "CHISELED SQUARE" ON TOP OF ABUTMENT AT SOUTHWEST CORNER OF HOFF ROAD BRIDGE OVER PERUQUE CREEK. THIS BENCHMARK HAS BEEN REPLACED FROM NEW BRIDGE CONSTRUCTION AT THIS TIME.

STANDARD SYMBOLS & ABBREVIATIONS

TREE OR BUSH	
LIGHT POLE	
SANITARY SEWER & MANHOLE	
STORM SEWER & INLET	
MAILBOX	
ELECTRIC LINE	—E—
GAS LINE	—G—
WATER LINE	—W—
TELEPHONE LINE	—T—
CABLE TV LINE	—CATV—
OVERHEAD WIRE	—OHW—
UTILITY POLE	
UTILITY POLE W/ DOWN GUY	
FIRE HYDRANT	
WATER VALVE	WV
WATER METER	WM
GAS VALVE	GV
ROAD SIGN	
TELEPHONE PEDESTAL	TEL. PED.
FENCE	—x—

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DEVELOPMENT NOTES

1. Area of Tract: 29.98 Acres
Lot 1: 7.852 Acres
Lot 2: 4.389 Acres
Lot 3: 16.306 Acres

2. Existing Zoning: I-1 Light Industrial (City of O'Fallon)

3. The required height and building setbacks are as follows:
Minimum Front Yard: 30 feet
Minimum Side Yard: 20 feet
Minimum Rear Yard: 35 feet
Maximum Height of Building: 50 feet

4. Site is served by:

City of O'Fallon Sewer	636-281-2858
AmerenUE Company	636-639-8312
Laclede Gas Company	636-946-8937
City of O'Fallon Water	636-281-2858
Century Tel	636-332-3011
O'Fallon Fire Protection District	636-272-3493
Fort Zumwalt School District	636-272-6620

5. According to the Flood Insurance Rate Map of St. Charles County, (Community Panel number 29183 C0220 F dated March 17, 2003) this property lies within zone X. Zone X is defined as an area outside the 500 year Flood Plain Limits.

6. Landscape Required:
1/40 L.F. of R.O.W. DISTURBED
430 l.f. / 40 = 10.75
Total Trees Required: 11
Total Trees Provided: 11
5 Units per 100' of Bufferyard
917.27 / 100 = 9.17 x 5 = 45.86
Total Units Required: 46 ~ 1380 points
Total Units Provided: Existing to remain
Tree preservation: 15 Trees per Acre Cleared
0.03 Ac. x 15 = 0.45
Total required and proposed: 1 Tree

7. Property Owner: True and True, Inc.
865 Hoff Road
O'Fallon, MO 63366

8. Contract Purchaser: Bill Davis, Inc.
2209 Droste Road
St. Charles, MO 63301
(636) 949-0680

9. Maximum slopes allowed are 3:1.

CITY OF O'FALLON
COMMUNITY DEVELOPMENT DEPARTMENT
ACCEPTED FOR CONSTRUCTION
BY: _____ DATE: 3-19-08
PROFESSIONAL ENGINEER'S SEAL
INDICATES RESPONSIBILITY FOR DESIGN

SHEET INDEX

SHEET 1	COVER SHEET
SHEET 2	OVERALL PLAN
SHEET 3	GRADING PLAN
SHEET 4	PREDRAINAGE AREA MAP
SHEET 5	POST DRAINAGE AREA MAP
SHEET 6	CONSTRUCTION DETAILS

O'FALLON #1407 & 1407.01

PREPARED FOR:
BILL DAVIS
2209 DROSTE ROAD
ST. CHARLES, MO 63301
(636) 949-0680

GRANT INDUSTRIAL PARK – GRADING

DISCLAIMER OF RESPONSIBILITY
I hereby specify that the documents intended to be authenticated by my seal are limited to this sheet, and I hereby disclaim any responsibility for all other Drawings, Specifications, Estimates, Reports or other documents or instruments relating to or intended to be used for any part or parts of the architectural or engineering project or survey.

STATE OF MISSOURI
CLIFFORD HEITMANN
NUMBER E-29817
REGISTERED PROFESSIONAL ENGINEER
3/12/08

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REVISIONS

11-5-07	CITY COMMENTS
1-28-08	REVISE BASIN STRUCTURES
3-10-08	OVERALL GRADING

BAX
ENGINEERING
PLANNING
SURVEYING
221 Point West Blvd.
St. Charles, MO 63301
636-928-5552
FAX 928-1718

10-5-07 DATE
01-11691B PROJECT NUMBER
1 OF 6 SHEET OF
11691BGRADE FILE NAME
JEL/JCM DRAWN
JCM CLH DESIGNED CHECKED

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