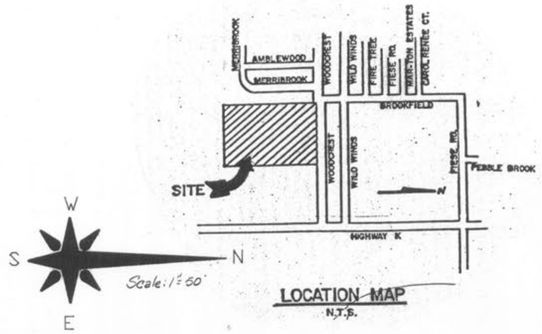
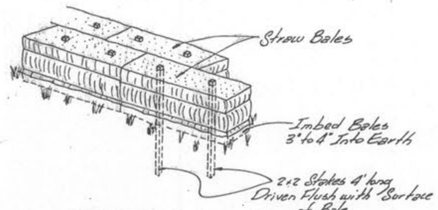
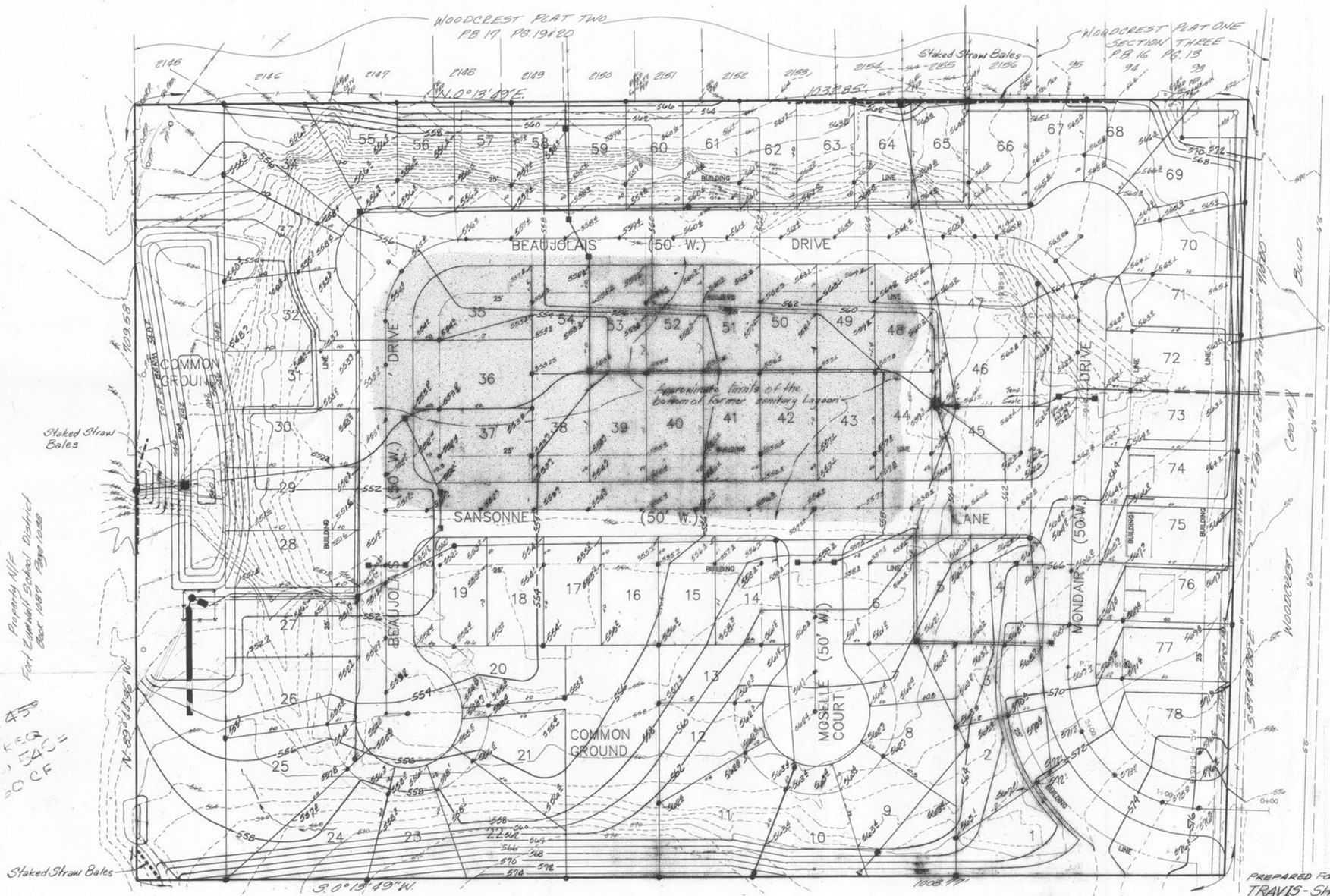
GRADING PLAN FOR
BRANDYWINE ESTATES
A TRACT OF LAND IN FRAC. SEC. 5 T.46N., R.3E.
ST. CHARLES COUNTY, MISSOURI



LOCATION MAP
N.T.S.



SILTATION CONTROL DETAIL
Not to Scale



• DENOTES GRADING STAKES TO BE PLACED IN FIELD

I. GENERAL

1. No area shall be cleared without authorization from the project engineer.
2. All grading work performed shall be within a 0.2 feet tolerance of the grades shown on the grading plan.
3. A Geotechnical Engineer shall be employed by the owner and be on site during grading operations.
4. 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.
5. Before the grading begins, the Owner shall employ a competent, licensed surveyor to establish all lines and grades.
6. The Contractor shall notify the Soils Engineer at least two days in advance of the start of the grading operation.

II. SPECIFICATIONS

1. 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 burned and/or properly disposed of on 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.
2. 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.
3. 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.
4. 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.
5. All areas to receive fill shall be scarified to a depth of not less than 6 inches and then compacted to at least 85 percent of the maximum density as determined by the Modified AASHTO T-1800 Compaction Test" (ASTM-D-1557). Natural slopes steeper than 1 vertical to 5 horizontal to receive fill shall have horizontal benches, with minimum widths of 12 feet and maximum height of 5 feet, cut into the slopes before the placement of any fill. 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.
6. 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 control.
7. 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 finshed 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.
8. Fills in rear yard areas shall be compacted to 85% of maximum density as determined by the "Modified AASHTO T-1800 Compaction Test" (ASTM D-1557). All other fills shall be compacted to 90% of maximum density as determined by the "Modified AASHTO T-1800 Compaction Test" (ASTM D-1557).

III. SPECIAL CONDITIONS

1. This site was formerly used as a sanitary sewage lagoon. The approximate limits of the bottom of the lagoon are shown on the grading plan. The botttom of the old lagoon area has a deposition of sludge that has been capped with approximately 24 inches of clay soil. All of the clay cap material and sludge material must be excavated and placed in non-building areas as part of the grading operations.
2. A report entitled "Subsurface Condition - Brandywine Estates Subdivision" prepared by GEOTECHNOLOGY, INC. contains information concerning the grading operations for this site. This report is hereby made part of these specifications.
3. As detailed in the subsurface conditions report, the following operations must be strictly adhered to:
   a. Excavated sludge shall be mixed with soil at a minimum of a 1 to 1 mixture. Onced mixed, then specified compaction criteria applies.
   b. The clay soil cap is a high plasticity soil and shall not be placed in any building areas.
   c. Any rubble encountered can be used as fill material in non building areas so long as it does not contain trash. Any trash encounted shall be removed from the site.

IV. PHASING OF GRADING OPERATION

1. Phase 1: Grade eastern 2/3 of project, heave existing main ditch as is to drain existing storm sewers discharging to same. Do not grade detention basin as part of this phase. Cut temporary ditch away from low point between lots 27 and 28 on Beaujolais Drive.
2. Phase 2: Do not begin phase 2 until storm sewer contractor has completed main storm sewer construction through detention basin, through midddle of site and connected to existing 60 inch sewer between lots 72 and 73 on Mondair Drive. Then grade remainder of site including detention basin. Coordinate fill operations with sewer contractor to insure that fills under proposed storm and sanitary sewer lines are compacted to 90 percent maximum density as determined by the "Modified AASHTO T-180 Compaction Test" (ASTM D-1557).

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VOLUME BELOW EAC = 36 50 CF

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SHEET 3 OF 3

REV. 10-11-88 REV. 11-2-88 REV 12-4-88