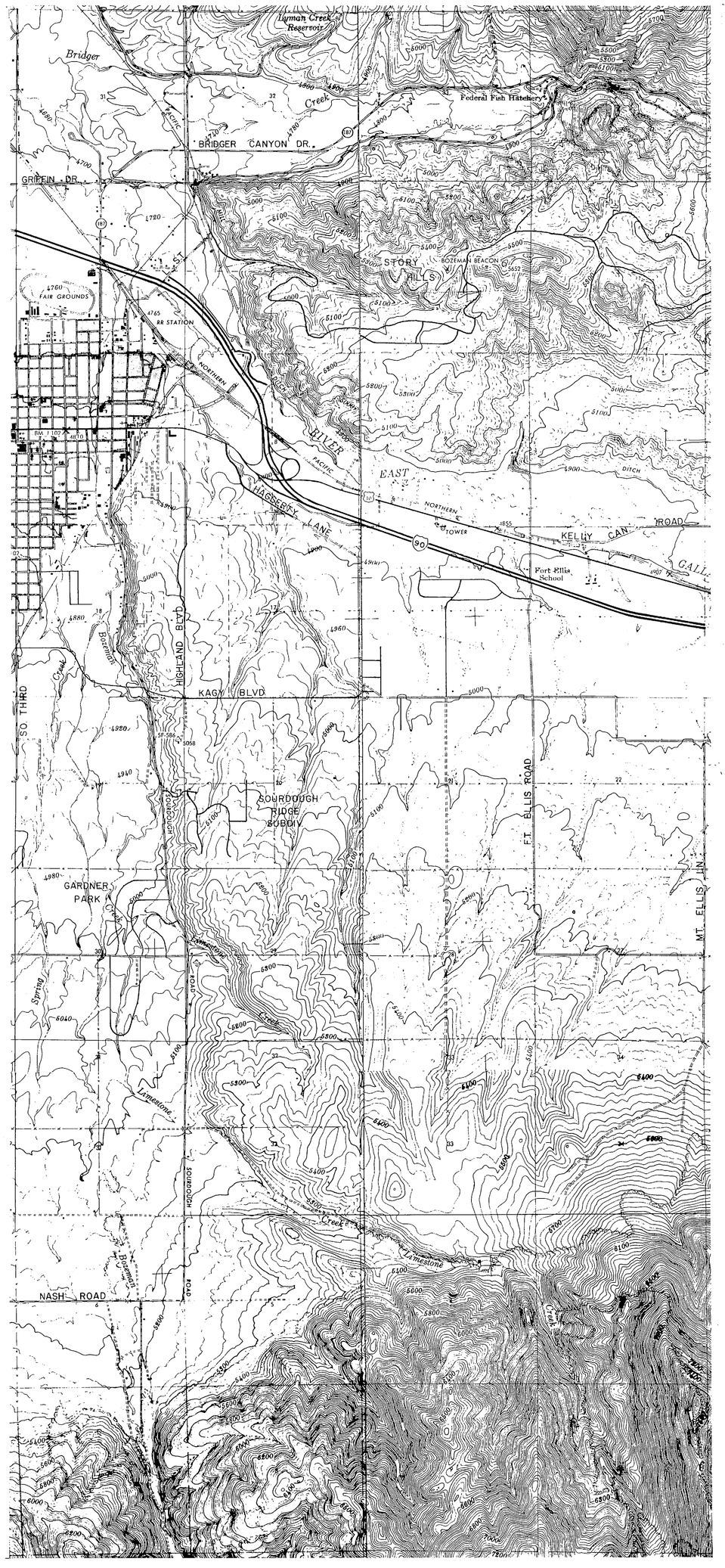
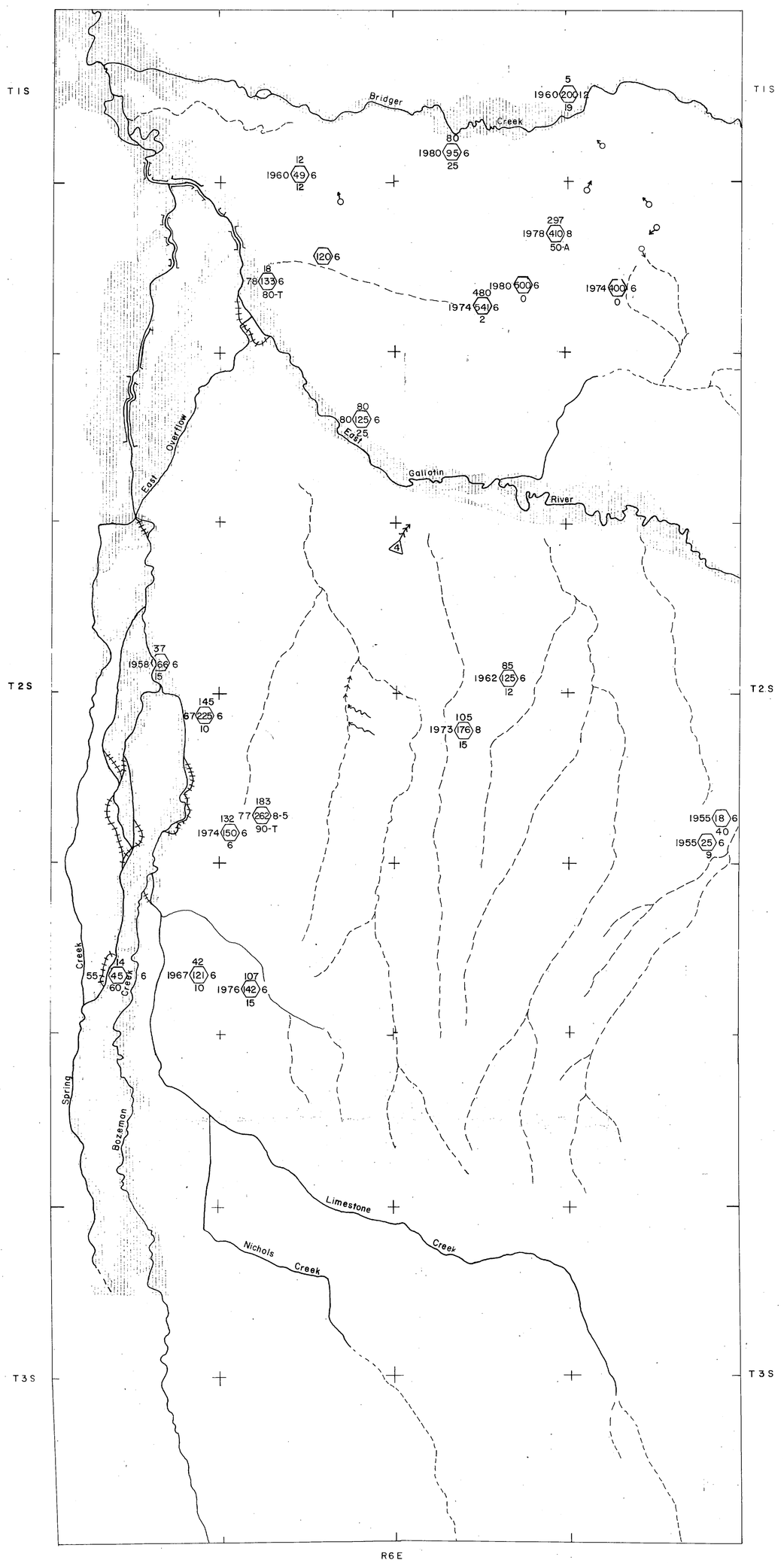
PLATE 3 HYDROLOGY and FLOOD HAZARD

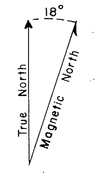
Southeast Margin of the Gallatin Valley

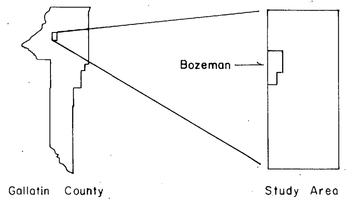




Base Map from U. S. Coast and Geodetic Survey
Upper Missouri River Basin Survey, 1947 & 1948
Map Numbers 87, 88, 97, & 98

Plates Drawn By Earl F. Griffith MSU—1982





SCALE 1:24000

.5 0 1 KILOMETER

.5 0 1 MILE

6000 4000 2000 0 2000 4000 6000 FEET

CONTOUR INTERVAL 20 FEET

EXPLANATION

(Boundaries are approximate; statements are general; specific evaluations require on-site investigation.)

100 YEAR FLOODPLAIN: That portion of the alluvial valley of major streams which will flood during a 100 year recurrance event. The floodplain area is based on the 1972, USDA-SCS Flood Hazard Analysis and is only slightly different from the 1980 report.

REVETMENT: Riprap of permanent wooden cribbing or concrete walls, loose concrete slabs and blocks, large loose rocks, or gravel berms locally placed to control streambank erosion; may lead to increased rates of erosion short distances downstream.

ABANDONED CHANNEL: Length of a major stream abandoned since 1948 through large scale abrupt changes from flooding or stream channel regulation and realignment.

GULLY EROSION: Erosion of small swales and coulees where surface flow occurs during spring runoff or during a major storm event. Often initiated by lack of erosion control during construction, indiscriminate vegetation removal or poor farming practices. The triangular symbol indicates a headcut measured in feet.

RILL EROSION: Small scale channelized erosion usually on unvegetated slopes; rills can very often be controlled by contour ploughing or ditching. Such erosion is common on fallow or recently seeded grain fields and at sites exposed by construction and may be caused by rapid spring snowmelt or heavy rainfall.

SPRING

PARTIAL—VARIABLE SOURCE AREA

These are areas generally confined to shallow slopes near flowing streams which generate surface flow before surrounding areas. Partial-variable source areas are identified by the presence of water loving plants, grasses which remain green after nearby grasses have turned yellow in late summer, and by the topographic expression as a subtle swale or drainageway. Excavation in these areas which removes vegetation will result in increased runoff and erosion. The naturally high water table is restrictive to septic systems and houses with basements. In addition, the high degree of soil saturation may affect load bearing capacity and shrink-swell potential, and cause soils to liquify when vibrated. These areas may experience very localized flooding. Preservation of the partial-variable source areas is important in reducing flooding, limiting erosion, and trapping chemical and erosional pollutants which are filtered out by plants.

Because variable source areas are common to many natural drainageways in the study area, no specific areas are identified on the Hydrologic Map. Limitations of scale and the 20 foot contour interval preclude identification of all but the most obvious source areas. Structure placement and septic system location are best handled by site-specific evaluations.

WELL DATA

For additional well information and a brief assessment of water availability in the Story Hills, see thesis appendixes.

static water level — well depth (feet)
date drilled — 1978 (410) 8 — casing size (inches)
50-A
yield (gallons per minute and method of pump test.)
T - turbine test (most accurate)
A - air pumped.