2003 Report Of Survey

from

Geometrics, GPS Inc.

REPORT OF SURVEY

I Introduction

This report details a geodetic control survey performed in May 2003 by GeoMetrics GPS, Inc. and the Richland County, Ohio Engineers. The survey was performed during the re-observations of the Ohio HARN. This survey established two new HARN stations and re-surveyed nine 1995 control points. The newly re-surveyed 1995 control points were then used to readjust the 1995 survey. As a result, all of the Richland County control points originally surveyed in 1995 are now horizontally compatible with the Ohio HARN.

II Field Work

Field observations were taken on Julian Day 140, 141 and 142 (May 20 - 22, 2003). Richland County personnel occupied two new HARN stations R 240 and ZI51. The points were occupied as per the NGS schedule. GeoMetrics personnel occupied twelve stations during the three days. Three HARNS and nine 1995 control points were occupied.

III HARN Data Processing

The data from station R 240 and ZI51 was converted to RINEX format and submitted to NGS for inclusion in their readjustment of the Ohio HARN.

IV 2003 Geodetic Control Survey

GeoMetrics combined the observations described above with CORS data and other NGS HARN observations. GeoMetrics processed baselines and made least squares adjustments and analysis of the data. Two adjustments are included in this

report, a minimally constrained (free) adjustment and a fully constrained adjustment with all CORS and HARN stations fixed in latitude and longitude. A central station ARP MFD was fixed in ellipsoid height.

This process established HARN compatible horizontal coordinates on nine 1995 control points and two new HARNS. Final coordinates for the HARN stations will be produced by NGS.

V Readjustment of 1995 Survey

The 1995 Richland County survey was retrieved from backup and converted from GPSurvey format to Trimble Geomatics Office format. The network was then readjusted using the latitude and longitude of the nine re-observed points as fixed control. A central station APRON was fixed in ellipsoid height.

This process established HARN compatible horizontal coordinates on the remaining points in the 1995 survey. Elevations derived from the original 1995 adjustment are on the NAVD88 datum and are still current.