

APPENDIX C

Miscellaneous Check Lists

Geodetic Survey Quality Assurance Checklist

*******Sample*******

Job No./ Project No.

2200168

Project Description and Location:

**Route 72 Evacuation Route Roadway
Improvements GPS Project**

Date(s) Survey Performed:
02/23/2006,

11/18/2005, 02/22/2006,

03/06/2006 and 03/07/2006

| | Yes | No | N/A |
|---|-------------------------------------|--------------------------|-------------------------------------|
| 1. NAD 83 Horizontal Datum | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Existing NGS Data base utilized | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. NAVD 88 Vertical Datum | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Existing NGS Data base utilized | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Horizontal Control meets 1st Order FGCC requirements | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Horizontal adjustment method utilized Least Squares | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Vertical Control | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. GPS derived Orthometric Heights | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Differential Leveling | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| derived Orthometric Heights | | | |
| 10. Control meets 2nd Order Class 1 FGCC | | | |
| requirements for Order of Control utilized | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. Vertical adjustment method utilized | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Least Squares | | | |
| 12. Data Files in ASCII format of Intergraph Standard | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 13. Interchange Format (ISIF) version 8.8 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 14. Control Diagram (Horizontal and Vertical | | | |
| control identified) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. State Plane Coordinates List for Horizontal | | | |
| Control | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Survey Report

Yes No N/A

16. Quality Control Checklist

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Comments: Explanation must be provided for all items checked N/A.

Certification:



Supervising Engineer II

Geodetic Survey Quality Control Checklist

*******Sample*******

Job No./Project No.

2200168

Project Description and Location:
Roadway

Route 72 Evacuation Route**Improvements GPS Project**

Date(s) Survey Performed:

**11/18/2005, 02/22/2006, 02/23/2006,
03/06/2006 and 03/07/2006**

FGCC Guidelines "Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques" Version 5.0 dated May 11, 1988; reprinted with corrections, August 1, 1989 utilized for project or most current edition.

Yes No n/a

x

FGCC Guidelines "Standards and Specifications for Geodetic Control Networks", September 1984 utilized for project or most current edition.

x**Equipment Utilized****Model No.****Serial No.**

| | | |
|---------|-------------------------|---------|
| Sensor | Leica Geosystems SR 530 | 0037050 |
| Sensor | Leica Geosystems SR 530 | 0037051 |
| Sensor | Leica Geosystems SR 530 | 0037074 |
| Sensor | Leica Geosystems SR 530 | 0037123 |
| Sensor | Leica Geosystems SR 530 | 133646 |
| Antenna | Leica Geosystems AT 502 | 7816 |
| Antenna | Leica Geosystems AT 502 | 8061 |
| Antenna | Leica Geosystems AT 502 | 8092 |
| Antenna | Leica Geosystems AT 502 | 8094 |
| Antenna | Leica Geosystems AT 502 | 14856 |

Seco 2 Meter fixed-height poles (1)
Pacific Crest RTK Radios (2)

| <u>Project Personnel</u> | <u>Name</u> | <u>Title</u> | <u>Position</u> |
|---------------------------------|----------------------|---------------------|-------------------------|
| | Frederick A. Czepiga | Principal Engineer | Analysis/Project Report |
| | Ronald J. Kuzma | Principal Engineer | Operator |
| | Edward Berchtold | Eng. Technician | Operator |
| | Michael V. Iorio | Eng. Technician | Operator |
| | Edward Ogonowski | Eng. Technician | Operator |
| | Steve Miller | Eng. Technician | Operator |

Project Control Monumentation

| | Yes | No | n/a |
|-------------------------------------|------------|-----------|------------|
| Permanent | x | | |
| Semi-Permanent | x | | |
| Outside Future Construction Limits | x | | |
| Within R.O.W. | x | | |
| 3 Reference Ties | | | x |
| Intervisible Pair at Project Limits | x | | |

Comments:

Survey Report QA Check List

| | | YES | NO | N/A |
|----|---|-----|----|-----|
| 1 | Survey Report signed and sealed by licensed surveyor | | | |
| 2 | Supplemental Survey Report signed and sealed by licensed surveyor | | | |
| 3 | Prime consultant has reviewed and concurs with sub-consultant's Survey Report | | | |
| 4 | Point of Contact supplied in Survey Report | | | |
| 5 | Regional Survey Office contacted for any existing control in project area | | | |
| 6 | Copy of Article 44 was supplied to field personnel | | | |
| 7 | Scope of work included in Survey Report | | | |
| 8 | Equipment service record included in Survey Report | | | |
| 9 | Equipment serial numbers included in Survey Report | | | |
| 10 | Horizontal datum used is New Jersey State Plane Coordinate System (NJSPCS) | | | |
| 11 | List of horizontal monuments with stations and coordinates | | | |
| 12 | Year of last adjustment included in horizontal datum description | | | |
| 13 | Vertical datum used is North American Vertical Datum of 1988 (NAVD88) | | | |
| 14 | List of vertical benchmarks with stations and elevations | | | |
| 15 | Control traverse submitted and approved by NJDOT prior to commencing survey for base map, and the survey traverse and control network meet 2nd Order requirements | | | |
| 16 | Survey Report explains how road baseline(s) were re-established | | | |
| 17 | Survey Report explains how ROW was established | | | |
| 18 | Existing road baselines and ROW tied to project control | | | |
| 19 | All measurements are to a minimum of two (2) decimal points | | | |
| 20 | Height set above ground of ties shown on tie sketch | | | |
| 21 | Data processing software identified in Survey Report | | | |
| 22 | All minimum standards, as outline in NJDOT Survey Manual have been met or exceeded | | | |

NOTE: All no and N/A require an explanation.
