ANNEX E

STATION ORDER-AND-TYPE (OT) CODES

This annex contains lists of the various types of horizontal control points with the corresponding two-character Order-and-Type (OT) Codes. Effective July 1, 2012, the order codes were replaced by horizontal network and local accuracies for nearly all stations with GPS-derived positions in the NGS Integrated Data Base. The network and local accuracies are recorded in the *91* and *92* records, respectively, as described in Chapter 2 of the Bluebook. Network and local accuracies have been determined for all GPS projects loaded into the NGS Integrated Data Base since the 2011 national adjustment.

The horizontal order codes still apply to all horizontal control determined using classical (optical) methods, as well as a small number of GPS stations not included in the 2007 or 2011 national adjustments. Note that effective January 1, 2011, NGS no longer accepts classical data for determining horizontal control, as described in "Data Submission Policy" Addendum V.

For control stations where it is used, the horizontal order code (i.e., first character of the OT Code) indicates the general positional accuracy of the station. This accuracy is relative to the main-scheme network of which the horizontal control point in question is a part or to which it is connected. It also indicates whether the horizontal control point is permanently marked and recoverable (e.g., a monumented station or a landmark) or not permanently marked and hence nonrecoverable (e.g., an auxiliary point). The type code (i.e., second character of the OT Code) still applies to all horizontal control to identify the surveying method by which the station position was determined. Use of the OT Codes is explained in Chapter 2, pages 2-35 thru 2-38, in accordance with the following classification:

ORDER CODES OF RECOVERABLE POINTS:

- A - Order A Interferometric Positioning
- B - Order B Interferometric Positioning
- 0 - Trans-Continental Traverse (TCT)
- 1 - lst-Order Survey Scheme
- 2 - 2nd-Order (Class I and Class II) Survey Scheme
- 3 - 3rd-Order (Class I and Class II) Survey Scheme
- 4 - Lower-Than-3rd-Order Survey Scheme and Supplemental Unmonumented Recoverable Landmarks (see p. E-4)

ORDER CODES OF NONRECOVERABLE POINTS:

- 5 - lst-Order Survey Scheme
- 6 - 2nd-Order (Class I and Class II) Survey Scheme
- 7 - 3rd-Order (Class I and Class II) Survey Scheme
- 8 - Lower-Than-3rd-Order Survey Scheme

The second code (i.e., the "type code") of the OT Code indicates the type of the (primary) surveying method by which the horizontal control point is positioned. It also shows whether the horizontal control point in question is a main-scheme station (i.e., one which is essential to the survey scheme) or a supplemental station (i.e., one which is incidental to the survey scheme):

TYPE CODES OF MAIN-SCHEME STATIONS:

- 1 - Positioned Primarily by Triangulation (or by Intersection)
- 2 - Positioned Primarily by Trilateration
- 3 - Positioned Primarily by Traverse
- A - Positioned Primarily by Interferometric Satellite Relative Positioning

TYPE CODES OF SUPPLEMENTAL STATIONS:

4 - Positioned Primarily by Triangulation
5 - Positioned Primarily by Trilateration
6 - Positioned Primarily by Traverse
7 - Positioned by Intersection (Note: 1 if Main-Scheme Station)
8 - Positioned by Resection
B - Positioned Primarily by Interferometric Satellite Relative Positioning

ORDER-AND-TYPE (OT) CODES OF RECOVERABLE HORIZONTAL CONTROL POINTS - monumented (or otherwise permanently marked) stations, published as indicated.

SURVEY PROCEDURES	STATION TYPE	OT	PUBLISHED
**********	**********	**	*********
MONUMENTED STATIONS POSITIONED BY GPS			
GPS Procedures	Main-Scheme	AA	AA-Order
GPS Procedures	Main-Scheme	BA	B-Order
GPS Procedures	Supplemental	BB	B-Order
STATIONS OF THE TRANS-CONTINENTAL TRAVERSE (TCT)			
TCT Procedures	Main-Scheme *	03	lst-Order
TCT Procedures	Supplemental **	06	lst-Order
MONUMENTED STATIONS POSITIONED PRIMARILY BY TRIANGULATION			
lst-Order	Main-Scheme	11	lst-Order
lst-Order	Supplemental	14	2nd-Order
2nd-Order (Class I or II)	Main-Scheme	21	2nd-Order
2nd-Order (Class I or II)	Supplemental	24	3rd-Order
3rd-Order (Class I or II)	Al Stations	31	3rd-Order
Lower-Than-3rd-Order	All Stations	41	Low-Order
MONUMENTED STATIONS POSITIONED PRIMARILY BY TRILATERATION			
lst-Order	Main-Scheme	12	lst-Order
lst-Order	Supplemental	15	2nd-Order
2nd-Order (Class I or II)	Main-Scheme	22	2nd-Order
2nd-Order (Class I or II)	Supplemental	25	2nd-Order
3rd-Order (Class I or II)	All Stations	32	3rd-Order
Lower-Than-3rd-Order	All Stations	42	Low-Order
MONUMENTED STATIONS POSITIONED PRIMARILY BY TRAVERSE			
lst-Order	Main-Scheme	13	lst-Order
lst-Order	Supplemental	16	2nd-Order
2nd-Order (Class I or II)	Main-Scheme	23	2nd-Order
2nd-Order (Class I or II)	Supplemental	26	2nd-Order
3rd-Order (Class I or II)	All Stations	33	3rd-Order
Lower-Than-3rd-Order	All Stations	43	Low-Order

* Main-Scheme Station - one which is essential to the survey scheme.
** Supplemental Station - one which is incidental to the survey scheme.

SURVEY PROCEDURES	STATION TYPE	OT	PUBLISHED
**********	**********	**	*********
MONUMENTED STATIONS POSITIONED BY INTERSECTION			
lst-Order	Main-Scheme	11	lst-Order
lst-Order	Supplemental	17	2nd-Order
2nd-Order (Class I or II)	Main-Scheme	21	2nd-Order
2nd-Order (Class I or II)	Supplemental	27	3rd-Order
3rd-Order (Class I or II)	All Stations	37	3rd-Order
Lower-Than-3rd-Order	All Stations	47	Low-Order
MONUMENTED STATIONS POSITIONED BY RESECTION			
lst-Order	All Stations	18	2nd-Order
2nd-Order (Class I or II)	All Stations	28	2nd-Order
3rd-Order (Class I or II)	All Stations	38	3rd-Order
Lower-Than-3rd-Order	All Stations	48	Low-Order

ORDER-AND-TYPE (OT) CODES OF NONRECOVERABLE HORIZONTAL CONTROL POINTS -temporary or auxilliary points, not permanently marked, which must be carried in the files for network integrity purposes. These horizontal control points will not be published.

SURVEY PROCEDURES	STATION TYPE	OT
**********	**********	**
STATIONS OF THE TRANS-CONTINENTAL TRAVERSE (TCT) - must be monumented.		
UNMARKED STATIONS POSITIONED PRIMARILY BY TRIANGULATION		
lst-Order	Main-Scheme*	51
lst-Order	Supplemental**	54
2nd-Order (Class I or II)	Main-Scheme	61
2nd-Order (Class I or II)	Supplemental	64
3rd-Order (Class I or II)	All Stations	71
Lower-Than-3rd-Order	All Stations	81
UNMARKED STATIONS POSITIONED PRIMARILY BY TRILATERATION		
1st-Order	Main-Scheme	52
1st-Order	Supplemental	55
2nd-Order (Class I or II)	Main-Scheme	62
2nd-Order (Class I or II)	Supplemental	65
3rd-Order (Class I or II)	All Stations	72
Lower-Than-3rd-Order	All Stations	82

---

* Main-Scheme Station - one which is essential to the survey scheme.

** Supplemental Station - one which is incidental to the survey scheme.

SURVEY PROCEDURES	STATION TYPE	OT
**********	********** **	**
UNMARKED STATIONS POSITIONED PRIMARILY BY TRAVERSE		
1st-Order	Main-Scheme	53
1st-Order	Supplemental	56
2nd-Order (Class I or II)	Main-Scheme	63
2nd-Order (Class I or II)	Supplemental	66
3rd-Order (Class I or II)	All Stations	73
Lower-Than-3rd-Order	All Stations	83
UNMARKED STATIONS POSITIONED BY INTERSECTION		
lst-Order	Main-Scheme	51
lst-Order	Supplemental	57
2nd-Order (Class I or II)	Main-Scheme	61
2nd-Order (Class I or II)	Supplemental	67
3rd-Order (Class I or II)	All Stations	77
Lower-Than-3rd-Order	All Stations	87
UNMARKED STATIONS POSITIONED BY RESECTION		
lst-Order	All Stations	58
2nd-Order (Class I or II)	All Stations	68
3rd-Order (Class I or II)	All Stations	78
Lower-Than-3rd-Order	All Stations	88

ORDER-AND-TYPE (OT) CODES OF UNMONUMENTED RECOVERABLE LANDMARKS - normally positioned as supplemental low-accuracy control points, possibly used as main-scheme triangulation stations (e.g., a well-defined church spire used as the unoccupied center of a central-point figure in a triangulation network), published as indicated.

SURVEY PROCEDURES	STATION TYPE	OT	PUBLISHED
**********	**********	**	*********
LANDMARKS USED AS MAIN-SCHEME TRIANGULATION STATIONS			
lst-Order	Main-Scheme	11	lst-Order
2nd-Order (Class I or II)	Main-Scheme	21	2nd-Order
3rd-Order (Class I or II)	Main-Scheme	31	3rd-Order
Lower-Than-3rd-Order	Main-Scheme	41	Low-Order
LANDMARKS POSITIONED AS SUPPLEMENTAL CONTROL POINTS			
Any-Order Traverse	Supplemental	43	Low-Order
Any-Order Intersection	Supplemental	47	Low-Order
Any-Order Resection	Supplemental	48	Low-Order