



Data Dictionary
for
Geodetic Survey Control Station Database

Version 1.2

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Version	Details of Change	Effective Date
1.0	Initial Release	1 Dec, 2017
1.1	Remarks of Fields Northing_m & Easting_m in Section 2 & 3 revised	10 Jul, 2020
1.2	Updating of document links and minor amendment on Remarks field in Section 1, 2 & 3	1 Oct, 2023

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1. Bench Mark (BM) Database

Field	Description	Allow Null	Remarks
STN_NO	Station number	NO	<ul style="list-style-type: none"> ● <u>2013 Levelling Results*</u> 200000 series (e.g. 200041) ● <u>Pre-2013 Levelling Results</u> 10000 ~ 60000 series ● <u>Re-valued BM</u> Represented in decimal place Example 1: 20013.1 (1st re-valued of BM 20013), Example 2: 20013.2 (2nd re-valued of BM 20013) Example 3: 210136.1 (1st re-valued of BM 210136) <p>* For more details, please refers to: https://www.geodetic.gov.hk/common/data/pdf/Vertical_Control_Network_2013_FAQ_eng.pdf</p>
LOCALITY	Location of Bench Mark	NO	
MONU_TYPE	Monument Type of Bench Mark	NO	PICKET BOX, PICKET BOX-BR, STEEL ROD, STEEL BOLT, STEEL STAPLE, STAPLE, BRASS ROD, USM, SURVEY NAIL, IRON LADDER
Northing_m	The Northing coordinates (HK1980 Grid) of Bench Mark in meter unit	NO	● Round to the nearest integer
Easting_m	The Easting coordinates (HK1980 Grid) of Bench Mark in meter unit	NO	● Round to the nearest integer

Field	Description	Allow Null	Remarks
HKPD_m	The height of Bench Mark above Hong Kong Principal Datum (HKPD) in meter unit	NO	<ul style="list-style-type: none"> ● Round to the nearest 0.5 mm
CLA_ACURCY	Accuracy class of levelling survey	NO	For details, please refer to the document “Accuracy Standards of Control Survey (Version 2.0)” from below link: https://www.geodetic.gov.hk/common/data/Specifications/Accuracy%20Standards%20of%20Control%20Survey%20-%20Version%202.0.pdf
LEV_ACURCY	Accuracy class of levelling survey	NO	1ST – Bedrock Bench Mark 2ND – 2013 Levelling Results 3RD / 4TH – At least one origin linked to Pre-2013 Levelling Results

2. Traverse Station Database

Field	Description	Allow Null	Remarks
STN_NO	Station number	NO	<ul style="list-style-type: none"> ● <u>Station's numbering system (current)</u> <ul style="list-style-type: none"> ■ <u>Main Traverse</u> <ul style="list-style-type: none"> ➤ <u>1000</u> series, <u>4000</u> series, <u>7000</u> series ➤ 2 decimal place (e.g. 7044.02) ■ <u>Minor Traverse</u> <ul style="list-style-type: none"> ➤ <u>2000</u> series, <u>3000</u> series, <u>5000</u> series, <u>8000</u> series ➤ 3 decimal place (e.g. 5061.005) ● <u>Station established before 1980's</u> <ul style="list-style-type: none"> TV series: Main Traverse (e.g. TV196.03) SV series: Minor Traverse (e.g. SV879.12) ● <u>Abnormal station numbers</u> <ul style="list-style-type: none"> Other numbering systems used in the past (e.g. 1015.TS6, RRP19, etc.)
LOCALITY	Location of station	NO	
MONU_TYPE	Type of mark	NO	<p>PICKET BOX, IRON TUBE, IRON SPIKE, CUT MARK, SURVEY NAIL, NAIL, BRASS PLATE, CROSS SCREW, PVC PIPE</p> <p>CONC. NAIL : Concrete Nail</p> <p>CART. CASE : Cartridge Case</p> <p>M.C. : Mast Centre</p> <p>S/S Rod : Steel Rod</p> <p>TYPE A BEACON : Cylindrical pillar (~ 1.2m – 1.3m in height, ~ 0.3m – 0.4m diameter)</p> <p>TYPE B BEACON : Cylindrical pillar (~ 0.3m – 0.4m in height, ~ 0.3m – 0.4m diameter)</p>

Field	Description	Allow Null	Remarks
			diameter) TYPE C BEACON : Conical high pillar (>-0.8m) TYPE D BEACON : Conical low pillar (<0.8m) TYPE E BEACON : Rectangular high pillar (>=0.8m) TYPE F BEACON : Rectangular low pillar (<0.8m) TYPE G BEACON : Trapezium high pillar (>=0.8m) TYPE H BEACON : Trapezium low pillar (<0.8m) USM : Urban Survey Mark W.S.P.C. : White Small Pole Centre
Northing_m	The Northing coordinates (HK1980 Grid) in meter unit	NO	<ul style="list-style-type: none"> ● Round to the nearest 0.001m
Easting_m	The Easting coordinates (HK1980 Grid) in meter unit	NO	<ul style="list-style-type: none"> ● Round to the nearest 0.001m
HKPD_m	Height above Hong Kong Principal Datum (HKPD) in meter unit	NO	<ul style="list-style-type: none"> ● Value "0" was assigned for station without HKPD value ● The decimal place (at-most 0.001m) depended on the accuracy class of levelling survey
LAT_DEG	Degree of latitude (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> ● Only available for stations were conducted by GNSS survey ● Value must be "0" or "22" ● Value "0" was assigned for station without using GNSS survey
LAT_MIN	Minute of latitude (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> ● Only available for stations were conducted by GNSS survey ● Value must be integer and range between 0 and 59 ● Value "0" was assigned for station without using GNSS survey

Field	Description	Allow Null	Remarks
LAT_SEC	Second of latitude (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> ● Only available for stations were conducted by GNSS survey ● 5 decimal place in maximum and range between 0 and 59.99999 ● Value "0" was assigned for station without using GNSS survey
LONG_DEG	Degree of longitude (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> ● Only available for stations were conducted by GNSS survey ● Value must be "0", "113" or "114" ● Value "0" was assigned for station without using GNSS survey
LONG_MIN	Minute of longitude (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> ● Only available for stations were conducted by GNSS survey ● Value must be integer and range between 0 and 59 ● Value "0" was assigned for station without using GNSS survey
LONG_SEC	Second of longitude (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> ● Only available for stations were conducted by GNSS survey ● 5 decimal place in maximum and range between 0 and 59.99999 <p>Value "0" was assigned for station without using GNSS survey</p>
WGS_LEVEL	Height above HKPD (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> ● Only available for stations were conducted by GNSS survey ● Round to the nearest 0.001m ● Value "0" was assigned for station without using GNSS survey
WGS_SVY	Is the ITRF96 coordinates were measured by GNSS survey	NO	<p>Yes : Station was measured by GNSS survey</p> <p>No : Station was surveyed by traditional traversing</p>
FRAME	GNSS Reference Frame	YES	<p>ITRF96 : ITRF96 Epoch 1998:121</p> <p>STRE91 : Reference frame defined by the No.512 Specialist Team Royal Engineers (STRE)</p>

Field	Description	Allow Null	Remarks
BY_TRANSFO	Is the HK1980 Grid coordinates transformed from GNSS surveyed geodetic coordinates?	NO	<p>Yes : Station was measured by GNSS survey</p> <p>No : Station was surveyed by traditional traversing</p>
ORI_TRANSF	Is the origin of traverse was measured by GNSS survey?	NO	<p>Yes : The origin station of traverse was measured by GNSS survey</p> <p>No : The origin station of traverse was measured by traditional traversing</p>
CLA_ACURCY	Accuracy class of terrestrial survey	NO	<ul style="list-style-type: none"> ● "N.A." value would be given if station was measured by GNSS survey. ● For details, please refer to the document "Accuracy Standards of Control Survey (Version 2.0)" from below link: https://www.geodetic.gov.hk/common/data/Specifications/Accuracy%20Standards%20of%20Control%20Survey%20-%20Version%202.0.pdf
GPS_ACURCY	Accuracy class of GNSS survey	YES	<p>For details, please refer to the document "Accuracy Standards of Control Survey (Version 2.0)" from below link: https://www.geodetic.gov.hk/common/data/Specifications/Accuracy%20Standards%20of%20Control%20Survey%20-%20Version%202.0.pdf</p>
LEV_ACURCY	Accuracy class of levelling survey	YES	<p>For details, please refer to the document "Accuracy Standards of Control Survey (Version 2.0)" from below link: https://www.geodetic.gov.hk/common/data/Specifications/Accuracy%20Standards%20of%20Control%20Survey%20-%20Version%202.0.pdf</p>

3. Trig. Station Database

Field	Description	Allow Null	Remarks
STN_NO	Station number	NO	<ul style="list-style-type: none"> ● <u>Main Trig. Station</u> Number smaller than 100 (e.g. 76) except 73.2, 73.3, and 77.1 ● <u>Minor Trig. Station</u> Number larger than 100 (e.g. 661) except 73.2, 73.3, and 77.1
STN_NAME	Trig. name	NO	
LOCALITY	Location of station	NO	
MONU_TYPE	Type of mark	NO	<p>ANGLE IRON, CUT MARK, NAIL</p> <p>CART. CASE : Cartridge Case</p> <p>TYPE A BEACON : Cylindrical pillar (~ 1.2m – 1.3m in height, ~ 0.3m – 0.4m diameter)</p> <p>TYPE B BEACON : Cylindrical pillar (~ 0.3m – 0.4m in height, ~ 0.3m – 0.4m diameter)</p> <p>TYPE C BEACON : Conical high pillar (>0.8m)</p> <p>TYPE D BEACON : Conical low pillar (<0.8m)</p> <p>TYPE E BEACON : Rectangular high pillar (>=0.8m)</p> <p>TYPE F BEACON : Rectangular low pillar (<0.8m)</p> <p>TYPE G BEACON : Trapezium high pillar (>=0.8m)</p> <p>TYPE H BEACON : Trapezium low pillar (<0.8m)</p> <p>USM : Urban Survey Mark</p>
Northing_m	The Northing coordinates (HK1980 Grid) in meter unit	NO	<ul style="list-style-type: none"> ● Round to the nearest 0.001m

Field	Description	Allow Null	Remarks
Easting_m	The Easting coordinates (HK1980 Grid) in meter unit	NO	<ul style="list-style-type: none"> ● Round to the nearest 0.001m
HKPD_m	Height above Hong Kong Principal Datum (HKPD) in meter unit	NO	<ul style="list-style-type: none"> ● The decimal place (at-most 0.001m) depended on the accuracy class of levelling survey
CLA_ACURCY	Accuracy class of terrestrial survey	NO	<ul style="list-style-type: none"> ● “N.A.” value would be given if station was measured by GNSS survey. ● For details, please refer to the document “Accuracy Standards of Control Survey (Version 2.0)” from below link: https://www.geodetic.gov.hk/common/data/Specifications/Accuracy%20Standards%20of%20Control%20Survey%20-%20Version%202.0.pdf
LAT_DEG	Degree of latitude (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> ● Only available for stations were conducted by GNSS survey ● Value must be “0” or “22” ● Value “0” was assigned for station without using GNSS survey
LAT_MIN	Minute of latitude (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> ● Only available for stations were conducted by GNSS survey ● Value must be integer and range between 0 and 59 ● Value “0” was assigned for station without using GNSS survey
LAT_SEC	Second of latitude (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> ● Only available for stations were conducted by GNSS survey ● 5 decimal place in maximum and range between 0 and 59.99999 ● Value “0” was assigned for station without using GNSS survey
LONG_DEG	Degree of longitude (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> ● Only available for stations were conducted by GNSS survey ● Value must be “0”, “113” or “114”

Field	Description	Allow Null	Remarks
			<ul style="list-style-type: none"> Value "0" was assigned for station without using GNSS survey
LONG_MIN	Minute of longitude (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> Only available for stations were conducted by GNSS survey Value must be integer and range between 0 and 59 Value "0" was assigned for station without using GNSS survey
LONG_SEC	Second of longitude (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> Only available for stations were conducted by GNSS survey 5 decimal place in maximum and range between 0 and 59.99999 Value "0" was assigned for station without using GNSS survey
WGS_LEVEL	Height above HKPD (ITRF96 Epoch 1998:121)	NO	<ul style="list-style-type: none"> Only available for stations were conducted by GNSS survey Round to the nearest 0.001m Value "0" was assigned for station without using GNSS survey
GPS_ACURCY	Accuracy class of GNSS survey	YES	<p>For details, please refer to the document "Accuracy Standards of Control Survey (Version 2.0)" from below link:</p> <p>https://www.geodetic.gov.hk/common/data/Specifications/Accuracy%20Standards%20of%20Control%20Survey%20-%20Version%202.0.pdf</p>
LEV_ACURCY	Accuracy class of levelling survey	YES	<p>For details, please refer to the document "Accuracy Standards of Control Survey (Version 2.0)" from below link:</p> <p>https://www.geodetic.gov.hk/common/data/Specifications/Accuracy%20Standards%20of%20Control%20Survey%20-%20Version%202.0.pdf</p>
FRAME	GNSS Reference Frame	YES	ITRF96 : ITRF96 epoch 1998:121

Field	Description	Allow Null	Remarks
BY_TRANSFO	Is the HK1980 Grid coordinates transformed from GNSS surveyed geodetic coordinates?	NO	Yes : Station was measured by GNSS survey No : Station was measured by traditional traversing