Survey control points

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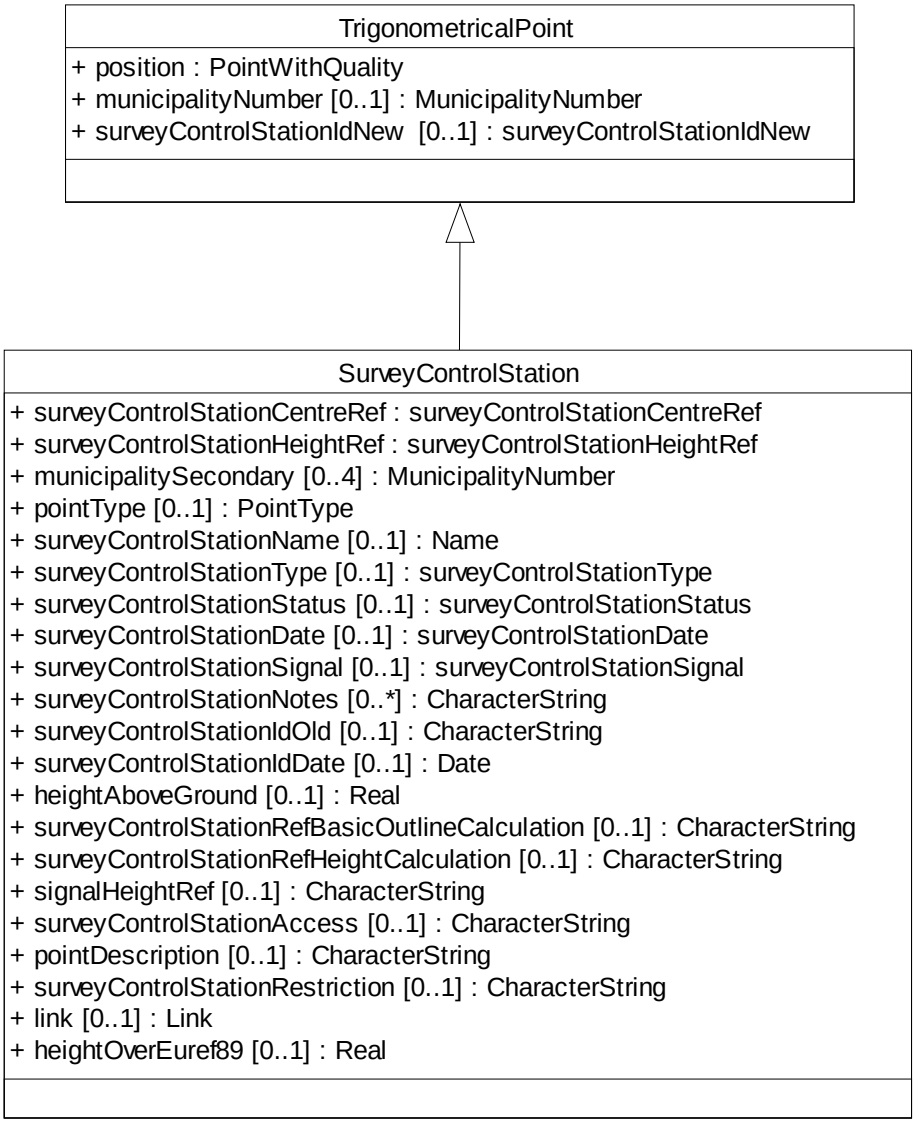
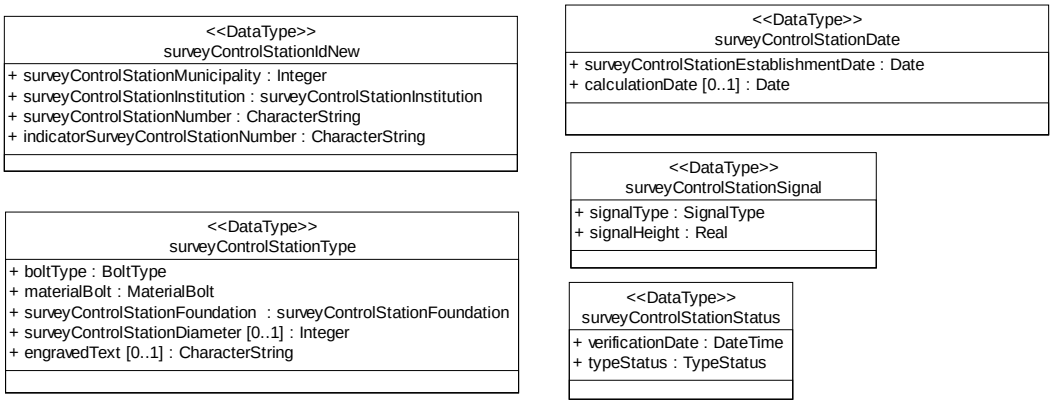
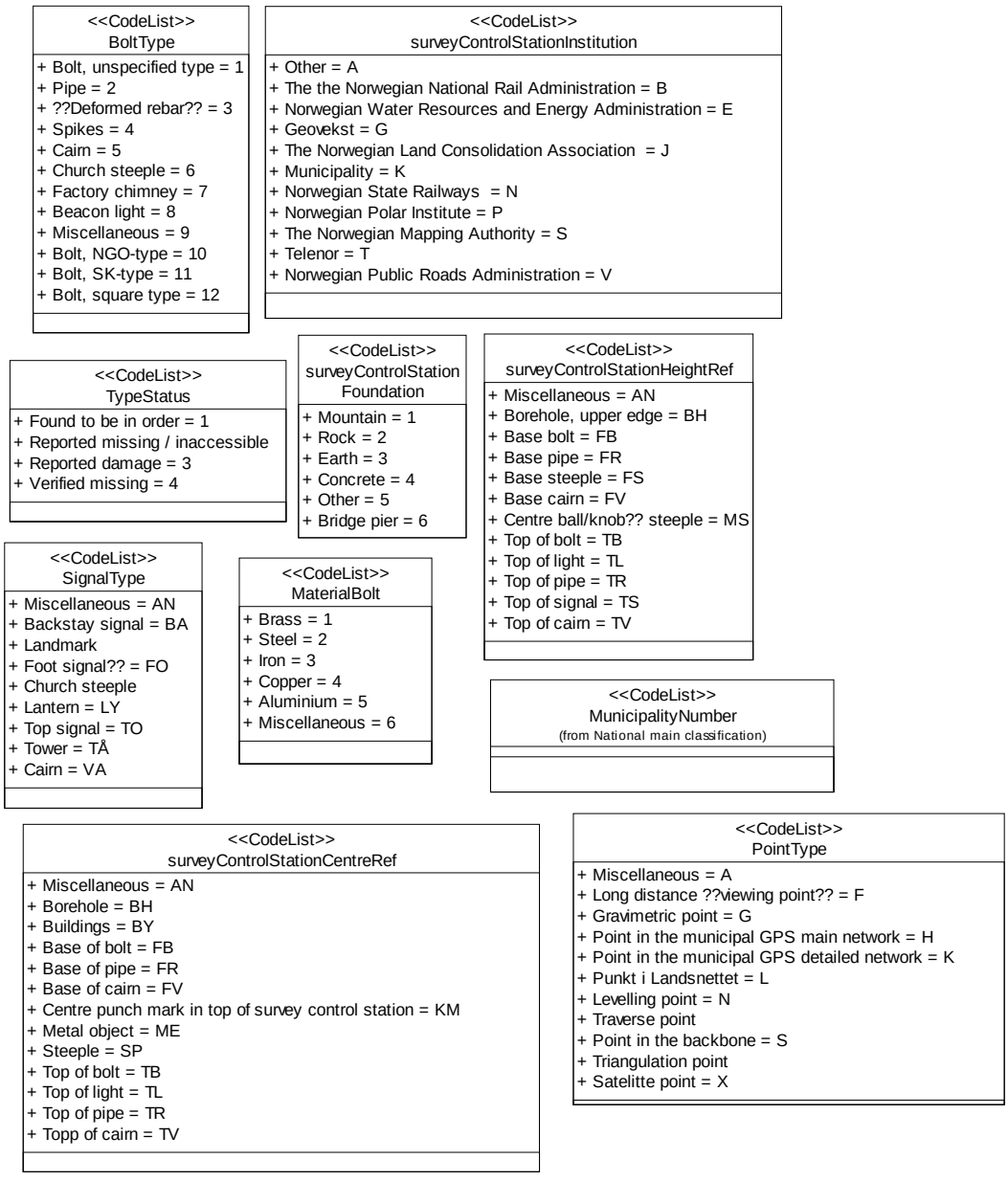
1.1 Application schema



Datatypes


<<DataType>>
surveyControlStationIdNew
+ surveyControlStationMunicipality : Integer
+ surveyControlStationInstitution : surveyControlStationInstitution
+ surveyControlStationNumber : CharacterString
+ indicatorSurveyControlStationNumber : CharacterString
<<DataType>>
surveyControlStationDate
+ surveyControlStationEstablishmentDate : Date
+ calculationDate [0..1] : Date
<<DataType>>
surveyControlStationSignal
+ signalType : SignalType
+ signalHeight : Real
<<DataType>>
surveyControlStationType
+ boltType : BoltType
+ materialBolt : MaterialBolt
+ surveyControlStationFoundation : surveyControlStationFoundation
+ surveyControlStationDiameter [0..1] : Integer
+ engravedText [0..1] : CharacterString
<<DataType>>
surveyControlStationStatus
+ verificationDate : DateTime
+ typeStatus : TypeStatus

Codelists


<<CodeList>>
BoltType
+ Bolt, unspecified type = 1
+ Pipe = 2
+ ??Deformed rebar?? = 3
+ Spikes = 4
+ Cairn = 5
+ Church steeple = 6
+ Factory chimney = 7
+ Beacon light = 8
+ Miscellaneous = 9
+ Bolt, NGO-type = 10
+ Bolt, SK-type = 11
+ Bolt, square type = 12
<<CodeList>>
surveyControlStationInstitution
+ Other = A
+ The the Norwegian National Rail Administration = B
+ Norwegian Water Resources and Energy Administration = E
+ Geovekst = G
+ The Norwegian Land Consolidation Association = J
+ Municipality = K
+ Norwegian State Railways = N
+ Norwegian Polar Institute = P
+ The Norwegian Mapping Authority = S
+ Telenor = T
+ Norwegian Public Roads Administration = V
<<CodeList>>
TypeStatus
+ Found to be in order = 1
+ Reported missing / inaccessible
+ Reported damage = 3
+ Verified missing = 4
<<CodeList>>
surveyControlStation
Foundation
+ Mountain = 1
+ Rock = 2
+ Earth = 3
+ Concrete = 4
+ Other = 5
+ Bridge pier = 6
<<CodeList>>
surveyControlStationHeightRef
+ Miscellaneous = AN
+ Borehole, upper edge = BH
+ Base bolt = FB
+ Base pipe = FR
+ Base steeple = FS
+ Base cairn = FV
+ Centre ball/knob?? steeple = MS
+ Top of bolt = TB
+ Top of light = TL
+ Top of pipe = TR
+ Top of signal = TS
+ Top of cairn = TV
<<CodeList>>
SignalType
+ Miscellaneous = AN
+ Backstay signal = BA
+ Landmark
+ Foot signal?? = FO
+ Church steeple
+ Lantern = LY
+ Top signal = TO
+ Tower = TÅ
+ Cairn = VA
<<CodeList>>
MaterialBolt
+ Brass = 1
+ Steel = 2
+ Iron = 3
+ Copper = 4
+ Aluminium = 5
+ Miscellaneous = 6
<<CodeList>>
MunicipalityNumber
(from National main classification)
<<CodeList>>
surveyControlStationCentreRef
+ Miscellaneous = AN
+ Borehole = BH
+ Buildings = BY
+ Base of bolt = FB
+ Base of pipe = FR
+ Base of cairn = FV
+ Centre punch mark in top of survey control station = KM
+ Metal object = ME
+ Steeple = SP
+ Top of bolt = TB
+ Top of light = TL
+ Top of pipe = TR
+ Topp of cairn = TV
<<CodeList>>
PointType
+ Miscellaneous = A
+ Long distance ??viewing point?? = F
+ Gravimetric point = G
+ Point in the municipal GPS main network = H
+ Point in the municipal GPS detailed network = K
+ Punkt i Landsnettet = L
+ Levelling point = N
+ Traverse point
+ Point in the backbone = S
+ Triangulation point
+ Satelitte point = X

1.2 Description

1.2.1 SurveyControlStation

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
1	Class SurveyControlStation	permanently marked point, marked with a bolt or other mark in which the plane coordinates and/or height are determined, or are planned to be determined in a geodesic system				Subtype of TrigonometricalPoint
1.1	surveyControlStationCentreRef	description of the point of the centre reference, i.e. to what on the survey control station do the north and east coordinates refer Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.16	1	1	surveyControlStationCentreRef	
1.2	surveyControlStationHeightRef		1	1	surveyControlStationHeightRef	
1.3	municipalitySecondary	secondary municipality, i.e. a municipality which is not perceived as the main municipality Note: If a survey control station is located close to a municipality boundary causing it to belong to several municipalities, the primary municipality will be stated under the general element MUN, while the remaining	0	4	MunicipalityNumber	
1.4	pointType	description of the point type of the survey control station Note: In the norm for survey control station register and survey control station number, point type has the codes P, Q and R depending on the number itself. In this standard, the point type P is used for the	0	1	PointType	

		polygon point regardless of the number.				
1.5	surveyControlStationName	the name of the survey control station upon registration. This is not necessarily the official place name for the area Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.2).	0	1	Name	
1.6	surveyControlStationType	information on what type of point the survey control station consists of (the survey control station's physical attributes), such as bolt type, material, dimension and anyi engravings	0	1	surveyControlStationType	
1.7	surveyControlStationStatus	status of the survey control station Note: For more information, see the standard survey control station numbering and survey control station register.	0	1	surveyControlStationStatus	
1.8	surveyControlStationDate	information on when the point was established and the coordinate calculation was completed	0	1	surveyControlStationDate	
1.9	surveyControlStationSignal	information on signal type as well as the signal' s height	0	1	surveyControlStationSignal	
1.10	surveyControlStationNotes	notes on survey control station. May be used for information on the survey control station when the information does not naturally belong elsewhere Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.39).	0	N	CharacterString	
1.11	surveyControlStationIdOld	former survey control station identity, often as a	0	1	CharacterString	

		number Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.8)				
1.12	surveyControlStationIdDate	date of amendment of the current survey control station number Note: Is used only when surveyControlStationIdOld exists. For more information, see standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.9).	0	1	Date	
1.13	heightAboveGround	the object's height above the ground	0	1	Real	
1.14	surveyControlStationRefBasicOutlineCalculation	reference to to where the calculations of north and east coordinates are filed. Can also be given as a URL Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.22)	0	1	CharacterString	
1.15	surveyControlStationRefHeightCalculation	reference to where calculations of the height are filed. Can also be given as a URL Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.29)	0	1	CharacterString	
1.16	signalHeightRef	indication of ??boning rod(s) / sighting target(s) on the signal Note: For more information, see the standard survey control	0	1	CharacterString	

		station numbering and survey control station register, information in connection with a survey control station (5.1.1.34)				
1.17	surveyControlStationAccess	description of the easiest access to the survey control station Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.35)	0	1	CharacterString	
1.18	pointDescription	location of the survey control station in relation to the surroundings Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.36).	0	1	CharacterString	
1.19	surveyControlStationRestriction	description of restrictions on use, such as internal use or resale, or whom to contact if the accessibility to the survey control station is restricted	0	1	CharacterString	
1.20	link	URL/URI for relevant document, picture, video, etc.	0	1	Link	
1.21	heightOverEuref89	height as a decimal number in metres over the ellipsoid determined for EUREF89	0	1	Real	

1.2.2 <<DataType>> surveyControlStationDate

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
2	Datatype surveyControlStationDate	information on when the point was established and the coordinate calculation was completed				
2.1	surveyControlStationEstablishmentDate	date of establishment of survey control station Note: For more information, see the standard survey control station numbering and	1	1	Date	

		survey control station register, information in connection with a survey control station (5.1.1.6).				
2.2	calculationDate	date of calculation of survey control station Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.17).	0	1	Date	

1.2.3 <<DataType>> surveyControlStationIdNew

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
3	Datatype surveyControlStationIdNew	identification of a survey control station Note 1: Consists of the original municipality number, institution/agency, the actual survey control station number, as well as an indicator. This attribute is the primary key for survey control stations Note 2: For more information, see also the standard: survey control station number				
3.1	surveyControlStationMunicipality	municipality number, follows the point throughout its entire lifetime, and will not be changed in the event of municipal adjustments/mergers Note: Always leading zero [for values < 1000].	1	1	Integer	
3.2	surveyControlStationInstitution	designation of the insitution that has established the survey control station Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.	1	1	surveyControlStationInstitution	
3.3	surveyControlStationNumber	unique number. The first position is a character	1	1	CharacterString	

		(digit, letter or other character). The next four positions may be digits or a combination of digits and letters Note: For more information, see the standard survey control station numbering and survey c				
3.4	indicatorSurveyControlStationNumber	indicator ??where 1 character, preferably digit, 0 for centre reference, 1-9 for eccentric survey control stations Can also be the letters A-Z (not including Æ, æ, Ø, ø, Å, å). Accepted as part of a quadrangle number Note: For more information, see the	1	1	CharacterString	

1.2.4 <<DataType>> surveyControlStationSignal

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
4	Datatype surveyControlStationSignal	information on signal type, as well as the signal's height				
4.1	signalType	type of survey control station signal Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.32)	1	1	SignalType	
4.2	signalHeight	the signal " height over the survey control station" height reference in metres Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control stat	1	1	Real	

1.2.5 <<DataType>> surveyControlStationStatus

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
5	Datatype surveyControlSta	status of the survey control station Note: For more				

	tionStatus	information, see the standard survey control station numbering and survey control station register.				
5.1	verificationDate	date when it is established that the data conform to reality Note: Verification date is identical to ..DATE in previous versions of SOSI	1	1	DateTime	
5.2	typeStatus	designation of the survey control station's status	1	1	TypeStatus	

1.2.6 <<DataType>> surveyControlStationType

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
6	Datatype surveyControlStationType	information on what type of point the survey control station consists of				
6.1	boltType	type of bolt Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.10).	1	1	BoltType	
6.2	materialBolt	type of material of which the bolt is made Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.11).	1	1	MaterialBolt	
6.3	surveyControlStationFoundation	type of foundation where the survey control station is located Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.13)	1	1	surveyControlStationFoundation	
6.4	surveyControlStationDiameter	diameter in mm Note: For more information, see the standard survey control station numbering and survey control station register, information in	0	1	Integer	

		connection with a survey control station (5.1.1.12B).				
6.5	engravedText	inscription if text/number/character is engraved, or otherwise imprinted on a survey control station Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.11B).	0	1	CharacterString	

1.2.7 TrigonometricalPoint

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
7	Class TrigonometricalPoint	permanently marked point, marked with a bolt or other mark in which the plane coordinates and/or height are determined in a Trigonometrical network in a geodetic system				
7.1	position	location where the object exists	1	1	PointWithQuality	
7.2	municipalityNumber	angivelse av hvilke kommune punktet ligger innenfor Merknad: Statistisk sentralbyrå har en offisiell liste over kommunenummer hvor de to første siffer er fylkesnummer og de to siste kommunenummer innen fylket.	0	1	MunicipalityNumber	
7.3	surveyControlStationIdNew	identification of the survey control station, originally consisting of the municipality number, institution/department, the actual survey control station number, as well as an indicator. This attribute is the primary key for survey control stations Note 1: For more information, see the standard for survey control station numbering	0	1	surveyControlStationIdNew	

1.2.7.1 <<CodeList>> BoltType

Nr	Code name	Definition/Description	Code
1	CodeList BoltType	type of bolt Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.10).	
1.1	Bolt, unspecified type		1
1.2	Pipe		2
1.3	??Deformed rebar??		3
1.4	Spikes		4
1.5	Cairn		5
1.6	Church steeple		6
1.7	Factory chimney		7
1.8	Beacon light		8
1.9	Miscellaneous		9
1.10	Bolt, NGO-type		10
1.11	Bolt, SK-type		11
1.12	Bolt, square type		12

1.2.7.2 <<CodeList>> surveyControlStationInstitution

Nr	Code name	Definition/Description	Code
2	CodeList surveyControlStationInstitution	designation of the insitution that has established the survey control station Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.5)	
2.1	Other		A
2.2	The the Norwegian National Rail Administration		B
2.3	Norwegian Water Resources and Energy Administration		E
2.4	Geovekst		G
2.5	The Norwegian Land Consolidation Association		J
2.6	Municipality		K

2.7	Norwegian State Railways		N
2.8	Norwegian Polar Institute		P
2.9	The Norwegian Mapping Authority		S
2.10	Telenor		T
2.11	Norwegian Public Roads Administration		V

1.2.7.3 <<CodeList>> surveyControlStationCentreRef

Nr	Code name	Definition/Description	Code
3	CodeList surveyControlStationCentreRef	description of the point for the centre reference, i.e. to what on the survey control station do the north and east coordinates refer Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.16)	
3.1	Miscellaneous		AN
3.2	Borehole		BH
3.3	Buildings	FF-To be specified in the comment field: FMMERK	BY
3.4	Base of bolt		FB
3.5	Base of pipe		FR
3.6	Base of cairn		FV
3.7	Centre punch mark in top of survey control station		KM
3.8	Metal object		ME
3.9	Steeple		SP
3.10	Top of bolt		TB
3.11	Top of light		TL
3.12	Top of pipe		TR
3.13	Topp of cairn		TV

1.2.7.4 <<CodeList>> surveyControlStationHeightRef

Nr	Code name	Definition/Description	Code
4	CodeList surveyControlStationHeightRef	description of point for height references, i.e. what the height refers to Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.26).	
4.1	Miscellaneous		AN
4.2	Borehole, upper edge		BH

4.3	Base bolt		FB
4.4	Base pipe		FR
4.5	Base steeple		FS
4.6	Base cairn		FV
4.7	Centre ball/knob?? steeple		MS
4.8	Top of bolt		TB
4.9	Top of light		TL
4.10	Top of pipe		TR
4.11	Top of signal		TS
4.12	Top of cairn		TV

1.2.7.5 <<CodeList>> surveyControlStationFoundation

Nr	Code name	Definition/Description	Code
5	CodeList surveyControlStationFoundation	type of foundation for the survey control station Note: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.13)	
5.1	Mountain		1
5.2	Rock		2
5.3	Earth		3
5.4	Concrete		4
5.5	Other		5
5.6	Bridge pier		6

1.2.7.6 <<CodeList>> MaterialBolt

Nr	Code name	Definition/Description	Code
6	CodeList MaterialBolt	type of material for the bolt ote: For more information, see the standard survey control station numbering and survey control station register, information in connection with a survey control station (5.1.1.11).	
6.1	Brass		1
6.2	Steel		2
6.3	Iron		3
6.4	Copper		4
6.5	Aluminium		5
6.6	Miscellaneous		6

1.2.7.7 <<CodeList>> PointType

Nr	Code name	Definition/Description	Code
7	CodeList PointType	description of the point type of the survey control station Note: In the norm for survey control station register and survey control station number, point type has the codes P, Q and R depending on the actual number. In this standard, the point type P is used for the traverse point regardless of the number.	
7.1	Miscellaneous		A
7.2	Long distance ??viewing point??	Note: No longer photogrammetric point	F
7.3	Gravimetric point		G
7.4	Point in the municipal GPS main network		H
7.5	Point in the municipal GPS detailed network		K
7.6	Punkt i Landsnettet		L
7.7	Levelling point		N
7.8	Traverse point		
7.9	Point in the backbone		S
7.10	Triangulation point		
7.11	Satelitte point		X

1.2.7.8 <<CodeList>> SignalType

Nr	Code name	Definition/Description	Code
8	CodeList SignalType	the signal type of the survey control station	
8.1	Miscellaneous		AN
8.2	Backstay signal		BA
8.3	Landmark		
8.4	Foot signal??		FO
8.5	Church steeple		
8.6	Lantern		LY
8.7	Top signal		TO
8.8	Tower		TÅ
8.9	Cairn		VA

1.2.7.9 <<CodeList>> TypeStatus

Nr	Code name	Definition/Description	Code
9	CodeList TypeStatus	status of the survey control station Note: For more information, see the standard survey control station numbering and survey control station register.	
9.1	Found to be in order		1
9.2	Reported missing / inaccessible		
9.3	Reported damage		3
9.4	Verified missing		4