



Road Survey Guide

NOTE:

This document is a Controller of Surveys Policy manual to be used as a general guideline for the preparation and examination of road survey plans. The document is intended to provide practical and efficient methods for conducting Legal Surveys that satisfy the needs of all stakeholders and to continue to contribute to the preservation of the Saskatchewan Legal Survey System. Reference should still be made to the various Acts and Regulations pertaining to specific situations which may or may not be included in this document.

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Table of Contents

Overview	5
Part I - General Requirements	6
1. <i>Monuments</i>	6
2. <i>Reference Monuments</i>	6
3. <i>Marker Posts</i>	7
4. <i>Options for Surveys</i>	8
5. <i>Survey Connections</i>	8
6. <i>Re-establishments</i>	9
7. <i>Curves</i>	11
8. <i>Correction Line</i>	13
9. <i>Tolerances</i>	13
10. <i>Errors</i>	13
11. <i>Plan Submission</i>	13
Part II - Surface Road Right of Way Surveys	15
1. <i>Monuments</i>	15
2. <i>Deflections</i>	15
3. <i>Alternate Direction</i>	16
4. <i>Unposted Parcels</i>	16
5. <i>DPI Plan</i>	17
6. <i>River Lots</i>	18
7. <i>Correction Lines</i>	18
8. <i>Posting Both Limits</i>	19
9. <i>Dual Laning</i>	19
10. <i>Extra Width or Restrictions</i>	20
11. <i>Numbering Monuments</i>	21
12. <i>Curves</i>	21
13. <i>Obstructions</i>	22
14. <i>Unposted Limit</i>	23
15. <i>Subdivision and Right of Ways</i>	26

16.	<i>Reference Monuments</i>	27
17.	<i>Primary Monuments</i>	29
18.	<i>Blind Line</i>	29
19.	<i>Quarter Lines</i>	30
20.	<i>Cross Country Roads</i>	32
21.	<i>Water Boundaries</i>	33
22.	<i>Terminating in Interior of Quarter</i>	34
23.	<i>Road Diversions</i>	35
24.	<i>Severing a Road Allowance</i>	36
Part III – Northern Road Right of Way Surveys		37
	<i>Methods and Accuracy</i>	37
1.	Tolerances.....	37
2.	Azimuth	37
3.	Coordinate Values	37
4.	Heights.....	37
5.	Monument Type	38
6.	Monument Number.....	38
7.	Station Description	38
8.	Monument Condition.....	38
	<i>Connections</i>	39
9.	CSRS Connections	39
10.	Legal Survey Connections.....	40
11.	Permanent Structures	40
	<i>Measurements</i>	41
12.	GPS.....	41
13.	Units.....	41
	<i>Legal Surveys</i>	41
14.	Procedures	41
15.	Curves.....	41
16.	Monuments	41
17.	Monument Exceptions.....	41
18.	Topographical Features	42
19.	Geodetic Tolerances	42
Part IV – Public Improvement Surveys		43
1.	<i>Monuments</i>	43
2.	<i>Curve Intersection</i>	43
3.	<i>Monument Numbering</i>	43

4. Obstructions.....	43
Part V – Road Reference Surveys.....	44
<i>Reference Surveys on Road Allowance.....</i>	<i>44</i>
1. Monuments.....	44
2. Reference Monuments.....	44
3. Alternate Direction.....	45
4. Correction Lines and Range Lines.....	45
<i>Reference Surveys on Existing Road and Right of Way Plans.....</i>	<i>46</i>
5. Reference Monuments.....	46
6. Primary Monuments.....	46
7. Secondary Monuments.....	47
8. Intermediate Monuments.....	47
9. Correction of Monuments.....	48
Part VI – Feature Road Easement Surveys.....	49
Overview.....	49
1. Right of Way Limits – Parallel and Not Parallel.....	49
2. Crossing Previous Surveys.....	50
Part VII – Plans of Survey (Federal).....	51
Title Block.....	51
1. Heading.....	51
2. Legend.....	51
3. Support Documents.....	51
Part VIII – Plans of Survey (Combined Purpose Plans).....	52
Title Block.....	52
1. Heading.....	52
2. Legend.....	53
Plan Guidelines.....	54
1. Size Restrictions.....	54
2. Borders.....	54
3. Title Blocks.....	54
4. Scales.....	54
5. Quality.....	54
6. Line Types.....	54
7. Key Plans.....	55
8. Adjacent Parcel Information.....	55
9. Text Sizes.....	55
10. Abbreviations.....	56
11. North Arrows.....	56

<i>General Plan Requirements</i>	56
1. Lettering Sizes	56
2. Notations.....	57
3. Details.....	57
4. Curve Information and Intersections	58
5. Areas.....	60
6. Parcel Designations	61
7. Natural Boundaries (Water).....	63
<i>Miscellaneous</i>	65
1. Street Names.....	65
2. Railways	65
3. Widths of Right of Way.....	65
4. Angular Measurements.....	65
5. Intersections.....	65
6. Common Monuments	65
7. Plans Shown	66
8. Breaks on Plan	66
<i>Road Reference Survey Plans</i>	66
1. Plan Sizes.....	66
<i>Support Documents</i>	66
1. Highway Right of Way and Public Improvement Surveys	66
2. RM Roadway.....	67
3. Road Easement Surveys	68
4. Reference Surveys	68

Overview

This edition of the Road Survey Guide has been produced to replace the previous edition of the Road Survey Guide, dated April 21, 2011, and includes the following change:

- Title Block preparation and support documentation requirements to be consistent with the requirements for Subdivision Plans.

The Road Survey Guide dated April 21, 2011 that replaced the previous Manual of Instructions, dated April 1999, included the following changes:

- General simplification and standardization of field survey procedures and plan preparation. The requirements set out in this manual cover roads surveyed for the Ministry of Highways and Infrastructure and roads surveyed for the Rural Municipalities.
- Provisions to accommodate changes to plans resulting from the new LAND Project implemented in 2001.
- New category for Road Easements, which will allow clients to register easements against titled parcels.
- The category called Maintenance Surveys in the previous manual has been changed to Reference Surveys to reflect the plan purpose that is currently available within the Land Surveys Directory.
- Reference Monuments, referencing the road monuments, are only required where the primary corners fall within the new road right of way.

The goal of this manual is to provide practical and efficient methods for conducting Legal Surveys that satisfy the needs of all stakeholders and continues to contribute to the preservation of the Province's Legal Survey System.

In some cases adherence to the provisions in the manual may be impractical or impossible because of field conditions or other statutory requirements. The onus is on the Land Surveyor to consult with the Controller of Surveys in such cases.

Part I - General Requirements

These general requirements are to be used in conjunction with all types of surveys set out in this manual.

1. Monuments

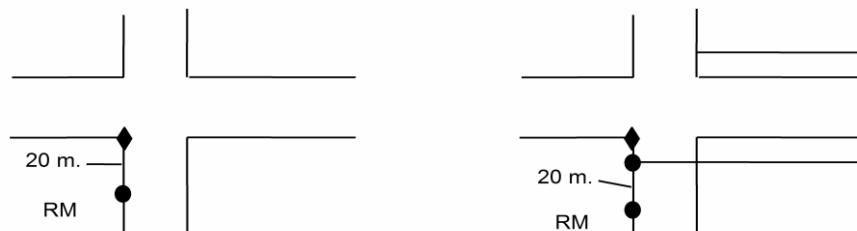
Monuments

- a) A monument in this manual shall consist of a standard iron post as defined in the regulations under *The Land Surveys Act, 2000*.
- b) In all cases monuments shall be buried a minimum of 0.15 metres below ground level unless field conditions dictate otherwise.
- c) Where a monument cannot be established due to a natural or manmade feature or the position is hazardous, the position shall be referenced by a monument at a suitable distance and the said distance shown on the plan of survey.

2. Reference Monuments

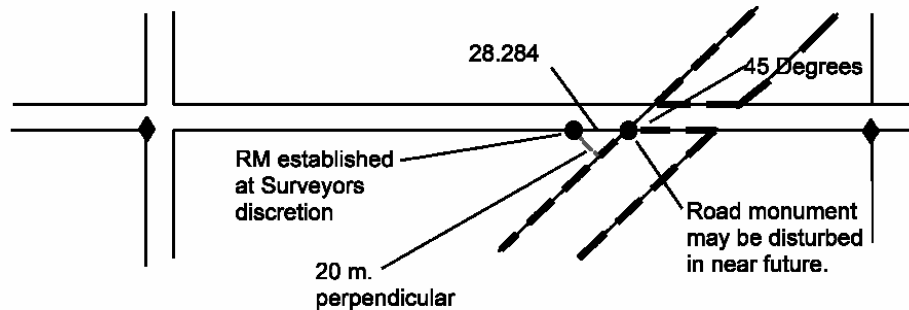
Reference Monuments

- a) A reference monument in this manual shall consist of a standard iron post as defined in the regulations under *The Land Surveys Act, 2000*.
- b) Reference monuments shall be marked “RM”.
- c) The reference distance shall be established at 20 metres and shall be increased or decreased only if field conditions dictate otherwise.
- d) Governing monument
 - i. The reference monument shall govern the position of the primary monument or road right of way monument which references a primary monument, except in the case where the original monument is found, in which case the original monument shall govern.



- ii. Should any discrepancies arise from sub-section 2 (d)(i) above, the error shall be noted, the reference monument corrected and a full report submitted to the Controller of Surveys office.

- e) Additional reference monuments may be established opposite secondary monuments at a distance of 20 metres in perpendicular distance from the limit of the line being referenced at the discretion of the surveyor. A situation where this may apply is when the road monument falls in a position that may be disturbed by construction. The location of the reference monument shall not be on private property or deemed to be in a hazardous position.



3. Marker Posts

Marker
Posts

- a) A marker in this manual shall consist of a marker post as defined in the regulations under *The Land Surveys Act, 2000*.
- b) A marker may be placed at all found, established or re-established monuments except as stated in Sub-sections 3(d), (e) and (f) of this Part. If it is not possible to place a marker, a note may be placed on the plan of survey stating the reason. eg: Pl. I.P. R1 in cult or Pl. I.P. R1 in hazardous position.
- c) When markers are used:
- i. The marker shall be placed approximately 0.30 metres inside the surveyed right of way at approximately 90 degrees to the bearing of the new survey. In the case of a Public Improvement, the marker shall be placed 0.30 metres inside the parcel at approximately $\frac{1}{2}$ the deflection angle.
 - ii. Where topography prevents the placement of a marker as outlined in Sub-section 3. (c) (i), of this Part, the marker shall be placed on either side of the monument on the surveyed line and as close to the monument as reasonably possible, and the said distance shown on the plan of survey, e.g. - Mr. 1 metre N.
- d) In no case shall a marker be placed at a reference monument or on private property except at the quarter section corner where there is no road allowance (blind line).
- e) Markers may be omitted in areas of cultivation or where in the opinion of the Surveyor the marker may be hazardous. Markers may also be omitted in developed urban areas where, in the opinion of the Surveyor, property boundaries are evident.

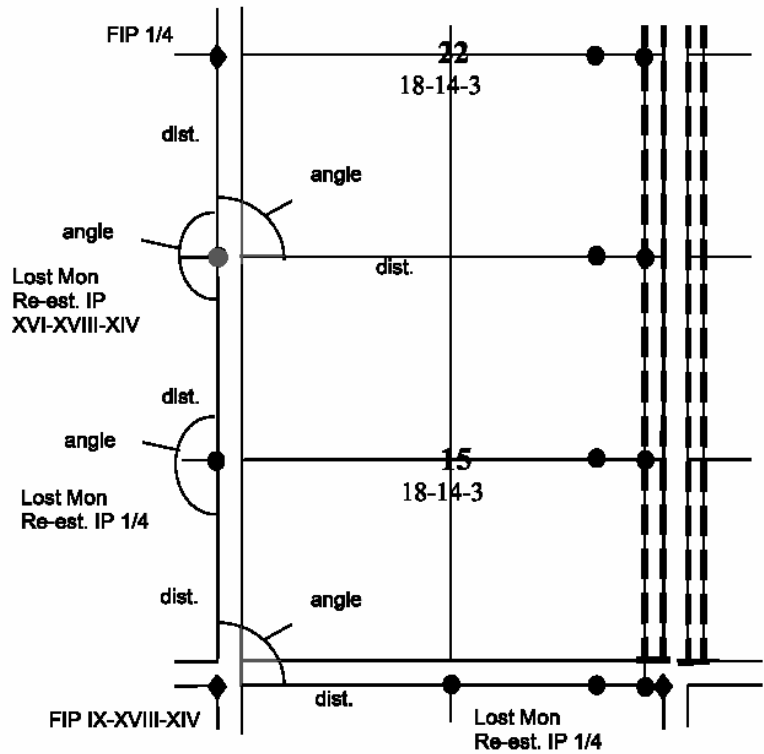
- f) Where there are several road monuments in the same immediate area, the Surveyor may omit all but one marker.

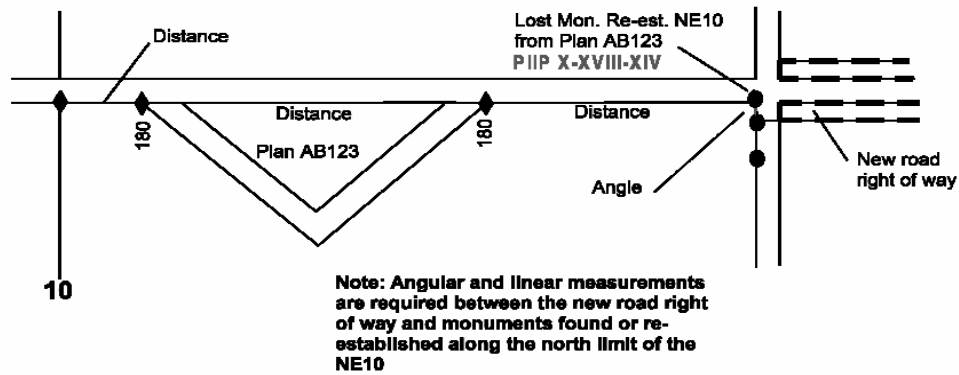
4. Options for Surveys

All Road Right of Way Surveys, Reference Surveys and Easement Surveys may be completed prior to or after road construction at the Surveyor's discretion. A minimum of two monuments shall be established at all primary corners, being the primary and road monument or the reference and road monument. This does not apply for after construction surveys where the primary is not required to be re-established or a reference monument established. An after construction survey will require a reference monument to be established when the line the reference monument is established on is surveyed for re-establishment purposes.

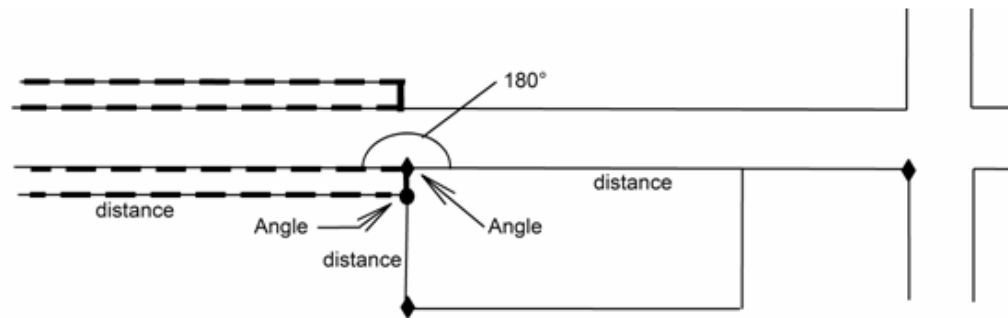
5. Survey Connections

- a) When it is necessary to re-establish monuments required for the new survey, angular and linear measurements are required from the re-establishment to the new survey.





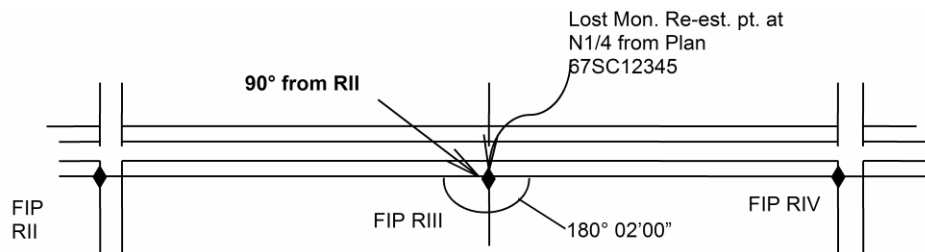
- b) Where a new survey begins or terminates at a surveyed limit, an angular and linear measurement shall be secured between the surveys and shown on the plan.



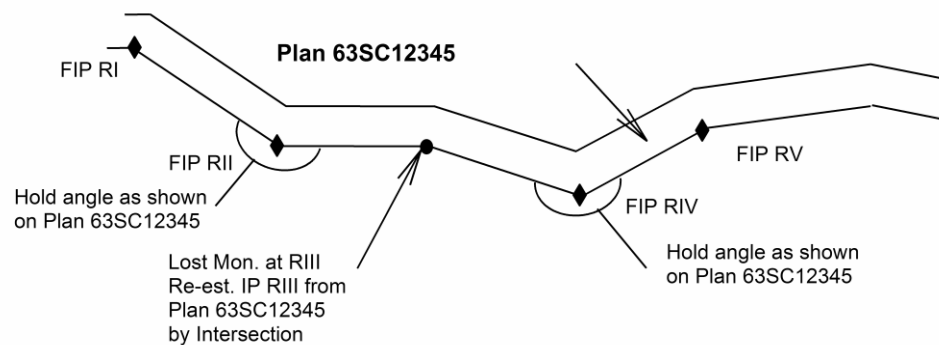
6. Re-establishments

Re-establishments

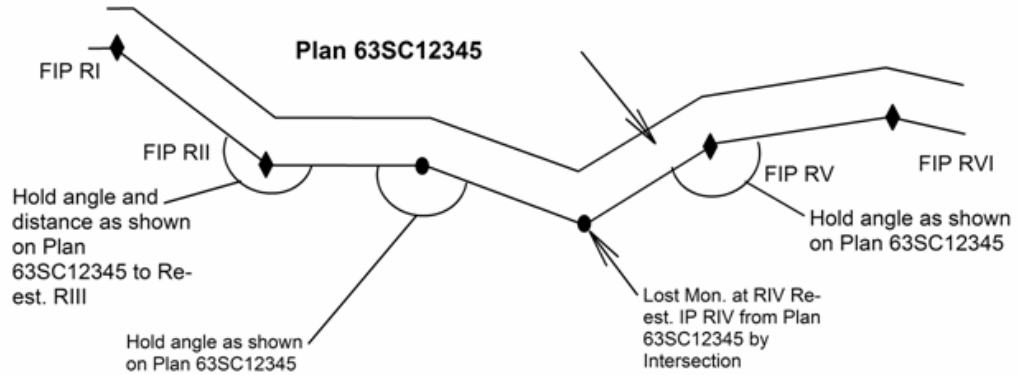
- a) When re-establishing the position of a primary corner from a road monument that was originally established at 90° to the primary corner, the 90° angle shall be taken from the direction of the lower marked road monument.



- b) When it is necessary to define the boundary of a surveyed road and it is not possible to find a monument at any change in direction, the monument shall be re-established in accordance with the following:
- i. Where a monument is lost the surveyor shall obtain the best evidence possible of its original position and erect a new monument at its location.
 - ii. Where a monument is lost and no evidence can be obtained as to its original position, the surveyor shall locate on the ground two adjacent monuments on each side of the lost monument and shall assume the straight lines between these monuments to have bearings given them on the plan of survey and from these bearings the surveyor shall locate on the ground the intersection of the courses of the road on each side of the lost monument, giving to each the bearing shown on the plan of survey, and the intersection of the two courses so located shall be the true corner whether or not the chainage obtained for the same agrees with the chainage on the plan.



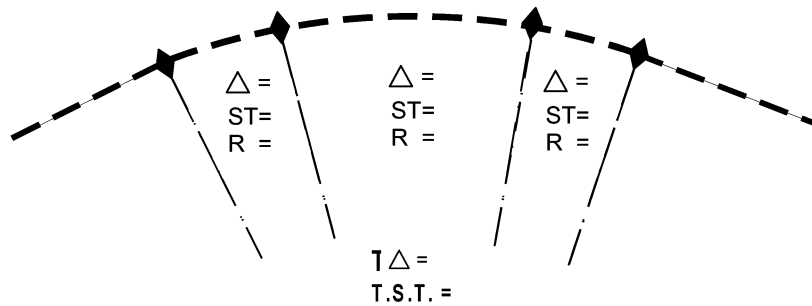
- c) Where two or more consecutive monuments are lost the surveyor shall locate on the ground the two adjacent monuments preceding in notation the lost monument marked with the smallest number, and shall assume the straight line thus established to have the bearing given to it on the plan of survey. The surveyor shall then re-establish the lost monuments in order by giving to each course the bearing and chainage shown on the plan of survey, erecting in each case a monument until there remains only one lost monument to be re-established when the surveyor shall proceed as under subsection (ii) of this section.



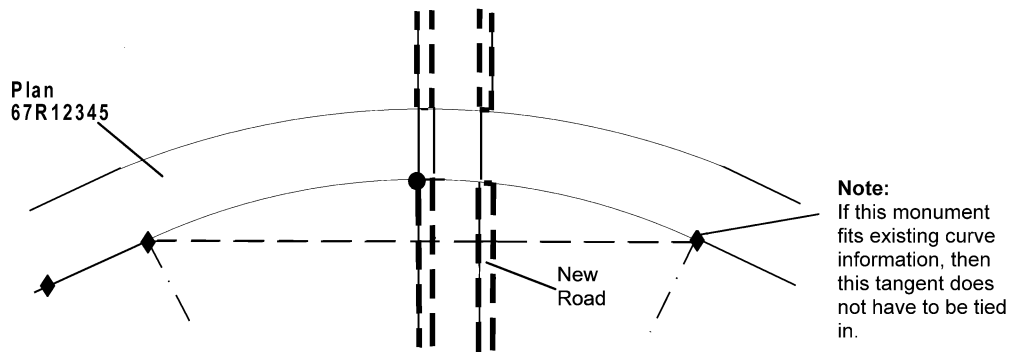
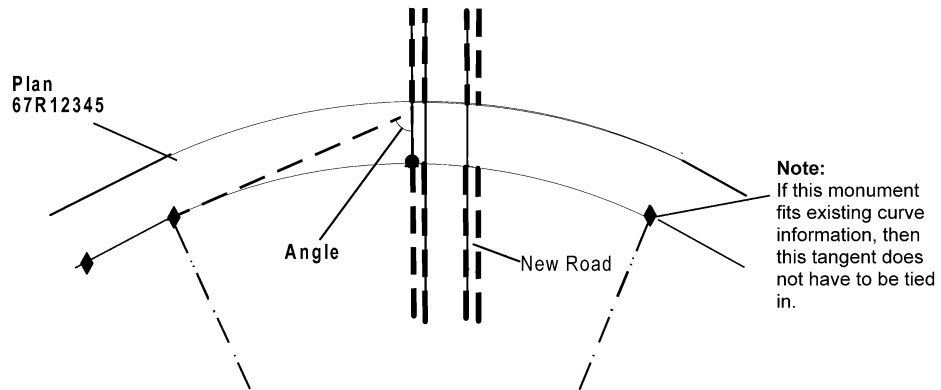
7. Curves

Curves

- a) When re-surveying replacement curves for constructed spiral curves which were based on prescribed tables (Arc definition), the curves shall be resurveyed as compound curves showing complete curve information for each curve and a total delta and total sub-tangent.



- b) When intersecting an existing curve or when it is necessary to re-establish one end of a curve, a minimum of two curve monuments and one tangent shall be found or re-established to verify the existing curve information.

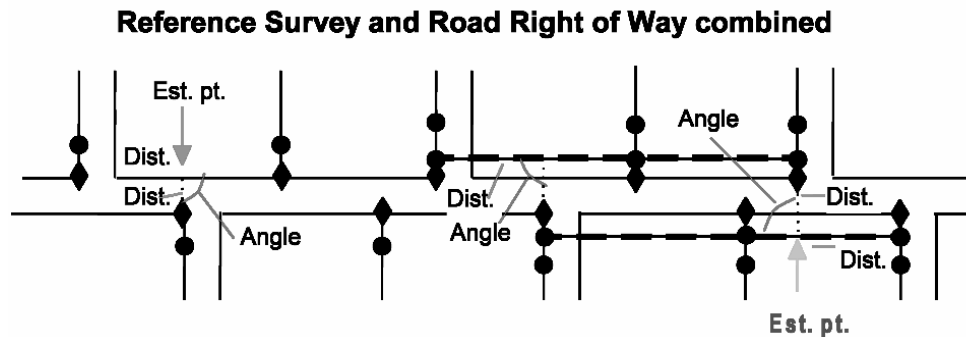


- c) Where a simple curve ends at a line that is not tangent to the curve, the angle between that line and radius shall be shown.

Non-Tangential

8. Correction Line

When a survey is performed adjacent to a correction line or where there is a change in systems of survey, angular and linear measurements shall be secured at each end of the survey and at least once every mile to connect the two survey limits. Monuments do not need to be established at the points where the section lines are projected to intersect the limit of the survey.



9. Tolerances

- a) For Accuracy Standards refer to Policy GO-06/002 Survey Accuracy Standards on the ISC Website
- b) Non-closures with the Surveyor's own measurements combined with the measurements of previous surveys shall meet the requirements as stated in Section 29(3) of *The Land Surveys Regulations*.

10. Errors

When a survey is performed, where a previously surveyed road right of way plan exists and numerous significant errors have been detected on the plan such that a resurvey of a portion or all of the plan is required to confirm the position of certain corners, the Surveyor shall resurvey a portion or all of the plan. The portion or the entire previous plan surveyed will then be abandoned in lieu of the new plan.

11. Plan Submission

- a) All plans of survey prepared in accordance with this manual shall be submitted to the Controller of Surveys for examination and approval. The Controller may approve plans that do not conform to this manual where special or peculiar circumstances exist justifying a departure from the same.

- b) The plan of survey shall be accompanied by a Surveyor's Report. The report shall contain all information that may be pertinent to the plan of survey and shall describe any unusual survey procedures or survey evidence used in the re-establishment of monuments.

Part II - Surface Road Right of Way Surveys

The purpose of a surface road right of way survey is to physically establish the limits of the new road and adjacent private and public property boundaries and to ensure the necessary right of way interests are vested and show new areas taken for roadway. The plan of survey is prepared to reflect the survey. During the course of performing the legal survey, reference monuments are established to reference the position of the primary monuments, which may be destroyed during road construction. These reference monuments also enable Reference Surveys to be conducted in the future.

1. Monuments

Monuments

Road right of ways shall be marked on the ground by establishing monuments on the westerly and southerly limit thereof, wherever possible, and at every change in direction, at the intersection of a section line, previously surveyed line, and the intersection with the monumented limit of a previously registered survey. All measurements shall be made in reference to the monumented limit of the road right of way.

2. Deflections

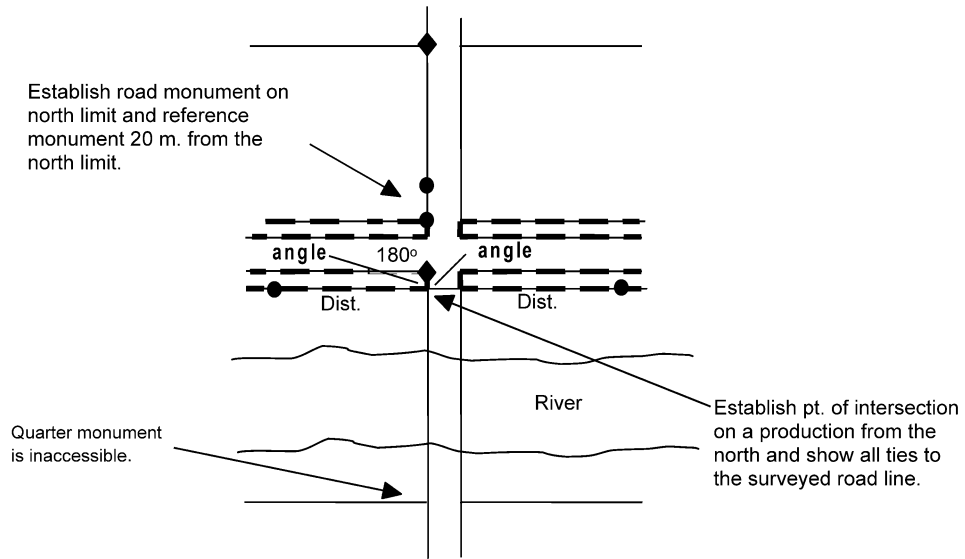
Deflections

A road right of way monument marking a deflection point shall be extended to the nearest section line or quarter section line where possible. If the deflection is too large to allow this, a suitable location shall be located, if conditions permit, so that the monument shall not be disturbed by construction.

3. Alternate Direction

Alternate Direction

Where special circumstances exist, monuments may be established on limits other than those prescribed in Section 1 of this Part.



4. Unposted Parcels

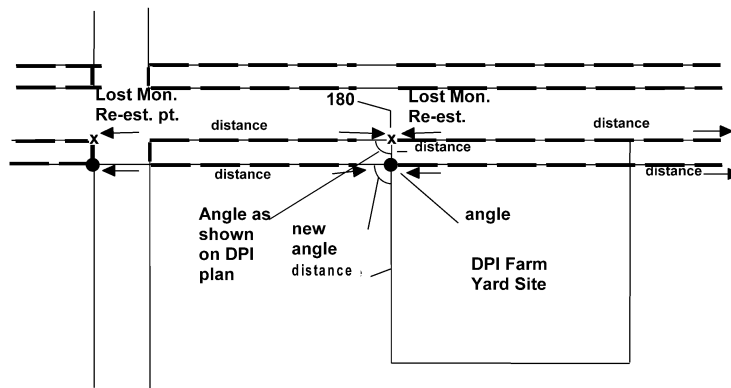
Unposted Parcels

Where a new road right of way intersects a parcel that is not defined by a plan of survey (Metes and Bounds parcel), the intersections shall not be monumented. Filed and non-titled plans shall not be intersected or tied in unless required for re-establishment purposes (filed plans shall be shown as dashed lines on the plan).

5. DPI Plan

Where a new road right of way intersects a parcel that is defined by a Descriptive Plan Type I (DPI) Farm Yard Site, the intersections shall be monumented as follows:

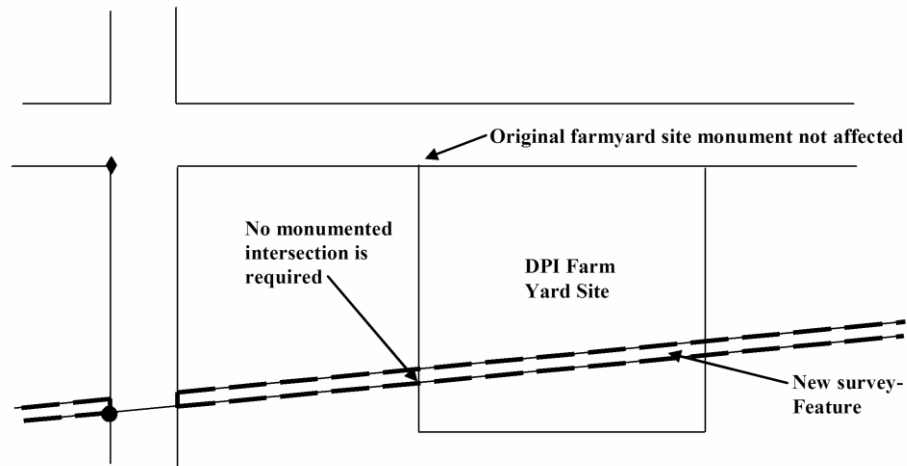
- a) The status of the monument, previously established on the corner of the DPI Farm Yard Site, shall be shown on the new plan. A standard iron post shall be established at the intersection of the monumented limit of the DPI Farm Yard Site with the limit of the new survey.
- b) Angles and distances shall be shown on all sides of the intersecting point on the new plan of survey.



- c) Where the unmonumented limit of the new survey intersects the DPI Farm Yard Site, a standard iron post shall be established on the limit of the new survey referencing the intersection point.

Angles and distances shall be shown on all sides of the intersecting point on the new plan of survey.

- d) Intersections are not required if the original corner monument on the DPI Farm Yard Site is not affected by the new survey.



6. River Lots

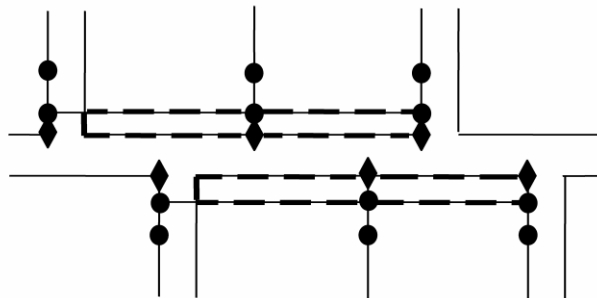
River Lots

Where the new road right of way passes through river lots, intersections are required on surveyed river lot lines.

7. Correction Lines

Correction Lines

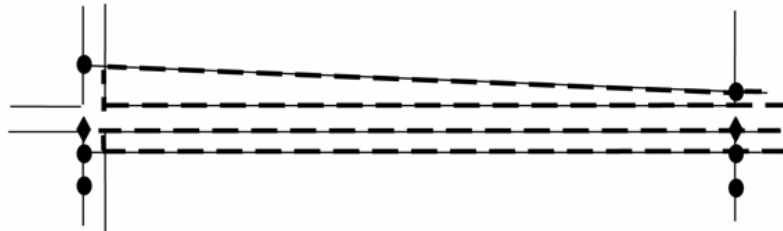
Where a new road right of way follows a correction line or where there is a change of systems of surveys, both limits are to be considered separate survey lines and shall be monumented and numbered separately as in Section 11 of this Part.



8. Posting Both Limits

*Posting Both
Limits*

Where the unposted limit of a new road right of way is not parallel to the monumented limit, it shall be considered as a separate surveyed line and sufficient monuments shall be established on this line to clearly define the right of way limit by distance, angle and width with respect to the survey line. As well angular and linear measurements shall be secured at least once every mile to connect the two survey limits. Except for situations described in Section 7 of this Part, only one limit of the right of way shall be referenced.



9. Dual Laning

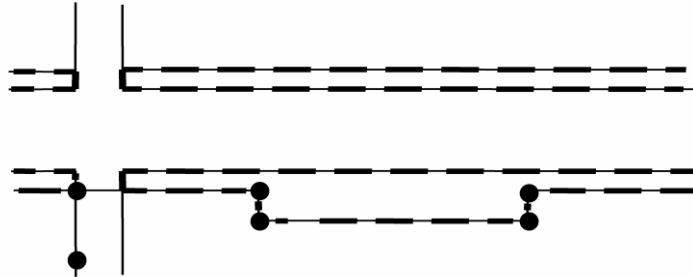
Dual Laning

Where the width of the new road is greater than 62 metres, both limits shall be considered as separate surveyed lines and shall be monumented. The monuments shall be marked on one limit. Except for situations described in Section 7 of this Part, only one limit of the right of way shall be referenced.

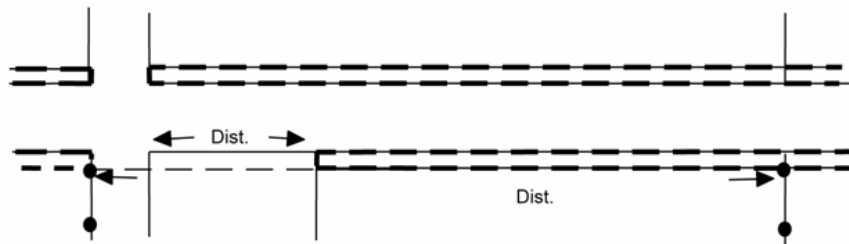
Where the new widening is adjacent to an existing widening, the plan shall be prepared to retake the first widening so two posted limits are not created. In cases of dual laning this may not be required.

10. Extra Width or Restrictions

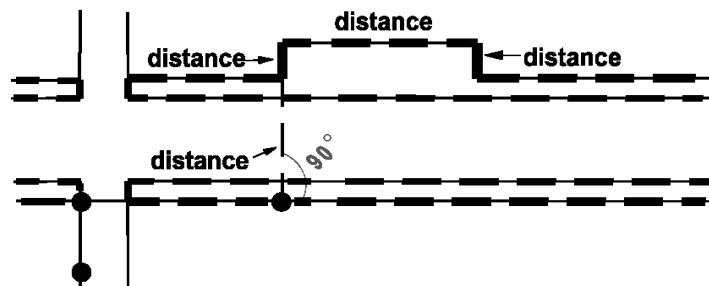
- a) Where a parallel extra width or restriction occurs on the monumented limit of the road right of way, a monument shall be established at each change of direction.



- b) Where an extra width or restriction occurs on the monumented limit of a road right of way and the extra width or restriction is around a descriptive parcel (metes and bounds), monuments are not required at the intersections.



- c) Where a parallel extra width or restriction occurs on the unposted limit of the road right of way, at minimum a single monument shall be established on the monumented limit opposite one end of the extra width or the restriction.

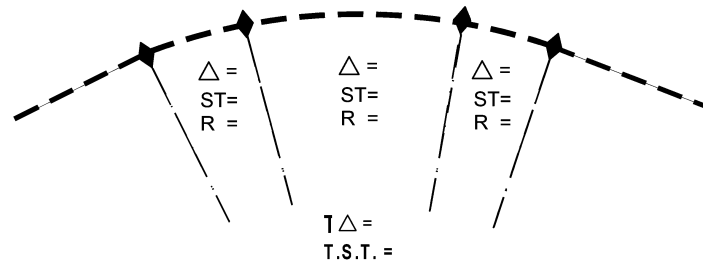


11. Numbering Monuments

Monuments shall be numbered consecutively from the point of beginning to the end of the survey. Each monument shall have the letter "R", followed by the number permanently marked thereon and the marking shall face toward the road. The monuments may be marked in Arabic or Roman Numerals.

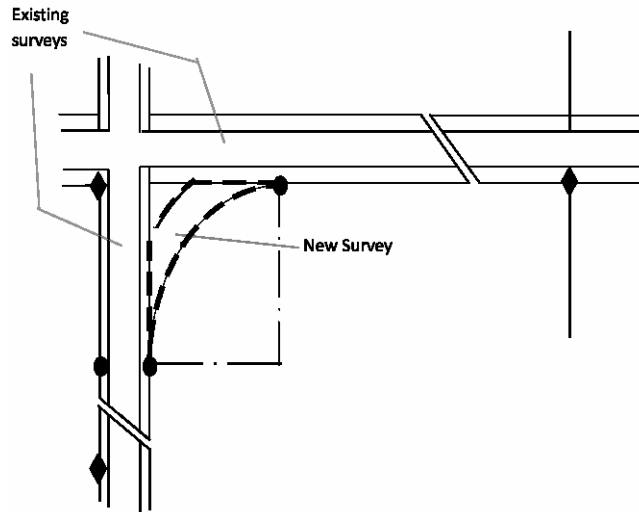
12. Curves

- a) Where simple curves are surveyed, such curves shall be monumented at the beginning of curve (B.C.) and the end of curve (E.C.). Surveyed lines intersecting such curves shall be monumented at the point of intersection.
- b) Planned or constructed spiral curves shall be surveyed in accordance with the prescribed tables (Arc definition) in use by the Office of the Controller of Surveys and shall be monumented at the B.C., E.C. and at points of spiral curve (S.C.). Surveyed lines intersecting such curves shall be monumented at the point of intersection and show angle and distance connections to the subtangent.



- c) When a surveyed road right of way lies adjacent to a railway right of way, where the title to the right of way was secured according to a plan of survey showing spirals thereon, terminal curves as adopted by the different railway companies shall be substituted therefore and shown on the plan of survey.

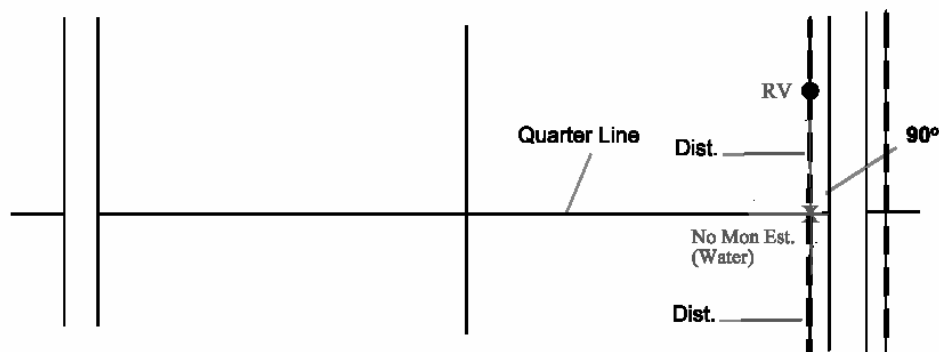
- d) Where a curve is surveyed at the intersection of road allowances or previously surveyed road right of ways and is not a portion of a longer continuous surveyed right of way, such curve shall be monumented on the boundaries of the land affected at the B.C. and the E.C.



13. Obstructions

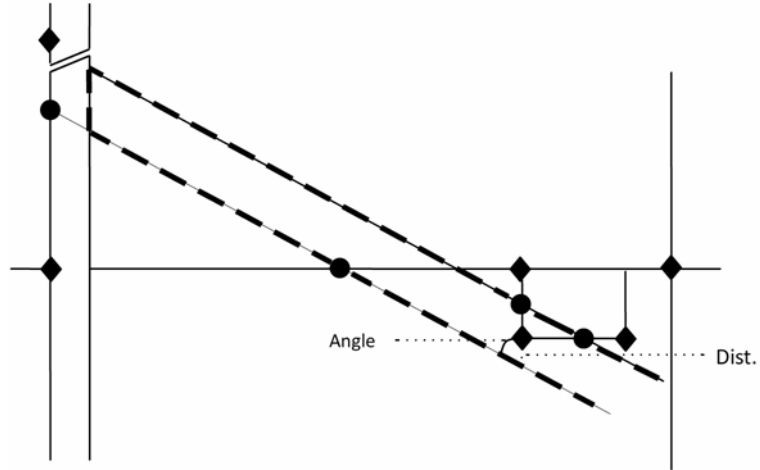
Obstructions

Where it is impossible or not practicable to establish a monument on the new road right of way limit opposite a section or quarter section corner due to a slough, flooded area or other such obstruction, a monument shall be established on the new right of way limit on either side of the obstruction and a connection shown to the section or quarter section line. The reference monument may be omitted.

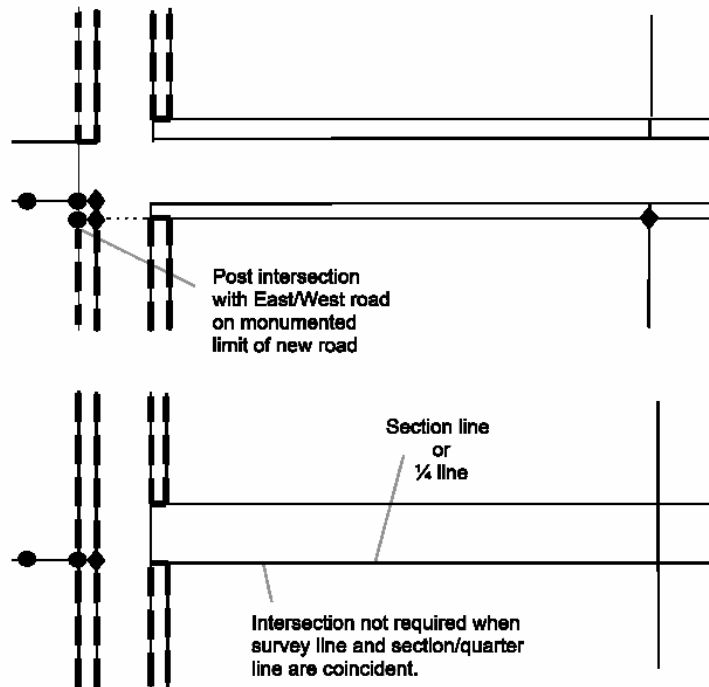


14. Unposted Limit

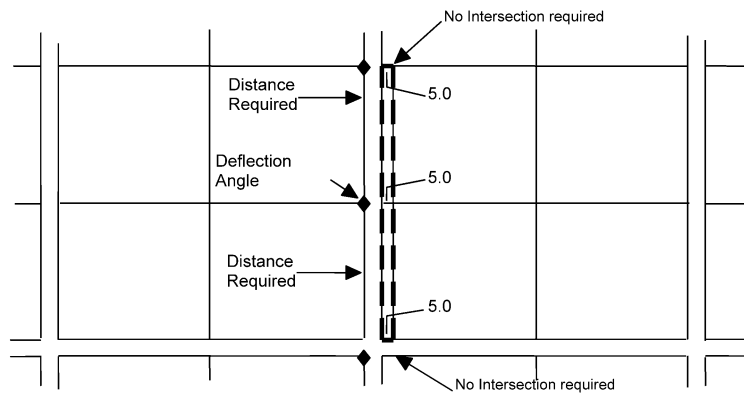
- a) Where the unposted limit of a road right of way intersects a previously surveyed quarter section line, subdivision, parcel, or railway station grounds, the limit shall be monumented in accordance with Section 1 of this Part, and the monuments need not be numbered. Adequate connections shall be shown to connect the information to the survey.



- b) Where the unposted limit of a road right of way passes through a previously surveyed road right of way where the surveyed line is not coincident with the section/quarter line, the intersection of the production of the surveyed line and the monumented limit shall be monumented.



- c) Where the new road right of way is parallel and adjacent to the unmonumented limit of a road allowance and no area is taken adjacent to the monumented limit of the road allowance, intersections and angular or linear measurements are not required with the perpendicular section lines (tie lines) as long as the monumented limit of the road allowance is deemed to be the monumented limit of the new road right of way. Angular and linear measurements are required between all section and quarter section monuments used to demarcate the road right of way. Reference monuments are not required if construction is not occurring, as in the case of lands being selected under the Treaty Lands Entitlement Program.

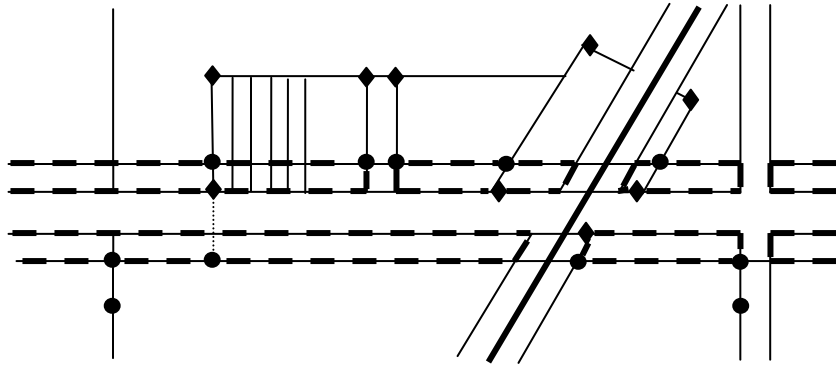


NOTE: Angular or linear ties are not required east or west of the road allowance unless required for re-establishment purposes.

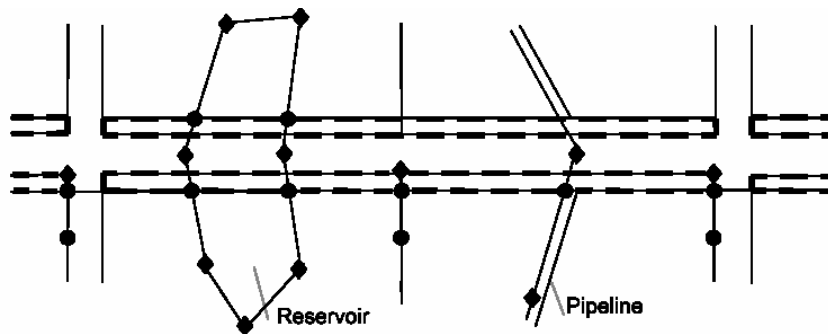
15. Subdivision and Right of Ways

Subdivision

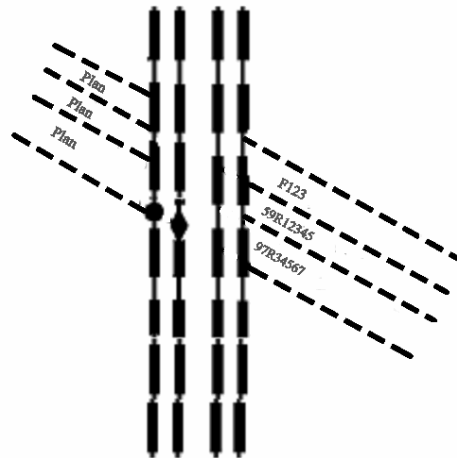
- a) In the case of subdivision lots, monuments are required at the intersections with all block limits, parcel limits, streets and railway limits. Monumenting the intersections with lots are at the discretion of the surveyor. Both limits of the new road right of way shall be monumented through urban areas.



- b) Where the new road right of way intersects a previously surveyed reservoir or drainage ditch where the entire perimeter has been monumented and a deflection exists on that survey within the new right of way, both limits of the new road right of way shall be monumented at the intersections. Intersections with all other registered plans shall be monumented as stated in Section 1 of this Part.



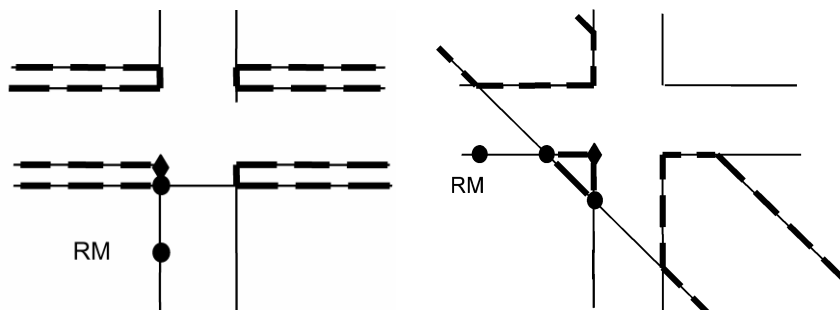
- c) Where the new road right of way intersects two or more adjacent and parallel previously surveyed right of ways, only the intersection with one of the previously right of way shall be monumented. The monumenting the intersections with all previously surveyed right of way may be a safety issue.



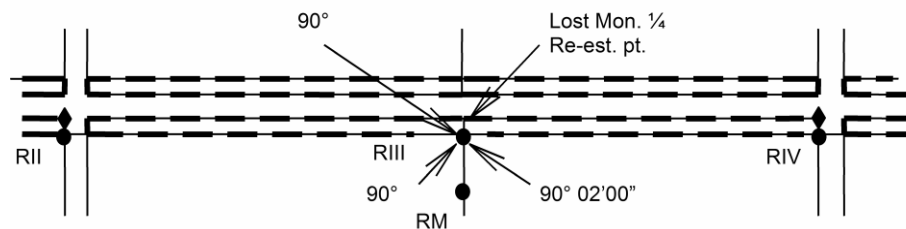
16. Reference Monuments

*Reference
Monuments*

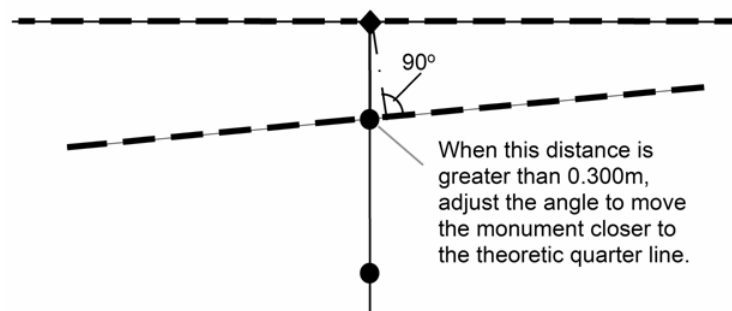
- a) Except as stated in Sections 14, 18 and 19 of this Part, when the position of a section or quarter section corner falls within the new road right of way, a reference monument shall be established on all section lines at a distance of 20 metres from the limit of the new road right of way.



- b) In situations involving previously surveyed quarter section lines, a reference monument shall be established on the quarter section line at a distance of 20 metres from the limit of the new road right of way.
- c) In situations involving unsurveyed quarter section lines, a reference monument shall be established at a distance of 20 metres from the limit of the new road right of way at 90° from the surveyed line. If a deflection exists on the road line, the plan of survey shall clearly indicate which direction the 90° angle is from.



- d) In situations where the surveyed limit is not parallel to the road allowance and where quarter section lines are significantly off theoretic bearings, to an amount that the monument established at 90 degrees from surveyed limit is significantly off the theoretical quarter line, the monument shall be established at an angle other than 90 degrees, so that the monument will be established within 0.3 metres of the theoretical quarter line.



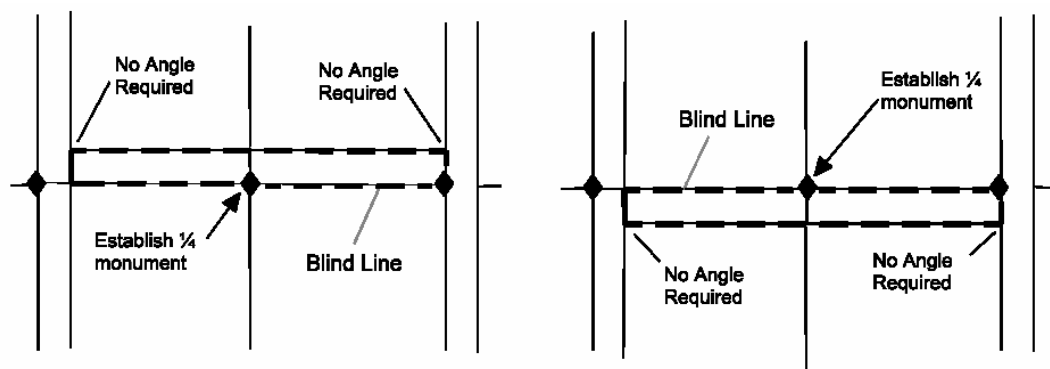
- e) Where special circumstances exist, reference monuments may be established on limits other than those prescribed in this Section. The location of the reference monument shall not be on private property or deemed to be in a hazardous position.

17. Primary Monuments

All section corner and quarter section corner monuments affected by the new road right of way shall be found or their positions re-established. Monuments do not have to be planted at these positions.

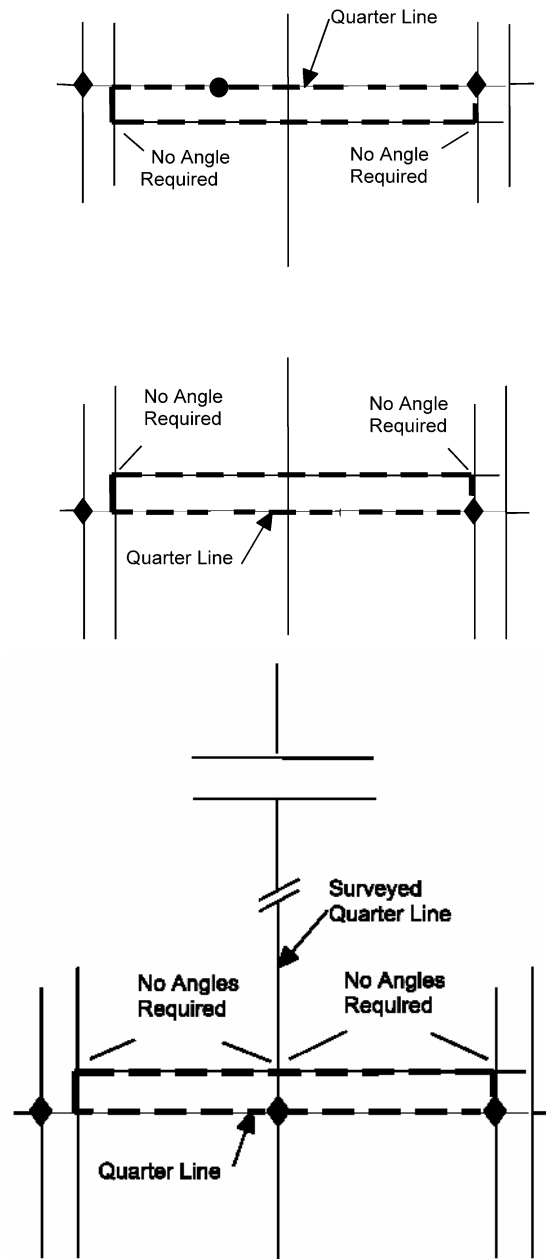
18. Blind Line

- a) Where the road right of way intersects the boundary of a section where there is no road allowance (Blind line), the said boundary is to be measured. When a monument is established at the quarter section corner then the monument shall be established in accordance with *The Land Surveys Regulations* and the said monument shall be marked $\frac{1}{4}$.
- b) Where a road right of way is surveyed adjacent to the blind line and the north or south boundary of the road right of way is coincident with the section line, a monument shall be established at the quarter section corner in accordance with the provisions of *The Land Surveys Regulations* and said monument shall be marked $\frac{1}{4}$. The section lines perpendicular to the new road right of way do not have to be tied in unless required for re-establishment purposes.

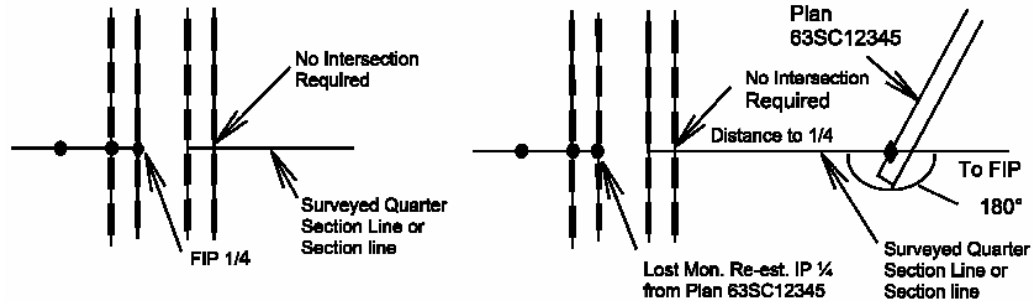


19. Quarter Lines

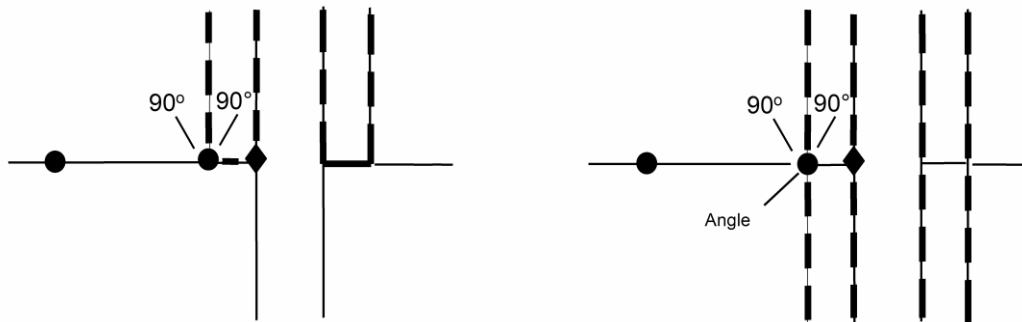
- a) Where a road right of way is surveyed adjacent a quarter section line and one of the limits of the right of way is coincident with the quarter line, monuments may be established on the said right of way limit. The section lines at both ends of the new road right of way do not have to be tied in unless required for re-establishment purposes.



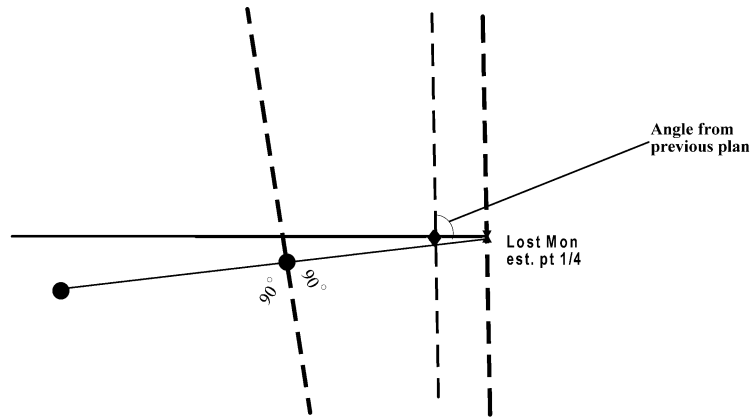
- b) Where a road right of way is surveyed adjacent to a road allowance and the unsurveyed limit crosses a previously surveyed quarter section line, the surveyed quarter line is not required to be intersected. This also applies when the unsurveyed limit crosses a section line.



- i. Where a road right of way is surveyed adjacent to a road allowance and begins or terminates at, or crosses a quarter section line that has not been previously surveyed, a monument shall be established on the surveyed limit at 90 degrees to the quarter section monument.



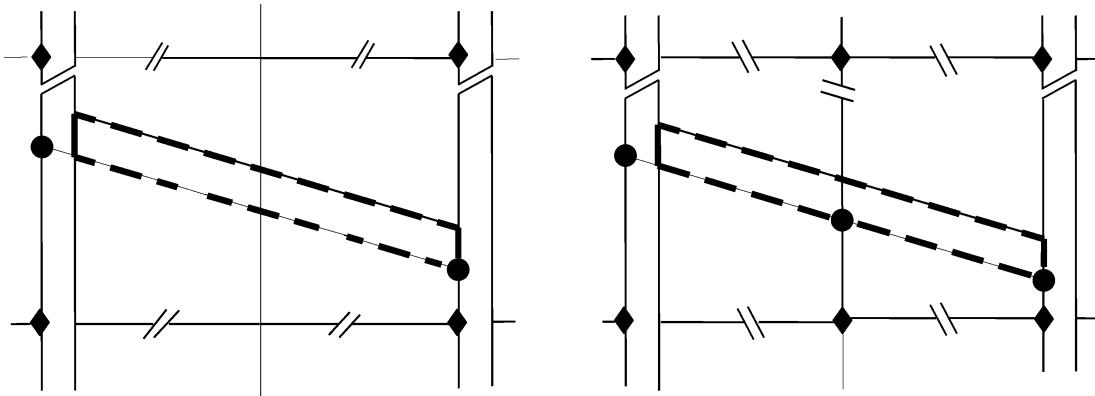
- ii. Where a new road right of way is surveyed superseding an existing road right of way and begins or terminates at, or crosses a quarter section line that has not been previously surveyed, a monument shall be established on the surveyed limit at the intersection of the new road right of way limit and a line from the quarter section corner through the road right of way monument.



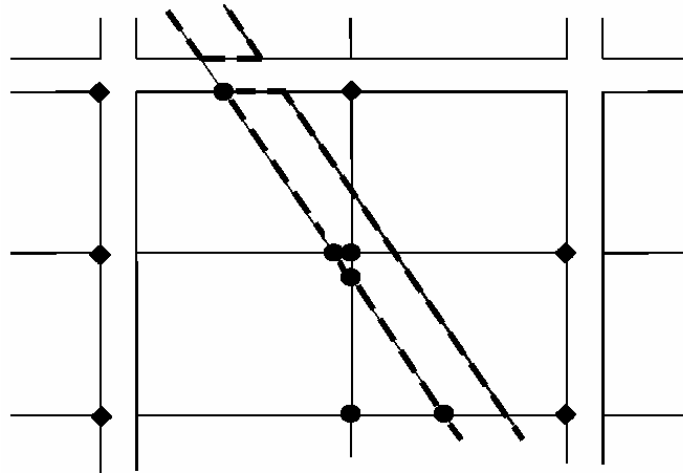
20. Cross Country Roads

Cross Country Roads

- a) Where a road right of way is surveyed through a section and the surveyed limit does not fall on a section or quarter section line, or the section or quarter section line does not fall within the right of way, monuments may be established on the road right of way limit in the interior of the section.



- b) Where the road right of way crosses or is so close to the centre of a section, or to one of the quarter section lines, so as to cause any doubt as to the quarter sections affected, the necessary quarter section line or lines are to be surveyed. The intersection of the right of way and the quarter section line or lines shall be monumented and proper measurements secured. Where both quarter section lines are surveyed, the centre of the section shall be monumented, provided that if the centre falls in the actual roadway the Surveyor shall omit the monument if in his opinion it may create a hazard.



21. Water Boundaries

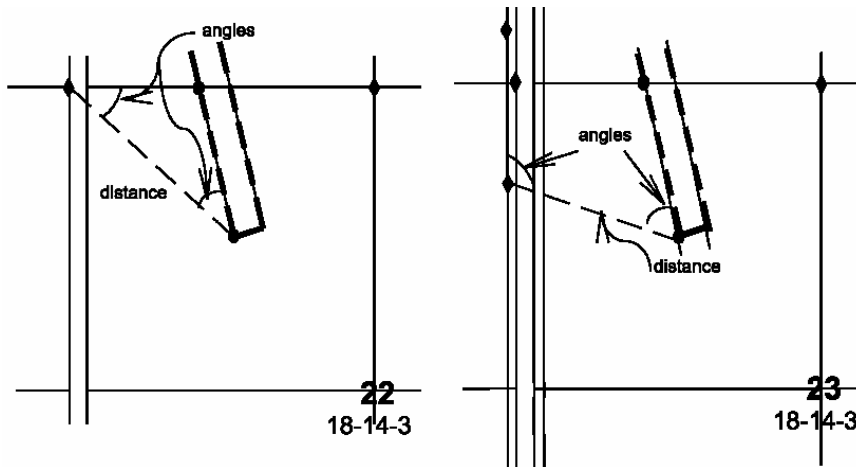
*Water
Boundaries*

Water boundaries shall be designated clearly and concisely on the plan. Where the bank is taken as the boundary, the bank shall be determined as defined in Section 32 of *The Land Surveys Regulations*, except where applicable legislation, judicial decisions or existing rights are to the contrary.

- a) Where title is based on the bank, the bank shall be plotted as shown in GIS or according to the township Plan referred to on the pre-converted title. A note shall be shown on the plan stating “The bank is taken as the boundary. For the definition of bank, see Section 32 of *The Land Surveys Regulations*”.
- b) A note shall be added to the plan, adjacent to the bank, to clearly indicate the method used to establish the bank. e.g.: “The bank was plotted from Township Plan dated _____” or “The bank was plotted from 1:60,000 Aerial Photography (Photo ISC 80482-033 L-16)” or “The bank was plotted from ____ Satellite Imagery”.

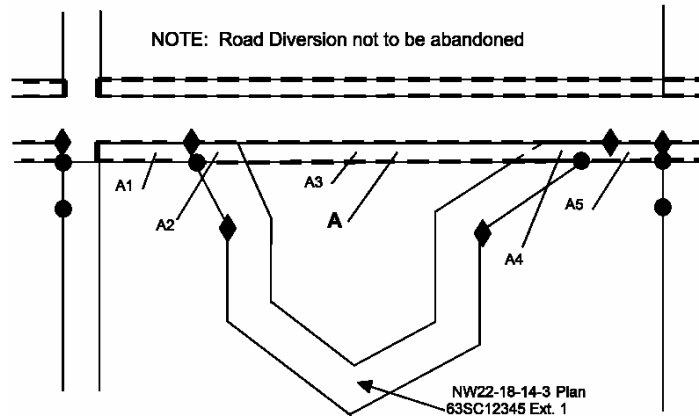
22. Terminating in Interior of Quarter

Where the road right of way terminates within the interior of a quarter section, angular and linear measurements are required from the terminal monument to the nearest found primary or secondary monument. A sufficient number of angular and linear measurements shall be taken to obtain a closure between the primary or secondary survey and the new road right of way.



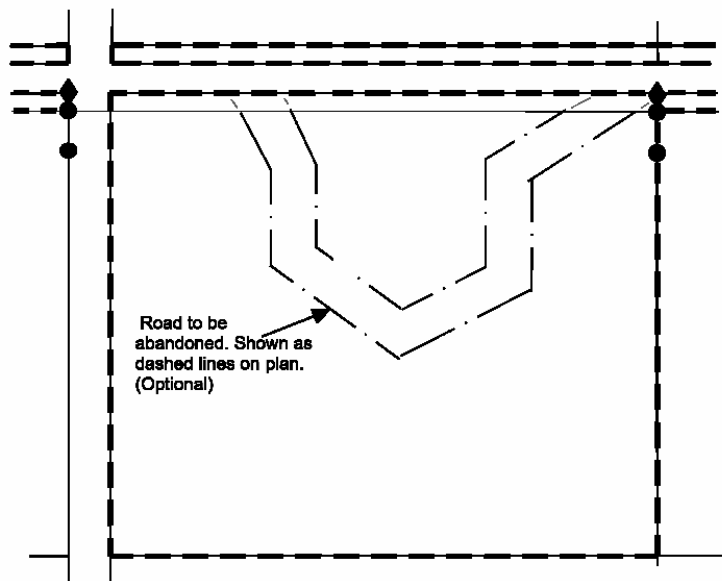
23. Road Diversions

- a) Where a previously surveyed road right of way is to be retained and not abandoned, the previous right of way plan shall remain active. The new right of way shall be taken through the previous right of way. The portion of the previous road right of way lying outside the new road right of way shall be labeled with its current LLD along with the next available extension number.



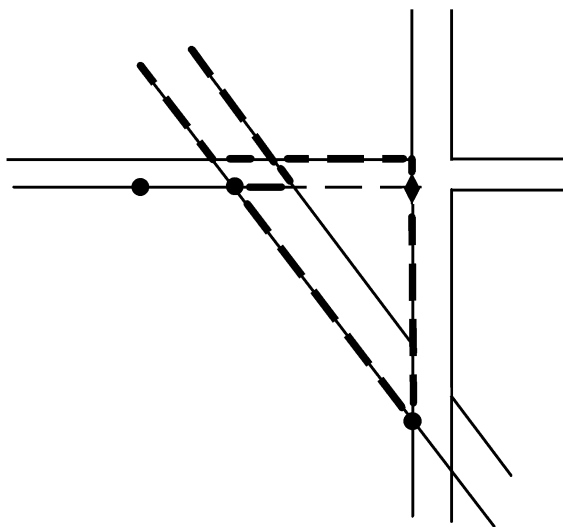
- b) Where a previously surveyed road right of way lying outside the new road right of way is to be entirely abandoned in favor of a new road right of way survey, the previously surveyed road right of way does not have to be retraced unless it is required for re-establishment purposes. The line of approval shown on the plan of survey will go around the entire source parcel and the title block shall reflect the consolidation.

*Consolidation
of Road
Diversions*



24. Severing a Road Allowance

Where a new road right of way crosses a road allowance creating a severance of the quarter section and it is the desire to consolidate the severed parcel and severed portion of the road allowance or also with a parcel on the other side of the road allowance, monuments are required at the intersection of the new road with the posted (south or west) limits of the road allowance. Intersections are not required with the unposted limit of the road allowance.



Part III – Northern Road Right of Way Surveys

A road right of way situated on Provincial Crown Land that is not subdivided by a sufficient number of surveyed base lines and meridians may be designated a Northern Road Right of Way by the Controller of Surveys. The provisions of this section shall be complied with on all Northern Road Right of Ways.

There is a more complete document titled “*General Instructions for Surveys and Plans outside the Provincial Survey System*” located on the ISC website.

Methods and Accuracy

Methods and Accuracy

1. Tolerances

Tolerances

Standard legal survey practice shall apply for the legal survey observations. The maximum allowable error in misclosure shall not exceed one part in five thousand or 50 ppm.

2. Azimuth

Azimuth

An azimuth for a selected boundary at the beginning and end of the right of way shall be obtained on each survey. Azimuths can be established from available control monuments, a previous legal survey, astronomic observations, Global Positioning Systems (GPS) or other suitable method.

3. Coordinate Values

Coordinate Values

Universal Transverse Mercator (UTM), North American Datum 1983 (CSRS) coordinate values shall be derived for all of the survey monuments. The coordinates shall be computed using the NAD83 datum and the currently adopted geoid model Canadian Gravimetric Geoid 2000 (CGG2000). The horizontal component of the survey shall achieve an accuracy of 1.0 metre relative to the Canadian Spatial Reference System defining points.

4. Heights

Heights

The height used to project distances to the ellipsoidal surface for UTM coordinate calculations may be derived from connections to nearby benchmarks, from GPS observations. If neither of these methods is practical, then heights may be scaled from an official provincial or national topographic map.

5. Monument Type

*Monument
Type*

All new control survey points shall be permanently marked on the ground. Wherever suitable, existing legal or control survey points should be used as points for the survey. New control points may be either:

- a) An 8-foot helix pipe with brass cap.
- b) A brass survey Tablet Marker to be located in bedrock, or a stable concrete structure. (Type 1 of EMR 1978 specs).
- c) A 4 foot, 5/8" diameter re-bar with plastic cap.
- d) Standard iron post.
- e) Standard iron post cut down to 15 centimetres in length and set 8 centimetres into rock or brass caps cemented into bedrock.

6. Monument Number

*Monument
Number*

Each new control survey monument that is coordinated shall be identified in all documentation relating to the survey, including all field notes, by its unique number. The unique number for a monument shall be a number from the series allocated by the Controller of Surveys except where the point already has an official number or identifier.

7. Station Description

*Station
Description*

Station descriptions shall be prepared for any new stations with any attachments on 8 ½ x 11" paper. The description shall be complete and include: unique numbers, land location, monument type, measurements to topographical features, or reference points. Digital data may be submitted in a format acceptable to the Controller of Surveys.

8. Monument Condition

*Monument
Condition*

All control survey monuments, lost or found, shall be formally reported to the Controller of Surveys with the current condition, date of inspection, reporter's name, address and phone number on a Geodetic Control Marker Inspection Form which is available on the ISC website at www.isc.ca.

Connections

The intent of this section is to specify acceptable methods for connecting new surveys in isolated areas to the Canadian Spatial Reference System (CSRS) to an absolute accuracy of one (1) meter.

Connections

Every survey shall be connected to nearby land surveys and to the Canadian Spatial Reference System (CSRS). If the nearby land survey had already connected to the CSRS, no additional connections to the CSRS are required. All connections are subject to the conditions set out in Section 9 of this Part below.

9. CSRS Connections

*CSRS
Connections*

Connections to the Canadian Spatial Reference System (CSRS) will use one of the following options or their equivalent:

a) Dual Frequency Survey Grade GPS Receiver

*Dual Frequency
Survey Grade
GPS Receiver*

Connections from two (2) points of the new survey to a minimum of two (2) integrated provincial geodetic points or post processed against a minimum of 3 Canadian Active Control Points (CACP's) or a combination provincial geodetic points and CACP's. A minimum of one (1) hour of data collection is recommended.

b) Single Frequency GIS Grade GPS Receiver With Satellite Corrections

*Single
Frequency GIS
Grade GPS
Receiver with
Satellite
Corrections*

The Controller of Surveys may allow the use of GPS positions obtained using Canada-wide Differential GPS Service (CDGPS) for small isolated parcels. This type of connections should produce coordinates with an accuracy of better than 3 meters relative to datum.

c) Single Frequency Sports Grade GPS Receiver Averaging

*Single
Frequency
Sports Grade
GPS Receiver
Averaging*

For small isolated parcels where GPS is not used for the boundary survey, the Controller of Surveys may permit connections using any GPS receiver and averaging positions collected with a Position Dilution Of Precision (PDOP) less than 4, for a minimum of 15 minutes. In this case only one monument is required to be connected, but an azimuth shall be determined in order to properly orient the survey. Acceptable methods for determining azimuth are sun or star shots, but not calculated from coordinates between two (2) points in the survey coordinated using the same averaging method.

Below is a list of GPS receiver types opposed to correction methods and the expected absolute accuracies attainable

Correction Method	----- GPS Receiver Type -----		
	Single Freq Sports Grade	Single Freq GIS Grade	Dual Freq Survey Grade
Uncorrected	15-20 m	15-20 m	15-20 m
WAAS*	3-5 m	3-5 m	3-5 m
CDGPS	2-4m	1-2 m	0.3-0.5m
Static Post Processed	3 m	0.5 m	0.02-0.05 m

* NOTE: WAAS corrections only available in extreme southern areas along US border

10. Legal Survey Connections

Legal Survey Connections

Connections shall be made to legal surveys that are existing within 500 metres of the new survey, and shall include a minimum of two (2) existing monuments. The acceptability of a connection is dependent on the local terrain, methodology used and the amount of additional fieldwork required. For example utilizing appropriate Global Positioning System (GPS) measurements would enable connections to monuments more distant than if conventional survey methods were used. The primary principal is that surveys may not overlap, and care should be taken to ensure that small gaps between nearby surveys do not occur.

If connecting existing legal or control monuments to a new survey involves significant amounts of additional work, the Controller of Surveys should be contacted to assess the necessity of the connection.

11. Permanent Structures

Permanent Structures

If appropriate, make occasional ties from strategic monuments to nearby permanent structures such as buildings, concrete bridge abutments, etc. This information should be shown on the plan as secondary information and as dashed lines so that it may be used as reference for identifying or replacing the original monuments.

Measurements

Measurements

12. GPS

GPS

Measurements can be derived by GPS. The survey shall be performed using proven GPS Techniques with sufficient independent check measurements to eliminate the possibility of gross error in any measurement. The control network configuration and survey practices shall meet the currently adopted guidelines and specifications for GPS Surveys.

13. Units

Units

All measured lengths shall be reduced to horizontal at general ground level and expressed in metres and decimals thereof on the plan of survey.

Legal Surveys

Legal Surveys

14. Procedures

Procedures

Legal Surveys on Northern Road Right of Ways shall be performed in accordance with the provisions of Part II of this manual except as noted hereafter.

15. Curves

Curves

Simple curves shall be used except where, in the opinion of the Surveyor, compound curves are required to properly retrace construction curves. Constructed highway spirals shall be surveyed as outlined in Section 12 in Part II.

16. Monuments

Monuments

Legal survey monuments shall be established at the commencement and end of the survey, beginning and end of curves, deflection points, and adjacent to survey control. The maximum distance between monuments shall not exceed 1000 metres.

Where it is impossible or impracticable to establish a monument on a new road right of way limit, the monument shall be established on the right of way limit on either side of the obstruction or at 90 degrees from the survey line opposite the point.

17. Monument Exceptions

*Monument
Exceptions*

Monuments cut down to 15 centimetres in length and set 8 centimetres into rock or brass caps cemented into bedrock may be substituted at positions that fall in rock.

18. Topographical Features

*Topographical
Features*

Sufficient measurements shall be taken to define the position of all major topographical features adjacent to the road right of way, i.e., river banks, lake shore, centre thread of named streams. Additional information of this nature may be added by scaling from aerial photos when available.

19. Geodetic Tolerances

*Geodetic
Tolerances*

A mathematical closure shall be obtained between the legal survey measurements and the Geodetic coordinates obtained at the beginning and end of the survey. The calculations shall include appropriate corrections such as distance reduction to ellipsoid or UTM scale factor. The maximum allowable limit of non-closure shall not exceed one part in five thousand.

Part IV – Public Improvement Surveys

Public improvements are lands acquired for any public service pursuant to The Highways and Transportation Act.

1. Monuments

Monuments

Public Improvements shall be marked on the ground by establishing monuments at every change in direction, at the intersection of a section line, previously surveyed line, and the intersection with the monumented limits of a previously registered survey.

2. Curve Intersection

Curve Intersection

Where a limit of a public improvement intersects a curve, the beginning and end of curve shall be defined as stated in Section 7(b) in Part I to establish the curve intersection.

3. Monument Numbering

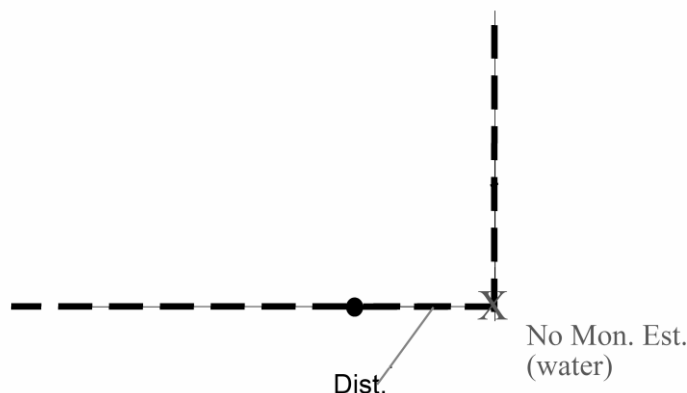
Monument Numbering

The monuments marking the limits of a Public Improvement shall not be numbered.

4. Obstructions

Obstructions

Where it is impossible or not practicable to establish a monument on the Public Improvement limit due to a slough, marsh or other obstruction, a monument shall be established referencing the obstructed corner on either limit with measurements shown to the referenced monument.



Part V – Road Reference Surveys

Reference surveys are performed where roads are re-constructed within existing right of ways or where title is not taken to the new road widenings. The surveys are designed to protect and maintain the province's legal survey system and to facilitate efficient surveys in the future.

Reference surveys establish reference monuments to reference and protect, from road construction, the position of section corners, quarter section corners, and road monuments that are opposite section and quarter section corners.

Reference surveys are basically retracement surveys and include the re-establishment of all monuments shown on previous surveys affecting the road limit.

Reference Surveys on Road Allowance

*Reference Surveys
on Road Allowance*

1. Monuments

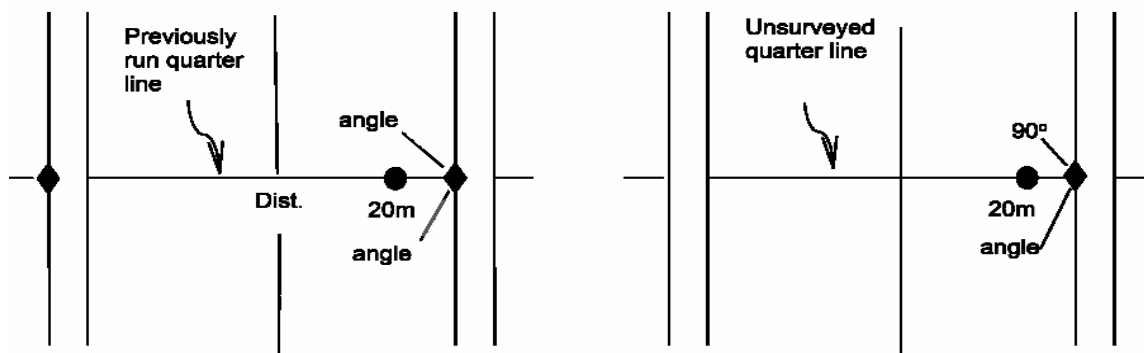
Monuments

Where the original road allowance has not been widened by the registration of a road right of way plan, it shall be required that all section, quarter section and secondary monuments on the section line being referenced be found or re-established.

2. Reference Monuments

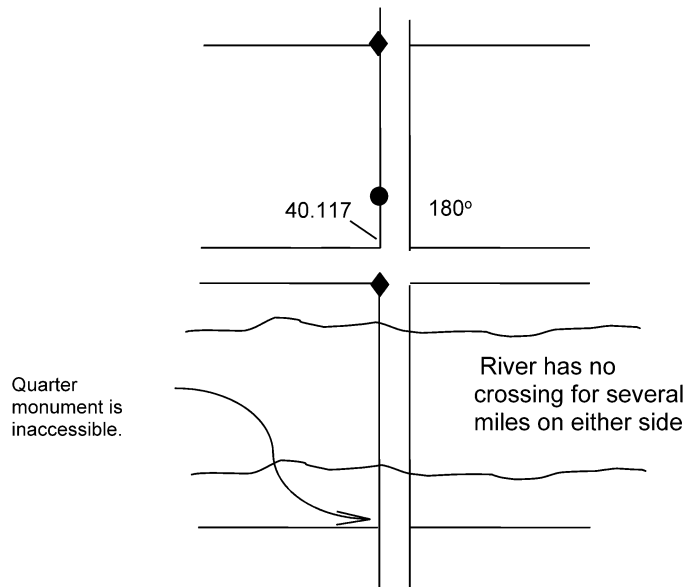
*Reference
Monuments*

- a) All section and quarter section corner monuments affected by the new road right of way, shall be referenced by a monument at a distance of 20 metres from the section line being referenced in accordance with 2(c) in Part I.
- b) Reference monuments established opposite a section corner shall be established on the section line.
- c) Reference monuments established opposite a quarter section corner shall be established at 90 degrees from the section line being referenced unless the quarter section line has been previously surveyed, then a reference monument shall be established on the quarter section line.



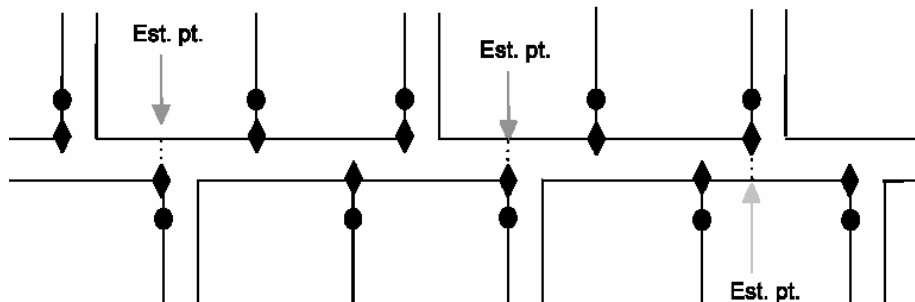
3. Alternate Direction

Where field conditions prohibit or where there is insufficient monumentation, reference monuments may be established on the opposite side of the section or quarter section line being referenced. In these cases in the Third System of Survey the offset distance shall be 40.117 metres and in the First and Second Systems of Survey the offset distance shall be 50.175 metres from the section line being referenced.



4. Correction Lines and Range Lines

- a) Correction Lines shall be referenced both north and south and Range Lines where there is a change in the systems of surveys shall be referenced both east and west of the section lines affected, in the manner prescribed above. A connection shall be made between both lines as stated in Part I, Section 8.



- b) Where a surveyed road diversion exists along a road allowance and the intent is to abandon the road diversion, the monuments on the road diversion do not have to be located unless they are required for re-establishment purposes. A report should be included with the plan indicating that the road diversion will be abandoned.

Reference Surveys on Existing Road and Right of Way Plans

*Reference Surveys
on Existing Road
and Right of Way
Plans*

These surveys are basically retracement surveys of road right of way plans not previously monumented with reference monuments and shall be surveyed as outlined hereafter. These instructions cover previous road surveys that were:

- monumented with intermediate monuments
- had monuments established at 90 degrees to the section
- quarter section corners and were done under a previous manual with no reference monuments established.

5. Reference Monuments

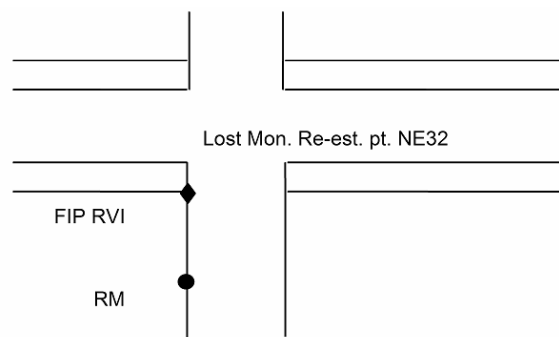
*Reference
Monuments*

All section and quarter section corner monuments affected by the new road right of way, shall be referenced by a monument at a distance of 20 metres from the monumented road right of way line being referenced in accordance with Section 2(d)(i) in Part I.

6. Primary Monuments

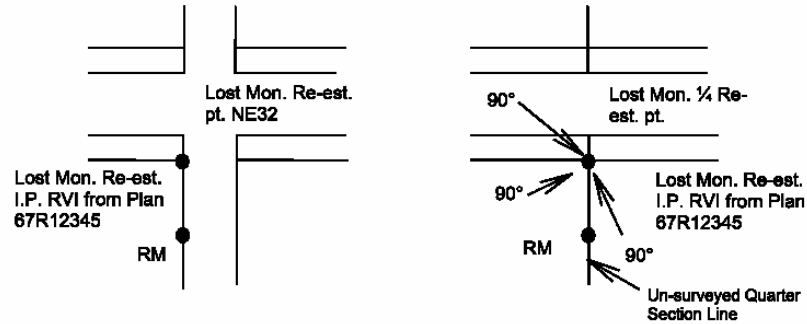
*Primary
Monuments*

All section and quarter section corner monuments affected by the Reference survey shall be found or their position re-established. Monuments do not have to be re-established at these positions. A minimum of two monuments, one reference and one road monument is required at each corner.



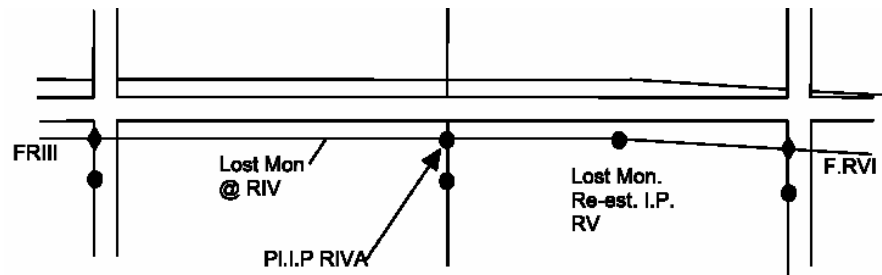
7. Secondary Monuments

All road right of way monuments shall be found or re-established on all section lines and at 90 degrees from the right of way line opposite a quarter section corner. Where the quarter section line has been previously surveyed, the road right of way monument shall be established on the quarter section line.

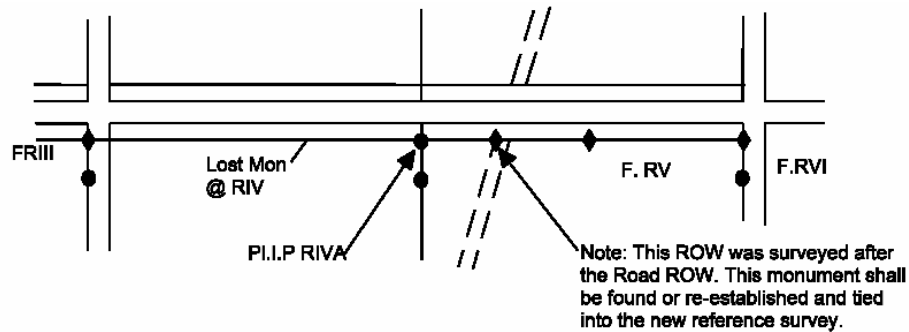


8. Intermediate Monuments

- a) In situations involving intermediate monuments, a monument shall be established either at 90 degrees from the right of way line or on the quarter line if the quarter line has been previously surveyed. The monument shall be marked with the lower of the two numbered monuments on the intersected surveyed line, followed by the letter A. Any road monument that is found shall be connected to the survey. If an intermediate monument is lost, it is not necessary to re-establish it unless it is intended to mark a deflection point. Monuments marking the beginning and ends of curves are considered deflection points as well as deflections.



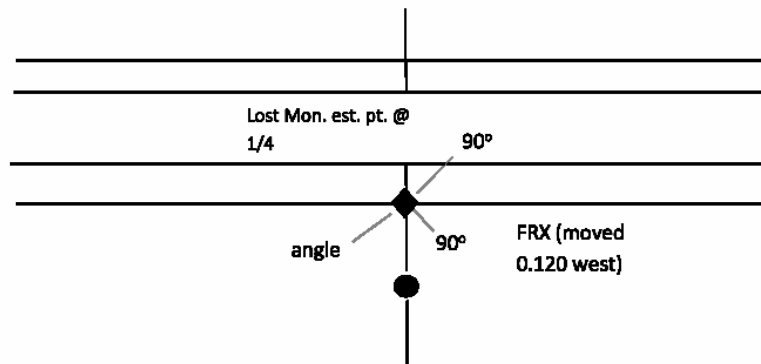
- b) All secondary monuments marking the intersection of any subsequent surveys crossing the road right of way shall be found or re-established and connected to the survey.



9. Correction of Monuments

Correction of Monuments

Where an existing road right of way monument does not fall on the section line or 90 degrees from the road line to a quarter section corner, the Surveyor shall move the right of way monument onto the appropriate line. This is to avoid situations where the monuments can cause confusion due to minor differences with the previous survey. The distance and direction of the movement of the monument shall be shown on the plan of survey.



Part VI – Feature Road Easement Surveys

Overview

Overview

Feature road easement surveys are designed to enable a client to register an interest against a titled parcel or abstract lands based on a plan. A plan of survey showing a feature road easement is required to facilitate the creation of a feature number, which is assigned to the easement, which in turn may be used for reference in registering the interest.

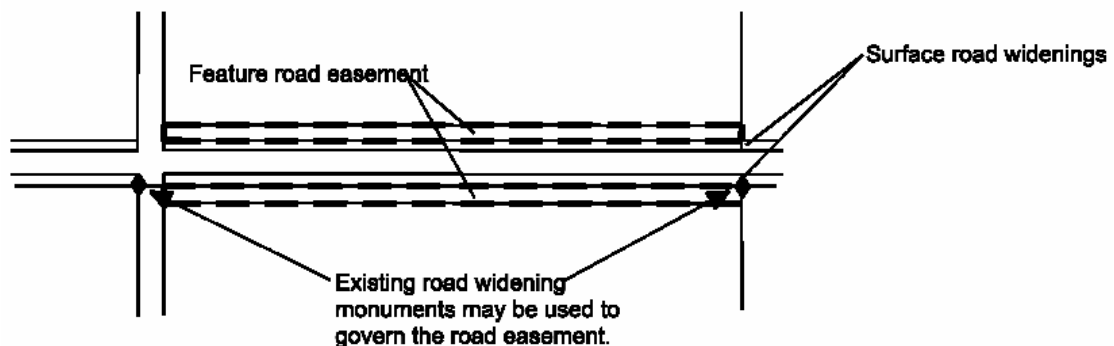
Road easement surveys are performed in the same manner as a surface road right of way as per **Part I and II** of this manual with the following exceptions:

1. Right of Way Limits – Parallel and Not Parallel

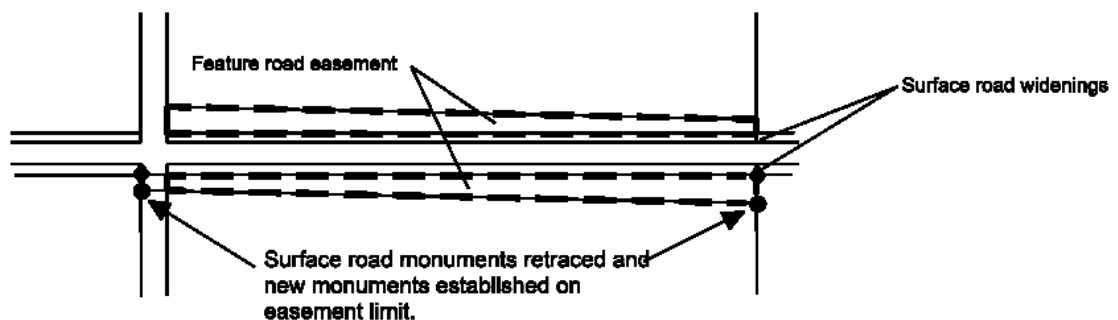
*Right of Way
Limits – Parallel
and Not Parallel*

Where the feature road easement right of way is parallel and adjacent to a road allowance or an approved/registered road widening, the existing monuments marking the road allowance or road widening may be used to govern the limits of the road easement. In all situations a plan of survey is required.

Road easement is parallel and adjacent to road widening:

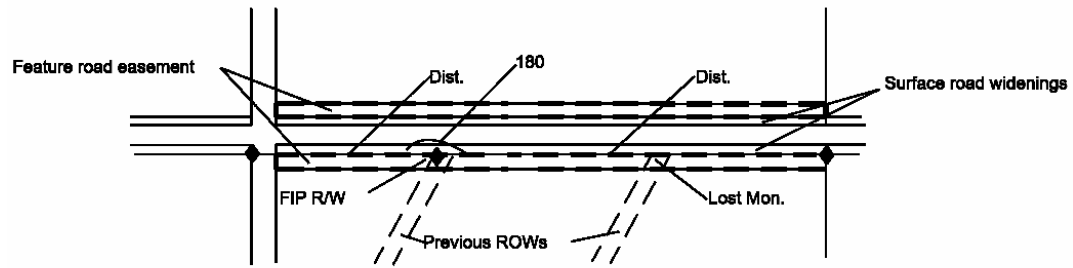


Road easement is not parallel to road widening is posted in the same manner as a surface road right of way:



2. Crossing Previous Surveys

Intersections are not required with other feature surveys. However, all monuments previously established on the posted limit of the feature easement right of way shall be located and tied into the new survey including those monuments established from previous feature plan surveys. If the previously established monument is lost it does not have to be re-established but its status shall be shown on the plan of survey as “Lost Mon”.



Part VII – Plans of Survey (Federal)

Federal road plans being either Highway Right of Way or RM Roadway create provincial road titles and are subject to provincial requirements. In all cases federal survey instructions are required to be secured and plan prepared under federal legislation, but is also required to be submitted to Controller of Surveys for review and approval. The following items are also required to be shown on these plans.

Title Block

Title Block

1. Heading

Heading

- Land Layer – Surface
- Plan Purpose – RM Roadway or Highway Right of Way
- Reference to the new road parcels – Lot XX (Road), Lot YY (Road), etc.

2. Legend

Legend

- All parcels within the line of approval have extension 0.
- S.L.S.D. stands for Saskatchewan Land Surveys Directory

3. Support Documents

*Federal Road
Right of Way*

- a) The Surveyor shall submit:
 - i. A Submitting Letter/Report detailing any unusual circumstances or problems related to the survey
 - ii. Natural Resources Canada Survey Instructions
 - iii. A plan of survey prepared under the Canada Lands Act
- b) Upon submission of the plan to ISC and receipt of notice that the plan is approved for survey information, the surveyor shall complete the Federal plan submission through the Federal system
- c) The endorsed federal plan with CLSR number shown shall be submitted to ISC
- b) The Ministry of Highways and Infrastructure provide a TAC Creation Memo and if applicable, a Notice of Road Closure Consent to be submitted to ISC, at which time ISC will approve the plan and issue a TAC.

Part VIII – Plans of Survey (Combined Purpose Plans)

In some cases it is acceptable to use a plan for more than one purpose. A combination of any or all of the plan types (Plan of Survey, Descriptive Plan Type I or Descriptive Plan Type II) may be used. However, plans shall be specific to each land layer. A combination plan will not be allowed if it affects surface and mineral layers, mineral and feature layers or surface and feature layers.

NOTE: Condominium plans are the exception. They cannot be combined with any other plan type or land layer.

Some examples of situations where combined purpose plans can be used are:

- To create a new road right of way by plan of survey and consolidate the remainders of a parcel by Descriptive plan II.
- To create a new road right of way and subdivide a parcel by plan of survey and consolidate the remainder of a parcel by Descriptive Plan II.
- To create a new road right of way and a Reference Survey by plan of survey.

The title block shall state the plan type with the highest hierarchy (Plan of Survey being the highest level, Descriptive Plan Type I being next and Descriptive Plan Type II being the lowest). The land layer (surface, mineral or feature) shall be shown next. Then each plan purpose shall be listed in order of its hierarchy.

The line of approval shall include all new parcels.

Title Block

Title Block

NOTE: Company names cannot appear within the title block.

The title block should include the following information in the order as shown:

1. Heading

Heading

- Plan Type – Plan of Survey
- Land Layer – Surface (or Feature if for Road Easement)
- Plan Purpose – RM Roadway, Highway Right of Way, Road Easement, etc.

- If the plan has multiple plan purposes such as Highway Right of Way and Public Improvement, both plan purposes are to be shown with their individual land location shown for each plan purpose.
- Reference to legal land descriptions being subdivided by the new road.
- Location
 - ¼ Sec. – Sec. – Twp. – Rge. – Mer.
 - If contained within an urban municipality, urban name is also required. This could also include the name of a city, town, village, hamlet or any recognized community within a rural municipality.

NOTE: *The statement “Near (urban name)” is not acceptable.*

- The Rural Municipality name with number shall be displayed
- Saskatchewan
- Who prepared the plan – Name of Surveyor
- Date of survey - Month or range of months and year or range of years of the survey
- Scale of the plan - shall be drawn at either 1, 2 & 5 series (1:500, 1:1000, 1:2000, 1:5000) or a scale approved by the Controller of Surveys.

2. Legend

Legend

- Area to be approved is outlined with a heavy dashed line.
- Measurements are in metres and decimals thereof.
- All parcels within the line of approval have extension 0. In some situations the addition of ‘unless otherwise shown’ may be required. In the case of a Road Easement – The extensions of all parcels affected by this feature have extension 0 unless otherwise shown.
- The unique identifier number of S (number) for the survey firm has been stamped on all established iron posts.
- Standard iron posts (Standard Monuments or Monuments as the case may be) found are shown thus -----◆
- Standard iron posts (Standard Monuments or Monuments as the case may be) planted are shown thus -----●
- Standard Road Allowances on this plan are 20.117m. (or 30.175) in width.
- Control Survey Monuments are shown thus -----▲
- Control Survey Reference Monuments are shown thus -----△

Plan Guidelines

*Plan
Guidelines*

Unless otherwise specified the following requirements shall apply to all plans of survey made under this manual:

1. Size Restrictions

*Size
Restrictions*

A plan shall not exceed 860 mm in width or 3,000 mm in length. The GIS area covered by the plan shall not exceed 36 square miles. It is preferable that plans of road right of ways do not exceed one township or range in length, but in certain instances this may be increased by one section on either side of the township or range.

2. Borders

Borders

An area of at least 20 mm but no more than 40 mm around all edges of a plan shall be kept clear of any information.

3. Title Blocks

Title Blocks

A title block shall appear on every plan. The text in the title block shall be oriented in the same manner as the text shown on the plan. Company names cannot appear within the title block. Addresses and phone numbers shall not appear anywhere on the plan.

4. Scales

Scales

All plans submitted shall be clear in detail, complete as to information and shall scale accurately. The standard plan scale shall be 1:5,000, 1:2,000, 1:1,000, 1:500, 1:200, 1:100 or a scale approved by the Controller of Surveys.

5. Quality

Quality

Plans that reproduce illegibly or in a faint manner will be returned to be redrawn or re-plotted. No freehand drawing is permitted on a plan without the prior approval of the Controller of Surveys.

6. Line Types

Line Types

- a) All road allowances on a plan shall be shown as solid lines.
- b) All titled boundaries such as quarter lines, legal subdivisions, source parcels, etc shall be defined by solid lines
- c) Referenced feature plans shall be shown in as dashed lines.

7. Key Plans

Key Plans

- a) The full extents of the source parcel shall be shown as solid lines and at a standard scale as specified in item 4. If this is not possible, the extents of the source parcel should be shown on a key plan.
- b) Key plans should be drawn to scale. If they are drawn to a standard scale as specified in item 4, the scale shall be displayed. If the key plan is drawn at a non-standard scale, the scale shall not be displayed. The notation “Not to Scale” shall not be shown on the key plan.
- c) Feature plans may be omitted from key plans.

8. Adjacent Parcel Information

Adjacent Parcel
Information

At minimum, portions of all parcels (including converted Metes and Bounds plans) immediately adjacent to the source parcel shall be shown. If the adjacent parcel is a street, the name of the street is sufficient. The opposite limit of the street is not required. Sufficient information shall be shown to give a geographical location to the survey.

NOTE: Excessive reference information that is not required to give a geographical location may not be examined for its accuracy.

At minimum, portions of all parcels (including Metes and Bounds plans) immediately adjacent to any survey tie lines shall be shown. Breaks in the tie lines may be used to eliminate some drafting in these situations as long as it is clear as to the location of the tie line.

9. Text Sizes

Text Sizes

Where there is a change in Township or Range, the Township or Range lines shall be clearly identified on each side of the road allowance. Text size shall be a minimum of 4.0 mm.

i.e.: Twp 25 or Rge 12

The legal land description along with a new extension number for all the remaining portions of the source parcels shall be displayed.

a) The Quarter Sections affected by the new survey shall be completely described and shown as follows:

i. at centre of section

|
 – **23** – - section number: 6 mm (standard)

26-12-3 - location: 4.0 mm (standard)

|

ii. ¼ designation: **NE 23-26-12-W 2 Mer – Ext. 1**
(4.0 minimum)

b) Parcels or lots affected by the new survey shall be completely described and shown as follows:

i. Parcels: **A – Ext. 1** - 4.0 mm (standard)

ii. Lots: **1 – Ext. 1** - 2.5 mm (standard)

10. Abbreviations

Abbreviations

For abbreviations, see Section 13(1) of *The Land Surveys Regulations*.

11. North Arrows

North Arrows

The top of the plan shall be north. A north arrow shall be placed in a conspicuous position and shall clearly indicate the direction north. All information should be readable from the bottom of the plan to ensure consistency in the placement of the text.

General Plan Requirements

General Requirements

1. Lettering Sizes

Lettering Sizes

The minimum lettering size shall be:

Heading	6.0 mm	Approved/registered Plan Numbers	3.0 mm
Legend	2.5 mm	Area	4.0 mm
Survey Information	2.5 mm	Site Names	6.0 mm
Section Numbers	6.0 mm	Street Names	2.5 mm
Twp, Rge, Mer	4.0 mm	Lot Identifiers	2.5 mm
Parcel Identifiers	4.0 mm	Block Identifiers	4.0 mm

4. Curve Information and Intersections

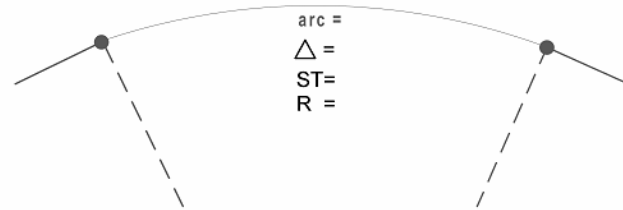
a) Curve information shall be shown as follows: (note the arc shall be shown adjacent to the curve in all cases)

i. Simple curves

Δ Deflection angle between Sub-tangents (Delta)

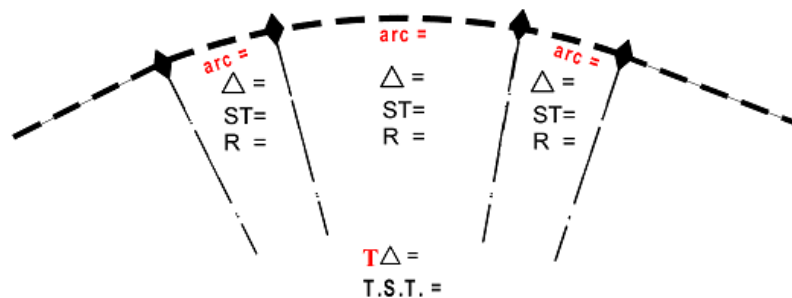
ST Sub-tangent

R Radius



ii. Replacement of planned or constructed spiral curves shall show three simple curves and shall include the total Deflection Angle ($T\Delta$) and total sub-tangent (TST).

iii. Retracement of existing replacement curves based on prescribed tables (Arc definition for roads and Chord definition for railways) shall show three simple curves and shall include the Total Sub – tangent (TST) and Total Delta ($T\Delta$).



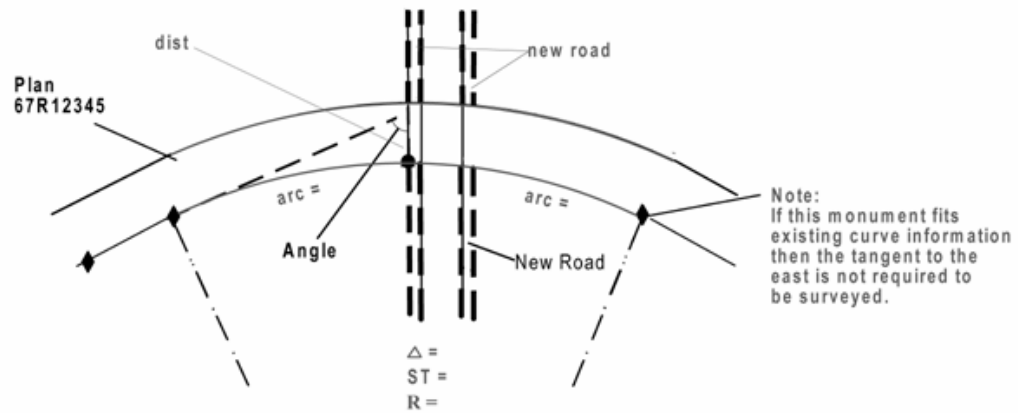
b) When intersecting an existing curve or when it is necessary to re-establish one end of a curve, a minimum of two curve monuments and one tangent shall be found or re-established to verify the existing curve information. Curve intersection measurements to survey lines shall include:

i. Distance from BC and/or EC to intersection on sub-tangent or chord.

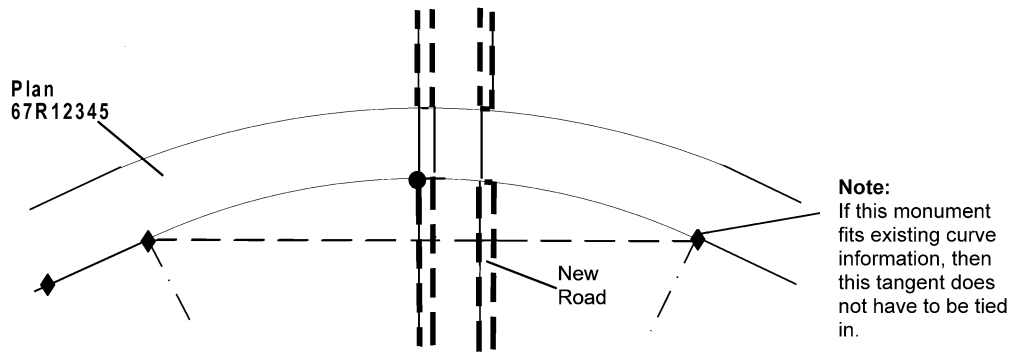
ii. Angle with sub-tangent or chord at intersection.

iii. Distance from the intersection on sub-tangent or chord to intersection of curve.

Curve intersection based on subtangent ties:

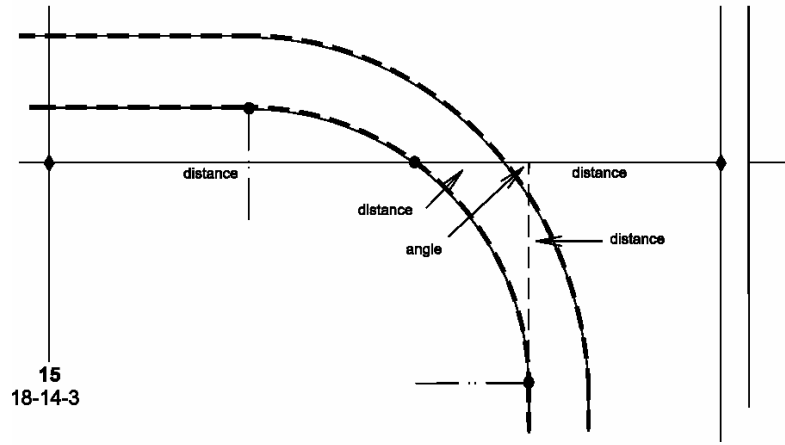


Curve intersection based on chord ties:

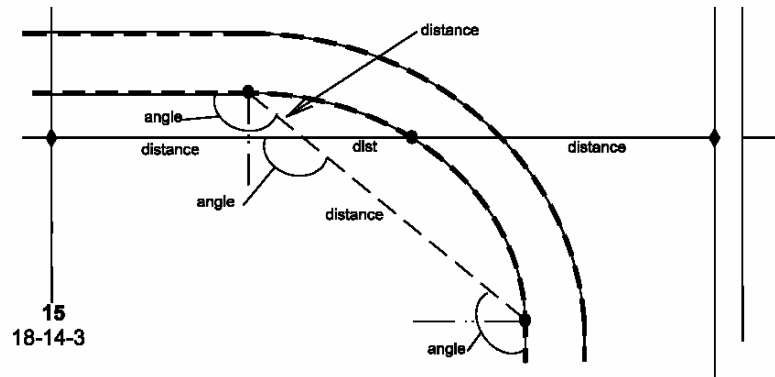


- c) When a new curve intersects a surveyed line the curve intersection measurements to survey lines shall include:
- i. Distance from BC and/or EC to intersection on sub-tangent or chord.
 - ii. Angle with sub-tangent or chord at intersection.
 - iii. Distance from the intersection on sub-tangent or chord to intersection of curve.

Curve intersection based on subtangent ties:



Curve intersection based on chord ties:



5. Areas

Areas

- a) Areas on road easement right of way (feature plans) shall be shown in hectares to the second decimal point within the source parcel.
- b) Areas on surface road plans shall be shown in hectares in the source parcel.
 - i. To the second decimal point for RM Roadways. In the case of area within a lot it may be shown to the third decimal.
 - ii. To the third decimal point for Highway Right of Ways and Public Improvement surveys. In the case of area within a lot it may be shown to the fourth decimal. Areas less than four decimals shall be shown to square metres or portions thereof.

- c) Where the new road parcel supersedes a previously approved road parcel, the total previous road area that falls within the new road limits and the additional road areas shall be displayed as follows:

Previous Road Area = 0.00 ha
 Additional Road Area = 0.00 ha
 Parcel = 0.00 ha

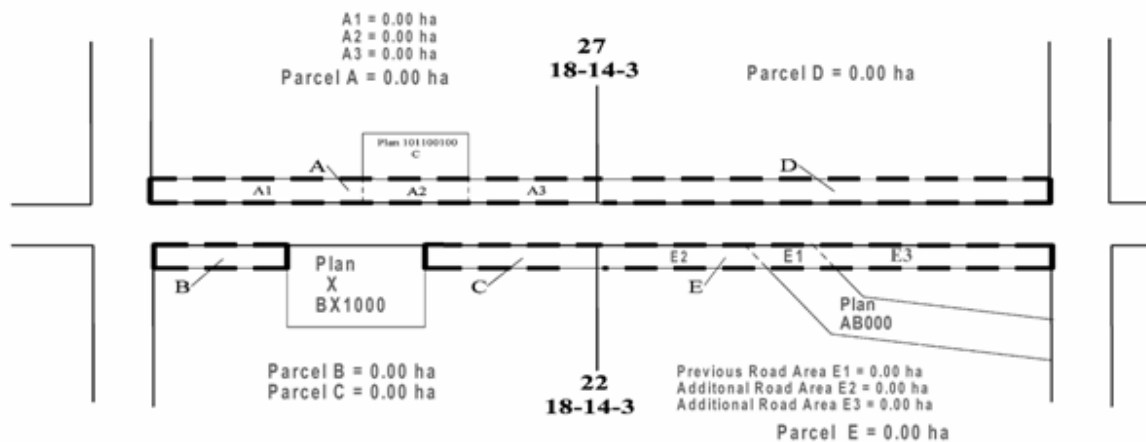
See Examples A, B, C and D on following pages.

6. Parcel Designations

*Parcel
Designations*

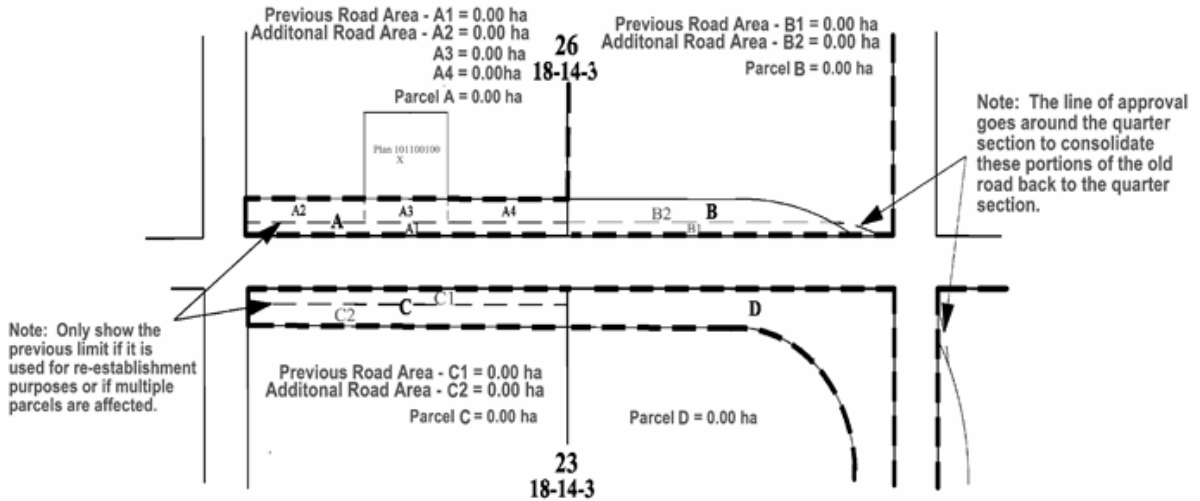
- a) On surface road right of way plans, each new parcel shall be designated with a letter. The lettering shall be consecutive and unique throughout the plan. Letters already assigned to parcel designations within the quarter section on previous plans shall not be used within the same quarter section.
- i. Road parcels cannot expand beyond a quarter section with the same letter designation.
 - ii. Where a road parcel within a quarter section is divided into two or more portions adjacent to each other by other title boundaries, such portions shall be lettered and numbered. (A1, A2, etc. with the sum total equaling Parcel A) (See example A)
 - iii. Where the road parcel is divided by other title boundaries into two or more portions resulting in parcels that are not adjacent to each other, each parcel shall be lettered consecutively. (A, B, C, etc.) (See example A)

Example A:

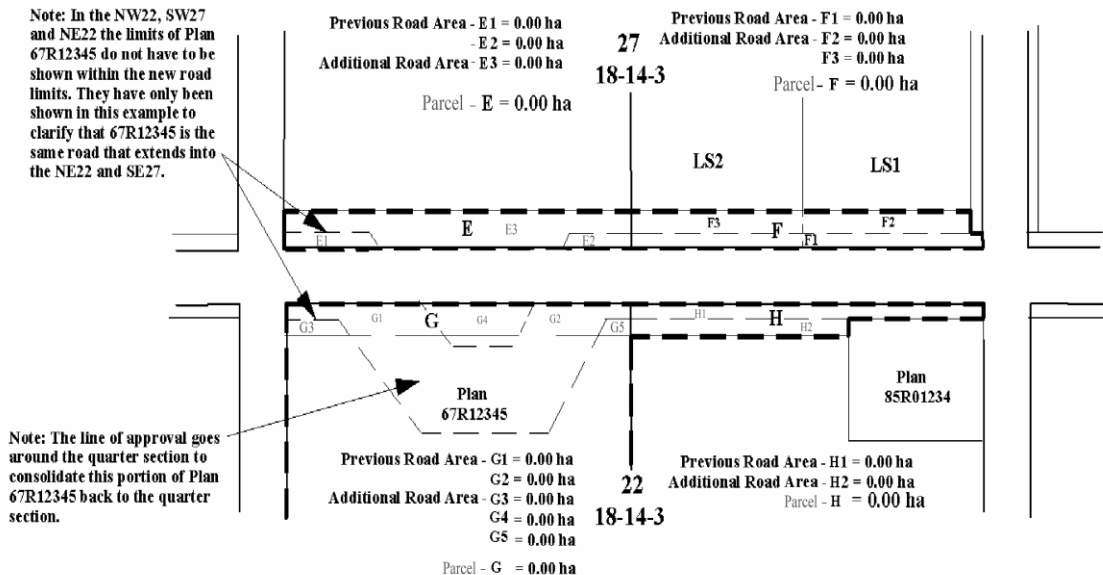


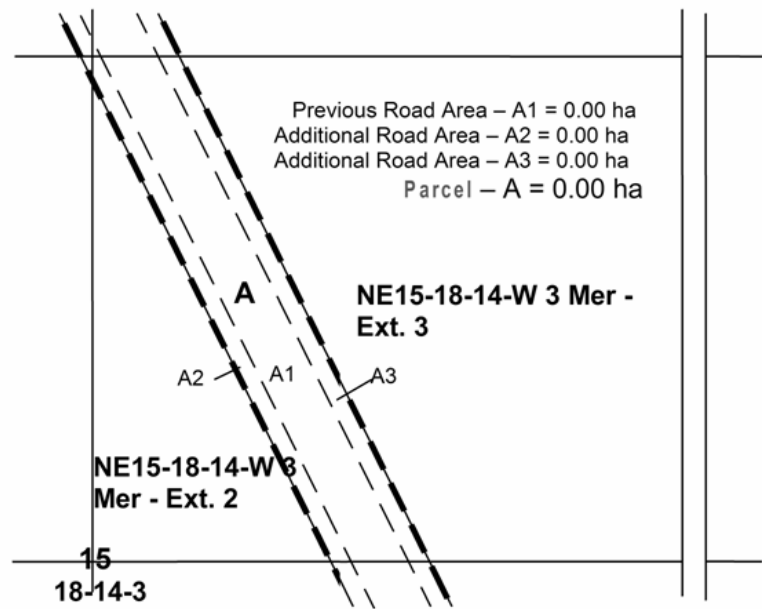
- iv. Where the new road parcel supersedes a previously surveyed road parcel, the previously surveyed road parcel shall be displayed as a sub-area. If the previously surveyed road consisted of more than one parcel within the quarter section, the sum of the previous road areas shall be displayed as one sub-area. (See Examples B, C and D)

Example B:



Example C:





NOTE: Parcel Identifiers shall not be duplicated within the Quarter Section.

- b) On feature road easement right of way plans, a unique parcel designator in the form of a letter shall be assigned to the new right-of-way within each source parcel. The lettering shall be consecutive and unique throughout the plan.

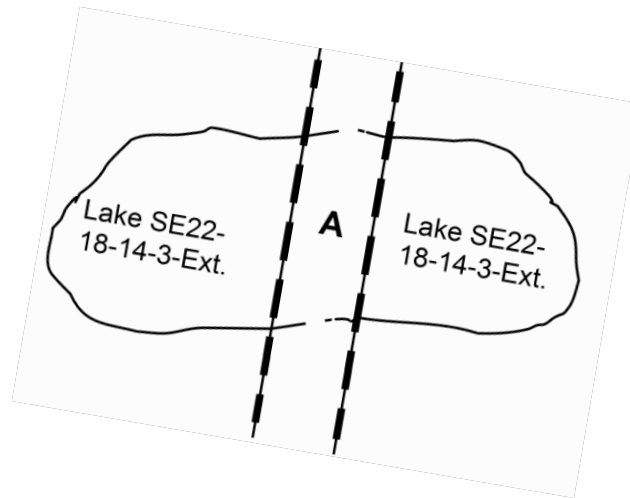
7. Natural Boundaries (Water)

The character of any natural feature adopted as a boundary shall be designated clearly and concisely on the plan. In the case of water boundaries, except where applicable legislation, judicial decisions or existing rights are to the contrary, use “bank” as defined in Section 32 of *The Land Surveys Regulations*, as the feature defining the boundary.

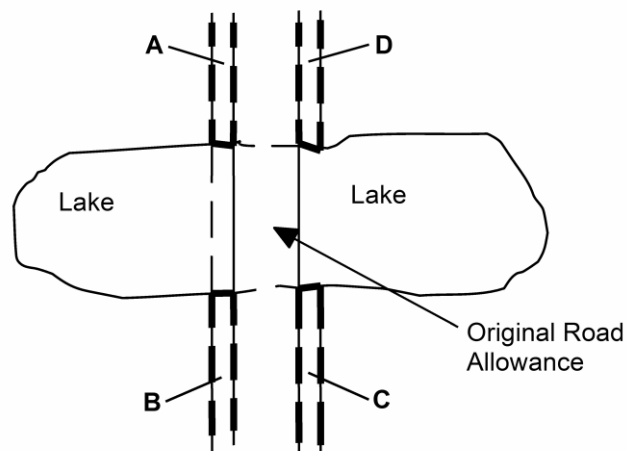
- a) Where title is based on the bank, the bank shall be shown according to the township plat referred to on the title. A note shall be shown on the plan stating “The bank is taken as the boundary. For the definition of bank, see Section 32 of *The Land Surveys Regulations*”.
- b) A note shall be added to the plan, adjacent to the bank, to clearly indicate the method used to establish the bank. e.g.: “The bank was plotted from Township Plat dated _____”, “The bank was plotted from 1:60,000 Aerial Photography (Photo ISC 80482-033 L-16)” or “The bank was plotted from _____ Satellite Imagery”.
- c) Where it is necessary to define the bank at the time of the current survey, measurements are to be shown at each change in direction to adequately define the bank.

*Natural
 Boundaries
 (Water)*

- d) Where a cross-country road crosses a water body, the road parcel shall be a continuous single parcel not broken by the water body with a single parcel identifier and area shown on the plan. The water body bank within the road parcel and the bank traverse lines shall be dashed lines.



- e) Where a road widening is adjacent to an original road allowance, the widening lines shall stop at the water bank and no area shall be taken within the water body on the widening. The original road allowance shall be one continuous parcel, not broken by the water body.



Miscellaneous

Miscellaneous

1. Street Names

Street Names

Street names shall be displayed where portions of urban areas are shown.

2. Railways

Railways

When railway right of ways or railway station grounds form part of the source parcel, the centreline of the railway is not required. However, if the centreline is shown it shall be shown as a faint dashed line so as not to be confused with the heavy dashed approval line.

3. Widths of Right of Way

Widths of Right of Way

The perpendicular width of right of way for new road (surface) and new road easement right of way (feature) plans shall be shown at least once per section. The perpendicular width of other roads, streets, lanes and right of ways in the vicinity shall be shown.

4. Angular Measurements

Angular Measurements

Angles shall be shown on the new road right of way (surface or feature) limits at all intermediate monuments and a minimum of two angles shall be shown at the intersection of all lines of surveys. The placement of these angles shall clearly indicate whether or not a deflection exists at the intersection.

All angular measurements shall be shown in degrees, minutes, and seconds.

5. Intersections

Intersections

When intersecting previously surveyed lines, a sufficient number of angles shall be shown to clearly indicate whether or not a deflection exists at the intersection. Angular and linear measurements shall be shown in all directions from the point of intersection.

6. Common Monuments

Common Monuments

When common monuments are shown on multiple plans surveyed by the same surveyor during the same time period, one plan shall show the monuments as planted and the remaining plans shall show them as found.

7. Plans Shown

Plans Shown

The plan shall only show approved plans. If measurements are shown to monuments established on an unapproved plan, the plan shall be in the Land Surveys Directory and the notation “Unapproved” shall be shown with the plan number. Easement Instruments or registered interests shall not be shown on any plan if it is not represented by a plan within the Land Surveys Directory.

8. Breaks on Plan

*Breaks on
Plan*

When it is desirable to break a survey on the plan, it shall be done at the section line, or quarter section line only. In certain cases the break may occur at the boundary of a parcel of land shown on a registered plan. This shall be done in such a manner that all areas for one quarter section are shown in one place and that quarter section is drawn entirely at scale.

The monumented limit shall be shown as a solid line through the road allowance.

Road Reference Survey Plans

*Road Reference
Survey Plans*

1. Plan Sizes

Plan Sizes

The plan of survey may be drawn in standard Township Plan format of dimensions 381 x 457 mm. A scale is not required, however, sections shall be of sufficient size and proportion and road allowances shall be exaggerated to present plan information in a clear manner.

A larger dimension plan not exceeding 841mm in width, drawn to a standard scale, may be substituted when excessive detail is required.

Support Documents

*Support
Documents*

1. Highway Right of Way and Public Improvement Surveys

*Highway Right of
Way and Public
Improvement
Surveys*

- a) The Surveyor shall submit:
 - i. A Submitting Letter/Report detailing any unusual circumstances or problems related to the survey
 - ii. Surveyors Certificate

- iii. Community Planning Approval/Affidavit if applicable as stated under *The Planning and Development Act, 2007*. The approval shall be valid on the day the plan is approved for the creation of the Transform Approval Certificate.

For further information please see Community Planning Approval pursuant to The Planning & Development Act, 2007 document on the ISC Website (www.isc.ca - Home / Geomatics / Plan Processing / Plan Preparation Documents).

Documentation required when subdividing Dedicated Lands:

See Dedicated Land document on the ISC Website (www.isc.ca - Home / Geomatics / Plan Processing / Plan Preparation Documents).

- iv. **Closure of roads, streets, lanes, etc.**

See Permanent Road Closure document on the ISC Website (www.isc.ca - Home / Geomatics / Plan Processing / Plan Preparation Documents).

- b) Upon the Ministry of Highways and Infrastructure approval of the plan, a TAC Creation Memo and if applicable, a Notice of Road Closure Consent shall be submitted to ISC, at which time ISC will approve the plan and issue a TAC.

2. *RM Roadway*

RM Roadway

- a) The Surveyor shall submit:
 - i. A Submitting Letter/Report detailing any unusual circumstances or problems related to the survey
 - a. If the road is in conjunction with land that is a TLE selection, then this should be stated in the letter of submission so the plan is prioritized for examination.
 - b. Once the acknowledgement letter is received the surveyor should contact Surveys to ensure the plan is prioritized
 - ii. Surveyors Certificate
 - iii. Community Planning Approval/Affidavit if applicable as stated under *The Planning and Development Act, 2007*. The approval shall be valid on the day the plan is approved for the creation of the Transform Approval Certificate.

For further information please see Community Planning Approval pursuant to The Planning & Development Act, 2007 document on the ISC Website (www.isc.ca - Home / Geomatics / Plan Processing / Plan Preparation Documents).

Documentation required when subdividing Dedicated Lands:

See Dedicated Land document on the ISC Website (www.isc.ca - Home / Geomatics / Plan Processing / Plan Preparation Documents).

iv. **Closure of roads, streets, lanes, etc.**

See Permanent Road Closure document on the ISC Website (www.isc.ca - Home / Geomatics / Plan Processing / Plan Preparation Documents).

- v. Expropriation Bylaw and the Ministry of Municipal Affairs Expropriation Authorization if applicable:
- a. in the situation that the entire plan is being acquired through expropriation the surveyor shall not submit the plan to the Ministry of Highways and Infrastructure for their approval and ISC would approve the plan and issue a TAC
 - b. in the situation that a portion of the plan is being acquired through expropriation, then the surveyor shall also submit the plan to the Ministry of Highways and Infrastructure for their approval with a copy of the expropriation bylaw.
- c) Upon submission of the plan to ISC and receipt of notice that the plan is approved for survey information , the surveyor shall forward the plan, agreements for sale, etc. to the Ministry of Highways and Infrastructure for their approval.
- d) Upon the Ministry of Highways and Infrastructure approval of the plan, a TAC Creation Memo and if applicable, a Notice of Road Closure Consent shall be submitted to ISC, at which time ISC will approve the plan and issue a TAC.

3. Road Easement Surveys

Road Easement Surveys

- a) The Surveyor shall submit:
- i. A Submitting Letter/Report detailing any unusual circumstances or problems related to the survey
 - ii. Surveyors Certificate
- b) Affidavit or Planning Approval are not required.

4. Reference Surveys

Reference Surveys

- a) The Surveyor shall submit:
- i. A Submitting Letter/Report detailing any unusual circumstances or problems related to the survey
 - ii. Surveyors Certificate