Technical Note - TN 008: 2016

Issued date: 17 February 2016
Effective date: 17 February 2016

Subject: Withdrawal of SPC 211 Survey, SPC 212 Contract Survey and TMC 212 Survey

This technical note is issued by the Asset Standards Authority as a notification to remove from use the following RailCorp documents:

- SPC 211 Survey, Version 2.3
- SPC 212 Contract Survey, Version 1.2
- TMC 212 Survey, Version 1.2

ASA standard T HR TR 13000 ST Railway Surveying, Version 1.0 supersedes these documents.

Authorisation:

<table>
<thead>
<tr>
<th>Technical content prepared by</th>
<th>Checked and approved by</th>
<th>Interdisciplinary coordination checked by</th>
<th>Authorised for release</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
<td></td>
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<tr>
<td>Date</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>David Brown</td>
<td>David Cooper</td>
<td>John Paff</td>
</tr>
<tr>
<td>Position</td>
<td>Senior Surveyor</td>
<td>A/Lead Track Engineer</td>
<td>A/Chief Engineer Rail</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Director Network Standards and Services</td>
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SPC 212

CONTRACT SURVEY

Version 1.2

Issued June 2012

Owner: Chief Engineer, Track

Approved by: Graeme Gaggin
Principal Surveyor

Authorised by: Malcolm Kerr
Chief Engineer
Track

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Document control

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<td>All Sections - Change of format for front page, change history and table of contents, Format change to all pages, Changes to reflect changes of titles.</td>
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Summary of changes from previous version

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1 Scope and Application

The specification documents model requirements for survey undertaken by contract. It provides guidance on RailCorp's requirements for:

- Identification of existing Survey and Track Control Marking
- Placement of Additional Survey and Track Control Marking
- Observation of Survey Control and Adjustment
- Infill Survey and Checking
- Survey of designated infrastructure
- Documentation of Surveys
- Installation of Field Marking

It is applicable for all surveys conducted for RailCorp.

The specification is provided to ensure that surveys carried out for RailCorp purposes are carried out in a consistent manner that provides for the ongoing integrity of RailCorp’s survey infrastructure.

It is suitable for use as a general technical specification. Particular project and site specific requirements may need to be added for specific works.

Specific RailCorp standards, manuals and specifications are referred to in this specification. They are mandatory where applicable.

The specification DOES NOT include the following items that may be required in any particular contract:

- Commercial conditions
- Project management and supervision;
- Protection of rail traffic and RailCorp infrastructure during site works;

2 References

2.1 Australian and International Standards

Nil

2.2 RailCorp Documents

SPC 211 – Survey Specification
TMC 212 - Survey Manual

2.3 Other References

Nil

2.4 Survey Personnel

Survey activities detailed in this specification may only be undertaken by persons with the appropriate Engineering Authority for each task.

The allocation of Engineering Authority for survey requires that:

- A person is competent to undertake the particular survey activity
• The person is in a position that requires this Authority to carry out the survey tasks.
• Established procedures exist for carrying out the tasks.

The external survey firm is primarily responsible for identification of resources to undertake the survey.

On behalf of RailCorp the Principal Surveyor will

1. Undertake a general review of the competencies of the survey personnel nominated for the project/task (including changes to nominated surveyors). Where necessary he will also undertake a detailed review.

2. Sign an "Agreement to Proceed" that confers engineering authority on the selected staff resources for the nominated technical brief/specification.

3 Identification of Survey and Track Control Marking

Prior to any survey being undertaken, the District Surveyor must be notified of:

• the type and purpose of the survey,
• the timing of the survey.

The contractor shall reach agreement with RailCorp’s District Surveyor regarding requirements for Survey and Track Control. The agreement shall be based on the requirements of the project and the District Surveyor’s knowledge of the project and survey and other issues affecting the project and adjoining areas.

The District Surveyor may require the surveyor to accompany him on a walkthrough of the proposed survey area to identify any potential issues. The District Surveyor will provide any information that may be required to complete the survey. During the walkthrough all existing Survey and Track Control Marks shall be identified.

If the District Surveyor requires additional survey control and/or track control to be established for the project, the following information shall be recorded by the contractor for any additional marks placed:

• Each additional Survey Control Mark is to be recorded in a Rail Survey Mark Locality Sketch according to the requirements of Engineering Manual TMC 212 - Survey Manual.
• Each additional Track Control mark is to be recorded in a spreadsheet according to the requirements of TMC 212.

4 Placement of Additional Survey and Track Control Marks

Where additional Survey and Track Control Marks are required they shall be placed in accordance with TMC 212.

5 Observation of Survey Control and Preliminary Adjustment

The Survey Control (including connections to the adjacent Department of Lands control) shall be observed in accordance with Engineering Specification SPC 211. The observations to be carried out must be agreed with the District Surveyor (or his delegate).

The contractor shall carry out a preliminary adjustment of the observations to ensure any observational errors are trapped. These adjustments shall be carried out using the CompNet Survey Adjustment package.
The results of each such adjustment shall be provided to the District Surveyor who may authorise or reject the adjustment. The format of data to be supplied is described in SPC 211.

6 Infill Survey and Checking

The survey of infill marks may be carried out in parallel with the Survey Control survey. Infill marks include the following:

- Track Control Marks
- Platform Copings at Sydney and country ends and at nominal 5m intervals
- Bridges, retaining walls and other fixed structures at Sydney and country ends and at nominal 5m intervals
- Other critical clearance points
- Existing track at Overhead Wiring Structures, midspan locations and adjacent to Track Control Marks, platforms and other structures (where surveyed), turnouts (points and crossing points), crossovers (crossing points), drainage, signalling equipment and any other infrastructure that may impact on the design. In plain track areas the track is to be located at nominal twenty metre intervals in addition to the above locations.
- Overhead wiring at Overhead Wiring Structure locations and mid-spans.

The infill marking survey shall be carried out in accordance with SPC 211 except where the project and/or site specific requirements of the project dictate different infill marking requirements.

The infill survey observation shall be reduced and checks carried out. Any errors found shall be made good and the checks re-run. This process is to be carried out in accordance with SPC 211.

7 Other Surveys

All surveys other than those described above shall be carried out in accordance with SPC 211.

8 Coding of Survey Data

The survey shall be undertaken using the standard RailCorp Survey Codes. The RailCorp Survey Codes may be obtained from the District Surveyor. Coding of overhead wiring is to follow the procedures supplied by the District Surveyor.

9 Documentation of surveys

The survey shall be documented in accordance with SPC 211, TMC 212 and this specification. This documentation is in addition to any requirements of the project.

9.1 Deliverables

All deliverables shall be in accordance with SPC 211, TMC 212 and this document.

In addition the survey shall be documented in both hard copy and electronic formats.

This requirement is in addition to the requirements of the project.
9.2 Prior to Commencement of Field Work

Prior to the commencement of field survey observations the contractor shall provide to the District Surveyor:

1. A diagram showing the layout of the proposed survey control network identifying existing RailCorp Survey Control Marks and newly placed survey control marks

2. A Rail Survey Control Mark Sketch Plan for each additional RailCorp Survey Control Mark (see TMC 212)

3. A spreadsheet recording all additional TCM’s.

4. A report detailing the calibration status of all instrumentation and equipment to be used on the project.

Note that items 1 to 3 above are required only on occasions where additional survey or track control is to be placed. Item 4 shall to be supplied to the District Surveyor in all cases.

9.3 At the Completion of the Field Work

At the completion of the field work where additional Survey or Track Control marks were placed, the contractor shall provide the following documentation in respect of the observations for the additional Survey and Track Control marks:

- A final single GSI file for the project. The GSI will be free of all errors.
- A complete listing of all co-ordinated points.
- A single check file containing all checks measured during the survey.

The above data shall be supplied to the District Surveyor within 5 working days of the completion of the field work. This requirement is in addition to the deliverables required by the project.

10 Installation of Field Marking

Where additional Survey or Track Control marks were required to be placed, the contractor shall provide certification that all field marking have been installed in their correct location in accordance with TMC 212 with a report detailing any proposed marks that where not installed and the reason why installation was not possible.