

**Engineering Services
Surveying Section**

Preservation of Survey Infrastructure

Technical Procedure

OTV-TP-03

Issue B - draft

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Authorised by	Principal Surveyor
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Change history

Issue	Date	Description of change	Author
B	28.06.16	First Draft	R. Gilmour

1. Purpose

Preservation of Survey Infrastructure (POSI) is critical for the integrity of the land ownership, infrastructure development and spatial industries of New South Wales. Roads and Maritime Services have a legal and moral duty to preserve and enhance the reliability of the cadastre and survey control network.

2. Scope

This procedure is limited to surveying activities undertaken for RMS projects by either in-house resources, Professional Service Contractors, Contractors or Delivery Offices organisations.

3. Definitions

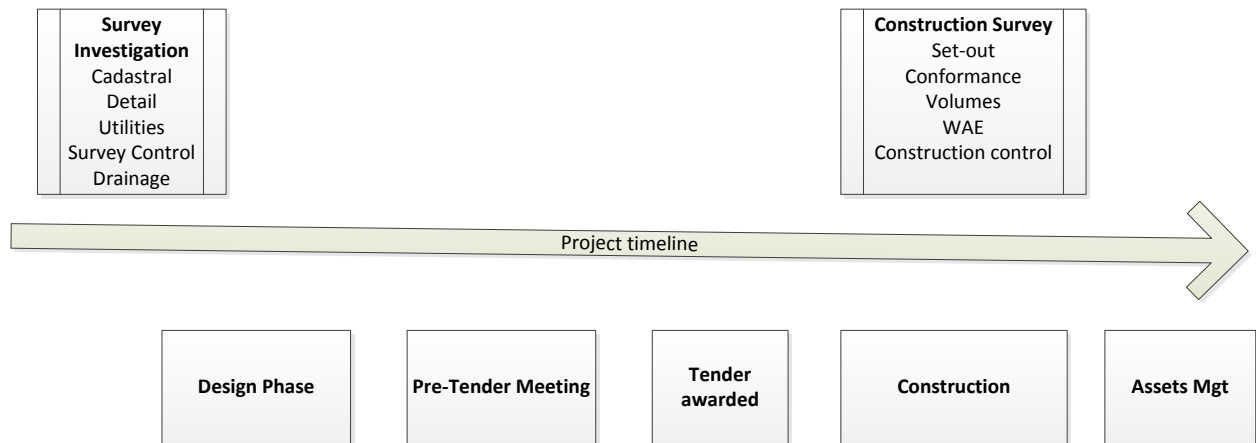
Also, refer to G71 Construction Survey and G73 Detail Survey clause 1.3

Term	Comment
RMS	Roads and Maritime Services
Preservation of Survey Infrastructure (POSI)	State survey marks and cadastral survey marks as recognised in legislation that must be protected. Not to be confused with Plan for Survey Information – cadastral Deposited Plan.
survey infrastructure	Permanent survey marks and cadastral reference marks as defined by the Surveying & Spatial Information Regulation. This may or may not include survey marks identified on the Drawings as Primary Survey Control Marks.
POSI drawing	A post design drawing showing all of the survey control marks and cadastral reference marks that may be disturbed or destroyed by the planned construction activities. This should be provided at the pre-tender stage.
Survey Mark Register	A schedule of all survey control marks and cadastral marks with additional information suitable for specification G71 Constructions Survey requirements. Template OTV-TP-03T1 may be used.
Deposited Plan of Survey Information Only	Survey information placed on public record. Provides valuable evidence for the location of adjoining owner boundaries during and after construction.
Deposited Plan of Redefinition	Defining parcel boundaries, as they exist today.

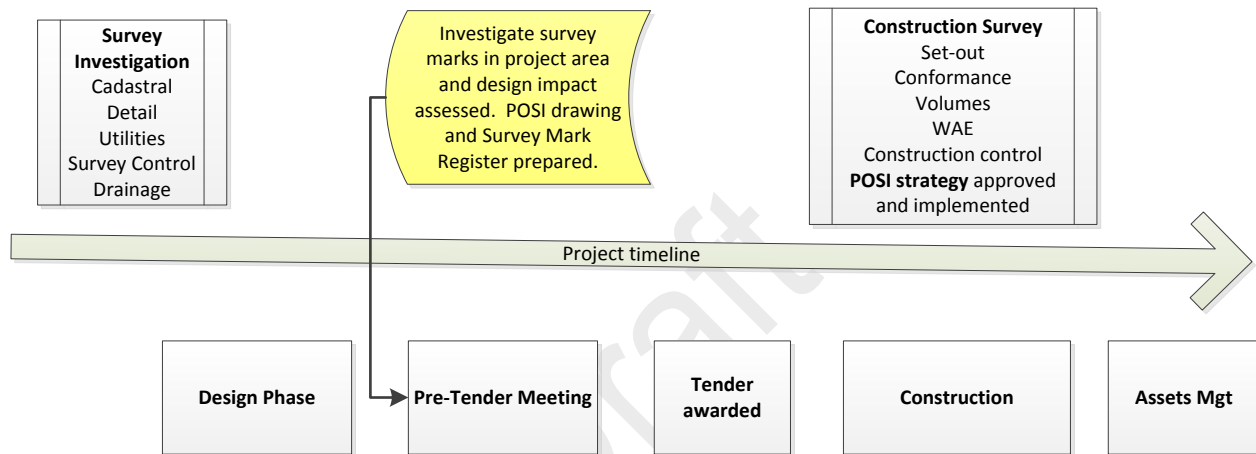
4. Procedure

4.1. Asset life cycle impact

Most physical developments undertaken by RMS may affect the survey infrastructure and can unintentionally destroy survey marks. The figure below is an overview of the current situation for development projects with the associated survey activities.



To reduce the risk of litigation and loss of marks, an extra step is included in the figure below.



4.2. Specification G73 Detail Survey process requirements

All Project Managers are responsible for ensuring the investigation of existing survey marks is undertaken and adequate for the design phase and POSI analysis. The Project Manager will seek the guidance of the contract Surveying Technical Representative to develop the survey ‘brief’. Refer to step 6 of Roads and Maritime specification Annexure G73/E1 and G73/E8.

As a minimum, the Survey Mark Register is to be completed. The Register lists all survey marks within and adjacent to the project area with co-ordinates and status. The co-ordinates may be approximate if not surveyed and the status can state that the mark is ‘calculated’ or as described in the Deposited Plan. The Register can form part of the metadata associated with any spatial data transfer. If the footprint of the development area is known, then a Preservation of Survey Infrastructure Drawing can be created displaying a traffic light system to indicate the vulnerability of the mark. The drawing is to be registered in the RMS Plan Management System in Objective and is indicated by identifier DSYYYY/nnnnnn where YYYY is the year and nnnnnn is a sequential number allocated by the Plan Management Centre.

4.3. Pre-Tender documentation

As part of the documentation compilation process, a review of existing information is required. This is to ensure that no gaps in the data exist either caused by; scope creep, old information needing updating or inadequacy of the original data.

The Contractor needs this information to prepare a cost estimate for this activity, which is essential when the fine could be of the order of \$20,000 per lost or damaged mark.

4.4. Specification G71 Construction Survey process requirements

Referring to clause 1.4, a Project Quality Plan is required with a POSI strategy. Under clause 1.6, the onus is on the Contractor to preserve the survey marks. Under clause 2.1 all survey control marks are to be verified and under clause 2.3, all cadastral marks are to be surveyed. The information can be included in the Survey Mark Register. This may be a new Register or ideally, updates to the Pre-Tender Register can be made. Several HOLD points exist to control this process.

G71 is being updated from 2014 Edition 1 Revision 4 to better explain the new process based on the 'RMS – LPI Collaborative Agreement' signed in 2016. This document promotes the delegation of some of the LPI duties to RMS Principal Surveyor or delegate.

Approved destruction of the Survey Infrastructure can only occur when the fabric of the cadastre and survey control network are not damaged or lost. This may require a Deposited Plan of Survey Information or Plan of Definition and a full geodetic control survey as part of the Contract.

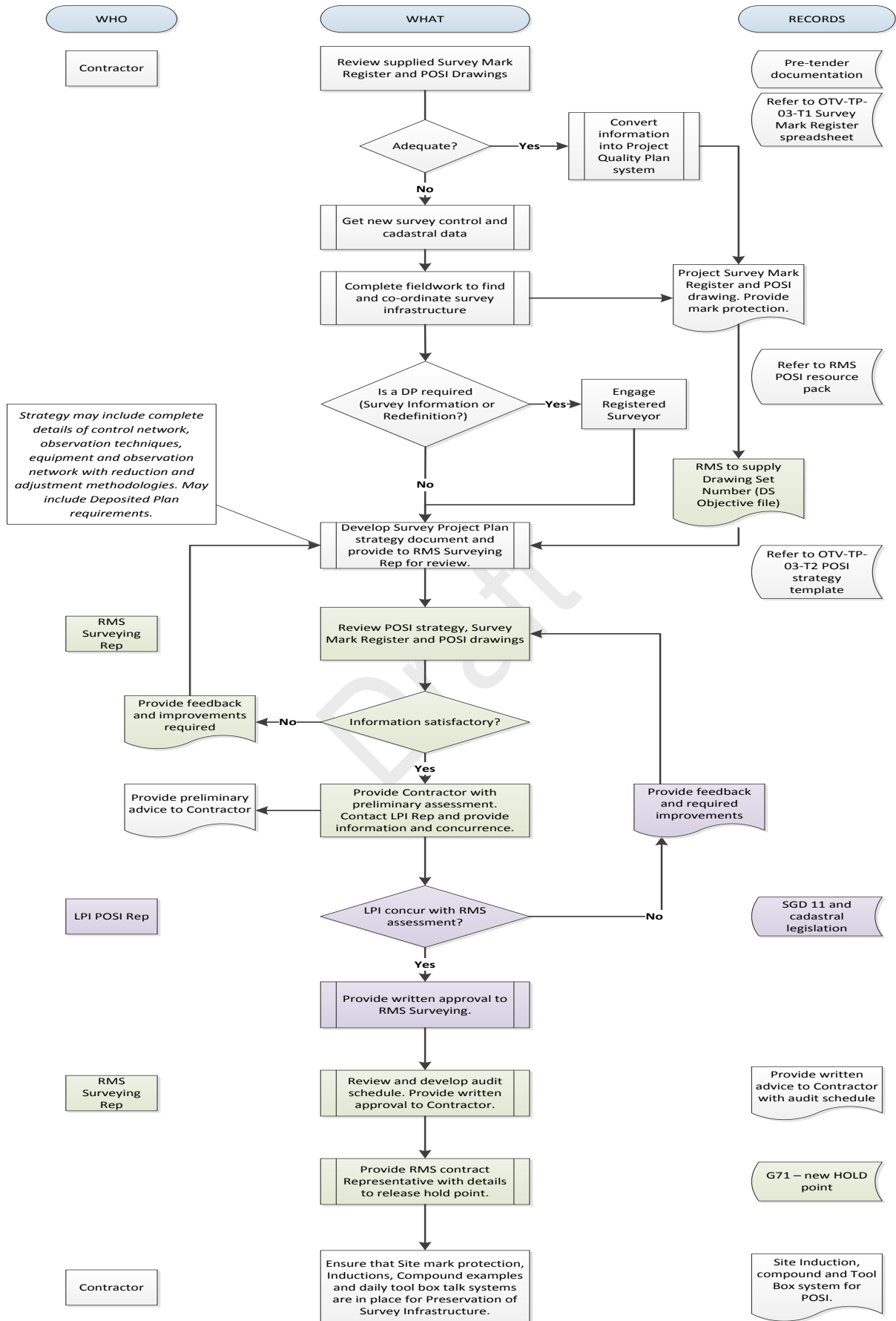
4.5. Surveyor General's Directions process requirements

Interaction between the Contractor Surveyors, RMS Surveying Technical Representative and Land and Property Information will occur in three phases. Each phase of:

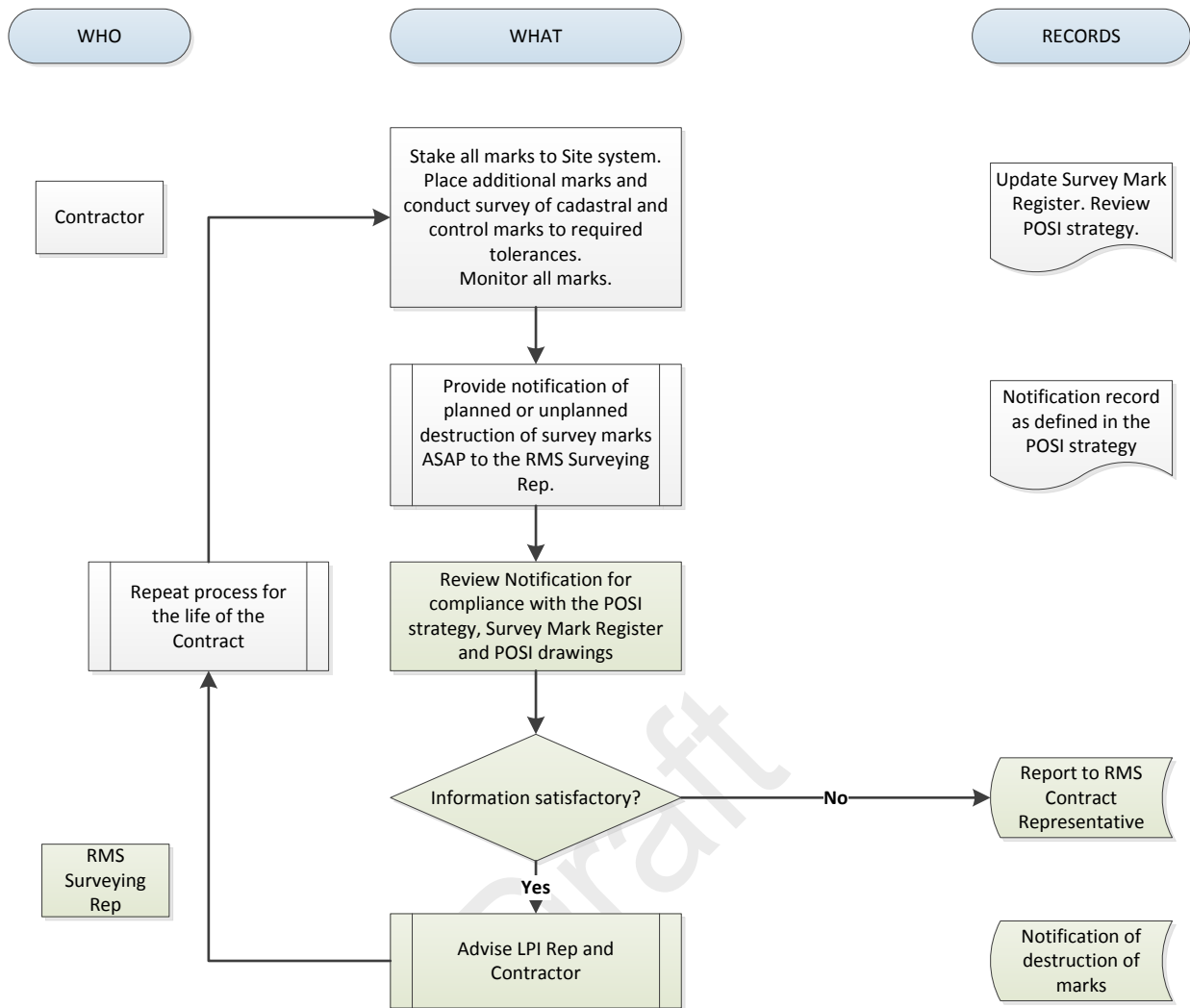
- Pre-construction
- Active construction, and
- Wind-up construction

Has an activity flowchart and are shown in the following sections.

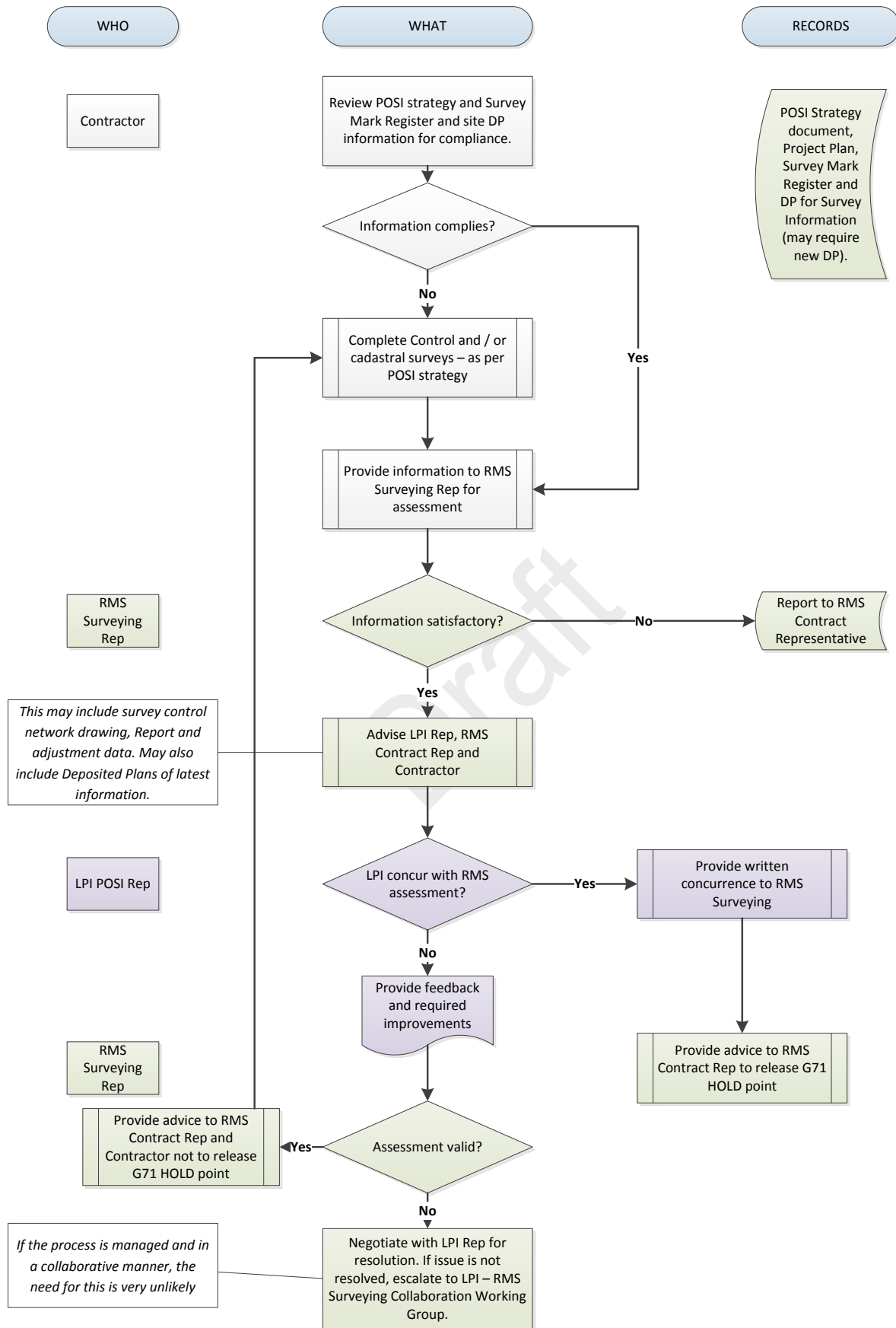
4.5.1. Pre-construction phase



4.5.2. Active construction phase



4.5.3. Wind-up construction phase

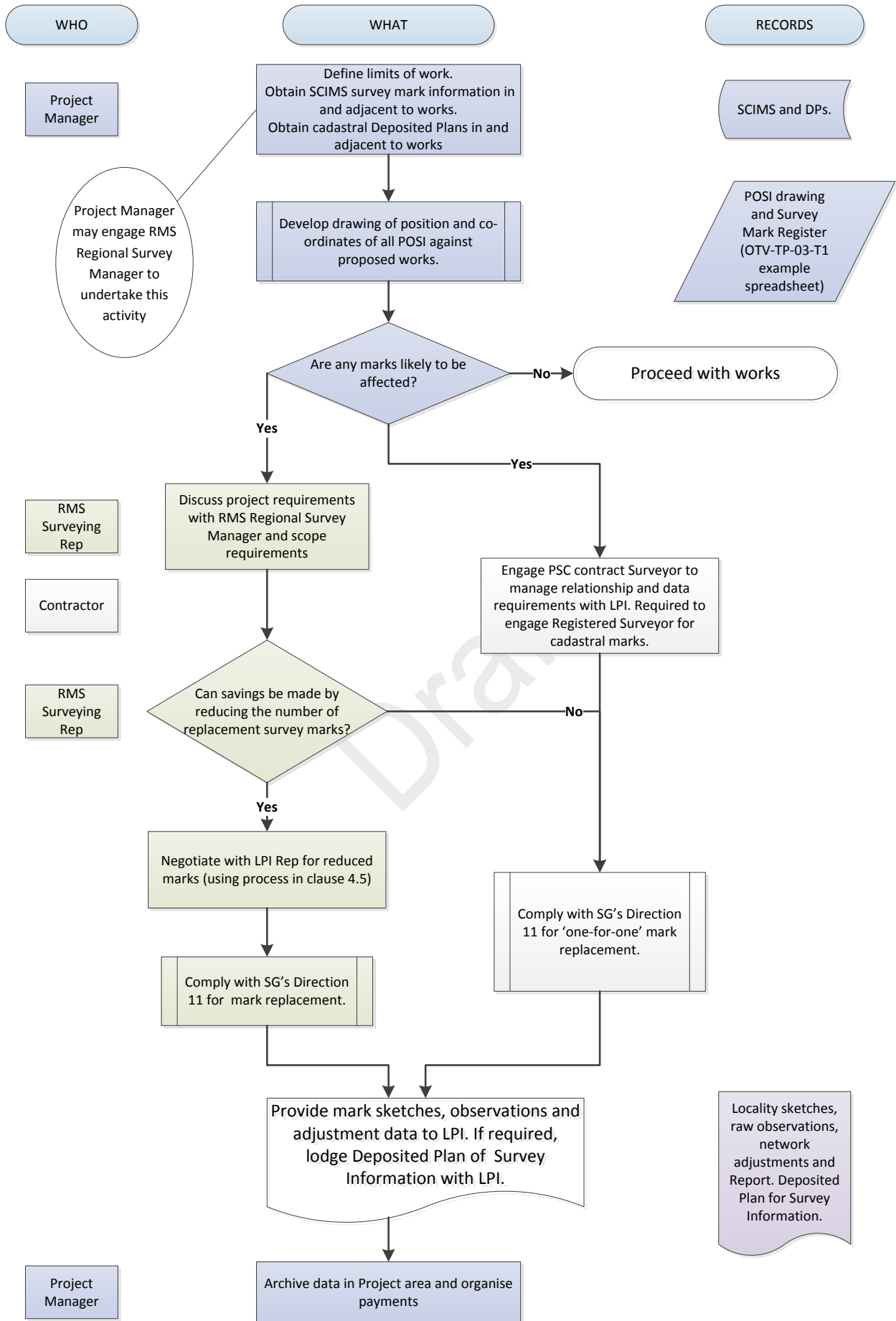


4.6. Minor improvement or maintenance projects

The Project Manager is responsible for compliance with Surveyor General's Direction 11 – Preservation of Survey Infrastructure. Breaches could result in fines and loss of reputation for Roads and Maritime Services. To minimise the risks, technical advice is available from Roads and Maritime Services Regional Survey Managers.

As outlined in Direction 11, all survey infrastructure needs to be preserved or replaced if damaged or destroyed. However, the Regional Survey Manager may be able to reduce this requirement through negotiation with Land and Property Information Representatives.

Draft



5. Reference documents

Surveying and Spatial Information Act	In particular, sections 3, 5, 9, 24 and 36. http://www.legislation.nsw.gov.au/#/view/act/2002/83/full
Surveying and Spatial Regulation	In particular, clauses 5, 6, 7, 9, 10, 12, 13, 14, 15, 17, 18, 22, 26, 27, 31, 32, 33, 34, 35, 36, 38, 39, 41, 42, 43, 52, 63, 67, 69, 71, 86, 88, 89 Schedules 1, 2, 3, 4, 5, 7 http://www.legislation.nsw.gov.au/#/view/regulation/2012/436/full
Survey General's Direction No 1	Approved Permanent Marks
Survey General's Direction No 2	Preparation of Locality Sketch Plans
Survey General's Direction No 3	Control for Cadastral Surveys
Survey General's Direction No 11	Preservation of Survey Infrastructure
Survey General's Direction No 12	Control Surveys and SCIMS
Registrar General's Directions	various
IC-QA-G2-C2	Specification G2 General Requirements (Major Contract) CI 42.
IC-QA-G2-C41	Specification G2 General Requirements (Minor Physical Works and Services)
IC-QA-G71	Specification G71 Construction Survey
IC-QA-G73	Specification G73 Detail Survey
ICN200	RMS Infrastructure Contracts Notes – Care, Protection and Preservation of Survey Control Marks
ICSM SP1 (version 1.7)	Inter-Governmental Advisory Committee on Surveying and Mapping. Standards and Practices for Control Surveys (SP1)
OTV-TP-03-T1	Template – Survey Mark Register
OTV-TP-03-T2	Template - Preservation of Survey Infrastructure Strategy Report