How to provide as constructed information and interpretation of sewer plans
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1 Sewer Junction Cut Ins and As Constructed

1.1 Overview - As constructed procedure for cutting in a new sewer junction

1. Licensed Plumber excavates main sewer.  
   NOTE: Excavation must be safe for entry. Water Corporation reserves the right to refuse entry to the excavation if it is in anyway considered unsafe to do so.

2. Water Corporation install take junction to the main sewer.

3. Water Corporation measure off-take junction position relative to the downstream access chamber or maintenance shaft. If unable to obtain a measurement to these, the off-take junction position is to be located relative to the property boundaries.

4. Water Corporation to record measurement/s on the "Minor Works As Constructed – Sewer" worksheet. (Example on page 7 or Water Corporation aquaDOC 14089519).

5. If the junction requires further extension, or “ins and ups” these are to be constructed by the Licensed Plumber.

6. The Licensed Plumber is required to obtain a copy of the “Sewer Junction As Constructed” submission form.

7. The Licensed Plumber will construct the extension and/or ins and ups as required and will record these measurements on the above-mentioned form.

8. The Licensed Plumber will complete the details on this form and submit to: asset.registration@watercorporation.com.au

1.2 Procedure for Sewer Junction As Constructed – Step 1 (Water Corporation)

1. Water Corporation install take-off junction

2. Water Corporation take measurement to the off take junction from the downstream access chamber or maintenance shaft and record this on the “Minor Works As Constructed – Sewer” worksheet (See page 7). Additional information such as date constructed, location work order etc must also be completed.

   Note:
   (a) If a downstream access chamber or main sewer is not accessible then the junction off take is to be measured relative to the property boundaries.
   (b) If the junction cut in is on an inspection shaft sewer (IS) then the distance measurement is to be taken from the intersection of the inspection shaft sewer and the main sewer where this is possible.
   (c) Where this is not possible, due to obstructions etc, it is permissible to measure the junction cut in relative to the property boundaries.

3. Water Corporation to submit this plan to asset.registration@watercorporation.com.au
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1.3 Measuring offtake position (Water Corporation)
1.4 Procedure for Sewer Junction As Constructed – Step 2 (Plumber)

1. If the junction requires further extension, or “ins and ups” these are to be constructed by the Licensed Plumber.

2. The Licensed Plumber is required to obtain a copy of the “Sewer Junction As Constructed” form, complete the details and reference the work order number for the junction cut in completed by Water Corporation (See example on page 6).

3. The Licensed Plumber will construct the junction extension and/or “ins and ups” as required and will record these measurements on the As Constructed Water and Sewer form (as per below).

4. The Licensed Plumber will complete the details on this form and should submit the fully completed form to building.services@watercorporation.com.au or by post to Water Corporation, Development Services Branch, PO Box 100, Leederville WA 6902

In the example shown below, following on from the Water Corporation cut in junction (as per diagram on page 4), the Plumber has extended the offtake junction by 0.5m making a total distance of 70.0m from the downstream access chamber. This is the distance that the plumber records on the form.

The plumber has also extended the junction 4.0m into the block and has placed a 3.5m riser on the end of the junction. This is to be shown as I4.0 & U3.5 on the Sewer Junction As Constructed form.

![Diagram of Sewer Junction As Constructed](image)
1.5 Example Sewer Junction As Constructed form (Plumber)
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1.6 Minor Works As Constructed (Water Corporation Use Only)

Please forward completed minor works as constructed by email to spatial-datacapture@watercorporation.com.au
1.7 Multiple rising shaft property connections

EXAMPLE FROM LITE SPACIAL FOR LOT 1286:
• 7.3 = DISTANCE FROM DOWNSTREAM ACCESS CHAMBER.
• M = MULTIPLE SHAFT CONNECTION.
• I = TOTAL IN DISTANCE FROM MAIN SEWER ("B" ABOVE).
• U = TOTAL AMOUNT OF UP DISTANCE FROM INVERT LEVEL OF MAIN SEWER (A+C ABOVE).

NOTE: BOTH UP DISTANCES A & C AS ABOVE ARE REQUIRED TO BE RECORDED ON AS CON FLINSEY. THE COMBINED MEASUREMENT ONLY IS SHOWN ON LITE SPACIAL.

NOT TO SCALE
2 Guide for measuring property junctions and inspection shafts

2.1 Sewer in road reserve, access chamber or maintenance shaft.
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2.2 Sewer inside properties access chamber or maintenance shaft
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2.3 Junction extends past upstream access chamber or maintenance shaft (Scenario 1)
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2.4 Junction extends past upstream access chamber or maintenance shaft (Scenario 2).
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2.5 Inspection shaft square to property boundary
2.6 Inspection shaft angled to property boundary
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3 General Information

3.1 Sewer general layout (access chamber to access chamber)
3.2 Pipe grade information

For the length of 5m the pipe rises 1m.

For the length of 10m the pipe rises 2m.
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3.3 Locating sewers and general information (1).

ACCESS CHAMBER
CAST IRON COVER

2.36 T3126
1.0 FN
1.0 FE

TOP OF A/C LEVEL
A/C NUMBER
1.0 NORTH FROM BOUNDARY
1.0 EAST FROM BOUNDARY

MAINTENANCE SHAFT

2.36 T3126
1.0 FN
1.0 FE

ACCESS CHAMBER - CONCRETE COVER

2.36 T3126
1.0 FN
1.0 FE

TOP OF A/C LEVEL
A/C NUMBER
1.0 NORTH FROM BOUNDARY
1.0 EAST FROM BOUNDARY

I.O. LINES
(Inspection Opening or Capped Sewer)

0.9 FS
1.2 FW

main sewer
I.O.

I.S. LINES
(Inspection Shaft)

1.0 FN
1.0 FW

main sewer

N
NW

W
E

NE

SW

S
SE

ACCESS CHAMBER
ALWAYS FACES NORTH

2.36 T3126
1.0 FN
1.0 FE

F — Means from the boundary at 90°
A — Means measured along the boundary from an intersection of boundaries
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3.4 Locating sewers and general information (2).

NOTE
IF NO TOP LEVEL OF ACCESS CHAMBER IS KNOWN -99.99 IS SHOWN

F = Means from the boundary at 90°
A = Means measured along the boundary from an intersection of boundaries
3.5 Locate inspection shaft.

**LOT 6**
- 1.5 FN
- 1.0 FW
- INSPECTION SHAFT
- PROPERTY CONNECTION
- SHOWN WITH SMALL CIRCLE
- AND DENOTED "ISC"

**LOT 7**
- 1.0m WEST
- ISC
- 1.5m NORTH
- 4.77
- 10.5
- 30.5
- 4.40

**LOT 6**
- 1.2 ANE
- 1.5 FNW

**LOT 7**
- MAIN SIZE & TYPE
- 150P
- 149
- GRADIENT
- 55.5
- LENGTH OF MAIN
- BETWEEN ACCESS CHAMBERS

F — Means from the boundary at 90°
A — Means measured along the boundary from an intersection of boundaries
3.6 Junction location (Example 1)

EXAMPLE 1A – LOCATE JUNCTION FOR LOT 1031 (method 1)

Locate end of sewer main (B).
Locate centre of access chamber (A).
Project a line from the centre of the access chamber (A) to the end of sewer (B), & continue this for the distance shown to point (C).
Measure the ‘in’ measurement as shown on the plan, at right angle to the projected line and end up at point ‘D’.
Dig at point ‘D’ to locate the junction.
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3.7 Junction location (Example 2)

EXAMPLE 2A – LOCATE JUNCTION FOR LOT 1031 (method 2)

Locate end of sewer main (B).
Locate centre of access chamber (A).
Project a line from the centre of the access chamber (A) to the end of sewer (B), & offset this for the 'in' distance as shown on the plan (C).
Measure the junction distance as shown on the plan along the projected line and end up at point 'D'.
Dig at point 'D' to locate the junction.
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3.8 Calculation of sewer grades (1)

- **A/C**
  - Downstream: \( \text{invert level} \)
  - Upstream: \( \text{invert level} \)
  - Distance: \( \text{distance} \)
  - Grade: \[
  \frac{\text{up stream} - \text{down stream}}{\text{distance}} = 1.0
  \]

- **A/C**
  - Downstream: \( \text{invert level} \)
  - Upstream: \( \text{invert level} \)
  - Distance: \( \text{distance} \)
  - Grade: \[
  \frac{\text{up stream} - \text{down stream}}{\text{distance}} = 0.5
  \]

- **M/S**
  - Downstream: \( \text{invert level} \)
  - Upstream: \( \text{invert level} \)
  - Distance: \( \text{distance} \)
  - Grade: \[
  \frac{\text{up stream} - \text{down stream}}{\text{distance}} = 0.5
  \]

- **M/S**
  - Downstream: \( \text{invert level} \)
  - Upstream: \( \text{invert level} \)
  - Distance: \( \text{distance} \)
  - Grade: \[
  \frac{\text{up stream} - \text{down stream}}{\text{distance}}
  \]
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3.9 Calculation of sewer grades (2)

\[
\text{Grade} = \frac{\text{up stream invert level} - \text{down stream invert level}}{\text{distance}}
\]

Note: Grades are quoted to the nearest 0.1 of a metre.

COMMON PIPE TYPES

- P = PVC
- GRP = GLASS REINFORCED PLASTIC
- RC = REINFORCED CONCRETE
- AC = ASBESTOS CEMENT (NO LONGER USED)
- VC = VITREOUS CLAY
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4 Revisions

The following clauses in this manual were revised on the dates shown.

<table>
<thead>
<tr>
<th>Revision Number</th>
<th>Issue Date</th>
<th>Reason for Change</th>
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<tbody>
<tr>
<td>1.0</td>
<td>24 February 2012</td>
<td>Initial Issue</td>
</tr>
<tr>
<td>1.1</td>
<td>5 March 2014</td>
<td>Hyperlinks reinstated (pages 3 and 4)</td>
</tr>
<tr>
<td>1.2</td>
<td>21 October 2016</td>
<td>Updated and corrected information as necessary.</td>
</tr>
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