Central Coast Council

Water and Sewer Work as Executed
CAD Drawing Standard and Requirements

Version 2.3

Asset Management Water

March 2022

Contents

1. Purpose

This document is intended to create a simple yet consistent standard for delivery of water and sewerage information at the "Constructed" stage of a civil project. By utilising this standard, CCC should have enough information to load into internal systems. As all construction projects differ in technicality or simplicity it is still expected that cooperation with Council occurs throughout the construction project.

2. Scope

This document covers works by internal and external parties on CCC Water and Sewer reticulation assets. This applies to the production of CAD Drawings at all stages of civil works from Concept, Design and to Works As Constructed/Executed (WAC/WAE).

3. Drawing Package – CCC to provide

- DWG and PDF A3 and A1 template (with layers) and layers spreadsheet
- Plot styles
- XREFs folder
- Line sheet template
- Examples

4. Requirements for Supply of Deliverables to Council

The electronic drawings and associated asset information is to be delivered to Council in one package using email (waterandsewerworks@centralcoast.nsw.gov.au) or electronic file transfer using OneDrive platform.

5. Drawing requirements – Consultant/Contractor to provide as Deliverable for Handover

The electronic drawing file is to be a complete representation of the work as constructed.
Images are to be embedded in the drawing file.
XREFs are to be embedded in the drawing file, OR:

- All be stored in \XREF folder and supplied in zip format with the drawings
- Where possible XREF sources to be combined as per source (e.g. CCC supplied GIS data as one XREF)
- XREFs Stored as relative paths (drawing properties)
- XREFs not to reference additional XREFS

5.1. All Drawings

- Use CCC CAD Standard Drawing Templates or drawing template used for the construction design
- Be prepared in "Grid Coordinates" MGA-56
- Be prepared and provided in DWG and PDF format for A3 Landscape and A1 Landscape to the provided templates
- Provide single drawing file with multiple layout pages
- Provide locations of survey control and survey mark name

- Contractor to use determined space on layout for Contractor Company details only.
- A cover page is required for drawing packages greater than two (2) pages
- Locality Plan (can be on cover page)
- Legible in both Colour, Black and White with no greys (i.e. monochrome)
- Title Block
    - Previous revisions marked in the schedule space
    - All Revisions that are detailed on schedule must be submitted to Council
- North arrow to MGA North and Graphical Scale Bar (not scale text)
- Structural details on all structures (e.g.: "M.H RL 101.11", "Bend 22.5 deg")
- Drawing must not exceed a scale of 1:1000 Horizontal on A1 and 1:500 on A3 (The drawing extent is not to exceed 100 m in actual length)
- Legend with services, fittings, structures, etc.

6. Water

- Refer to Attachment 1 for examples for this section of the document
- Asset schedule with MGA co-ordinates
- Disinfection test location and date on plan
- Water Service/Meter and tapping locations when appropriate
- Longitudinal sections for water mains 300 mm and above OR for any sized main where the area is considered congested (i.e. brownfield sites, RMS roads).
- Depth of water main indicted on plan (where longitudinal sections for water mains are not required). Changes in depth indicated on plan (i.e. where water main traversing roadway).
- Fitting type (i.e. valve, hydrant, air vale, etc.)
- Bend type (e.g. 22.5 degrees)
- Thrust block area and type (e.g. 'Thrust Bend 0.20m^2', Thrust Anchor 1.5m^2)
- Hydrant to Hydrant chainage information
- Hydrant Invert level information
- Valve rotation direction
- Heights recorded in AHD

7. Sewer

- Refer to Attachment 2 and 3 for examples for this section of the document
- Asset schedule with MGA co-ordinates
- Heights recorded in AHD
- Sewer line codes
    - Contact CCC for line codes to be used on new sewer lines
- Long Section including:
    - Line codes and manhole numbers indicated such as example attached
    - Scale height at base of each profile group
    - Manhole information (type and material)
    - Finished surface profile
    - Datum scale on base of each line
    - Chainage

  - Invert levels of inlet and outlet
  - Road and other crossings
  - Other utilities service crossings and levels of services
  - Concrete encasements, other structural information
- Construction sewer line sheets per the CCC template including Junction location information on Attachment .

8. Asset Information

Asset information to be included on the drawing; possible to include in tabular format:

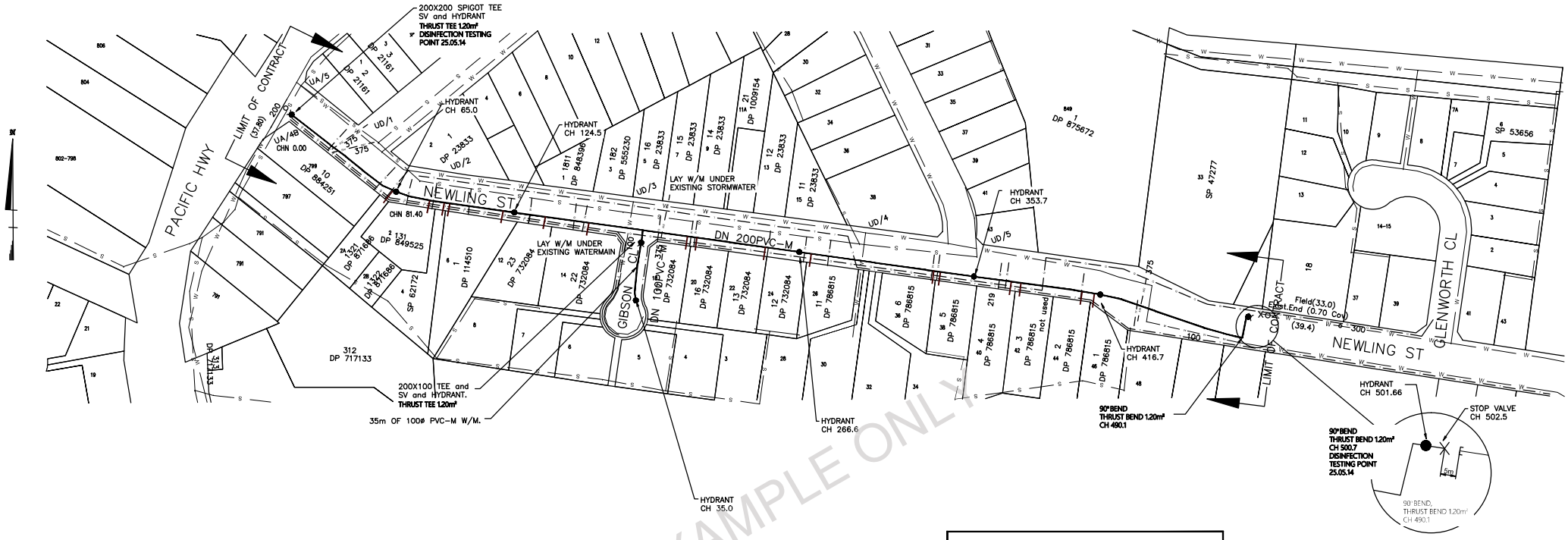
8.1. Pipe Details

  - Line code – CCC provided line code
  - Diameter in mm
  - Material
  - Pipe Class
  - Thrust block details and locations
  - Length installed
  - Construction Date
  - Invert Levels on all Sewer mains
  - Invert Levels Water mains >=300 mm Diameter OR for any sized main where the area is considered congested (i.e. brownfield sites, RMS roads).

8.2. Fittings

  - Fitting include Manholes, Maintenance Shafts, Valves and Hydrants
  - Line code (and Manhole number) – CCC provided details
  - Type (Type of Valve, Gate, Butterfly etc, Manhole or Maintenance Shaft etc.)
  - Connection details (Flange, Weld, Gibault, Socket etc)
  - Manufacturer
  - Diameter in mm
  - Quantity
  - Construction Date
  - Chainage
  - Surface levels
  - Inflow and Outflow Invert level's

9. Attachment 1 – Example WAE – Water Plan



SKETCH OF CONNECTION
NTS

SCHEDULE OF MGA COORDINATES (ZONE 56)

DN200 PVC-M

CHAINAGE	EASTING	NORTHING	DESCRIPTION
0.0	346985.9	6304815.2	STOP VALVE
0.7	346986.5	6304814.7	HYDRANT
24.8	347005.4	6304799.8	
34.7	347013.3	6304793.9	
45.0	347021.4	6304787.3	
57.4	347031.1	6304779.8	
65.0	347038.1	6304776.6	HYDRANT
71.5	347044.1	6304774.4	
82.2	347054.7	6304772.2	
124.5	347096.5	6304766.3	HYDRANT
188.6	347160.0	6304757.6	TEE
231.8	347202.8	6304751.7	
266.6	347237.3	6304746.8	HYDRANT
304.3	347274.6	6304741.5	
329.7	347299.8	6304738.0	
353.7	347323.5	6304734.7	HYDRANT
372.2	347341.9	6304732.3	
403.6	347373.0	6304728.1	
416.7	347385.9	6304725.8	HYDRANT
427.6	347396.5	6304723.4	
445.3	347413.3	6304717.6	
470.4	347437.0	6304709.5	
480.7	347446.8	6304706.6	
487.1	347453.0	6304705.0	
490.1	347456.1	6304704.5	90 BEND
499.7	347458.0	6304713.9	
500.7	347458.1	6304714.9	90 BEND
501.7	347459.1	6304714.8	HYDRANT
502.5	347459.9	6304714.7	STOP VALVE

DN100 PVC-M

CHAINAGE	EASTING	NORTHING	DESCRIPTION
0.00	347160.0	6304757.6	TEE
6.2	347159.1	6304751.4	HYDRANT
6.9	347159.0	6304750.7	STOP VALVE
35.0	347156.5	6304722.9	HYDRANT

EXAMPLE ONLY

WORK AS EXECUTED

I CERTIFY THAT CONSTRUCTION HAS BEEN CARRIED OUT IN ACCORDANCE WITH THIS DRAWING WITH REGARD TO LINE AND LEVEL. THIS DRAWINGS HAS BEEN PREPARED FROM FIELD SURVEY BY ME AND INFORMATION PROVIDED BY THE CONTRACTOR.

Signed:.....Dated: XX/XX/XX
XXXX XXXX (B.Surv)
REGISTERED SURVEYOR

CAUTION:
1. CADASTRAL BOUNDARIES SHOWN ON THIS PLAN HAVE BEEN PROVIDED BY COUNCIL. NO FIELD INVESTIGATION HAS BEEN UNDERTAKEN TO CONFIRM THE ACCURACY OF THE BOUNDARIES SHOWN.

VALVE ROTATION DIRECTION - ANTICLOCKWISE

WATER MAIN RETICULATION INSTALLED AT AVERAGE 0.6M DEPTH

WORK AS EXECUTED

LEGEND

EXISTING SERVICES		EXISTING	WATER	PROP'D	EXISTING	SEWER	PROP'D
ELECT.	—E—E—		HYDRANT			MANHOLE	
WATER	—W—W—		STOP VALVE (OPEN)			LAMPHOLE	
SEWER	—S—S—		STOP VALVE (CLOSED)			MAINTENANCE SHAFT	
GAS	—G—G—		REFLUX VALVE			SEWERMAIN	
TELSTRA	—T—T—		SCOUR VALVE			SEWER RISING MAIN	
		AV	AIR VALVE	AV		JUNCTION	
			TAPER		NOT SHOWN	CONCRETE ENC.	

N°	REVISION DETAILS	DRAWN	APPR.	DATE
4	WORK AS EXECUTED	x.x		xx.xx.xx
3	HYDRANTS AND STOP VALVE ADDED TO DRAWING	x.x	M.L.	xx.xx.xx
2	ISSUED FOR TENDER	x.x	M.L.	xx.xx.xx
1	ISSUED FOR REVIEW	x.x	M.L.	

DISK N°/FILE NAME: XXXX
AUSTRALIAN HEIGHT DATUM
LEVEL BOOK: W.S. 62 | SURVEY BOOK:

SURVEYED	X.X	
DRAWN	X.X	XX/XX/XX
PROJECT DELIVERY OFFICER	XXXX	
MANAGER ASSET DESIGN	XXXX	

BASE SCALE
PLAN 1:1000
LONG.SECTION. HORIZ. 1:1000
VERT. 1:200

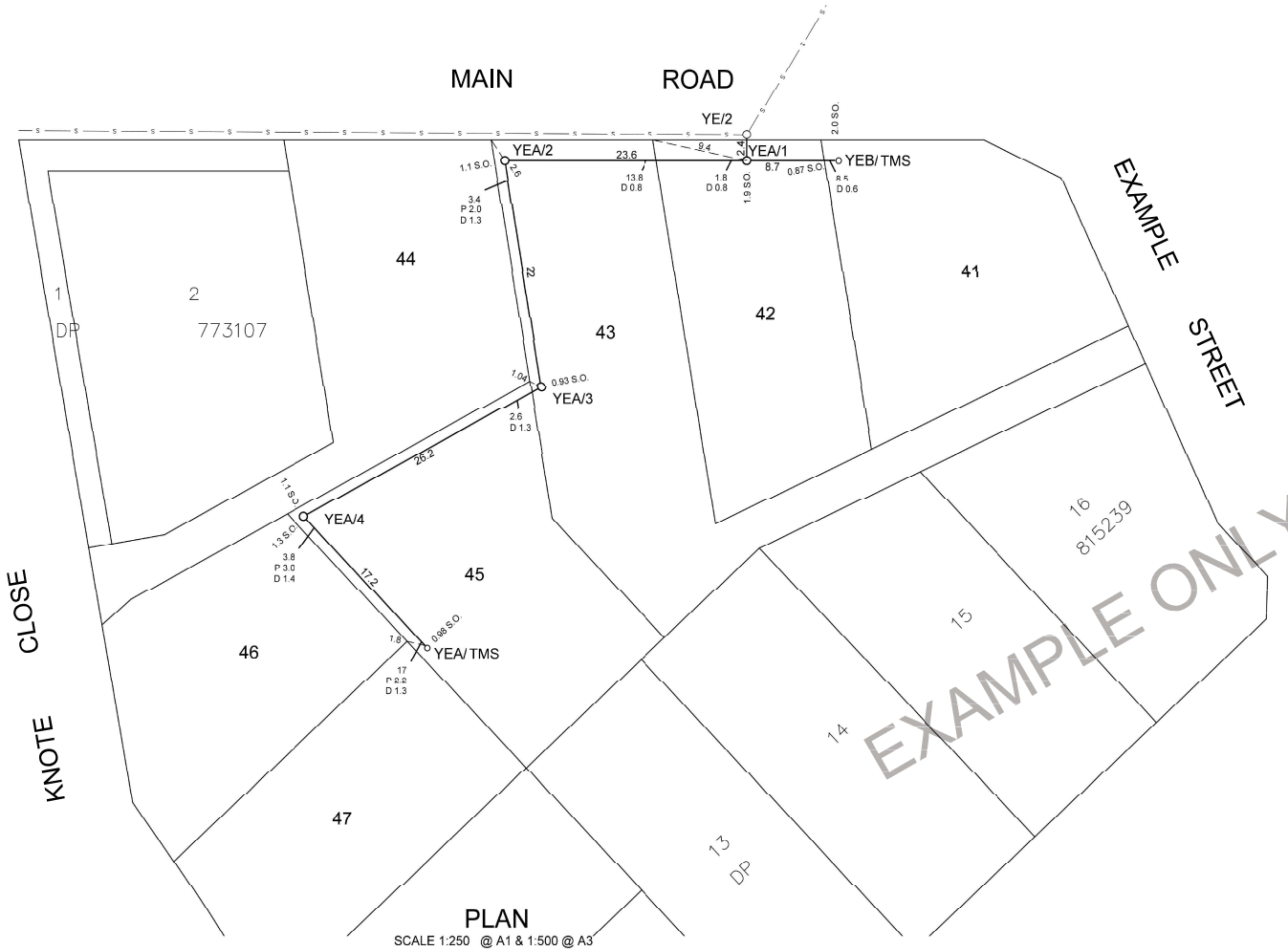
BAR SCALE
PLAN: 0 10 20 30 40 50
LONG.SECTION. HORIZ.: 0 10 20 30 40 50
VERT.: 0 2 4 6 8 10

CENTRAL COAST COUNCIL

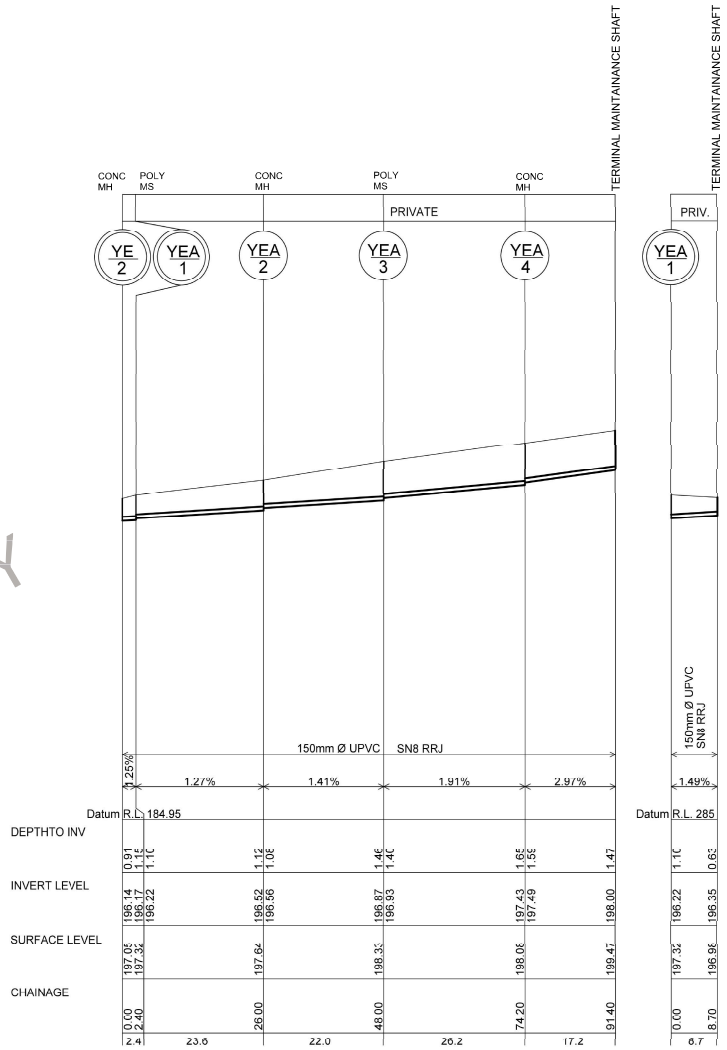
WATER MAIN EXTENSION
NEWLING STREET, LISAROW

INTERNAL REF °. XXXX | DRAWING N° XXXX | 1 OF 1 | A1

10. Attachment 2 – Example WAE – Sewer Plan and Longsection



PLAN
SCALE 1:250 @ A1 & 1:500 @ A3



LONGSECTIONS

SCALE H 1:500 @ A1 & 1:1000 @ A3
SCALE V 1:100 @ A1 & 1:200 @ A3

SEWER STRUCTURES

STRUCTURE	EASTING	NORTHING
YE/2	341530.0	6298360.4
YEA/1	341540.3	6298364.5
YEA/2	341521.6	6298349.9
YEA/3	341537.6	6298334.7
YEA/4	341527.3	6298310.6
YEA/ TMS	341544.3	6298307.6
YEB/ TMS	341547.1	6298369.6

I certify that:
1. All construction has been carried out in accordance with this engineering drawing.
2. All construction within private land has appropriate easements, ROW, or like restriction over the structure.

WORK AS EXECUTED
Registered Surveyor: (DUXXX) Date: 26 / 02 / 2021
DRAWING No: 120246SEW-X

REV	REVISION DETAILS	DATE
X	WORK-AS-EXECUTED	

REDUCTION RATIO 1:100 @ A1 & 1:200 @ A3
REDUCTION RATIO 1:250 @ A1 & 1:500 @ A3
REDUCTION RATIO 1:500 @ A1 & 1:1000 @ A3

CLIENT:	123 EXAMPLE ST, KARIONG NSW
REF:	S#120246
SURVEY FILE:	120246.ENG
SURVEYED BY:	A SURVEYOR
DATE OF SURVEY:	10/02/21
DESIGNED BY:	A DESIGNER
DRAWN BY:	A DRAFTER

LOT No.	111
SECTION	-
PLAN No.	DP 111776
SUBURB	KARIONG
LGA	CENTRAL COAST
PARISH	PATONGA
COUNTY	NORTHUMBERLAND

CONTOUR INTERVAL:	-
DATUM:	AHD
AUSTRALIAN HEIGHT DATUM	
ORIGIN OF LEVELS:	SSM 22485
R.L.:	197.811

Central Coast Council

WORK AS EXECUTED OF SEWER MAIN EXTENSION FOR THE PROPOSED SUBDIVISION OF LOT 111 DP 111776 "No. 123" EXAMPLE STREET, KARIONG
DA/ XXXX / XXXX

SHEET No.	1
No. of SHEETS:	1
DRAWING No:	120246SEW-X
REV:	X

11. Attachment 3 – Example WAE – Sewer Linesheet

CENTRAL COAST COUNCIL

REGIONAL SEWERAGE LINE SHEET

CATCHMENT: C18 STREET No _____

PIPE DIA: 150mm TYPE UPVC - SN8 MAP No _____

SIDELINE DIA: _____ TO _____

MANHOLE No DL/1 TO DL/2

CHAINAGE	PIPE DEPTH	ROCK	OVER EXCAV.	LINE DETAILS
				DL/2
94.8	1.5			
77.9	1.1			Junction
57	1.35			Junction
34.2	1.8			Junction
12.9	1.0			Junction (Riser)
0	1.85			DL/1

MAIN LINE:

EXTRA DEPTH	
4 DEWATER	
5 MEMBRANE	
6A SAND	
6B GRANULAR	
7A BALLAST	
8 SAND RISER L/H	
9A MECH COMP	
9B FLOOD	
10 TIMBER L.I.P	
11A CONC. K&G	
11B CONC PAVE	
11C ASPHALTIC CONC.PAV.	
11D BITUMEN PAV.	
11E GRAVEL	10mm Agg
11F LAWN	
11G TERRA MAT	
12 BED TYPE	10mm Agg
16 TRENCH STOPS	
17 CONC B/HEAD	
18 CONC. BED	
19A CONC. ENC.	
19B R/CON. ENC.	
20 E/C RISER LH.	
28 SILT FENCE	

COUNCIL REPRESENTATIVE:

SIGNATURE: _____

FILE No: _____

INITIAL TEST: PASS / FAIL

AMENDMENTS/ADDITIONS

CONTRACTORS REPRESENTATIVE: I CERTIFY THAT THE RECORDED MEASUREMENTS ARE CORRECT.

SIGNATURE: Shaz Cuo

DATE 1/7/16

DOWNSTREAM MANHOLE DETAILS:

MANHOLE TYPE: pre cast

LID TYPE Gadie

EXAMPLE ONLY