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# Technical Specification for Gross Pollutant Trap Comprehensive Inspection

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## 1 General

### 1.1 Introduction

Gross Pollutant Traps (GPT's) capture litter and debris that is washed into the stormwater system. GPT's vary in their form and function, ranging from trash racks to underground proprietary devices. GPTs fill up with litter and sediment over time and need cleaning out. Hence, the pollutant storage area must be inspected to check how full the GPT is.

### 1.2 Objective

The purpose of this specification is to cover the minimum requirement for undertaking an inspection for Council's GPTs. The collected condition data will be utilised for life cycle modelling, works program preparation and revaluation of stormwater infrastructure assets. An audit of all Council's registered GPTs is required according to the specifications.

## 2 Survey Requirements

### 2.1 Inspectors

Persons responsible for identifying and recording defects, service conditions and construction features, for preparing reports and operating equipment shall be fully skilled and trained in picture interpretation, defect coding and classification and Australian standards of reporting, and hold a suitable qualification issued by a Registered Training Organisation.

Persons who undertake works within GPT, conduits, maintenance structures or other confined spaces must have undertaken appropriate training by a registered training organisation to RIIOHS202A: Enter and Work in Confined Space and shall perform all works under the Model Code of Practice.

### 2.2 Equipment

#### 2.2.1 General

The equipment (i.e. including a camera, distance measuring device, illumination system) shall be capable of surveying the full building and shall provide a clear, accurate and in-focus record of the building condition.

### 2.2.2 Camera Picture Quality

Photographs become a historic record of the inspection and should provide sufficient evidence to enable an independent engineer to verify the observations and conclusions. Clear, sharp photographic images are essential.

All identified defects must be documented by photos.

As a minimum, camera shall operate on the PAL standard with minimum optical resolution of 720 x 576 pixels for all points of the inspection.

## 2.3 Scope of Works

The contractor must review background information and audit all provided Gross Pollutant Trap, which include:

- Field validation of the GPS co-ordinate, type, size and model number of each solution that is a proprietary device
- Field validation of the type and size of non-proprietary devices
- Identify how to monitor each device, including how to know when it is full (i.e. what is the storage capacity and how can it be measured), particularly for underground devices, including trash racks, nets and above ground solutions
- Identification of vehicle accessibility and any special requirements including Work Health and Safety (WHS) considerations, keys and tools to open/access each device
- Provide condition rating of its structural and serviceability as per §2.4
- Provide a list of defects for each GPT and its rectification works as per §2.4
- Detail and recommend best practice maintenance methods available based on the storage volume in each device and recommend its cleaning requirements and frequency
- Provide basic advice on the scope and order of estimated cost for any rectification works recommended
- Provide all project outputs to Council in a form that allows input/use into Camden Council's database and management system. Council will provide an example of how this information is to be provided
- The contractor must have appropriate Personal Protective Equipment and all other necessary equipment to access the devices. Note that some GPTs are on road pavement.



- Contractor must estimate expected pollution load from each catchment, and the expected pollution removal rate (if the device was working correctly, and adequately maintained).

## 2.4 Condition Rating & Defect Identification

Condition data for each GPT shall be collected for the following condition criteria as per Table 1. The definition of Condition 1 to 5 is detailed in Table 2. The action urgency for the defect is defined in Contractor must identify all defect during inspection. All identified defects must be supported by photographic evidence. Recommended actions, cost estimation and action urgency must be provided for each defect.

Table 3.

**Table 1 - Criteria of Condition Rating**

Condition Criteria	Comment
Structural (Internal)	Structural Assessment from visual inspections.
Screens (Internal)	Structural Assessment from visual inspections.
Lid (External)	Structural Assessment from visual inspections of the nodes lid, grate and/or lintel.
Sump Serviceability	Typically from visual or reported defects which affect the nodes ability to transport water.
Inlet and Outlet Pipes	Structural Assessment from visual inspections

**Table 2 - Definition for each Condition**

Criteria	Assessment Parameter	Condition				
		1	2	3	4	5
Structural	Cracking or Structural Failure	No cracking	Minor cracking or structural failure (<2%) in surrounding area	Moderate cracking or structural failure (2% to 10%) in surrounding area	Significant cracking or structural failure (>10% to 35%) in surrounding area	Extensive cracking or structural failure (>35%) in surrounding area
	Corrosion	No corrosion	Minor corrosion	Moderate corrosion	Significant corrosion with early sign of flaking.	Significant corrosion with flaking or Major corrosion.



Criteria	Assessment Parameter	Condition				
		1	2	3	4	5
Screens	Damage	New or as new	No holes or damage on the screen	Small hole or minor damage. Can still function to filter most gross pollutants	Medium hole or moderate damage. Some gross pollutants can pass through	Large hole or major damage. Gross pollutants can pass through. Screen is not securely attached to the wall
	Blockage	No accumulated solids.	Minimal solids accumulated	Moderate level of solids accumulated	Major level of solids accumulated	Blockage of screen preventing or significantly obstructing flow
Lid	Lid / grate defect	No defect	Minor deterioration of lid or grate	Moderate lid or grate bends	Lid or grate distorted	Lid or grate failed or collapsing
	Corrosion	No corrosion	Minor corrosion	Moderate corrosion	Significant corrosion with early sign of flaking.	Significant corrosion with flaking or Major corrosion.
Sump Serviceability	Siltation or debris	No build up	Minor build up	Moderate build up	Significant build up	Major build up
	Vegetation	No vegetation	Minor vegetation growth	Moderate vegetation growth	Significant vegetation growth	Major vegetation growth
Adjacent pipes	Inlet	No accumulated solids.	Minimal solids accumulated	Moderate level of solids accumulated	Major level of solids accumulated	Blockage of screen preventing or significantly obstructing flow
	Outlet	No accumulated solids.	Minimal solids accumulated	Moderate level of solids accumulated	Major level of solids accumulated	Blockage of screen preventing or significantly obstructing flow

Contractor must identify all defect during inspection. All identified defects must be supported by photographic evidence. Recommended actions, cost estimation and action urgency must be provided for each defect.

**Table 3 – Action Urgency**

Action Urgency	Definition
1	Highest Priority - High Risk of failure
2	High Priority - Moderate Risk. Business Affecting
3	Medium Priority - Asset Life Cycle Maintenance / Renewal work



4	Low Priority - Low Risk
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## 3 Data Delivery

### 3.1 Deliverables

The deliverables including:

1. **Detailed report** for each GPT detailing the followings. Refer Appendix A.
  - a. Inspection Details
  - b. Location Details with Photos of the GPT
  - c. Asset Details
  - d. Access Details
  - e. Inlet / Outlet Details
  - f. Bypass / Splitter Pit Details
  - g. Sump & Basket Details
  - h. Screen Details
  - i. Maintenance Details
  - j. Storage Capacity Details
  - k. Condition Rating and Defects with Photos. All defects must be documented with photos
  - l. Other comments
  - m. Minimum 10 photos of the GPT unit showing surrounds, access, inlet/outlet sump, and cover details.

### 3.2 Review of Data

If the review of data by the Council's representative reveals discrepancies or other problems in the data the Contractor must correct the error and redeliver the data, and if requested by the Council's representative, resurvey the sections and provide new raw and processed data as part of the Services.

## **4 Workplace Health and Safety**

### **4.1 The Contractor is the Principal Contractor**

The Contractor acknowledges and agrees that it is engaged under this Contract to provide the Works under the Contract as the principal contractor pursuant to Regulation 293 of the Work Health and Safety Regulations 2011.

To the extent necessary for execution of the Works under the Contract, the Principal authorises the Contractor, under Regulation 293 of the Work Health and Safety Regulations 2011, to have management and control of any workplace at or within which Works under the Contract are carried out.

The Contractor accepts the Principal's authorisation in this clause 3.1 and agrees to at all times while Works under the Contract are in progress have and maintain management and control of any workplace at or within which Works under the Contract are carried out and discharge the duties of the principal contractor in respect to the Works under the Contract.

### **4.2 General Work Health and Safety Requirements**

The Contractor must implement and maintain safety management systems in compliance with AS/NZS 4801. The Contractor must, and must ensure that all of its employees, contractors, subcontractors and agents do, comply with and exercise all necessary duties and precautions for the health and safety of all persons including the Contractor's employees, contractor's and subcontractor's employees, employees of the Principal, members of the public and other persons who may be affected by the Works.

In this regard, the Contractor must always be aware of and discharge its obligations under the Work Health and Safety Act 2011, the Work Health and Safety Regulations 2011 and all other Legislative Requirements.

The Contractor must inform itself of all workplace health and safety duties, Codes of Practice and policies, procedures and measures required under the Work Health and Safety Act 2011 and the Work Health and Safety Regulations 2011 and all other relevant Legislative Requirements.

The Contractor will comply with all such duties, Codes of Practice, policies, procedures or measures and in the event of any inconsistency will comply with such duties, Codes of Practice, policies, procedures or measures as required to produce the highest level of health and safety.

The Contractor must ensure that all construction plant, equipment, tools of trade, consumables and other products and materials used in the performance of the Works are safe and fit for purpose in the applied use and situation and are of suitable strength and durability for the application in which they are used. The Contractor will immediately remove from site any item of construction plant,

equipment, tools of trade, consumables and other products and materials which are, or which become, unsafe or unsuitable for use.

### **4.3 Risk Assessment**

Prior to commencing the Works, the Contractor will complete a Risk Assessment (Job Safety and Environmental Analysis, Safe Work Method Statement or similar) for each activity and task which shall include but not necessarily be limited to:

- (a) Work Method Statement.
- (b) Risk Assessment pre and post application of control measures.
- (c) Details of Activity/Tasks.
- (d) Identification of potential hazards associated with the work.
- (e) Identification of the control measures to be put in place.
- (f) Details of each worker's personal qualifications, accreditations, experience and skills relevant to the tasks and duties to which they are assigned.

The Contractor must ensure that all personnel engaged in the Works are provided with a copy of the completed Risk Assessments and the required procedures in respect to them and must submit copies to the Superintendent as soon as they are produced. Risk Assessments must be reviewed and if required updated daily in order to account for all changed or changing conditions on the site.

The Contractor must ensure that all personnel engaged in the Works are provided with the latest versions of the Risk Assessments as soon as they are produced. The Risk Assessment must include a traffic management related risk assessment that considers pedestrians, Contractor's plant and all forms of public traffic.

### **4.4 Risk Management**

Risk Management will be in accordance with AS1742.3 Clause 2.2.3 and AS/NZS ISO 31000:2018.

Risk assessments must include the identification and analysis of all safety risks likely to arise during the works in the Planning, setting up, operating, changing and dismantling phases of the Works including a Traffic Management Plan.

### **4.5 Work Health and Safety System Performance Reporting**

When requested by the Principal, the Contractor must provide evidence of the ongoing compliance of the Contractor's health and safety management system.

Without limiting the requirements of this obligation, the Contractor shall, in the form of a written letter Health and Safety Performance Report, provide the following information in relation to the



Work under the Contract at monthly intervals and as and when requested for the entire duration of the Contract:

- number of lost time injuries or other incidents;
- working days lost to injury or other incidents;
- incidents in relation to property or environmental damage;
- current status of any injured personnel, damaged property or environmental damage or pollution;
- status of the implementation and outcomes of corrective actions taken as a result of inspections and risk assessments; and
- Status of audits and inspections undertaken.

#### **4.6 Personnel, Plant, Equipment and Materials**

The Contractor is responsible for providing all skilled and accredited personnel, tools of trade, plant (including vehicles) and equipment necessary for the performance of the Work under the Contract.

Except to the extent that the Contract otherwise provides, the Contractor will supply everything necessary for the proper performance of the Contractor's obligations and discharge of the Contractor's liabilities under the Contract.

#### **4.7 Traffic management**

The Contractor must:

- (a) Plan, implement and maintain traffic management controls and measures that meet the Works specific requirements for management of all traffic (including pedestrians and construction site traffic);
- (b) At all times and under all conditions, provide a safe worksite for the public, workers and subcontractors;
- (c) Without compromising the health and/or safety of any person/s, manage traffic flow through the site of the Works to ensure that delays and inconveniences are kept to a minimum;
- (d) Ensure traffic management is appropriately planned, implemented and maintained;
- (e) Implement risk management processes and procedures in accordance with AS/NZS ISO 31000:2018 and
- (f) Where:
  - necessary to protect construction personnel and pedestrians; or
  - there is a need to separate opposing traffic; or
  - there is a need to isolate a hazard,
- (g) Supply and erect appropriate temporary road safety barriers.

In addition to the above, the Contractor will, as necessary to ensure the thoroughly safe and proper execution of the Works, identify, comply with and implement measures in conformity to:

- AS/NZS 3845 Road Safety Barrier Systems
- AS 4852.2 Variable Message Signs Part 2 (Portable Signs)
- The AUSTRROADS Guide to Traffic Management
- AS/NZS ISO 31000:2018 Risk Management Principles and Guidelines
- AS/NZS ISO 14001 Environmental Management Systems
- AS/NZS 4801 OH&S Management Systems
- ISO Guide 73 (Risk Management, Vocabulary)

## Appendix A - Sample Detailed Report

### 1 Inspection Details

Inspection Date	8 <sup>th</sup> August 2024
Inspector	Peter Smith
Organisation	GPT Consultation

### 2 Location Details

No	001
Asset Description	Perkins Drive Oran Park-On Basin Near Peter Brock Drive Intersection - GPT Unit
Address	15 Perkins Drive
Suburb	Oran Park
GPS co-ordinates	150.xxxxxx, -33.xxxxxx

### 3 Asset Details

GPT Make	Ecosol
Model	GPT
Model Number	4450
Cleaning method	Vacuum Truck
Construction Date	29 <sup>th</sup> July 2024
Shape	Rectangular
Length	3600mm
Width	750mm
Diameter	N/A
Depth	2950mm

#### 4 Access Details

Hardstand Access	Yes or No
Hardstand Type	Hardstand Driveway / Kerbside Access
Gate Key Required	Yes or No
Tools Required	Socket Set, Gatic Lifter
Truck Access	Dedicated hardstand bay adjacent asset
Other Plant / Equipment	Requires lifting boom/Hiab to remove custom steel access cover
Above / Below Ground	Above or Below
in-Line / Off-Line:	In-line or Off-line
Confined Space Entry (CSE)	Yes or No
Pedestrian Management	Yes or No
Pedestrian Management Comment	Truck parked on cycle way
Traffic Management	Yes or No
Traffic Management Comment	Lane blocked -truck parked on road
Number of Access Cover	4
Access Cover Class	Class B
Access Cover Composition	Cast Iron
Access Cover Size	500 x 500, 500 x 500, 500 x 500, 500 x 500
Access Cover Comments:	Custom checkered steel (class and weight unknown) for treatment chamber access, 1 x Durham concrete 660mm (diameter) (unknown class and weight) for diversion chamber access, 2 person lift

## 5 Inlet / Outlet Details

Depth to Inlet Invert	1700mm
Depth to Outlet Invert	1700mm
Inlet Type	Pipe
Inlet Length	12.5m
Inlet Width	N/A
Inlet Diameter	400mm
Outlet Type	Pipe
Outlet Length	5.7m
Outlet Width	N/A
Outlet Diameter	400mm

## 6 Bypass / Splitter Pit Details

Submerged / Tidal	Yes or No
Bypass / Splitter Pit	Yes or No
Pit Diameter	N/A
Pit Length	1750mm
Pit Width	1780mm
Pit Depth	2200mm
Pit Volume	6.853m <sup>3</sup>
Inlet / Outlet Configuration	Inlet/outlet in same (diversion) chamber

## 7 Sump & Basket Details

Storage Type	Sump with no basket
Sump Shape	Cylinder
Depth to Top of Sum	2150mm
Depth to Bottom of Sum	2950mm
Sump Diameter	N/A
Sump Length	2300mm
Sump Width	470mm
Sump Depth	800mm
Sump Volume	0.86m <sup>3</sup>
Sump Full Volume (at 100%)	23.53m <sup>3</sup>
Sump Full weight (at 100%)	23.53 tonne
Depth to Top of Basket	Cylinder
Depth to Bottom of Basket	2150mm
Basket Diameter	N/A
Basket Width	N/A
Basket Length	N/A
Basket Depth	N/A
Basket Volume	N/A
Basket Full Volume (at 100%)	N/A
Basket Full weight (at 100%)	N/A

## 8 Screen Details

Does the device have a screen?	Yes (Yes or No)
Depth to Top of Screen	2150mm
Depth to Bottom of Screen	2950mm
Screen Length	2300mm
Screen Width/Depth	800mm
Screen Diameter	N?A

## 7 Maintenance Details

Cleaning Method	Suction and / or Grab
Cleaning Frequency	6 Monthly
Cleaning Comments	None
Dewatering on-site	Return to device
Inspection Method	Visual and measuring staff
Inspection Frequency	Quarterly
Inspection Comments	Recommend inspecting behind device screen via outlet in Diversion Chamber Periodically

## 9 Storage Capacity Details

Sump – Depth from Lid to Pollutants			
Percent Full %	Measurement (m)	Volume (m <sup>3</sup> )	Weight (MT)
100	1.94	23.53	23.53
75	2.77	17.64	17.64
50	3.61	11.76	11.76
25	4.44	5.88	5.88
0	5.27	0	0

Basket - Depth from Lid to Pollutants			
Percent Full %	Measurement (m)	Volume (m <sup>3</sup> )	Weight (MT)
100	0	0	0
75	0	0	0
50	0	0	0
25	0	0	0
0	0	0	0





## 10 Condition Rating & Defects

Condition Criteria	Condition <sup>Note1</sup>	Comment
Serviceability	3	
Structural (Internal)	2	
Lid (External)	2	

No	Identified Defects	Actions	Estimation	Action Urgency <small>Note 2</small>
1	Damage screen	Assess extent of screen damage in future cleans and consider rectification if required. Diversion chamber access cover is unmarked and unnecessarily heavy. Consider replacing diversion chamber access cover with marked, maintenance friendly alternative	\$5000	2
2				
3				
4				
5				
6				

Note 1: Refer Specification §2.4 Table 2

Note 2: Refer Specification §2.4 Table 3

## 11 Catchment Details

Catchment Type	Residential
Catchment Size (ha)	1.049
Fraction Impervious Surface	0.55
Impervious Size (ha)	0.58
Time of Concentration (minutes)	8.1
3 Month Rainfall (mm/hr)	33.8
1 Year Rainfall (mm/hr)	67.55
2 Year Rainfall (mm/hr)	84.80
Q3 Month (m <sup>3</sup> /s)	0.050
Q1 (m <sup>3</sup> /s)	0.101
Q2 (m <sup>3</sup> /s)	0.134
Input - Annual Gross Pollutant Load (Dry)	168kg
Output - Annual Gross Pollutant Load (Dry)	3.35kg
Annual Gross Pollutant Removal Load (Dry)	0.165 tonne
Annual Gross Pollutant Removal Load (Wet)	0.633 tonne

## 12 Comments

Flow rates and gross pollutant load estimates as derived from MUSIC modelling and rational method calculations; mean annual rainfall as recorded by nearest Bureau of Meteorology weather station