



## Resource Consent

### Discharge Permit

In accordance with the provisions of the Resource Management Act 1991(RMA), and subject to the attached conditions, the Hawke's Bay Regional Council (the Council) grants a resource consent for a controlled activity to:

**Central Hawke's Bay District Council**  
 PO Box 127  
 Waipawa 4240

To divert and discharge stormwater, excluding runoff that is not a consequence of rain, from any open drain system or piped stormwater drainage system to water, including discharges to land in a manner that subsequently results in the stormwater entering water, within the following catchments as shown in Attachment A:

#### LOCATION


Consent	Location	Description	Sub-Catchment
DP110176W	Tamumu Road, Waipawa	to discharge stormwater into the Bush Drain and then into the Waipawa River	Bush Drain
DP110178W	McGreevy Street, Waipawa	to discharge stormwater into the Bush Drain and then into the Waipawa River	Bush Drain
DP110179W	Harker Road, Waipawa	to discharge stormwater from a property behind Harker Road into Harker Road Drain and then into the Waipawa River	Harker Road Drain
DP110180W	Stephenson's Yard, Waipawa	to discharge stormwater into the Coronation Park Waterway and then into Waipawa River from a site adjacent to Stephenson's Yard	Coronation Park Waterway
DP110181W	Coughlan Road, Waipukurau	to discharge water into Coughlan Road Drain and then into the Tukituki River from a discharge point located at the end of Coughlan Road	Coughlan Road Drain
DP110182W	Coughlan Road, Waipukurau	to discharge stormwater into Coughlan Road Drain and then into the Tukituki River from a point located at the end of Coughlan Road east and downstream of the No 1 culvert	Coughlan Road Drain
DP110183W	James Street, Waipukurau	to discharge stormwater from a point located at the end of James Street into the Harris Street Drain and then into Tukituki River	Harris Street Drain
DP110184W	Northumberland Street, Waipukurau	to discharge stormwater from a point located past the Rail Bridge into Harris Street Drain and then into the Tukituki River	Harris Street Drain
DP110185W	Mt Herbert Road, Waipukurau	to discharge stormwater from a point adjacent to Mount Herbert Road into the Pah Flat Stream and then into the Tukituki River	Pah Flat Stream

Consent No's: DP110176W DP110178W, DP110179W, DP110180W, DP110181W, DP110182W,  
DP110183W, DP110184 and DP110185W

Consent No's: DP110176W DP110178W, DP110179W, DP110180W, DP110181W, DP110182W,  
DP110183W, DP110184 and DP110185W

### **CONSENT DURATION**

This consent is granted for a period commencing on the 1<sup>st</sup> November 2017 and expiring on 31 May 2037.



**Malcolm Miller**  
**Manager Consents**

**EXTERNAL RELATIONS GROUP**

Under authority delegated by Hawke's Bay Regional Council

10<sup>th</sup> October 2017

## DEFINITIONS

Asset Management Plan (AMP):	a plan prepared to show how the asset will be managed and funded.
Catchment management Plan (CMP):	a plan prepared for a catchment or catchments to show how that system will be managed for stormwater runoff. The CMPs are not the traditional CMP dealing with the entire catchment but just the sub-catchment areas pertaining to the industrial sites. Integration with the Tukituki River Catchment Management Plans will be required in the future. The catchments are limited to those shown in Attachment A.
CHBDC:	Central Hawke's Bay District Council
Council or HBRC:	Hawke's Bay Regional Council
Existing sites:	any site within the consent application area existing before the granting of this consent.
High risk facilities (HRF):	any activity listed in Attachment One, or identified by HBRC or CHBDC through the consent process, bylaw enforcement or CMP.
New development:	any development within the consent application area undertaken after the granting of this consent.
PC6:	Plan Change 6.
Stormwater:	(i) Runoff of rainwater that is not absorbed by land.  (ii) Surface water runoff from construction sites during earthworks where there is a discharge to the Central Hawke's Bay District Council reticulated stormwater network.  (iii) Testing water used by network utility operators.
Stormwater bylaw:	Central Hawke's Bay Stormwater Bylaw (2008).
Low impact design:	is a design approach for site development that protects and incorporates natural site features into erosion and sediment control and stormwater management plans, in accordance with the Hawke's Bay Regional Council Waterway Guidelines: Low Impact Design (April 2009) or equivalent.

## CONDITIONS OF CONSENT

### **General**

1. The stormwater discharges shall only be from within the area identified on the plan provided in Attachment A.
2. Stormwater from existing sites shall be directed into the Existing Stormwater Drainage System and discharged at the points shown on the plans provided in Attachment A, which forms part of this consent.
3. In conjunction with the conditions of this consent, the Consent Holder shall take all practicable steps to manage the open and piped stormwater drainage systems covered by this consent so as to minimise the discharge of chemical and microbiological contaminants, suspended solids, heavy metals, gross pollutants into the receiving water as well as any other substances that are likely to cause the following effects in the receiving water after reasonable mixing as a result of the discharge:
  - a) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended material;
  - b) Any conspicuous change in the colour or visual clarity;
  - c) Any emission of objectionable odour;
  - d) The rendering of fresh water unsuitable for consumption by farm animals;
  - e) Any significant adverse effects on aquatic life.

### **Standards and Works**

#### ***Existing sites***

4. Within 12 months of commencement of this consent the consent holder shall:
  - a) identify sites within each sub-catchment that are classified as 'high risk' after having considered the activities in Schedule 1 of this consent and provide a list of the sites, the activity carried out on the site and the reason for the high risk classification. The list shall be updated and reviewed on an annual basis.
  - b) prioritise the high risk sites in the context of contaminant discharge potential (or actual) and provide a timetable and proposal for how any sites found to be non-complying with the Central Hawke's Bay District Council Bylaws – Part 21 Stormwater (2013) will become compliant to the Regional Council's Manager Resource Use.
  - c) Furthermore, the following sites shall be investigated and be instructed to be compliant with the bylaw and this consent:
    - i) Farmers Transport, 6 Tamumu Road, Waipawa

The site shall undertake the following works:

- Undertake the appropriate works and install sediment control devices at stormwater outlets and appropriate locations to reduce sediment entering the stormwater system and Bush Drain so that total suspended solids within stormwater leaving the site is managed so there is no statistically significant difference in turbidity between upstream and downstream sites. This shall be determined by taking and assessing three samples per sampling period at sampling sites WP-01/1 (upstream) and WP-01/2 (downstream) marked on Farmers Transport photo in Attachment B.

ii) Stephenson's Yard, 41-43 Ruataniwha Street, Waipawa

The site shall undertake the following works and have the following restrictions:

- Diesel bowsers shall be appropriately bunded with impervious material to ensure that there is no release of diesel to the environment during refuelling or day to day operations;
- Stormwater from animal pens shall not be directly piped to surface water.

### **New Development**

5. Stormwater infrastructure constructed in new development areas shall be undertaken in accordance with the approved CMP and until the CMP is approved, shall be undertaken in accordance with the Hawke's Bay Regional Council Waterway Guidelines (Stormwater Management (May 2009) and Low Impact Design (April 2009)) or equivalent.

### **Existing and New Developments**

6. Existing and future overland flow paths shall be identified, mapped and managed in accordance with the CMP and updated as development occurs.

### **Management and Maintenance**

7. The Consent Holder shall take appropriate steps to control discharges from individual construction sites including:
  - a) Ensuring that Central Hawke's Bay District Council staff and/or agents involved with site development are trained in methods available to reduce sediment and other contaminant inputs to the environment.
  - b) Providing education material for developers and builders, including information packs accompanying building consent application documents. The information packs shall address both sediment control and other contaminants.
8. The Consent Holder shall be responsible for the continued integrity of all stormwater structures that relate to this resource consent and shall ensure that these stormwater structures are maintained to a structurally safe and serviceable standard at all times.
9. The Consent Holder shall remedy any scour or other erosion within land or waterways subjected to discharges authorised by this resource consent, where any such scour or other

erosion is reasonably attributable to the diversion and discharge activities authorised by this resource consent.

10. The Consent Holder shall carry out maintenance inspections of all stormwater outlet structures on the discharge points shown in Attachment A at a minimum of once every two years and as necessary to ensure that these structures continue to be maintained in a structurally safe and serviceable condition.
11. The Consent Holder shall record the details of all inspections and works undertaken under Conditions 8 and 10. Those records shall be made available for inspection by the Regional Council's Manager Resource Use on request.
12. The Consent Holder shall carry out street, catchpit and sump cleaning operations to minimise as far as practicable the mass of stormwater contaminants entering the stormwater system. Sump and catchpit cleaning shall take place at least annually, or at a higher frequency where specified in a CMP prepared under Conditions 20 of this consent and approved by the Regional Council's Manager Resource Use. Records of sump cleaning shall be kept and made available to the Regional Council's Manager Resource Use on request.

### **Spills**

13. The Consent Holder shall notify the Regional Council's Manager Resource Use immediately of any incidents involving major spillages or illegal discharges of chemicals, fuels or other contaminant sources which to the Consent Holder's knowledge has entered or has a high probability of entering the urban stormwater system and has the potential to enter the receiving environments shown on the plans provided in Attachment A.
14. In addition to the requirements of any annual environmental monitoring report the Consent Holder shall report to the Regional Council's Manager Resource Use in writing within 7 days of any incidents involving major spillages and / or illegal discharges of chemicals, fuels or other contaminant sources. The report shall describe the manner and cause of the incident and the steps taken to control the spillage and / or illegal discharge and prevent its recurrence.

### **Stormwater Education**

15. Within two years of the granting of this consent, the consent holder shall prepare and implement a Stormwater Community Education Programme (SCEP), designed to increase the public's understanding and awareness or change behaviours of stormwater management and environmental effects, and the ways in which the public can minimise the contamination of stormwater and the impedance of stormwater flows. The SCEP shall be prepared in consultation with HBRC.

### **Waterway Remediation Assessment, Works and Investigations**

16. Within 18 months of the granting of this consent, the consent holder shall prepare and submit to the Regional Council's Manager Resource Use for approval a report that considers remediating the high levels of zinc and/or copper in sediment in, and at, the following waterways and monitoring points:
  - McGreevy St Drain (WP-03),

- Harker Road Drain (WP-04),
- Coughlan Road No 2 (WPK-02),
- Harris Street Drain (WPK-03),
- Northumberland Street Drain (WPK-04),
- Francis Drake Street Drain/Pah Flat Stream (WPK-05).

17. The report required by Condition 16 above shall include, but not be limited to, the following:

- a) the extent (bed depth and downstream distance) of zinc and/or copper contamination within the waterway;
- b) the remediation options for addressing the extent of the contamination including removal of contaminated sediment and disposal to an approved landfill;
- c) the remediation of sediment to levels below the ANZECC (2000) interim sediment quality guidelines for selected contaminants: Copper <65 mg/kg dry weight; Zinc < 200 mg/kg dry weight;
- d) the plan ('source control plan') for addressing the potential sources of the zinc and copper;
- e) and the programme for remedial works.

18. The approved remedial works and source control plan shall be implemented under the approved programme in accordance with Condition 17e.

19. If not already remedied, within one month of the commencement of this consent, the consent holder shall undertake an investigation of McGreevy St Drain, at or about monitoring points WP-03/1 and WP03/2, to identify and address the cause of the high *E. coli* counts in stormwater. The report shall be submitted to Council Manager Resource Use for review and the solutions shall be implemented as soon as practicable thereafter.

### **Catchment Management Plans**

20. The Consent Holder shall undertake a detailed assessment of stormwater management options and shall determine the best practicable option for managing flooding, stream erosion, contaminant discharges and receiving environment quality in each of the catchments covered by this consent. Within five years of consent being granted these assessments shall be provided to the Regional Council as detailed CMPs for approval by the Regional Council's Manager Resource Use. These CMPs shall identify and address the management of existing and future water quantity and quality issues and effects that may result from the discharge of stormwater authorised by this resource consent and shall include but not be limited to:

- a) Objectives for managing stormwater in the catchment;



- b) The relationship and integration of the bylaw, AMP and District Plan and how those documents will contribute to the management of stormwater and compliance with the conditions of this resource consent;
- c) A detailed description of the stormwater catchment and network, including maps, plans and details on:
  - i) administrative areas,
  - ii) catchment boundaries and physical characteristics,
  - iii) existing and proposed land uses, including actual land uses and those provided for or proposed under the District Plan,
  - iv) location and description of high risk facilities as required by Condition 4,
  - v) inventory of all business and contaminant sources and risks in the catchments and register of all environmental management plans,
  - vi) the pipe network and physical reticulation systems,
  - vii) the outfalls and other critical structures,
  - viii) pipe condition and criticality,
  - ix) 2% ARI flood plains and overland flow paths,
  - x) stormwater treatment and detention devices including contributing catchments, and
  - xi) immediate receiving environments.
- d) An assessment of the zone of reasonable mixing to be provided for review by HBRC. Until such review is complete, the zone of reasonable mixing for each waterway shall be 50 m from the point of discharge.
- e) A quantitative and qualitative description of each of the main waterways within the catchment. The descriptions shall, in part, be informed by the monitoring required by Conditions 25 and 26;
- f) Methods and actions for working with high risk sites, as identified under Condition 4, to minimise the risk of those sites causing non-compliance with this resource consent, the bylaw and adverse environmental effects.
- g) A spill response strategy and standard operating and enforcement procedures to be used for accidental or illegal discharge incidents, including notification procedures for Iwi. The strategy and procedures shall be prepared in consultation with Hawkes Bay Regional Council Manager Resource Use.
- h) Any programme prepared in accordance with Condition 25 c) to address the potential source of the high contaminant levels as identified through sediment quality sampling, and approved by Regional Council's Manager Resource Use.

- i) Any programme for a catchment investigation to identify and address the potential source of contaminant levels exceeding ANZECC trigger levels for 95% protection of aquatic species, as required by Condition 26 iii), and approved by Regional Council's Manager Resource Use.
  - j) Identification of areas that are subject to flooding and methods and actions to minimise adverse effects of that flooding.
  - k) The management initiatives and implementation methods used to encourage the implementation of low impact design principles for new development in accordance with Hawke's Bay Regional Council Waterway Guidelines: Low Impact Design (April 2009) or equivalent. This shall include the identification of opportunities for the enhancement of the riparian margins of waterways, where practicable in terms of flood minimisation, water temperature reduction and management.
  - l) A prioritised programme, including timeframes, for the implementation of the procedures, management initiatives, implementation methods and actions identified in the CMP and the requirements of the conditions of this resource consent.
  - m) Procedures for monitoring effectiveness of the CMP.
  - n) A procedure for revising, amending and updating the CMP.
21. The Consent Holder shall develop a plan for meeting the requirements of Conditions 16 to 20 and submit that plan to the Regional Council's Manager Resource Use within 9 months of commencement of this Consent. The plan shall include a priority order and timeframe within which each of the detailed CMPs shall be completed.

## **Monitoring**

### ***General Requirements***

22. The laboratory carrying out analyses required under this Consent shall be accredited for those analyses by International Accreditation New Zealand, TELARC or an equivalent authority.
23. The design of and all sampling shall be carried out by a person suitably qualified and experienced in that field.
24. On each occasion monitoring is undertaken in accordance with Conditions 25 and 26 the Consent Holder shall also make an assessment of any:
- a) weather conditions on the day of sampling;
  - b) visible extent of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials in receiving environment after reasonable mixing;
  - c) visible extent of any conspicuous change of colour or visual clarity in receiving environment after reasonable mixing;
  - d) extent of any emissions of objectionable odour from the receiving environment after reasonable mixing; and

- e) noticeable indicators of possible impacts on aquatic life.

### ***Sediment***

25. The Consent Holder shall undertake sediment quality sampling at each site marked on the plans provided as Attachment B to this consent unless an alternative site is agreed to by the Regional Council's Manager Resource Use. Sampling shall be undertaken:
- a) Annually at all sites following the completion of the remedial works undertaken in accordance with conditions 16 and 17 for the following parameters:
- Copper
  - Zinc
- b) Results from the above sampling, including dry weight results shall be reported to the Council's Manager Resource Use in accordance with Condition 27.
- c) If after two rounds of annual sampling the results exceed the ANZECC trigger levels for 95% protection of aquatic species, the Consent Holder shall prepare and submit to the Regional Council's Manager Resource Use for approval a programme for addressing the potential source of the high levels. The programme shall be submitted within 3 months of completing the second annual monitoring report and, when approved, shall be incorporated into the relevant CMP prepared under Conditions 20 and 21.

### ***Water Quality***

26.

- a) The consent holder shall undertake water quality monitoring at each site listed below as shown on the plan provided as Attachment B in accordance with the requirements below:
- i) Sites to be sampled: WP-01/1, WP-01/2, WP-03/1, WP-03/2, WP-04/01, WP-04/02, WP-05, WPK-01 (if catchment contains industrial activities), WPK-02, WPK-03, WPK-03/01, WPK-04, WPK-05.
- ii) Starting from the commencement of the consent: PAH shall be sampled two times per year and all others listed in 26(b) shall be sampled a total of four times per year (i.e. quarterly intervals) for the first three years and then once per year annually thereafter;
- iii) The sampling procedure at each location should provide water quality data on:
- background levels;
  - the stormwater discharge from the network at that point;
  - downstream of the outfall after reasonable mixing; and
  - after a minimum period of five days of no rainfall, and after and during a rainfall event of at least 5 mm over a 3-hour period.

- iv) The stream flow at each location during the storm event being sampled including a description of the method for which this was determined;
- b) A composite sample from each storm event shall be analysed for:
- pH
  - Turbidity
  - Total suspended solids
  - Alkalinity
  - Hardness
  - Electrical conductivity
  - Total Organic Carbon. TOC
  - Total ammoniacal nitrogen
  - Nitrate Nitrogen
  - Nitrite Nitrogen
  - Dissolved Inorganic Nitrogen
  - Total Kjeldahl Nitrogen
  - Total Phosphorus
  - Dissolved Reactive Phosphorus
  - Total Recoverable
    - Cadmium
    - Copper
    - Lead
    - Manganese
    - Nickel
    - Zinc
    - Arsenic
    - Chromium
  - Oil and Grease
  - PAH
  - *E. coli*
- c) Results of 26(a) & (b) shall be reported to the Regional Council's Manager Resource Use in accordance with Condition 27.

- d) Should any of the sample round results at any location exceed ANZECC trigger levels for 95% protection of aquatic species or the limits and targets of Policy TT3 of PC6, the Consent Holder shall within three months prepare and submit to the Regional Council's Manager Resource Use for approval a programme for a catchment investigation to identify and address the potential source of the high levels. The programme shall be incorporated with the relevant CMP prepared under Conditions 20 and any existing CMP shall be amended to include any changes required.
- e) The monitoring programme shall be adapted to be consistent with the CMP prepared under Conditions 20.

### ***Annual Monitoring Reporting***

27. A Compliance and Monitoring Report shall be submitted to the Council's Manager Resource Use by 30 July each year, to cover the preceding 12 month period from 1 July to 30 June inclusive. The matters for reporting shall include, but not be limited to, the following:

- a) Sediment and water quality sampling and monitoring results including:
  - i) An analysis of the monitoring results in terms of compliance with relevant conditions and guidelines and comparison with previously collected data;
  - ii) Whether the sediment quality parameters measured at any site could be reduced;
  - iii) Any remedial actions or mitigation measures proposed to be undertaken; and
  - iv) Any remedial actions or mitigation measures undertaken in the previous 12 months.

Copies of original laboratory analytical reports for all analyses undertaken shall be made available to the Regional Council's Manager Resource Use on request.

- b) A summary of all environmental monitoring information gathered and identification of any additional information requirements that may be necessary to assess and quantify environmental effects;
- c) Review of the level and type of subdivision and development occurring in each sub-catchment relative to the land use assumptions underlying the individual CMPs;
- d) Review of stormwater and sediment control devices in place to manage current and immediate future anticipated development;
- e) The methods used by the new developments to minimise the level of contaminants and/or volume of stormwater discharged;
- f) Details of any authorisation given by District Council to any other party to carry out works associated with stormwater and the approved CMPs;
- g) Review of progress of source control and Low Impact Design initiatives in the individual catchments, in particular related to the control of contaminants through the District Plan;

- h) Review of the Management and Maintenance provisions detailed in Conditions 7 to 12;
- i) Updates of any significant policy changes in relation to district or regional plans that may have an impact on the Catchment Management Plans and any resulting actions required;
- j) Any other matters that may arise related to CMP implementation and the resultant works programme;
- k) A record of compliance with Consent Conditions;
- l) An update of the Stormwater Community Education Programme;
- m) Any significant erosion mitigation works completed during the year;
- n) A summary of new works or developments completed during the preceding 12 months; and
- o) Progress during the year on work being undertaken for the detailed CMPs in accordance with Condition 20.

#### National Environmental Standards Drinking Water Supplies

28. If an event occurs that may lead to a significant loss of contaminants or chemicals to stormwater and then to surface water beyond what is authorised by this consent, the Consent Holder shall notify the operators of the Farm Road Water Supply Limited, Hautope Water Supply and the Hawke's Bay Regional Council (Manager Resource Use) of the event as soon as reasonably practicable after the event occurs.

**Advice Note:** Such an event might include for example a chemical spill or a release of wastewater from a network failure. The Farm Road Water Supply registered drinking water supply can be contacted at 06 858 7059 and the Hautope Water Scheme can be contacted at 06 857 8783. The Regional Council 24 hour Pollution Hotline should also be contacted on 0800 108 838.

#### Review

29. The Regional Council may annually during the month of October review of the conditions of the consent in accordance with Sections 128, 129, 130, 131 and 132 of the Resource Management Act 1991 for the purposes:
- a) To deal with any adverse effect on the receiving environment that can be reasonably attributed to the diversion and discharge activities authorised by the resource consent which may arise from the exercise of the resource consent and which is appropriate to deal with at a later stage.
  - b) To require the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
  - c) To modify the monitoring programme required by the resource consent or require additional monitoring if there is evidence that the current monitoring requirements of the resource consent are inappropriate or inadequate.

- d) To modify the reporting requirements of the resource consent if there is evidence that the current reporting requirements of the resource consent are inappropriate or inadequate.
- e) To require the CMPs to be amended to include amended and/or additional management initiatives and implementation methods that may be required to avoid, remedy or mitigate any adverse effect on the receiving environment where these effects can be reasonably attributed to the diversion and discharge activities authorised by the resource consent.
- f) To deal with any new regional or national guideline on stormwater management practices.

### Advice notes

The term “for approval by the Regional Council’s Manager Resource Use” means that the report and/or CMP shall be confirmed in writing by the Hawke’s Bay Regional Council as containing all the requirements as specified in the conditions, including level of detail of what is to be included in the plan.

Attached:

*Attachment A: Map of Discharge Points, Stormwater Flow Paths and Natural Catchment Boundaries*

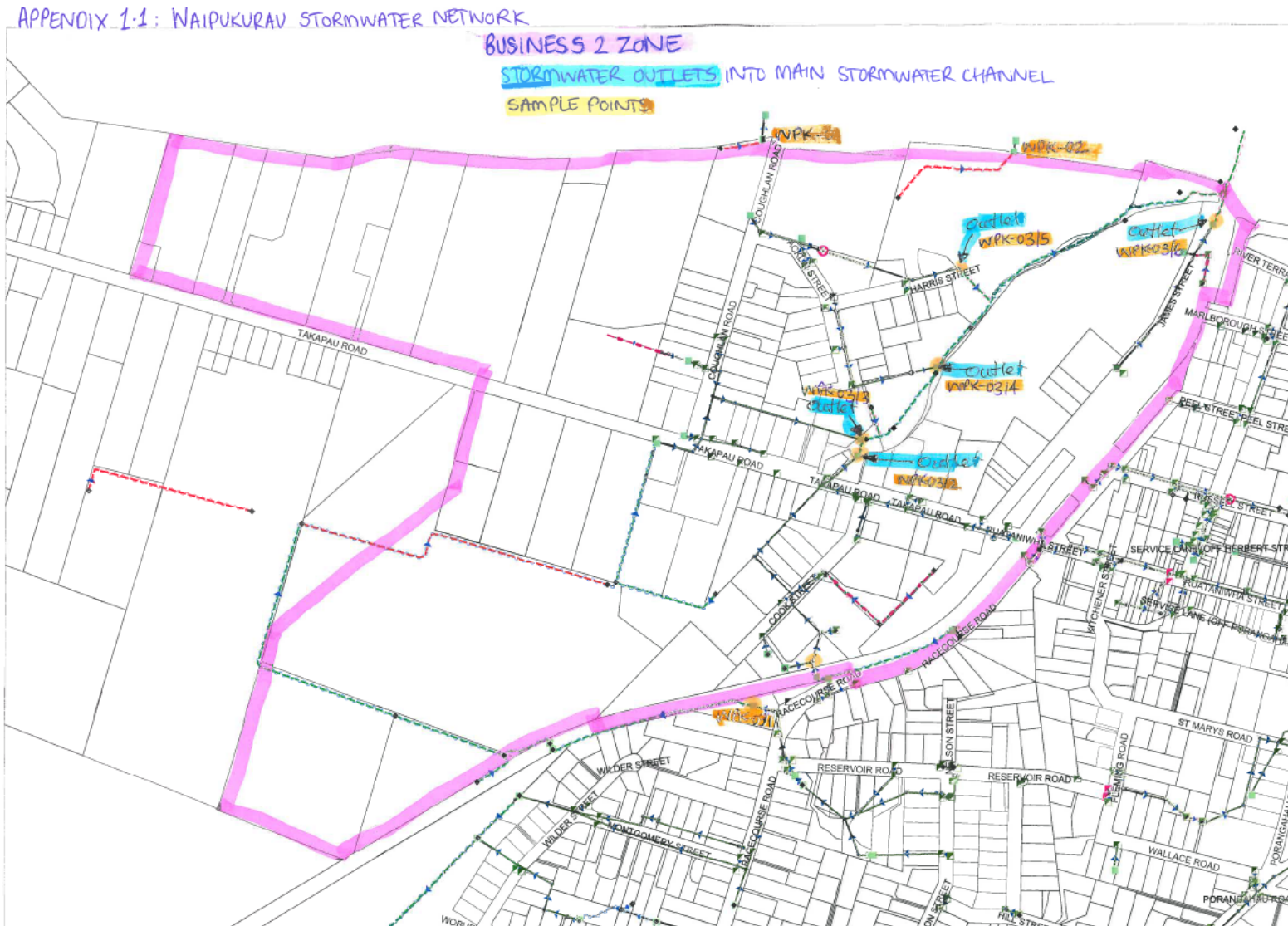
*Attachment B: Plan of Sediment and Water Quality Sampling sites*

*Schedule 1: Table 3-1 Activities*

### Consent History

Consent No. (Version)	Date	Event	Relevant Rule	
			Number	Plan
DP110176W DP110178W DP110179W DP110180W DP110181W DP110182W DP110183W DP110184W DP110185W	10/10/2017	Consent initially granted	43	Regional Resource Management Plan (2006)

**Attachment A: Map of Discharge Points, Stormwater Flow Paths and Natural Catchment Boundaries.**



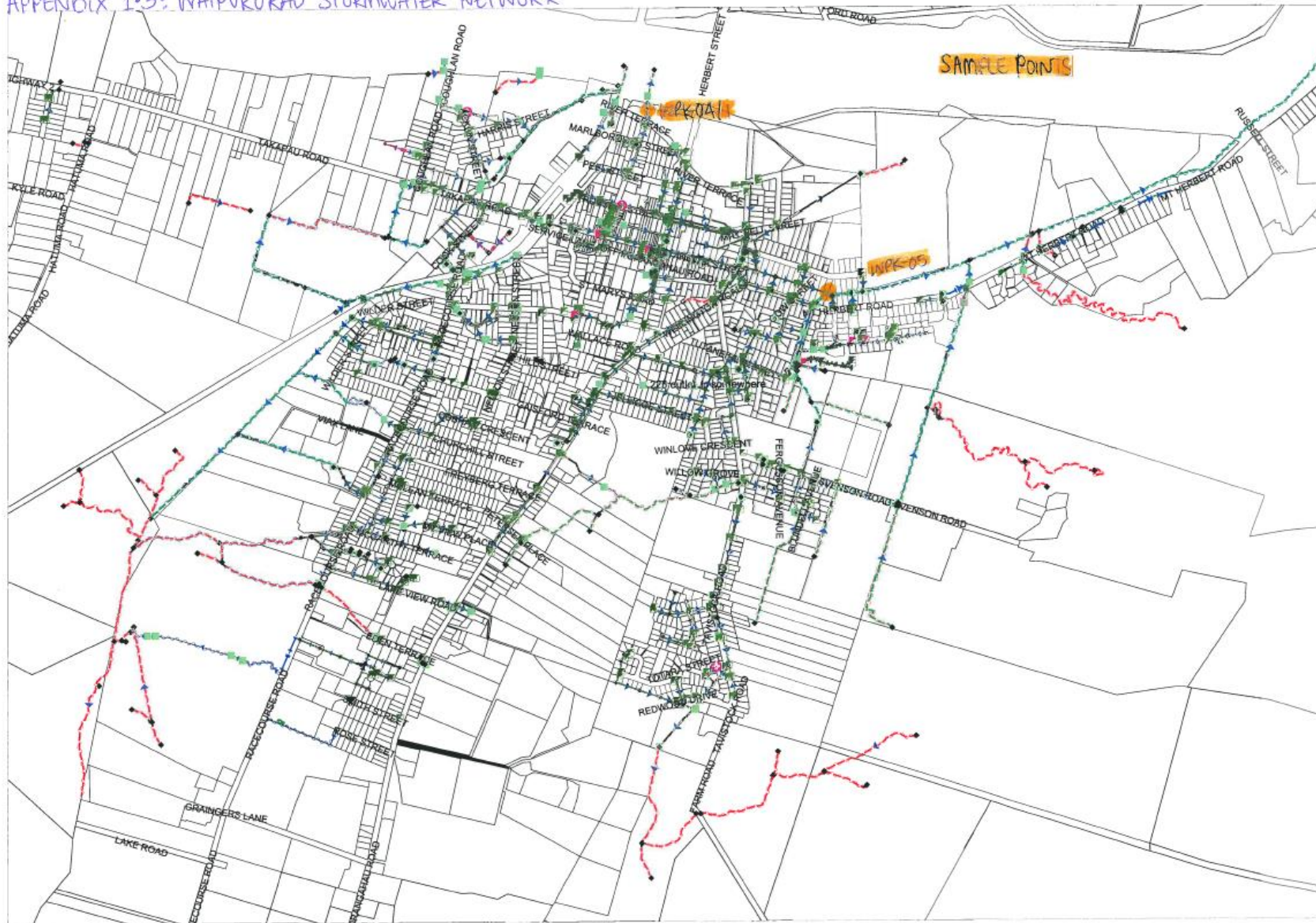


APPENDIX 1:2: WAIPUKURAU AERIAL OVERVIEW

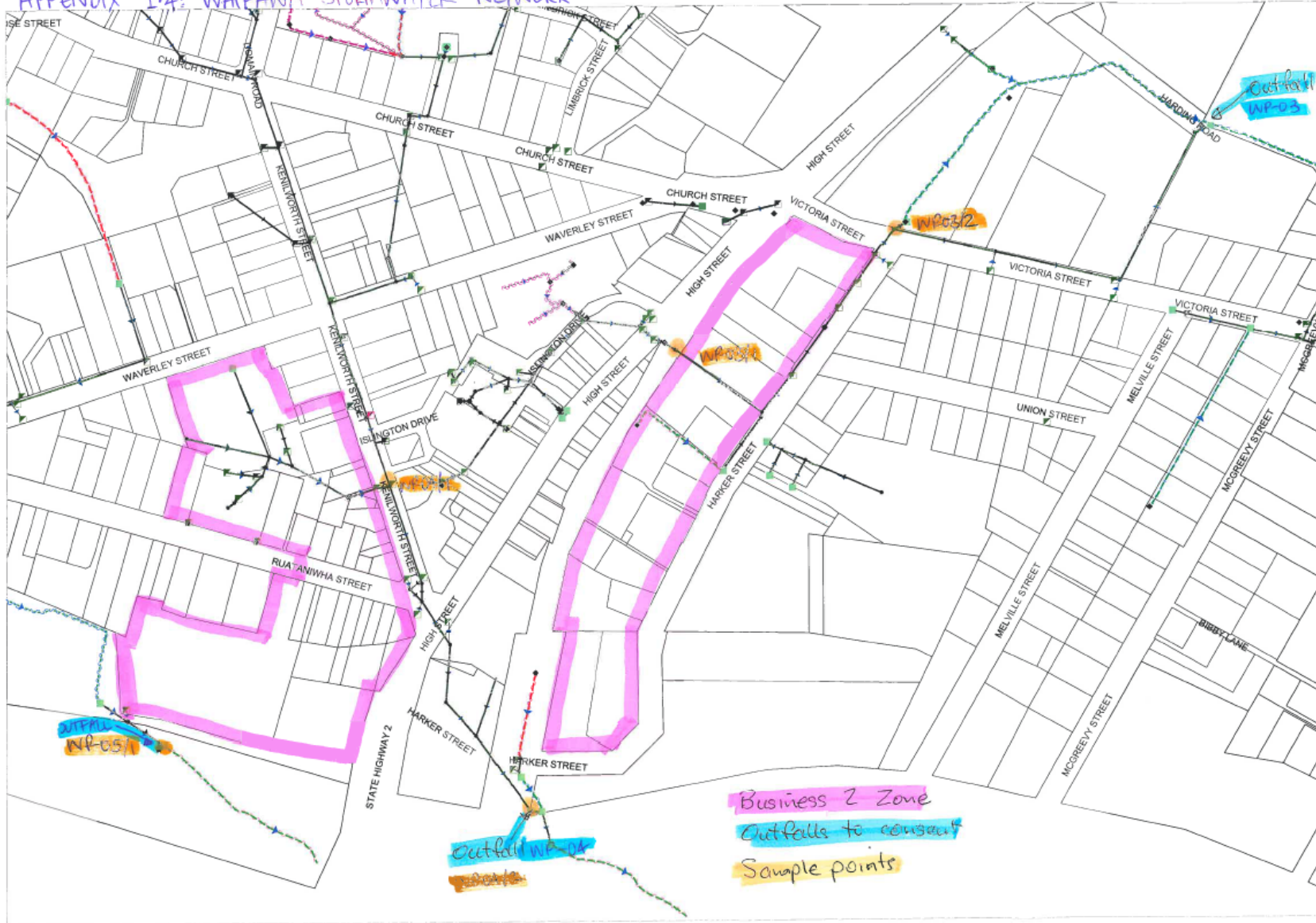




APPENDIX 1.3: NAIPUKURAU STORMWATER NETWORK



APPENDIX 1.4: WAIKAWA STORMWATER NETWORK





APPENDIX 1.5: WAIPAWA AERIAL OVERVIEW





APPENDIX 1-6: NAIPAWA STORMWATER NETWORK



**Attachment B: Plan of Sediment and Water Quality Sampling Sites**

**Farmers Transport**





## McGreevy Street





### Harker Street





## Stephensons Yard







**Schedule 1: High Risk Activities as Defined in the Hawkes Bay Waterway Guidelines - Industrial Stormwater Design – April 2009**

Hawke's Bay Waterway Guidelines Industrial Stormwater Design 2009/04/06

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Table 3-1 Industrial Activities, their Description, Contaminants of Concern, Likelihood of Release and Treatment Processes				
Industrial Activity	Description of Trade	Contaminants of Concern	Likelihood of Release	Treatment Processes
Wood or paper product storage, manufacturing or fabrication	Treated timber storage	Cu, Cr, As, TSS	High	Settling, sand/peat filter
Wood or paper product storage, manufacturing or fabrication	Timber treatment	Cu, Cr, As, Sn, TSS, Oil and Grease, pesticides	High	Sand/peat filter
Transport and related activities	Boat or ship construction, repair or maintenance	Cu, Zn, TSS, Oil and Grease	High	Settling, oil/water separator, sand/peat/carbon filter
Research or defence	Naval and air force defence activities	Metals, pesticides, oil and grease	High	Settling, oil/water separator, sand/peat/carbon filter
Recycling, recovery, reuse or disposal	Metals (crushing, grinding, sorting or storage)	Oil and grease, TSS, Zn, Cu, Pb, Cd, Cr	High	Oil/water separator, sand/peat/carbon filter
Recycling, recovery, reuse or disposal	Automotive dismantling	Oil and grease, TSS, particulate metals, Zn, Cu, Pb, Cd, Cr	High	Coarse settling, oil/water separator, sand/peat/carbon filter
Metal processing, metallurgical works or metal finishing	Processing of metals (smelting, casting)	Metals (Al, Pb, Zn, Cu, Fe), TSS, pH	High	Sand/peat/carbon filter
Metal processing, metallurgical works or metal finishing	Metal plating, anodising or polishing	Metals (Zn, Cu, Cr, Ni, Ag), pH, Cyanide	High	Peat filter
Transport and related activities	Marinas	TSS, Zn, Cu	Medium	Peat filter
Sewage treatment and handling	Sewage treatment plants	TSS, BOD, NO <sub>3</sub> +NO <sub>2</sub> , NH <sub>3</sub> , Pathogens	High	Settling, wetlands, disinfection
Sewage treatment and handling	Sewage solids storage	TSS, BOD, NO <sub>3</sub> +NO <sub>2</sub> , NH <sub>3</sub> , Pathogens	Low	Settling, wetlands, disinfection
Rubber industries	Synthetic rubber manufacturing	Zn, TSS, organics	Medium	Wetlands
Recycling, recovery, reuse or disposal	Tyres	Zn, TSS	High	Sand/peat/carbon filter
Recycling, recovery, reuse or disposal	Chemical containers cleaning, reconditioning or recycling	Metals, COD, NO <sub>3</sub> + NO <sub>2</sub>	Medium	GPT screen, coarse settling, oil/water separator, oxidation sand/peat/carbon filter
Recycling, recovery, reuse or disposal	Waste transfer stations	GPs, TSS, COD, Metals, Oil & Grease, residual organic compounds	Medium	GPT screen, coarse settling, oil/water separator, oxidation, sand/peat/carbon filter
Recycling, recovery, reuse or disposal	Hazardous materials storage or treatment	TSS, COD, Metals, Oil and Grease, organics	Medium	Sand/peat/carbon filter

The following table 3-1 provides a detailed listing of industries, the contaminants that they generate, the likelihood that those contaminants will be released into the environment and the types of stormwater practices that can be used to reduce the level of a given contaminant from being discharged.

**3 Industries, Contaminants and Treatment Practices**



Recycling, recovery, reuse or disposal	Non-metal recycling (composting, glass, paper or paper board)	TSS, COD, NO <sub>3</sub> +NO <sub>2</sub> , pathogens	High	Wetlands + oxidation
Recycling, recovery, reuse or disposal	Crushing, grinding or separation works (other than sand, gravel, rock or mineral - e.g. slag, road base, demolition material)	TSS, pH, Zn	High	Sand/peat filter, wetlands
Recycling, recovery, reuse or disposal	Landfills	Metals, TSS, BOD, NO <sub>3</sub> +NO <sub>2</sub> , NH <sub>3</sub> , organics	Low	Coarse settling, oil/water separator, oxidation, sand/peat/carbon filter
Recycling, recovery, reuse or disposal	Chemicals	Fe, Al, pH, NO <sub>3</sub> +NO <sub>2</sub> , metals, organics	Low	Sand/peat/carbon filter
Recycling, recovery, reuse or disposal	Batteries	Pb, pH	Low	Sand/peat filter, carbonate filter
Product storage or handling centres	Bulk chemicals	AL, Fe, Zn, NO <sub>3</sub> +NO <sub>2</sub>	Medium	Sand/peat/carbon filter
Petroleum or coal product manufacturing	Coal products	TSS, AL, Fe, pH	Medium	Settling, wetlands
Non-metallic mineral product manufacturing	Cement, lime, plaster and concrete products	TSS, Fe, pH, Oil and Grease	High	Settling, wetlands
Non-metallic mineral product manufacturing	Concrete batching plants (ready mixed concrete)	TSS (lime), pH	High	Settling, wetlands
Motor vehicle services facilities	Mechanical servicing of motor vehicles	Oil and grease, metals	High	Sand/peat/carbon filter
Motor vehicle services facilities	Service stations	Oil and grease, PAH, BTEX, TSS	High	Oil/water separator, sand filter, oxidation
Metal processing, metallurgical works or metal finishing	Refinement of ores	TSS, metals	Medium	Settlement, wetland
Metal processing, metallurgical works or metal finishing	Metal blasting or coating (excluding spray painting)	Zn, other metals, TSS	High	Sand/peat filter
Electronics	Circuit board manufacturing (excluding assembly only)	Metals (Zn, Cu, Cr, Ni), pH, organics	Medium	Sand/peat filter
Commercial livestock processing centres	Tanneries and Fellmongeries	BOD, oil and grease, sulfides, Cr, N	High	Oil/water separator, oxidation, peat filter
Chemical and associated product manufacturing	Fungicides, herbicides, pesticides, timber preservatives and related products	COD, pH, As, Cu, Cr, Pesticides	Medium	Sand/peat/carbon filter

Chemical and associated product manufacturing	Batteries	Pb, pH	Medium	Sand/peat filter, carbonate filter
Chemical and associated product manufacturing	Paint, pigment, inks and dyes	Al, Zn, Fe, COD, organics	Medium	Sand/peat/carbon filter
Chemical and associated product manufacturing	Acids, alkalis or heavy metals	PH, TSS, metals	Medium	Sand/peat/carbon filter, carbonate filter
Transport and related activities	Railway workshops or refuelling depots	Oil and grease, TSS, COD, Zn	Medium	Settlement, sand/peat filter
Transport and related activities	Road freight transport depot (bulk chemical)	Oil and grease, TSS, COD, Zn, organics	Medium	Sand/peat/carbon filter, oxidation
Transport and related activities	Truck refuelling facilities (non-service station)	TPH, PAH	Medium	Sand/peat filter
Transport and related activities	Shipping container reconditioning	Oil and grease, TSS, COD	Medium	Oil/water separator, Settlement
Rubber industries	Tyre manufacturing or retreading	Zn, TSS, organics	Medium	Sand/peat filter
Recycling, recovery, reuse or disposal	Oil, petroleum hydrocarbon wastes	Oil and grease, PAH, BTEX	Medium	Oil/water separator, sand/carbon filter
Recycling, recovery, reuse or disposal	Sewage solids treatment or storage facilities	TSS, BOD, NO <sub>3</sub> +NO <sub>2</sub> , Pathogen	Medium	Retention, oxidation
Product storage or handling centres	Bulk hydrocarbons (non-service stations)	Oil and grease, PAH, BTEX	Medium	oil/water separator, sand/peat/carbon filter
Power	Gas, coal or liquid power generation	Oil and grease, Zn, TSS	Medium	oil/water separator, wetlands
Power	Electrical substations	Oil and grease	medium	Sand filter
Petroleum or coal product manufacturing	Bitumen/asphalt premix or hot mix	TSS, Zn, TPH	Medium	oil/water separator, Sand/carbon filter
Animal feedstuffs	Pet food manufacture	BOD	Medium	Sand/peat filter, swales
Agriculture support industries	Inorganic fertiliser manufacture, storage or handling	COD, TSS, Pb, Fe, Zn, P	Medium	Sand/peat filter, high plant surface area and soil organics
Wood or paper product storage, manufacturing or fabrication	Log storage yards (outside of forested areas)	TSS, COD, NO <sub>3</sub> +NO <sub>2</sub>	High	Wetlands
Chemical and associated product manufacturing	Synthetic resins	TPH, pH, Zn	Low	Sand/peat filter
Chemical and associated product manufacturing	Solvents	TPH	Low	Sand filter
Chemical and associated product manufacturing	Explosives and pyrotechnics	Metals (Pb, Zn), VOC's	Low	Sand/peat/carbon filter



Wood or paper product storage, manufacturing or fabrication	Particle board or other wood panel manufacturing	TSS, COD, NO <sub>3</sub> +NO <sub>2</sub> , oil and grease	Medium	GPT, Settling, sand filter
Wood or paper product storage, manufacturing or fabrication	Pulp, paper or paper board manufacturing	TSS, COD, NO <sub>3</sub> +NO <sub>2</sub> , oil and grease, Zn	Medium	Wetlands, oil/water separator
Wood or paper product storage, manufacturing or fabrication	Plywood or veneer manufacturing	TSS, COD, NO <sub>3</sub> +NO <sub>2</sub> , organics	Medium	Wetlands
Transport and related activities	Shipping, loading/unloading	Oil and grease, TSS, COD	Medium	Oil/water separator, sand/peat filter
Transport and related activities	heliports	Oil and grease, TSS, COD		Oil/water separator, sand/peat filter
Transport and related activities	Toad freight transport depot (non-chemical) with mechanical servicing	Oil and grease, TSS, metals	High	Oil/water separator, sand/peat filter
Petroleum or coal product manufacturing	Petroleum refining	Oil and grease, PAH, BTEX	Medium	Oil/water separator, sand/carbon filter
Petroleum or coal product manufacturing	Petroleum hydrocarbon, oil or grease manufacturing	Oil and grease, PAH, BTEX	Low	Oil/water separator, sand/carbon filter
Non-metallic mineral product manufacturing	Glass	Oil and grease, BOD, TSS	Medium	Oil/water separator, sand/peat filter
Metal product manufacturing	Sheet and structural metal products	Fe, Al, Zn	Medium	Sand/peat filter
Machinery or equipment manufacturing	Other machinery or equipment	Oil and grease, Fe, Al, Zn	Medium	Sand/peat filter
Machinery or equipment manufacturing	Industrial machinery or equipment	Oil and grease, Fe, Al, Zn	Medium	Sand/peat filter
Food or beverage manufacturing or handling	Vineyards or wine manufacturing	BOD, TSS, oil and grease, N	Medium	Oil/water separator, high plant activity and surface area
Food or beverage manufacturing or handling	Processed dairy foods manufacturing	BOD, TSS, oil and grease, N	Medium	Oil/water separator, high plant activity and surface area
Food or beverage manufacturing or handling	Oil or fat product manufacturing or handling	BOD, TSS, oil and grease, N	Medium	Oil/water separator, high plant activity and surface area
Food or beverage manufacturing or handling	Meat and meat product manufacture (including fish)	BOD, TSS, oil and grease, N	Medium	Oil/water separator, high plant activity and surface area
Food or beverage manufacturing or handling	Processed dairy foods handling	BOD, TSS, oil and grease, N	Medium	Oil/water separator, high plant activity and surface area
Food or beverage manufacturing or handling	Other foodstuffs handling	BOD, TSS, oil and grease, N	Medium	Oil/water separator, high plant activity and surface area

BTEX is an acronym standing for benzene, Toluene, ethylbenzene, xylenes that are volatile organic compounds (VOCs) found in petroleum products  
Carbon filters are effective at removing sediment and VOCs

Food or beverage manufacturing or handling	Meat product handling (including fish)	BOD, TSS, oil and grease, N	Medium	Oil/water separator, high plant activity and surface area
Food or beverage manufacturing or handling	Beverages or malt product handling	BOD, TSS, oil and grease, N	Medium	Oil/water separator, high plant activity and surface area
Food or beverage manufacturing or handling	Bakery product handling	BOD, TSS, oil and grease	Medium	Oil/water separator, high plant activity and surface area
Commercial livestock processing industries	Slaughter	BOD, oil and grease, N	Medium	Oil/water separator, high plant activity and surface area
Commercial livestock processing industries	Manufacture, store or handle products derived from animal slaughter (gelatin, fertiliser or meat products)	BOD, oil and grease, N	Medium	Oil/water separator, high plant activity and surface area
Commercial livestock processing industries	Scouring or carbonising greasy wool or fleeces	BOD, oil and grease, N	Medium	Oil/water separator, oxidation
Commercial livestock processing industries	Rendering or fat extraction	BOD, oil and grease	Medium	Oil/water separator, oxidation
Chemical and associated product manufacturing	Other chemical products (plastic manufacturing)	pH, TSS, Zn, N	Low	Sand/peat filter
Chemical and associated product manufacturing	Polishes, adhesives or sealants	BTEX, pH, Zn	Low	Sand/peat/carbon filter
Chemical and associated product manufacturing	Medicinal, pharmaceutical or veterinary products	COD, As, Cd, Cr, Phenol	Low	Sand/peat/carbon filter
Chemical and associated product manufacturing	Industrial gas	N, pH, TSS	Low	Sand filter
Animal feedstuffs	Stock food manufacture storage or handling	BOD, TSS	Medium	Swale/high plant surface area and soil organics
Transport and related activities	Bus depots	Cu, Zn, TSS, TPH, PAH	Low	Sand/peat/carbon filter
Transport and related activities	Commercial airports	Oil and grease, TSS, COD	Low	Settling, oil/water separator, sand/peat/carbon filter
Machinery or equipment manufacturing	Motor vehicles or parts	Oil and grease, Fe, Al, Zn	Low	Sand filter
Food or beverage manufacturing or handling	Other foodstuffs manufacturing	BOD, TSS, oil and grease, N	Low	Oil/water separator, high plant activity and surface area
Food or beverage manufacturing or handling	Flour mill or cereal foods	BOD, TSS, oil and grease, N	Low	Oil/water separator, high plant activity and surface area
Chemical and associated product manufacturing	Cosmetics, toiletry, soap and other detergents	Zn, N	Low	oil/water separator, oxidation, peat filter