Guide to developing a Pollution Prevention Plan

for Industries in the Nelson Region

Nelson City Council

Version - April 2008

INSTRUCTIONS: This Guide accompanies the Pollution Prevention Plan Template provided as part of NCC's information to support industries that need to develop a Pollution Prevention Plan to control pollution risks. If you have not received the other supporting documents (i.e. the PPP Template, Checklist, Stormwater Bylaw 2006) contact Nelson City Council.

The Nelson City Council contact is the Manager Infrastructural Assets, Michael Schruer. Phone 546 0309 and email michael.schruer@ncc.govt.nz

UPDATES: Check for updates before using these documents as they must be reviewed and updated at least every three years to ensure they continually improve and remain up-to-date in terms of the NRMP and Stormwater Bylaw provisions.

Contents:

Introduction

This Guide aims to help industries develop a Pollution Prevention Plan (PPP) to manage their land and water pollution risks. A PPP is a legal requirement for some 'industrial or trade' businesses in the Nelson region. A PPP is sometimes referred to as an 'Environmental Management Plan'. Developing a PPP may also help businesses address a variety of environmental issues such as managing air contaminant discharges, wastewater and energy consumption.

Once a business has a PPP, it has an advantage as far as knowing the legal requirements and managing pollution risks according to best practice. PPPs can also help businesses increase efficiencies (*e.g.* moving risky activities into covered areas will minimise pollution risks and can increase productivity) and reduce costs (*e.g.* managing hazardous substances properly will reduce the likelihood of spills and can therefore minimise the associated costs of spill clean-up and potential fines).

NOTE: This Guide and the PPP Template are preliminary documents only and will be reviewed and amended in due course. Their intention is to provide a starting point for industries and feedback is welcomed for incorporation into future revisions.

Solutions presented are outlines only and it is the responsibility of each industry to ensure their compliance with relevant legislation.

Who needs a PPP?

A PPP will generally be required for sites that undertake high risk 'industrial or trade processes' (as outlined in NCC's Stormwater Bylaw 2006 and sites that have on-going pollution issues. Some sites that require a PPP will also require a trade waste permit or other resource consent(s).

If you know you need a PPP, use this Guide to develop one for your site
If you are not sure, call Michael Schruer, on 546 0309.

Throughout this process remember that the purpose of your PPP is to prevent pollution of Nelson's natural environment, on which our economy and quality of life depend.
Only clean rain water should go into stormwater catchpits, pipes and land as this water flows to our streams, rivers, estuaries, harbours and underground waters.

What is a PPP?

A PPP sets out how a business will undertake its operation to manage pollution risks. In terms of NCC's requirements for 'high risk industrial or trade processes', PPPs deal with pollution of land and water. Other aspects such as air pollution are covered separately.

Your PPP will detail:

- **your site's** location, activities, materials, products
- **your site's risk** of causing land and water pollution and how you will manage these risks
- **programmes and systems** to ensure your PPP is effective in reducing your risks

How you manage the pollution risks from your site is the key focus of your PPP - to make the best management decisions, you need to know your site and your risks as thoroughly as possible.

Key points:

- *an effective PPP should be straight to the point and easy to follow*
- *what's in your PPP will depend on your site, activities and associated risks*
- *your PPP will be a live document that you will update as things change on your site*

How to use this Guide

This Guide has been produced to help you develop your PPP – it includes four parts:

- Part 1: Your Site
- Part 2: Your Pollution Risks and Controls including Pollution Prevention examples and checklists to help you determine the Best Practicable Option for your site
- Part 3: Your Programmes and Systems
- Part 4: Practical Solutions to Common Pollutants

Each of the 4 Parts has several Sections which correspond to the section numbers in the Pollution Prevention Plan Template.

the PPP Template is available from the NCC website - call NCC or download it from www.ncc.govt.nz

If you prefer to follow another format - simply make sure that you include all the information required by the Sections in this PPP Guide plus some form of Document Control (see front page of the PPP Template).

Before you start

Identify who will prepare the Pollution Prevention Plan for your site

Select someone (or a number of people) with relevant knowledge of your site layout and knowledge of the existing and potential environmental impacts of your site's activities. The person may be within your company or may be contractors and external parties such as consultants.

The person or people involved and their level of expertise will depend on factors like the size, complexity and pollution risk of your operation.

Gather any existing information

You may already have information about your site layout, drainage and neighbouring environment and about your industry type (materials, risks and impacts) that will help you create a comprehensive PPP. Start by pulling all this together now - it will help you carry out the Sections in this PPP Guide. Refer to 'Tools and References below for further sources of information.

PPP Process Summary

Select your person(s) responsible for your **PPP** and gather **existing information**

Go through the PPP Guide Sections
Fill out the **PPP template** (or your own format if preferred)
Use the PPP Checklists to help if required

Submit your PPP to NCC for feedback

Use your PPP to minimise your site's impact on the environment

Part 1: Your Site

In Part 1 you need to record information about your site and accurately describe your site's layout and drainage, its surroundings, and the consents and permits you currently hold. This information will assist you with Part 2, when you will identify and manage the actual and potential risks of your operation causing pollution of land or water.

You may already have some of this information, so you will just need to check that it is accurate and up-to-date. In some cases however, you will need to create information that you do not already have; you may need expert help with some of these Sections. Refer to the list of available advisors for further help.

Section 1.1: Company description – Page 3 in Template

A company description and details of the site location is needed to give context for the PPP, including for new staff or contractors that are unfamiliar with your site. Briefly describe your company and site, including:

- **company operations** – include brief information on what your company does or produces (you will give more detail of your activities and facilities in Section 1.3). Include operations undertaken on the site and also ancillary or support operations that occur in off-site areas.
- **staff numbers** – record how many staff are employed at the site and also detail **contractors** that you use for the site's operations
- **site address and legal description** – include address and legal details for all the areas your company utilises for the operation, and identify whether the company owns or leases the land.

Section 1.2: Scope of PPP - Page 3 in Template

The scope of your PPP describes what the document covers. Describe the legal requirements and the aspects of your site and/or company that you will cover in your PPP:

- **legal requirements** – as outlined in the introduction to this PPP Guide, your PPP must address the NCC's Stormwater Bylaw 2006 provisions as well as the provisions of Appendix 21 in the NRMP relating to hazardous substances. Note you will also need to check your compliance with the Freshwater Rules, especially FWr.21 Stormwater discharges to freshwater, and compliance with Coastal Rules CMr 38, 39, 40 & 44 relating to discharges to the Coastal Marine Area.

You may also choose to include any other legal requirements or best practice measures and industry guidelines that are relevant to your business.

- **multiple processes on-site** – will your PPP cover your whole site and all of the processes that you carry out? For example, if you have a large, complex site with many different processes you may prefer to develop separate PPPs for discrete parts of your site or process rather than one large PPP for all the processes.
- **multiple sites** – if you have more than one site you can either include them all in one PPP or develop separate PPPs. If you choose to develop one PPP, ensure that all variable details (layout, receiving environments etc) are site-specific, and it is clear where procedures *etc* are generic or site-specific.
- **on-site and off-site activities** – your company may carry out some of its activities at a site but other activities may be carried out off-site. Your PPP is only required to cover activities that take place 'on-site'. You are, however, required to ensure that your off-site activities do not cause pollution. It is a good idea to have management plans in place for each activity you carry out off-site, and you can include these plans as an attachment to your PPP if you wish.
- **contractors** – if you have contractors, your PPP needs to include the activities they undertake on your behalf in your PPP (this includes issues like ensuring waste disposal contractor(s) dispose of your waste(s) appropriately).

Section 1.3: Site Activities, Facilities and Stores - Actual and Potential Sources of Pollution (Page 3 in Template)

In order to identify your site's pollution risks accurately you need to pull together details of your on-site activities, as well as facilities you operate and substances you store. Use the description of your company from Section 1.1 and expand it to detail:

- what you do / make / process / handle on the site including the methods used
- the raw materials and chemicals you use, the processes they're used in and where on-site the processes occur
- the types of materials you store, volumes of those materials and where on-site storage areas are
- end-products and by-products, the volumes of both and where they are stored or used on-site
- wastes produced, the volumes of those wastes, where they are stored on-site and how they are disposed of
- other supporting activities like vehicle and equipment maintenance and washing, loading and unloading, product transfers and so on.

You can present this information in written descriptions, summary tables and/or diagrams. Make sure you cross-reference text, tables and diagrams to your 'Site Layout Plan' (refer Section 1.4) and ensure the locations of activities and facilities are accurate.

These activities, facilities and stores are the sources of the contaminants that your PPP must manage, so it is important to get this right. In Part 2, you will need to identify the risks and contaminants of concern posed by the environmentally hazardous substances that you use on-site.

Common Stormwater Contaminants are:

(a) Suspended sediments: These are soil, organic particles, and breakdown products of the built environment entrained in stormwater flow. They can be silt sized (63 um) or smaller. Sediments reduce light transmission through water, clog fish gills, affect filter feeding shellfish, smother benthic organisms, change benthic habitats and fill up estuaries. Larger soil particles above silt sized are also contaminants, but typically exhibit different physical characteristics and settle much more quickly. These particles are sometimes termed "bed load" sediment.

(b) Oxygen demanding substances: These are soil organic matter and plant detritus which reduce the oxygen content of water when they are broken down by chemical action and by bacteria. Chemical oxygen demand (COD), total organic carbon (TOC) and biological oxygen demand (BOD) are three measures of the consumption of oxygen in water. Fish generally need at least 5 gO_2/m^3 to stay alive. A large proportion of fish kills in streams and rivers are caused by spills and oxygen demanding substances such as sewage.

(c) Pathogens: Pathogens are disease-causing bacteria and viruses, usually derived from sanitary sewers. Organisms such as faecal coliform and enterococci are often used as indicators of the presence of pathogenic organisms. However, the presence of an indicator organism does not necessarily prove a pathogen is present; merely that the risk is higher. Concentrations of indicator organisms in stormwater in the pipe before discharge may exceed Ministry of Health guidelines for contact recreation and shellfish collection. However, dilution with receiving waters will usually mean public health criteria are not exceeded.

(d) Metals: A variety of trace metal compounds are carried in stormwater in both solid and dissolved forms. The most commonly measured metals of concern are zinc, lead, copper and chromium. Metals are persistent; they don't decompose and they accumulate in sediments, plants and filter feeding animals such as shellfish. Elevated levels of metals cause public health issues and organisms avoid the affected habitat area (leading to a reduction in the number and diversity of fauna.) At higher levels still, intergenerational deformities and tumours may occur, as has been recorded overseas.

(e) Hydrocarbons and oils: The hydrocarbons in stormwater are generally those associated with vehicle use. They may be in the form of a free slick, oil droplets, and oil emulsion, and in solution or absorbed to sediments.

(f) Toxic trace organics and organic pesticides: A large range of trace organic compounds has been found in stormwater in New Zealand urban areas. Polyaromatic hydrocarbons (PAHs) are one major group. PAHs are a

group of over 100 different chemicals that are formed during the incomplete burning of coal, oil, and gas. Soot is a good example of a PAH. Organo- chlorine pesticides such as dieldrin, Lindane and Heptachlor constitute another main class of toxic organics.

(g) Nutrients: Nutrients in stormwater are usually nitrogen and phosphorus compounds that stimulate plant and algal growth. This can cause daily fluctuations in oxygen concentrations, including phases of aerobic decomposition, which removes dissolved oxygen from the receiving waters.

(h) Litter: Litter in stormwater is often referred to as gross pollution. It has a high visual and amenity impact, but limited effect on public health and ecological standards.

In addition to the above contaminants, stormwater discharges have other physical and chemical effects which affect aquatic organisms and change how contaminants react. These include changes to temperature, pH, dissolved oxygen, alkalinity, hardness and conductivity.

Section 1.4: Site layout and drainage plan Page 3 in Template

Your PPP needs to include an accurate and up-to-date plan of your site showing the layout of key areas and drainage. Show clearly what activities occur on your site and where. Drainage includes both private (site) and public (council) stormwater and sanitary sewer / trade-waste. This information will help you develop other aspects of your PPP (especially identifying risk areas of your site and how contaminants can enter receiving environments). The 'site layout and drainage plan' will also become an essential part of your Spill Prevention Plan and Emergency Spill Response Procedures (which you create or update during Part 2).

In compiling your site plan, consider the following:

Stormwater pipes are not wastewater pipes. Wastes include: boiler blowdown waters, sewage, sink waste, basin waste, compressor condensates, trade wastes, cooling water, wash waters, other process waters. If you find any of these connected into down pipes or direct into stormwater pipes, then:

- discuss it with the Council
- remove the connection immediately from the downpipe or stormwater
- connect the pipe legally to the sanitary sewer – likely to require a trade waste consent

Check that only stormwater - clean rainfall runoff - gets into your stormwater system. Are all stormwater pipes and inlets connected to the stormwater system?

Do your stormwater grates have a "Drains are for Rain" stencil painted in yellow, blue or green? Stencils are a successful way of ensuring that your staff do not tip anything down stormwater grates. You may also wish to paint manhole lids such as red for sewer and green, yellow, or blue for stormwater.

Have you shown the stormwater manhole which is the last point on your site where you can intercept a spill and stop it from escaping from your site?

If you know where stormwater off your site reaches a stream or beach, you will be able to go straight there to contain a spill that gets off your site.

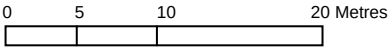
If your stormwater goes into the Council's pipes, does your drainage plan show or indicate the outfall where it eventually discharges into the stream, beach or other receiving waters? Show or tell your staff where your stormwater ends up, to make them more aware of the consequences of a spill.

Spills and leaks from outdoor activities can easily get into the stormwater system and cause pollution, so you need to know where drains from these areas go to. Put an arrow on your drainage plan so you know where to intercept any spill to prevent pollutants getting off your site.

Check that no stormwater (rainfall runoff) gets into your sanitary or trade waste sewers.

Is every gully trap walled off adequately to prevent stormwater runoff getting into it?

Your site layout and drainage plan needs to show:

- buildings and all outdoor activity areas with labels showing what they are used for, include uses, storage areas and tanks (above and below ground) on your site, loading/unloading areas, decanting areas, refuelling and/or lubricating oils storage areas, pumping or dispensing areas, vehicle or equipment maintenance areas, vehicle or equipment washdown areas, outdoor processing areas, waste treatment areas, etc
- any indoor areas that are washed down and where they drain to
- storage areas - particularly for environmentally hazardous substances or raw materials, wastes, including hazardous wastes, cleaning liquids or other cleaning products, biocides (like weedkillers, rodent bait etc)
- stormwater flow paths and any low points or areas of ponding
- any disused systems
- stormwater drains clearly labelled - private and public pipework, manholes, catchpits and soakholes and their inlets: down pipes, stormwater grates, silt traps, interceptors, cleaning or inspection points
- point where your on-site stormwater pipes discharge into either: the council's reticulation system, a soak hole, an open watercourse or the sea/coastal marine area
- sewer pipes and trade waste drains clearly labelled - private and public, manholes, pipework and cesspits, down pipes, grates, gully traps, interceptors, cleaning or inspection points,
- neighbouring sites and what happens there, especially if these are sensitive land uses such as a kindergarten, hospital, play ground, or rest home
- water bodies and their direction of flow
- the date the plan was compiled
- a linear scale bar in metres 

(not a ratio scale like 1:200)
- the site boundaries
- all outdoor spaces
- the direction of flow of wastewater/sanitary sewer and stormwater pipes
- any open drains
- any areas where unpiped runoff leaves your site
- any stormwater treatment systems, for example, oil or grease interceptors, flow control or shut-off devices on cesspits, swales, ponds, filters
- Any other existing pollution prevention infrastructure
- Any proposed pollution prevention infrastructure – clearly mark proposed devices to distinguish from existing devices.

For an example, see the map attached at the end of this booklet

To create a plan or confirm the accuracy of an existing plan you may need to involve a specialist to investigate your drainage systems (*e.g,* using CCTV or dye tests). For large or complicated sites, you may prefer to separate out the layout and drainage information and create two separate but linked plans (*e.g.* by including building outlines and site boundaries on your drainage plan).

Note: While undertaking this Section keep a list of anything you spot that needs fixing such as trade waste or sanitary sewers connected to stormwater pipes, or outdoor storage areas next to stormwater catchpits. You will use this information in Part 2 (when you identify and address your pollution risks).

Section 1.5: Site Receiving Environments – Page 4 in Template

Receiving environments are those areas of land or water that can or do receive run-off or discharges from your site. Your PPP needs to identify where your stormwater discharges to and where any other discharges may end up, i.e. include information on your site's 'receiving environments' of any contaminants (including contaminated stormwater) from your site.

Identify where your stormwater discharges to:

- Council (public) Stormwater Pipeline
- River/stream/creek (Name)
- Pond/wetland (Name)
- Coastal Marine Area/foreshore/beach (Name)
- Soakage
- Other (Describe)

Determine the pathways for contaminants (including contaminated stormwater) to enter the immediate and ultimate receiving environments of your site, for example overland via unpiped runoff from your site, or via soakage through unsealed surfaces, piped stormwater or wastewater discharging to ground or to piped systems, watercourses etc. If there is potential for contaminants to enter these systems, then describe:

- **immediate receiving environments** – including site soils/land and surface water (stormwater drains, streams) as well as underlying geology and shallow underground waters or aquifers (this is especially important if you are situated in an area where stormwater is managed via soakage (*e.g.* soakholes)).

- **ultimate receiving environments** - including the streams or rivers that your stormwater flows into, and any environments which they in turn flow into (*e.g.* wetlands, estuaries, Waimea Inlet, Nelson Haven) as well as any deeper underground waters. If your stormwater is connected to a Council pipeline, the ultimate receiving environment is where this discharges to. Information of stormwater pipelines can be obtained from the NCC GIS.

This will help show you how your site is connected to the surrounding environment, how easily pollutants from your site can end up in the environment and how sensitive they are to potential pollution from your site. The extent to which you need to describe these receiving environments will depend on the type and amount of contaminants associated with your site's operation.

Section 1.6: Site Authorisations, Consents and Permits – Page 4 in Template

Your PPP will help you comply with the Nelson RM Plan and the Stormwater Bylaw provisions and therefore manage your operation's land and water pollution risks. In this Section you will list other authorisations (*e.g.* resource management plan permitted activity rules), consents and permits that impact on your pollution prevention goals. These may be ones that you already comply with, or ones that you are working towards compliance or a consent/permit application. You only need to list those consents that relate to environmental performance or effects, for example, air/water discharge consents, coastal permits, water permits, trade waste permits etc. You do not need to list those relating to non-environmental factors such as health and safety or buildings.

Your PPP can include the following information:

- consent/permit type and purpose (and number and expiry if already granted)
- status (*e.g.* does the site already hold the consent/permit?, have you applied?, or are you are investigating whether or not the consent/permit might be needed?)
- if the consent/permit is for a specific area / specific volume of discharge
- key conditions and monitoring required

Part 2: Site Assessment - Pollution Risks and Controls – Page 5 in Template

The purpose of a PPP is to minimise and where practicable avoid pollution from your site. These risks may arise from factors such as your site's layout, drainage and the activities you undertake. In this Part you will use the information you have already gathered in Part 1 and identify your pollution risks, the ways you currently manage your pollution risks, and what improvements (Best Practicable Options) are needed.

A 'Pollution risks and controls' table has been developed and included in this Part of the template so you can record your information in one place. However you can follow any format as long as your risks, controls and required actions are clear. Another table with further example entries is included in the PPP Guide on page 13.

Suggestions for completing Part 2 of the Template

Look out for less obvious risks by asking yourself "What if … "

- "What if that container corroded, was overfilled or punctured and there was a spill?"
- "What if rainwater in the chemical storage bund becomes contaminated?"
- "What if there was a spill in this area and the stormwater shutoff valve failed?"

Talk to contractors and staff that have knowledge of your site and processes.

The 'Tools and References' on page 26 should provide most companies with sufficient information; if any further assistance is required, contact the Manager Infrastructural Assets, Michael Schruer. Phone 546 0309 or email michael.schruer@ncc.govt.nz

Section 2.1: Identify your Pollution Risks – Page 5 in PPP Template

Your PPP needs to include a detailed list of risks that the operations on your site pose to land and water. Include risks from day-to-day activities and things you store on-site all the time, as well as unintentional events like spills and emergencies. For each risk you need to identify the contaminant(s) of concern – this will enable you to determine, in a later Section, what type of controls you need to manage your risks and how to respond to spills of a particular substance.

For this Section, you need to identify all risks regardless of these factors. In Section 2.2 you will list all the controls you have in place for each of your pollution risks. To make sure you cover all risks, think about your:

- **activities** – all activities pose some level of risk. Consider the risks for each activity, from delivery and handling through to products and waste, as well as where the activity is carried out. For example, are the activities undertaken in a way, or with specific equipment, or in a specific location that minimises the release of contaminants?
- **facilities** – every facility will have some level of risk associated with it. Consider the risks from the various facilities on-site such as plant/equipment, re-fuelling or vehicle/equipment washing and maintenance areas. For example, are they set up, operated and maintained so as to avoid contamination of land and/or water/stormwater?
- **stores** – the storage of any 'environmentally hazardous substances' poses pollution risks. What exactly do you store on-site? how much? Are your storage areas designed and operated correctly? Could something go wrong with the tanks or bunds? Do underground tanks have leak detection (or ullage) systems?
- **site coverage** – sealed and unsealed areas pose different risks. In sealed areas contaminants (from spills or general activities) can enter the site's stormwater system. Whereas on unsealed areas (or sealed areas with integrity problems) those contaminants could soak into the ground resulting in possible soil and/or groundwater contamination.
- **site drainage** – aspects of the site's drainage can pose risks to land and water. For example, do any areas drain to stormwater that should actually drain to trade waste? Is there any chance of cross-connections between stormwater and trade waste/sewer systems? Could there be problems with pipe and/or shutoff valve integrity?

Section 2.2: Identify your Existing Pollution Controls – Page 5 in Template

Each risk identified in Section 2.1 must be managed to avoid or minimise pollution of the environment. Risks are managed using 'controls'. You will already have a number of controls in place on your site, and this Section involves you identifying those existing controls. There are two types of controls:

- **Structural controls** are physical structures that are designed to control the movement of materials/contaminants (including contaminated stormwater) around your site. Structural controls can be big or small and are usually permanently in place –

- *e.g.*: dedicated storage facilities (for chemicals, raw materials, products and wastes),
- Secondary containment devices such as bunds,
- Stormwater treatment devices such as sumps, sediment ponds, sand filters or a variety of filtration products, etc.

- **Procedural controls** are written or informal descriptions of how and where you carry out key activities on your site. They include written standard operating procedures (SOPs) for routine activities as well as for spills and emergencies

- e.g. SOPs for handling, filling or emptying containers
- inspection and maintenance of bunds and associated valves,
- inspection and maintenance of vehicles, plant, machinery or other equipment, etc

Each risk is likely to require a combination of both structural and procedural controls. For example, to manage the

risk of chemical spills you may have bunding as a structural control, and procedures for chemical delivery, handling *etc* and spill prevention and response as procedural controls.

This Section involves you identifying the controls (structural and procedural) that you *already* have in place. In subsequent Sections you will identify further controls that are required and you will then need to install/develop them, and update the information you collate during this current Section.

Spill Prevention Plan and Emergency Spill Response Procedures

- Site specific Spill Prevention Plan and Spill Response Procedures are required
- If not cleaned up straight away, spills can enter the stormwater system and pollute streams and beaches. Never try to wash away a spill.
- Instead, the procedure to follow is:

- Be safe – put on the correct personal protective equipment
- Stop the cause
- Contain the spilt material – protect stormwater
- Notify your supervisor and other agencies
- Clean up the spill – Fire Service in an emergency or waste management contractor if beyond site resources
- Dispose of contaminated materials
- Re-stock, investigate and review to prevent reoccurrence

Spill Prevention Plan

- To prevent spills from happening, first assess the risk of spills on your site and then take action to minimise those risks. Begin by identifying the areas where spills are most likely to occur, e.g. areas of storage, high traffic, loading and unloading, where they have happened before, unpaved areas.
- Prepare an inventory of all substances stored on your site and keep material safety data sheets (MSDS) for all hazardous substances. Appoint someone to be responsible for updating the inventory and the MSDS.
- Look at the design of your site and your operating procedures to see if there are any changes you can make to minimise the risk of spills. You should identify on the submitted plans, and put in place good housekeeping, inspection and maintenance practices. Contact your industry association for advice on good practice.

Emergency Spill Response Procedure

- Ensure that you are ready if a spill should occur. Assemble a spill kit containing the appropriate materials for cleaning up any likely spills at your site (large sites may require several kits). Kits should contain equipment such as brooms, shovels, drain-covers, booms and absorbent materials. They should also include personal protective equipment and containers for collecting the contained or absorbed waste.
- Display a contact list and spill procedure in prominent and high risk areas around your site. Assign responsibilities and carry out regular training in relation to your spill procedures.
- Thoroughly investigate any spills that occur and adopt preventive measures. “Near-misses” should also be reported, investigated and recorded.

Section 2.3: Identify Best Practicable Options for Improvements to your Pollution Controls – Page 6 in Template

Now that you have outlined the existing structural and procedural controls for your site's risks, you need to work out what improvements or additions are needed in order to further reduce your risk of polluting. Actions you need to take will include:

- **new pollution controls** – where there is no existing control in place *e.g.* storage tanks with no bunding or where there is no written Spill Prevention or Response Procedures in place.
- **improvements to existing pollution controls –** where an existing control is inadequate or non-existent *e.g.* where a bund is undersized or where there is no bund, or where a procedure is ineffective because there is no way of reporting problems or results or ensuring the problem does not reoccur.

You may need to refer back to the 'Tools and References' identified on page 25 to ensure that the resulting pollution controls are correct (*e.g.* any new structural controls such as bunds are appropriately designed and any new procedural controls are effective). Also remember that most new structural controls will need an accompanying procedural control (*e.g.* a new bund will require a procedure for staff managing the bund).

Refer to Part 4 of this PPP Guide for suggestions of practical solutions to common pollutants.

This PPP relates to 'legal compliance' with the Stormwater Bylaw 2006. However you can extend this assessment to include any other legal requirements such as other aspects of the NRMP, as well as any voluntary 'best practice' measures your company or industry/trade association is committed to (as per your 'PPP Scope' from Part 1, Section 1.2). You will just need to ensure the controls relating to achieving compliance with NCC's Stormwater Bylaw provisions are clearly identified.

***NOTE**: If you identify actions that you need to take to achieve legal compliance, you do not need to complete all the actions prior to finishing your PPP. Any actions you plan to do later just need to be included in Table 2 of the template in the appropriate columns.*

Section 2.4: Address your Pollution Control Actions – Page 6 in Template

Compile your list of 'future actions' – any actions that cannot be addressed prior to submitting your PPP need to compiled into Table 2 along with timeframes.

If you have lots of actions and need to decide what order to tackle them, you may want to consider factors such as 'pollution risk priority' (*i.e.* level of pollution risk that may arise if you delay completing the action) and of course business issues (*e.g.* costs, resources, timing constraints). You will need to include timeframes for initiation and completion. When reviewing your draft PPP, NCC will assess the timeframes for your 'future actions' and may request supporting information; the timeframes must reflect 'pollution risk priority' as well as business issues.

EXAMPLE TABLE 2a –Pollution Risks and Controls

Area of site : Chemical storage area in Warehouse B **Activity / facility / store :** Activity – Chemical delivery

Actual and Potential Sources of Pollution[2.1]		**Existing pollution controls[2.2]**		**Comply?**	**Improved or new pollution controls required [2.3]**				**Timeframe for Future Actions[2.4]**		
Pollution Risk	**Contaminant(s)**	**Structural**	**Procedural**	**Yes / No**	**Structural**	**Procedural**	**Pollution Risk Priority**	**Order for Completion**	**Initiation**	**Completion**	**Person Responsible**
Spills during unloading of chemicals	Hydrocarbons, dissolved metals, glycols - refer 'Chemical Inventory' for Warehouse B	Bunding of chemical delivery area, and ground sealed (bunding complies with Council requirements)	Procedure X.X (refer Appendix E) – including: Deliveries only within bunded area Contractors use safe practices (pallets, wrapping, trolleyjacks) Spill Response Plan Inspection X.X (refer Appendix G) Regular checks of seal and bund integrity etc Training (refer Appendix I) Staff/contractors trained in Procedures (including Spill Response) and	**Yes**	n/a - no further structural controls required	n/a - no further procedural controls required	n/a	n/a	n/a	n/a	n/a
Traces contaminants tracked from bunded chemical delivery area to yard	Hydrocarbons, dissolved metals, glycols - refer 'Chemical Inventory' for Warehouse B	Yard area sealed	Inspection X.X (refer Appendix G) – including: Yard area regularly swept and residues collected for disposal Integrity of concrete checked 6 monthly	**No –** existing controls do not deal with trace contaminants in storm water	Stormwater Treatment – oil interceptor and sand/peat filter for trace hydrocarbons and metals in yard stormwater	Procedures required for operation and maintenance of stormwater treatment devices	1	1	May 2008 (oil interceptor) August 2008 (sand/peat filter)	May 2008 (oil interceptor) October 2008 (sand/peat filter)	Roger Brown

Explanation:

'**Area of site**' - the location of activity / facility / store
'**Activity / facility / store**' - the specific aspect of your site processes
'**Risk'** - the pollution risk(s) that your activity / facility / store poses (either actual or potential risk(s))
'**Contaminants**' - the chemicals or pollutants that are either inherent in the materials you use or formed as a by-product or waste product
'**Structural controls**' – physical structures that are built / used to manage environmental risks (see Section 2.2)
'**Procedural controls**' – procedures / steps you follow to manage pollution risks (see Section 2.2)
'**Comply?**' - indicates if your existing controls (structural and procedural) will manage your pollution risks and comply with relevant legal requirements (see Section 2.3)

A 'No' in the 'Comply?' column means action is required before your table is finalised OR an action needs to be added to your 'Improved or new pollution controls required' column for your PPP

'Improved or new pollution controls required' – the actions required to ensure your controls do comply and are the best practicable option for your site (see Section 2.3 and Part 4 of the PPP Guide)
'**Pollution Risk Priority**' – indicate whether the risk of pollution from the pollutant or current control method(s) is high medium or low risk to the environment
'**Order for Completion**' - the order in which you intend to address you outstanding pollution control actions
'**Person Responsible**' – indicate who will ensure that the future actions are carried out

Part 3: Maintenance, Training and Review

In Parts 1 and 2 you gathered information about your site and identified the associated pollution risks, and the controls you will use to manage those risks. In this Part you will put in place the programmes and systems that will ensure your controls are implemented and are effective in minimising pollution from your site.

Note: As you go through this Part it may bring to your attention new pollution risks or controls that you hadn't previously thought of. If this happens, you will need to revisit Table 2 and update it as you go.

Section 3.1: Inspection and maintenance – Page 8 in Template

In Part 2 you listed all the structural and procedural controls you have to deal with your site's pollution risks. To ensure your PPP is effective in preventing pollution you need to ensure structural controls are in good working order and that the procedural controls are being followed. The way to do this effectively is to develop an inspection and maintenance programme. This programme will formalise the way you will check that your controls are preventing pollution; and if the controls aren't working, you will be able to fix the problem (*i.e.* repair the bund or re-train staff on procedures).

The key components of any inspection and maintenance programme are to:

- address every **pollution risk** – to do this you could focus on your pollution controls. For some controls this will be straight forward *e.g.* checking staff are storing items in the right place and disposing of waste correctly, checking waste oil igloos are not overtopping and bunding is intact. However for some controls it will be more complicated *e.g.* checking the integrity of pipes to ensure wastes aren't leaking into site soils/groundwater or stormwater. This may require CCTV inspections, pressure testing etc.

Note that stormwater treatment devices often require more comprehensive checks and more intensive maintenance – they are therefore covered in a separate 'Stormwater Management and Monitoring Programme' (see Section 3.2).

- ensure the **frequency** of checks and repairs are sufficient to stop problems before they start causing pollution – to achieve this some will need to be done more regularly than others (*e.g.* daily rather than once a month). Some might need to be done after rainfall when stormwater pollution is most likely. The likelihood of pollution occurring also needs to be taken into account – *e.g.* an older tank will require more frequent checks. The severity of the pollution may also be a factor – *e.g.* highly toxic substances should be checked more closely.
- make sure the person(s) doing the check knows **what to look for**, what to **record** and what to **do if there is a problem** – to do this you can develop checklists to follow (and tick off). The checklists need prompts to ensure corrective actions are taken if a problem is found. For maintenance work on plant and equipment, instructions from manufacturers can be followed; however you may need to expand them to ensure pollution risks are managed comprehensively.

Your completed inspections checklists and maintenance logs will create a 'paper trail' to demonstrate that your inspection and maintenance programme is being followed. See Section 3.4 'Record keeping'.

Your programme is likely to be made up of a series of instructions (written steps, flow diagrams *etc*) and supporting forms or checklists. This should allow the user to easily understand what is required, when, and what to do if there is a problem. In addition to creating a 'paper trail' the completed forms/checklists can also be referred to when identifying changes to improve your PPP (see 'PPP review', Section 3.6).

Section 3.2: Stormwater Management and Monitoring– Page 8 in Template

If you have stormwater treatment devices on-site you will probably need a separate programme for the operation and maintenance (rather than including them in your 'Inspection and maintenance programme' (Section 3.1)). The conditions on some resource consents require some sites to prepare a stormwater management and monitoring plan.

If you don't have any stormwater management and monitoring requirements on your site, and you don't have a stormwater treatment device, you can skip this Section.

Typical consent conditions relating to operation and maintenance plans for stormwater systems may require:

- operational details, maintenance requirements and inspection checklists for all components of the site's stormwater system, including all stormwater pipes, catchpits, soakholes and treatment practices (sandfilters, interceptors and rain gardens etc) under typical and storm flow conditions
- frequency of regular and one-off (*e.g.* post storm) maintenance and inspections
- the methods, procedures and frequencies for undertaking stormwater discharge monitoring
- the methods and procedures for investigating and reporting on any stormwater discharge monitoring results that exceed any contaminant concentration trigger levels
- details of the person or body who will hold responsibility for the ongoing operation, maintenance and monitoring of the stormwater system.

You will also need to identify the location of any more detailed information such as where monitoring records will be kept and who will be responsible for taking any actions that may be needed.

Section 3.3: Training – Page 8 in Template

Each person in your organisation needs to be aware of their responsibility in preventing pollution and making your PPP work. Everyone will need some form of training to help them do it. The most well written PPP will not prevent pollution if staff are not trained about your risks and how to do things.
Any contractors you use and any lessees on your site must also know about their responsibilities to avoid pollution so that any problems do not become your liability. You can train them yourself, or ask them to provide evidence that they have given their staff the right training on the parts of your PPP that relate to their work.
An effective training programme will:

- include an induction and refresher training for all staff (and contractors as appropriate)
- cover general environmental issues and the purpose of pollution prevention goals
- outline site specific details relevant to achieving pollution goals (see Part 1 Sections) – this is a good time to point out to staff exactly where the stormwater from your site goes, and how sensitive most of those receiving environments are to pollution
- provide details on specific pollution controls relevant to individual job areas/ responsibilities
- include overview and 'hands-on' spill response training (preferably all staff should be trained so they can all help if a spill occurs)

You will need to keep good records of who is trained, when and in what aspects – this paper trail is vital in demonstrating you are implementing your PPP (see 'Record Keeping, Section 3.4). Training staff and contractors on your PPP can be integrated into an overall environmental and health and safety training programme.

Section 3.4: Record keeping – Page 8 in Template

Good records are the paper trail that proves you are following your PPP and that it is working as intended. Keeping records from your 'inspection and maintenance programme', your 'stormwater management and monitoring programme' and your 'training programme' will be useful to demonstrate that you have been following your PPP should a compliance issue arise or if there is a pollution incident (such as a spill on-site). The type of records from these programmes will include:

- completed forms, checklists and maintenance logs
- identified problems and corrective actions undertaken
- monitoring data / results (*e.g.* for stormwater treatment device monitoring)

Some other types of records will also be valuable for assisting with the implementation of your PPP and/or your 'PPP Review' (see Section 3.6). These include:

- incident forms (especially pollution incidents and response)
- internal and external communications regarding the PPP (*e.g.* with waste disposal contractors where you specify that your waste must be disposed of appropriately)
- results of internal or external assessments and compliance visits

You will need to decide which records you will keep, how and where they will be kept (hard copies and/or electronic format), and for how long. If you have a resource consent, keep key records (*e.g.* on discharge monitoring) for the whole time period for which the consent is issued, as they will be very helpful when you need to reapply. You will also need to decide who will be ultimately responsible for these records (see 'Roles and responsibilities, Section 3.5).

Section 3.5: Roles and responsibilities – Page 8 in Template

Nearly every member of your business (and your contractors) will have a role or responsibility in ensuring your PPP is followed and that it is effective in preventing pollution. In order for staff and contractors to understand what is required, you will need to record this information in your PPP. In some cases specific responsibilities could also be recorded in individual's job descriptions.

Key examples of responsibilities for your PPP might be: shop floor staff being responsible for following the PPP procedures, supervisors checking pollution controls are working (*e.g.* bunds are sound and procedures are being followed), contractors disposing of waste according to contractual agreements, human resources staff ensuring staff are trained, administration staff keeping records appropriately, and management staff actioning additional pollution controls on time, undertaking PPP reviews and tracking consent compliances.

Reporting lines ensure that the right people find out about pollution issues and that things such as corrective actions, improvements, reviews and training get done. One way of ensuring reporting lines are followed is to require the responsible person to sign off on actions or programmes (*e.g.* sign off may be required at the end of each week to show that all inspections and maintenance programmes have been carried out and any necessary corrective actions have been taken).

Section 3.6: PPP Review – Page 8 in Template

You will need to review and update your PPP regularly to ensure it reflects the current situation on your site and takes into account changes you have made since the first version. These changes may be the result of company or site expansion, taking on new staff or undertaking new activities or processes. However, even if nothing changes on site you still need to routinely review your PPP to ensure it continually improves. Opportunities for improvement might be raised informally by staff or contractors, formally through the forms completed during inspections and maintenance (and associated corrective actions), or through the monitoring data collected from your stormwater treatment devices (if you have them). National and international advances in best practice pollution controls should also be reviewed at this time to check if any additional controls should be considered for you site.

A three-yearly review of your PPP is required by the Stormwater Bylaw as a minimum, however in some circumstances a more frequent review and update may be needed such as annually or monthly. This may arise due to an incident such as a spill highlighting a major gap in your pollution controls, or an inspection may highlight an on-going problem that requires a significant change to stop it re-occurring. Similarly, monitoring data may show that a treatment device hasn't been installed properly and it may need to be altered.

The review of the PPP should include things like:

- any significant changes to the site's activities, facilities, or pollution controls
- key changes to the company (e.g. restructuring, contractors)
- changes in industry best practice standards or recommended pollution controls
- changes in legal requirements or NCC or industry recommendations
- results of: inspection and maintenance programmes, and logs of incidents, corrective actions, internal or external assessments (including NCC compliance reports)
- public complaints
- specific results of your stormwater management and monitoring programme compared with consent requirements (if you have one)

Any changes to your PPP need to be reflected in the information in your PPP about your site, your pollution controls and/or your programmes and systems. Each of these will therefore also need to be updated.

If large parts of your PPP change, the entire PPP will need to be re-submitted to NCC (along with a summary of the changes); however if only minor changes are made, a summary of those changes should suffice. In addition to advising the NCC you will of course also need to advise or re-train staff and contractors.

Part 4: Practical Solutions to Common Pollutants

Selecting the Best Practicable Option(s) (BPO) to control pollution is very site specific and the most practical option will depend on your site constraints, budget and level of risk posed by contaminants of concern. Most options will likely involve a combination of procedural and structural controls. The various options and solutions presented below should be used as a starting point only with more specific advice being sought by a suitably qualified and experienced professional (i.e. environmental scientist or Chartered Professional Engineer or similar). Alternative solutions will be readily considered by the Council and will be approved where they are deemed appropriate.

Compliance with Auckland Regional Council's Technical Publication #10 (Stormwater Treatment Devices) will be deemed to be achieving the BPO.

For all cases, preventing contamination is preferable to treating contaminated stormwater or soil, and is usually cheaper and easier.

Quick Guide:
When assessing your site's requirements to achieve the objectives of the Stormwater Bylaw and selecting the best practicable option(s), you should consider:

- Does the option or device remove sufficient amounts of contaminants?
- Does it remove the correct contaminants?
- Is it appropriate for the size of your site?
- Is it the most cost effective method?
- Is it cheaper to avoid pollution of the stormwater rather than treating it?

General Methods:
Roofing or Covering
Roofing is a practical solution if you have identified a potential risk in any of the following areas on your site:

- washdown areas
- loading, unloading and decanting areas
- outdoor bunds
- refuelling and motor oil storage areas
- outdoor storage areas
- waste storage areas

If roofing is the chosen solution, prevent rainfall entry by ensuring roofs over open areas have an overhang: roof height ratio of 1:3. Consider that cost saving may be made in the long run by roofing an outdoor area if your staff can continue working when it rains.

Inappropriate roofing materials can also be a source of pollutants:

- All galvanised roofs should be replaced with Zincalume roofing materials or similar approved, or painted with non-zinc paint.
- All unpainted iron roofs should be replaced or painted with non-zinc paint
- Ensure all zinc based painted galvanised roofs are in good condition, if they are not, the roofs should be replaced or painted with non-zinc paint

If roofing is not practical, materials should be securely covered to stop them blowing away and to keep rain from washing pollutants into stormwater. Use covers in combination with careful housekeeping practices to ensure the area around the cover is kept clean and free from contaminants. Any material or water used to clean the area around the covered area will need to be treated or disposed of appropriately.

Bunding

Bunds are an excellent way to trap and control leaks. If the bund is roofed, it will not collect stormwater that otherwise might become contaminated by any leaked material and require treatment. It is often cheaper in the long run to roof a bund. Roofed and indoor stores of high-risk liquid materials should be bunded to minimise the risk of leaks entering stormwater drains or soaking into the ground. An un-roofed bund requires careful management in order to release uncontaminated stormwater but to contain leaks and contaminated stormwater. The drain valve should be kept closed and locked at all times except when draining uncontaminated stormwater.
Automated 'First-flush diversion valves' are available and are an excellent way to manage stormwater on uncovered bunds, diverting the initial contaminated rainfall to waste and after a certain amount of rain has fallen, diverting clean stormwater to the stormwater system/stream.
Bunds should be installed around tanks and drum storage areas that contain any material with potential to pollute stormwater or soil, - these could include smaller outdoor storage areas with low nib walls to prevent stormwater running into them and secondary containment around other potential sources of leaks, such as valves, pumps, flanges and so on.
Make sure your outdoor bunds have either:

- . a roof to prevent the bund filling up with rain, or
- . a valve to release uncontaminated rainwater to the stormwater system and
- . a vandal-proof stormwater drainage valve locked in the 'off 'position, with the key held by a responsible staff member.

A tank bund should be able to contain 100% of the largest tank + 10% of the second largest tank + 175mm of rain water (unless roofed) plus the volume taken up by any pumps pipes etc. within the bund. A bund for drums should be large enough to contain 25% of volume up to 10,000 litres + 10% of additional volume + 175mm of rain (unless roofed).
Bunds should:

- Be able to cope with a rupture in or spill from the pumps, pipes, filling and decanting methods associated with your bunded containers
- Have floors, walls and joints on pipework impervious to and compatible with the materials stored
- Maintain the required minimum separation distances for dangerous goods stored within the bund
- Have tanks and drums separated from the inner edge of the bund by a distance of half the height of the tank or stack of drums
- Have incompatible substances stored in separate bunds

Bunds could have separate compartments bunds for different materials to help you collect spilled materials for re-use to save costs.

Hazardous Substances are controlled under the Hazardous Substances and New Organisms regulations (HASNO) (contact Occupational Safety and Health Service (OSH)) and the relevant provisions of the Nelson RM Plan. The HASNO regulations set out the statutory requirements for containment standards.
All materials should be regularly checked for leakage and deterioration. Reasonable care should also be taken to prevent vandalism (e.g. by securing the site and installing locks on tank valves).

Litter Control

Gross Pollutant Traps such as Trash Racks, Debris Screens, Baskets can be used to capture of large physical pollutants such as bottles, litter, branches etc from leaving your site. These would typically be used on larger sites. Good housekeeping on site will minimise the amount of litter likely to enter the stormwater.

Suspended Solids/Sediment Control

If suspended solids concentrations are likely to exceed 100mg/ltr you will need some form of sediment control. This could include sealing of exposed surfaces, installation of sumps, sediment retention ponds, installation of a drainage system, relocation and protection of stockpiled materials, and such other measures considered appropriate so that sediment generation is minimised or reduced. Sediment ponds are suitable for larger sites whereas for sites where space is limited, sumps, settling tanks or an on-site treatment system may be an option.

These will usually require specific design to ensure appropriate sizing. Refer also to Roofing and Bulk Storage and Stockpiles sections.

Heavy Metals and Chemicals Control

If any stormwater generated on your site contains heavy metals and chemicals you must not discharge this water untreated from your site. Generally, if there are any outdoor uncovered stores of such materials on your site that will result in contamination of stormwater, you will need to address it. Application of Cleaner Production principles can offer good solutions to businesses with chemical-intensive processes. Cleaner Production principles relate to minimising chemical usage in processes and minimising chemical wastage by refining the processing techniques and improving chemical recovery and reuse. Improved processes will save costs and minimise risk of pollution at the same time.

Technology for chemical removal/recovery is developing. Removal of metals and chemicals in lower concentrations such as from carparks can be removed using filter systems containing peat or other organic filter materials. Suitable systems are available from a variety of manufacturers and will need to be sized specifically for each site. These devices are usually effective in removing metals that have adhered to sediments and are unlikely to remove significant amounts of dissolved contaminants. Dissolved metals or chemicals usually require a specifically designed on-site recovery or treatment facility tailored to the chemicals/metals of concern. Typically it will be more practical to have chemical waste taken away by a specialist disposal company for treatment at an appropriate facility or to discharge such wastes as Trade Waste. Disposal directly to soakage or ground is not appropriate.

Site Signage and Labelling

Clear, prominent signs will help visitors, contractors and staff with everyday operations as well as your site emergency drill. Make sure the contents and hazard of storage vessels and bulk stores are clearly labelled in accordance with HASNO requirements where applicable. Labelling of stormwater grates with 'Drains are for Rain' or with a yellow fish symbol is also a useful reminder for staff and contractors on the site. Also, labelling of other pipework to distinguish between sewer, stormwater, trade waste etc is an appropriate way to minimise your pollution risks.

Specific Situations:

Bulk Storage and Stockpiles

Poor storage of materials on industrial sites often leads to pollution, while proper storage of materials can dramatically reduce pollution. Ideally all materials should be stored indoors where practical. Alternatively materials could be stored outside in appropriate containers on impervious areas free of cracks and gaps and

- Roofed or covered as per above
- Bunded as per above
- be located at least 2m from downward sloping land, areas of concentrated stormwater flows, driveways and access ways, footpaths, riparian strips and tree drip lines, and
- have sediment fencing installed to capture sediment laden runoff from the stockpile(s)

Stockpiles exposed to rain will contaminate stormwater running off your site. Runoff from:

- treated timber may contain copper, chrome, arsenic, boron or organic solvent mixes including fungicides, insecticides, waxes, resins
- metal dumps may contain oil, brake fluid, coolant, and other chemicals
- bare soil, gravel, or other sediments will smother stream life
- sawdust, grass clippings, animal products, food products and compost will use up oxygen from the water, suffocating fish

If it is not practical to cover your stockpiles, any runoff will be contaminated so make sure the runoff is collected and treated via an on-site treatment facility or disposed off site via an appropriate and responsible waste removal contractor. You will probably need specific design for a suitable on-site treatment system.

Underground storage tanks

Not all underground tanks are for petroleum products, but they all need careful monitoring. It is in your own interest to minimise leaks and avoid liability for water pollution or site contamination.

Make sure your underground storage systems are designed in accordance with the Code of Practice for the Design, Installation and Operation of Underground Petroleum Storage Systems Supplement No. 1, Management of Existing Underground Petroleum Storage Systems. If you are unsure, obtain a copy from the Code of Practice from Occupational Safety and Health Division of the Department of Labour and ensure all steps are taken to comply. This Code of Practice also outlines the requirements for removal of disused underground tanks. NCC may require evidence that any removed underground tanks were removed in accordance with the Code of Practice.

To clarify issues of liability, you will need to know who actually owns the tanks. Make sure ownership issues are clear and well understood by all parties, including:

- the company which owns the tank and pipes, if this is not your firm
- the company which fills your tank
- your staff, who do the reconciliation of inputs and outputs.

If you do not own the tank/s on your site, reduce the risk of pollution by asking the owners to inform you about:

- the age of the tank/s
- proximity of dissimilar metals
- soil corrosivity and tank materials
- cathodic protection
- tank coating to minimise corrosion
- vulnerability of pipe work to damage
- secondary containment for leaks
- spill containers/overfill preventers
- site stability
- pipework leak detection systems
- tank leak detection systems.

Reconcile your records of volumes in and out of underground tanks to detect leaks and minimise loss of valuable product.

Above ground storage and refuelling areas

If there is any black or oily ground by your fuel/oil depot you have a potential problem which you need to investigate and remedy.

Your fuelling areas should be:

- paved and sound (no cracks, gaps, potholes; don't use permeable paving here)
- protected from stormwater running onto them
- roofed as per above
- designed as spill containment pads or with bunds as per above
- drained into interceptors with cut-off valves to contain spills

Your fuel dispensing hoses should have automatic shut-off valves to reduce the likelihood of spills from overfilling. All fuelling hoses should also have 'weak links' with shut-off valves to prevent drive-away problems or to allow shut-off if unforeseen breakages occur.

Petroleum products are a widespread and serious contaminant of soil and water - make sure you reduce this pollution risk on your site.

Run-off from oil storage and refuelling areas should be passed through an interceptor to remove oil. An acceptable method of dealing with this is if all stormwater discharged from this area is directed to an API (American Petroleum Institute) coalescing collection plate separator, or similar approved interceptor, with a minimum holding capacity of 2,500 litres, designed, installed and maintained to remove nominal size 150 micrometer oil globules so as to ensure that the total volume of petroleum hydrocarbons in the discharge water,

averaged over a 10mm/hr design rainfall event, is less than 15mg/l. Flows exceeding the separator design storm event should by-pass the interceptor. Interceptor maintenance procedures should be established to ensure the interceptor system continues to function appropriately. An acceptable maintenance regime would include:

- inspections are carried out monthly and immediately after any spill or large storm event (e.g. greater than 25mm depth of rainfall over a 24 hour period),
- the oil which collects in the separator is removed before the oil layer exceeds 3mm depth, and that oil removal is carried out in accordance with "Liquid and Hazardous Waste Code of Practice" 2003, published by NZWWA,
- sludge deposits are removed when the thickness exceeds 150mm.

Retail service stations, truck stops, oil terminals and depots and lubricating oil blending and grease manufacturing plants that meet the "Environmental guidelines for water discharge from petroleum industry sites in New Zealand", Dec 1998, published by the Ministry of the Environment, will be deemed to be achieving the BPO.
The "Guidelines for the management and handling of used oil", Dec 2000, (Ref. ME355), published by the Ministry of the Environment should be followed for dealing with waste oil.

Loading and Unloading Areas
Loading and unloading areas also should be designed to prevent contamination of stormwater. Where possible, loading and unloading areas should be roofed as per above and isolated from the stormwater system. All deliveries and despatches should be supervised and loading and unloading activities should take place well away from stormwater sumps.
Loading/unloading docks or areas should have at least one of the following:

- bunds as per above or appropriate grading to contain spills and stop stormwater running in
- a roof as per above
- a spill control and clean up kit
- All valves, pumps, flanges, pipe connection points for bulk tanker deliveries and other connections should be well designed or contained to prevent spills and leaks.

All vehicles including forklifts should be properly maintained to prevent engine and hydraulic oil leaks.
Where spillage of material on the ground is unavoidable, construction of wheel washes or similar devices can help minimise tracking pollutants and materials across your site or off-site.

Washdown Areas
Various alternatives to traditional washdown bays should be considered for your site:

- Use a dry wash method - anti-static brushes, wet rag/dry rag, bucket and rag - on vehicles, containers and equipment
- Take vehicles, containers or equipment to a responsible commercial washing facility with an approved waste treatment, recirculation system or trade waste connection
- Dispose of 100% of your wash waters to the sanitary sewer via an approved connection: fully bund and roof the wash bay to contain wash water and eliminate stormwater. You will need a trade waste consent or a building permit to do this, so call the Council to find out
- Recycle 100% of your wash waters. Fully bund the washbay to contain wash water and EITHER roof it to eliminate stormwater OR put stormwater into the treatment and storage facility as top-up, with an overflow to direct excess clean runoff into the stormwater system
- Recycle most of your wash waters and dispose of excess to the sanitary sewer via an approved sewer connection or to a holding tank for removal by a responsible waste disposal operator: you will still need to fully bund the washbay and EITHER roof it to eliminate stormwater OR use a demand-driven first flush diversion valve to divert the first 10mm of rain to the wash water treatment facility

- Collect and treat wash waters for disposal to ground soakage. (Only available in designated soakage areas of Nelson, check the NRMP or contact the Manager of Infrastructural Assets, Michael Schruer, phone 546 -309 or email michael.schruer@ncc.govt.nz). You will need a resource consent from Nelson City Council, and use of detergents, degreasers or chemical additives will be restricted
- Collect and treat wash waters via an on-site treatment system for disposal to the stormwater system or to natural water. You will need a resource consent from Nelson City Council, and use of detergents, degreasers or chemical additives is unlikely to be allowed

All wash down disposal should comply with Section III-8 of the NCC Engineering Standards 2006, this states:
"III – 8. DISCHARGE FROM OIL AND SILT TRAPS
Effluent that contains a combination of detergent and/or degreasing agents with oil and/or silt shall be directed to the sewer after first passing through a silt and oil trap built to NCC Standard Drawing No.21/208. To ensure stormwater does not enter the sewer system the area being served by the silt and oil trap must be roofed and have a low bund around the perimeter with a minimum height of at least 50mm. Any proposal to make such a discharge to the sewer system shall require a Trade Waste application. In some locations a gravity connection to the sewer may not be possible and the discharge may have to be pumped into the sewer system. This shall require specific design and approval. Bunded areas around fuel storage areas should discharge to the stormwater via a suitably designed oil interceptor with an appropriate shut off valve system to contain fuel spills. Where it is considered that there is a high risk of yard runoff being contaminated with oil and silt, then an oil and silt trap shall be required with a connection to the stormwater system. This shall require specific design and approval. An appropriate mechanically or electronically operated wastewater diversion system may be required to be incorporated. Stormwater shall not be allowed to discharge to the sewer system. Building consents are required for all works".

Waste Skips and Storage Bins
Waste skips and storage bins should be completely covered or stored in a roofed or covered, bunded area, to prevent stormwater entering them and becoming contaminated. If it is not practical to roof or cover bins, contaminated stormwater will need to be collected and treated of appropriately on-site or collected by a waste disposal contractor and treated at an approved facility.

Fires
Experience has shown that contaminated runoff from just one large unintentional fire can cause extensive environmental damage. Sites with hazardous substances or large bulk stores or very large sites should consider environmental protection as part of their fire contingency planning. In many cases, the measures outlined below will help you cope with spills as well.
You may wish to consider:

- storing hazardous substances well away from stormwater grates
- placing low nib walls along driveways and around high risk areas to contain water sprayed on fires
- installing a stormwater treatment device with cut-off valves and storage facility to contain fire water for removal by your responsible waste disposal operator
- talking to your drainage operator or NCC about disposing of contaminated fire water into the sewer.

Other Options
Alternative low impact designs will be considered provided they are applied across the whole site and do not conflict with other regulatory requirements. These may include raingardens, swales, permeable paving, riparian strips, rain tanks, wetlands or other principles of site design as outlined in the Auckland Regional Council's TP10 and TP124 documents.

List of manufacturers that provide stormwater treatment devices and related products:
Ecosol
Hynds Environmental
Humes
Skellerup (CDS Technologies)
Stormwater 360 (formerly Ingals Environmental Ltd)
Integrated Waste Solutions Limited

This list is not comprehensive and there may be other manufacturers that provide suitable products.

Drainage checklist

	YES	NO
Do you have an up to date drainage plan for your site?		
Does the plan clearly distinguish between stormwater pipes and wastewater/sewer pipes?		
Does the plan show details of:		
• stormwater pipes and drains, wastewater/sewer pipes, water bodies and the direction of flow of each		
• stormwater treatment devices, grates and manholes		
• buildings and outdoor areas and their uses		
• storage areas, above ground and underground tanks		
Are all stormwater pipes connected to the stormwater system not the sewer?		
Are all wastewater/sewer pipes connected to the sewer not the stormwater system?		
Are all gully traps adequately walled off?		
If you discharge trade wastes to the Council sewerage system do you have a trade waste consent from your Council?		
Do all wastes eg boiler blow down, sewage, sink waste, basin waste, compressor condensate, trade wastes, cooling water and wash water, discharge to the wastewater/sewer system and not to the stormwater system, watercourses or the ground?		
Are stormwater grates stencilled (eg Drains are for Rain) in green?		
Are manholes, interceptors and grease traps colour coded red for wastewater/sewer and green for stormwater?		
Are you able to block off the stormwater system if you have a spill?		
Do you know where your stormwater system discharges to the Council system or to a watercourse?		
Do you know the final point where your stormwater enters a stream or beach?		
Are all catchment areas (eg yards, car parks) kept clean and tidy?		
Are treatment systems (eg interceptors) properly operated and maintained?		
Do wash down areas (eg vehicle washing) comply with NCC's Engineering Standards requirements?		
Is your site clear of disused systems that could cause pollution (eg underground tanks)?		
Are all staff members trained about the difference between the stormwater system and the wastewater/sewer system?		

Waste minimisation and cleaner production checklist

	YES	NO
Has your business implemented waste minimisation and cleaner production techniques?		
Are you investigating or evaluating ways to save water?		
Are you investigating or evaluating ways to make your business energy efficient		
Are you investigating or evaluating ways to produce minimal waste?		
Are you investigating or evaluating ways to reuse as much material as possible?		
Are you investigating or evaluating ways to recycle materials?		
Are you investigating or evaluating ways to recover usable product or energy from your waste?		

Spills Prevention and Response Checklist

	YES	NO
Do you have an inventory of all substances you keep on site?		
Have you identified high risk areas or activities that could result in material being spilled?		
Do you have Material Safety Data Sheets for all substances on site?		
Do you have equipment and procedures in place to contain spills if they occur? E.g. bunds, drip trays, spill kits, staff procedures, emergency numbers		
Do your staff know what to do if a spill occurs?		
Have you been through the storage checklist?		
Do you have a regular cleaning programme to keep your site clean and tidy?		
Do you have a procedure to address the causes of previous spills and make improvements to prevent spills from happening again?		
Is spilled material disposed of in a safe manner so that it does not cause further pollution?		

Storage checklist

	YES	NO
Are all materials stored indoors or in a paved, bunded area?		
Are incompatible materials properly segregated?		
Are stored materials regularly checked for leakage or deterioration?		
Is run-off from the storage area properly treated (eg interceptor for oily waste)?		
Is reasonable care taken to prevent vandalism?		
Are dangerous goods properly stored according to Hazardous Substances and New Organisms Act (HASNO) and the NRMP?		
Are refuelling areas designed to prevent contaminated run off?		
Are vehicles maintained to prevent oil leaks?		
Are loading/unloading areas designed to prevent stormwater contamination?		
Are stockpiles of materials securely covered?		
Are stockpiles of wastes and redundant materials regularly removed from your site?		
Are waste skips located within bunded areas and under cover?		
Are all underground tanks in good condition and not leaking?		

Soil contamination checklist

	YES	NO
Are all tanks and drums on your site leak proof?		
Are your loading, filling and decanting processes designed to prevent or contain leaks?		
Do you regularly check underground tanks and pipes for leaks?		
Are you sure there is no fallout from air emissions from your site?		

What happens next?

Now that you have completed the PPP Template you need to:

Submit your PPP to NCC

You will need to submit your PPP to NCC so that it can be checked. The NCC representative will go through your site information, your pollution controls, programmes and systems and give you feedback on any changes that are required or recommended.

Make your PPP happen on the ground

The key part of this entire process is ensuring you make your PPP happen on the ground. All the effort you've put into developing your PPP will be wasted if it is not implemented effectively. Good environmental management requires on-going input from all of your staff, management, contractors and suppliers to keep things on track and ensure your site plays its role in improving the quality of the Nelson environment.
If you have any queries or want any advice now or in the future, contact the Nelson City Council Manager of Infrastructural Assets, Michael Schruer. He can offer suggestions to address problems or point you in the direction of Best Practicable Options and initiatives.

Tools and References:

- Government publications such as HASNO *contact ERMA on (04) 916-2426 or go to* http://www.ermanz.govt.nz/hs/index.html
- expert advice *e.g.* Environmental Scientist or Chartered Professional Engineer (Environmental, Chemical or Industrial Process engineer) consultants that specialise in developing site layout and drainage plans
- landlord or rates bill for legal descriptions
- topographical maps and aerial photographs
- information on drainage, soils, geology, groundwater, aquifers, streams, rivers, wetlands, estuaries and harbours, including areas of particular environmental value and sensitivity
- any industry/association codes of practice, standards, or guidelines
- any best management practice information, including international sources
- Council for public drainage and possibly private drainage info (check your building plans for 'as built' drawings of your site)
- the Nelson Resource Management Plan
- Nelson City Council Trade Waste Bylaw 2007 – Bylaw No 214
- Any resource consents that relate to your site
- the checklists on pages 23-24 of this document
- a specialist in stormwater or chemical treatment and handling. Look under Engineers-Consulting; Hazardous Substance Management & Control; Drainlayers or Drainage Supplies in the Yellow Pages or Contact the Nelson City Council Manager Infrastructural Assets, Michael Schruer.

Auckland Regional Council has a variety of documents that provide relevant information:

- ARC's EMP webpages – for further advice and examples www.arc.govt.nz
- the Environmental Operations Plan (EOP)
- Pollution Prevention Industry Guides
- Pollution Fact sheets
- ARC's Technical Publication 10 'Stormwater Management Devices Manual' if you have or might need stormwater treatment devices to remove contaminants from stormwater

Example Drainage Plan