

NL151740

14th July 2016

RPS

Shaun Smith
PO BOX 428
HAMILTON NSW 2303

Dear Shaun,

Re: Davis Road, Resource Recovery Centre - Response to Authorities Submissions

Northrop Consulting Engineers have prepared the following letter on behalf Bettergrow Pty Ltd, in response to the relevant authority's submissions in relation to the proposed Resource Recovery Centre at 24 Davis Road, Wetherill Park. Specifically, response to the submissions in relation to the Surface Water Assessment from the NSW Planning and Environment Department and the Fairfield City Council have been provided.

This letter should be read in conjunction with our Surface Water Assessment report dated 21/02/2017 [Revision D] and our amended drawing set NL151740_C00 – C03 dated 14/07/2017.

Reponses have been provided below in order of the relevant submissions received from the NSW Planning and Environment Department and the Fairfield City Council respectively.

NSW Planning & Environment Department:

Comment: 5. Figure 42 of EIS, shown a stockpile located on the gravel area in the landscaping area. Please detail the height stockpiles and why stockpiles are not located within designated bays.

Response: The referenced stockpile shown on the Erosion and Sediment Control Plan illustrates the indicative location of a temporary material stockpile to be utilised by the civil contractor during the construction phase only. The location of the temporary stockpile will be subject to the contractor's requirements during the construction phase. The temporary stockpile has been depicted to illustrate that materials can be adequately stored onsite during construction with the required controls in accordance Landcom's Managing Urban Stormwater: Soils and Construction 'Blue Book' Guidelines.

These Guidelines currently represent best practice management for developments within NSW during construction and are thus recommended for adoption. In accordance with 'Blue Book' requirements material stockpiles are to be no more than 2m high. This temporary stockpile location will not be used during the operational phase of the project. Further to this, we clarify that all measures proposed on the Erosion and Sediment Control Plan are to be temporarily installed throughout construction and removed once the site has been stabilised.

Comment: 8. Please detail on a plan where the 5,000L diesel tank will be stored in the site (see Page 191 of the EIS).

Response: Our plans have been amended accordingly to illustrate the diesel tank, refer drawing NL151740_C21_[C]. We note the diesel tank has been located undercover within one of the existing site sheds. Secondary bunding will be provided to contain spillage internally preventing the possibility of surface water contamination.

Prepared	BH	12/07/2017
Reviewed	EA	13/07/2017
Admin	ID	14/07/2017

Comment: 23. Please detail the location of the truck wash, it does not appear to be included in Figure 8 of the EIS.

Response: Our plans have been amended accordingly to identify the drill mud processing facility truck wash area, refer drawing NL151740_C21_[C]. We note that wash down facilities are provided within the covered buildings for the sorting and consolidation of garden organics and food waste.

Comment: 24. Please detail where the drill mud and food organics trucks will be washed down and whether this waste water was considered in the design of the waste water system.

Response: The Drill Mud Processing Facility has been designed to optimise water recovery to minimise the water content in outgoing products. Reuse with the system is maximised by recycling the extracted wastewater for wash down within the truck wash, tip trough and banded processing areas. The wash down water from the truck wash, tip trough and banded processing areas will report back to the drill mud tanks and to be reprocessed within the CD-Enviro system. For full details of the site water balance refer Section 6 of the Surface Water Assessment.

To avoid the potential contamination risk of leachate generation, all unloading and storage of the raw organics will occur within the proposed building enclosures, with wash down facilities provided internally. Localised floor sumps and grated trench drains at all trafficable doorways will collect generated leachate and prevent flows leaving the covered facility. Leachate collected within the enclosed sumps of the GO/FGO facility will be applied to outgoing product. Should there be an excess of runoff build up within the sumps (not considered likely), the leachate would be transferred offsite via truck to an approved licenced facility.

Comment: 25. Please confirm the waste water tanks will be banded.

Response: Yes, the waste water tanks are to be banded in accordance with EPA Guidelines for the 1 in 20-year 24hr storm event. Details are provided within Section 5.5.2 of the Surface Water Assessment and depicted on drawing NL151740_C21_[C].

Comment: 26. Please demonstrate that the surface water discharged to Council's stormwater infrastructure is capable of meeting council's water quality criteria.

Response: Refer to response below to Fairfield City Council's catchment management RFI.

Fairfield City Council:

Catchment Management

Comment: It is noted on page 38 of the Surface Water Assessment produced by Northrop (21/02/2017 that the 'banded area surrounding the Drill Mud Processing Facility was excluded (from the post development model) as it will discharge to sewer under the wastewater management system.' The proponent will need to confirm that the discharge to sewer point will be able to cater for the 1 in 100-year ARI flows for this area. If not, then this catchment area and discharge will need to be added to the DRAINS catchments and site discharge results.

Response: The banded area has been sized for the 1 in 20-year ARI in accordance with EPA requirements. The drains catchment areas have therefore been amended accordingly. The revised site discharge flow rates are summarised below in Table 1;

Table 1 – Site Discharge Results

	Pre-developed Outflow (m ³ /s)	Post-developed Outflow (m ³ /s)	% Change
Peak 5 Year ARI Storm Event	0.667	0.674	1% increase
Peak 100 Year ARI Storm Event	1.100	1.110	< 1% increase

As shown in Table 1, the modelling indicates that the proposed development will result minor increase in discharge flowrates. It is noted that the drains model has taken no account of the over 345kL of storage provided across the site in the rainwater harvesting tanks, bunded areas and sediment trap. It can be reasonably expected that this storage volume would attenuate some of the post developed flow, particularly during minor storm events. Further to this given the relatively minor size of the site compared to the receiving environments catchment, it is not expected that an increase of this size would have any impact on the downstream hydrologic regime with no significant changes proposed to the frequency or magnitude of flow as a result of the proposed development.

It has also been confirmed with Fairfield City Council's Catchment Planning engineer, Nona Ruddell, that in accordance with the DCP no onsite detention is required to mitigate increases in post developed flow within the Wetherill Park industrial catchment (FCC's City Wide DCP Section 2.5.5).

Comment: Fairfield City Council Water Quality Improvement Targets are taken from the Georges River Estuary Coastal Zone Management Plan (July 2013). The relevant targets below (taken from page 33 of this report) are to be met for the site, and documented as a % reduction.

Table 2-2 Stormwater reduction targets for urban development (SMCMA, 2011)

Stormwater pollutant	Greenfield developments, Large re-developments	Multi-unit dwellings, commercial developments, industrial developments, small re-developments
Gross pollutants	90%	90%
Total suspended solids (TSS)	85%	80%
Total phosphorus (TP)	60%	55%
Total nitrogen (TN)	45%	40%

Response: In accordance with Fairfield City Council's DCP, as confirmed by Fairfield City Council's Catchment Planning engineer Nona Ruddell, no specific water quality mitigation or pollution reduction targets are currently required for development within the Wetherill Park industrial catchment.

Despite this the proposed development intends to implement a train of treatment devices to minimise any adverse impacts upon the ecology and health of the downstream watercourses. The performance of the proposed stormwater management strategy has been assessed against the current state of the existing Site using the conceptual software MUSIC (Version 6). The results calculated by the MUSIC model are shown in Table 2 below;

Table 2 - Pollutant Removal Efficiency Results

Parameter	Pre-Developed Source Load	Post-Developed Source Load	Post-Developed Residual Load
TSS (kg/yr)	2150	3720	765
TP (kg/yr)	3.46	5.01	3.34
TN (kg/yr)	25.3	25.6	17.2
GP (kg/yr)	342	293	185

As summarised in Table 2, the proposed treatment train will effectively reduce all residual pollutant loads beneath the pre-developed source loads which are currently released into the downstream receiving waters. For full details on the proposed water quality treatment measures and MUSIC modelling refer to section 5.4.2 of the Surface Water Assessment.

Comment: The proponent needs to confirm that all floor levels for the site are at least the freeboard level (0.5m) above the relevant 1 in 100-year ARI flood level.

Response: The 1 in 100-year ARI Flood level at the front of the site is 36.70m AHD with the existing adjacent office building's FFL approximately at 37.26m AHD (0.56m above). All other existing and proposed floor levels are above the office building and therefore also above the 1 in 100-year ARI flood level plus 0.5m freeboard.

For further details on the Flood Impact onsite refer to section 7.0 of the Surface Water Assessment.

Environmental Management

Comment: 1. Details of any proposals for preventing leachate from organic landscape materials storage areas from entering the onsite stormwater system.

Response: To avoid the potential contamination risk of leachate generation, all unloading, storage and sorting of raw organics received onsite will occur within the proposed building enclosures, with wash down facilities provided internally. Localised floor sumps and grated trench drains at all trafficable doorways will collect generated leachate and prevent flows leaving the covered facility. Leachate collected within the enclosed sumps of the GO/FGO facility will be applied to outgoing product. Should there be an excess of runoff build up within the sumps (not considered likely), the leachate would be transferred offsite via truck to an approved licenced facility.

Products received as part of the bulk landscaping supply will be pre-treated and sorted within the existing concrete lined bins. Only inert materials used with the landscape and home garden market such as soil, garden mixes, sands, rocks, gravels and bark will be received with no potential for leachate or wastewater generation.

For full details on the proposed onsite wastewater management refer to Section 5.5 of the Surface Water Assessment.

Comment: 2. Details of any proposals for preventing clay sized sediment from drill mud processing areas from entering the onsite stormwater system.

Response: The receipt, separation and consolidation of hydro-excavated drill muds and fluids is to occur entirely undercover or within bunded containment areas to prevent runoff entering the stormwater system. The proposed CD-Enviro System comprises of a series of four components, the first being the only exterior and therefore bunded component. The bunded volume has been sized in accordance with NSW EPA's Spill Management Bunding guidelines. A minimum containment volume of 224m³ is to be provided via a minimum 280mm set down into the area. The volume comprises of the 2 x 40kL drill mud receipt pits that receive the unprocessed drill muds

brought to Site plus the runoff generated from the 1 in 20-year average reoccurrence interval (ARI) 24hr storm event (7.61mm/hr) over the 785m² bunded catchment. Wastewater runoff collected within the bunded area and from wash of the tip trough will be transferred into the dill mud pits for recycled processing within the CD-Enviro system.

In addition to this, prior to the release of the piped stormwater from Site, the stormwater network is to be directed to an online proprietary STC-27 Humeceptor system. The Humeceptor system is an underground, precast concrete stormwater treatment solution that utilises hydrodynamic and gravitational separation to efficiently remove total suspended solids (reported to remove particles ≥ 10 microns) and entrained hydrocarbons (Humes, 2016). Laboratory and field results of stable, hardstand, roads, commercial and industrial Sites reflect an 80% reduction in total suspended solids.

For full details on the proposed treatment devices refer to section 5.4.2 of the Surface Water Assessment.

Comment: 6. Timetables for the 'regular inspections' of onsite stormwater treatment devices.

Response: A detailed description of the Monitoring and Maintenance Activities required for the site is provided in section 8 of the Surface Water Assessment. In general, it is recommended that all listed inspections be carried out at three-monthly intervals for the first year of operation. Any major problems encountered during this time should be documented and communicated to the owner to seek appropriate action. It is also recommended that inspections take place as soon as possible after heavy rainfall or if a problem is suspected. All inspection and maintenance records must be kept onsite for inspection by the approval authority if necessary. Alterations to this proposed maintenance schedule may be implemented depending on the inspection outcomes. After the initial twelve-month period suitable timeframes for each maintenance activity should be adopted to ensure regular monitoring practices remain in place for the life of the development. The following table summarises maintenance actions and suggested inspection timeframes;

Table 3 - Monitoring and Maintenance Summary

Item to be Monitored	Monitoring Task	Purpose of Monitoring	Maintenance Action
GENERAL			
Sediment Build Up 6 - Monthly Inspections	<ul style="list-style-type: none"> Check for excessive built up of sediment in stormwater system including pits, pipes and bunds. If sediment build up is noted, identify source of sediment. 	<ul style="list-style-type: none"> If sediment accumulates in stormwater pits and pipes, capacity reduction can occur. Excessive build-up of sediments in gross-pollutant trap can reduce the effectiveness of the device over time. Erosion and sedimentation of stored waste material may contribute to increased transport of pollutants. 	<ul style="list-style-type: none"> Once sediment source has been identified and stabilised, remove accumulated sediment by flushing the system and/or emptying the gross-pollutant trap.
Erosion or Scour 6 - Monthly Inspections	<ul style="list-style-type: none"> Check for erosion and scour around the structures. If scour is noted check for source of scour. 	<ul style="list-style-type: none"> Erosion impairs filtration systems by preventing uniform distribution of flow through the system. If left untreated, small concentrations of erosion can quickly spread over large areas becoming costly to repair. 	<ul style="list-style-type: none"> Once source of damage is identified and rectified, infill any holes with appropriate filter media. Provide energy dissipation if required. Replace any damaged plants to meet the design plant schedule.

Item to be Monitored	Monitoring Task	Purpose of Monitoring	Maintenance Action
Litter (Anthropogenic) 3 - Monthly Inspections	<ul style="list-style-type: none"> Check for litter in and around treatment areas and structures. 	<ul style="list-style-type: none"> Litter can potentially block inlet and outlet structures resulting in flooding, as well as detract from the system's visual amenity. 	<ul style="list-style-type: none"> Address source of litter with appropriate action. Remove litter.
Litter (Organic) 3 - Monthly Inspections	<ul style="list-style-type: none"> Check for litter in and around treatment areas. 	<ul style="list-style-type: none"> Organic litter can provide an additional source of nutrients to the filtration systems. Accumulated organic matter can also create offensive odours and can reduce percolation of water into the filter media. 	<ul style="list-style-type: none"> Identify and address source of organic litter with appropriate action. Remove litter.
Inlet and Outlet Pits 6 - Monthly Inspections	<ul style="list-style-type: none"> Ensure inflow areas and grates over pits are clear of litter and are in good/safe condition. Check for dislodged or damaged pit covers and ensure safety and general structural integrity. 	<ul style="list-style-type: none"> If the pits become blocked it is likely to greatly reduce the proposed stormwater management system. Dislodged or damaged pit covers can be a safety hazard. 	<ul style="list-style-type: none"> Remove debris and repair any structural damage as required.
DEVICES			
Humeceptor Inspections in Accordance with Manufactures Specifications	Follow the devices maintenance manual. Monitoring tasks may include: <ul style="list-style-type: none"> Ensure the sediment collection chamber is not full. Check for dislodged or damaged covers and ensure general structural integrity of the device. 	<ul style="list-style-type: none"> If the trash collection chamber becomes full, the GPT will be unable to collect further gross pollutants from Site runoff. Dislodged or damaged pit covers can be a safety hazard. 	Follow the devices maintenance manual. Maintenance tasks may include: <ul style="list-style-type: none"> Contact the appropriate authority to organise a vacuum truck to clean the unit. Contact the appropriate authority to repair any structural damage.
Rainwater Harvesting Tanks 6 - Monthly Inspections	<ul style="list-style-type: none"> Ensure downpipe leaf eaters, first flush devices and litter screens are unblocked and are operating correctly. Check the structural integrity of the tanks. Check for any accumulated litter, sediment or debris on or within the tanks. 	<ul style="list-style-type: none"> If any of the fixtures are not operating correctly, it is likely that sediment and debris will accumulate in the tank and reduce water quality. If the tank is not structurally sound, it is likely to fail. A sudden release of water will potentially cause property damage. 	<ul style="list-style-type: none"> Remove any litter, sediment or debris from the devices. Repair or replace any damaged components. If any accumulation is found within the tank drain and flush the tank with potable water.

Item to be Monitored	Monitoring Task	Purpose of Monitoring	Maintenance Action
Bunded Areas and Leachate Collection Sump Daily Operational Inspections & 6 - Monthly Integrity Inspections	<ul style="list-style-type: none"> Ensure bunds and collection sumps are free from debris, sediment wash-off and other pollutants. Check for damage to integrity of bund walls. 	<ul style="list-style-type: none"> If a bunded area or collection sump has a reduced capacity, pollutant runoff risk is increased. Damage to bund walls will allow captured pollutants to escape. 	<ul style="list-style-type: none"> Clean out bunded areas. Contact the appropriate authority to repair any structural damage.
Sediment Trap Daily Operational Inspections & 6 - Monthly Integrity Inspections	<ul style="list-style-type: none"> Ensure the trap is cleaned regularly and are free from excessive debris and sediment build up. Check for damage to the sediment trap (including the outlet pipe). 	<ul style="list-style-type: none"> A reduction in the storage capacity of a sediment trap reduces the detention time of incoming runoff resulting in a reduced settlement time and subsequent increase in outgoing suspended solids during rainfall. 	<ul style="list-style-type: none"> Remove any litter, sediment or debris from the device. Repair or replace any damaged components. Ensure the outlet system is free of blockages.

Development Planning

Comment: 6. All trafficable (parking / driveway / manoeuvring) areas should be sealed.

Response: All trafficable areas are to be stabilised via hardstand pavement of either concrete, asphalt or gravel road base. The only operational area proposing a gravel road base is within the bulk landscaping storage where skid-steer machinery will be in use. All runoff from this area is to report to a first flush sediment trap designed to capture the coarse sediment and suspended solids.

Detailed descriptions of the sediment trap and sizing summary are provided in section 5.4.2 and Appendix C of the Surface Water Assessment respectively.

Comment: 7. Stockpile area / bays should be roofed and bunded.

Response: Products received as part of the bulk landscaping supply will be pre-treated and sorted within the existing concrete lined bins. Only inert materials used with the landscape and home garden market such as soil, garden mixes, sands, rocks, gravels and bark will be received with no potential for leachate or wastewater generation. All runoff from this area is to report to first flush sediment trap designed to prevent coarse sediment and suspended solids entering the piped stormwater network.

Comment: 8. It must be demonstrated what measures are to be implemented to prevent material / matter being tracked from the site.

Response: The entire site is to be stabilised through landscaping, sealed pavement and road base gravel. All received material is to be deposited with controlled tip troughs with wash down facilities. Any loose material which may escape the storage bins in the landscape storage area will be collected by the sediment trap system. Further to this, no loose material or matter is to be stored onsite outside of the sealed containment bins, with operational measures to ensure no breaches of this practise occurs.

Comment: 9. It must be demonstrated what measures are to be implemented to prevent material / matter entering the stormwater system. –

Response: A description of the Stormwater Management System detailing the proposed treatment / containment devices is provided in Section 5 of the Surface Water Assessment. The surface water management plan has been separated into two distinct systems; the stormwater management system and the wastewater management system. The stormwater system deals with rainfall runoff from areas of the Site not considered to have atypical pollutant risks. The wastewater system covers the areas which have a higher chance of creating pollution that require additional treatment and management procedures above and beyond standard urban stormwater runoff. For this Site, the wastewater system covers the Garden Organics and Food Waste area and the Hydro-Excavated Drill Muds and Fluids area. Both systems have been designed with the primary intent of preventing pollutants and material from site entering the downstream stormwater network and receiving environment.

The water quality treatment devices that have been utilised within the design for the Stormwater System can be summarised as follows;

- Rainwater Harvesting Tanks – Runoff from five of the individual roof areas is to be directed to above ground reuse tanks which are to be fitted with propriety first flush devices. By capturing the first portion of runoff from the roof the first flush devices will effectively remove dead insects, bird and animal droppings and concentrated tannic acids from the stormwater system. The rainwater tank will also provide treatment as it will act as a sediment trap, collecting fine sediments and attached nutrients.
- Sediment Trap – Runoff from the gravel Bulk Landscaping Supplies storage area is to be directed to a sediment trap with a minimum storage volume of 41kL. The first flush collection system has been employed to capture and isolate the initial stormwater runoff that typically contains higher sediment and attached pollutant loads allowing them to settle. Sizing details of the sediment trap are provided within Appendix C of the Surface Water Assessment.
- Humeceptor – Prior to the release of runoff from Site, the stormwater network is to be directed to an online proprietary STC-27 Humeceptor system. The proposed system has been designed to provide a storage volume of 27m³ including an emergency oil storage volume of approximately 4000L in case of onsite spillages. The Humeceptor system is an underground, precast concrete stormwater treatment solution that utilises hydrodynamic and gravitational separation to efficiently remove total suspended solids (≥ 10 microns) and entrained hydrocarbons.

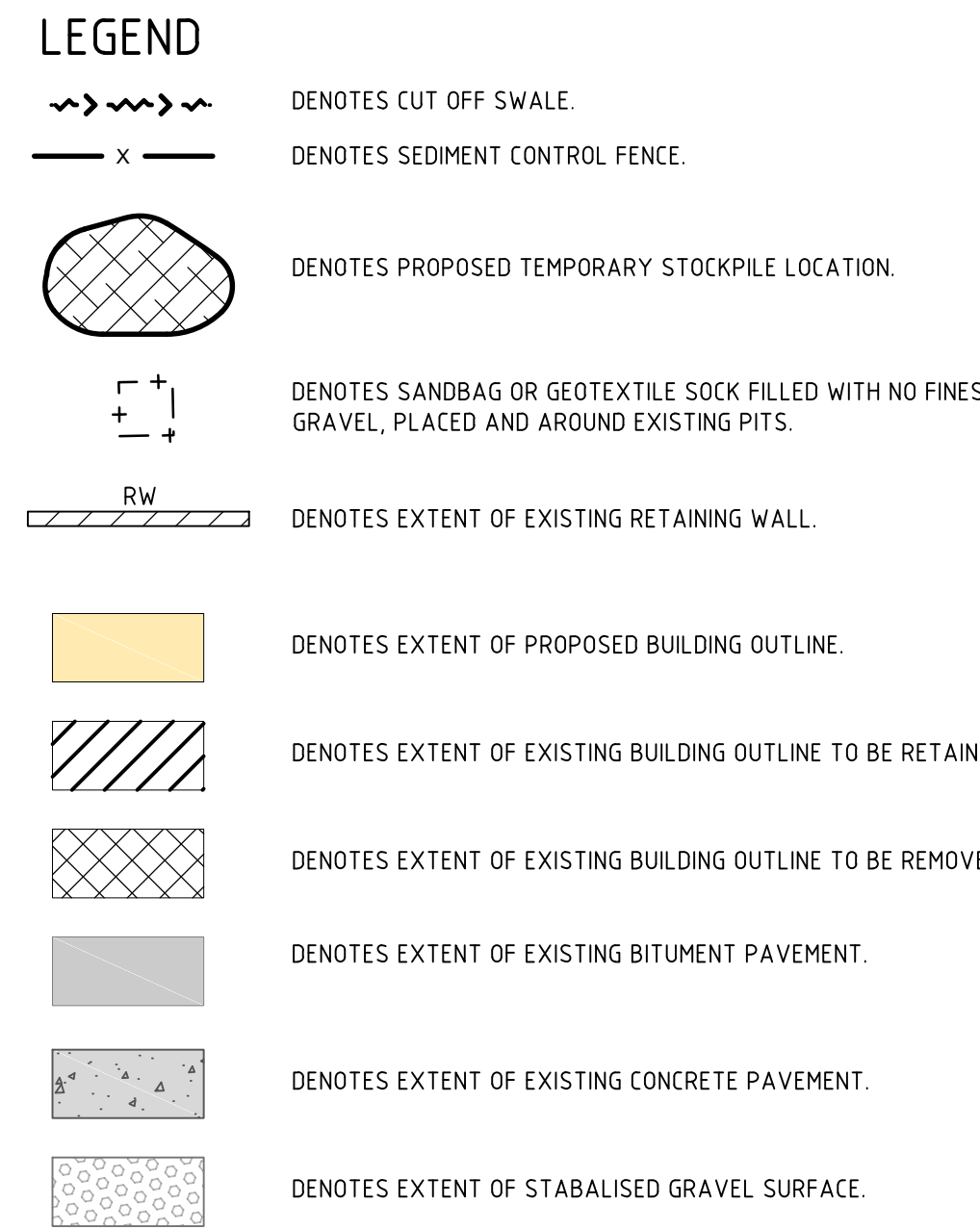
To avoid the potential contamination risk of leachate generation, all unloading and storage of the raw organics will occur within the proposed building enclosures, with wash down facilities provided internally. Localised floor sumps and grated trench drains at all trafficable doorways will collect generated leachate and prevent flows leaving the covered facility. Leachate collected within the enclosed sumps of the GO/FGO facility will be applied to outgoing product. Should there be an excess of runoff build up within the sumps (not considered likely), the leachate would be transferred offsite via truck to an approved licenced facility. Consolidated solid waste will also be trucked from Site to a regional composting facility operated by the Proponent or farm for further processing or land application as applicable.

Wastewater discharge from the Mud Processing Facility is unavoidable due to the high moisture content of the products processed within the facility. To avoid any potential stormwater contamination on downstream waterways, all extracted liquid from the Mud Processing Facility will be piped to 6 x 35kL holding tanks for discharge to sewer. The holding tanks will be bunded in accordance with NSW EPA's Spill Management Bunding guidelines to prevent any containment breaches.

We trust the additional information outlined above adequately meets your requirements in response to the received submissions, however should you require anything further, please do not hesitate to contact the undersigned.

B. Hoey




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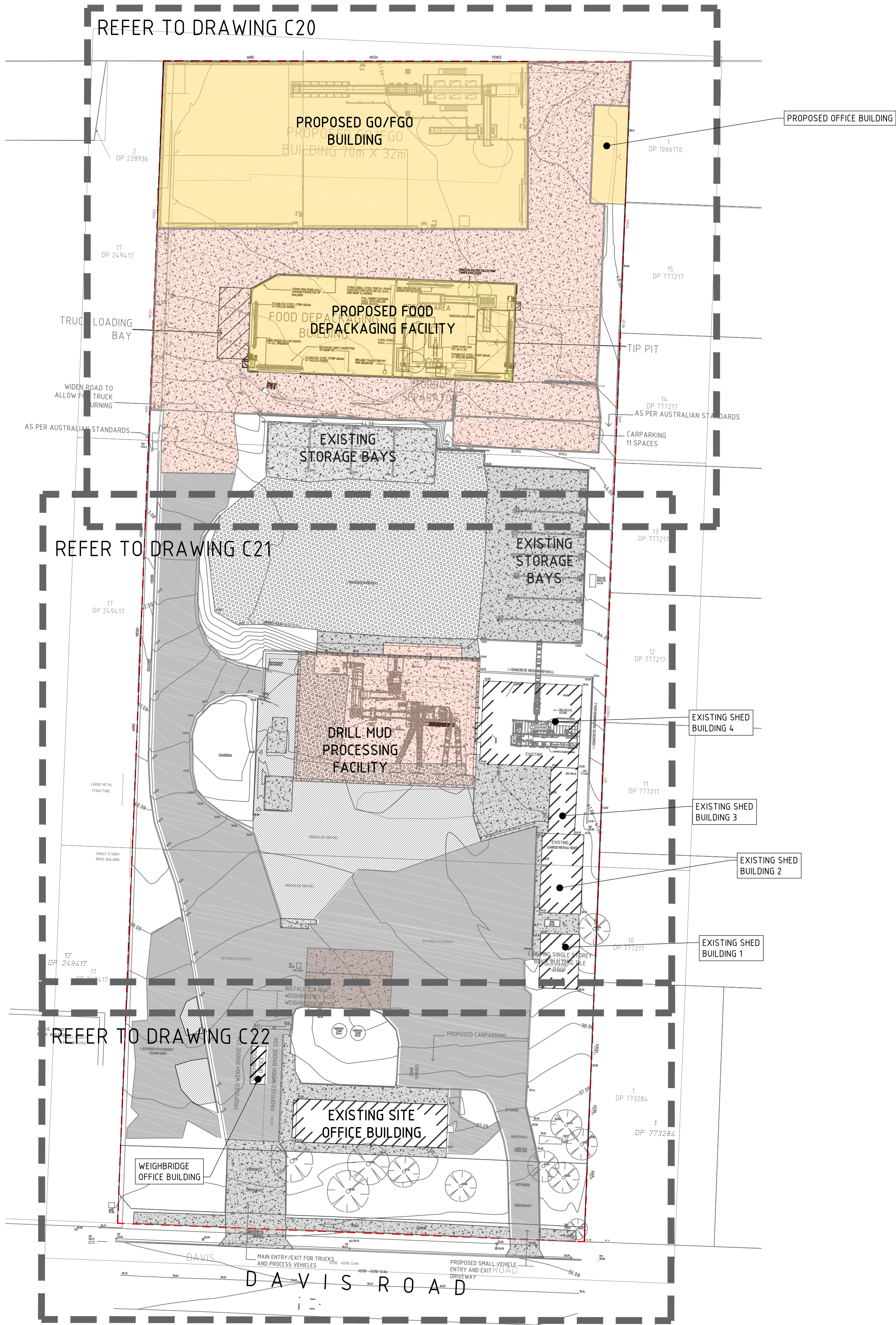
EROSION AND SEDIMENTATION CONTROL NOTES

1. ALL EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE APPROPRIATE FOR THE SEDIMENT TYPE(S) OF THE SOILS ON-SITE, IN ACCORDANCE WITH THE 'BLUE BOOK' (MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION LANDCOM, 2004), OR OTHER CURRENT RECOGNISED INDUSTRY STANDARDS FOR EROSION AND SEDIMENT CONTROL FOR AUSTRALIAN CONDITIONS. THIS INCLUDES SEDIMENT TRAPS AND LINING OF CHANNELS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION AND SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS AND SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ALL MAINTENANCE, CLEANING AND BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.
3. INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
4. ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
5. INSTALL SEDIMENT FENCING, OR OTHER SEDIMENT CONTROL DEVICES, AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT OR APPROPRIATE COUNCIL OFFICER.
6. ALL TRENCHES AND PROTECTION SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CLOSED TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAYS WORK.
7. THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION.
8. ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ON-SITE AND STRIPPED/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
9. RE-USE TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. TOPSOIL STOCKPILES SHALL BE SPREAD ON-SITE AS DIRECTED BY THE SUPERINTENDENT OR REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
10. CONTRACT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE).
11. ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH, PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
12. PROVIDE WATERY SURFACES OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
13. ONCE CUT/FILL OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	PLANNER		PROJECT	DRAWING TITLE	JOB NUMBER	
1	ISSUED FOR INFORMATION	AG	BH		23.09.16	BETTERGROW PTY LTD		 Newcastle Suite 4, 215 Pacific Hwy, Charlestown NSW 2290 P.O. Box 180, Charlestown NSW 2290 PH (02) 4943 1777 Fax (02) 4943 1577 Email newcastle@northrop.com.au ABN 81 064 433 100	RESOURCE RECOVERY CENTRE	EROSION AND SEDIMENT CONTROL PLAN	NL151740	
A	ISSUED FOR APPROVAL	WC	DJ	BH	22.12.16						DRAWING NUMBER	REVISION
B	RE-ISSUED FOR APPROVAL	CH	DJ	BH	14.03.17						C00	C
C	RE-ISSUED FOR APPROVAL	AG	EA	BH	14.07.17						DRAWING SHEET SIZE = A1	
DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED						THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD.						



VERIFIER: D. JARVIS
JOB MANAGER: D. JARVIS
DESIGNED: B. HOEY
DRAWN: A. GRIFFIN

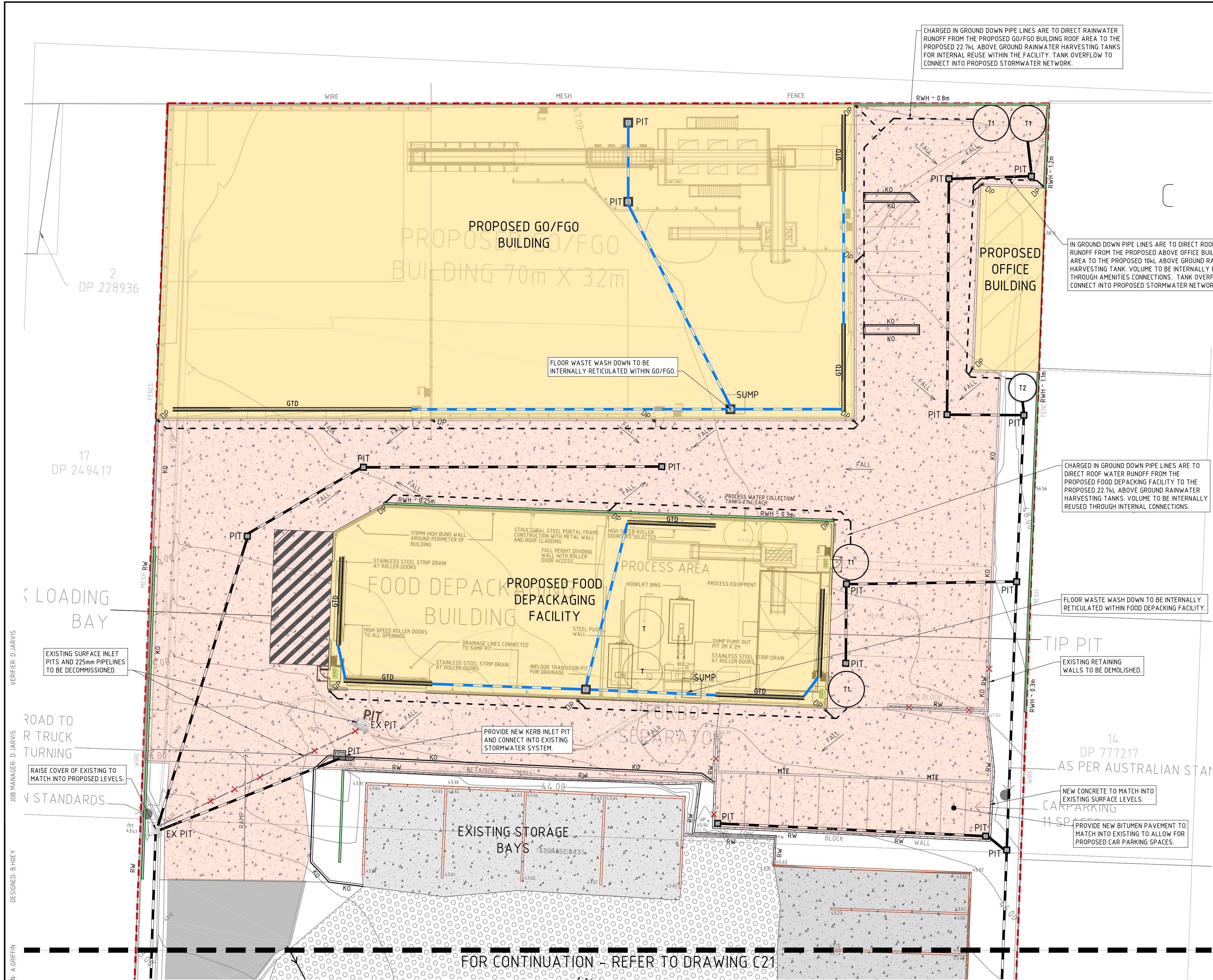


LEGEND

- DENOTES EXTENT OF PROPOSED BUILDING OUTLINE.
- DENOTES EXTENT OF EXISTING BUILDING OUTLINE TO BE RETAINED.
- DENOTES EXTENT OF EXISTING BITUMEN PAVEMENT TO BE RETAINED.
- DENOTES PROPOSED BITUMEN PAVEMENT.
- DENOTES EXTENT OF PROPOSED CONCRETE PAVEMENT.
- DENOTES EXTENT OF EXISTING CONCRETE PAVEMENT TO BE RETAINED.
- DENOTES EXTENT OF STABILISED GRAVEL SURFACE.

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	PLANNER	PROJECT	DRAWING TITLE	JOB NUMBER			
1	ISSUED FOR INFORMATION	AG		BH	23.09.16	BETTERGROW PTY LTD		 Newcastle Suite 4, 215 Pacific Hwy, Charlestown NSW 2290 P.O. Box 180, Charlestown NSW 2290 Ph (02) 4943 1777 Fax (02) 4943 1577 Email newcastle@northrop.com.au ABN 81 094 433 100	RESOURCE RECOVERY CENTRE	SITE PLAN	NL151740		
A	ISSUED FOR APPROVAL	WC	DJ	BH	22.12.16							DRAWING NUMBER	REVISION
B	RE-ISSUED FOR APPROVAL	CH	DJ	BH	14.03.17							C10	C
C	RE-ISSUED FOR APPROVAL	AG	EA	BH	14.07.17							DRAWING SHEET SIZE = A1	
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- LEGEND**
- PIT CL.46.30 DENOTES PROPOSED STORMWATER PIT AND COVER LEVEL. DETAILS & PIT SCHEDULE TO BE PROVIDED AT CC STAGE.
 - EX PIT DENOTES EXISTING STORMWATER PIT.
 - SUMP CL.46.65 DENOTES PROPOSED SUMP WITH PUMP AND COVER LEVEL. DETAILS & PIT SCHEDULE TO BE PROVIDED AT CC STAGE.
 - DENOTES PROPOSED STORMWATER DRAINAGE PIPE.
 - DENOTES PROPOSED WASTE WATER DRAINAGE PIPE.
 - DENOTES EXISTING STORMWATER PIPE WHICH IS TO BE DECOMMISSIONED.
 - DENOTES EXISTING STORMWATER PIPE WHICH IS TO REMAIN.
 - DENOTES PROPOSED CONCRETE DISH DRAIN.
 - DENOTES EXISTING 0.5m CONTOURS.
 - DENOTES PROPOSED DIRECTION OF FALL IN FINISHED SURFACE.
 - DENOTES INDICATIVE LOCATION OF DOWN PIPES & TYPE. REFER TO ARCHITECTS & HYDRAULIC ENGINEERS PLANS FOR FINAL LOCATIONS. DETAILS TO BE PROVIDED AT CC STAGE.
 - DENOTES PROPOSED DOWNPIPE LINE, $\phi 150$ UNLESS NOTED OTHERWISE. PROVIDE MIN COVER OF 300mm & LAY WITH MIN 0.5% GRADE TO OUTLET.
 - DENOTES CAST INSITU GRATED TRENCH DRAIN (ACO OR SIMILAR) WITH HEEL GUARD CLASS D GALVANISED STEEL GRATE AND FRAMES.
 - DENOTES EXISTING EXTENT OF RETAINING WALL TO BE RETAINED.
 - DENOTES EXISTING EXTENT OF RETAINING WALL TO BE REMOVED.
 - DENOTES EXTENT OF PROPOSED RETAINING WALL.
 - DENOTES EXISTING EXTENT OF EXISTING CONCRETE STORAGE BAY WALLS.
 - T1 DENOTES PROPOSED 22.7kL ABOVE GROUND REUSE TANK.
 - T2 DENOTES PROPOSED ABOVE GROUND 10kL REUSE TANK.
 - T3 DENOTES PROPOSED 35kL ABOVE GROUND WASTEWATER HOLDING TANK.
 - HUMECEPTOR DENOTES PROPOSED HUMECEPTOR STC27 OR APPROVED EQUIVALENT INSTALLED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
 - KO DENOTES PROPOSED KERB ONLY. DETAILS TO BE PROVIDED AT CC STAGE.
 - MTE DENOTES MATCH TO EXISTING LEVELS.
 - DENOTES EXTENT OF PROPOSED BUILDING OUTLINE.
 - DENOTES EXTENT OF EXISTING BUILDING OUTLINE TO BE RETAINED.
 - DENOTES EXTENT OF EXISTING BITUMEN PAVEMENT TO BE RETAINED.
 - DENOTES PROPOSED BITUMEN PAVEMENT.
 - DENOTES EXTENT OF PROPOSED CONCRETE PAVEMENT.
 - DENOTES EXTENT OF EXISTING CONCRETE PAVEMENT TO BE RETAINED.
 - DENOTES EXTENT OF STABILISED GRAVEL SURFACE.
 - DENOTES EXTENT OF PROPOSED SET DOWN BUNDED CONTAINMENT AREA.

VERIFIER: D. JARVIS
JOB MANAGER: D. JARVIS
DESIGNED: B. HOEY
DRAWN: A. GRIFFIN

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	AG		BH	23.09.16
A	ISSUED FOR APPROVAL	WC	DJ	BH	22.12.16
B	RE-ISSUED FOR APPROVAL	CH	DJ	BH	16.02.17
C	AMENDED FOR APPROVAL	CH	DJ	BH	14.03.17

CLIENT	BETTERGROW PTY LTD
PLANNER	RPS
DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD.

PLANS 1:200	0 2 4 6 8 10m
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NORTHROP Newcastle Suite 4, 215 Pacific Hwy, Charlestown NSW 2290 P.O. Box 180, Charlestown NSW 2290 Ph (02) 4943 1777 Fax (02) 4943 1577 Email newcastle@northrop.com.au ABN 81 094 433 100
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PROJECT	RESOURCE RECOVERY CENTRE
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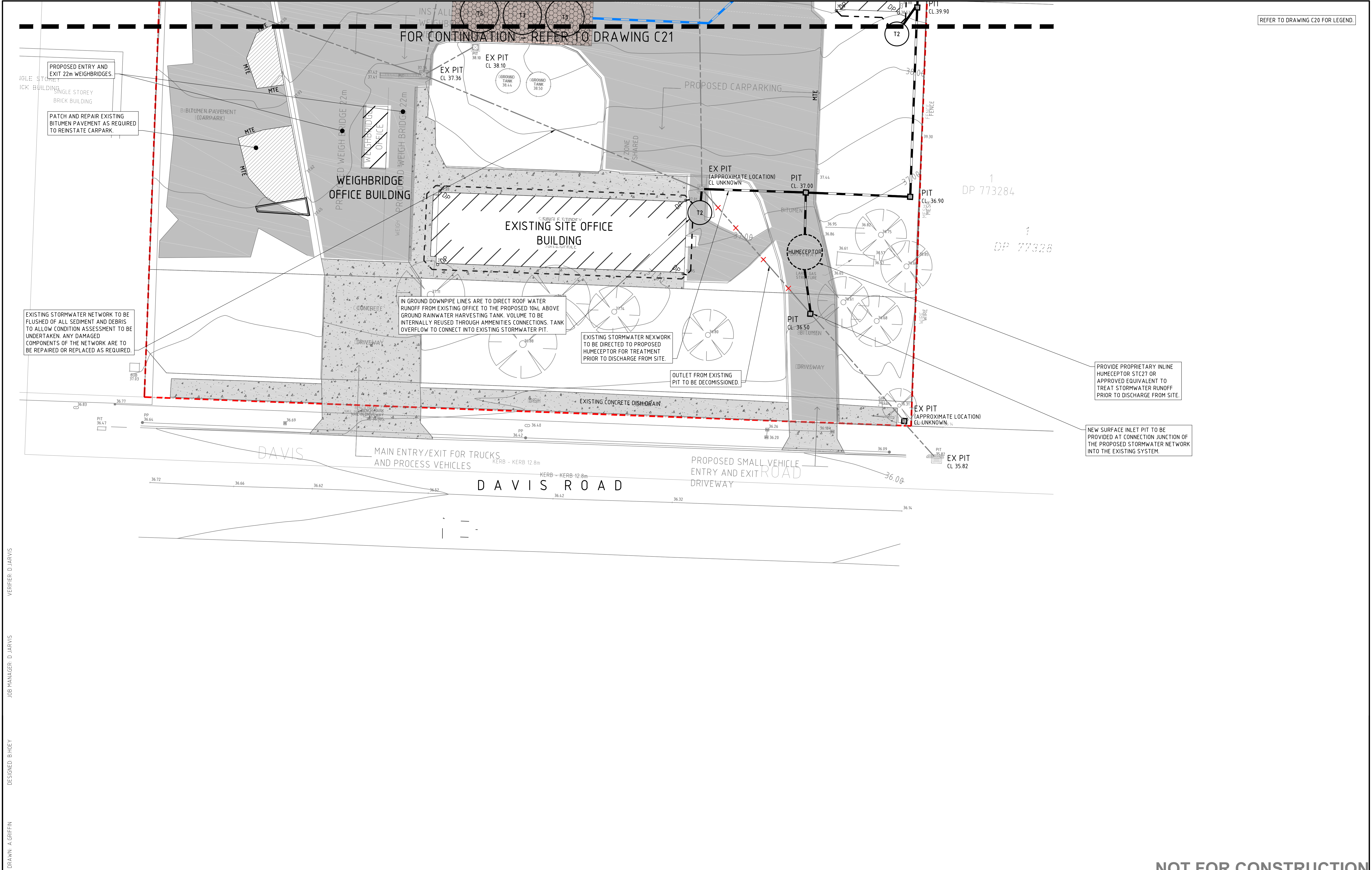
DRAWING TITLE	SURFACE WATER MANAGEMENT AND LEVELS PLAN SHEET 1
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JOB NUMBER	NL151740
DRAWING NUMBER	C20
REVISION	C
DRAWING SHEET SIZE	A1

NOT FOR CONSTRUCTION



JOB NUMBER	
NL151740	
DRAWING NUMBER	REVISION
C21	C
DRAWING SHEET SIZE = A1	



VERIFIER: D.JARVIS
JOB MANAGER: D.JARVIS
DESIGNED: B.HOEY
DRAWN: A.GRIFFIN

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	AG		BH	23.09.16
A	ISSUED FOR APPROVAL	WC	DJ	BH	22.12.16
B	RE-ISSUED FOR APPROVAL	CH	DJ	BH	14.03.17
C	RE-ISSUED FOR APPROVAL	AG	EA	BH	14.07.17

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PLANS 1:200	0 2 4 6 8 10m
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PROJECT	RESOURCE RECOVERY CENTRE
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DRAWING TITLE	SURFACE WATER MANAGEMENT AND LEVELS PLAN SHEET 3
---------------	--

JOB NUMBER	NL151740
DRAWING NUMBER	C22
REVISION	C
DRAWING SHEET SIZE	A1

NOT FOR CONSTRUCTION

Appendix II

Material Safety Data Sheets

Castrol Premium Heavy Duty

Section 1. Identification

Product name	Castrol Premium Heavy Duty
Product code	467733-AU13
SDS no.	467733
Use of the substance/mixture	Grease. For specific application advice see appropriate Technical Data Sheet or consult our company representative.
Product type	Grease
Supplier	BP Oil New Zealand Limited Ground floor and 1st floor Watercare House 73 Remuera Road Newmarket Auckland New Zealand Phone 09 969 9300
Emergency telephone number	0800 243643 (0800 CHEMHELP) (NZ use only)
New Zealand National Poisons Centre	0800 764 766 National Poison Centre
OTHER PRODUCT INFORMATION	Technical Helpline 0800 10 40 60

Section 2. Hazards identification

HSNO Classification	Not classified. This material is not classified as hazardous according to criteria in the Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001. This material is not classified as DANGEROUS GOODS according to criteria in New Zealand Standard 5433:2012 Transport of Dangerous Goods on Land.
Routes of entry	Dermal contact. Eye contact. Inhalation.
GHS label elements	
Signal word	No signal word.
Hazard statements	No known significant effects or critical hazards.
Precautionary statements	
Prevention	Read label before use. Keep out of reach of children. If medical advice is needed: Have product container or label at hand.
Response	Not applicable.
Storage	Not applicable.
Disposal	Not applicable.
Other hazards which do not result in classification	Defatting to the skin. Note: High Pressure Applications Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency. See 'Notes to physician' under First-Aid Measures, Section 4 of this Safety Data Sheet.

Section 3. Composition/information on ingredients

Substance/mixture Mixture

Highly refined base oil (IP 346 DMSO extract < 3%). Thickening agent. Proprietary performance additives.

Ingredient name	%	CAS number
Base oil - unspecified	50 - 95	Varies - See Key to abbreviations

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Skin contact	Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.
Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Check for and remove any contact lenses. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	Treatment should in general be symptomatic and directed to relieving any effects. Note: High Pressure Applications Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency. Injuries may not appear serious at first but within a few hours tissue becomes swollen, discoloured and extremely painful with extensive subcutaneous necrosis. Surgical exploration should be undertaken without delay. Thorough and extensive debridement of the wound and underlying tissue is necessary to minimise tissue loss and prevent or limit permanent damage. Note that high pressure may force the product considerable distances along tissue planes.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training.

Section 5. Firefighting measures

Extinguishing media

Suitable	In case of fire, use water fog, alcohol resistant foam, dry chemical or carbon dioxide extinguisher or spray.
Not suitable	Do not use water jet.
Specific hazards arising from the chemical	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous combustion products	Combustion products may include the following: carbon oxides (CO, CO ₂) (carbon monoxide, carbon dioxide)
Hazchem code	Not available.
Special precautions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Floors may be slippery; use care to avoid falling. Put on appropriate personal protective equipment (see Section 8).

For emergency responders

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill

Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill

Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). If emergency personnel are unavailable, contain spilt material. Suction or scoop the spill into appropriate disposal or recycling vessels, then cover spill area with oil absorbent. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Put on appropriate personal protective equipment (see Section 8). Wash thoroughly after handling. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Remove contaminated clothing and protective equipment before entering eating areas. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Not suitable

Prolonged exposure to elevated temperature

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Base oil - unspecified	NZ OSH (New Zealand). WES-STEL: 10 mg/m ³ 15 minutes. Issued/ Revised: 9/2010 Form: Mist WES-TWA: 5 mg/m ³ 8 hours. Issued/ Revised: 9/2010 Form: Mist

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Section 8. Exposure controls/personal protection

Appropriate engineering controls

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained.

Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards. The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye protection

Safety glasses with side shields.

Hand protection

Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Nitrile gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Skin protection

Use of protective clothing is good industrial practice. Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions. Respiratory protection should conform to AS/NZS 1715 and AS/NZS 1716.

Section 9. Physical and chemical properties

Appearance

Physical state

Grease

Colour

Blue.

Odour

Mild

pH

Not available.

Melting point

Not available.

Boiling point

Not available.

Drop Point

Not available.

Section 9. Physical and chemical properties

Flash point	Open cup: >240°C (>464°F) [Cleveland.]
Vapour pressure	Not available.
Vapour density	Not available.
Density	900 kg/m³ (0.9 g/cm³) at 15°C
Solubility	insoluble in water.

Section 10. Stability and reactivity

Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur.
Conditions to avoid	Avoid all possible sources of ignition (spark or flame).
Incompatible materials	Reactive or incompatible with the following materials: oxidising materials.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on likely routes of exposure

Inhalation	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.
Skin contact	Defatting to the skin. May cause skin dryness and irritation.
Eye contact	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	No specific data.
Ingestion	No specific data.
Skin contact	Adverse symptoms may include the following: irritation dryness cracking
Eye contact	No specific data.

Potential chronic health effects

General	No known significant effects or critical hazards.
Inhalation	Inhalation of oil mist or vapours at elevated temperatures may cause respiratory irritation.
Ingestion	Ingestion of large quantities may cause nausea and diarrhoea.
Skin contact	Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
Eye contact	Potential risk of transient stinging or redness if accidental eye contact occurs.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.

Section 12. Ecological information

Ecotoxicity	No known significant effects or critical hazards.
-------------	---

Persistence and degradability

Expected to be biodegradable.

Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

Mobility in soil

Mobility	Spillages are unlikely to penetrate the soil.
----------	---

Section 12. Ecological information

Soil/water partition
coefficient (K_{oc})

Not available.

Other ecological information

This product is unlikely to disperse in water.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
New Zealand Class	Not regulated.	-	-	-		-
ADG Class	Not regulated.	-	-	-		-
IATA Class	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-

PG* : Packing group

Section 15. Regulatory information

New Zealand Regulatory Information

HSNO Approval Number

None assigned.

HSNO Group Standard

None assigned.

HSNO Classification

Not classified.

Regulation according to other foreign laws

REACH Status

For the REACH status of this product please consult your company contact, as identified in Section 1.

United States inventory
(TSCA 8b)

All components are listed or exempted.

Australia inventory (AICS)

All components are listed or exempted.

Canada inventory status

All components are listed or exempted.

China inventory (IECSC)

All components are listed or exempted.

Japan inventory (ENCS)

All components are listed or exempted.

Korea inventory (KECI)

All components are listed or exempted.

Philippines inventory
(PICCS)

All components are listed or exempted.

Taiwan Chemical
Substances Inventory (TCSI)

Not determined.

Section 16. Other information

History

Date of issue/Date of revision	11 April 2016
Date of previous issue	21 December 2015.
Version	2
Key to abbreviations	Varies = may contain one or more of the following 101316-69-2, 101316-70-5, 101316-71-6, 101316-72-7, 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64741-97-5, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-64-9, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1, 74869-22-0, 90669-74-2

Notice to reader

Indicates information that has changed from previously issued version.

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.



SAFETY DATA SHEET

SECTION 1 IDENTIFICATION: PRODUCT IDENTIFIER AND CHEMICAL IDENTITY

Product Identifier **WATER BASED DEGREASER**

Other Names None

Manufacturer's Product Code 17033

Recommended Use Degreasing and cleaning

Details of Supplier/Manufacturer

Company:	Recochem Inc. ABN: 69 010 485 999
Address:	1809 Lytton Road, Lytton, Queensland 4178
Phone:	(07) 3308 5200 Fax: (07) 3308 5201
Website:	www.recochem.com.au



Emergency Telephone Numbers

Business Hours:	(07) 3308 5200
After Hours:	1300 131 001
Poisons Information:	Australia: 13 11 26 New Zealand: 0800 764 766

SECTION 2 HAZARDS IDENTIFICATION

Hazardous chemical	<i>according to classification by Safe Work Australia</i>
Dangerous goods	<i>according to the Australian Code for the Transport of Dangerous Goods by Road and Rail</i>

Signal Word	DANGER
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Hazardous chemical classification	Pictogram	Hazard statement
Eye Damage/Irritation, Category 1	 CORROSION	H318 Causes serious eye damage
Skin Corrosion/Irritation, Category 2	 EXCLAMATION MARK	H315 Causes skin irritation

Product: WATER BASED DEGREASER**Precautionary statements:**

GENERAL	
P101	If medical advice is needed, have product container or label at hand
P102	Keep out of reach of children
P103	Read label before use
PREVENTATIVE	
P264	Wash thoroughly after handling
P280	Wear protective gloves/eye protection/face protection
RESPONSE	
P302 + P352	IF ON SKIN: Wash with water and plenty of soap
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician
P332 + P313	If skin irritation occurs: Get medical advice/attention
P362	Take off contaminated clothing and wash before reuse

SECTION 3 COMPOSITION AND INFORMATION ON INGREDIENTS**Ingredients Names and Proportions**

Chemical Entity	CAS Number	Proportion (%)
Sodium Hydroxide	1310-73-2	2
2-Butoxyethanol	111-76-2	< 5
Alkaline salts	-	< 10
Surfactants	-	< 10
Dye	-	< 1
Water	7732-18-5	Balance

SECTION 4 FIRST AID MEASURES**Description of necessary first aid measures**

Inhalation:	Remove victim from exposure if safe to do so. If rapid recovery does not occur, transport to nearest medical facility for additional treatment
Skin Contact:	If skin contact occurs, wash skin thoroughly with water and follow by washing with soap if available. If any irritation persists, seek medical attention
Eye Contact:	If in eyes, hold eyes open, flood with water for at least 15 minutes. If irritation persists seek medical attention
Ingestion:	If swallowed, do NOT induce vomiting. Give a glass of water. Seek immediate medical attention

Symptoms caused by exposure

Inhalation:	May result in burning sensation of the nose and throat
Skin:	A skin irritant. May include skin burns, redness, swelling and/or blisters.
Eye:	May cause eye irritation. May include burning sensation, redness, swelling, blurred vision. Corneal injury may develop.
Ingestion:	May result in nausea vomiting and stomach pain

Medical attention and special treatment

Treat symptomatically.

SECTION 5 FIRE FIGHTING MEASURES

Suitable extinguishing equipment

Non-combustible, not considered to be a significant fire risk.

Specific hazards arising from the chemical

May evolve carbon dioxide on decomposition.

Special protective equipment and precautions for fire fighters

Wear full protective clothing and self-contained breathing apparatus. Hazchem code 2X.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Avoid contact with spilled or released material. Shut off leaks, if possible without personal risks. Isolate hazard area and deny entry to unnecessary or unprotected personnel. Remove all sources of ignition in the surrounding area. Ventilate contaminated area thoroughly.

Environmental precautions

Use appropriate containment to avoid environmental contamination. Prevent from spreading and entering waterways using sand, earth or other appropriate barriers.

Methods and materials for containment and cleaning up

For small spills (< 1 drum), dilute with water and mop up, or absorb with dry inert material, and place in an appropriate labelled, sealable container for product recovery or safe disposal.

For larger spills (> 1 drum), transfer by means such as a vacuum truck to a salvage tank for recovery or disposal. Retain as contaminated waste.

Allow any residues to evaporate or use an appropriate absorbent material and dispose of safely.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Avoid breathing vapours. Do NOT ingest. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Do not eat, drink or smoke in contaminated areas. Handle and open containers with care in a well-ventilated area. Ensure that the workplace is ventilated such that the Occupational Exposure limit is not exceeded. Do not empty into drains.

Conditions for safe storage, including any incompatibilities

Store in a cool, well-ventilated area, away from sunlight, ignition sources and other sources of heat. Do not store near strong oxidisers.

SECTION 8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure control measures

From National Occupational Health & Safety Commission (NOHSC) Worksafe Australia -

Sodium Hydroxide: 2mg/m³ (peak) TWA

2-Butoxyethanol: 96.9mg/m³ (20ppm) TWA, 242mg/m³ (50ppm) STEL

Alkaline salts: 10mg/m³ in respirable mists

Biological monitoring

No biological limit allocated.

Engineering controls

Ensure that adequate ventilation is provided. Maintain air concentrations below recommended exposure standards. Avoid generating and inhaling mists and vapours. Keep containers closed when not in use.

Product: WATER BASED DEGREASER**Individual protection measures**

Eye and face protection:	Wear safety goggles.
Skin protection:	Use solvent resistant gloves, nitrile for longer term protection or PVC and neoprene for incidental splashes.
Respiratory protection:	If work practices do not maintain airborne level below the exposure standard, use appropriate respiratory protection equipment. When using respirators, select an appropriate combination of mask and filter. Select a filter for organic gases and vapours (boiling point > 65°C). Respirators should comply with AS1716 or an equivalent approved by a state/territory authority.
Thermal hazards:	Not applicable.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Pink liquid
Odour:	Characteristic
Odour threshold (ppm):	Data not available
pH:	11.8
Melting point/freezing point (°C):	0 (approx.)
Initial boiling point and boiling range (°C):	100 (approx.)
Flash point (°C):	Data not available
Evaporation rate (Butyl acetate = 1):	Data not available
Flammability:	Non-combustible
Upper/lower flammability or explosive limits (%):	Data not available
Vapour pressure (mmHg @ 20°C):	Data not available
Vapour density (air = 1):	Data not available
Density (g/ml @ 15°C):	1.05 - 1.06
Solubility:	Soluble in water
Partition coefficient: n-octanol/water:	Data not available
Auto-ignition temperature (°C):	Data not available
Decomposition temperature (°C):	Data not available
Kinematic viscosity (mm ² /s @ 20°C):	Data not available

SECTION 10 STABILITY AND REACTIVITY

Reactivity

Stable under normal conditions of use.

Chemical stability

Stable under normal conditions of use.

Possibility of hazardous reactions

Stable under normal conditions of use.

Product: WATER BASED DEGREASER**Conditions to avoid**

Avoid oxidising agents and naked flames.

Incompatible materials

Strong acids, oxidising reagents.

Hazardous decomposition products

May evolve carbon dioxide.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute toxicity:	Swallowing this product can result in nausea vomiting and stomach pain
Skin corrosion/irritation:	Irritant, prolonged contact may cause dermatitis
Serious eye damage/irritation:	Irritant. Corneal injury may develop with possible impairment of vision if not promptly and adequately treated
Respiratory or skin sensitisation:	Data not available
Germ cell mutagenicity:	Data not available
Carcinogenicity:	Data not available
Reproductive toxicity:	Data not available
Specific Target Organ Toxicity (STOT) – single exposure:	Slight irritant to respiratory tract when in mist form
Specific Target Organ Toxicity (STOT) – repeated exposure:	Data not available
Aspiration hazard:	Data not available

SECTION 12 ECOLOGICAL INFORMATION

Ecotoxicity

Acute toxicity:

Fish –	Data not available
Aquatic invertebrate –	Data not available
Algae –	Data not available
Microorganisms –	Data not available

Chronic toxicity:

Fish –	Data not available
Aquatic invertebrate –	Data not available
Algae –	Data not available
Microorganisms –	Data not available

Persistence and degradability

Biodegradable.

Bioaccumulative potential

Data not available.

Product: WATER BASED DEGREASER

Mobility in soil

Miscible with water.

Other adverse effects

Data not available.

SECTION 13 DISPOSAL CONSIDERATIONS

Ensure waste disposal conforms to local waste disposal regulations.

SECTION 14 TRANSPORT INFORMATION

UN number:	1760
Proper shipping name:	CORROSIVE LIQUID, N.O.S.
Australian Dangerous Goods class:	8
Australian Dangerous Goods packing group:	III
Hazchem code:	2X

SECTION 15 REGULATORY INFORMATION

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP), Poisons Schedule:	5
Australian Inventory of Chemical Substances (AICS):	Listed
Dangerous Goods Initial Emergency Response Guide (SAA/SNZ HB76):	37

SECTION 16 OTHER INFORMATION

Date of preparation:	05/03/2015
Revision number:	3
Changes in this revision:	Update to GHS SDS standard

This MSDS summarises product safety information at the date of issue, to the best of our knowledge, as a general guide. Recochem cannot anticipate or control the conditions under which the product is used, so prior to usage each user must assess and control the risks associated with their use of the product. Users should also consult the relevant legislation governing the use and storage of this product. We make no warranties, express or implied, and assume no liability in connection with any use of information contained within this document. If clarification or further information is needed, the user should contact Recochem on (07) 3308 5200.



Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Havoline Formula

Product Use: Engine Oil

Product Number(s): 500006, 500007, 500009, 500010

Synonyms: Havoline Formula SAE 10W-30, Havoline Formula SAE 15W-40, Havoline Formula SAE 20W-50, Havoline Formula SAE 5W-30

Company Identification

Chevron New Zealand

604 Great South Road

Auckland 1051

New Zealand

<http://www.caltex.com/nz/en>; <http://www.lubewatch.co.nz>

Transportation Emergency Response

New Zealand: 09 583-5000 or 0800-733-835

Health Emergency

Poisons Centre: 0800-764-766 (24hrs)

Product Information

email : nzservice@chevron.com

Product Information: 09 583-5000

MSDS Requests: 0800-733-835

SECTION 2 HAZARDS IDENTIFICATION

HSNO New Zealand Approval Code: Not Required

CLASSIFICATION: Not classified as hazardous according to HSNO regulatory guidelines.

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	60 - 99 %weight

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and

shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Keep out of the reach of children. Wash thoroughly after handling.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful

levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required. If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Country/ Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m ³	10 mg/m ³	--	--
Highly refined mineral oil (C15 - C50)	New Zealand	5 mg/m ³	10 mg/m ³	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Brown

Physical State: Liquid

Odor: Petroleum odor

Odor Threshold: No data available

pH: Not Applicable

Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)

Vapor Density (Air = 1): >1

Boiling Point: 315°C (599°F)

Solubility: Soluble in hydrocarbons; insoluble in water

Freezing Point: Not Applicable

Density: 0.9 kg/l @ 15°C (59°F) (Typical)

Viscosity: 9.7 mm²/s @ 100°C (212°F) Minimum

Evaporation Rate: No data available

Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:

Flashpoint: (ASTM D92) 200 °C (392 °F) Minimum

Autoignition: No data available

Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not

Applicable

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for similar materials or product components.

Ingestion: Not expected to be harmful if swallowed.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Toxicity Estimate: Not Determined

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3). During use in engines, contamination of oil with low levels of cancer-causing

combustion products occurs. Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY

This material is not expected to be harmful to aquatic organisms. The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY

No data available.

PERSISTENCE AND DEGRADABILITY

This material is not expected to be readily biodegradable. The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE

Bioconcentration Factor: No data available.

Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

Land Transport New Zealand Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORTATION UNDER THE NEW ZEALAND LAND TRANSPORT RULE

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO TI OR IATA DGR

SECTION 15 REGULATORY INFORMATION

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1

01-2A=IARC Group 2A

01-2B=IARC Group 2B

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States). One or more components is listed on ELINCS (European Union). Secondary notification by the importer may be required. All other components are listed or exempted from listing on EINECS.

SECTION 16 OTHER INFORMATION

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 3,15

Revision Date: MARCH 27, 2013

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the Hazardous Substances and New Organisms Act 1996 and Approved Code of Practice: Preparation of Safety Data Sheets (HSNO CoP 8-1 09-06) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet



1 . Identification of the material and supplier

Names

Product name : MaxiFlox® Flocculant Preparation 540

Supplier : Science Developments Pty Ltd
Unit 20, 16 Narabang Way
Belrose NSW 2085 Australia
Telephone: 61-2-9986-1414
Email: scidev@bigpond.net.au

Emergency telephone : 13 11 26 (Poison Information Hotline)

Uses

Material uses : Industrial Wastewater Treatment

Date of issue : 30 January 2013

2 . Hazards identification

Statement of hazardous/dangerous nature : Not classified as hazardous according to NOHSC criteria, and not dangerous goods according to the ADG Code.

Hazards : Very slippery when wet.

3 . Composition/information on ingredients

Chemical Nature : Anionic polyacrylamide

4 . First-aid measures

Eye contact : Rinse with plenty of water for 15 minutes. Get medical attention if irritation persists.

Skin Contact : In case of contact, wash affected skin with soap and plenty of water. Get medical attention if skin irritation or dermatitis commences or persists.

Inhalation : Remove to fresh air. Obtain medical attention if symptoms occur.

Ingestion : Do NOT induce vomiting. If unconscious do not give anything by mouth. If conscious, rinse mouth; then drink one or two large glasses of water. Contact a doctor or the Poisons Information Centre (In Australia Phone: 13 11 26).

Notes to physician : No specific treatment. Treat symptomatically.

5 . Fire-fighting measures

Extinguishing media	: Carbon dioxide, dry powder, foam
Fire/explosion hazards	: No specific hazard
Exposure hazards	: Very slippery when wet
Special protective equipment for fire-fighters	: Fire-fighters should wear appropriate protective suit, suitable gloves, boots and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Hazardous Decomposition Products	: Decomposition products may include the following materials: carbon oxides (CO and CO ₂), nitrogen oxides.

6 . Accidental release measures

Personal Precautions	: Avoid dust formation. Suitable dust-mask and personal protective clothing. Spills are very slippery.
Environmental precautions	: Avoid dispersal of spilt material and prevent contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Methods for cleaning up	: Spilled product which becomes wet or spilled aqueous solution create a hazard because of their slippery nature. Clean up with inert absorbent material (e.g. sand, earth etc). Sweep up and shovel into suitable containers for disposal. Residues or small spillages should be hosed away completely with plenty of water. Contain washwater and dispose of in accordance with local regulations.

7 . Handling and storage

Handling	: Do not ingest. Avoid contact with eyes and skin. Avoid dust formation and ignition sources. Ensure good ventilation. Wash hands and/or face before breaks and at end of work. Slip hazard when wet.
Storage	: Avoid dust formation and ignition sources. Ensure good ventilation. Keep in a dry, cool place. Protect from water and moisture. Avoid extremes of temperature.

8 . Exposure controls/personal protection

Occupational exposure limits	: DUST. TWA value: 10mg/m ³ (Total dust)
Engineering measures	: Provide appropriate exhaust ventilation where dust can be generated. Ensure adequate ventilation, especially in confined areas
Hygiene measures	: Ensure that eyewash stations are close to the workstation location.
<u>Personal protection</u>	
Eyes	: Tightly fitting safety goggles (chemical goggles).
Hands	: PVC oil/chemical resistant gloves.
Respiratory	: Wear respiratory protection if ventilation is inadequate.
Skin	: Chemical resistant apron and lightweight protective clothing.

9 . Physical and chemical properties

Physical State	: Powder
Colour	: White
Odour	: None
Melting Point	: Not available
Vapour Pressure	: Not available
Density	: Approx. 0.75 g/cm ³
Flash Point	: Not available
Vapour Density	: Not available
pH	: Not determined
Solubility in water	: Forms a viscous solution

10 . Stability and reactivity

Stability	: The product is stable under normal ambient conditions of temperature and pressure.
Conditions to Avoid	: Avoid temperature extremes. Avoid humidity. Avoid all sources of ignition.
Materials to avoid	: Reactive chemicals
Hazardous Decomposition Products	: No decomposition expected under normal storage conditions.
Hazardous Reactions	: No hazardous reactions expected.

11 . Toxicological information

Potential acute health effects

Inhalation	: Not tested
Ingestion	: Not tested
Skin Contact	: Not tested
Eye contact	: Not tested

Potential chronic health effects

Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Reproductive toxicity	: No known significant effects or critical hazards.

12 . Ecological information

Ecotoxicity data	: Not available.
Persistence/degradability	: Not available.
Mobility	: Not available.
Other adverse effects	: No known significant effects or critical hazards.

13 . Disposal considerations

Methods of disposal	: The generation of waste should be avoided or minimised wherever possible. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
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14 . Transport information

Not classified as a dangerous good under transport regulations (ADG).

15 . Regulatory information

Australia inventory (AICS) : All substances are listed on AICS or exempt.

AU Classification : Not classified as hazardous according to the criteria of NOHSC.

Standard for the Uniform Scheduling of Drugs and Poisons

Not scheduled

Control of Scheduled Carcinogenic Substances

Ingredient name

Schedule

No listed substance

16 . Other information

Prepared by : Regulatory Affairs

Date of previous issue : -

Change Made : New format.

References :

- ADG Code - Australian Transport of Dangerous Goods
- Adopted National Exposure Standard for Atmospheric Contaminants in the Occupational Environment
- Approved Criteria for Classifying Hazardous Substances
- List of Designated Hazardous Substances
- National Code of Practice for the Labelling of Workplace Substances
- National Code of Practice for the Preparation of Material Safety Data Sheets
- National Model Regulations for the Control of Scheduled Carcinogenic Substances
- National Model Regulations for the Control of Workplace Hazardous Substances
- Standard for the Uniform Scheduling of Drugs and Poisons

Disclaimer

The information contained in this safety data sheet is given in good faith. It is accurate to the best of our knowledge and represents the most up to date information. The information given in this data sheet does not constitute or replace the user's own assessment of workplace risk as required by other health and safety legislation.

As data, standards, and regulations change, and conditions of use and handling are beyond our control, NO WARRANTY, EXPRESS OR IMPLIED, IS MADE AS TO THE COMPLETENESS OR CONTINUING ACCURACY OF THIS INFORMATION.

Infosafe No™ LQ10L Issue Date : May 2012 ISSUED by UNITEDPE

Product Name **DIESEL**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	DIESEL	
Company Name	UNITED PETROLEUM PTY LTD	
Address	200 Hoddle Street Abbotsford Vic 3067 Australia	
Emergency Tel.	1300 131 001	
Telephone/Fax	Tel: (03)9413 1400	
Number	Fax: (03)9413 1401	
Recommended Use	Fuel for on-road diesel-powered engines.	
Other Names	<u>Name</u>	<u>Product Code</u>
	DIST.	
	HI FLOW DIESEL	
	ADO	
	AUTOMOTIVE GAS	

2. HAZARDS IDENTIFICATION

Hazard	HAZARDOUS SUBSTANCE.
Classification	NON-DANGEROUS GOODS. Hazard classification according to the criteria of NOHSC. Dangerous goods classification according to the Australia Dangerous Goods Code.
Risk Phrase(s)	R40 Limited evidence of a carcinogenic effect. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R65 Harmful: may cause lung damage if swallowed.
Safety Phrase(s)	R66 Repeated exposure may cause skin dryness and cracking. S2 Keep out of reach of children. S36/37 Wear suitable protective clothing and gloves. S61 Avoid release to the environment. Refer to special instructions/safety data sheet. S62 If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.
Signs and Symptoms of Exposure	If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure. Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried/cracked appearance.
Safety Hazards	May ignite on surfaces at temperatures above auto-ignition temperature. Vapour in the headspace of tanks and containers may ignite and explode at temperatures exceeding autoignition temperature, where vapour concentrations are within the flammability range. Not classified as flammable but will burn. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire.
Environmental Hazards	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Other Information	This product is intended for use in closed systems only.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Name	CAS	Proportion
	Fuels, diesel, no.2	68476-34-6	100 %
Preparation	Complex mixture of hydrocarbons consisting of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons with carbon numbers predominantly in the C9 to C25 range. May also contain several additives at <0.1% v/v each. May contain cetane improver (Ethyl Hexyl Nitrate) at <0.2% v/v.		
Description	May contain catalytically cracked oils in which polycyclic aromatic compounds, mainly 3-ring but some 4- to 6-ring species are present.		

4. FIRST AID MEASURES

Infosafe No™ LQ10L	Issue Date : May 2012	ISSUED by UNITEDPE
Product Name DIESEL		

Inhalation	Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
Ingestion	If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (37° C), shortness of breath, chest congestion or continued coughing or wheezing.
Skin	Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.
Eye	Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
First Aid Facilities	Eye wash and normal washroom facilities.
Advice to Doctor	Treat symptomatically.
Other Information	For advice in an emergency, contact a Poisons Information Centre (Phone Australia 13 1126) or a doctor at once.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Hazards from Combustion Products	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Oxides of sulphur. Unidentified organic and inorganic compounds. Carbon monoxide may be evolved if incomplete combustion occurs.
Specific Hazards	Combustible liquid. Will burn under fire conditions. Will float and can be reignited on surface water. Flammable vapours may be present even at temperatures below the flash point.
Properties on Heating & in case of Fire	Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes. Water spray may be used to cool down heat-exposed containers. Fight fire from safe location. This product should be prevented from entering drains and watercourses.
Unsuitable Extinguishing Media	Do not use water in a jet.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures	Wear appropriate personal protective equipment and clothing to prevent exposure. Extinguish or remove all sources of ignition and stop leak if safe to do so. Increase ventilation. Evacuate all unprotected personnel. If possible contain the spill. Place inert absorbent, non-combustible material onto spillage. Use clean non-sparking tools to collect the material and place into suitable labelled containers for subsequent recycling or disposal. Dispose of waste according to the applicable local and national regulations. If contamination of sewers or waterways occurs inform the local water and waste management authorities in accordance with local regulations.
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7. HANDLING AND STORAGE

Handling and Storage	<p>General Precautions:</p> <p>Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 (Exposure controls/personal protection) of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Air-dry contaminated clothing in a well-ventilated area before laundering. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Prevent spillages. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Never siphon by mouth. Contaminated leather articles including shoes cannot be decontaminated and should be destroyed to prevent reuse. For comprehensive advice on handling,</p>
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Infosafe No™ LQ10L Issue Date : May 2012 ISSUED by UNITEDPE

Product Name DIESEL

Precautions for Safe Handling	<p>product transfer, storage and tank cleaning refer to the product supplier. Maintenance and Fuelling Activities - Avoid inhalation of vapours and contact with skin. Avoid inhaling vapour and/or mists. Avoid prolonged or repeated contact with skin. When using do not eat or drink. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Earth all equipment. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. The vapour is heavier than air, spreads along the ground and distant ignition is possible.</p>
Conditions for Safe Storage	<p>Drum and small container storage: Drums should be stacked to a maximum of 3 high. Use properly labelled and closeable containers. Tank storage: Tanks must be specifically designed for use with this product. Bulk storage tanks should be diked (bunded). Locate tanks away from heat and other sources of ignition. Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Vapours from tanks should not be released to atmosphere. Breathing losses during storage should be controlled by a suitable vapour treatment system. The vapour is heavier than air. Beware of accumulation in pits and confined spaces. Keep in a bunded area with a sealed (low permeability) floor, to provide containment against spillage. Prevent ingress of water.</p>
Storage Regulations	<p>For information on the design of the storeroom, reference should be made to Australian Standard AS1940 - The storage and handling of flammable and combustible liquids and AS/NZS 4452:1997 The storage and handling of toxic substances. Reference should also be made to all applicable local and national regulations.</p>
Product Transfer	<p>Classified as a C1 (COMBUSTIBLE LIQUID) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to State Regulations for storage and transport requirements. AS 1940:2004 The storage and handling of flammable and combustible liquids. Avoid splash filling. Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes. Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling. Contamination resulting from product transfer may give rise to light hydrocarbon vapour in the headspace of tanks that have previously contained gasoline. This vapour may explode if there is a source of ignition. Partly filled containers present a greater hazard than those that are full, therefore handling, transfer and sampling activities need special care.</p>
Recommended Materials	<p>For containers, or container linings use mild steel, stainless steel. Aluminium may also be used for applications where it does not present an unnecessary fire hazard. Examples of suitable materials are: high density polyethylene (HDPE) and Viton (FKM), which have been specifically tested for compatibility with this product. For container linings, use amine-adduct cured epoxy paint. For seals and gaskets use: graphite, PTFE, Viton A, Viton B.</p>
Unsuitable Materials	<p>Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene.; However, some may be suitable for glove materials.</p>
Other Information	<p>Ensure that all local regulations regarding handling and storage facilities are followed.</p>

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards	National Occupational Health And Safety Commission (NOHSC), Australia Exposure Standards:					
	Substance	TWA		STEL		NOTICES
		ppm	mg/m³	ppm	mg/m³	
	Naphthalene	10	52	15	79	-
	Oil mist, mineral	-	5 (mist)	-	-	-

TWA (Time Weighted Average): The average airborne concentration of a

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	<p>particular substance when calculated over a normal eight-hour working day, for a five-day week.</p> <p>STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.</p> <p>Additional Information: In the absence of a national exposure limit, the American Conference of Governmental Industrial Hygienists (ACGIH) recommends the following values for Diesel Fuel: TWA - 100 mg/m³ Critical effects based on Skin and Irritation.</p>
Biological Limit Values	No biological limit available.
Engineering Controls	Provide sufficient ventilation to keep airborne levels below the exposure limits. Where vapours or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a flameproof exhaust ventilation system is required. Refer to AS 1940 - The storage and handling of flammable and combustible liquids and AS/NZS 60079.10.1:2009 Explosive atmospheres - Classification of areas - Explosive gas atmospheres, for further information concerning ventilation requirements.
Respiratory Protection	If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable organic vapour filter should be used. Reference should be made to Australian/New Zealand Standards AS/NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.
Eye Protection	Safety glasses with side shields or chemical goggles should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.
Hand Protection	Wear gloves of impervious material such as nitrile. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.
Body Protection	Suitable protective work wear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Yellow. Pale straw. Colourless. Liquid.
Odour	May contain a reodorant
Melting Point	Not available
Freezing Point	Not available
Boiling Point	170 - 390 °C
Solubility in Water	Not available
pH Value	Not available
Vapour Pressure	< 1 hPa at 20 °C
Vapour Density (Air=1)	Not available
Octanol/Water Partition Coefficient	3 - 6
Density	Typical 0.84 g/cm ³ at 15 °C
Flash Point	63 °C (estimated)
Flammability	Combustible liquid
Auto-Ignition Temperature	> 220 °C

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Flammable Limits - Lower	1 % (V)
Flammable Limits - Upper	6 % (V)
Kinematic Viscosity	2 - 4.5 mm ² /s at 40 °C

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions of storage and handling.
Conditions to Avoid	Avoid heat, sparks, open flames and other ignition sources.
Incompatible Materials	Strong oxidising agents.
Hazardous Decomposition Products	Hazardous decomposition products are not expected to form during normal storage. Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.
Hazardous Polymerization	Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicology Information	Information given is based on product data, a knowledge of the components and the toxicology of similar products: LD50 (Oral, Rat): >2,000 mg/kg LD50 (Dermal, Rabbit): >2,000 mg/kg LC50 (Inhalation, Rat): >5 mg/L/4h
Inhalation	High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
Ingestion	Harmful-may cause lung damage if swallowed. Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause severe pulmonary injury that may lead to death. May cause irritation to the mouth, throat, esophagus and stomach with symptoms of nausea, abdominal discomfort, vomiting and diarrhoea.
Skin	May cause moderate skin irritation. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis.
Eye	May be irritating to eyes. The symptoms may include redness, itching and tearing.
Mutagenicity	In-vitro mutagenicity studies show that mutagenic activity is related to 4-6 ring polycyclic aromatic content.
Carcinogenicity	Limited evidence of carcinogenic effect. Repeated skin contact has resulted in irritation and skin cancer in animals. This substance is classified as a Category 3 Carcinogen according to National Occupational Health and Safety Commission (NOHSC). That is, there is some evidence from appropriate animal studies that human exposure to this substance may result in the development of cancer, but this evidence is insufficient to place the substance in Category 2. Category 3 Carcinogens are substances that cause concern for humans owing to possible carcinogenic effects.

12. ECOLOGICAL INFORMATION

Ecological Information	Information given is based on a knowledge of the components and the ecotoxicology of similar products. Fuels are typically made from blending several refinery streams. Ecotoxicological studies have been carried out on a variety of hydrocarbon blends and streams but not those containing additives. Acute Toxicity: Toxic:LL/EL/IL50 1-10 mg/l(to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).
Ecotoxicity	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Persistence / Degradability	Major constituents are inherently biodegradable. The volatile constituents will oxidize rapidly by photochemical reactions in air.

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Mobility	Floats on water. Partly evaporates from water or soil surfaces, but a significant proportion will remain after one day. Large volumes may penetrate soil and could contaminate groundwater. Contains volatile constituents.
Bioaccumulative Potential	Contains constituents with the potential to bioaccumulate.
Other Adverse Effects	Films formed on water may affect oxygen transfer and damage organisms.

13. DISPOSAL CONSIDERATIONS

Disposal Considerations	The disposal of the spilled or waste material must be done in accordance with applicable local and national regulations.
Product Disposal	Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses. Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination. Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
Container Disposal	Send to drum recoverer or metal reclaimer. Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard if heated above the flash point. Do not puncture, cut or weld uncleaned drums. Do not pollute the soil, water or environment with the waste container. Comply with any local recovery or waste disposal regulations.
Local Legislation	Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied with.

14. TRANSPORT INFORMATION

Transport Information	Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition) Note: Not classified under ADG 07 regulations as special provision AU 02 applies.
	IMDG: Identification number: UN 3082 Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. Technical name: (Gas oil - unspecified) Class / Division: 9 Packing group: III
	IATA (Country variations may apply): UN No.: 3082 Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. Technical name: (Gas oil - unspecified) Class / Division: 9 Packing group: III
IMDG Marine Pollutant (MP)	Yes

15. REGULATORY INFORMATION

Regulatory Information	Classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia. Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).
Poisons Schedule	Not Scheduled
Hazard Category	Harmful, Dangerous for the environment
AICS (Australia)	All components are listed or exempt.

16. OTHER INFORMATION

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Issue Date : May 2012

ISSUED by UNITEDPE

Product Name DIESEL

Date of preparation or last revision of
MSDS

MSDS Created: May 2012

...End Of MSDS...

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Safety Data Sheet

Ultramax 46 Hydraulic Oil



NON-Hazardous Substance, NON-Dangerous Goods

1. MATERIAL AND SUPPLY COMPANY IDENTIFICATION

Product name: **Ultramax 46 Hydraulic Oil**

Synonyms:

Ultramax 46 Hydraulic Oil, 5 Litres
Ultramax 46 Hydraulic Oil, 20 Litres
Ultramax 46 Hydraulic Oil, 205 Litres
Ultramax 46 Hydraulic Oil, IBC
Ultramax 46 Hydraulic Oil, Tank

Mancode

2173.57
2173.20
2173.51
2173IBC
2173IBT

Recommended use: Hydraulic oil

Supplier: Valvoline (Australia) Pty Ltd
ABN: 86 000 446 855
Street Address: Level 6, 2 Burbank Place
Baulkham Hills NSW 2153
Australia
Telephone: (02) 9609-7999
Facsimile: (02) 9604-5127

Ashland New Zealand Limited
AK521039
L1, 119 Carbine Road
Mt. Wellington Auckland 1060
New Zealand
+64 (0)9 270-9547
+64 (0)9 270-9546

For emergency product information contact Valvoline Technical Hotline for Australia - 1800 804 658 or New Zealand - 0061 2 8603 2300. Hours of operations are Monday to Friday, 8:30 am - 4:30 pm Australian EST.

2. HAZARDS IDENTIFICATION

Based on available information, this material is not classified as hazardous according to criteria of Safe Work Australia.

Poisons Schedule (Aust): Not applicable

DANGEROUS GOODS CLASSIFICATION

Not classified as Dangerous Goods by the criteria of the "Australian Code for the Transport of Dangerous Goods by Road & Rail" and the "New Zealand NZS5433: Transport of Dangerous Goods on Land".

Classified as a C2 (COMBUSTIBLE LIQUID) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to State Regulations for storage and transport requirements.

3. COMPOSITION INFORMATION

CHEMICAL ENTITY	CAS NO.	PROPORTION
Zinc dialkyl dithiophosphate	68649-42-3	<1%
Ingredients determined to be non-hazardous	-	Balance
		100%

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4. FIRST AID MEASURES

If poisoning occurs, contact a doctor or Poisons Information Centre (Phone Australia 131 126, New Zealand 0800 764 766).

Inhalation: Remove victim from exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.

Skin contact: If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. If swelling, redness, blistering or irritation occurs seek medical assistance.

Eye contact: If in eyes wash out immediately with water. In all cases of eye contamination it is a sensible precaution to seek medical advice.

Ingestion: Rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water to drink. Never give anything by the mouth to an unconscious patient. If vomiting occurs give further water. Seek medical advice.

PPE for First Aiders: Wear overalls, safety glasses and impervious gloves. Available information suggests that gloves made from nitrile rubber should be suitable for intermittent contact. However, due to variations in glove construction and local conditions, the user should make a final assessment. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

Notes to physician: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Hazchem Code: Not applicable.

Suitable extinguishing media: If material is involved in a fire use water fog (or if unavailable fine water spray), foam, dry agent (carbon dioxide, dry chemical powder).

Specific hazards: Combustible liquid.

Fire fighting further advice: On burning may emit toxic fumes. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or products of combustion.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILLS

Wear protective equipment to prevent skin and eye contamination. Avoid inhalation of vapours. Wipe up with absorbent (clean rag or paper towels). Collect and seal in properly labelled containers or drums for disposal.

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LARGE SPILLS

Shut off all possible sources of ignition. Clear area of all unprotected personnel. Prevent further leakage or spillage if safe to do so. Slippery when spilt. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contamination and the inhalation of vapours. Work up wind or increase ventilation. Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Collect and seal in properly labelled containers or drums for disposal. If contamination of sewers or waterways has occurred advise local emergency services.

Dangerous Goods – Initial Emergency Response Guide No: Not applicable.

7. HANDLING AND STORAGE

Handling: Avoid eye contact and repeated or prolonged skin contact.

Storage: Store in a cool, dry, well-ventilated place and out of direct sunlight. Store away from incompatible materials described in Section 10. Store away from sources of heat or ignition. Keep containers closed when not in use - check regularly for leaks.

Classified as a C2 (COMBUSTIBLE LIQUID) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to State Regulations for storage and transport requirements.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

National occupational exposure limits:

No value assigned for this specific material by Safe Work Australia or Department of Labour New Zealand.

However for:

	TWA		STEL		CARCINOGEN	NOTICES
	ppm	mg/m3	ppm	mg/m3	CATEGORY	
Oil mist, refined mineral	-	5	-	-	-	-

As published by the Safe Work Australia.

TWA - The time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life.

STEL (Short Term Exposure Limit) - the average airborne concentration over a 15-minute period, which should not be exceeded at any time during a normal eight-hour workday.

WES-TWA (Workplace Exposure Standard – Time-weighted Average). The time-weighted average exposure standard designed to protect the worker for the effects of long-term exposure.

These Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept too as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

If the directions for use on the product label are followed, exposure of individuals using the product should not exceed the above standard. The standard was created for workers who are routinely, potentially exposed during product manufacture.

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Biological Limit Values: As per the "National Model Regulations for the Control of Workplace Hazardous Substances (Safe Work Australia)" the ingredients in this material do not have a Biological Limit Allocated.

Engineering measures: Ensure ventilation is adequate to maintain air concentrations below Exposure Standards. Natural ventilation should be adequate under normal use conditions. Keep containers closed when not in use.

Personal protection equipment: OVERALLS, SAFETY SHOES, SAFETY GLASSES, GLOVES.

When handling individual retail packs no personal protection equipment is required. Wear standard safety equipment - overalls and safety shoes. Available information suggests that gloves made from nitrile rubber should be suitable for intermittent contact. However, due to variations in glove construction and local conditions, the user should make a final assessment. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using. If risk of inhalation of exists, wear organic vapour/particulate respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

Hygiene measures: Keep away from food, drink and animal feeding stuffs. When using do not eat, drink or smoke. Wash hands prior to eating, drinking or smoking. Avoid contact with clothing. Avoid eye contact and repeated or prolonged skin contact. Ensure that eyewash stations and safety showers are close to the workstation location.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form / Colour / Odour: Clear yellow/amber liquid with mild characteristic odour

Solubility:	Insoluble in water
Specific Gravity (15 °C):	0.88
Relative Vapour Density (air=1):	>1
Vapour Pressure (20 °C):	N Av
Flash Point (°C):	>170
Flammability Limits (%):	N Av
Autoignition Temperature (°C):	N Av
Melting Point/Range (°C):	N Av
Boiling Point/Range (°C):	>200
pH:	N App
Viscosity:	N Av
Total VOC (g/Litre):	N Av

(Typical values only - consult specification sheet)
N Av = Not available N App = Not applicable

10. STABILITY AND REACTIVITY

Reactivity: No reactivity hazards are known for the material.

Chemical stability: This material is thermally stable when stored and used as directed.

Hazardous reactions: No known hazardous reactions.

Conditions to avoid: Elevated temperatures and sources of ignition.

Incompatible materials: Oxidising agents.

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Hazardous decomposition products: Oxides of carbon and nitrogen, smoke and other toxic fumes.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Acute Effects

Inhalation: Material may be an irritant to mucous membranes and respiratory tract.

Skin contact: Contact with skin may result in irritation.

Ingestion: Swallowing can result in nausea, vomiting and irritation of the gastrointestinal tract.

Eye contact: May be an eye irritant.

Acute toxicity

Inhalation: This material has been classified as non-hazardous. Acute toxicity estimate (based on ingredients): >5 mg/L

Skin contact: This material has been classified as non-hazardous. Acute toxicity estimate (based on ingredients): > 2,000 mg/kg

Ingestion: This material has been classified as non-hazardous. Acute toxicity estimate (based on ingredients): > 2,000 mg/kg

Corrosion/Irritancy: Eye: this material has been classified as not corrosive or irritating to eyes. Skin: this material has been classified as not corrosive or irritating to skin.

Sensitisation: Inhalation: this material has been classified as not a respiratory sensitiser. Skin: this material has been classified as not a respiratory sensitiser.

Aspiration hazard: This material has been classified as non-hazardous.

Specific target organ toxicity (single exposure): This material has been classified as non-hazardous.

Chronic Toxicity

Mutagenicity: This material has been classified as non-hazardous.

Carcinogenicity: This material has been classified as non-hazardous.

Reproductive toxicity (including via lactation): This material has been classified as non-hazardous.

Specific target organ toxicity (repeat exposure): This material has been classified as non-hazardous.

12. ECOLOGICAL INFORMATION

Avoid contaminating waterways.

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Acute aquatic hazard: This material has been classified as non-hazardous. Acute toxicity estimate (based on ingredients): >100 mg/L. Zinc dialkyl dithiophosphate is classified as toxic to the aquatic environment.

Long-term aquatic hazard:

This material has been classified as non-hazardous. Acute toxicity estimate (based on ingredients): >100 mg/L. Zinc dialkyl dithiophosphate may cause long-term adverse effects in the aquatic environment.

Ecotoxicity: No information available.

Persistence and degradability: Zinc dialkyl dithiophosphate is not readily biodegradable.

Bioaccumulative potential: No information available.

Mobility: No information available.

13. DISPOSAL CONSIDERATIONS

Persons conducting disposal, recycling or reclamation activities should ensure that appropriate personal protection equipment is used, see "Section 8. Exposure Controls and Personal Protection" of this SDS.

If possible material and its container should be recycled. If material or container cannot be recycled, dispose in accordance with local, regional, national and international Regulations.

14. TRANSPORT INFORMATION

ROAD AND RAIL TRANSPORT

Not classified as Dangerous Goods by the criteria of the "Australian Code for the Transport of Dangerous Goods by Road & Rail" and the "New Zealand NZS5433: Transport of Dangerous Goods on Land".

MARINE TRANSPORT

Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

AIR TRANSPORT

Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

15. REGULATORY INFORMATION

This material is not subject to the following international agreements:

Montreal Protocol (Ozone depleting substances)
The Stockholm Convention (Persistent Organic Pollutants)
The Rotterdam Convention (Prior Informed Consent)
Basel Convention (Hazardous Waste)

This material is subject to the following international agreements:

International Convention for the Prevention of Pollution from Ships (MARPOL)
• Annex I - Oil

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This material/constituent(s) is covered by the following requirements:

- The Standard for the *Uniform Scheduling of Medicines and Poisons (SUSMP)* established under the *Therapeutic Goods Act (Commonwealth)*.
- All the constituents of this material are listed on the *Australian Inventory of Chemical Substances (AICS)*.

HSNO Approval Number and/or Group Standard: Not Applicable

16. OTHER INFORMATION

Literary reference

This SDS has been prepared by Chemical Data Services Pty Ltd (www.chemdata.com.au) on behalf of its client.

Reason(s) For Issue: Amend Product Name

Safety Data Sheets are updated frequently. Please ensure that you have a current copy.

This SDS summarises at the date of issue our best knowledge of the health and safety hazard information of the product, and in particular how to safely handle and use the product in the workplace. Since Valvoline (Australia) Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, review this SDS in the context of how the user intends to handle and use the product in the workplace.

If clarification or further information is needed to ensure that an appropriate assessment can be made, the user should contact this company.

Our responsibility for product as sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available upon request.