

NL140529_B01 [Revision C]

11th August 2015

Level 1, 215 Pacific Highway Charlestown NSW 2290

PO Box 180 Charlestown NSW 2290

T (02) 4943 1777 F (02) 4943 1577

E newcastle@northrop.com.au

RPS Australia Asia Pacific Pty Ltd

Mr Robert Dwyer
241 Denison Street
Broadmeadow NSW 2292

Dear Robert,

Re: Box Hill North Local Water Centre – Concept Stormwater Management Strategy

Northrop Consulting Engineers have been engaged by RPS Australia Asia Pacific Pty Ltd to provide the concept stormwater management strategy for the proposed Box Hill North Local Water Centre (LWC), to be utilised for the Box Hill North Residential Precinct.

This letter should be read in conjunction with the attached Concept Plans NL140529/CSK1-CSK2.

Site Appreciation

The Box Hill North LWC is to be located on a portion Lot 10 DP 593517, herein known as “the site”. It is anticipated the lot will be subdivided in the future to accommodate the LWC in a separate allotment. Furthermore, it is understood that general filling of the lot will be undertaken as part of the subdivision works, including filling in of the existing farm dam to the north of the site. Refer to J. Wyndham Prince subdivision plans for lot regrading details. We also understand Red Gables Road will be upgraded with kerb and gutter capable of conveying the 1% AEP peak flow from the upstream catchment.

The proposed allotments will be 1ha and, at full capacity, will have the following features;

- The LWC buildings occupies an area of approximately 1400m²;
- The external hardstand occupies an area of approximately 2000m²;
- The external plant and equipment (e.g., tanks) occupies an area of approximately 1800m²;
- Significant areas for soft landscaping have been provided in and around the facility; and
- The site is proposed to have permanent vehicle access from the existing Red Gables Road.

A schematic of the site is shown overleaf in Figure 1.

Prepared	AK	11/08/2015
Reviewed	AB	11/08/2015



It is noted that whilst the site does not conform to the land use associated with the residential zoning, the runoff regime from the proposed site is considered to be less than that produced from an equivalent residential development. Table 1 below depicts a comparison of the pervious and impervious development percentages.

	Impervious Area	Pervious Area
Residential Zoning	80%	20%
Water Recycling Plant	55%	45%

As seen above in Table 1, the proposed development is compliant with, albeit much lower than, the anticipated runoff regime of the residential zoning which is the basis of the regional stormwater management modelling/design.

As part of the Stormwater Management investigation, a Concept Sediment and Erosion Control Plan, attached drawing NL140529/CSK1, has been compiled in accordance with Landcom Managing Urban Stormwater – Soils and Construction (the Blue Book). A range of control measures to eliminate, limit or mitigate impacts from construction activities have been proposed. Some of these control measures include:

- Implementation of a mulch bund up slope of the proposed disturbance areas;
- Coir logs within the proposed drainage channel;
- Sediment fences downslope of all disturbed areas and material stockpile areas;
- Re-vegetation of disturbed areas post construction.

The proposed stormwater management strategy for the Box Hill North land release area, outlined in the *“Box Hill North Precinct Water Cycle & Flood Management Strategy Report”* (compiled by J. Wyndham Prince), incorporates a regional stormwater management system comprising water quantity (detention) as well as water quality treatment. The proposed regional system provides quantity and quality treatment for all proposed upstream developed land areas, including the North Box Hill LWC site, through a range of measures including;

- These regional stormwater management measures are proposed to be adequately sized to treat the stormwater runoff for water quantity and quality. As such, no formal quantitative treatment should be required from the Box Hill North LWC site. We reiterate that the runoff expected from the Box Hill North LWC is considerably less than that assumed in the regional modelling for residential lands.

Furthermore, vehicle loading areas or areas where potential spillage could occur will be isolated and additional treatment measures will be employed. For example: the inclusion of physical bunds in hazard areas; the inclusion of spill containment and storage systems; as well as developing operational procedures to control handling and minimise the likelihood for spillage whilst also managing spill response. Such systems will be incorporated in to the detailed design to reflect the sites handling and operational procedures.

The proposed Concept Stormwater Management Strategy for the site has been prepared in line with the overarching stormwater management strategy for the Box Hill North Residential Precinct and industry best practice.

I trust the above meets your requirements, however, if you would like to discuss further then please do not hesitate to contact the undersigned on 4943 1777.

Ann Holt

Aaron Knight
Civil Engineer
BE (Civil Hons 1)

[illegible]

SEDIMENT & EROSION CONTROL NOTES

- 1. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT ORDINANCES AND REGULATIONS; NOTE IN PARTICULAR THE REQUIREMENTS OF LANDCOMS MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION (THE 'BLUE BOOK').
- 2. 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'.
- 3. ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
- 4. INSTALL SEDIMENT FENCING AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT.
- 5. ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAYS WORK.
- 6. THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION. REFER ARCHITECT'S PLANS FOR TREES TO BE KEPT.
- 7. ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ONSITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
- 8. STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
- 9. CONSTRUCT 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).
- 10. ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
- 11. PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
- 12. 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.
- 13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION & SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS & SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ ALL MAINTENANCE, CLEANING & 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.

PROVIDE STABILISED SITE ACCESS FROM RED GABLES ROAD. REFER TO SEDIMENT & EROSION CONTROL NOTES.

PROVIDE SEDIMENT EROSION CONTROL FENCE

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER
A	ISSUED FOR APPROVAL	AK	AB	AK	21.01	RPS	PERMEATE PARTNERS	BOX HILL NORTH LOCAL WATER CENTRE BOX HILL NSW 2765	CONCEPT SEDIMENT & EROSION CONTROL PLAN	NL140529
B	RE-ISSUED SITE LAYOUT AMENDED	AK	AB	AK	10.04					DRAWING NUMBER
C	RE-ISSUED SITE LAYOUT AMENDED	AK	AB	AK	11.08					REVISION
						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.			
									SCALE 1:500 @ A3	
									CSK1 C	
									DRAWING SHEET SIZE = A1	

REFER TO SUBDIVISION PLANS
PREPARED BY J.WYNDHAM
PRINCE FOR LOT REGRADING



CONNECT TO FUTURE STORMWATER
DRAINAGE FOR RED GABLES ROAD.
PROVIDE PIT AND PIT AS REQUIRED TO
CONNECT INTO EXISTING.

INTERIM SEWER
SERVICING TANKS
RL=38.20

PROVIDE SWALE TO CONVEY RUNOFF TO
LAWFUL POINT OF DISCHARGE.

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER	
A	ISSUED FOR APPROVAL	AK	AB	AK	21.01	RPS	PERMEATE PARTNERS  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 81 094 453 100	BOX HILL NORTH LOCAL WATER CENTRE BOX HILL NSW 2765	CONCEPT STORMWATER MANAGEMENT PLAN	NL140529	
B	RE-ISSUED_SITE LAYOUT AMENDED	AK	AB	AK	10.04					DRAWING NUMBER	REVISION
C	RE-ISSUED_SITE LAYOUT AMENDED	AK	AB	AK	11.08					CSK2	C
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.	SCALE 1:500 @ A3	DRAWING SHEET SIZE = A1			