<table>
<thead>
<tr>
<th>MAINTENANCE ACTION</th>
<th>FREQUENCY</th>
<th>RESPONSIBILITY</th>
<th>PROCEDURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check orifice diameter is correct and retains sharp edge.</td>
<td>Five yearly</td>
<td>Maintenance Contractor</td>
<td>Compare diameter to design (see Work-as-Executed) and ensure edge is not pitted or damaged.</td>
</tr>
<tr>
<td>Check screen for corrosion</td>
<td>Annually</td>
<td>Maintenance Contractor</td>
<td>Remove grate and screen and examine for rust or corrosion, especially at corners or welds.</td>
</tr>
<tr>
<td>Inspect overflow weir and remove any blockage</td>
<td>Six monthly</td>
<td>Maintenance Contractor/Owner</td>
<td>Ensure weir is free of blockage.</td>
</tr>
<tr>
<td>Inspect walls for cracks or spalling</td>
<td>Annually</td>
<td>Maintenance Contractor</td>
<td>Remove grate to inspect internal walls, repair as necessary.</td>
</tr>
<tr>
<td>Check step irons</td>
<td>Annually</td>
<td>Maintenance Contractor</td>
<td>Ensure fixings are secure and irons are free from corrosion.</td>
</tr>
</tbody>
</table>
7 EROSION & SEDIMENT CONTROL

An erosion and sediment control plan (ESCP) is shown on Early Works CC drawings Co12829.06-EWC20 and EWC25. These are conceptual plans only providing sufficient detail to clearly show that the works can proceed without undue pollution to receiving waters. A detailed plan will be prepared once consent is given and before works start.

7.1 General Conditions

1. The ESCP will be read in conjunction with the engineering plans, and any other plans or written instructions that may be issued in relation to development at the subject site.

2. Contractors will ensure that all soil and water management works are undertaken as instructed in this specification and constructed following the guidelines stated in Managing Urban Stormwater, Soils and Construction (1998) and BCC specifications.

3. All subcontractors will be informed of their responsibilities in minimising the potential for soil erosion and pollution to down slope areas.

7.2 Land Disturbance

1. Where practicable, the soil erosion hazard on the site will be kept as low as possible and as recommended in Table 7.1.

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Limitation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction areas</td>
<td>Limited to 5 (preferably 2) metres from the edge of any essential construction activity as shown on the engineering plans.</td>
<td>All site workers will clearly recognise these areas that, where appropriate, are identified with barrier fencing (upslope) and sediment fencing (downslope), or similar materials.</td>
</tr>
<tr>
<td>Access areas</td>
<td>Limited to a maximum width of 5 metres</td>
<td>The site manager will determine and mark the location of these zones onsite. They can vary in position so as to best conserve existing vegetation and protect downstream areas while being considerate of the needs of efficient works activities. All site workers will clearly recognise these boundaries.</td>
</tr>
<tr>
<td>Remaining lands</td>
<td>Entry prohibited except for essential management works</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.1 Limitations to access
7.3 Erosion Control Conditions

1. Clearly visible barrier fencing shall be installed as shown on the plan and elsewhere at the discretion of the site superintendent to ensure traffic control and prohibit unnecessary site disturbance. Vehicular access to the site shall be limited to only those essential for construction work and they shall enter the site only through the stabilised access points.

2. Soil materials will be replaced in the same order they are removed from the ground. It is particularly important that all subsoils are buried and topsoils remain on the surface at the completion of works.

3. Where practicable, schedule the construction program so that the time from starting land disturbance to stabilisation has a duration of less than six months.

4. Notwithstanding this, schedule works so that the duration from the conclusion of land shaping to completion of final stabilisation is less than 20 working days.

5. Land recently established with grass species will be watered regularly until an effective cover has properly established and plants are growing vigorously. Further application of seed might be necessary later in areas of inadequate vegetation establishment.

6. Where practical, foot and vehicular traffic will be kept away from all recently established areas.

7. Earth batters shall be constructed in accordance with the Geotechnical Engineers Report or with as low a gradient as practical but not steeper than:
   - 2H:1V where slope length is less than 7 meters
   - 2.5H:1V where slope length is between 7 and 10 meters
   - 3H:1V where slope length is between 10 and 12 meters
   - 4H:1V where slope length is between 12 and 18 meters
   - 5H:1V where slope length is between 18 and 27 meters
   - 6H:1V where slope length is greater than 27 meters

8. All earthworks, including waterways/drains/spillways and their outlets, will be constructed to be stable in at least the design storm event.

9. During windy weather, large, unprotected areas will be kept moist (not wet) by sprinkling with water to keep dust under control. In the event water is not available in sufficient quantities, soil binders and/or dust retardants will be used or the surface will be left in a cloddy state that resists removal by wind.

7.4 Pollution Control Conditions

1. Stockpiles will not be located within 5 meters of hazard areas, including likely areas of high velocity flows such as waterways, paved areas and driveways.

2. Sediment fences will:
   a) Be installed where shown on the drawings, and elsewhere at the discretion of the site superintendent to contain the coarser sediment fraction (including aggregated fines) as near as possible to their source.
b) Have a catchment area not exceeding 720 square meters, a storage depth (including both settling and settled zones) of at least 0.6 meters, and internal dimensions that provide maximum surface area for settling, and
c) Provide a return of 1 meter upslope at intervals along the fence where catchment area exceeds 720 square meters, to limit discharge reaching each section to 10 litres/second in a maximum 20 year t_c discharge.

3. Sediment removed from any trapping device will be disposed in locations where further erosion and consequent pollution to down slope lands and waterways will not occur.

4. Water will be prevented from directly entering the permanent drainage system unless it is relatively sediment free (i.e. the catchment area has been permanently landscaped and/or likely sediment has been treated in an approved device). Nevertheless, stormwater inlets will be protected.

5. Temporary soil and water management structures will be removed only after the lands they are protecting are stabilised.

7.5 Waste Management Conditions
Acceptable bind will be provided for any concrete and mortar slurries, paints, acid washings, lightweight waste materials and litter. Clearance service will be provided at least weekly.

7.6 Site Inspection and Maintenance
1. A self-auditing program will be established based on a Check Sheet. A site inspection using the Check Sheet will be made by the site manager:
   - At least weekly.
   - Immediately before site closure.
   - Immediately following rainfall events in excess of 5mm in any 24-hour period.

   The self-audit will include:
   - Recording the condition of every sediment control device
   - Recording maintenance requirements (if any) for each sediment control device
   - Recording the volumes of sediment removed from sediment retention systems, where applicable
   - Recording the site where sediment is disposed
   - Forwarding a signed duplicate of the completed Check Sheet to the project manager/developer for their information

2. In addition, a suitably qualified person will be required to oversee the installation and maintenance of all soil and water management works on the site. The person shall be required to provide a short monthly written report. The responsible person will ensure that:
The plan is being implemented correctly
- Repairs are undertaken as required
- Essential modifications are made to the plan if and when necessary

The report shall carry a certificate that works have been carried out in accordance with the plan.

3. Waste bins will be emptied as necessary. Disposal of waste will be in a manner approved by the Site Superintendent.

4. Proper drainage will be maintained. To this end drains (including inlet and outlet works) will be checked to ensure that they are operating as intended, especially that,
- No low points exist that can overtop in a large storm event
- Areas of erosion are repaired (e.g. lined with a suitable material) and/or velocity of flow is reduced appropriately through construction of small check dams of installing additional diversion upslope.
- Blockages are cleared (these might occur because of sediment pollution, sand/soil/spoil being deposited in or too close to them, breached by vehicle wheels, etc.).

5. Sand/soil/spoil materials placed closer than 2 meters from hazard areas will be removed. Such hazard areas include and areas of high velocity water flows (e.g. waterways and gutters), paved areas and driveways.

6. Recently stabilised lands will be checked to ensure that erosion hazard has been effectively reduced. Any repairs will be initiated as appropriate.

7. Excessive vegetation growth will be controlled through mowing or slashing.

8. All sediment detention systems will be kept in good, working condition. In particular, attention will be given to:
   a) Recent works to ensure they have not resulted in diversion of sediment laden water away from them
   b) Degradable products to ensure they are replaced as required, and
   c) Sediment removal, to ensure the design capacity or less remains in the settling zone.

9. Any pollutants removed from sediment basins or litter traps will be disposed of in areas where further pollution to down slope lands and waterways should not occur.

10. Additional erosion and/or sediment control works will be constructed as necessary to ensure the desired protection is given to down slope lands and waterways, i.e. make ongoing changes to the plan where it proves inadequate in practice or is subjected to changes in conditions at the work site or elsewhere in the catchment.

11. Erosion and sediment control measures will be maintained in a functioning condition until all earthwork activities are completed and the site stabilised.

12. Litter, debris and sediment will be removed from the gross pollutant traps and trash racks as required.
CONCLUSION

This Civil Engineering Report has been prepared in support of the State Significant Development Application associated with the proposed Industrial Masterplan on the land at Lot 23 and Lot 24 DP 262886, Hollinsworth Road, Marsden Park, NSW.

A civil engineering strategy for the site has been developed which provides a best practice solution within the constraints of the existing landform and proposed subdivision layout. Within this design a stormwater quantity management strategy has been developed to reduce peak flows leaving this site to remain consistent with the existing flows, for the interim period prior to the completion of the regional systems within the Sydney Business Park.

The proposed building development considers the infrastructure and site servicing designs completed and submitted as part of separate development approvals to Blacktown City Council including earthworks, the widening and upgrade of Hollinsworth Road and the extension of Hollinsworth Road. A Sediment and Erosion Control Plan will also be in place to ensure the downstream drainage system and receiving waters are protected from sediment laden runoff.

The detail contained in this report provides sufficient information to demonstrate to the consent authority that the proposed buildings can be constructed with appropriate engineering and stormwater management measures integrated into the building layout and designs.
9 REFERENCES

- Part J, Development Control Plan (2015), Blacktown City Council
- Engineering Guide for Development (2005), Blacktown City Council
- Water Sensitive Urban Design – Technical Guidelines for Western Sydney (May 2004), URS Australia Pty Ltd
Appendix A

DRAWINGS BY COSTIN ROE CONSULTING