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Our Ref: 07P750

Date 6th October 2009

Bovis Lend Lease
30 The Bond, 30 Hickson Road
Millers Point, NSW, 2000

*Attention:* *Mr Grant Eckett*

**RE: 7 PARKVIEW DRIVE STORMWATER MANAGEMENT, SYDNEY OLYMPIC PARK**

Hughes Trueman has prepared this report to document the concept design of a stormwater drainage system for the 7 Parkview Drive development at Sydney Olympic Park.

The aims of this report are listed as follows:

- Assess the total catchment of the subject site and determine the magnitude of both piped and surface flows directed through the site; and
- Assess the size of the existing outlet to cater for the 100yr ARI storm event for the proposed development and determine if any OSD is required should the existing outlet be undersized.

Our analysis is based on the following:

- Aerial imagery from the department of lands website;
- 1:25,000 topographic map;
- Site inspection;
- Detailed site survey plan 071435-DETL-001G supplied by Lawrence Group Surveyors & Development Consultants

The following documentation has been supplied for assessment:

- Concept catchment plan of the proposed development;

Discussion of the development and results performed within DRAINS are included below.

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### Council Requirements

All drainage works to be carried out within the project are subject to Auburn Council standards.

The stormwater design is to be in accordance with Council's Development Control Plan.

Council standards required within the design include the 20year ARI for the minor system.

To address the above mentioned requirements, we have prepared detailed hydraulic calculations (within DRAINS) which are discussed in the following sections.

### Model Development

A hydraulic model was created within the DRAINS software to represent the proposed scenario. In accordance with Auburn Council guidelines, 20 year and 100 year ARI design storms were applied to the models to give estimates of the 20 year and 100 year ARI discharges and the drainage systems capacity. The models were designed to accommodate the 20 year storm event within the piped network and that the 100year event achieved suitable overland flow paths, satisfying Council's / SOPA's requirements.

### Existing

The site for the proposed development at 7 Parkview Drive, Sydney Olympic Park (SOP) is owned by the GPT Group (GPT) who has been a major stakeholder at SOP since 2001. GPT intend to redevelop and integrate the site into a broader Masterplan currently under development by Sydney Olympic Park Authority (SOPA).

The site comprises of lots 87 and 88 DP 870992. The site covers an area of approximately 3.7 Ha. Surrounding the site are adjacent lot 812 DP 1012563 and lot 70 DP 818981. The site is bounded by:

- Existing brick pit to the north west;
- Bennelong Road to the east; and
- Existing commercial developments to the south and west of the development site.

The site is currently occupied by Samsung. The site contains two existing buildings; a metal warehouse and a two storey office building. A car parking area is located to the east of the two storey office building. It is currently utilised to support the warehouse and office building operations. The remaining area consists of open space, paved areas and landscaped areas.

The existing topography of the site falls towards the east from the Samsung buildings. At the eastern boundary the land falls away steeply to Bennelong Road. The site is retained by a substantial gabion retaining structure. The site drains to the south east parallel to the eastern boundary of Bennelong Road. Here a headwall is located consisting of two 450mm x 1800mm culverts that run under Bennelong road to discharge into Bennelong Creek.

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## Proposed

The proposed concept design is to ensure that the development is drained to council's and SOPA's standards, with each building having a connection point to the proposed drainage system. The proposed development will require a number of new pit and pipe networks to connect to the existing headwall / culvert adjacent to Bennelong road. This culvert then directs the majority of flows from the upstream catchment to the outlet to eventually discharge into Bennelong Creek.

As flows in Bennelong Creek are tidal in nature, the assessment of the provision for OSD has not been determined from a pre-post comparison as indicated in Auburn Councils Development Control Plan. Here flows from the proposed site have been assessed to determine if the existing outlet has capacity to cater for flows up to the 100yr ARI storm event as recommended by Sydney Olympic Park Authority.

A concept DRAINS model was developed to incorporate the overall proposed development works.

A network of nodes was set up to represent the proposed scenario. Nodes and pipes were used to collect and carry surface water, catchments introduced to represent pervious areas, impervious areas and overland flow paths.

A concept DRAINS model plan is included in Appendix A.

A catchment plan is included in Appendix B.

## Results

The results from the concept hydraulic DRAINS modelling indicate the following:

- An onsite stormwater detention structure is not required.
- The existing headwall / culvert configuration adjacent to Bennelong Road has capacity to cater for the 100yr ARI storm event for the proposed development
- The velocity of stormwater flow exiting the culvert into Bennelong Creek is 1.6m/s which is below the scour.
- The construction of new trunk stormwater mains, similar to those shown in the attached concept catchment plan will be required to direct stormwater flows to the existing headwall / culvert.
- The provision of drainage easements for each building within the subject site will be required.
- Ensure adequate freeboard is met with existing and proposed floor levels in accordance with Council requirements.

Yours faithfully

HUGHES TRUEMAN
JAMES GILLIGAN
Civil Engineer

HUGHES TRUEMAN
CHRIS AVIS
Associate Director

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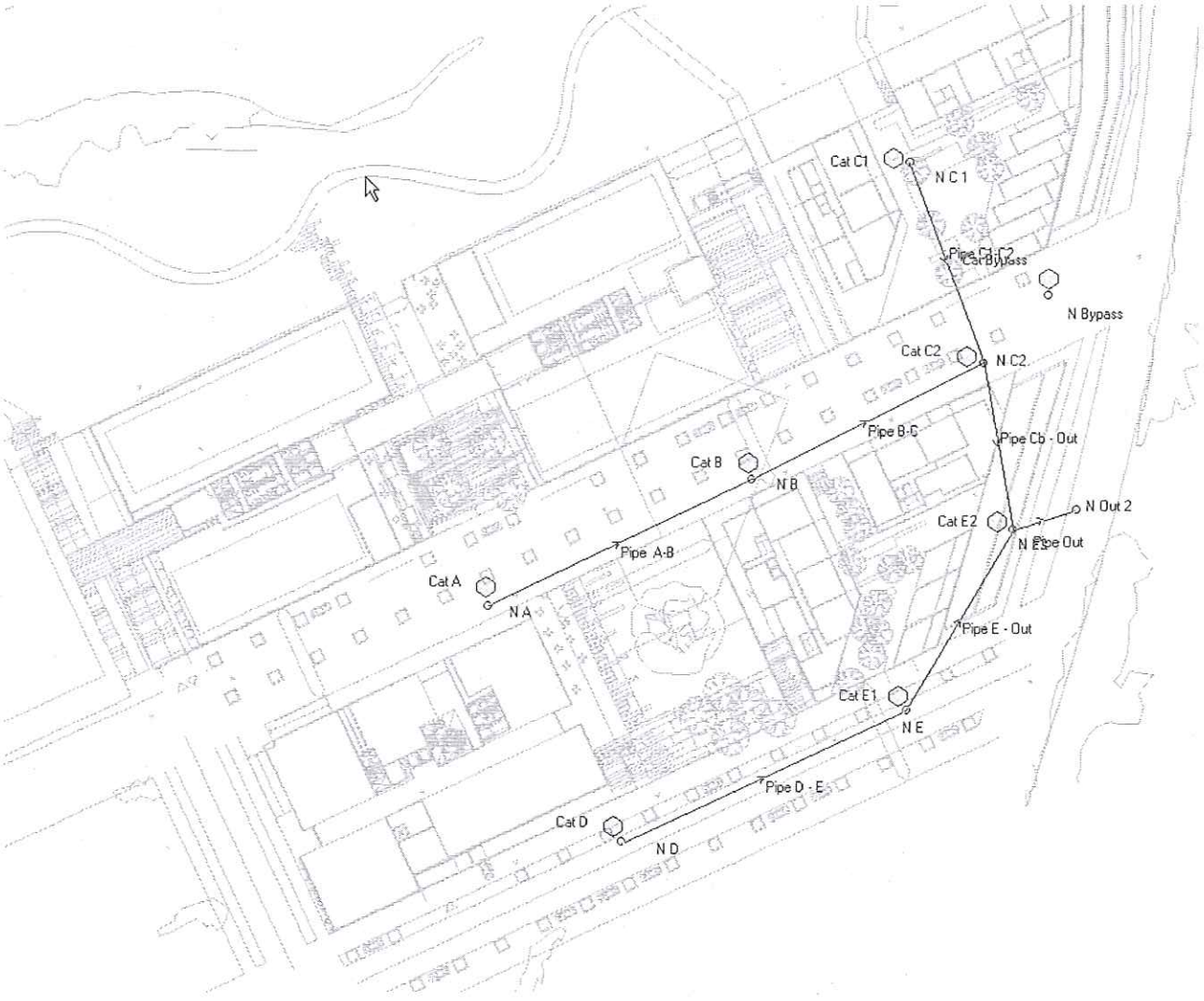
## APPENDIX A – DRAINS



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## APPENDIX B – CATCHMENT PLAN


FOR INFORMATION

| Rev | Amendment / Reason For Issue | Date | Drawing Completed by | Designed & Checked by | Verified by X = Not verified | Issue Authorised (*) |
|---|---|---|---|---|---|---|
| A | FOR INFORMATION | 02/10/09 | JG | JG | | |



* Drawing Status Warning: Unless there is an authorised Hughes Trueman signature at *, this drawing is not authorised for issue.

This Drawing may have been prepared using COLOUR, and may be incomplete if copied to BLACK & WHITE

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Plan Scale 1:500 @ A1

North

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Project: 7 PARKVIEW DRIVE
Client: GPT
Architect/Project Manager: BOVIS LEND LEASE

Drawing Title: CONCEPT STORMWATER CATCHMENT PLAN
Drawing No.: 07P750 - SK01
Sheet: 1 Of 1
Rev: A

A1 SHEET 300mm 200mm 100mm

Date : 06-10-09 Time : 9:15am Plotted By : jgilligan Filename : P:\Parramatta\2007\07p750\Dwgs\Civ\Sketches\07P750 - SK01.dwg