Sydney WATER

24 August 2012

Ms Amy Watson
Senior Planner, Metropolitan and Regional Project South
NSW Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Ms. Watson,

Re: MP 10_0155 Redevelopment of Former Allied Mills Site, 2-32 Smith Street, Summer Hill

I refer to recent meetings and discussions regarding the above Masterplan.

The redevelopment site is subject to local flooding which is likely to present a significant hazard to future residents and the local community, including users of the future light rail. A plan to address this flood risk is yet to be developed and there no agreement nor commitment on implementation.

Subsequent to our meeting of the 16th August 2012, Sydney Water has commissioned and received modelling of the flood extents and risks for 1:5 ARI event. Maps summarising model outputs are enclosed to inform Department of Planning and Infrastructure's determination of the Masterplan given that no party is able to commit undertaking flood mitigation works to reduce flood risk at the development site.

In view of the above, Sydney Water recommends any Masterplan approval be conditional upon the development and implementation of an appropriate Floodplain Risk Management Study & Plan (FRMS&P) for the local catchment which includes, but is not limited to:

- 'non-structural' elements including locating public areas and access points to minimise exposure to high risk areas, flood warning signs and emergency response plans;
- 'structural' elements in the design of the development including floor level controls and fencing; and
- 'flood mitigation works' that eliminate high hazard flood conditions in the 100 year Annual Recurrence Interval (ARI) design event for 'active' areas of the development site and limit 100 year ARI high hazard flood conditions generally to the northern portion of the site,

The FRMS&P is to be approved by Sydney Water, Transport for NSW (TfNSW),and the local councils. The owner of any other land affected by proposed flood mitigation works must also be consulted. The FRMP should identify the necessary sequencing of flood mitigation works with development to ensure unacceptable levels of risk to people and property are addressed within the same timeframe as each stage of the development..

Sydney Water confirms its offer to manage the development of the FRMS&P with the developer, with funding on an equal basis shared by (Sydney Water and the: developer), and involving other key stakeholders including TfNSW and the local Councils. A proposal and timeline to prepare the FRMS&P is attached.

If however the developer wishes to manage preparation of the FRMP and consultation process directly, Sydney Water confirms its prior offer to make our catchment model available to the developer for this purpose.

Please feel free to contact me directly on 8849 4001 should you require any further information.

Yours sincerely

Matthew Lewis
A/Manager - Stormwater

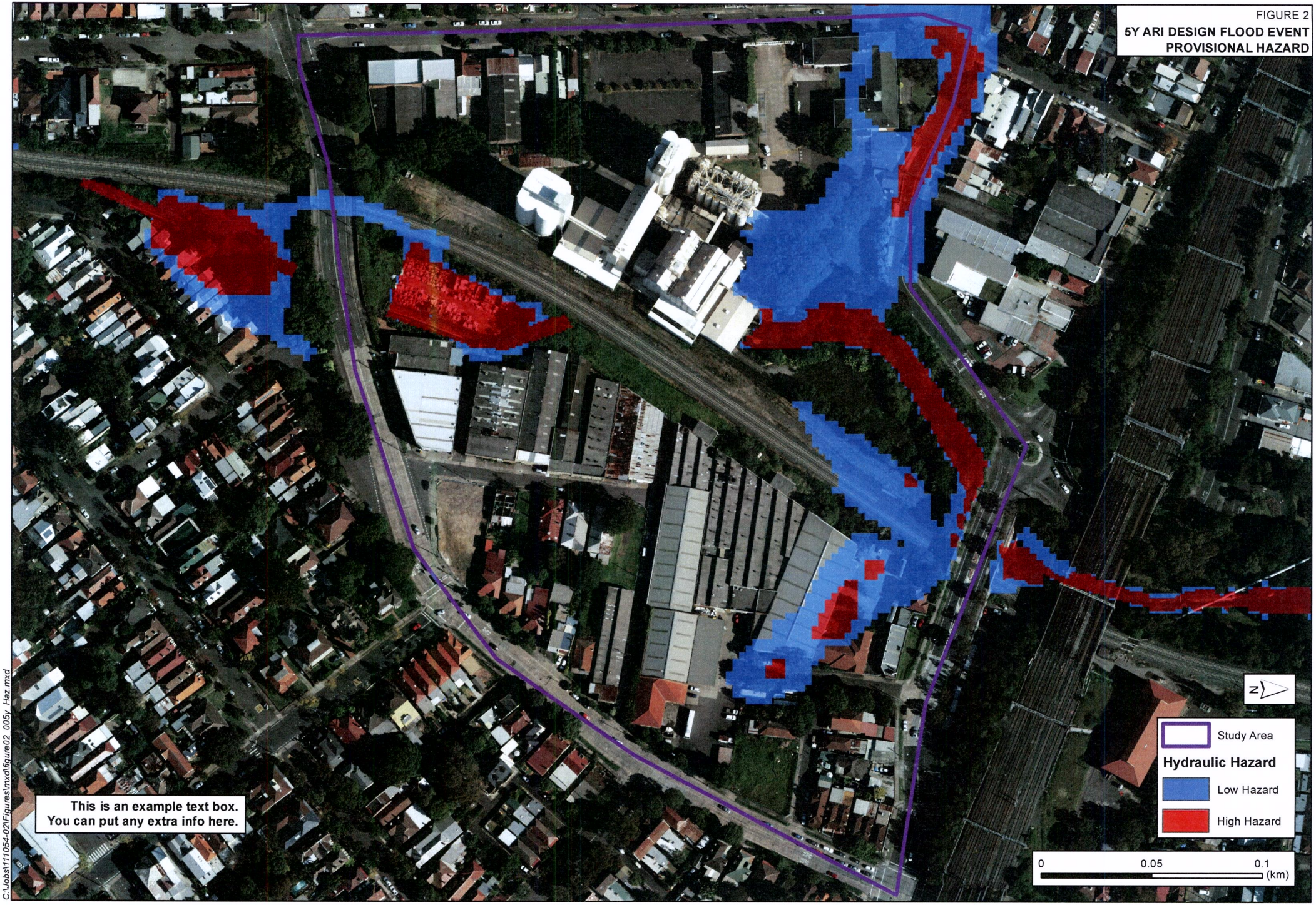
FIGURE 2
5Y ARI DESIGN FLOOD EVENT
PROVISIONAL HAZARD
This is an example text box.
You can put any extra info here.
Study Area
Hydraulic Hazard
Low Hazard
High Hazard
N
0
0.05
0.1
(km)
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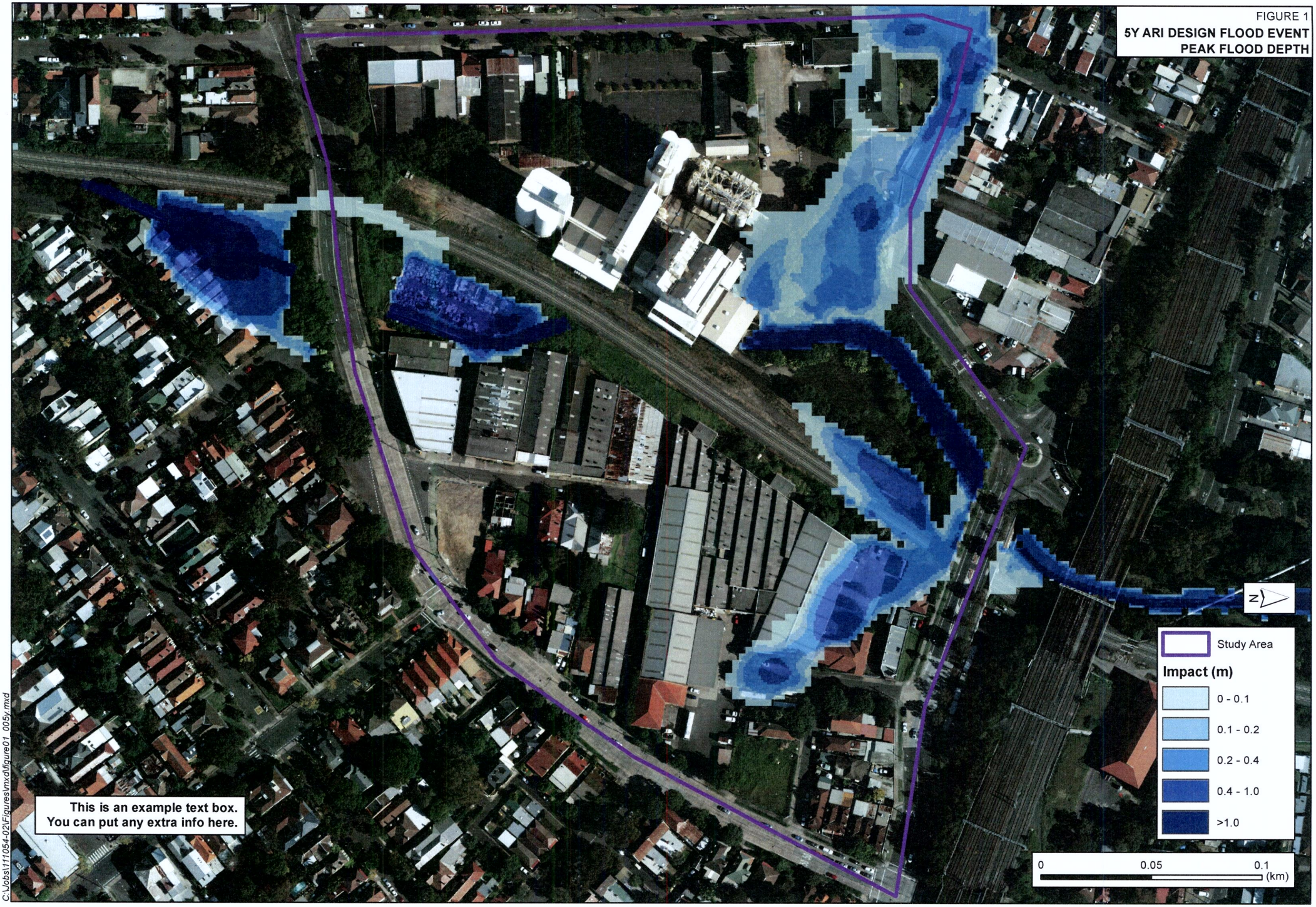
FIGURE 1
5Y ARI DESIGN FLOOD EVENT
PEAK FLOOD DEPTH
N
Study Area
Impact (m)
0 - 0.1
0.1 - 0.2
0.2 - 0.4
0.4 - 1.0
>1.0
0
0.05
0.1
(km)
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SYDNEY WATER CORPORATION
PO Box 399
PARRAMATTA NSW 2124

111054-02

20 August 2012

Attention: Matthew Lewis

Dear Matthew,

Re: Allied Mills Re-development Site – Hawthorne Canal Catchment

Thank you for meeting with us on August 16th 2012 and requesting a quotation in regard to the above referenced project.

Development to occur at the Allied Mills site and surrounds (see Figure 1 for study area) is complicated by existing 1% AEP flood behaviour, as defined by the ongoing Hawthorne Canal Flood Study. The study area includes the area between Old Canterbury Road (southern boundary), Edward Street (eastern boundary), Longport Street (northern boundary) and Smith Street (western boundary). Figure 2 shows the 1% AEP flood extent for the study area. Figure 3 shows Provisional Hazard for the site.

With the flood liability of the site comes flood risk. Given the development will bring more people to the area, it is necessary to investigate how the flood risk can best be managed. Under the NSW Floodplain Risk Management Program (FRMP) management of flood risk is carried out via a Floodplain Risk Management Study and Plan (FRMS&P). The FRMS&P defines existing flood risk (typically based on work carried out in a precursor Flood Study), examines how development may impact on flood risk in the future, provides a process whereby mitigation works can be suggested for testing via hydraulic model and then assessed against a range of criteria. Following assessment of a range of options the study then produces a Plan. The Plan explicitly lays out how flood risk is to be managed and may include recommendations for structural and non-structural options, maintenance and emergency management planning and response.

A FRMS&P is proposed for the Allied Mills site. The study will focus on how the flood risk at the site can be managed and will initially assess a range of structural options to reduce flood liability.

Figure 1 – The Study Area

WMAwater

WMAwater Pty Ltd (formerly known as Webb McKeown and Associates) are an engineering consultancy firm specialising in hydrology and hydraulics. WMAwater have successfully carried out dozens of projects under the NSW Floodplain Risk Management Program and also carry out substantial work for private developers and Councils.

Steve Gray will be the Project Manager for the proposed work. Steve has more than fifteen years experience in consultancy dealing with flooding. He has worked on numerous flood and flood risk management studies as well as various flood impact assessments and model review studies. Steve has a Masters degree in 2D hydraulic model application in urban catchments and can be a considered an expert in the field. Steve's CV is attached. Peter Stensmyr has been with WMAwater for three years. Peter has extensive experience in hydrological and hydraulic modelling and will carry out technical activities under Steve's supervision. CV's for both staff are attached.

WMAwater are well familiar with the proposed study area as we are currently in the process of producing a calibration modelling report for the Hawthorne Canal Catchment. Further, currently and in the past, WMAwater have successfully carried out work on behalf of Sydney Water Corporation. Examples of work undertaken include:

- Astrolabe Park Flood Study and Mitigation Works – Botany;
- Hawthorne Canal Flood Study (ongoing); and
- Dobroyd Canal Flood Study (ongoing).

SCOPE OF WORK

The focus of the work is limited to the study area defined in Figure 1. In assessing potential mitigation works and impacts however it will be necessary to examine how upstream and downstream areas are effected, if at all, by mitigation work proposals.

The following tasks will be completed:

- Describe the existing flood regime via reporting and figures. This will include running the 5, 20 and 100Y ARI events as well as the PMF. A3 figures zoomed into the study area will be made describing:
    - Flood extent;
    - Flood depths;
    - Flood contours the study area in, with 0.5 m increments;
    - Provisional Hydraulic Hazard; and
    - Hydraulic Categories (i.e. floodway, flood fringe and flood storage).
- Using layers defining planned development, the interaction of the development with flood waters would be assessed including flood impact assessment;
- Run a workshop and present information on the existing flood liability. Further the workshop will examine:
    - The range of flooding at the site (difference between flood levels resulting from small floods relative to large floods) and safety implications associated with this;
    - How the planned development integrates with current flood liability;
    - Opportunities to mitigate the existing flood liability including structural works to lessen flooding affectation; and
    - Opportunities to adjust the development to better integrate with flood liability.
- Provide feedback to stakeholders on the costs and benefits associated with the various flood mitigation proposals (structural and non-structural). Note the cost/benefit assessment will include factors such as impact on flood liability (based on level, extent and hazard metrics) as well as financial, social and environmental cost;
- Run a second workshop where the benefits and costs of scenarios developed as part of Workshop #1 are discussed. It is hoped this discussion would produce a refined list of options to assess; and finally
- Produce a draft report that includes a Plan as per the FRMS&P process. The plan would detail the actions required (including recurring items such as maintenance) in order to have development progress whilst simultaneously managing flood risk. Following feedback from the stakeholder group the draft report would be amended and presented as a final report.

DATA REQUIRED

Given our work on the Hawthorne Canal Flood Study WMAwater have most data pertinent to the site. We would require digital layers describing the planned development in order to graphically present the interaction of flood liability with the development, and also for the purpose of assessing the impact of the proposed development on flood behaviour.

DELIVERABLES

The work will deliver the following:

- Mapping in A3 colour showing flood affectation at the site for the 5,20 and 100Y ARI events as well as the PMF. This will include flood depths, flood extents and contours of flood levels in 0.5 m increments;
- Two workshops. Each workshop shall present graphics indicating flood behaviour and flood risk and discuss means by which the risk might be managed. A key feature will be the investigation of drainage upgrade works which may reduce the flood liability of the site and the presentation of how planned development integrates which current levels of flood liability;
- A Plan for the future management of flood risk at the site. The plan will incorporate the planned development and make specific recommendations in regards to works or development layout that will reduce flood risk. Importantly the Plan will also define flood risk given developed conditions; and finally
- A report will be provided that will document the work undertaken in the process to establish the Plan.

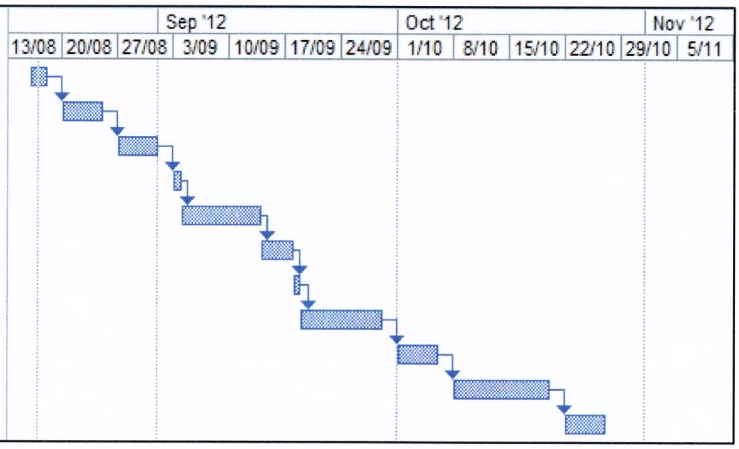
TIMETABLE

Presented below is a proposed timetable for the work. Total estimated time is ~ 10 weeks

Key elements of the timetable are two stakeholder workshops planned for September. The workshops will provide an opportunity for stakeholders to observe the existing flood liability and how it integrates with proposed development as well as to explore how the flood liability can be mitigated.

Project Timetable

Task Name	Duration	Start
Verify model	2 days	Thu 16/08/12
Define existing flood behaviour	5 days	Mon 20/08/12
Produce maps and reporting	5 days	Mon 27/08/12
Workshop#1	1 day	Mon 3/09/12
Run mitigation scenarios	8 days	Tue 4/09/12
Produce maps etc	2 days	Fri 14/09/12
Workshop#2	1 day	Tue 18/09/12
Refine mitigation scenarios	8 days	Wed 19/09/12
Draft Report	5 days	Mon 1/10/12
Client Review	10 days	Mon 8/10/12
Finalise maps and reporting	5 days	Mon 22/10/12



BUDGET

The proposed budget for the works is $46,900 ex GST.

ITEMS		SG	PS	Eng.	sub-total
Define Existing Flood Risk	*Verify model*	2	4	8	$1,440
	Run 5,20,100 and PMF events	2	16		$2,220
	Map - extent, levels, hazard and hydraulic categories	2	8	8	$1,900
	Assess impact of planned development	8	16		$3,360
Workshop#1	*Prepare modelling for presentation*	8	24	8	$4,880
	Run Workshop	4	4		$1,220
Mitigation Modelling	*Schematise, run and assess scenarios*	16	60		$9,940
Workshop#2	*Prepare presentation*	8		8	$2,120
	Run Workshop	4	4		$1,220
Finalise Mitigation Modelling	*Schematise, run and assess scenarios*	8	60		$8,420
	Develop non-structural solutions to manage risk	16	4		$3,500
Mapping and Reporting	*Draft*	16	4	16	$4,700
	Final	4	8	4	$1,980
sub-total (ex GST)		98	212	52	**$46,900**

Invoicing would occur on a monthly basis based on work to date. Charge out rates for staff are as follows:

Steve Gray	Project Manager	$190/hour ex GST
Peter Stensmyr	Modeller	$115/hour ex GST
Engineer	Mapping/GIS work	$75/hour ex GST

The quotation is valid for a period of three months. Please do not hesitate to contact the undersigned on 9299 2855 or at gray@wmawater.com.au if you have any queries in regard to the work proposed.

Yours faithfully,
WMAwater

Stephen Gray
Associate


FIGURE 2
1% AEP DESIGN FLOOD EVENT
PEAK FLOOD DEPTH AND FLOOD LEVEL CONTOURS
Water Level Contours
Depth (m)
0 - 0.1
0.1 - 0.2
0.2 - 0.4
0.4 - 1.0
>1.0
0
50
100
200
m
Preliminary Results
For draft purposes only
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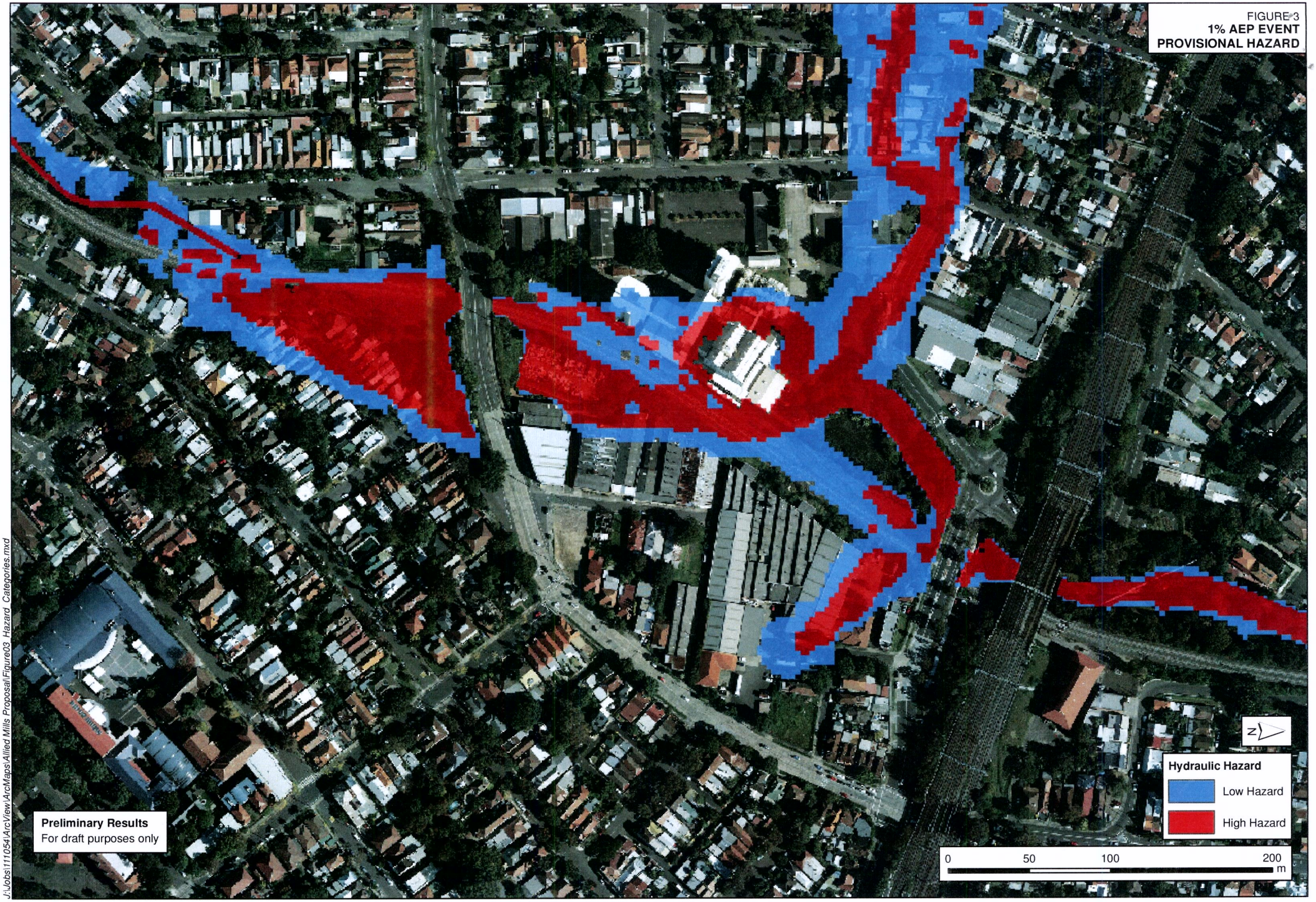
FIGURE 3
1% AEP EVENT
PROVISIONAL HAZARD
Hydraulic Hazard
Low Hazard
High Hazard
0
50
100
200
m
Preliminary Results
For draft purposes only
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