

FITTING FLOOD RISK MANAGEMENT INTO THE NEW NSW PLANNING ACT

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Introduction

When we wrote the abstract for this paper last year we were confident that the new Planning Act for NSW would have been settled and likely to commence in a matter of weeks following the conference. Well in hindsight that was presumptuous but we believe the issues to be discussed in the paper remain just as valid.

A principal objective of the new Planning Act is to undertake a comprehensive edit of the current Environmental Planning and Assessment Act, 1979 (**EPA Act**) and associated legislation. This is intended to improve its legibility and to simplify its use to encourage greater efficiencies. In particular, the Government sought to promote a system that increased the throughput of development approvals. Whether or not the new planning Act is implemented, the Government's agenda is to streamline the development approval system in NSW.

To achieve this, the planning system needs a stronger focus on upfront strategic planning that provides clear guidance on assessing development applications (**DAs**). This will maximise opportunities for 'tick-a-box' processing of DAs through the existing exempt and complying development systems¹ and the proposed code assessable system². While other planning issues such as bushfire hazard, treatment of riparian corridors, management of contaminated land, threatened species and heritage conservation have evolved and can now be efficiently assessed in DAs, floodplain risk management (**FRM**) is lagging well behind.

FRM practitioners and managers across the State need to lift our game. The present FRM system in NSW is divested in local councils who have typically developed sound flood controls which suit their own local conditions, but often without regard to the broader goals of consistency and efficiency which are part of the Government's agenda. Consequently the controls are sometimes complex and not well understood by many professionals including planners, and particularly those from outside the local area.

As a profession we need to embrace the benefits that consistency of approach will bring. If we don't standardise our approach to FRM we run the risk that the Government will do this and impose it upon us. As occurred with the introduction of the 2007 Planning Guideline³, it may be a step backwards.

Consequently in this paper we will identify the unnecessary inconsistencies of approach across the State and suggest ways to overcome these. We will also discuss ways to better integrate FRM into the planning system and will draw on a number of previous papers where we canvassed existing failings of the FRM system in NSW and identified improvements to overcome these. In referring to the failings of FRM we do

not suggest there has not been significant advancement over the last 20 years, indeed there has been. However the impending NSW Planning Act highlights the need for us to make further improvements.

Past Surveys of Planners and their understanding of FRM

In 2007 we presented a paper⁴ which documented a survey of 99 planners and examined the interaction of planners in NSW with FRM and concluded that planners had a poor understanding of the principles of FRM and worked within a planning framework indifferent to such principles. We suggested a number of remedies including guidelines to assist planners to better translate FRM strategies into strategic and statutory planning documents.

In 2013 we presented a further paper⁵ dealing with the interaction of the planning profession with the FRM system. This was based on a survey of 202 NSW and Queensland planners. In that paper we concluded that the majority of planners continued to have a poor understanding of relevant FRM policy and guidelines despite an acceptance that, together with engineers and other disciplines, planners are collectively responsible for FRM.

The 2013 paper concluded that less than 5% of planners understood how the flood standard is determined, being in our view a key indicator of an overall understanding of the FRM system. The 2007 survey found that only 12% of NSW planners then understood the flood standard was merit-based, (but this has since been complicated by the 2007 Planning Guideline⁶). A greater proportion of Queensland planners indicated that they had a more thorough understanding of FRM policies and principles and we proffered that could be because the Queensland FRM Policy was directly incorporated within planning policy which is not the case in NSW.

The thrust of these preceding papers was that while the FRM system advocates a focus on addressing flood risk through better strategic planning and development controls, there is inadequate, succinct and definitive guidance on how planners should address FRM issues. In our view, this is a major reason why planners do not understand FRM principles and why the planning system struggles with the application of FRM principles.

Where is the new Planning Act headed in relation to FRM?

The White Paper makes it clear that within the new Planning Act:

All planning and infrastructure requirements will be accessible in Local Plans, making the NSW system one of the most streamlined and efficient planning systems, supported by a positive planning culture.

Strategic planning will help to protect the environment and natural resources by identifying and resolving environmental issues and addressing them with the most appropriate level of protection.⁷

The refocus on upfront strategic planning providing for a greater throughput of 'tick-a-box' (as opposed to merit assessment) approvals will provide a challenge for FRM. The long lead times for the production of flood studies and floodplain risk management plans, and the difficulty to translate these plans into planning policies prepared under the EPA Act, are at the heart of these challenges.

Regardless of the new Act there is pressure within the planning system for a greater level of strategic planning that provides clarity as to what is acceptable development. There are various underlying objectives including:

- providing greater certainty to encourage development;
- allowing for codified processes to reduce complexity in obtaining consents;
- speeding up determination times; and
- removing the need for development consent where possible.

The importance of these objectives to the Government are exemplified by the discourse with the public, such as in brochures entitled “NSW Now – The State Business – Building a Better NSW Faster”⁸ which boasts that fast tracked development approvals were up 35% from last year and 25% of all determinations were fast tracked developments (up 9% from last year). The current FRM approach is an obstacle to achieving these objectives and is viewed as such by many senior planners and Government bureaucrats.

The new Planning Act could also provide the impetus to review the inter-relationship of the planning and FRM processes and provide much-needed guidance on matters such as:

- standardised FRM controls for typical development situations;
- the format of flood maps used for planning purposes;
- requirements for developments in shallow overland flowpaths (not associated with mainstream flooding) including freeboard and typical controls;
- guidelines on constantly debated issues such as:
 - the extent of flood level impacts that are acceptable;
 - how to address cumulative impacts;
 - appropriateness of different land uses in different flood hazard environments;
 - evacuation requirements for common types of developments;
 - flood immunity standards for driveways, garages, above ground and below ground carparks;
- standardised formats for releasing flood information to the public through S149(2) and S149(5) certificates, and/or separate flood certificates.

The White paper identified a proposal to prepare a State Planning Policy on all natural hazards including flooding.⁹ Such a Planning Policy can be of assistance in providing necessary guidance for planners and better integration of the FRM and planning systems (as observed in the case of Queensland) but should do more than simply refer to the NSW Flood Policy and Floodplain Development Manual as presently intimated.¹⁰

What does the FRM profession need to do fit in with the planning agenda?

Put simply, it is our view that the FRM process needs to be:

- **Faster** – the preparation of FRM Plans should be quicker. The current practice where such plans normally take 3-4 years has to be improved;
- **Clearer** – FRM issues can often be complex. Nevertheless the outcomes need to be presented in clearer and less complicated terms and usually mapping is the best vehicle. We need to prepare easily understood maps of flood risk for planners to use. The mapping should be in a consistent format and

should also identify the level of assessment required for development of certain types – i.e. complying or exempt; and

- **More Consistent** – we need a more consistent set of planning controls across the State that directly relates to mapped flood risks.¹¹ These controls would be prepared from the existing accepted principles and procedures for the assessment of development proposals having regard to the flood risk to people, property and the environment.

What this Paper Discusses

In order to make these improvements we believe the highest priority should be given to the following three actions and accordingly we have devoted the remainder of the paper to discussing these:

1. integration of NSW Flood Policy into the Environmental Planning Legislation;
2. standardisation of a flood risk planning approach across each statutory planning layer; and
3. mapping of flood risk areas.

The first topic is how FRM can integrate into each proposed layer of the statutory plans that are envisaged by the new Planning Act. At the broader '*Regional Growth Plan*' level, floodplain issues that straddle LGA boundaries could be addressed. At the more detailed level, the FRM provisions that many councils have developed within DCPs will need to be reviewed and transferred into future '*Local Plans*'. In each case the emphasis is on consistency of approach and streamlining of the current system.

The second topic picks up on the proposal to prepare a State Planning Policy to address natural hazards including flooding and the opportunity this provides to properly incorporate FRM into the planning system.

The third topic relates to the format and use of flood maps within planning instruments. This is a major problem in the current system and there is a long outstanding need to provide consistent, unambiguous mapping that robustly reflects the true flood risks which planners need to consider.

Fitting FRM into the new planning system – what needs to be done.

Integration of NSW Flood Policy into the Environmental Planning Legislation

The NSW Flood Prone Land Policy and Floodplain Development Manual are separate to the principal planning legislation in NSW, being that contained within the EPA Act and associated Regulations. While ultimately, the planning recommendations of a FRM Plan may be reflected in planning instruments and policies brought into force in accordance with the EPA Act, and the EPA Act and Regulation refer to flooding as an issue requiring consideration in some circumstances,¹² this legislation does not refer to the Flood Prone Land Policy or the Manuals. The only legislative reference to these key FRM policy documents that we are aware of relates to the indemnity provisions of Section 733 of the *Local Government Act, 2003*. In comparison matters such as “a register of critical habitat”, the “Contaminated land planning guidelines”, the “Planning for Bush Fire Protection” guidelines and the need to regularly review bush fire risk management plans and maps, are all referred to in the EPA Act¹³.

While there is common agreement that FRM is a relevant planning matter, the absence of reference to any government sanctioned FRM guideline or separate legislation within the EPA Act is a significant impediment. Possibly this is a hangover from the political controversies surrounding the State Government's involvement in flood mapping during the 1970s and 1980s, or more probably, the Floodplain Development Manual itself has not been written to provide the definitive guidance required by the planning process.

The Floodplain Development Manual provides guidance on how to study flood behaviour and frequency and to prepare a FRM Plan to address emergency management issues, evaluate structural mitigation options and to a lesser extent non-structural mitigation options such as planning. At best it can be said that the Manual suggests different high level but complex approaches for the purposes of strategic planning and development assessment, but the actual strategic planning direction and development controls need to be determined by each individual Council. These outcomes are then incorporated into a FRM Plan that require implementation under a separate parallel process under the EPA Act which is cumbersome, time consuming or leads to extended delays in implementation. As reported in our 2013 paper, less than half of NSW planners stated that they either understood the basics or were very conversant with the Manual whilst detailed questioning indicated that the actual figure would be less than 5%.¹⁴ It is evident to us that planners do not know how to properly implement FRM principles and the reason for this is likely to be a lack of definitive and consistent guidance.

Whatever the reason for the lack of conversion of FRM plans into effective planning outcomes – clearly the current system needs fixing.

The White Paper proposal to create a new NSW Planning Policy that incorporates flood hazards is a positive sign but will not on its own fix the problem. The Planning Policy should do more than simply refer to the NSW Flood Policy and Floodplain Development Manual as proposed. To provide an appropriate level of integration of FRM into the planning system our previous research, observations and experience has shown that the following key changes are required:

- guidelines need to be prepared that provide the definitive strategic planning direction and development assessment criteria required by planners; and, once prepared
- these guidelines need to be linked into the Planning Act.

We discuss the need for FRM guidelines for planning purposes further below.

The integration of FRM directly into the Planning Act is important because it provides the impetus for planners to understand FRM and the opportunity for FRM to become part of the planning process. This is contrasted to the current system where (hopefully) planners are informed by the outcome of a separate process (i.e. the FRM plan).

FRM is just one issue, amongst many, that needs to be considered as part of the planning process, but it should be similarly considered through procedures integrated within the new Planning Act – not separate to it.

Standardising the advice that FRM provides to planning

In 1984 the NSW Government transferred responsibility for the management of flood prone land to local councils. There were good reasons for this including the need to recognise that flood characteristics varied widely between different valleys of the State, and more importantly, that the outcomes of a merit-approach which considered social, economic, environmental and flood risk issues would likely be different in different

communities. This decision of the Government was accompanied by the State's Flood Prone Land Policy and the Floodplain Development Manual, the latter providing general guidance to councils but not a prescriptive code of practice.

The 1984 decision can be viewed as a decision away from standardisation in that it promotes variability in approach/outcomes, particularly in regard to the advice that FRM practitioners and managers provide to planners when considering new development. In our opinion, this is an inadvertent and unfortunate outcome of the 1984 decision. Further, the lack of specific direction from the State on many particular FRM issues¹⁵ has been a hindrance rather than a benefit to the promotion of sound risk management in the State. Furthermore it has led to the current concerns over unnecessary inconsistencies and inefficiencies in the FRM approach that have been documented earlier in the paper.

Collectively, the authors have drafted flood risk management controls for in excess of 30 NSW councils over the last two decades. Our experience has been overwhelmingly that it is possible to produce controls with a standard theme and format with substantially similar content for floodplains that have markedly different flood characteristics and markedly different community attitudes relating to FRM. The procedures which we have used to prepare the planning controls are documented in numerous technical papers and reports.^{4,5,16,17,18} These papers and reports also contain numerous examples of controls.

The reason that standardised controls can be prepared, consistent with the 'merit-approach' of the Manual, lies in the preparation of flood risk mapping that suits the local flood characteristics. Further the key FRM advice that is provided to planners is presented via a planning matrix that specifies for each type of potential land use, the controls that should apply in each area shown on maps of flood risk. These planning matrices have been prepared for areas of the State with wildly varying flood characteristics such as the Hawkesbury-Nepean, smaller creeks and river systems on the coast or in inland NSW, and shallow overland flowpaths in densely urbanised areas.

The purpose of describing the authors' experiences with the preparation of planning controls is to demonstrate the practicality of providing such controls across all areas of the state in a uniform format and yet consistent with the merit approach of the Manual. Whether we as an industry adopt this approach to planning controls or another is not our concern, rather we stress the imperative for the industry to adopt a standardised system.

Further it has been our experience that in most floodplains about three quarters of development proposals can be dealt with in a perfunctory and prescriptive manner. To this end, the preparation of standardised controls is well suited to application, either through DAs that require minimal assessment such as Code Assessable Development proposed under the new Planning Act, or via codes for the assessment of complying development.

One of the authors was engaged in 2010 to assist the then Department of Planning to review the FRM provisions that restricted consideration of development under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*. While not all the experiences of that commission can be shared, it was an expectation of the Department that, as a consequence of being involved in the preparing of FRM controls for many Councils, the consultant should be able to define standard triggers across NSW for where and when a development proposal would need specialist FRM considerations or could be dealt with as complying development subject to standard FRM standards. Comments from the Department lingering in the author's memory are to the effect... "What? *There are no standard development standards for floor levels*

for all land uses, flood compatible materials, procedures to determine external effects, structural soundness, evacuation, car parking... and there is no standard way of mapping flood risks that can be referenced for the purpose of triggering where complying development would be acceptable?"

Mapping of flood risk areas

Flood maps can be produced in different ways for a number of reasons. Detailed flood maps depicting key flood behavioural characteristics from a flood study provide an understanding of the extent and degree of hazard. The flood study information together with an analysis of population distribution, topography and road routes can provide a basis for maps depicting evacuation capability across the floodplain. Such information can assist in the formulation and evaluation of structural mitigation options, emergency management strategies and in the detail assessment of the acceptability of planning strategies and in some cases development and construction certificate applications (e.g. to assign floor levels, provide structural soundness specifications or to assess off-site impacts).

However, a flood map for statutory planning purposes that fits with the trend in planning administration and the intent of the new Planning Act unavoidably needs to be a different type of flood map.

A flood map that underpins the requirements of the new Planning Act needs to exhibit a number of characteristics for the purposes of the Act but at that same time must not be inconsistent with basic FRM principles: These characteristics are:

- focussing primarily on delivering advice to planners on site suitability having regard to the desired land use planning outcomes. This is not to say that mapping of complex flood characteristics (and without clear guidance on how it is to be used for land use planning) should not be produced, but rather it may be better left within the flood study documentation;
- prepared with the resultant planning controls in mind. Testing of the concurrent application of the mapping and controls should be undertaken to check that the resultant planning outcomes are consistent with the relevant FRM Plan and will achieve the outcomes required by the broader planning strategy. Where inappropriate outcomes may occur, amendment to the flood risk maps and/or the controls may be required;¹⁹
- triggering of different approval processes (e.g. DA, complying development, exempt development);
- providing a clear basis for the application of flood related planning controls to different land uses within different parts of the floodplain (e.g. different floor levels might apply to different land uses);
- avoiding overly-technical terms as much as possible, noting that these maps may be viewed by a range of professionals from other disciplines and lay people. In this regard the use of terms such as 'low', 'medium' and 'high' flood risk (or similar) are preferred and are consistent with the mapping of other natural hazards such as bushfire risk. Statistical terms such as '1% AEP' or '100 year ARI' are important in flood study documents but may add unnecessary complexity (and sometimes confusion);²⁰
- ensuring flood risks are properly communicated regardless of whether some or all land uses are not subject to flood related planning controls. This is important so that individuals are aware that, despite meeting accepted flood building standards, they may still be exposed to flood risks and evacuation may be

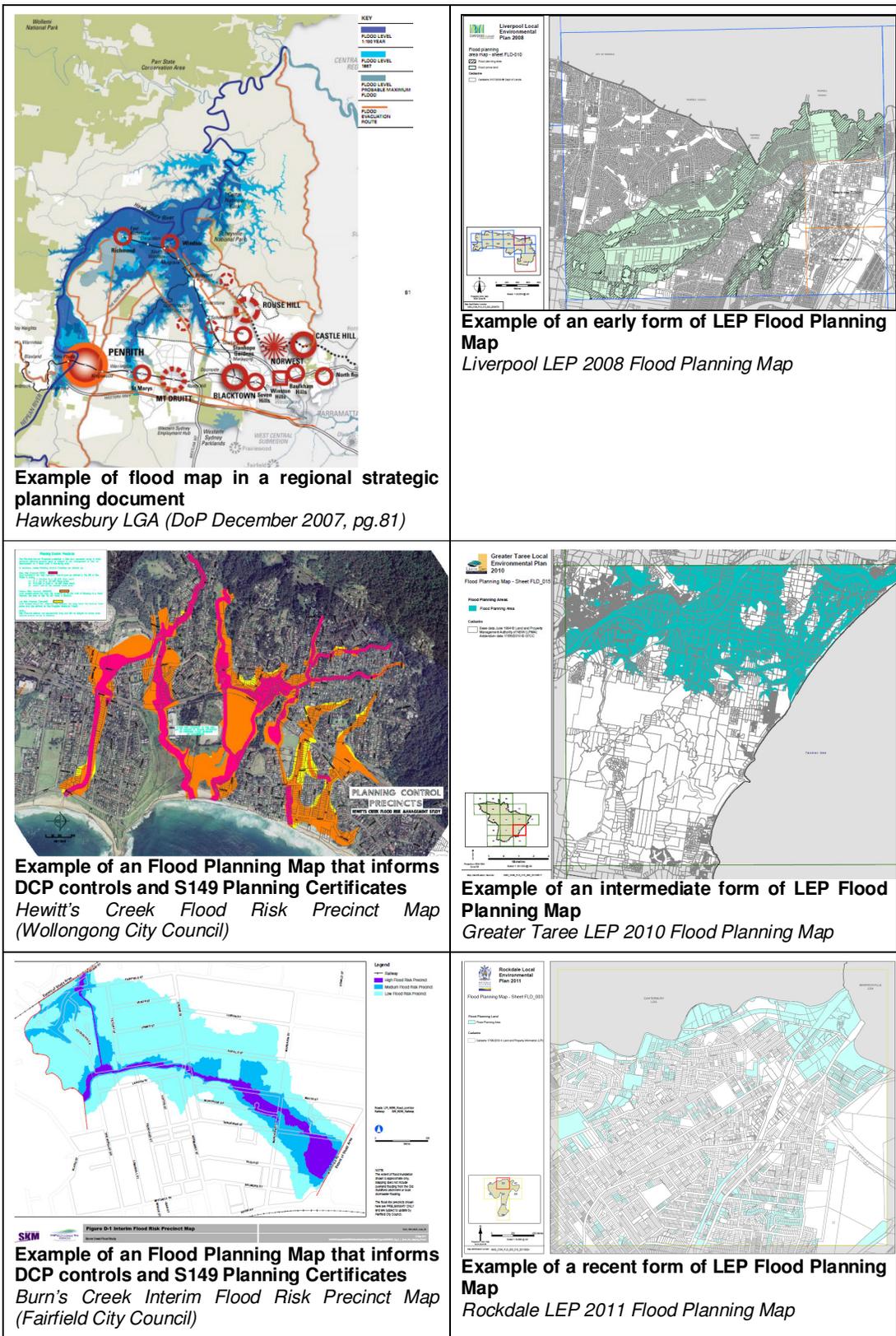
necessary in more extreme floods. It is also important to communicate where there is an absence of information and therefore flood risks are unknown;

- using mapping formats and flood risk terminology that is clearly defined and consistent across the State.

In NSW the principal planning instrument that triggers the approval process, and in some cases determines applicable planning controls, is the Local Environmental Plan (**LEP**) with more detailed controls provided by a development control plan (**DCP**). Under the new Planning Act, the Local Plan will become the principal planning instrument supplemented with Development Guidelines. In both cases a flood planning map has become essential. In our opinion the current LEP flood planning maps used across NSW (and Australia) are variable and generally do not meet the characteristics listed above. Examples of maps used for different planning purposes, including LEP flood planning maps, are shown in **Figure 1** below.

There has been an alarming trend in the way that standard flood planning maps have evolved from the earliest version produced for Liverpool LEP 2008 to the more recent version seen in Rockdale LEP 2011 (see **Figure 1**). This is the movement away from depicting actual flood risk to depicting a patchwork of properties subject to a flood related control on specifically residential development. In our view, this reflects the failure of the FRM industry to promote a standard mapping format for planning purposes that achieves the above characteristics and has sufficient universal recognition to not be ignored by planners.

In summary it is our view that clearer consistent flood mapping with the characteristics listed above and accompanied by the type of land use planning controls referred to in the previous section of this paper, is an essential step in meshing robust FRM practice into the Government's planning agenda. We note that such flood risk mapping is also consistent with the extensive review of such mapping that was carried out as part of the Queensland Floods Commission of Inquiry (**COI**).²¹



Example of flood map in a regional strategic planning document
Hawkesbury LGA (DoP December 2007, pg.81)

Example of an early form of LEP Flood Planning Map
Liverpool LEP 2008 Flood Planning Map

Example of an Flood Planning Map that informs DCP controls and S149 Planning Certificates
Hewitt's Creek Flood Risk Precinct Map (Wollongong City Council)

Example of an intermediate form of LEP Flood Planning Map
Greater Taree LEP 2010 Flood Planning Map

Example of an Flood Planning Map that informs DCP controls and S149 Planning Certificates
Burn's Creek Interim Flood Risk Precinct Map (Fairfield City Council)

Example of a recent form of LEP Flood Planning Map
Rockdale LEP 2011 Flood Planning Map

Figure 1: Some Flood Mapping Examples for Different Parts of NSW

Recommendations

In spite of the attention given to improving the understanding of FRM amongst planners, there remains a lack of detailed knowledge of FRM by planners and the FRM industry lacks credibility with them to deliver practical and consistent input to the preparation of planning strategies and planning controls. These inadequacies are fatal in ensuring that FRM is effectively incorporated in the planning system rolled out by the new Planning Act, or the planning system that evolves should the Act not be implemented.

We conclude this paper by outlining where we believe accepted principles and practices must be settled within the FRM industry.

Recommendation 1: – Integration of FRM into planning

Firstly there is a need to agree on how FRM can integrate into each proposed layer of statutory plans. At the broad 'Regional Growth Plan' level floodplain issues that straddle LGA boundaries could be addressed. At the more detailed level the FRM provisions many Councils have developed within DCPs, lie waiting in an FRM plan to be implemented or are yet to be prepared, will need to be incorporated into future 'Local Plans'.

To achieve effective integration of FRM into the planning process we advocate:

- (a) **Agreeing on better ways to prepare FRM Plans:** Persist with the FRM process of preparing FRM studies and plans but seek to streamline the process and tailor it to suit the likely outcomes, the severity of the risk and the availability of resources. Our experience is that a FRM Plan prepared in accordance with the Floodplain Development Manual process is rarely prepared primarily to provide direct input to a planning study but there is no reason why it couldn't be. In this case, flood modelling could be limited to fewer options and outputs to suit the purpose for which it will be used. Further, to expedite the process the three phases of a flood study, floodplain risk management study and floodplain risk management plan could be collapsed into one.

If these plans are to inform the preparation of planning strategies and development controls they must be able to be prepared as a component of a planning study much the same as other studies such as a heritage study or bushfire assessment. The parameters for a FRM plan would need to change depending on the type of planning study it is required to inform (e.g. a regional or local plan). Where studies are being prepared at a regional level covering multiple LGAs, there must be an acceptance that this will need direction at a state departmental level.

- (b) **Making FRM Plans an essential precursor to LEPs:** Promote requirements within statutory state planning provisions to undertake the FRM process (unless minor or irrelevant) prior to preparing new LEPs (similar to Queensland). This would redress the duality of the FRM and planning 'parallel' processes, make planners 'own' FRM, and require FRM be properly considered at the initial plan making stage.
- (c) **Doing away with singular FPLs in EPIs:** Disband mandating the default position that FRM considerations in planning be limited to land located within the extent of a singular flood (typically the 100 year flood). This perpetuates a traditional and outdated FRM approach²² and conflicts with adopting a risk management approach which inevitably results in variable standards being

applied to different land uses and different development considerations. In our view, this could be the single most effective means of focusing planners on best practice FRM, removing obstructive inconsistencies between layers of planning controls (such as standard instrument LEPs and best practice FRM DCPs in NSW) and allow planning policies to better communicate actual flood risks. At present, it is our experience that despite the recommendations of a FRM Plan, or prevailing attitudes of key FRM personnel in a council, a council generally acquiesces to the adoption of the standard (but yet non-mandatory) LEP clause which applies a singular FPL (inevitably the 100 year flood plus freeboard) to all land uses and all aspects of development consideration from floor levels to evacuation.

We reject the notion that this would result in unreasonable restrictions on development. DCP controls of many local government areas in NSW already provide a range of standards for different land uses and development considerations²³. For example while the 100 year flood (plus freeboard) may continue to be considered an appropriate floor level standard for standard residential development, in most cases it is simply that, and can be excessive for less sensitive land uses and insufficient for emergency management. We strongly submit that the FPL is an obsolete and unhelpful concept.

Recommendation 2: – Prepare State-wide planning guidelines for FRM

This second recommendation picks up on the proposal to prepare a State Planning Policy to address natural hazards, including flooding. As an industry we should take this opportunity to properly incorporate flood risk management into the planning system.

- (a) **Guidelines for planners:** Prepare guidelines for planners that are succinct, written in a language targeted to planners and which provide unequivocal direction. Documents such as the NSW Floodplain Development Manual, Hawkesbury Nepean Guidelines and the more recent Emergency Management Australia document²⁴ may all be useful resources but are not focused on providing guidance on planning outcomes and provide too many alternative approaches to be applied at the planning end. As determined within our previous papers, planners do not have the training (or motivation) to decipher such documents to decide on the best approach for each area of a planning project or draft the detail development controls that will ultimately be used to assess a DA.
- (b) **Tools for planners within the guidelines:** The guidelines need to provide planners with basic and consistent tools, including:
 - how to read flood data for planning purposes;
 - how to undertake flood risk mapping;
 - the extent of the floodplain to consider in the application of FRM planning controls;
 - advice on the relative flood sensitivity of different land uses;
 - what to do when no flood data or policies exist; and
 - the FRM information to be notified to the public and the means by which this is to be done.
- (c) **Standardised controls within the guidelines:** The guidelines need to provide a standardised suite of controls that can be used in all foreseeable situations.

Each category of control would include a set of controls with a range of stringency that are to apply to different land uses depending on their vulnerability to the flood hazard (eg a higher floor level for seniors housing compared to general industrial development). These would become default controls for all councils. The controls would cover the following:

- floor level controls;
- structural soundness;
- flood compatible building components;
- flood effects on others;
- car parking and driveway access;
- evacuation or on site refuge requirements; and
- environmental management considerations such as pollution risks.

Our experience is that there is no consistency in flood related controls between different councils, not because there is necessarily a difference in flood risks but because the absence of definitive guidance allows the idiosyncrasies of different planners and flood engineers in individual councils to prevail.

Even where comparable controls exist, two different councils can take a different approach to application of the controls. For example, whilst many councils require an assessment of cumulative impact, there is no accepted procedure on how to undertake this. The guidelines would provide advice on these procedures.

- (d) **Status of the guidelines:** The guidelines should be given force in statute.

Recommendation 3: – Standardise mapping of flood risks for planning purposes

The third recommendation relates to the long outstanding need to provide robust and consistent flood maps for the purposes of planning instruments. The White Paper discussed possible approaches such as mapping flood liable land within an “Environmental Protection & Hazard Management” zone within local plans²⁵ which we consider to be problematic. Experience has shown that the delineation of land use zones based solely on flood risk can unnecessarily impede development or lead to inappropriate development.²⁶

While extensive and costly flood mapping undertaken in accordance with the Floodplain Development Manual is required to include a range of floods up to the PMF, typically this information is not reflected in the flood planning maps within LEPs, and without change, is unlikely to be included in future Local Plans.

- (a) **Consider the full spectrum of floods:** The flood maps must embody consideration of the probabilities and consequences of all potential floods. This is essential for the following reasons:
- to communicate the known flood risks to the community, so that even if parts of the map do not trigger consideration for assessing development, the community can make informed decisions and be aware of the potential for an extreme flood;
 - to provide an upfront basis to trigger planning considerations for sensitive and critical developments including within areas of lower flood hazard, as

the consequences for these developments would increase their relative risk exposure; and

- to ensure that best practice emergency management planning, which is based on managing risk to life within the PMF, is always considered.
- (b) **Use a simple format:** As explained previously, the need for a simple format would inevitably lead to the mapping of flood risks zones (using terms such as low, medium and high) extending to the PMF (or an extreme flood depending on available information). The same flood map could also include lands subject to known overland flow flooding. Where such information is not available a standard disclosure should be included on flood planning maps.
- (c) **Link to the planning controls:** The flood maps must be linked to the planning controls. Consequently these controls (e.g. the standardised suite of controls referred to in Recommendation 2) should have been drafted before the mapping is prepared. As discussed above, when classifying each area of the floodplain into various zones of flood risk, each council will need to consider the land use planning outcomes that would flow from the use of the flood maps with the controls.²⁷ This facilitates a risk management approach that allows application of a control of appropriate stringency, consistent with the land use and the level of risk shown on the flood maps.

Summary and Conclusions

- (a) The NSW planning system is being reformed to streamline and expedite the assessment of developments. Whilst a number of disciplines such as bushfire, riparian corridors, threatened species, etc, already have revised their assessment procedures, improvements to flood risk assessment procedures have not occurred.
- (b) The NSW FRM system is founded on the principles set out in the NSW Flood Prone Land Policy and the State Government's Floodplain Development Manual. The Policy and the Manual have received international recognition for their approach to FRM and the application of a merit-approach applied by local councils.
- (c) The lack of Government guidelines within the Manual and the locally implemented approach to FRM however has had its drawbacks most noticeably in the lack of consistency between of planning controls and approaches to flood risk mapping across the State. This lack of consistency is a major drawback to implementation of the Government's planning reform agenda. Change is necessary.
- (d) The authors have made recommendations in this paper to streamline the current approach to FRM planning in NSW. These recommendations relate to:
 - (i) the integration of FRM into the existing/proposed planning system;
 - (ii) the preparation of State-wide planning guidelines to provide FRM tools for planners and planning controls to guide the assessment of most floodplain developments; and
 - (iii) standardisation of the format and content of flood risk maps prepared for land use planning purposes.
- (e) The authors consider that the implementation of more standardised procedures for assessment of floodplain developments is inevitable. These will come either

through the FMA and our FRM industry reaching consensus on such procedures, or if this fails, through more streamlined procedures being imposed by the State.

We firmly believe that the recommendations of this paper or similar ones must be championed by the FRM profession. The current 'disconnect' between FRM and planning is not one that can be 'fixed' by planners without appropriate assistance from the FRM profession. More importantly it needs to start with a collective agreement between FRM professionals that we cannot continue to provide input into the planning system based on our idiosyncratic preferences.

If we cannot do that we will never establish credibility with planners and have the opportunity to provide input in the changing planning system that demands a greater level of standardisation.

References and Endnotes

¹ Complying development is a fast-track type of development application that can be determined by a private certifier. Clause 76A(5) of the NSW Environmental Planning and Assessment Act 1979, defines complying development as "...development, or a class of development, that can be addressed by specified predetermined development standards."

² Code Assessable development is referred to in Clause 4.17 of the Planning Bill 2013 as a type of development identified as such in a planning instrument, and if subject to a code assessment, cannot be refused on grounds that it does not comply with the standards in the instrument and any conditions cannot be more onerous than those standards.

³ NSW Government Department of Planning, Planning Circular PS 07-003, Issued 31 January 2007.

⁴ Grech P and Bewsher D, 2007, *Getting Planners On-Board — The Key To Successful Floodplain Management*. FMA Conference, Gunnedah NSW.

⁵ Grech P and Bewsher D, 2013, *Time To Stop Blaming The Planners – How Floodplain Managers Can Improve The Planning Process*. Paper presented at 53rd Annual Floodplain Management Authorities of NSW Conference, Tweed Heads NSW.

⁶ This paper was prepared in January 2007 prior to the release of the "*Guideline on Development Controls on Low Flood Risk Areas-Floodplain Development Manual*", issued jointly by the (then) NSW Departments of Planning and Natural Resources. This Guideline effectively mandated the application of the 100 year flood standard for most residential development unless exceptional circumstances could be proven. While it did not remove the application of the merits based approach or apply to all forms of development, it did confuse the general understanding of the policy for determining flood standards in NSW which could have contributed to a reduced understanding of the process between the 2007 and 2013 surveys.

⁷ NSW Government, April 2013, *A New Planning System For NSW - White Paper* (ISBN 978-0-7313-3611-1).

⁸ NSW Planning & Infrastructure, *Building a Better NSW Faster* (Brochure providing 2102-2013 local development Performance Monitoring Report Highlights).

⁹ White Paper – A New Planning System for NSW, p69. Refer Endnote 7.

¹⁰ White Paper – A New Planning System for NSW, p93. Refer Endnote 7.

¹¹ Such consistency should not be seen as conflicting with the 'merits-approach' in the NSW Floodplain Development Manual which necessitates consideration of local flood issues. These local FRM issues are often very important and need to be considered. Nevertheless in our experience these can almost always be addressed in the flood risk mapping. Consequently a standardised set of planning controls can still be used.

¹² For example in the determination of what is designated development for the purposes of the Act and therefore requiring the preparation of an Environmental Impact Statement.

¹³ Sections 5B, 145C, 79BA and 146 of the EPA Act, respectively.

¹⁴ Grech P and Bewsher D, 2013, pages 10-11. Refer Endnote 5.

¹⁵ Issues such as, for example, format of flood maps, blockage assumptions, freeboard, methodology for assessing cumulative impacts, evacuation, policy regarding the release of flood information and the format to be used, acceptability of flood impacts on third parties, quantitative procedures to determine hydraulic categories such as floodways, etc.

¹⁶ Grech P and Bewsher D, 2009, *Flood Risk Mapping – What, Why, How?* Paper presented at 49th Annual Floodplain Management Authorities of NSW Conference, Albury–Wodonga.

¹⁷ Bewsher D and Grech P, 1997, *A New Approach to the Development Controls for Floodplains*. Paper presented at 37th Annual Floodplain Management Authorities of NSW Conference, Maitland NSW.

¹⁸ Romano P, Grech P and Bewsher D, 1999, *Towards Better Floodplain Planning* Paper presented at 39th Annual Floodplain Management Authorities of NSW Conference.

¹⁹ For example, in areas that are 'islands' located above the flood planning level, the resultant isolation may be a serious consideration in assessing the development. In such cases it may be appropriate to map these areas in a 'High Flood Risk' precinct (or similar classification) to reflect any these evacuation/isolation concerns.

²⁰ Further such maps being based on a singular flood cannot adequately convey flood risk considerations over the full spectrum of potential floods that is normally needed.

²¹ The Queensland Floods Commission of Inquiry (COI) undertook an extensive investigation of the need and options for mapping of flood information for planning purposes. They recommended a range of options for mapping flood information for planning purposes in both urban and non-urban areas, with the most preferred option being "a map showing 'zones of risk' (at least three) derived from information about the likelihood and behaviour of flooding" (COI Final Report, 2012, pg.68). The COI also recommended "Councils should ensure that areas for which there has been no assessment of the likelihood of flooding are indicated on a map and that, as part of the development assessment process for these, there is at least some enquiry into whether a site proposed for development could be subject to flooding". (COI Final Report, 2012, pg.14).

²² The traditional versus new approach to FRM is discussed in Bewsher, D & P Grech, May 1997. Refer Endnote 17.

²³ Bewsher D & Grech P, May 1997, pp 32-41. Refer Endnote 17.

²⁴ Emergency Management Australia, 2013, *Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia*. Australian Emergency Management Handbook Series – No.7.

²⁵ White Paper – A New Planning System for NSW, p95. Refer Endnote 7.

²⁶ This can arise, for example, if engineering solutions are later accepted or if flood extents change over time (due to other development in the catchment, implementation of management measures and/or climate change).

²⁷ This may also mean that risk areas based solely on the extent of a singular flood (e.g. the 100 year event) will require modification to include for consideration of other flood probabilities and consequences. For example there may be an area below a detention basin which is not flooded in a 100 year event however in a larger event, due to the catastrophic failure of the basin, would be subjected to significant flood risks. In this case these areas whilst not mapped within the 100 year extent may still attract a 'high flood risk' classification if the dangers are considered to be significant enough to do so.