

## **COUNCIL CHECKLIST #C5 – ENGINEERING REVIEW OF APPLICATION FOR PLANNING SCHEME AMENDMENT OR PRECINCT STRUCTURE PLAN OR DEVELOPMENT PLAN**

### **Commentary.**

This checklist is to assist in making sure that the proposed concept –

- Provides the infrastructure to achieve Clause 56 and IDM requirements
- Includes appropriate provision for community infrastructure and that sufficient land/reserves are set aside for that infrastructure
- Ensures that access to and from the development can cope with the likely traffic
- Provide appropriate water management for the development
- Fits within the existing physical constraints of the site
- Is in line with Councils/community predetermined plans for the area
- Considers impacts on adjacent land use and eliminates/minimises any negative impacts

### **Historical and Existing Information**

Check to see what background information is available and review the critical elements. Does Council have a plan for this area? Check -

- The Planning Scheme
- Structure Plans
- Residential Character Studies
- Council strategies
- Flood Studies
- For areas of protected flora and/or fauna impact that may impact on planned infrastructure
- For any watercourses, wetlands etc within and downstream of the development
- For cultural heritage – within 200m of watercourses - etc
- Old Aerial photos
- Previous Planning Permits
- Previous land use - Are there any old contaminated areas within the site – landfills, factories, fuel depots, old agricultural or mining stockpile sites etc.
- History in Document Management System

### **Build a picture of what constraints there are to development**

Get a plan(s) to scale from GIS that shows

- Contours
- Flood Prone layer
- Environment Layer
- Planning zones and overlays
- Aerial Photos
- Abutting land use
- Access to the site
- Existing infrastructure, Water also Gas, Electricity and Telecom if possible / practical.
- Existing watercourses

Add Councils plans for the area.

Write a brief summary of the site putting the proposed development in context.

## Transport and Movement

### Roads

#### Hierarchy

Does the proposed hierarchy fit with the abutting road system?

Is appropriate provision made for access, through the proposal, to provide appropriate, legal access to abutting land (cannot land lock abutting land)

#### Intersections

#### General

- Garbage trucks / Emergency Vehicles
  - continue in a forward motion – court bowls etc
  - pavement strength sufficient
- Are there plans for swale drains – check for Council's requirements on swales?
- Make sure that the local area traffic management fits in with the landscaping and the street lighting. Tree/shrubs don't impair sight distances or shadow crossings etc

#### Footpaths, Cycle Ways & Shared paths

- Check linkages to major destinations – reserves, shopping centres, sporting areas etc

#### Car parking

#### Provision for utilities

- What major service conduits are there and where do they go –are they through public open space?
- Check where utilities cross each other and roads or drains – will levels be an issue?

*Water – Recycled Water*

*Sewerage*

*Power*

*Telecommunications – including NBN*

*Gas*

Check access to the site (beyond the development boundaries) – is it adequate.

- Check existing bridges – are they adequate for the proposed traffic (Expected traffic loadings, widths - including bike lane and footpaths)
- Check existing Intersections – are they adequate for proposed traffic

#### **Check traffic generators within the proposed development**

### **Landscape & Streetscape**

#### **Water Management**

- Does it need any of the Site Stormwater Management Plan (SSMP) reports – see checklist C5 Most will require at least the Drainage Feasibility Report, may need Water Quality and Flooding reports.

#### **Upstream Catchments**

- Are the catchments depicted realistic/accurate?
- Do adjacent catchments flow into this area during flood events (cross-pollination)?

#### **Downstream of the Development**

##### **Infrastructure**

- Will existing downstream infrastructure cope with the new flood?
- Check the time of inundation – has it increased substantially – what's the effect of flooding downstream for longer
- Can work in this development help alleviate flooding in adjacent/downstream areas?

##### **Wetlands and Water Bodies**

- Are there any sensitive areas downstream – what effect has the changed flood regime on them? Check flow rates and times of inundation.
- Are they protected in any way?

#### **Within the development**

##### **Flood regime/modelling**

- Is the model accurate and assumptions reasonable
- Will the proposal achieve CI 56 requirements – SSMP?

#### **Has enough land been allowed for drainage infrastructure?**

- Include batters for wetlands and basins
- Make sure mowed batters are no steeper than 1 in 4.
- Shared paths through drainage reserves to be out of the flood area
- Will there be a need to acquire land

#### **Existing waterways within the development**

- Check with the relevant CMA re their plans/requirements for the waterway

- What access is there to be to the waterway for recreation – what needs to be provided for those types of recreation?
- What in-stream works are required – erosion control, safety, drainage outlets etc
- Can the waterway be developed further for recreation?

## **Sport, Recreation & Open Space**

- Confirm the nexus between the drainage/environment issues and recreation facilities. Make sure good use made of drainage reserves to provide pedestrian/cycling access to these facilities.
- Can the drainage reserves act as greenways?
- Are the facilities evenly distributed around the site?
- Is access adequate – vehicle pedestrian, cycling

## **Social & Community Facilities**

- Are the facilities evenly distributed around the site?
- Is access adequate – vehicle, pedestrian, cycling

## **Biodiversity & Conservation areas**

- Are there any nearby/adjacent B&C areas. Should we try to create links between like areas
- What treatment for any contaminated land?

## **Construction / Staging issues –**

### **Provide a clear staging plan**

- Identify estimated sizes and timeframes for each stage
- Is the staging logical?
- Identify works within stages that impact on other stages
- Identify the triggers that initiate the construction of community facilities that –
  - Have an interim construction stage – e.g. major intersections
  - Ensure the interim measures are properly designed and constructed and not just a poor temporary “quick-fix” – standards need to be met.
  - Are to be provided after a trigger point is reached – e.g. population size
  - Other major works e.g. streamside works

### **Ensure that a current stage is viable in the long term – whether or not future stages are developed**

- Where it is necessary to use land in a future stage to make a current stage practical, ensure that Council has rights over that land required - e.g.
  - Turnarounds in future stages may need temporary easements
  - Drainage discharges into future stages may need easements
- What happens if the developer “pulls-out”? Can what’s left operate in the short to medium term

### **Adjacent development**

- Are there any adjacent developments. If so –
  - do they impact on one another?
  - can they work together for a better result e.g. shared drainage reserves?
  - does infrastructure from one need to go through the other?

**Write a report to the Planning Unit summarising the findings of the assessment under each of the above headings and concluding the report with the statement that the Engineering Design Services OBJECTS / HAS NO OBJECTION to the proposed Planning Scheme Amendment.**

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DEVELOPMENT TITLE		DESIGNER	
COUNCIL REFERENCE NUMBER		STAGE	
DATE RECEIVED		CONSULTANTS REFERENCE	
CHECKED BY		DATE CHECKED	
NUMBER OF PLANS IN SET			

Information Provided	Required	Provided/ Comment
<p>Amendment or Development Plan or PSP showing</p> <ul style="list-style-type: none"> <li>the existing and proposed road networks and proposed road hierarchy</li> <li>existing and proposed footpaths, cycleways and shared paths</li> <li>existing and proposed bus routes</li> <li>existing and proposed public open space and recreation facilities</li> <li>drainage catchments, waterways and location of major drainage infrastructure proposed</li> <li>proposed community infrastructure</li> </ul>		
Traffic Management Strategy and Traffic Impact Assessment Report		
<p>Stormwater Management Strategy – including drainage, stormwater treatment, assessment of downstream impacts, assessments of how upstream flows are dealt with, computations, flood modelling, areas of land required for drainage infrastructure.</p> <p>Have the following matters been included?</p> <ul style="list-style-type: none"> <li>Drainage feasibility report</li> <li>Water quality impact report</li> <li>Flood impact report</li> <li>Drainage design report</li> <li>Water quality design report</li> <li>Flood management design report</li> </ul>		

Details of the proposed cross section of the various types of roads proposed.		
Write a summary statement on the adequacy of the information provided and identify any additional information requirements.		

Assessment of Transport and Movement	Comment
Does the proposed hierarchy fit with the abutting road system?	
Is appropriate provision made for access, through the proposal, to provide appropriate, legal access to abutting land (cannot land lock abutting land)	
Are the proposed cross sections of the various types of roads consistent with the IDM?	
Are the assumptions for traffic generation and estimated flows reasonable?	
Are the proposed intersection treatments reasonable?	
Has VicRoads been consulted in relation to any arterial roads and of so have their concerns been addressed?	
Has emergency services vehicles and service vehicles needs been adequately addressed?	
<p>Has the adequacy of the existing road network and associated infrastructure been considered for the proposed increase in traffic?</p> <p>Existing bridges – are they adequate for the proposed traffic (Expected traffic loadings, widths - including bike lane and footpaths)?</p> <p>Existing Intersections – are they adequate for proposed traffic?</p> <p>Existing Roads – are they adequate in width, surface type and capacity?</p> <p>List any upgrade works required below:</p>	
If the existing road network and associated infrastructure need to be upgraded has the issue of who pays for the works been adequately and fairly addressed?	

Assessment of Transport and Movement	Comment
<p>Provision for utilities – can the proposed road cross sections accommodate all the services required to service the development?</p> <p>Has the provision of street trees been adequately considered in relation to the proposed service locations?</p>	
<p>Check footway, cycleways and shared paths linkages to major destinations – reserves, shopping centres, sporting areas etc.</p> <p>Check that proposed footpaths, cycleways and shared paths are consistent with relevant Council strategies and plans.</p>	
Check the impact of staging on the existing roads, pedestrian and cycling networks.	
<p>Write a summary statement on the assessment of traffic and movement.</p>	

Assessment of Stormwater Management (Drainage and Flooding)	Comment
<p>What is the current drainage regime</p> <p>a) Natural features - Watercourses, drainage lines, swamps, wetlands, catchment boundaries, flow from the discharge point to the nearest large water body</p> <p>b) Existing flows – directions, volumes, flow rates (including downstream from the proposed development), sediment and litter (logs and vegetation) loads.</p> <p>c) Are there some particular features of the existing system that need to be protected e.g. significant breeding/feeding habitats, recognised/protected areas (RAMSAR wetlands)?</p>	
<p>Does the concept layout of the proposed drainage scheme show</p> <ul style="list-style-type: none"> <li>• Main drainage lines</li> <li>• Any significant elements (show footprint including batters etc)– <ul style="list-style-type: none"> <li>○ Wetlands</li> <li>○ Basins</li> </ul> </li> </ul>	



Assessment of Stormwater Management (Drainage and Flooding)	Comment
○ Outlet(s) at discharge point(s)	
Are the catchments shown real and accurate?	
In times of flooding do other catchments overtop and flow into the upstream catchment?	
Will the existing downstream infrastructure cope with the new flows?	
<p>What effects are there, downstream of the development</p> <ul style="list-style-type: none"> <li>• Water quality – minimise gross pollutants, nutrients levels as per EPA, etc</li> <li>• Water quantity - Discharge flow rates, volumes, can existing elements, downstream of the development, cope with the increased volumes</li> <li>• Effects on significant areas within, and downstream, of the development.</li> <li>• Are there areas, downstream of the development, which currently have flooding problems that may be able to be reduced through actions within the proposed development? What are the actions?</li> <li>• Assessment of the proposed discharge area</li> </ul>	
<p>What constraints are there on the construction of the proposal</p> <p>a) Significant areas to be avoided or impacts minimised such as -</p> <ul style="list-style-type: none"> <li>i) Protected flora and/or fauna (see FFG Act or EPBC Act etc)</li> <li>ii) Heritage</li> <li>iii) Cultural heritage (Self-assessment at Cultural Heritage Management Plans at DPCD website)</li> </ul> <p>b) Soil types/structure</p> <ul style="list-style-type: none"> <li>i) Acid Sulphate soils <ul style="list-style-type: none"> <li>(1) will they be disturbed during construction</li> <li>(2) will watertables be lowered and expose them</li> </ul> </li> <li>ii) Other soil type and/or structure constraints</li> </ul> <p>c) Are the levels of pipe or open drain inverts constrained where proposed drainage crosses existing infrastructure e.g. do proposed pipes or drains have to go over or under existing underground services</p> <p>d) What interaction will there be between the drainage elements and other infrastructure?</p> <p>25 July 2012</p> <ul style="list-style-type: none"> <li>i) Shared path construction. The through lengths of shared paths are to be above the 100 year flow path</li> <li>ii) Does there need to be links to adjacent/nearby shared paths, bike lanes, major reserves</li> <li>iii) Bridges, boardwalks</li> <li>iv) Where are the proposed 100 year flow paths <ul style="list-style-type: none"> <li>(1) what roads/paths/reserves are being used</li> <li>(2) how do they link with existing external 100 year flow paths</li> </ul> </li> </ul> <p>e) Can each stage act independently (from a water management viewpoint) - i.e. if the development stops, can the constructed areas still manage stormwater flows appropriately.</p>	

Assessment of Stormwater Management (Drainage and Flooding)	Comment
(1) No outlets to adjacent privately owned land without an easement.	
<p>Is the drainage feasibility report adequate?</p> <p>Does it show the conceptual proposed major drainage elements</p> <ul style="list-style-type: none"> <li>i) Conceptual drainage main drains and major elements such as basins and wetlands</li> <li>ii) Conceptual runoff coefficients</li> <li>iii) Waterway corridors</li> <li>iv) Overland flow path(s)</li> <li>v) Discharge point(s)</li> <li>vi) Proposed cost sharing arrangements for any major drainage infrastructure to be shared amongst multiple land owners</li> </ul> <p>Are the recommendations reasonable and have all matters been addressed?</p>	
<p>Is the Water Quality Impact Report adequate?</p> <p>Does it include MUSIC modelling or equivalent?</p> <p>Are the recommendations reasonable and have all matters been addressed?</p>	
<p>Is the flood impact report adequate?</p> <p>Does it include a full hydrologic and hydraulic analysis of external and internal catchments for rainfall events up to and including 1% AEP as specified in the IDM?</p> <p>Are the recommendations reasonable and have all matters been addressed?</p>	
<p>Is the drainage design report adequate?</p> <p>Does it provide drainage design, computations, sizing of water treatment elements and retardation basins and other major drainage features?</p> <p>Are the recommendations reasonable and have all matters been addressed?</p>	
<p>Is the Water Quality Design Report adequate?</p> <p><b>Council</b> will expect the WQDR to:</p> <ul style="list-style-type: none"> <li>1. contain an analysis of the discharge from the drainage system as defined in the DDR and the construction drawings</li> <li>2. confirm all the assumptions made in the WQIR or clearly document what changes have been made</li> <li>3. provide detailed numerical analysis of the quality of the stormwater discharged from the development to the nominated Legal Point of Discharge</li> </ul> <p>Are the recommendations reasonable and have all matters been addressed?</p>	
<p>Is the Flood Management Design Report adequate?</p> <p>Are the recommendations reasonable and have all matters been addressed?</p>	
<p><b>Write a summary statement on the assessment of water management.</b></p>	

Assessment of Stormwater Management (Drainage and Flooding)	Comment

Assessment of Landscape and Streetscape	Comment
Are the landscaping and streetscaping proposals for the development reasonable?	
Does the proposal show the location and spacing of street trees and how does this impact on the provision of utility services?	
<p><b>Write a summary statement on the assessment of landscape and streetscape.</b></p>	

Assessment of Staging of Development	Comment
Is the staging logical?	
Identify works within stages that impact on other stages and check whether this has been addressed.	
<p>Write a summary statement on the assessment of staging of the proposed development.</p>	

### Summary of Assessment

Is there an objection to the proposed Planning Scheme Amendment? \_\_\_\_\_

Signed \_\_\_\_\_ Dated \_\_\_\_\_