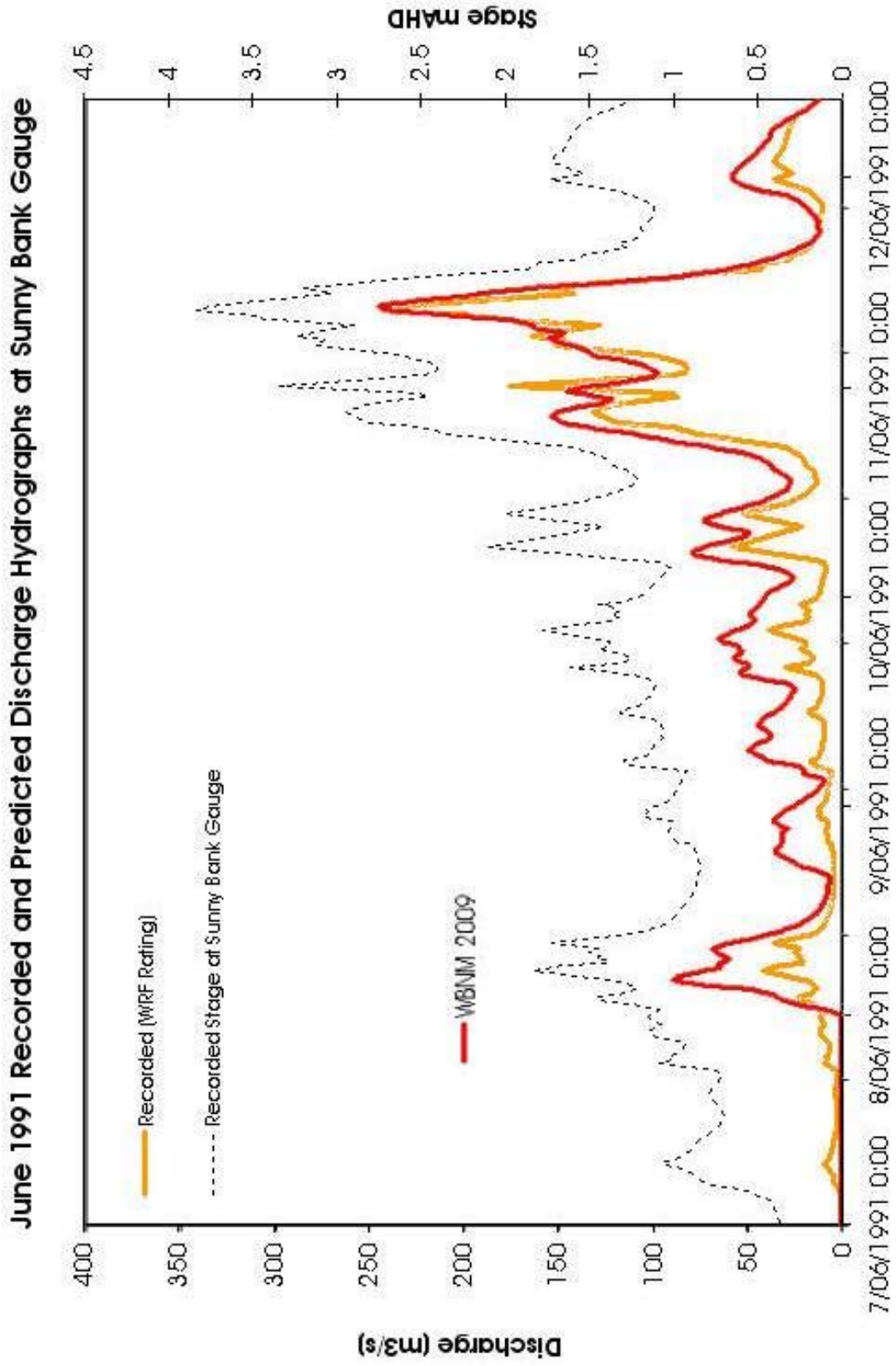
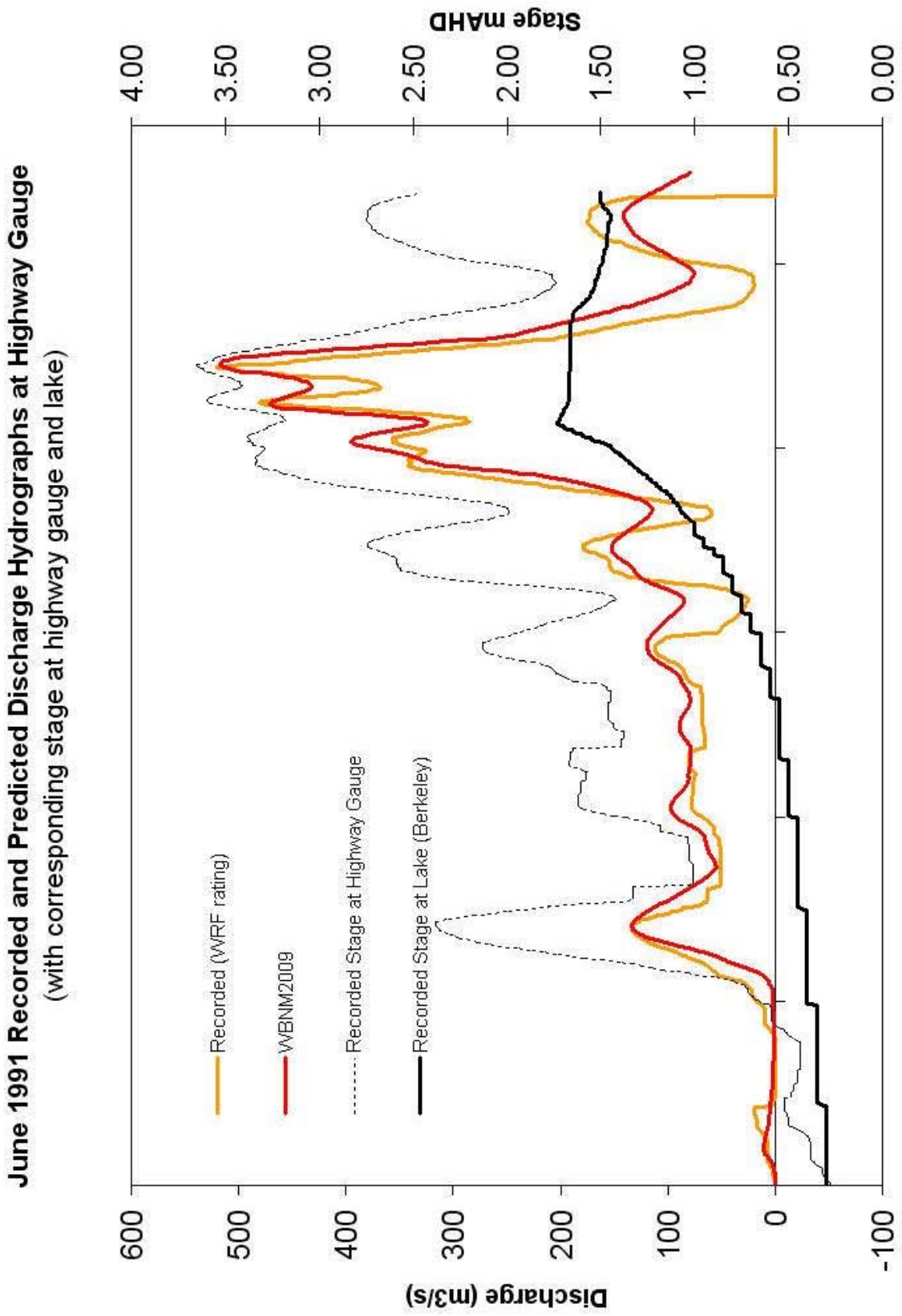
MODEL CALIBRATION

E E E E

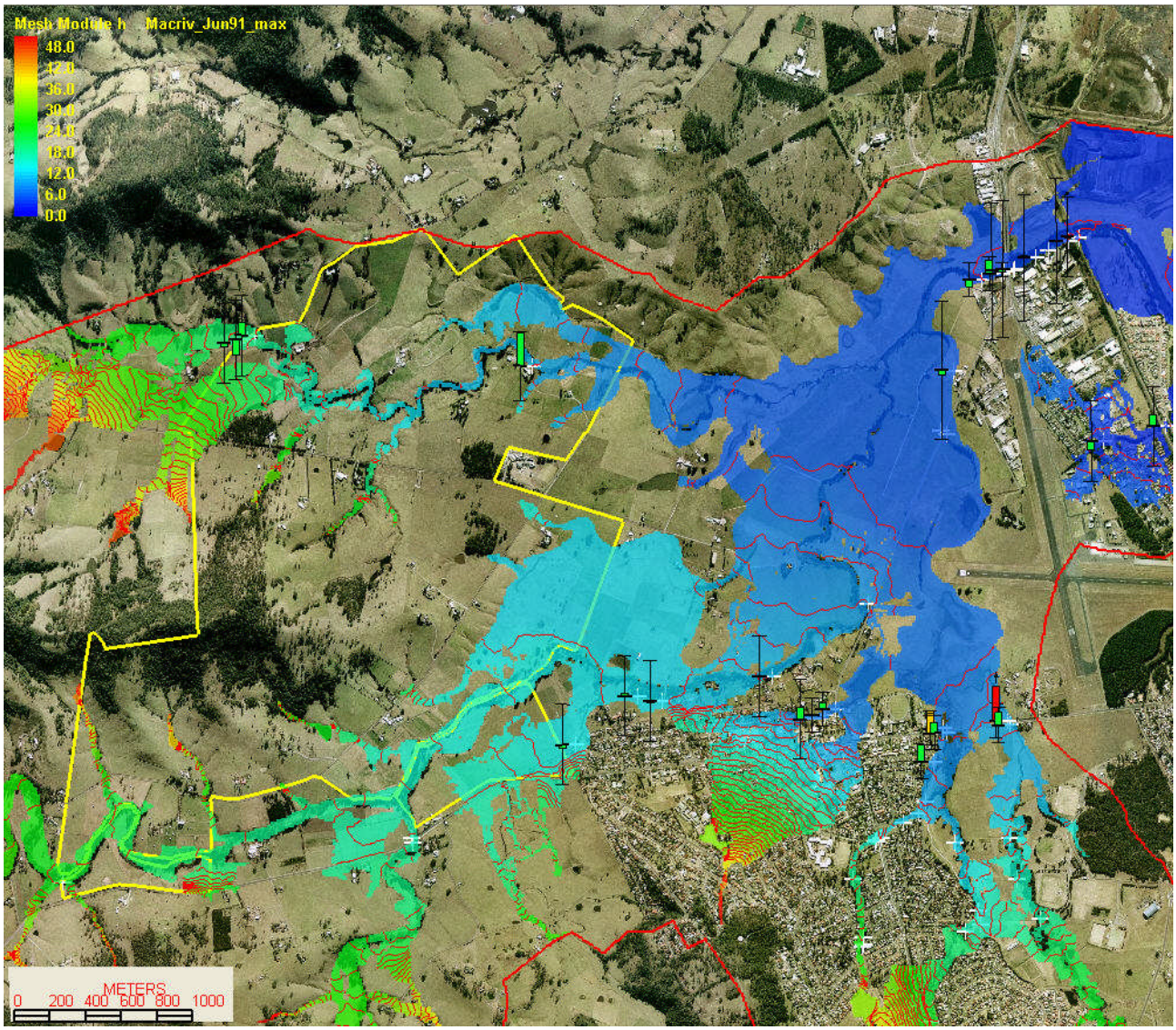
APPENDIX E



APPENDIX E1: RECORDED –v- MODELLED JUNE 1991 HYDROGRAPH SB



APPENDIX E2: RECORDED –v- MODELLED JUNE 1991 HYDROGRAPH PH



Modelled June 1991 Flood Surface

SMS CALIIBRATION PLOT NOTES

In the above SMS calibration plot, each calibration target is drawn an amount equal to the likely error above and below the recorded data value The difference between the simulated flood surface value and recorded value is plotted as a scaled coloured bar. Where coloured bar is plotted below the target mean, this corresponds to a simulated surface level below the recorded value and vice-versa when above. Where the simulated surface is within the likely error band for the recorded value, the colour bar (scaled difference) is plotted green. When the simulated level falls outside of the likely error band but lies within a band that is twice the likely error, the bar is plotted yellow and if it falls outside of the doubled error band, the bar is plotted red. In calibration the objective is to obtain all bars green, with bars plotted equally above and below the recorded values.

APPENDIX E3: RECORDED –v- MODELLED JUNE 1991 FLOOD SURFACE

ADOPTED HYDROLOGIC PARAMETERS

PARAMETER	CONDITION	CALIBRATION	DESIGN
Initial Loss (IL perv)	-	150mm	15mm
Initial Loss(Il Imp)	-	1mm	1mm
Cont Loss (CL:R)	-	2.5mm/hr	2.5mm/hr
Catcment Lag (C)	-	1.3	1.3
Imp Lag Factor	-	0.1	0.1
Stream Lag Factor	Natural	1.0	1.0
Stream Lag Factor	Earth lined channels	0.5	0.5
Stream Lag Factor	Conc lined channels	0.33	0.33
Init Storage Levels	All	Empty	Empty

APPENDIX E4: ADOPTED HYDROLOGIC PARAMETERS

ADOPTED SURFACE ROUGHNESS VALUES
(extracted from Tuflow 2d_mat.tmf)

SURFACE	d1	n1	d2	n2	DESCRIPTION
Grassed Low_n	0.05	0.075	0.25	0.020	mown or well grazed 0.05 stubble, low undulations
Grassed Mod_n	0.15	0.100	0.75	0.030	mixed areas of slashed/grazed grassland with some shrubs and/or taller grass clumps
Grassed High_n	0.50	0.100	2.50	0.040	tall stiff grass with significant areas of clumped shrubs
Grassed Swale	0.05	0.075	0.25	0.020	mown or grazed 0.05 stubble (sim Grassed low_n)
Trees Low_n	1.00	0.050	5.00	0.050	moderate density little underbrush typically easy to walk thru off track
Trees Mod_n	1.00	0.100	5.00	0.075	moderate density some underbrush occasional fallen limb typically difficult to walk thru off track
Trees High_n	1.00	0.200	5.00	0.100	High density substantial underbrush and fallen limbs typically cannot walk thru off track
Landscaped Low_n	0.50	0.075	2.50	0.050	Low density mod height shrubs foliage from ground some gaps between
Landscaped Mod_n	0.50	0.150	2.50	0.075	Mod density mod height shrubs foliage from ground few gaps between
Landscaped High_n	0.50	0.200	2.50	0.100	High density mod height shrubs foliage from ground continuous barrier
Sealed Surf Low_n	0.05	0.030	0.25	0.020	roads/parking areas - mostly free of parked vehicles
Sealed Surf Mod_n	0.05	0.030	0.25	0.035	roads/parking areas - significant number of parked vehicles present
Gravel Surf Mod_n	0.15	0.050	0.75	0.035	roads/parking areas - roads with side veg swales - few parked vehicles
Road With Barrier	0.70	0.030	3.50	0.020	paved road with armco style barrier perp to flow - mostly free parked cars
Road With Barrier	1.00	0.050	5.00	0.030	paved road with Armco style barrier perp to flow - significant parked cars at kerb
Res Low_n	0.30	0.100	1.50	0.050	low density typically large blocks with small dwelling footprint significant grassed yard and open fences
Res Mod_n	0.90	0.200	4.50	0.100	average density some solid fences
Res High_n	0.90	0.500	4.50	0.200	typically smaller blocks with large dwelling footprint small yards and frequent solid fences
ResYard High_n	0.90	0.200	4.50	0.150	where dwelling is modelled as a solid - mostly solid fences perpendicular to flow
ResYard Mod_n	0.90	0.150	4.50	0.100	where dwelling is modelled as a solid - some solid fences perpendicular to flow
ResYard Low_n	0.30	0.100	1.50	0.040	where dwelling is modelled as solid - yard mostly free of solid fencing perpendicular to flow
Res Subdivision	0.20	0.070	1.00	0.050	Subdivision under construction
Comm Low_n	0.30	0.250	1.50	0.100	small building footprint significant paving mostly permeable fences
Comm Mod_n	1.00	0.500	5.00	0.250	40% footprint some paving and solid fences
Comm High_n	1.00	0.500	5.00	0.500	80% footprint mostly solid fences

CommYard High_n	0.90	0.200	4.50	0.150	where building is modelled as solid - Stored matl/cars and mostly solid fences perp to flow
CommYard Low_n	0.30	0.100	1.50	0.040	where building is modelled as solid - mostly free of solid fences and stored matl/cars
lightInd Low_n	0.30	0.075	5.00	0.050	low density small building footprint significant paving and permeable fences
LightInd Mod_n	1.00	0.350	5.00	0.100	average density 30% footprint some solid fences
LightInd High_n	1.00	0.350	5.00	0.150	high density 60% footprint some solid fences
LightIndYard High_n	1.00	0.200	5.00	0.150	where building is modelled as solid - mostly paved significant stored matl/car/trucks with solid fences perp to flow
LightIndYard Mod_n	0.30	0.150	1.50	0.075	where building is modelled as solid - mostly paved free of stored matl some cars/trucks with mostly open fences perp to flow
LightIndYard Low_n	0.30	0.100	1.50	0.035	where building is modelled as solid - mostly paved free of stored matl few cars/trucks with open fences perp to flow
ConcChannel	0.02	0.020	0.10	0.011	concrete lined channel
Estuary	0.05	0.035	0.25	0.013	flat variable grade sandy bed low undulations no instream vegetation - typically estuary and/or lake
Creek Low_n	0.30	0.050	1.50	0.035	uniform bed grade and section little instream vegetation
Creek Mod_n	0.50	0.100	2.50	0.075	variable bed grade and section moderate instream vegetation
Creek High_n	1.00	0.150	5.00	0.010	variable bed grade and section substantial instream vegetation (overgrown)
SurfFlowpath	0.30	0.350	1.50	0.150	ill-defined surface flowpath thru otherwise residential area
StructInvert	0.30	0.050	1.50	0.030	waterway with structure over generally clear of vegetation and flat
Wetland Low_n	0.50	0.050	2.50	0.035	some reeds but relatively free of plants with rigid stems
Wetland High_n	1.00	0.100	5.00	0.050	substantial reed growth including plants with rigid stems
RailReserve Low_n	0.05	0.050	0.25	0.040	small relative footprint some paving and open fences
RailReserve High_n	0.50	0.100	2.50	0.070	grassed well maintained light occasional shrub only
RoadReserve	0.15	0.100	0.75	0.050	irregularly mown or grazed grassland with some paving (footpaths) and shrubs
SolidBuildings	1.00	10.000	5.00	10.000	nom 1% permeability modelled as n =100*0.100

APPENDIX E5: ADOPTED SURFACE ROUGHNESS VALUES