#	CASU WP name /sub task / 05Q4m2 deliverables	Staff	Prog 05Q1	Prog 05Q3	Prog 06Q1	Prog 06Q3	Prog 07Q1	Prog 07Q2	Textual Summary
1	**Management and definition of project responsibilities**								
1.1	report to VISTA, UKIDSS, JAC, ATC, GSC	all	17	34	52	70	85	91	
	provide fortnightly meeting minutes, monthly reports on progress + quarterly review reports and planning. Produce draft functionality document for VDMT & VDUC. Have telecons as required with JAC								held minuted CASU meetings.
1.2	interface control document between CASU and JAC	MJI	100	100	100	100	100	100	completed
1.3a	interface control document between CASU and WFAU (WFCAM)	MJI	100	100	100	100	100	100	completed
1.3b	interface control document between CASU and WFAU (VISTA)	PSB	0	0	0	30	55	60	
	liaise with WFAU, camera and telescope team for design of VISTA FITS headers for input to ICD								Interacted with ATC, Edinburgh CS, Cambridge CS & UKERNA regarding UKLight networking. Planned and submitted TABLES WCS design to WFAU.
1.4a	define WFCAM data structures and FITS headers	MJI, JRL, PSB	100	100	100	100	100	100	completed
1.4b	update proposed VISTA FITS headers as necessary	PSB	10	30	40	55	65	65	
	monitor and update proposed VISTA FITS headers. give feedback on test FITS files. test conformance of output FITS files with ICD.								no new issues
1.5a	define WFCAM observing protocols	STH, DWE	55	70	75	90	100	100	completed
	monitor and update MSB guidelines. monitor observing efficiency and report.								
1.5b	define VISTA observing protocols	PSB	15	25	30	30	40	40	
	liaise with development team								nothing to report
1.6a	liaise with UKIDSS&JAC on WFCAM obs strategy, surveys planning	STH	40	60	70	80	90	95	
	liaise and monitor progress								STH started discussions with JAC re. WFCAM transit survey and will attend UKIDSS survey heads meeting in May. Regular exchanges with JAC concerning data transfer, problems with WFCAM, data processing issues etc.
1.6b	liaise with Proj. Sci. on VISTA observing strategy & survey planning	PSB	17	34	52	70	85	85	
	liaise and monitor progress								nothing to report
1.7a	liaise with VDUC on VDFS products for WFCAM	STH, MJI, JRL	50	60	70	80	95	95	
	liaise and monitor progress. finalise reports on results from WFCAM 05A SV data. Provide input for UKIDSS papers. Respond to issues raised re: data processing								preparations for VDUC meeting started
1.7b	liaise with VDUC on VDFS products for VISTA	MJI, STH	17	34	40	40	40	40	
	liaise and monitor progress. assess and prioritise work required for extra UK VDFS products. revisit WPs for V1-5 in lieu of above								subsumed into 1.6b
1.8a	liaise with UKIDSS and JAC on survey progress DB (WFCAM)	JRL	50	55	60	65	80	85	
	maintain OMP database mirror to be used with survey progress database, incl. simplified user interface and script to add MSB flags to processed data headers								OMP database mirror up and running again. A scheme for the identification of problem datasets has been agreed with JAC.
1.8b	liaise with VDUC and ESO on survey progress DB (VISTA)		0	0	0	10	20	20	
									no further progress
1.9	system documentation	DWE,EGS,MR	17	34	52	70	85	91	
	update and maintain web pages of system docs. Setup and switch over to new plone system								Updated web and Plone pages as necessary. Implemented VIRCAM software documentation updating from the CVS repository. WFCAM pipeline and processing version logs, example and other minor things.
1.10	VST processing preparation	EGS, MJI	0	15	25	35	60	60	
	help produce draft Survey Management Plan for ATLAS, VPHAS+								on hold
2	**ESO VISTA software interface deliverables and documentation**								
2.1	DFS impact document	PSB	70	95	100	100	100	100	signed and sealed

	assess if further changes needed after tests								
2.2	Calibration Plan document	PSB	70	95	95	96	97	97	
	update document in parallel with DRL development. Get c1.2 signed by PS, PI								signed and passed to JPE for VDFS 0.5 release
2.3	Data Reduction Library Design document	PSB	70	95	95	96	97	97	
	update document in parallel with DRL development								brought up to date, tidied and passed to JPE for VDFS 0.5 release
2.4	Data Reduction Library								subsumed into 8.1b
	produce v0.1 of DRL and test in CPL environment								
2.5	ICD ESO/VPO	PSB	0	10	15	25	35	35	
	update FITS header doc and DID/DIC and data dictionary files								no further progress
2.6	Instrument specification and interface documents	PSB	0	6	10	40	60	70	
	develop integration tests in CPL & QFITS environment								PSB and JRL attended 2nd Generation VLT Instrumentation meeting in Garching.
2.7	Delivery software modules for exposure time calculator	STH, PSB	20	90	95	96	97	97	
	setup UK-based demonstration of ETC. Update ETC with better characteristic data. Deliver ETC calculation modules and instrument description data to ESO								ETC spec. brought up to date, tidied, signed and passed to JPE for VDFS 0.5 release. Also done for the Instrument data description.
2.8	liaise with VISTA IR camera development team	PSB	8	35	52	65	75	75	
	continue liaising with VISTA IR camera development team. Use data from RAL operation of VIRCAM and TCS simulator to assess VIRCAM system. Test successive simulators, feedback comments								no further progress
2.9	Development of DQC measures	PSB	0	10	10	25	40	50	
	update QC measures as needed in light of test data								Developed extra required QC information following continuing discussion with ESO
2.10	Documents for software modules	PSB	0	0	25				subsumed into 8.6b
3	**Pipeline infrastructure and pipeline progress monitoring tools**								
3.1	interactive tools for running pipeline	JRL	60	75	75	85	100	100	completed
	update tools in the light of 05A, 05B experience and document								
3.2	high level scripts to interrogate headers	MR, EGS	50	80	80	80	100	100	completed
	update header interrogation scripts and test								
3.3	automatic progression of results to web pages	MR	50	65	65	75	100	100	completed
	maintain and update web-based pipeline progress web page								
3.4	automatic checks to spot failure of pipeline	JRL	0	35	35	85	100	100	completed
	continue developing automated checks for pipeline failures								
3.5a	Tools for fixing problem datasets (WFCAM)	JRL	20	25	35	70	85	90	
	continue developing tools to handle problems in WFCAM data								Implemented a script for interrogating OMP database for the extraction of observer comments. Updated ingest, preview and processing scripts to handle data from early 06B.
3.5b	Tools for fixing problem datasets (VISTA)		0	0	0	0	0	0	on hold
3.6	group documentation on pipeline infrastructure	STH, JRL	60	65	65	80	100	100	completed
	stress test documentation and update as necessary								
3.7a	Oversee reprocessing WFCAM data after bug fixes/improvements	MR	0	45	55	70	75	85	Features in the new 06B data required some reprocessing in early March and April
	reprocess science data from 05A, 05B as necessary								
3.7b	Oversee reprocessing VISTA data after bug fixes/improvements		0	0	0				removed and subsumed in 6.8a
4	**Set up and manage raw science archive**								
4.1	extend UKIRT archive to cope with WFCAM data	JRL, MR	50	70	80	85	100	100	completed
	manage WFCAM raw data archive. Manage and monitor WFCAM-ESO raw data transfers								
4.2a	Ingest and verify WFCAM data	MR, MJI	10	30	45	65	85	90	

	ingest and verify 06B								We received a large number of tapes (including catch-up with missing Oct-Nov data). Everything went smoothly due to the improved communication protocol with JAC. All data up to 5th April is now in Cambridge, barring 6 nights in January.
4.2b	Ingest and verify VISTA data		0	0	0	0	0	0	on hold
5	**Set up and manage data processing system hardware**								
5.1	Investigate alternatives (benchmarking, reliability etc)	MJI, PSB, JMI	100	100	100	100	100	100	completed
5.2	buy hardware and install	PSB, JMI, MJI	50	100	100	100	100	100	completed
5.3	integrating and testing	PSB, JMI	50	100	100	100	100	100	completed
5.4	Manage day-to-day maintenance and upgrades	PSB, JMI	17	34	52	70	80	85	
	continue maintenance and upgrade programme. Investigate new external bulk storage devices								maintenance to fix minor raid disk problems
5.5	Hardware additions for further processing system		0	0	5	15	30	30	
	monitor need for extra hardware for further processing	MJI							nothing to report
6	**Run standard pipeline**								
6.1a	Update WFCAM master calibration frames	MJI, JRL	0	18	36	54	69	75	
	continue updating and testing calibration frames								created new calibration frames and fixed problems with the older ones
6.1b	Update VISTA master calibration frames		0	0	0	0	0	0	on hold
6.2a	Monitor detector performance WFCAM	JRL, MR	0	18	36	54	69	75	
	monitor with data as processed								continuing
6.2b	Monitor detector performance VISTA		0	0	0	0	0	0	on hold
6.3a	oversee standard processing WFCAM	MR	0	18	36	54	69	75	
	process 05B data								Loads of data to process. No problem to deal with the many new nights. As the processing pages show, the delay between the data arriving in Cambridge and being processed and ready for WFAU to copy is really down to the minimum: all the data received in a batch of tapes is fully processed before the next one arrives.
6.3b	Oversee standard processing VISTA		0	0	0	0	0	0	on hold
6.4a	Astrometric calibration WFCAM	MJI	0	18	36	54	69	75	
	(re)calibrate 05A and 05B, 06A data and so on								06B uses the revised, filter dependent astrometric calibration. Script written to recalibrate preceeding semesters.
6.4b	Astrometric calibration VISTA		0	0	0	0	0	0	on hold
6.5a	Photometric Calibration WFCAM	STH	0	18	36	54	69	75	
	calibrate using 2mass and continue developing secondary standards system, Ces etc								continuing
6.5b	Photometric Calibration VISTA		0	0	0	0	0	0	on hold
6.6a	Verify Science products and monitor DQC measures WFCAM	EGS, MJI	0	18	36	54	69	75	
	assess 05A, 05B, 06A and 06B data								SV of products ongoing see http://apm15.ast.cam.ac.uk/casudocs/wfcam/science-verification. And SV report at http://www.ast.cam.ac.uk/~wfcam/docs/reports/sv/index.html.
6.6b	Verify Science products and monitor DQC measures VISTA		0	0	0	0	0	0	on hold
6.7	Monitor data product transfer to WFAU	MR, MJI	0	18	36	54	69	75	
	continue data transfer to WFAU and monitor								Data available for transfer
6.8a	Reprocess WFCAM data	MR	0	18	36	54	69	75	

	reprocess if major bug fixes								ongoing as needed
6.8b	Reprocess VISTA data		0	0	0	0	0	0	on hold
7	**Development work for summit pipeline**								
7.1a	Interface test pipelines in ORAC-DR	JRL	100	100	100	100	100	100	completed
7.1b	Interface test pipelines to VISTA summit DR	JRL	0	0	10	40	65	70	
									Version 0.5 was released and is being tested by ESO. Version 0.6 is in preparation. A great deal of effort is also being spent in spotting and correcting bugs in CPL and in the developement of a CPL API for WCS manipulation. Includes extra QC information.
7.2a	implement WFCAM pipeline at summit	JRL	75	90	100	100	100	100	completed
7.2b	Implement VISTA pipeline at summit	JRL	0	0	0	0	0	0	on hold
7.3a	documentation for ORAC-DR interface	JRL	60	60	100	100	100	100	completed
	update and deliver documentation as development proceeds								
7.3b	documentation for interface VISTA	JRL	0	0	0	30	55	60	
									Overall documentation given first part of a thorough revision
7.4a	upgrade and maintain summit pipeline WFCAM	JRL	17	40	55	75	100	100	completed
	update and maintain as required								
7.4b	upgrade and maintain summit pipeline VISTA	JRL	0	0	0	0	0	0	on hold
8	**Development and testing of standard 2d processing**								
8.1a	further development of standard pipeline for WFCAM	JRL,DWE	80	85	90	96	97	97	
	update and maintain as required. Assess persistance characteristics and develop trial version								small bug fixes
8.1b	development of VISTA specific packages	JRL	0	30	45	60	75	80	
	continue development of DRL. Continue testing of DRL in CPL environment. Release version 0.1 CPL recipes and modules. Release minor version updates as required prior to 0.5. Liaise with ESO on integrating and commissioning modules into pipeline environment								Intensive testing with simulated and AIT data. Version 0.5 of DRL and 1.7 of DRLD released. Bug fixing and enhancement requests being dealt with.
8.2a	liaison with WFCAM development team	JRL	8	34	52	80	100	100	completed
	continue telecons and discussions.								
8.2b	liaison with Project Scientist & VISTA development team	PSB	8	34	52	70	85	85	
	assess any new detector engineering test data								nothing to report
8.3a	partake in planning WFCAM commissioning observations	STH	80	100	100	100	100	100	WFCAM commissioning completed
	continue planning								
8.3b	partake in planning VISTA commissioning observations	STH	0	0	10	20	30	30	
	liaise and discuss with camera PS and VISTA PS, find out about current commissioning								nothing to report
8.4a	Participate directly in commissioning WFCAM	STH	50	100	100	100	100	100	completed
	complete observations								
8.4b	Participate directly in commissioning VISTA	STH	0	0	0	0	0	0	on hold
8.5a	Tuning pipeline during commissioning and after WFCAM	MJI, STH, EGS	20	40	70	85	90	90	
	keep on tuning as newer data comes in. further assessment of the quality and stability of master calibration data. assess quality of science output								mostly bug fixing
8.5b	Tuning pipeline during commissioning and after VISTA	MJI, JRL, EGS	0	0	0	0	0	0	on hold

8.6a	documentation for 2D processing software WFCAM	JRL, MJI	50	50	70	85	95	95	
	update docs as necessary. Write data processing technical description paper								MJI, MR, JRL wrote: 1) short article presenting the main results on the sky brightness for the UKIRT newsletter; 2) proceedings for the ESO calibration workshop.
8.6b	documentation for additional 2D processing software VISTA	JRL	0	30	40	70	90	90	
	document within recipe and module C code in doxygen compatible format								documentation added as code is written
8.7	Comparison between automated and manual data products	STH	50	55	70	80	85	85	
	assess CASU processed WFCAM SV data in conjunction with CSV and Survey Heads								no further progress
9	**Development and testing of standard catalogue products**								
9.1	add in new measures requested	MJI	60	100	100	100	100	100	completed
	monitor and tune if needed								
9.2a	refine astrometric calibration model	MJI	85	85	90	90	95	95	
	refine astrometric model								no further progress
9.2b	refine astrometric calibration model - VISTA specific	MJI	0	0	0	0	0	0	on hold
9.3	generate model simulations of expected data	STH	100	100	100	100	100	100	completed
9.4	assess catalogue parameter reliability	MJI	70	80	100	100	100	100	completed - assessment finished in conjunction with SV and CASU internal tests
	refine parameter error estimates and check for systematics in new params, finish in conjunction with 9.1								
9.5	intercomparison of catalogue products with other packages	MJI	100	100	100	100	100	100	completed
9.6	Completeness	MJI, EGS	0	40	40	40	40	40	
	design and report on completeness model, check completeness [9.6] and error estimates and parameter reliability [9.4]								no further progress
9.7	documentation of catalogue software and products	MJI	55	60	70	80	85	85	
	update catalogue products documentation								no further progress
10	**Setup trial and run further processing pipeline**								
10.1	Manage and run further processing stages		0	0	0	0	0	0	still awaiting PSF v1,2 development completion
10.2	development and assessment of PSF options 1,2	DWE	60	75	85	90	95	96	
	run prototype code for PSF levels 1,2 on 05A data								Continued work on PSF paper
10.3	develop 1D/2D PSF-deconvolved Sersic profile fits	MJI	0	0	0	0	0	0	
	prototype methods for Sersic profile fitting								paused, awaiting implementation of PSF fitting
10.4	Develop LSBG/nebulosity detection/parameterisation	MJI	0	0	0	0	0	0	
	investigate feasibility of nebulosity detection								paused, awaiting compelling scientific need and firmer requirements
10.5	Full iterative profile fitting for stellar images		0	0	0	0	0	0	paused, awaiting results from 10.2
10.6	Develop and optimize Bayesian image classification	MJI	0	30	40	40	40	40	
	trial Bayesian classification schemes								no further progress
10.7	Modeling and simulations of further processing steps		0	0	100	100	100	100	completed
	modelling and simulations of further processing steps. Simulate WFCAM data and use								
11	**Photometric standards and calibration**								
11.1	Agree on primary standards (WFCAM + VISTA)	STH	90	100	100	100	100	100	completed
11.2	Choose secondary standards (WFCAM + VISTA)	STH	80	80	80	85	100	100	completed: Cal Plan updated
	add in last few proposed standards and update doc								
11.3a	take part in commissioning observations WFCAM	STH	10	100	100	100	100	100	phase II on-sky characterisation - completed
11.3b	take part in commissioning observations VISTA	STH	0	0	0	0	0	0	on hold
11.4a	Reduce data, compute zero points and colour equations WFCAM	STH	15	60	80	90	95	95	

	compute WFCAM photometric zeropoints from commissioning data. update colour terms relative to 2MASS and UKIRT FS. Write paper								Calibration agreed and implemented for DR2. Final tweaking for DR3 calibration under review. Investigation into flux bias for faint calibration stars started. Paper in preparation.
11.4b	Reduce data, compute zero points and colour equations VISTA	STH	0	0	0	0	0	0	on hold
11.5	Update, maintain and extend secondary standards system	STH	0	0	0	50	100	100	complete
	begin building secondary standard fields system								
11.6	Investigate photometric calibration field systematics WFCAM+VISTA	STH	0	30	60	60	60	65	
	stack 2MASS residuals and assess								reanalysis of the systematics underway
11.7	assess extinction monitoring methods and develop measures	STH	50	60	70	90	100	100	complete
12	**Further development of DQC measures at summit and Cambr**								
12.1	develop extra systematic noise measures	MJI	50	80	80	80	80	85	
	finished for WFCAM; awaiting VISTA test files								investigation of systematic noise in VISTA AIT lab test data
12.2	Refine current measures for WFCAM/VISTA data	JRL, MJI	20	40	65	75	80	85	
	continue monitoring the DQC assessment by visually checking random sub-sample								continuing as new data arrive
12.3	implement 2mass for throughput measurement	JRL	75	100	100	100	100	100	implemented local access version at summit - completed
12.4	master calibration frames for detector monitoring	JRL, MR	35	60	80	80	80	80	
	continue monitoring using 05A and 05B WFCAM data								no further work
13	**Co-located list driven photometry**								
13.1	test methods for master catalogue generation	MJI	100	100	100	100	100	100	completed
13.2	develop basic WCS-based list driven photometer	MJI	90	95	97	100	100	100	completed
	test 80 parameter set (subsumes 13.3)								
13.3	externally driven WCS photometry and define parameter set	MJI	75	95	100	100	100	100	completed
	extend to full 80 parameter set								
14	**Stacking and mosaicing**								
14.1	develop benchmark simple stacking/mosaicing framework	MJI	100	100	100	100	100	100	completed
14.2	NN algorithm with simple rejection	MJI	100	100	100	100	100	100	completed
14.3	More sophisticated rejection dealing with pixilation	MJI	100	100	100	100	100	100	completed
14.4	Stacking with optimum weighting and defect rejection	MJI	25	25	35	35	35	35	
	refine using WFCAM deep survey data and optical data. Trial different interpolation options for WFCAM deeps surveys								no further progress
14.5	Advanced stacking/image restoration for variable PSF	MJI	0	0	10	15	15	15	
	investigate alternatives as part of UK design review								no further progress
15	**Continuum subtraction and basic difference imaging**								
15.1	Simple WCS-based subtraction techniques	MJI	100	100	100	100	100	100	completed
15.2	investigate and apply different interpolation methods	MJI	100	100	100	100	100	100	completed
15.3	develop adaptive kernel matching option	MJI	80	80	85	85	90	90	
	continue debugging and enhancements to adaptive kernel package								no further progress
15.4	time series photometry	STH	20	50	70	75	80	85	
	test with WFCAM photometry								held discussions re. WFCAM transit survey processing and interface with WSA
16	**Interpolation techniques and PSF modeling**								
16.1	investigate alternative interpolation/PSF schemes	DWE	100	100	100	100	100	100	completed
16.2	implications for different stacking methods	DWE	20	30	100	100	100	100	completed - further dev in 14.4
	trial different stacking options for WFCAM deep surveys								
16.3	implications for deriving catalogues and parameters	DWE	70	80	85	95	95	95	
	finish testing of astrometric refinement code								no further progress
16.4	oversampled PSF generation per detector	DWE	100	100	100	100	100	100	completed
16.5	develop oversampled spatially varying PSF model	DWE	20	30	30	30	50	50	
	asess if spatially varying PSF model required, test on 05B data								no further progress