Full Planning Applications: Flood Risk and Drainage Checklist

This document provides a list of the information that, in general, must be submitted to support full planning applications in relation to flood risk and drainage.

Application details

SITE:	Land adjacent Martins Way, Ledbury
DESCRIPTION:	Erection of a 67-bed care home (with Class C2) parking access, landscaping and other associated works.
APPLICATION NO:	190568
GRID REFERENCE:	OS 370499, 236735
APPLICANT:	Frontier Estates (Ledbury) Ltd
DATE OF THIS RESPONSE:	07/11/2019

In our previous response dated October 2019 we recommended that additional information was provided regarding flood risk prior to the Council granting planning permission for this development, specifically:

- Further evidence to demonstrate that the proposed deflection of the mapped surface water overland flow path around the proposed development will not increase flood risk to the public highway.

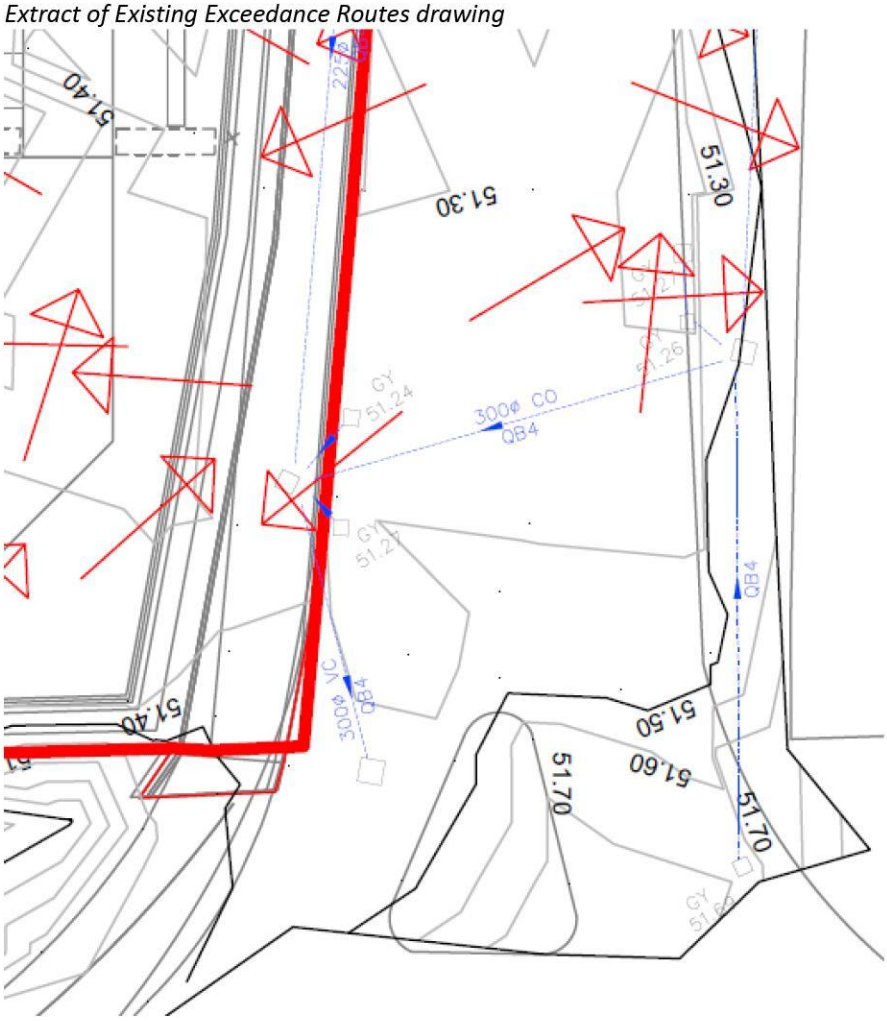
This response is informed by the email from Gillings Planning to Herefordshire Council (dated 21.10.2019) and the Existing Exceedance Routes drawing (ref: 26990/2003, dated 12.08.2019).

Response

We highlight that the EA's surface water flood mapping is unlikely to take into account the existing Severn Trent Water (STW) culvert that flows beneath Hazle Way, passing to the north of the site before bearing left towards the River Leadon. The frequency, extent and magnitude of mapped surface water flood risk that flows east towards the site is therefore likely to be less than that indicated by the EA's mapping, although we still believe that this provides an indication of likely flood risk should the culvert become blocked or the capacity of the culvert exceeded.

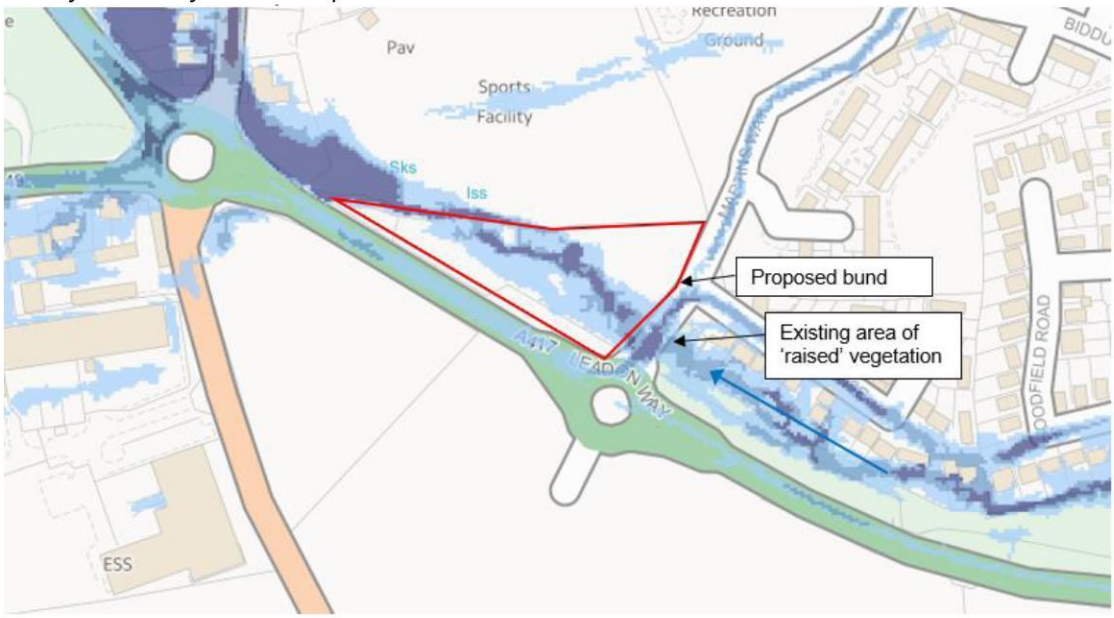
The Existing Exceedance Routes drawing (extract below) indicates that Martins Way is relatively flat but with a slight camber to both east and west road verges and a gentle fall towards the south. Our review of the plan also indicates, however, that levels in Martins Way increase slightly just before Leadon way, suggesting pooling of exceedance flows in this area. The Existing Exceedance Routes drawing indicates two gullies located at this low point. These will assist in managing exceedance flows from the west, although should these become blocked or overwhelmed, review of topography indicates that flood waters will flow west towards the site. This slight rise in levels at the junction between Martins Way and Leadon Way appears to have been picked up by the EA's surface water flood mapping. The applicant's engineer highlights that the EA's mapping would probably not pick up kerb heights, but the difference in levels between the lowest point in Martins Way and the level at the road junction is about 400mm, which is much more than the kerb height adjacent to the proposed site. The preferential (existing scenario) flow route for exceedance flows would therefore be to flow into the proposed site at this low point, rather than flow onto Leadon Way.

Extract of Existing Exceedance Routes drawing



The applicant's engineer also states that ground to the east of the site adjacent to Martins Way (i.e. in the green space at the 'end' of the exceedance flow path through the rear gardens of existing properties) is raised and that this does not seem to have been taken into account in the EA's mapping. An extract of this raised area is provided below. The area appears to comprise dense vegetation and we agree that this is likely to reduce the flow of water towards Martins Way and encourage pooling of water behind the vegetation.

EA surface water flood risk map



Location of raised vegetated area

Overall comment

In summary and based on review of all available information, the risk to the proposed development is likely to be less than that indicated by the EA's surface water flood risk mapping and is instead likely to be attributable more to residual risk in the event of culvert / gully blockage or during extreme events that overwhelm the culvert / drainage capacity. This residual risk is likely to pose the greatest risk to the south-east of the proposed development close to the low point in Martins Way. Review of proposed site plans indicates that this area will be retained as green space and we therefore strongly recommend that the topography in this area is profiled in such a way that encourages the storage of water within soft landscaped areas and prevents flooding to the proposed development or the deflection of flood flows towards Leadon Way.

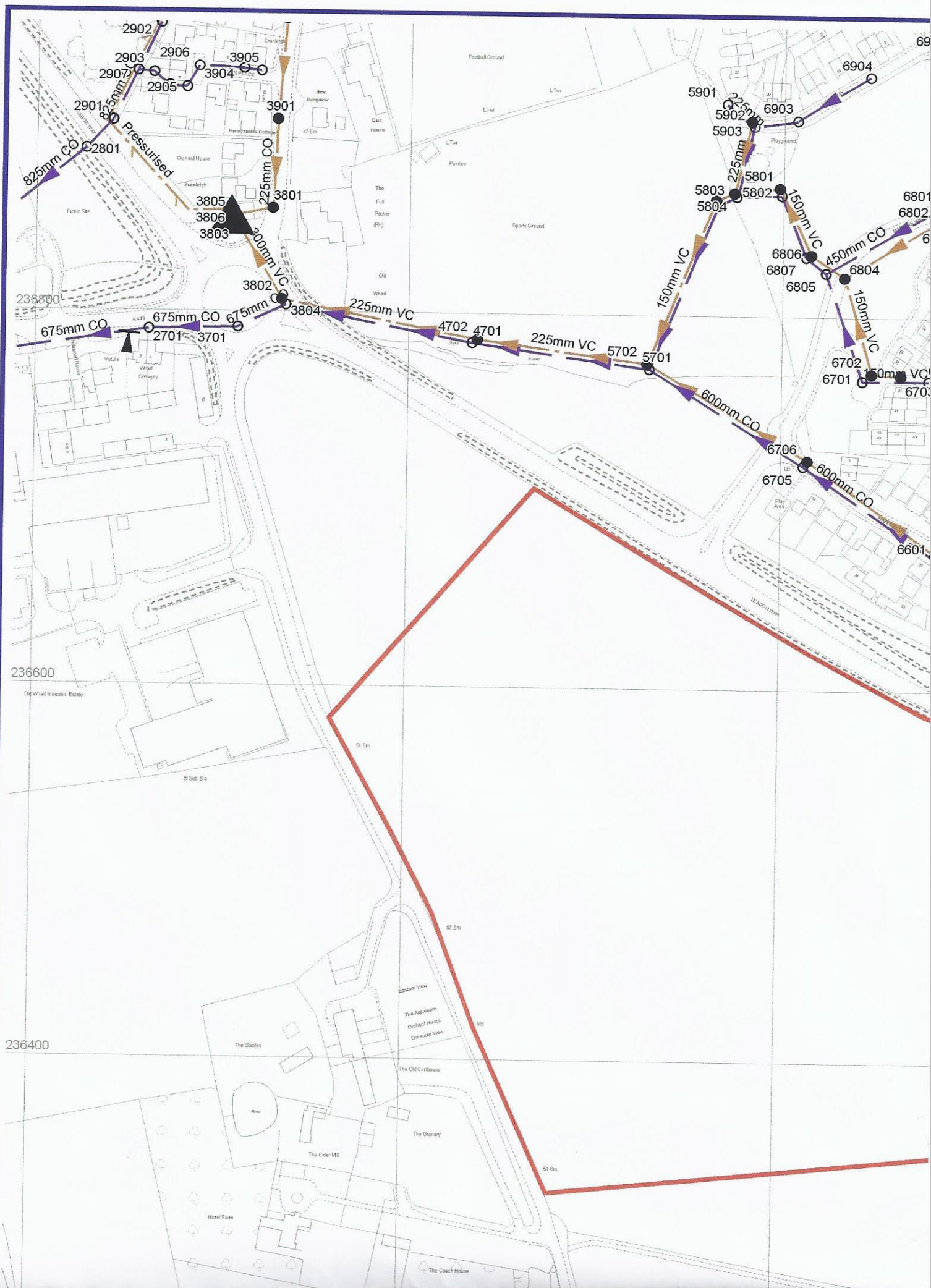
No further information is deemed to be required at this stage and we support approval of this planning application.

Should the Council be minded to grant planning permission, we recommend that the following information is requested within suitably worded planning conditions:

- Demonstration that proposed finished floor levels will be located 300mm above adjacent ground levels.
- Demonstration of how exceedance flows to the south-east of the development will be managed to prevent flood risk to the development and increased flood risk to Leadon Way.
- Demonstration that best practice SuDS features have been included as far as practicable, noting that the use of below ground cellular storage should be minimised as far as practicable.
- Detailed drainage calculations showing that the surface water drainage system is designed to show no surcharge for the 1 In 2 year event, no flooding from the system for the 1 in 30 year event and no flooding outside of the site boundary for the events greater than 1 in 30 year and up to and including the 1 in 100 year with climate change allowances. The calculations shall be based on FEH 2013 rainfall data.
- Drawings showing details of the proposed attenuation structures (including permeable paving and crate storage if proposed) and proposed outfalls/headwalls. The drawing shall clearly show the bed level of the pond, bank levels, bund levels invert levels of the inflow and outflow pipes, water level predicted for the 1

in 100 year event with climate change and proposed freeboard. We recommend the bund surrounding the pond is raised to 300mm.

- Detailed drawing demonstrating the management of surface water runoff during events that may temporarily exceed the capacity of the drainage system.
- If access to works or third-party land is required, confirmation that an agreement has been made with the necessary persons to cross third party land and make a connection to the watercourse.
- A summary of key principles and assessment of the residual risk, without supporting calculations, if the proposed foul water pumping station.
- Confirmation that Seven Trent Water will be the adopting authority for the foul water drainage network.


2902
2903
2906
3905
2907
3904
2905
2901
825mm
3901
825mm CO
2801
Pressurised
225mm CO
3805
3801
3806
3803
300mm VC
3802
236800
675mm CO
675mm CO
675mm CO
2701
3701
3804
225mm VC
4702
4701
225mm VC
5702
5701
150mm VC
600mm CO
6706
6705
600mm CO
6601
5901
225mm
5902
5903
225mm
5801
5803
5802
5804
150mm VC
6904
6903
6801
6802
6806
450mm CO
6807
6804
6805
150mm VC
6702
6701
150mm VC
6703
236600
236400
Football Ground
Club House
Pavilion
Sports Ground
Playground
Old Wharf Industrial Estate
The Stables
The Old Carthouse
The Granary
The Cider Mill
Hazel Farm
The Coach House

Sewer Node / Sewer Pipe Data

REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SO70362701	47.43	43.91	43.14	S	CO	C	675	nil	103.78	nill
SO70362801	47.75	44.63	43.76	S	CO	C	825	nil	89.22	nill
SO70362901	47.90	44.87	44.63	S	CO	C	825	nil	88.58	nill
SO70362902	47.70	45.42	44.87	S	CO	C	825	nil	52.75	nill
SO70362903	47.45	44.86	44.33	S	VC	C	225	nil	15.96	2004
SO70362904	47.19	44.92	44.86	S	VC	C	225	nil	181.50	2004
SO70362905	47.11	45.07	44.92	S	VC	C	225	nil	62.07	2004
SO70362906	47.28	45.12	45.07	S	CO	C	900	nil	259.80	2004
SO70362907	47.13	45.42	44.87	S	CO	C	825	nil	54.58	nill
SO70363701	48.14	44.34	43.97	S	CO	C	675	nil	129.84	nill
SO70363801	nil	nil	45.37	F	nil	nil	nil	nil	0.00	nill
SO70363802	48.37	45.43	45.29	F	VC	C	300	nil	333.21	nill
SO70363803	47.29	45.29	45.28	F	VC	C	300	nil	728.00	nill
SO70363804	48.41	44.53	44.38	S	CO	C	675	nil	190.93	nill
SO70363806	47.20	45.21	45.17	F	CO	C	300	nil	50.00	nill
SO70363901	47.91	46.23	nil	F	CO	C	225	nil	0.00	nill
SO70363904	47.48	45.28	45.12	S	CO	C	900	nil	149.87	2004
SO70363905	47.40	45.97	45.89	S	VC	C	225	nil	118.00	2004
SO70364701	48.55	45.61	44.57	S	CO	C	675	nil	97.88	nill
SO70364702	48.43	45.74	45.48	F	VC	C	225	nil	411.12	nill
SO70365701	50.64	48.73	46.45	S	CO	C	600	nil	42.06	nill
SO70365702	50.50	48.42	45.76	F	VC	C	225	nil	34.51	nill
SO70365801	52.70	51.96	51.38	F	VC	C	150	nil	41.52	nill
SO70365802	52.71	50.98	50.31	S	CO	C	450	nil	35.82	nill
SO70365803	52.25	50.08	49.95	F	VC	C	150	nil	82.85	nill
SO70365804	53.13	50.19	49.87	S	CO	C	600	nil	34.94	nill
SO70365805	51.98	49.91	48.60	F	VC	C	150	nil	72.58	nill
SO70365806	51.97	49.86	48.89	S	CO	C	600	nil	98.02	nill
SO70365901	54.33	52.71	52.53	S	nil	C	nil	nil	104.17	nill
SO70365902	54.52	nil	nil	S	nil	nil	nil	nil	0.00	nill
SO70365903	54.52	52.16	51.19	F	nil	nil	nil	nil	40.29	nill
SO70366601	53.99	51.98	50.35	S	CO	C	600	nil	54.28	nill
SO70366602	54.15	51.29	50.37	F	VC	C	225	nil	93.50	nill
SO70366701	56.40	54.69	53.68	S	CO	C	225	nil	59.18	nill
SO70366702	56.41	54.42	53.06	F	VC	C	150	nil	39.79	nill
SO70366703	57.61	55.75	54.42	F	VC	C	150	nil	12.05	nill
SO70366704	58.74	56.81	54.76	S	VC	C	150	nil	17.57	nill
SO70366705	52.24	50.31	48.74	S	CO	C	600	nil	61.17	nill
SO70366706	52.31	50.35	48.45	F	VC	C	225	nil	51.91	nill
SO70366801	56.81	55.11	53.49	S	CO	C	450	nil	43.19	nill
SO70366802	57.09	54.75	53.06	F	VC	C	150	nil	34.50	nill
SO70366803	57.20	55.62	54.89	F	VC	C	150	nil	18.27	nill
SO70366804	55.25	53.04	52.74	F	VC	C	150	nil	70.33	nill
SO70366805	55.28	53.43	52.43	S	CO	C	450	nil	15.26	nill
SO70366806	53.96	52.74	51.99	F	VC	C	150	nil	51.88	nill
SO70366807	53.95	52.35	51.00	S	CO	C	450	nil	25.59	nill
SO70366903	55.25	53.52	52.41	S	nil	C	nil	nil	21.23	nill
SO70366904	57.33	55.52	53.53	S	nil	C	nil	nil	22.71	nill
SO70366908	58.10	56.75	56.39	F	VC	U	150	nil	82.00	nill
SO70367601	55.87	53.16	52.72	F	VC	C	225	nil	89.91	nill
SO70367602	57.65	55.58	53.36	F	VC	C	150	nil	14.41	nill
SO70367603	55.35	52.98	52.01	S	CO	C	600	nil	88.12	nill
SO70367604	55.20	52.69	51.30	F	VC	C	225	nil	63.06	nill
SO70367605	nil	nil	53.11	S	CO	C	375	nil	0.00	nill
SO70367606	55.81	53.41	53.13	S	CO	C	600	nil	145.89	nill
SO70367607	57.88	56.13	53.72	S	VC	C	225	nil	15.77	nill
SO70367801	59.39	57.76	56.29	S	CO	C	300	nil	29.06	nill
SO70367802	59.20	57.42	55.86	F	VC	C	150	nil	20.88	nill
SO70367803	58.50	56.89	55.39	S	VC	C	150	nil	18.52	nill
SO70367804	58.52	57.02	55.68	F	VC	C	150	nil	17.18	nill
SO70367805	59.38	58.03	56.92	S	VC	C	150	nil	48.76	nill
SO70367806	61.70	60.23	58.04	S	VC	C	150	nil	15.61	nill