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Acoustic Report

Environmental Noise Survey
West Road, Pogmoor, Barnsley

Our Reference - J1399

Survey Date –7th / 8th June 2007

Survey and Report By – Paul Horsley MIOA

Date of Report: 18.06.07



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1.0 Client

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2.0 Subject

Proposed Residential Development of Existing Employment Site

West Road

Pogmoor

Barnsley

3.0 Aims

The aim of this report is to determine the existing background noise environment levels, affecting the perimeter site boundary locations of the West Road site, Pogmoor, in accordance with the requirements of BS4142: 1997 'Method for Rating Industrial Noise affecting Mixed Residential and Industrial areas'.

Provide an assessment of the results in accordance with Planning Policy Guidance 24, PPG 24, with respect to the planning application, for the proposed redevelopment of the land from a brown field site to housing.

4.0 Guidance on the Assessment of Noise Levels

4.1 BS4142:1997 "Method for Rating Industrial Noise Affecting Mixed residential and Industrial Areas"

This standard provides a method by which the impact of noise from factories, industrial premises, fixed installations and noise sources of an industrial nature in commercial premises can be predicted in terms of the likelihood of complaints arising from people residing in nearby dwellings. The standard is intended for assessing the measured or calculated noise levels from both existing and new or modified premises.

The likelihood that an individual will complain depends on individual attitudes and perceptions in addition to the noise levels and acoustic features present. The standard however, is only concerned with the rating of a noise based on the margin by which it exceeds a background noise level, with an appropriate allowance for any acoustic characteristics that may be present. In general, a noise is likely to cause complaints when it exceeds the background by a certain margin.

- A difference of around +10 dB or more indicates that complaints are likely
- A difference of around +5 dB is of marginal significance
- If the rating level is more than dB below the measured background noise level then this is a positive indication that complaints are unlikely.

An important cautionary note is included within the standard:

> "...the user is reminded that this standard is not based on substantive research but rather on accumulated experience"

It is also states that the method is not suitable for assessing noise measured inside buildings or when the background and rating levels are both very low[1].

1 - For the purposes of the standard, background noise levels below 30 dB and rating levels below say 35 dB are considered to be very low.

4.2 PPG 24 Planning Policy Guidance *"Planning and noise"*

Planning policy guidance note PPG 24 gives guidance to local authorities in England on the use of their planning powers to minimise the adverse impacts of noise and builds upon the advice previously contained in DoE Circular 10/73.

The PPG outlines the considerations to be taken into account in determining planning applications both for noise-sensitive developments and for those activities that will generate noise. It introduces important standards and references including BS8233:1987 *"Sound insulation and noise reduction for buildings"*, CRTN *"Calculation of road traffic noise"*, BS 7445 *"Description and measurement (1Hz to 80 Hz)"* etc..

The concept of noise exposure categories for residential development is also introduced, and recommendations are made regarding appropriate levels of exposure to different sources of noise. However, Annex 1 of the PPG it is stated that:

"the NEC procedure is only applicable where consideration is being given to introducing residential development in an area with an existing noise source, rather than the reverse situation where new sources are to be introduced into an existing residential are"

The reason given in the PPG is as follows:

"This is because the planning system can be used to impose conditions to protect incoming residential development from an existing noise source but, in general, developers are under no statutory obligation to offer noise protection measures to existing dwellings which will be affected by a proposed new noise source"

The four NECs are defined thus:

NEC	
A	Noise need not be considered as a determining factor in granting planning permission, although the level at the end of the category should not be regarded as a desirable level.
B	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise.
C	Planning permission should not normally be granted. Where it is considered that permission should be given, for example because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	Planning permission should normally be refused.

The noise levels corresponding to the NECs for road and mixed noise sources are given below. Values in the table refer to noise levels measured on an open site at the position of the proposed dwellings, well away from any existing buildings, and 1.2m to 1.5m above the ground.

Recommended Noise Exposure Categories For New Dwellings Near Existing Sources

Noise Level Corresponding to Noise Exposure Categories for New Dwellings, LAeq,T (dB)				
	Noise Exposure Categories			
Noise Source	**A**	**B**	**C**	**D**
Road Traffic 07.00 – 23.00 23.00 – 07.00	<55 <45	55 – 63 45 – 57	63 – 72 57 – 66	>72 >66
Rail Traffic 07.00 – 23.00 23.00 – 07.00	<55 <45	55 – 66 45 – 59	66 – 74 59 – 66	>74 >66
Air Traffic 07.00 – 23.00 23.00 – 07.00	<57 <48	57 – 66 48– 57	63 – 72 57 – 66	>72 >66
Mixed Sources 07.00 – 23.00 23.00 – 07.00	<55 <45	55 – 63 45 – 57	63 – 72 57 – 66	>72 >66

The PPG also provides general advice on the approach that may be used to limit the impact of noise i.e.:

(i) **engineering**: reduction of noise at point of generation (e.g. by using quiet machines and/or quiet methods of working); containment of noise generated (e.g. by insulating buildings which house machinery and/or providing purpose-built barriers around the site); and protection of surrounding noise-sensitive buildings (e.g. by improving sound insulation in these buildings and/or screening them by purpose built barriers);

(ii) **lay-out**: adequate distance between source and noise sensitive building or area; screening by natural barriers, other buildings, or non-critical rooms in a building;

(iii) **administrative**: limiting operating time of source; restricting activities allowed on the site; specifying an acceptable noise limit.

The glossary of the PPG contains definitions of various acoustic terms and states that a change of 3 dB(A) is the minimum perceptible under normal conditions.

4.3 World Health Organization 1999, "*Guidelines for Community Noise*"

This document provides a review of the effects of noise and a description of the principles of the WHO health criteria and guidelines for Community Noise.

The effects of noise in dwellings are identified as sleep disturbance, annoyance and speech interference. For bedrooms, the critical effect is sleep disturbance. Indoor guideline values for bedrooms are 30 dB LAeq for continuous noise and 45 dB LAmax for sound events. At night time, outside sound levels about 1 metre from facades of living spaces should not exceed 45 dB LAeq, so that people may sleep with bedroom windows open. This value is equivalent to that specifies in the Criteria 12 document; however it is now assumed that the noise reduction from outside to inside with the window open is 15 dB.

To enable casual conversation indoors during the daytime, the sound level of the interfering noise should not exceed 35 dB LAeq.

To protect the majority of people from being **seriously** annoyed during the daytime, the outdoor sound level from steady, continuous noise should not exceed 55dB LAeq on balconies, terraces and in outdoor living areas. To protect the majority of people from being **moderately** annoyed during the daytime, the outdoor sound level should not exceed 50 dB LAeq.

Table 1 of the document summarises the guideline values for community noise in specific environments and includes the noise indices to be adopted. Significantly, the corresponding time base to be used for the assessment is also included.

The relevant extracts of Table 1 are reproduced thus:

Specific Environment	Critical health effect (s)	LAeq dB	Time Base hours	LAFmax dB
Outdoor living area	Serious annoyance, daytime and evening.	55	16	-
	Moderate Annoyance, Daytime and evening	50	16	-
Dwelling, Indoors	Speech intelligibility & moderate annoyance *daytime & evening.*	35	16	-
	Sleep Disturbance, night-time	30	8	45
Outside Bedroom	Sleep disturbance, window open (Outdoor Values)	45	8	60

5.0 Location and Description of Existing Noise Sources

The existing land under consideration comprises of a disused workshop, garage and outbuilding adjacent to West Road, Pogmoor with long-time demolished building plots to the south of the site. The site is located within a mixed commercial and residential area to the West of Barnsley. It can be described as a predominantly triangular shaped site approximately 230m x 110m, with the base of the triangle formed at the Southern end of the site. Refer to Appendix A for an aerial plan of the site.

The Northern site boundary is formed by the aforementioned workshop and is adjacent to West Road. The land behind the workshop slopes down approximately 6m to a plateau for the remainder of the site. There are existing occupied workshops directly to the north of this boundary, also fronted by West Road.

The Western site boundary is formed by a disused haulage depot, with DSA Test Centre adjacent to the North West site boundary. The South West site boundary is formed an existing playing filed, containing a football pitch, used by local teams.

The Southern site boundary is formed by a railway line. This railway line is used by commuter rail only and is operational by East and West bound trains on an hourly basis from approximately 6am to midnight daily. Beyond the railway are further commercial premises, including a Ford Garage and dealership. This dealership has a paint shop with audible extraction plant operating during daytime periods only.

The Eastern site boundary is formed by playing fields for about 200m to industrial premises beyond.

The primary noise sources within the vicinity of the site are predominantly due to the extraction plant noise emanating form the Ford paint shop opposite the Southern site boundary. Road traffic noise is also audible from local, due to the DSA Test Centre activities, and distant traffic movements. Noise from the adjacent workshops is audible including pneumatic tools and compressors.

Intermittent noise can be heard from passing trains. There are 2 trains present at 1-hour intervals during the daytime, dependant upon timetable requirements, from 6.30 to 00.00 week

days, reducing in frequency for weekend periods. The trains are primarily passenger units with only 2 carriages. There are train movements along the line outside these time periods; however these are due to the railway companies shuttling engines around the system and as such are not scheduled, published or predictable movements. Train passage takes 6 seconds per movement.

Wild birdsong is audible throughout the day and nighttime periods.

High altitude aircraft noise is also audible overhead at intermittent periods.

6.0 Survey Equipment

Real-Time 1/3 Octave Integrating Sound Level Meter, RION NA-27, Type 1, Serial No 431986.
RION UC-53A Microphone Serial No 35771.
RION NC-74 Calibrator Serial No 530712.
Windshield.
Tripod.

7.0 Survey Method

An environmental noise assessment survey was carried out over a typical 24-hour period between 7th and 8th June 2007, commencing at 13.00 hours, by the author.

LA_{eq}, LA_{90}, LAmax and LAmin sound measurements were taken using the sound analyser. The meter was calibrated before and after the measurements using the calibrator to ensure accuracy of the results. No variations were noted between calibrations and the results obtained can be deemed to be an accurate representation of the levels recorded.

In order to determine the effect of the existing background noise levels, sound recordings were taken at various site locations over typically 10-minute periods, with a reduced period to 5-minutes for night-time in accordance with BS4142:1997.

The noise recordings were repeated over 7 cycle periods for the 3 locations selected in order to determine the exposure noise levels over the typical daytime, early evening and nighttime periods to allow an accurate assessment to be completed.

Refer to Appendix A for a marked up aerial plan of the site and survey points selected.

Refer to Appendix B for the survey results frequency analysis readouts.

8.0 Prevailing Weather Conditions

7th June 2007 – Daytime 15°C, Overcast Sky, Wind speed between 0-3mph.
7th June 2007 – Nighttime 10°C, Overcast Sky, Wind speed between 0-2mph.
8th June 2007 – Daytime 12°C, Clear Sky, Wind speed between 0-2mph.

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9.0 Noise Survey Results Table 1 of 2

NOISE SURVEY RESULTS TABLE

Map Location	Survey Cycle	Description of Location	Data ID	LAmax dB	LAmin dB	LAeq dB	LA10 dB	LA90 dB	Survey Duration	Survey Date	Start Time	Source Description	PPG 24 Category
1	1	Northern Site Boundary	84	76.2	41.9	52.7	54.7	43.9	00:10:00.00	07/06/07	13:27:13	Passing local traffic low volume but dominant source. Fan noise audible from Ford Garage paint shop. Birdsong.	A
2	1	Eastern Site Location	85	70.5	48.0	52.5	52.0	49.8	00:10:00.00	07/06/07	13:50:34	Ford fan noise dominant source. 1 passing train. Birdsong.	A
3	1	Southern Site Boundary	86	75.8	43.5	52.4	48.6	45.3	00:10:00.00	07/06/07	14:02:06	Ford fan noise dominant source. 1 passing train. Birdsong.	A
1	2	Northern Site Boundary	87	70.9	37.6	49.0	50.1	40.4	00:10:00.00	07/06/07	17:13:25	Distant traffic noise audible. Adjacent garage activity noise audible. Birdsong.	A
2	2	Eastern Site Location	88	69.9	34.1	40.4	40.6	38.8	00:10:00.00	07/06/07	17:25:44	Birdsong dominant source. Distant traffic noise audible. (Note Ford Garage fan isolated at 5pm)	A
3	2	Southern Site Boundary	89	59.2	36.5	41.3	42.6	38.5	00:10:00.00	07/06/07	17:41:43	Birdsong dominant source. Distant traffic noise audible. 1 High altitude aircraft audible.	A
1	3	Northern Site Boundary	90	73.2	34.8	46.5	43.9	36.9	00:10:00.00	07/06/07	21:36:34	Distant traffic noise audible. Birdsong. 1 vehicle with engine running close to test point.	A
2	3	Eastern Site Location	91	60.3	32.8	37.4	38.8	34.5	00:10:00.00	07/06/07	21:49:35	Birdsong dominant source. Distant traffic noise audible. 1 High altitude aircraft audible.	A
3	3	Southern Site Boundary	92	78.3	33.3	52.7	40.3	35.2	00:10:00.00	07/06/07	22:01:26	1 passing train. Distant traffic noise audible. Birdsong.	A
1	4	Northern Site Boundary	93	48.9	31.4	34.7	36.4	32.8	00:05:00.00	07/06/07	23:50:18	Distant traffic noise only source.	A
2	4	Eastern Site Location	94	52.8	27.2	32.4	34.0	29.3	00:05:00.00	07/06/07	23:58:57	Very low distant traffic audible. Distant extract fan audible.	A
3	4	Southern Site Boundary	95	63.9	25.9	33.5	31.9	28.1	00:05:00.00	08/06/07	00:05:08	Distant traffic noise only source.	A
1	5	Northern Site Boundary	96	50.3	26.1	29.6	31.0	27.4	00:05:00.00	08/06/07	03:13:11	Very low distant traffic audible. Low extract fan audible.	A
2	5	Eastern Site Location	97	59.8	25.9	31.7	31.2	27.7	00:05:00.00	08/06/07	03:18:31	Distant traffic noise only source.	A

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NOISE SURVEY RESULTS TABLE

Map Location	Survey Cycle	Description of Location	Data ID	LAmax dB	LAmin dB	LAeq dB	LA10 dB	LA90 dB	Survey Duration	Survey Date	Start Time	Source Description	PPG 24 Category
3	5	Southern Site Boundary	98	48.2	25.4	28.9	30.6	26.5	00:05:00.00	08/06/07	03:24:07	Low distant traffic noise audible.	A
1	6	Northern Site Boundary	99	65.2	36.9	46.8	48.2	40.0	00:10:00.00	08/06/07	06:50:18	Birdsong. Distant traffic noise. Roller Shutter Door opening on nearby workshop. 1 passing train.	B
2	6	Eastern Site Location	100	74.1	34.3	52.2	49.0	38.3	00:10:00.00	08/06/07	07:02:29	Birdsong. Distant traffic noise. 1 passing train.	A
3	6	Southern Site Boundary	101	61.1	33.1	46.7	52.2	36.1	00:10:00.00	08/06/07	07:15:38	Distant traffic noise. Birdsong.	A
1	7	Northern Site Boundary	102	67.3	41.8	50.6	52.9	44.5	00:10:00.00	08/06/07	10:02:40	Distant traffic audible. 1 passing train. Birdsong. Low workshop noise audible. Ford fan drone audible.	A
2	7	Eastern Site Location	103	58.4	51.5	53.2	53.9	52.6	00:10:00.00	08/06/07	10:19:07	Birdsong. Ford fan drone dominant source.	A
3	7	Southern Site Boundary	104	59.8	39.6	47.7	49.0	45.0	00:10:00.00	08/06/07	10:34:44	Birdsong. Ford fan drone dominant source. Distant traffic noise audible.	A

10.0 Results Analysis

The above noise survey, carried out on 7th June though to the 8th June 2007, was chosen as a representative day to reflect the typical noise climate for the area surrounding the West Road Site, Pogmoor, Barnsley.

The noise survey results obtained for the various locations and cycles can, therefore, be deemed to be representative of normal activities for the area and will be used as the base for analysis and assessment purposes below.

Assessments of the individual results are included with a Planning Policy Guidance 24: Planning and Noise, PPG24, noise exposure category, NEC, rating from A to D, for the survey location.

The PPG 24 Rating is used by the local authorities to assess the proposal for residential developments close to existing noise sources with view to granting planning permission.

11.0 Assessment Conclusions

The noise sources are varied between traffic, rail and commercial noise sources, therefore the appropriate assessment categories used are the "Mixed Source" rating levels within PPG 24.

As can be seen from the results tables above, the majority of time periods of both the day and nighttime experienced a rating of **Category A;** this was due mainly to the traffic flow noise both day and night and the Ford paint shop fan providing a constant background noise climate drone, audible at all survey locations selected around the site during daytime periods. The exceptions being the noise produced by a roller shutter door being opened at 06.50, placing the noise level just into the Category B region. Refer to Loc 1 Cyc 6 for confirmation.

In accordance with PPG 24, **Category A** situations would normally result in a planning application being granted without the need for noise to be considered, noted as such, ***"Noise is not normally a detrimental consideration on the granting of planning permission"***.

If the noise levels recorded for the individual locations and cycles were to be re-assessed over the base time period as noted within PPG 24 of 16 hours for daytime and 8 hours for nighttime, then the ratings can be calculated as follows;

Site Location	LA eq(16 Hour) dB Daytime	LA eq(8 Hour) dB Nighttime	PPG 24 Rating Cat. Day / Night
1	50.2	32.8	A / A
2	50.0	32.9	A / A
3	50.3	31.7	A / A
SITE AVERAGE	**50.2**	**32.5**	**A / A**

This re-assessment falls inline with the above statement that noise is not an issue with respect to disturbance, especially during the noise sensitive nighttime periods.

Subjectively, the prime individual noise source identified as likely to give rise to complaints during the daytime periods, would be due to either the passing trains or the nearby Ford automotive paint shop extraction fan units. During the survey the plant noise produced was clearly audible. If a BS 4142:1997 assessment is made of the operational noise source, it is found to be operating at **+12dB** above daytime background during operational cycles. This level of increase is considered likely to give rise to justifiable complaints. The activity noise was present from 08.00 hours and was operational until 17.00 only. Based upon these findings it may be prudent to make consideration of this noise source during the development along this Southern elevation to ensure internal noise levels are being achieved to meet the WHO criterion.

The passing trains produce audible noise levels above the steady background noise climate, however each passage takes on average 10 seconds from initial audibility, passage to in-audibility. There is very little overall effect on the general recorded noise levels when compared to the LAeq noise indices due to their infrequency. The only effect the passing trains are having on the site as a whole is with the LAMax indices. This effect will be assessed in greater depth in the following section.

12.0 Mitigating Circumstances

The proposal is to develop the site for residential dwellings It is assumed that the building envelope of the new build premises will be constructed to the latest Building Regulations, and be of a robust construction to provide adequate attenuation against the external noise sources, identified in the vicinity, to achieve comfortable internal noise levels.

The primary weakness in any building envelope is usually due to windows, ventilation louvres and other apertures.

It is unlikely that the residential developments will have air conditioning installed and therefore the only area of concern are the window systems.

In order to provide adequate attenuation against the noise levels in the area, it is recommended that the glazing systems employed on this development should be a sealed unit double glazing. The double glazing recommended should be a a minimum 6-16-4 combination of Glass-Air-Glass. This combination would provide an indoors to outdoors level difference of at least **30 dBA**. Based upon the external noise levels recorded this would provide an internal noise level due to external noise sources of **20.2 $LA_{eq(16Hrs)}$ dB, daytime and 2.5 $LA_{eq(8Hrs)}$ dB**, with a maximum noise of **33.9 LA_{MAX} dB**, for nighttime periods, within the recommended noise levels of the World Health Organization for mitigating against sleep disturbance when the LA_{MAX} is considered.

If the windows utilized for the development are to be opened, to allow natural ventilation within the property, then the accepted attenuation due to an open window is **-15 dB**. This would allow for noise levels within the property of **35.2 LAeq dB** for daytime periods and **17.5 LAeq dB** for nighttime periods, with a **63.3 LA_{MAX} dB** relevant for daytime and **48.9 LA_{MAX} dB** nighttime periods. These figures are within the accepted maximum noise levels in order to ensure that sleep disturbance does not occur, other than the event level LA Max indices, above by +3.9 dB, therefore we may not be the correct type of glazing for this particular site.

To avoid disturbance due to external noise sources and still provide adequate ventilation within a bedroom, an alternative to opening a window would be to consider installation of a sealed unit double glazing system with integral acoustic trickle ventilation system. An acceptable system to provide both adequate background ventilation in accordance with Approved Document F1 and

the minimum acoustic properties to maintain the internal noise characteristics of a closed window would be the "Passivent" through frame ventilators. The recommendation is for the Ultra Vent internal ventilation bar with external acoustic grille. Combined acoustic properties of the system achieve a published sound reduction of 48 dB, well in excess of the minimum requirements necessary. Alternative manufacturers are available for this type of system, and further advise should be sought from your architect during the design stage of the development.

13.0 Report Summary

A noise survey was carried out of the existing environmental noise exposure over a typical 24-hour period from 7th to 8th June 2007, by the writer, in respect of the planning application for development of the West Road site for residential purposes.

The noise levels recorded during the survey were utilized to provide the raw data to carry out an assessment of the site in accordance with the rating levels laid down in Planning Policy Guidance 24, Planning and Noise, PPG24. The PPG 24 Rating is used by the local authorities to assess the proposal for residential developments close to existing noise sources with view to granting planning permission.

The results indicate that the site is subject to **Category A** during all day and nighttime periods, with the primary background noise being due to traffic, industrial and rail.

As such the local authority should take note of the requirements of PPG24 in their consideration of the planning application which states that; ***"Noise is not normally a detrimental consideration on the granting of planning permission"***.

Mitigating recommendations have been provided to ensure that adequate protection against intrusion from external noise sources is provided for the development, where considered necessary.

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Appendix A – Locational Plan and Survey Points



Key

1 Survey Location

Site Boundary
West Road, Pogmoor

APPENDIX B - NOISE SURVEY FREQUENCY RESULTS

						Linear Leq dB Sound Pressure Levels									
Map Location	Survey Cycle	Data ID	LAmax dB	LAmin dB	LAeq dB	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	LA10 dB	LA90 dB
1	1	84	76.2	41.9	52.7	59.4	53.5	48.5	50.1	48.4	45.2	39.6	33.1	54.7	43.9
2	1	85	70.5	48.0	52.5	58.5	51.6	49.9	50.3	48.6	43.0	38.6	31.2	52.0	49.8
3	1	86	75.8	43.5	52.4	59.5	61.4	48.2	49.0	48.4	43.0	39.9	35.7	48.6	45.3
1	2	87	70.9	37.6	49.0	58.2	51.7	46.4	44.1	45.0	40.7	37.7	30.6	50.1	40.4
2	2	88	69.9	34.1	40.4	55.6	51.4	38.7	34.3	34.8	30.9	30.0	23.1	40.6	36.8
3	2	89	59.2	36.5	41.3	53.6	46.8	37.3	36.4	37.4	33.9	27.8	23.0	42.6	38.5
1	3	90	73.2	34.8	46.5	59.1	57.8	47.5	40.6	41.0	36.5	26.9	19.2	43.9	36.9
2	3	91	60.3	32.8	37.4	49.9	40.8	37.7	33.6	32.3	29.8	21.7	19.0	38.8	34.5
3	3	92	78.3	33.3	52.7	55.0	49.4	43.7	45.6	50.5	44.7	39.8	31.4	40.3	35.2
1	4	93	48.9	31.4	34.7	44.1	37.5	31.9	32.8	30.7	24.9	19.0	16.1	36.4	32.8
2	4	94	52.8	27.2	32.4	44.9	36.0	31.1	29.9	27.8	22.8	15.6	14.9	34.0	29.3
3	4	95	63.9	25.9	33.5	46.3	32.4	25.2	27.2	29.9	25.5	23.0	18.3	31.9	28.1
1	5	96	50.3	26.1	29.6	43.4	33.6	25.7	26.7	25.5	20.4	14.6	14.1	31.0	27.4
2	5	97	59.8	25.9	31.7	44.8	33.1	27.5	30.3	27.2	21.2	17.2	14.9	31.2	27.7
3	5	98	48.2	25.4	28.9	41.5	29.8	24.7	26.0	25.2	19.7	13.7	13.9	30.6	26.5
1	6	99	65.2	36.9	46.8	57.2	48.4	42.5	42.2	42.5	37.5	38.5	29.5	48.2	40.0
2	6	100	74.1	34.3	52.2	56.7	62.9	43.8	46.1	48.3	43.3	41.9	36.2	49.0	38.3
3	6	101	61.1	33.1	46.7	54.6	40.5	32.3	35.4	35.3	28.9	43.9	40.4	52.2	36.1
1	7	102	67.3	41.8	50.6	63.6	59.2	52.1	48.0	44.5	39.3	33.9	25.7	52.9	44.5
2	7	103	58.4	51.5	53.2	56.9	50.0	50.0	51.3	48.8	44.7	41.0	34.7	53.9	52.6
3	7	104	59.8	39.6	47.7	57.6	48.5	44.8	44.9	42.1	37.3	39.8	36.4	49.0	45.0

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