Australian Sustainable Business Group

31 Lady Penrhyn Drive
Beacon Hill 2100
Australia
Telephone: (02) 9453 3348
Fax: 1300 303 816
Mobile: 0407 238 258
Email: andrew@asbg.net.au
Website: www.asbg.net.au
ABN: 71 100 753 900

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NSW Environment Protection Authority
Locked Bag 5022,
PARRAMATTA NSW 202124

RE: Submission on Recovered Soils and Recovered Fines Orders and Exemptions

The Australian Sustainable Business Group (ASBG) welcomes the opportunity to comment on the proposed *Recovered Soil Order and Exemption* criteria and the intended revoking of the *Recovered Fines (Continuous) and (Batch) Resource Recovery Order and Exemptions* and other general comments relating to RRO/Es.

The Australian Sustainable Business Group (ASBG) is a leading environment and energy business representative body that specializes in providing the latest information, including changes to environmental legislation, regulations and policy that may impact industry, business and other organisations. We operate in NSW and Queensland and have over 100 members comprising of Australia's largest manufacturing companies and other related businesses.

1 Background

ASBG received a copy of the letter the Environment Protection Authority sent to some of our members which provided consultation on the:

- Intended revoking of the Recovered Fines Orders and Exemptions
- Draft Recovered Soils Order and Exemption

ASBG has identified a number of issues which are addressed below in the following sections:

- Revocation of the Recovered Fines Orders and Exemptions and how this should be undertaken
- Assessment of the Recovered Soils criteria

2 REVOCATION OF RECOVERED FINES RRO/E

The review of the performance of the 14 Recovered Fines (RF RRO/E) users is concerning and indicative of the quality issues, which affect this type of C&D recycling. At issue is why a revocation of the RF RRO/E is the first option by the EPA? This would effectively close all processes designed to meet the RF RRO/E, wasting tens of millions of dollars spent on CAPX, making such investments stranded. A better approach would be improving those processes, which are not meeting consistent quality, rather than closing those processes. Overall the issue is one of quality and implementing policies and oversight that achieves the desired quality outcomes. Quality control is a major discipline with significant expertise, vast experience both academically and in practice. Simply banning a product as proposed in the EPA letter, appears as an extreme position, especially where there are many other approaches, methods and known solutions to correct what is essentially a quality control issue. EPA should utilise the considerable expertise in quality control and design systems and guidelines to achieve the desired specifications as they appear in the RF RRO/Es.

2.1 Impact of Revoking the RF RRO/E

Of all the RR/Es used the RF RRO/E probably deals with the largest volumes of recycled materials applied to land across NSW. Figures of around 30% of all NSW Construction and Demolition waste (C&D) relies on the RF RRO/Es to be recycled. According to the National Waste Database 2020 NSW recycled 7,00,950 tonnes (t) in 2018-19 and disposed of 551,368 t of masonry C&D wastes[1]. Obviously a sudden revocation of the RF RRO/Es would cause substantial disruption to the C&D recycling industry in NSW. For example, a 30% reduction would send an additional 2,100,000 t per year to landfill. In addition, the Waste & Sustainable Materials Strategy, which said the Greater Sydney area will runout of landfill space by 2028. Sending an additional 2.1 Mt would substantially shorten this time period. The Strategy also says it will take 10 years to plan a new landfill, so Sydney will need to export waste by 2028 and a lot of it. Even one year of 2.1 Mt to landfill, would reduce Greater Sydney's landfill capacity significantly, possibly forcing NSW into an emergency landfill situation. In addition, revocation would undermine the NSW Government's recycling targets, increasing total landfill amounts from 7.811 Mt to around 9.1 Mt[2] or 64.5% of total waste, an increase of 16.5%. Clearly a sudden revocation is not a reasonable option.

2.2 Need for a Transitional Change

ASBG notes the EPA has clear evidence of poor quality from the users of the RF RRO/Es. Revocation strongly suggests is the issue the entire RF RRO/E user sector has acted criminally and need to close. ASBG disagrees with this as the intent of the vast majority of RF RRO/E users is to comply, however, this can be difficult, especially with a *presence* based approach for asbestos. The issue is primarily one of quality not criminality. So why has quality slipped? There are two main quality checking processes operating with recycled product:

- Government, particularly EPA oversight on the RF RRO/E users
- Consumers dealing with out-of-specification product

These mechanisms are discussed below.

[1] The total C&D recycled stream is about 10 Mt, but this includes non-masonry materials.
[2] Based on NSW EPA 2019-20 figures, Waste Performance Data, NSW EPA website

2.2.1 EPA Oversight and Corrective Action Tools

Government oversight is a common issue for many Government agencies, with enforcement of building codes a recent example. In enforcing codes, specifications etc, Government agencies use a range of tools which range from audits, corrective actions, improvement notices, to fines and prosecutions. Closure of an industry sub-sector is rare, extreme and best avoided. Perhaps the EPA needs to consider the range of actions it can take to increase its options to provide a more proportional approach to enforcement of RR/Es in general.

For example, a site breaches by less than 10% of a concentration limit on an RRO. What actions should the EPA take? Given this is a non-material excursion, the site could be subject to a more intensive QA/QC process where an increased sampling and analysis system is introduced for a few months. If quality has improved the add-on quality control program can be discontinued. If not, assuming the non-conformances are non-material, the add-on QC program is extended.

EPA oversight on quality control on the use of the RF RRO is also a resourcing issue, which must be addressed. This should be undertaken carefully in a controlled manner to transition to a better set of quality systems, audits and other oversights. Use of independent auditors or assessors could be used where there are on-going issues with particular sites.

2.2.2 Consumer Quality Control

Consumer law is clear that the consumer is not responsible for a faulty product. Purchase of RRO recycled material is also subject to Commonwealth and State consumer laws. Essentially consumers can sue suppliers for faulty products including recycled products. A case in point:

In GC Group Company Pty Ltd v Bingo Holdings Pty Ltd [No.2] Supreme Court, GC purchased recycled aggregate from Bingo in the Wollongong area for use on a development project. It was identified as contaminated and required removal and replacement costing GC considerable damages. Asbestos contamination was indirectly cited as the likely contaminant of concern, which is common and most likely to be identified. In subsequent cases, Bingo as held accountable and had to rectify GC for the supply of this faulty product.

Under waste legislation, especially the RRO/E framework, the consumer can also be criminally liable for receiving faulty recycled materials if it does not reject them upon arrival. The EPA v Grafil CCA case made it clear that any consumer can be held criminally liable if they stockpile faulty recycled product. So a consumer can be found criminally liable under NSW waste legislation, but potentially able to sue the supplier for a faulty product. This bizarre set of circumstances, means consumers of recycled products under a RRO/E need to also undertake quality assessments as do the suppliers. Such consumers, especially under a RRE must also undertake quality checks as RRO recycled product arrives on their site before stockpiling. While a deterrent to recycling, this additional quality check holding the consumer to a criminal test, as well as a commercial test is at another level of requiring quality control than for virtually any other product.

2.2.3 Moving to Specific RRO/Es

EPA in its letter says it will issue site specific orders and exemptions (SRRO/E) to replace the revoked RF RRO/E. This has some merit as it provides a site-by-site assessment, but essentially it is an audit by another name on site performance. However, ASBG can see little benefit in revoking the RF RRO/E to be replaced by site specific ones. If quality control issues are not subject to reasonable oversight and checking of various forms, quality will wane. Consequently, the EPA is likely return to the same position it is in now.

Time required to assess, review and issue a SRRO/E, will take at least 6 months per site and consume a considerable level of limited EPA resources. Unless additional staff are assigned to this task the process of issuing SRRO/Es to each site would likely extend for many years. In the mean-time what becomes of the C&D inputs? Are they to go to landfill?

ASBG considers the EPA would achieve a better and smoother outcome by using the proposed SRRO/E process to undertake audits. Such audits could be timed to focus on the sites with the lowest quality, take proportional measured actions fitting the level of quality issues.

2.3 Concern on the Assessment of Performance

ASBG has some issues with the EPA letter to the users of the RF RRO/E. Firstly, why are micro-plastics, treated timbers and mineral fibres based on a *'presence'* approach? Currently, only asbestos has the *presence* or zero tolerance level, but why apply this unscientific *presence* level to these other substances? ASBG considers presence based approach to asbestos, adopted by NSW Government a great regret, reflecting community fear rather than trying to address it. Are micro-plastics, treated timbers and mineral fibres thresholds to be based on a *'presence'* approach? A presence based approach goes against EPA's Principles under its Regulatory Strategy, especially:

- **We apply a risk-based approach to regulation.** This helps us make informed decisions and focus our regulatory activities on the biggest risks to the environment and human health.
- **We use evidence as the basis for our decisions and actions**, and to help solve environmental problems and regulatory challenges. This is informed by sound science – research, environmental monitoring, technical expertise and partnering with other research bodies, the community, government and experts.

Exacerbating this concern is that the RF RRO/Es have a maximum average limits for plastic 0.05% and treated timber and mineral fibres are not listed. ASBG considers the EPA is being unfair to use unlisted contaminants to judge the RF RRO/E users.

While the EPA is intending to revoke the RF RRO/E, ASBG considers a better approach is to amend the order and exemptions to include the new contaminants and to clarify the sampling and analysis regime. Any significant changes to the RF RRO/E should be accompanied by at least a 6-month period of grace permitting changes to plant, equipment and quality control systems to meet the new requirements. Given the volume scale of the RF RRO/E proposed changes should be subject to a normal public consultation process.

2.4 A Way Forward

Collating the above issues and ASBG's position results in the below set of recommendations. Following this is a possible list of actions to correct the quality and quality control on the RF RRO/Es users.

R1 ASBG Recommends:

- ***The EPA not revoke the Recovered Fines Resource Recovery Orders and Exemptions (RF RRO/E), instead investigate and implement other means to address a quality control issue.***
- ***The EPA investigate other methods and means to better manage quality control issues for better managing the RF RRO/E users.***
- ***EPA expand its set of methods and regulatory tools to encourage, then enforce improvements to quality issues.***
- ***Recognise, perhaps encourage via educational programs, the consumers role to demand quality products from RF RRO/E product producers.***
- ***EPA undertakes an audit of non-conforming RF RRO/E users in order of non-compliance, implementing a proportional action with the main outcome to improve quality followed by other punitive actions only where appropriate.***

ASBG suggests EPA approach the quality of product from RF RRO/E issues better by:

- Undertake inspections of problematic sites, in order of concern, enforcing the current RF RRO/E and other environmental conditions as required. This can commence now as there are no legislative or policy changes required.
- Updating the RF RRO/E to include other contaminants of concern with reasonable thresholds
- Prepare a set of Guidelines[3] for assessing the quality of product streams from RF RRO/E users, which may include; upgraded sampling and analysis, systems and reasonable standard practices. Such Guidelines also permit the option to use alternative equivalent outcome approaches.
- Permit at least 6 months for the waste sector to implement these requirements.
- Commence a one-off audit program, either by the EPA and or use of independent auditors – such as with the CDS system to review quality and systems.
- Undertake spot audits as required or following customer complaints of quality

[3] The EPA C&D

3 ISSUES WITH THE RECOVERED SOIL CRITERIA

ASBG welcomes the introduction of the new *Recovered Soil Resource Recovery Order and Exemption* (RS RRO/E). Overall it is a good first draft at RRO/E criteria.

At first glance it seemed this is to replace the RF RRO/E, but closer inspection sees it applies to excavated soil (including but not limited to natural materials such as sandstone, shale, clay and soil). This is quite separate from the RF RRO/E which uses C&D waste process from skip bins as input. Another RRO/Es, which is most similar is the *Excavated Natural Material* (ENM RRO/E), but is limited to excavated *natural material* such as sandstone, shale, clay and soils, noting the RS RRO/E is not. The difference being natural or not in source material. So the RS RRO/E appears designed to assist in remediation of contaminated sites where surrounding (unnatural) soils are below contaminants thresholds or can have these contaminants removed by a process to achieve this outcome.

Given the similarities between the RF and ENM RRO/Es they are focused on as there is a grey area between natural and other soils. The main differences between the RS compared to the ENM RRO/E includes:

- Increased number of samples required per mass of stockpile – justification for requiring a higher sampling regime is not provided.
- Ability to use a desktop approach to eliminate asbestos, acid sulfate soils and halogenated hydrocarbons – a welcome and flexible addition.
- Sampling and assessment – by an independent environmental practitioner (issues with asbestos see section 3.3.1)
- Different concentration limits for Pb, Cu, Ni, Zn, PAHs, B(a)P – justification for such differences is not provided and appears arbitrary.
- Inert materials – rubber, plastic glass, asphalt, wood, metal, etc. each have a 0.01% limit rather than a combined limit of 0.1% as in the ENM RRO/E
- New contaminants: Cr(IV) only, Use of Threshold fractions and new inerts: asphalt

The RS RRO/E should assist the contaminated remediation sector as it does have some flexibilities included such as the desktop assessments which are welcomed. However, the other limits, especially using 0.01% limit for rubber, plastic, paper & cardboard, asphalt, cloth, paint, glass, metal and wood is considerably tighter than for similar materials under the ENM RRO/E, which has a grouped concentration of 0.1% absolute maximum concentration. Contaminated site remediation and even excavation activities could both use either RD or the ENM RRO/E. Noting the easier to use of either would be the case if the source material met the input criteria.

R2 ASBG recommends the Recovered Soils RRO/E use the requirements for solid inert contaminants as used by the Excavated Natural Material RRO/E.

3.1 RRO Limits

Table 1 provides a list of some of the RRO limits for engineered fill and or other non-soil amendment uses to provide a comparison with the proposed RS RRO/E. ASBG notes there are some significant differences between these RROs. Given that these are all generic RROs, and permitted to be used in soils anywhere in

NSW (pending RRE differences), one would expect the EPA to limit the generic set to be acceptable on the most sensitive soil types. Of all this type of RRO the ENM looks to be the closest match to the proposed RS RRO/E.

Table 1: RRO Engineered Fill Contaminants Comparison mg/kg

Contaminant	EMN (max avg–Ab max)	Coal Ash (max avg–Ab max)	Basalt fines (max avg–Ab max)	Basalt fines (max avg–Ab max)	Continuous fines (max avg–Ab max)	Recovered Soil # (proposed) (max avg–Ab max)	Recovered Aggregate (max avg–Ab max)	Blast furnace slag (max avg–Ab max)
Arsenic	20 - 40	10 - 20	15 - 30	15 - 30	20 - 40	20 - 40	20 - 40	1 -2
Cadmium	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 – 1.5	0.5 - 1	0.5 – 1.5	0.5-1
Chromium (total)*	75 – 150	75 – 150	25 – 50	25 - 50	60 - 150	10 – 20 Cr(VI)	60 – 120	10-20
Copper	100 - 250	50 - 100	25 - 50	25 - 50	25 - 50	100 - 250	60 - 150	10-20
Lead	50 - 100	50 - 100	50 - 100	50 - 100	100 - 250	75 - 150	75 - 150	5-10
Mercury	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 – 1.5	0.5 - 1	0.5 - 1	0.5-1
Nickel	30 - 60	40 – 80	25 - 50	25 - 50	40 - 80	40 - 80	40 - 80	20-30
Selenium	-	-	-	--	--	-	-	1-2
Zinc	150 - 300	150 - 300	75 - 150	75 -150	250 -600	150 - 400	200 - 350	100-150
(dS/m) Elec Conductivity	1.5 - 3	1 – 2	1 - 2	1 – 2	2.5 – 3.5	1.5 - 3	1.5 - 3	N/A

Given the RS and ENM RROs will both be used there should be better alignment between the two. As the RS is being reviewed it should be designed more closely with the ENM RRO.

Table 1 also shows the differences between RRO/Es which is not explained. Such limits should be based on a common theme such as a sensitive soil type found in NSW. While the RRE can specify where the RRO material can go it does not limit it to certain soil types, just away from sensitive areas such as water courses, slopes or dwellings etc. Overall, the RS RRO/E has similar and higher limits than most other RRO/Es for engineered fill. Nevertheless, it brings into question why other RRO/Es are so low such as Basalt fines.

For all RRO/Es the EPA's process of selection of limits is opaque. It would assist business and government if the process used for selecting RRO/E limits was made transparent so those seeking Specific RRO/Es can better prepare for what to expect when requesting such approval.

R3 ASBG recommends the process for selecting limits under RRO/Es (specific and generic) be made publically available to assist with future applications and beneficial reuse of certain wastes.

3.2 Conductivity

Another issue is the use of electric conductivity which is generally used as measure of salt or sodium. However, as most farmland in NSW is quite acidic, with large areas <pH 4.5, use of alkali material is in great demand. This is in part reflected in the pH range available under the RS RRO/E of 4.5 -10 max. Members report that the pH range can be contradicted by the conductivity where Ca^{2+} ions cause this to be exceeded, yet calcium ions are desirable for such depleted low pH farmland. While conductivity can be used as an indicator of high sodium or other undesirable salts, it should be set aside when the main ions are desirable such as with calcium.

R4 ASBG recommends the RRO/Es permit the ignoring of conductivity limits where level of calcium and other beneficial ions are the dominant ionic species determined by concentration.

3.3 Waste Sampling and Quality Control

Another issue is the sampling frequency and quality control. ASBG notices the EPA often uses the Victorian Soil Sampling Guidelines (IWRG702) though this can be misinterpreted by the EPA. Take the 95% upper confidence limits (UCL). If done properly, using random sampling, the standard deviation and mean should provide the data to determine number of samples required. However, the EPA's approach prefers a set number of samples, which assumes a 95%UCL is attained from this sample set. The problem with this approach is, for consistent material streams, there can be over sampling, while this results in a more accurate assessment, it generates unnecessary costs. If there is a highly variable material stream, then sampling numbers will be insufficient to determine the 95%UCL. To manage regulatory risk EPA uses a variable waste scenario which results in much higher sampling one everyone.

While EPA is developing its Contaminated Land Sampling Design Guidelines (CLSDG), it lacks a good guide so there is no confusion in how to measure wastes and resource recovered materials. While there are issues raised with the Contaminated Land Sampling Guidelines, when finalised they will likely replace reference to the Victorian EPA 702 guide. ASBG also had many issues[4] with the draft CLSDGs including its misuse of statistical analysis and the need to cover sampling from unstable stockpiles or land.

R5 ASBG recommends the EPA identify formally the sampling and analysis methods to be used for RRO/Es and other wastes, using appropriate expertise and scientific peer review and subject these changes to public consultation.

Obviously, the Construction waste Standard would dominate for such facilities, but there is still confusion and variability in the sampling methods required by the EPA which requires clarification.

3.3.1 Asbestos Analysis

ASBG members include occupational hygienists which consider the descriptions for asbestos measurement is poor and requires clarification and improvement. Table 2 lists the contents of the asbestos Key test methods and comments.

Table 2: Comments on Asbestos Key Test Method	
Asbestos Key Test Method line	**Comment**
Analysis must include qualitative and quantitative analysis of asbestos.	Noting reporting w/w % is outside the scope of accreditation against AS4964. Ensure this is additional to AS4964 and so clarified.
The weight of the sample must be recorded prior to analysis.	This is already a requirement of AS4964 and is redundant and should be removed.

[4] See ASBG's Submission on draft NSW EPA's Sampling Design Parts 1 & 2

Table 2: Comments on Asbestos Key Test Method cont.	
Asbestos Key Test Method line	**Comment**
A minimum of 1 kilogram of recovered soil must be analysed. AS4964 allows for the subsampling of the <2mm fraction (if the 2mm is >30-60 grams); Therefore, only 30-60 grams is analysed using the microscope.	Where has the sample size requirement of 1 kg come from and what does it mean? What is the benefit of the increased sample size? Does the whole I kg require to be spilt into 60 gram samples and all sampled? Or is the 1 kg mixed then one sample taken? EPA needs to clarify and explain how this *ad hoc* requirement to AS4964 will work and to what statistical end.
Analysis must comply with the Australian Standard AS4964-2004, Method for the qualitative identification of asbestos in bulk samples, Standards Australia, with the exception of sieve size.	It appears the EPA requires sieving in the lab with a 7 mm sieve? If the EPA instructs labs to swap a 10 mm sieve for a 7 mm sieve as part of the lab analysis as it renders AS4964 statistically meaningless. Such a change would require considerable scientific justification or use of such an altered method could have difficulty in court.
Analysis must gravimetrically determine the mass of asbestos containing material ('ACM') (bonded asbestos) retained on a 7mm sieve and assumes 15% of ACM as asbestos.	Justification for change to a 7 mm sieve is required for reasons described above. For example, what if the material isn't asbestos cement and has a higher asbestos content (some material can have significantly higher asbestos content or significantly lower)? If EPA wishes to rewrite AS4964, it should be undertaken by first seeking expert advice then scientifically and statistically justifying the changes and then subjecting these to public consultation. Specific test methods are prepared by environmental agencies, (see US EPA method validation page) are generally subject to draft development full scientific peer review, development of discussion papers detailing changes or new methods and public consultation.
Analysis must gravimetrically determine the mass of asbestos fines ('AF') and fibrous asbestos ('FA') retained on and passing a 2mm sieve post 7mm sieving.	Assumes AF and FA are 100% asbestos containing. This makes an assumption which can return erroneously high readings. Further refinement of this ad hoc additional requirement is required or remove this scientifically erroneous clause.
Asbestos retained must be calculated as a percentage of the total sample weight.	Noting reporting w/w % is outside the scope of accreditation against AS4964. Laboratories would not be able to obtain NATA accreditations for this, (nor other changes to AS4064) especially given the above issue.
Qualitative analysis must be undertaken by using phase-contract microscopy (PCM) or polarised-light microscopy (PLM) as asbestos identification.	PCM is not part of AS4964 and is used for the analysis of air samples. Please correct this.

Table 2: Comments on Asbestos Key Test Method cont.	
Asbestos Key Test Method line	**Comment**
Where a laboratory has qualitatively observed asbestos present in a sample through PCM or PLR analysis, but has quantitatively measured that asbestos is below the reporting limit, the laboratory must still report that asbestos was observed.	PLR is assumed to be PLM, please correct. Labs are already doing this.

In general comment the EPA appears to have prepared this draft (and many other RRO/Es), without proper reference and advice from laboratories and measurement professionals. Laboratories would also not be able to be NATA accredited against these ad hoc changes to AS4964. As a consequence, without a clear process the EPA's requirement for NATA accredited methods cannot apply to asbestos assessment under draft RS RRO/E. The issues raised with the *ad hoc* changes to AS4964 and other standards needs to be addressed in a professional manner with reference to appropriate professionals, subject to peer review and public consultation.

R6 ASBG recommends the EPA re develop and clarify its modifications to AS 4964 using appropriate expertise and scientific peer review and subject these changes to public consultation.

This submission has been prepared with the input and assistance of members of ASBG's Policy Reference Group (PRG).

Should you require further details and clarification of the contents of this submission please contact me.

Yours Sincerely

Andrew Doig
CEO
Australian Sustainable Business Group (ASBG)
T. +612 9453 3348
A. (PO Box 326, Willoughby NSW 2068)
andrew@asbg.net.au