

From: VENTURA Simone [simone.ventura@ehp.qld.gov.au]
Sent: Thursday, 12 June 2014 3:42 PM
To: peterthompson@nugrow.com.au
Subject: NuGrow BUA amendment application Information Request
Attachments: ENBU05261913 - Nugrow_amend_IR.pdf

Hi Peter,

In assessing NuGrow Roma Pty Ltd's application to amend beneficial use approval ENBU05261913 (received by this office on 12/5/2014), the department has determined that further information is required.

Please see attached a copy of the Notice to Request further information, issued to NuGrow, which provides details of the information being sought. The original Notice has been posted to you.

Please provide the requested information by **1 August 2014**. This date may be extended if, before the date, a request to extend the time for providing the further information is agreed to. If a response or a request to extend the time in which to respond is not received by this date, or a reasonable excuse has not been provided, the application may be refused.

If you have any questions or would like to discuss anything, please feel free to contact me.

Regards

Simone Ventura
Principal Project Officer, Waste and Land Contamination Assessment
Statewide Environmental Assessments
Telephone: 07 3330 5729 **Facsimile:** 07 3330 5875
www.ehp.qld.gov.au
Department of Environment and Heritage Protection
Level 9, 400 George Street, Brisbane Qld 4000
GPO Box 2454, Brisbane Qld 4001

ehp



Notice

Waste Reduction and Recycling Act 2011

Request for further information

This notice is issued by the Department of Environment and Heritage Protection (the department), pursuant to s. 158 or s. 169 of the Waste Reduction and Recycling Act 2011 (the Waste Reduction Act), to advise you of a decision to require further information for an application made under s. 157 or s. 168 of the Waste Reduction Act.

Your reference:

Our reference: PR: 404328 / Appn. 556150

Nugrow Roma Pty Ltd
PO Box 4353
RACEVIEW QLD 4305

Attention: Peter Thompson, Environmental Compliance Manager

Dear Mr Thompson,

Re: Amendment application for the beneficial use of a resource – multiple wastes in a soil rejuvenation program

Thank you for your application for an amendment of a specific approval for the beneficial use of multiple wastes in a soil rejuvenation program at Kogan, Qld 4406. The application was received by the department on 12 May 2014.

This notice is issued under section 169(1) of the Waste Reduction Act as the application does not provide sufficient detail for assessment. The department requires the following further information for the application to be considered:

Change of condition 1 – Addition of new property

1. The original approval was granted with the understanding that the use of the resources was going to be conducted on a trial basis with a determination of the effectiveness of the use of the resources in improving soil quality serving as a basis for any future land applications.

Please provide information demonstrating the requirement for the additional property (Fairview) to be included in the trial.

Change of condition 23 – Aerosol and spray drift

2. Conditions included in the original approval prohibiting the generation of aerosol and spray drift were included for the purpose of managing health risks associated with using treated sewage effluent, and nuisance. The amendment application requests that this requirement be removed as the particular

irrigation device to be used has the potential to generate aerosol and spray drift. Insufficient information has been provided on how any aerosol and spray drift will be controlled. For example, the application states that due regard will be given for wind direction however there is no indication on what 'due regard' means.

Considering the relatively high risk presented with aerosols and the low quality of the sewage effluent being used (Class D, *E. Coli* concentrations up to 10,000cfu/100mL), it is necessary that conditions be imposed to ensure the resource is used without an unacceptable risk to the public.

Risks associated with the use of sewage effluent should be managed in accordance with the hierarchy of control measures in section 6.1 of the *Water quality guidelines for recycled water schemes* (DEWS, 2008) (the guideline). The existing condition eliminates the risk of aerosols/spray drift; elimination being the most preferred method of control.

Please provide details of the measures that would be implemented to minimise the risks associated with aerosol and spray drift, considering the hierarchy of control in the guideline. Consideration must be given to the following order:

- a) Substitution—Replacing the hazard with a suitable alternative that has a lower risk. For example, sourcing a higher quality of water.
- b) Isolation— Removing or separating people from the source of the hazard. For example, irrigation of areas with restricted access (for example, irrigation of fenced areas such as golf courses or sporting fields after hours).
- c) Minimisation through engineering means— Changing the physical characteristics of the way in which the recycled water is used to remove or reduce the risk. For example, modifying application of the water from fine spray to heavy droplet to decrease risk of overspray
- d) Administrative measures— Use policies, procedures, signs and training to control risk. For example, Review systems of work so that irrigation only occurs during times of low wind speed; use of signs advising recycled water is in use; train users in the safe use of recycled water.

Please provide the requested information by **1 August 2014**. This date may be extended if, before the date, a request to extend the time for providing the further information is agreed to. If a response or a request to extend the time in which to respond is not received by this date, or a reasonable excuse has not been provided, the application may be refused.

Your response should be sent to the following address quoting the reference at the top of this notice:

Permit and Licence Management
Implementation and Support Unit
Department of Environment and Heritage Protection
GPO Box 2454
BRISBANE QLD 4001

Notice
Request for further information

Should you have any queries in relation to this notice, please contact Simone Ventura of the department on telephone (07) 3330 5729.

sch4-Signature

Signature

06/06/2014

Date

Lindsay Delzoppo
Director, Statewide Environmental Assessments
Delegate of the Chief Executive
Waste Reduction and Recycling Act 2011

Enquiries:
Simone Ventura
Principal Project Officer, WLCA
Statewide Environmental Assessments
Ph: (07) 3330 5729
Email: wlca@ehp.qld.gov.au

EHP RTI DL Released

From: Peter Thompson [peterthompson@nugrow.com.au]
Sent: Friday, 13 June 2014 8:37 AM
To: VENTURA Simone
CC: Roy Wilson; Dan Stuart; Jacob Wilson
Subject: RE: NuGrow BUA amendment application Information Request
Attachments: Response to DEHP information request.pdf

Hi Simone,

Thank you for your email below. Please find attached NuGrow's response to the "Notice to Request further information". Should you require anything further that isn't provided, please don't hesitate to contact me.

Kind Regards,
Peter Thompson
Environmental Compliance Manager



Site Address: Memorial Dr Swanbank
Postal Address: P.O.Box 4353 Raceview, QLD 4305
Mobile: sch4p4(6) Personal information
Fax: 3288 6831
peterthompson@nugrow.com.au
www.nugrow.com.au

From: VENTURA Simone [mailto:simone.ventura@ehp.qld.gov.au]
Sent: Thursday, 12 June 2014 3:42 PM
To: Peter Thompson
Subject: NuGrow BUA amendment application Information Request

Hi Peter,

In assessing NuGrow Roma Pty Ltd's application to amend beneficial use approval ENBU05261913 (received by this office on 12/5/2014), the department has determined that further information is required.

Please see attached a copy of the Notice to Request further information, issued to NuGrow, which provides details of the information being sought. The original Notice has been posted to you.

Please provide the requested information by **1 August 2014**. This date may be extended if, before the date, a request to extend the time for providing the further information is agreed to. If a response or a request to extend the time in which to respond is not received by this date, or a reasonable excuse has not been provided, the application may be refused.

If you have any questions or would like to discuss anything, please feel free to contact me.

Regards

Simone Ventura
Principal Project Officer, Waste and Land Contamination Assessment
Statewide Environmental Assessments
Telephone: 07 3330 5729 **Facsimile:** 07 3330 5875
www.ehp.qld.gov.au
Department of Environment and Heritage Protection
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GPO Box 2454, Brisbane Qld 4001

ehp



The information in this email together with any attachments is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material. There is no waiver of any confidentiality/privilege by your inadvertent receipt of this material.

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If you have received this message in error, you are asked to inform the sender as quickly as possible and delete this message and any copies of this message from your computer and/or your computer system network.

EHP RTI DL Release

12th June 2014

DEHP Request for further information, Re: Amendment application for the beneficial use of resource – multiple wastes in a soil rejuvenation program

Dear Simone,

In regards to DEHPs "Request for further information" I can provide the below response which I trust satisfies your needs.

Change of condition 1 – Addition of new property

NuGrow acknowledge that the original approval was granted with the understanding that the use of the resources was going to be conducted on a trial basis with a determination of the effectiveness of the use of the resources in improving soil quality serving a basis for any future land applications.

Since NuGrow submitted the original proposal there has been a minor change in the desired site layout/procedures onsite. The original proposal only involved compost manufacture and land application occurring on Lot 3 Crown Plan DY117 (herein referred to as Iona Park) however NuGrow has recently acquired Lot 8 DY117 (herein referred to as Fairfield) and desire the BUA to also cover this area of land (refer to aerial photograph below).

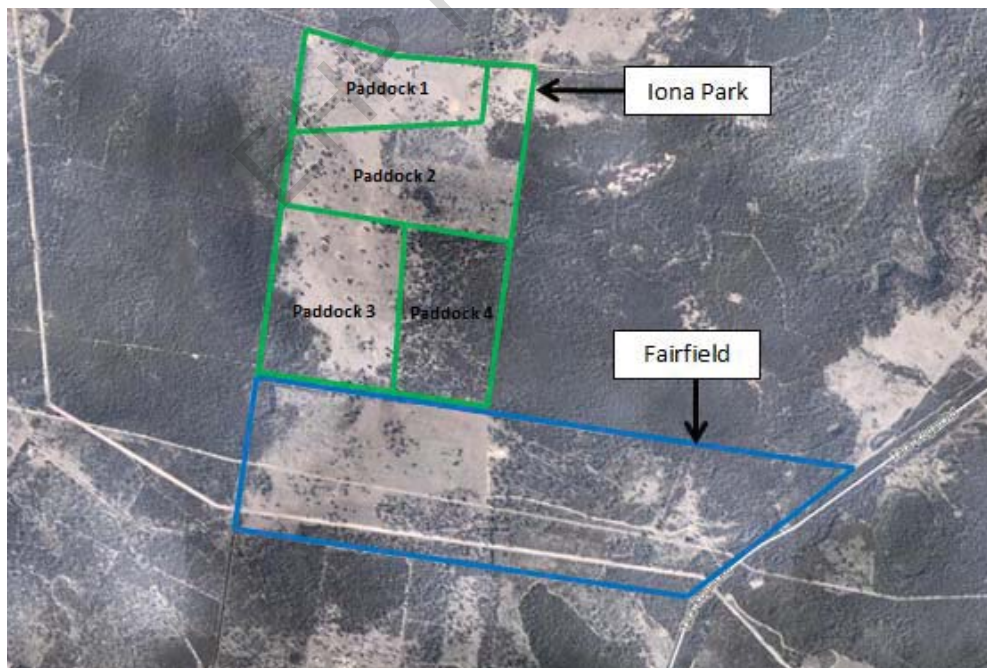


Figure 1 – Expansion of facility to include Fairfield

The original proposal described compost manufacture and land application occurring in Paddocks 1 - 4 at Iona Park with land application only occurring within one paddock at a time. NuGrow now desires to start land application within Paddock 3 initially and then move south into Fairfield (as opposed to moving north into Paddocks 1, 2 or 4). The reasoning behind this is that NuGrow will be relocating the main entry and exit of its facility south, closer to Fairfield, and it makes operational sense to improve the soil quality in this parcel of land first, prior to moving onto Paddocks 1,2 or 3 at a later date. Additionally NuGrow would like to leave improving the soil quality in Paddock 1 and 2 until last as this is where the Operations Manager's office and accommodation are located and as such, NuGrow would initially like to maintain a buffer between this area and operations.

With regards to applying the approved resources to Fairfield, NuGrow will follow the exact same land application methods and procedures as those documented in Part B: Site Based Management Plan for a Beneficial Use Approval for Multiple Resources prepared for Iona Park. This SBMP will be updated accordingly to include the application of resources at Fairfield if DEHP approve the amendment application.

Change of condition 23 – Aerosol and spray drift

As stated in your Request for information, the premise for including condition 23(a) in the BUA is to ensure the generation of aerosol and spray drift when irrigating treated sewage effluent did not present a risk to the health of sensitive receptors in the area and surrounds. NuGrow believes that by rewording the condition to read: *"Not generate aerosol or cause spray drift that results in offsite environment nuisance or deleterious human health effects at a sensitive receptor location"* the intent of the condition is better represented, yet still allows for flexibility in the irrigation infrastructure used.

NuGrow has assessed the risk of aerosol and spray drift and developed control measures in accordance with section 6.1 of the *Water quality guidelines for recycled water schemes* (DEWS 2008)(the guideline). To alleviate DEHP's concerns about potential impacts the new irrigation infrastructure may present, NuGrow will implement the follow control measures in accordance with the hierarchy of control in the guideline:

a) Substitution

- In this instance substitution is not possible as NuGrow has identified that the newly proposed irrigation infrastructure is the most efficient and appropriate for the intended purpose of land irrigation at Iona Park. Substituting the irrigation infrastructure for another piece of equipment would not yield the results required by NuGrow.

b) Isolation

- A minimum 20m buffer surrounding the perimeter of the property will be maintained to ensure any aerosol and spray drift does not leave NuGrow's facility and have a potential impact on sensitive receptors.
- Only authorised personnel will be allowed onsite with a fence surrounding the perimeter of the site to prevent trespassers.

c) Minimisation through engineering means

- The newly proposed irrigation infrastructure has been chosen as it is the most efficient and appropriate for the intended purpose of land irrigation at Iona Park. If NuGrow believe there is benefit to modifying this infrastructure (i.e. placing hose nozzles closer to the ground surface) to assist in minimising potential environmental risks, then these modifications will be implemented. However these modifications will not be implemented until the newly proposed irrigation infrastructure is firstly trialled on Paddock 3.

d) Administrative measures

- Prior to irrigation the direction and speed of wind will be noted and if the wind direction is towards sensitive receivers and if the wind speed may potentially carry aerosols too sensitive receptors, irrigation will not occur. It should be noted that due to the remote location of the facility and distance to the nearest sensitive receiver, it is highly unlikely that irrigation will ever need to be temporarily suspended due to wind conditions.

Should you require any further information than that supplied, please don't hesitate to contact myself on the details underneath.

Kind Regards,
Peter Thompson

sch4-Signature

Environmental Compliance Manager



Postal Address: P.O.Box 4353 Raceview, QLD 4305

Mobile: sch4p4(6) Personal
information

Fax: 3288 6831

peterthompson@nugrow.com.au

www.nugrow.com.au

From: VENTURA Simone [simone.ventura@ehp.qld.gov.au]
Sent: Tuesday, 15 July 2014 10:49 AM
To: peterthompson@nugrow.com.au
Subject: RE: NuGrow BUA amendment application Information Request

Hi Peter,

As discussed, further information is required to satisfy the requirements of the Notice *Request for further information* in relation to NuGrow's application to amend beneficial use approval number ENBU05231913, issued to NuGrow on 6/6/14. Assessment timeframes will recommence when a complete response has been received.

The completed response must be submitted by **1 August 2014**. If more time is required, please let me know prior to that date.

Regards

Simone Ventura
Principal Project Officer, Waste and Land Contamination Assessment
Statewide Environmental Assessments
Telephone: 07 3330 5729 **Facsimile:** 07 3330 5875
www.ehp.qld.gov.au
Department of Environment and Heritage Protection
Level 9, 400 George Street, Brisbane Qld 4000
GPO Box 2454, Brisbane Qld 4001

From: Peter Thompson [mailto:peterthompson@nugrow.com.au]
Sent: Friday, 13 June 2014 8:37 AM
To: VENTURA Simone
Cc: Roy Wilson; Dan Stuart; Jacob Wilson
Subject: RE: NuGrow BUA amendment application Information Request

Hi Simone,

Thank you for your email below. Please find attached NuGrow's response to the "Notice to Request further information". Should you require anything further that isn't provided, please don't hesitate to contact me.

Kind Regards,
Peter Thompson
Environmental Compliance Manager



Site Address: Memorial Dr Swanbank
Postal Address: P.O.Box 4353 Raceview, QLD 4305
Mobile: sch4p4(6) Personal information
Fax: 3288 6831
peterthompson@nugrow.com.au

From: VENTURA Simone [mailto:simone.ventura@ehp.qld.gov.au]
Sent: Thursday, 12 June 2014 3:42 PM
To: Peter Thompson
Subject: NuGrow BUA amendment application Information Request

Hi Peter,

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Regards

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Telephone: 07 3330 5729 **Facsimile:** 07 3330 5875
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From: Peter Thompson [peterthompson@nugrow.com.au]
Sent: Tuesday, 15 July 2014 3:06 PM
To: VENTURA Simone
CC: Dan Stuart; Roy Wilson; Jacob Wilson
Subject: RE: NuGrow BUA amendment application Information Request
Attachments: Response to DEHP information request v2.pdf

Hi Simone,

Thank you for your time on the phone today and your email below. Please find attached NuGrow's response to the "Notice to Request further information". Should you require anything further that isn't provided, please don't hesitate to contact me.

Kind Regards,
Peter Thompson
Environmental Compliance Manager



Site Address: Memorial Dr Swanbank
Postal Address: P.O.Box 4353 Raceview, QLD 4305
Mobile: sch4p4(6) Personal
Fax: 3288 6831
peterthompson@nugrow.com.au
www.nugrow.com.au

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Sent: Tuesday, 15 July 2014 10:49 AM
To: Peter Thompson
Subject: RE: NuGrow BUA amendment application Information Request

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Regards

Simone Ventura
Principal Project Officer, Waste and Land Contamination Assessment
Statewide Environmental Assessments
Telephone: 07 3330 5729 **Facsimile:** 07 3330 5875

www.ehp.qld.gov.au

Department of Environment and Heritage Protection
Level 9, 400 George Street, Brisbane Qld 4000
GPO Box 2454, Brisbane Qld 4001

From: Peter Thompson [<mailto:peterthompson@nugrow.com.au>]
Sent: Friday, 13 June 2014 8:37 AM
To: VENTURA Simone
Cc: Roy Wilson; Dan Stuart; Jacob Wilson
Subject: RE: NuGrow BUA amendment application Information Request

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Peter Thompson
Environmental Compliance Manager



Site Address: Memorial Dr Swanbank
Postal Address: P.O.Box 4353 Raceview, QLD 4305
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From: VENTURA Simone [<mailto:simone.ventura@ehp.qld.gov.au>]
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Subject: NuGrow BUA amendment application Information Request

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Principal Project Officer, Waste and Land Contamination Assessment
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NuGrow Roma Pty Ltd

ABN 88 151 756 517

Phone: (07) 4668 1715

Email: kogan@nugrow.com.au

Iona Park, Millbank Boundary Rd, Kogan, Qld, 4406

15th July 2014

DEHP Request for further information (15/07/2014), Re: Amendment application for the beneficial use of resource-multiple wastes in a soil rejuvenation program.

Dear Simone,

In regards to DEHPs "Request for further information" I can provide the below response which I trust satisfies your needs.

Change of condition 1 – Addition of new property

Since the telephone discussion held this morning between myself and you, NuGrow's management team has convened and decided to not change the land application area to include Fairfield. Thus the only land forming part of the soil rejuvenation project at this stage is Paddocks 1-4 located on Iona Park, as was originally approved in the Beneficial Use Approval (BUA) ENBU05261913.

Change of condition 1 – Rewording of Escherichia coli (E. Coli) concentration for Treated Sewerage Effluent

It has come to NuGrow's attention that representative lab results for the majority of incoming treated sewage effluent at Iona Park are not available from waste generators and transporters bringing this resource to NuGrow's Kogan Facility (the Facility). Thus we are relying on 'their word' and lab results from weekly internal composite samples that the treated effluent coming to the Facility is within acceptable E. Coli contamination limits. To reduce the risk of accepting and storing treated sewerage effluent with an unacceptable E. Coli concentration (>10,000 cfu/100 mL), NuGrow are proposing to install an ozone disinfection system to disinfect the effluent prior to storing it in the main dam and sending to the irrigator. As such, NuGrow feel that the wording in condition1, Table 1, under Treated sewerage effluent should read as follows for better clarity:

Treated sewage effluent:

- (a) will be released to the main dam for storage prior to irrigation; and*
- (b) being used for irrigation does not have Escherichia coli (E. Coli) concentrations that exceed 10,000 cfu/100 mL found in 95% of the samples taken for a 12 month period; and*
- (c) will not be used on food crop including minimally processed food crop.*

Change of condition 23 – Aerosol and spray drift

DEHP have requested further information to be provided on NuGrow's request to amend condition 23. As such I have included NuGrow's original response below with additional information highlighted in green:

As stated in your Request for information, the premise for including condition 23(a) in the BUA is to ensure the generation of aerosol and spray drift when irrigating treated sewage effluent did not present a risk to the health of sensitive receptors in the area and surrounds. NuGrow believes that by rewording the condition to read: *"Not generate aerosol or cause spray drift that results in offsite environment nuisance or deleterious human health effects at a sensitive receptor location"* the intent of the condition is better represented, yet still allows for flexibility in the irrigation infrastructure used.

NuGrow has assessed the risk of aerosol and spray drift and developed control measures in accordance with section 6.1 of the *Water quality guidelines for recycled water schemes* (DEWS 2008)(the guideline). To alleviate DEHP's concerns about potential impacts the new irrigation infrastructure may present, NuGrow will implement the follow control measures in accordance with the hierarchy of control in the guideline:

a) Substitution

- In this instance substitution is not possible as NuGrow has identified that the newly proposed irrigation infrastructure is the most efficient and appropriate for the intended purpose of land irrigation at Iona Park. Substituting the irrigation infrastructure for another piece of equipment would not yield the results required by NuGrow.

b) Isolation

- A minimum 20m buffer surrounding the perimeter of Iona Park will be maintained to ensure any aerosol and spray drift does not leave NuGrow's facility and have a potential impact on sensitive receptors.
- Only authorised personnel will be allowed onsite with a fence surrounding the perimeter of the site to prevent trespassers.

c) Minimisation through engineering means

- The newly proposed irrigation infrastructure has been chosen as it is the most efficient and appropriate for the intended purpose of land irrigation at Iona Park. If NuGrow believe there is benefit to modifying this infrastructure (i.e. placing hose nozzles closer to the ground surface) to assist in minimising potential environmental risks, then these modifications will be implemented. However these modifications will not be implemented until the newly proposed irrigation infrastructure is firstly trialled on Paddock 3.

sch4p4(7)(1)(c) Business/commercial/professional/financial affairs

d) Administrative measures

- Prior to irrigation the direction and speed of wind will be noted and if the wind direction is towards sensitive receivers and if the wind speed may potentially carry aerosols too sensitive receptors, irrigation will not occur. It should be noted that due to the remote location of the facility and distance to the nearest sensitive receiver, it is highly unlikely that irrigation will ever need to be temporarily suspended due to wind conditions.

Should you require any further information than that supplied, please don't hesitate to contact myself on the details underneath.

Kind Regards,
Peter Thompson

sch4-Signature

Environmental Compliance Manager



Postal Address: P.O.Box 4353 Raceview, QLD 4305

Mobile: sch4p4(6) Personal
information

Fax: 3288 6831

peterthompson@nugrow.com.au

www.nugrow.com.au

From: VENTURA Simone [simone.ventura@ehp.qld.gov.au]
Sent: Thursday, 28 August 2014 3:22 PM
To: peterthompson@nugrow.com.au
Subject: Nugrow amendment application
Attachments: DRAFT ENBU05261913 - Nugrow_amend_DECISION NOTICE_20140828.pdf

Hi Peter,

Following our discussion this morning, please see attached the draft amended conditions in relation to Nugrow's application to amend its BUA (ENBU05261913). The changes are marked in red.

sch4p4(6) Personal information

. If you're able to get back to me tomorrow on whether Nugrow is agreeable to the proposed changes I will try to get the application finalised before I leave, if not, can you please let me know by Monday 8 September whether Nugrow is agreeable.

Happy to discuss.

Regards

Simone Ventura
Principal Project Officer, Waste and Land Contamination Assessment
Statewide Environmental Assessments
Telephone: 07 3330 5729 **Facsimile:** 07 3330 5875
www.ehp.qld.gov.au
Department of Environment and Heritage Protection
Level 9, 400 George Street, Brisbane Qld 4000
GPO Box 2454, Brisbane Qld 4001

ehp



DRAFT Notice

Amendment of an approval of a resource for beneficial use

This notice is issued by the chief executive, pursuant to section 168 of the *Waste Reduction and Recycling Act 2011* to advise you of a decision by the chief executive and your review and appeal rights.

Nugrow Roma Pty Ltd
4/7 Sonia Court
RACEVIEW QLD 4305

Our reference : PR: 409312, App. no. 543076

Attn: Mr Peter Thompson, Environmental Compliance Manager

Dear Mr Thompson

Re: Amendment application for approval of a resource by Nugrow Roma Pty Ltd for the beneficial use of multiple wastes in a soil rejuvenation program (ENBU05261913)

The chief executive has considered your application that was received on 12 May 2014 and decided to approve the application. The amendments take effect from the date of this Notice.

This approval (ENBU05261913) is a specific approval of which Nugrow Roma Pty Ltd (ABN 88 151 756 517) has the benefit and it is subject to the conditions set out in the attached schedule, issued in accordance with section 166 of the *Waste Reduction and Recycling Act 2011*.

The approval of the resource remains in force until **23 January 2019** (the period of the approval) unless the approval is replaced, suspended or cancelled.

The issuing of this approval for the beneficial use of a resource does not warrant or imply the lawfulness of the activity under other legislation, or that all approvals necessary under other legislation have or will be approved. It is the responsibility of the applicant to identify and obtain all other approvals necessary for the proposed activity.

The issuing of this approval also does not remove the obligation for the holder of the approval to take all reasonable and practicable measures to prevent and/or to minimise the likelihood of environmental harm being caused (the 'general environmental duty', see s. 319 of the *Environmental Protection Act 1994*). Environmental harm is any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.

Guidance on acceptable approaches to monitoring compliance with this approval is provided in Appendix B of this document.

Permit number: ENBU05261913

Notice

Deleted: 05029013

Additional Advice about the application

You may apply to the chief executive for a review of this decision within 14 days of receiving this notice. Applications must be made using the approved form, "Application for Internal Review of an Original Decision" (EM219), which is available at <www.ehp.qld.gov.au> using the publication number EM219 as a search term. The completed form must be sent to the address on the form.

An application to review a decision does not stay the original decision. If you apply for an internal review of this decision you can also apply to the chief executive (using the same form) or the Queensland Civil and Administrative Tribunal (using form 44, "Application to Stay a Decision" available at <www.qcat.qld.gov.au>) for a stay of the original decision.

Sections 174-179 of the *Waste Reduction and Recycling Act 2011* cover the internal review process.

Should you have any queries in relation to this Notice, please contact Simone Ventura in the telephone number listed below.

Yours sincerely,

Signature

Date

Lindsay Delzoppo
Director, Statewide Environmental Assessments
Environment and Heritage Protection

Enquiries:

Simone Ventura, Principal Project Officer
Waste and Land Contamination Assessment
Level 9, 400 George Street, Brisbane Qld 4000
GPO Box 2454, Brisbane Qld 4001
Ph: (07) 3330 5729
Fax: (07) 3330 5875
Email: wica@ehp.qld.gov.au

SCHEDULE: CONDITIONS

Limitations of approval

- The approved resources are limited to those listed that meet the respective criteria for use listed in *Table 1 – Resource criteria*¹, that are to be applied to land by Nugrow Roma Pty Ltd (holder of the approval) for the improvement of soils located at Iona Park, Millbank Boundary Road, Kogan Qld 4406 (Lot 3 on DY117) (the site).

Table 1 – Resource criteria²

Resource	Criteria
Green waste	Green waste will only be utilised in the following scenarios: (a) in onsite composting; (b) applied as mulch to the surface layer of the ground surface; and/or (c) incorporated within the soil (top 10cm only).
Food waste	Food waste (liquid and solid) will only be incorporated in onsite composting windrows.
Livestock manure	Livestock manure will be applied directly to land or used in manufacturing compost.
Biosolids	Biosolids will be applied directly to land or used in manufacturing compost. Biosolids to be directly applied to land meet at least <i>Stabilisation Grade B</i> ³ , and <i>Contaminant Grade C</i> ⁴ classified as suitable for <i>Restricted Use 2</i> under the New South Wales Environmental Protection Authority <i>Environmental Guidelines: Use and Disposal of Biosolids Products</i> (2000) (the NSW Guidelines). Biosolids to be used in manufacturing compost meet at least <i>Stabilisation Grade B</i> ⁵ , and <i>Contaminant Grade D</i> ⁶ under the NSW Guidelines.
Treated sewage effluent	Treated sewage effluent: (a) will be released to the main dam for storage prior to irrigation; and (b) does not have, <u>or prior to release to the main dam will be treated by ozone disinfection on site⁷ so that it does not have, <i>Escherichia coli</i> (E. Coli) concentrations that exceed 10,000 cfu/100mL found in 95% of the samples taken for a 12 month period⁸; and</u> (c) will not be used on food crop including minimally processed food crop .
Coal seam gas (CSG) produced water and drilling fluids	CSG produced water and drilling fluids used: (a) have a pH of at least 6 but not more than 10.5; and (b) have an electrical conductivity of less than 15,000 µS/cm.

¹ Any resource that is not used as stated in condition 1 is considered a waste and must be managed in accordance with the *Environmental Protection Act 1994* and *Waste Reduction and Recycling Act 2011*, and their subordinate legislation.

² Resource sampling and analysis for biosolids should be conducted in accordance with the procedures detailed in *Schedule 1—Biosolids sampling and analysis procedures* and *Schedule 2—Grading, sampling and compliance procedures* of the NSW Guidelines.

³ Biosolids must meet at least one of the requirements for pathogen reduction and the vector attraction requirements in Table 3–3 *Biosolids Stabilisation Requirements* of the NSW Guidelines.

⁴ Biosolids must not exceed the contaminant acceptance concentration limits for Grade C listed in Table 3–1 *Contaminant Concentration Thresholds* of the NSW Guidelines.

⁵ Biosolids must meet at least one of the requirements for pathogen reduction and the vector attraction requirements in Table 3–3 *Biosolids Stabilisation Requirements* of the NSW Guidelines.

⁶ Biosolids must not exceed the contaminant acceptance concentration limits for Grade D listed in Table 3–1 *Contaminant Concentration Thresholds* of the NSW Guidelines.

⁷ To remove any doubt, treated sewage effluent with *E. Coli* concentrations >10,000 cfu/100mL may be received on site however must be treated prior to being released to the main dam using ozone disinfection methods to ensure that *E. Coli* concentrations do not exceed 10,000 cfu/100mL found in 95% of the samples taken for a 12 month period.

⁸ Based on the Department of Energy and Water Supply (2008) *Water quality guidelines for recycled water schemes*, available at <www.dews.qld.gov.au>, and the *Public Health Regulation 2005*.

2. The resources must not have any properties nor contain any other contaminants at concentrations which may cause environmental harm⁹ when used in accordance with the conditions of this approval.
3. Prior to the use of any resource under this approval, the holder of the approval must obtain written consent to use the resource from the person who possesses the resource, and keep records of the consent.

Resource monitoring

4. Any monitoring to determine the quality of resources applied to land on the site must be carried out on samples that are representative of the resources to be used.
5. Where the composition of a resource has changed or is likely to change, sufficient monitoring must be conducted to detect and characterise the extent of any change.
6. An **appropriately qualified person** must monitor, record and interpret all parameters listed in *Table 1 – Resource criteria* as part of this approval.
7. All analyses undertaken as a part of this approval must be carried out by a laboratory that has NATA certification, or an equivalent certification, for such analyses.

Use of the resources

8. The use of the resources must ensure that:
 - a) the soil structure, stability and productive capacity of the land on the site is maintained or improved;
 - b) there are no toxic effects to either crops or pasture plants; and
 - c) yields and produce quality are maintained or improved.
9. The use of the resources must be undertaken in accordance with written procedures that:
 - a) identify potential risks to the environment from the use of the resource during routine operations, closure and an emergency
 - b) establish and maintain control measures that minimise the potential for environmental harm; and
 - c) ensure that reviews of environmental performance are undertaken at least annually.
10. The use of the resources must not result in soil on the site being contaminated soil, when investigated in accordance with the current of the National Environment Protection (Assessment of Site Contamination) Measure 1999.
11. The resources must not be released directly or indirectly to land, air, or **waters** in a way or at a concentration that would cause environmental harm.

Records

12. All information and records that are required by the conditions of this approval must be kept for a minimum of five (5) years, and must be provided to the **chief executive** upon request.

Noise

13. Noise resulting from the use of the resource must not cause an environmental nuisance.

Air

14. Odours or airborne contaminants which are noxious or offensive or otherwise unreasonably disruptive to public amenity or safety must not cause nuisance to any **sensitive place** or **commercial place**.

⁹ See section 14 of *Environmental Protection Act 1994*. Environmental harm includes any adverse effect or potential adverse effect on public amenity and safety, waters, and health of stock grazed and plants grown on land ameliorated by the resource.

Transportation of resources

15. The resources must be handled and transferred in a manner that prevents the release of those resources during transporting, loading and unloading.
16. The following information must be recorded for each load of resource transported to the site:
 - a) origin of the resource;
 - b) date of pickup of the resource;
 - c) date of delivery of the resource; and
 - d) quantity of the resource.

Compost manufacturing

17. Compost in which the resources are used must be manufactured at a rate of less than 200t per year¹⁰.
18. Biosolids used in the compost must be treated in an aerobic process for at least 14 days. During that time, the temperature of the biosolids must be >40 °C and the average temperature >45 °C.
19. Any compost manufactured must meet the requirements for producing compost contained in Australian Standard 4454 *Compost, soil conditioners and mulches*.

Solid resource application to land

20. The application of biosolids, manures and compost to land must be conducted at an agronomic loading rate no greater than the lower of the nitrogen limited biosolids application rate (NLBAR) or the contaminant limited biosolids application rate (CLBAR) as determined in accordance with the NSW guidelines.
21. The following records must be kept for each land application of resources:
 - a) details of the land on which the application occurs;
 - b) date and time when the resource is applied;
 - c) the calculated application rate at which the resource is to be applied; and
 - d) the actual application rate.

Liquid resource application to land

22. The **liquid resources** to be irrigated to land must be of a quality that are suitable for irrigation, having been determined by an appropriately qualified person in accordance with the relevant assessment procedure listed in Appendix A.
23. Liquid resources irrigated to land on the site must only be sourced from the main dam and must:
 - a) not harm vegetation surrounding the irrigation area;
 - b) not cause soil erosion and soil structure damage;
 - c) not produce visible salting;
 - d) not cause surface ponding of the resource;
 - e) not result in surface runoff;
 - f) ensure that percolation of the resource beyond the plant root zone is minimised;
 - g) not exceed plant fertiliser requirements; and
 - h) not generate aerosol or cause spray drift, unless the irrigation methods comply with condition 24..

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not generate aerosol or cause spray drift;

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24. Irrigation of the liquid resources using spray methods must only occur:

- a) at a pressure of equal to or less than 20 pounds per square inch (PSI);

¹⁰ Manufacturing compost or soil conditioners at a rate of greater than 200t per year constitutes Environmentally Relevant Activity 53 Composting or soil conditioner manufacturing and requires an Environmental Authority under the *Environmental Protection Act 1994*.

- b) with a nozzle height of equal to or less than 30 centimetres from the crop height, or if there is no crop, the ground; and
- c) at a distance that is greater than 25 metres from the boundary of the site.

Withholding period

- 25. Animals must not be allowed to graze on land on the site, on which biosolids or treated sewage effluent has been applied, for a period of at least 30 days after application.

Storage of the resources

- 26. The resources must be stored in a manner to prevent contact with stormwater runoff.
- 27. Any water that has come in contact with the resources in either storage or composting areas must be collected and recycled or irrigated to land in a manner that complies with conditions 8, 10, 11 and 23 as if it were a resource.

Impact assessment

- 28. An annual assessment of groundwater quality must be undertaken to determine any detrimental impacts of the use or if any environmental harm has, or is likely to be, caused by the use of the resources.
- 29. An annual assessment of soil quality of land where the resources have been applied must be undertaken to determine if any impact or environmental harm has or is likely to be caused by the use of the resources.
- 30. Monitoring undertaken to assess impacts of the use of the resources on groundwater or soil quality must be compliant with the chief executive's most recent monitoring and sampling manual.

DEFINITIONS

Words and phrases used throughout this approval are defined below. Where a definition for a term used in this approval is sought and the term is not defined within this permit the definitions provided in the relevant legislation shall be used.

Appropriately qualified person means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.

Biosolids means treated tank sludges and residues from a municipal sewage treatment plant including sedimentation tank and clarifier sludges, aerobically and anerobically digested sludge and filter cake products from those sewage treatment plants.

Coal seam gas (CSG) production waters has the meaning in section 15A of the *Petroleum and Gas (Gas Production and Safety) Act 2004* and means CSG water or associated water for a petroleum tenure. It does not include the waste water resulting from simulation activities.

Chief executive means the Department of Environment and Heritage Protection or its successor.

Commercial place means a workplace used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees' accommodation or public roads.

Drilling fluids means liquids used in a drilling process for petroleum activities that are returned to the surface. It does not include residual drilling material or restricted stimulation fluids.

Liquid resources mean treated sewage effluent and CSG drilling fluids.

Main dam means the dam located on the site which is used for the storage of treated sewage effluent and CSG drilling fluids.

Minimally processed food crop means a crop for a food product that—

- (a) may be eaten raw; or
- (b) will be subjected to a minimal food process only.

Examples of a minimal food process—washing, cutting, peeling, packaging.

Residual drilling material means waste drilling materials including muds and cuttings or cement returns from well holes and which have been left behind after the drilling fluids are pumped out.

Restricted stimulation fluids has the meaning in section 206 of the *Environmental Protection Act 1994* and means fluids used for the purpose of stimulation, including fracturing, that contain the following chemicals in more than the maximum amount prescribed under a regulation—

- (a) petroleum hydrocarbons containing benzene, ethylbenzene, toluene or xylene;
- (b) chemicals that produce, or are likely to produce, benzene, ethylbenzene, toluene or xylene as the chemical breaks down in the environment.

Sensitive place means:

- (a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- (b) a motel, hotel or hostel; or an educational institution; or
- (c) a medical centre or hospital; or
- (d) a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or
- (e) a public park or gardens.

Site means Iona Park, Millbank Boundary Road, Kogan Qld 4406 (Lot 3 on DY117).

Spray methods for irrigation of liquid resources include those that are capable of generating aerosols and/or spray drift. They do not include methods such as drip, surface or sub surface irrigation.

Treated sewage effluent means sewage that has undergone treatment by sewage treatment works approved under the *Environmental Protection Act 1994* or the *Plumbing and Drainage Act 2002*.

Waters includes any river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water, natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

- END OF CONDITIONS -

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Appendix A

Quality parameter	Assessment procedure
electrical conductivity	Salinity Management Handbook, with reference to Chapter 11; and/or Australian and New Zealand Guidelines for Fresh and Marine Water Quality, with reference to Volume 1 Chapter 4 and Volume 3 Chapter 9.
sodium adsorption ratio	
pH	<p>The assessment should consider:</p> <ul style="list-style-type: none"> • soil properties within the root zone to be irrigated (e.g. clay content, cation exchange capacity, exchangeable sodium percentage) • water quality of the proposed resource (e.g. salinity, sodicity) • climate conditions (e.g. rainfall) • leaching fractions • average root zone salinity (calculated) • crop salt tolerance (e.g. impact threshold and yield decline) • management practices and objectives (e.g. irrigation application rate, amelioration techniques) • broader landscape issues (e.g. land use, depth to groundwater) • any additional modelling and tests undertaken to support the varied water quality parameters.
heavy metals	<p>Australian and New Zealand Guidelines for Fresh and Marine Water Quality, with reference to Volume 1 Chapters 3 and 4 and Volume 3 Chapter 9.</p> <p>The assessment should aim to derive site specific trigger values (e.g. cumulative contaminant loading limit) based on the methodology provided in the above mentioned procedure.</p>

Appendix B

Advice

Please find following advice regarding the development of any monitoring programs used to help determine compliance with the conditions of approval. Monitoring programs and any written procedures for the use of the resources should be developed in accordance with best practice environmental management standards and reviewed regularly to ensure that current best practice is being implemented.

It is recommended that;

- Monitoring of biosolids to determine compliance with condition 1 should be conducted with samples taken at least every 120 dry tonnes¹¹.
- Monitoring of treated sewage effluent to determine compliance with condition 1 should be undertaken at least weekly.
- Monitoring of CSG drilling fluids and produced waters to determine compliance with condition 1 should be undertaken at least fortnightly.

Groundwater

Any groundwater monitoring program developed should provide for:

- Installation and monitoring of bores installed in accordance with relevant Australian standards in aquifer(s) potentially affected by the use of the resource; and
- The determination and keeping records of groundwater height and quality by sampling for at least the parameters, and at the frequency, stated in *Table 1 – Groundwater monitoring parameters*

Table 1 - Groundwater monitoring parameters

Parameter	Frequency
Standing groundwater level (metres AHD)	6 monthly
Arsenic	6 monthly
Cadmium	6 monthly
Chromium (Total)	6 monthly
Copper	6 monthly
Lead	6 monthly
Zinc	6 monthly
Nitrate	6 monthly
Chloride	6 monthly
Electrical conductivity (in-situ)	6 monthly
pH (in-situ)	6 monthly
<i>E. Coli</i>	6 monthly
Calcium	6 monthly
Nitrogen (total)	6 monthly
Phosphorous (total)	6 monthly
Sodium	6 monthly
Total Dissolved Solids	6 monthly

¹¹ Resource sampling and analysis for biosolids should be conducted in accordance with the procedures detailed in *Schedule 1—Biosolids sampling and analysis procedures* and *Schedule 2—Grading, sampling and compliance procedures* of the NSW Guidelines.

Soil

Any soil monitoring program should provide for monitoring of at least the parameters, and at the frequency, stated in *Table 2 – soil monitoring parameters*.

Table 2 - Soil monitoring parameters

Parameter	Frequency
Electrical conductivity (EC)	6 monthly
pH	6 monthly
Exchangeable Cation Exchange Capacity (ECEC)	Annually
Exchangeable Sodium Percentage (ESP)	Annually
Sodium Adsorption Ratio (SAR)	Annually
Arsenic	Annually
Cadmium	Annually
Chromium (total)	Annually
Copper	Annually
Lead	Annually
Mercury	Annually
Nickel	Annually
Selenium	Annually
Zinc	Annually
DDT/DDD/DDE	Annually
Aldrin	Annually
Dieldrin	Annually
Chlordane	Annually
Heptachlor and heptachlor epoxide	Annually
Hexachlorobenzene (HCB)	Annually
Lindane	Annually
Benzene hexachloride (BHC)	Annually
PCBs	Annually

Irrigation

Liquid resource being irrigated to land from the main dam should be monitored for at least the quality parameters and at the frequency specified in *Table 3 – Main dam monitoring parameters*.

Table 3 - Main dam monitoring parameters

Quality parameter	Frequency
Electrical conductivity	Fortnightly
Sodium absorption ratio (SAR)	Fortnightly
pH	Fortnightly
<i>E. Coli</i>	Monthly
Alkalinity (bicarbonate, carbonate and hydroxide)	Quarterly
Arsenic	Quarterly
Aluminium	Quarterly
Boron	Quarterly
Cadmium	Quarterly
Chromium (total)	Quarterly
Copper	Quarterly

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Cobalt	Quarterly
Iron	Quarterly
Lead	Quarterly
Lithium	Quarterly
Manganese	Quarterly
Mercury	Quarterly
Molybdenum	Quarterly
Nickel	Quarterly
Selenium	Quarterly
Strontium	Quarterly
Vanadium	Quarterly
Zinc	Quarterly
Ammonium (NH ₄ ⁺)	Quarterly
Nitrate + nitrite	Quarterly
Total Kjeldahl Nitrogen (TKN)	Quarterly
Total Nitrogen	Quarterly
Total phosphorous	Quarterly
BTEX	Quarterly
Total dissolved solids (TDS)	Quarterly
Total petroleum hydrocarbons (TPH)	Quarterly
Flouride	Quarterly
Sulphate	Quarterly
Hardness (calculated)	6 monthly
Calcium, magnesium, sodium, and potassium	6 monthly
Chloride	6 monthly
Ortho phosphorous	6 monthly

From: Peter Thompson [peterthompson@nugrow.com.au]
Sent: Monday, 1 September 2014 9:13 AM
To: VENTURA Simone
CC: Roy Wilson; Dan Stuart; Luke Zambelli <luke@zbe.com.au> (luke@zbe.com.au)
Subject: RE: Nugrow amendment application
Attachments: 9am wind rose.pdf; 3pm wind rose.pdf; IMG_3335.JPG; IMG_3327.JPG

Hi Simone,

Thanks for sending through the draft amended conditions. As per our telephone conversation on the 29th August 2014 NuGrow Roma Pty Ltd (NuGrow) is satisfied with the amendments made to Condition 1, Table 1. However, NuGrow rejects the amendments made to Condition 24 and proposes the following wording for DEHP's approval:

- Condition 24 - Irrigation of the liquid resources using **spray methods** must only occur:
 - a) At a pressure of equal to or less than 20 pounds per square inch (PSI);
 - b) At a distance that is greater than 50 metres from the boundary of the site or where this distance is less than 50 meters a vegetation buffer must be maintained/installed.

I believe the above controls demonstrates compliance with Table 3.8 - Treatment processes and on-site controls for designated uses of recycled water from treated sewage, *Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1) 2006*.

I have attached two (2) wind roses showing the annual average wind direction and speed for 9am and 3pm onsite. As you can see wind speeds at Iona Park are generally calm or <10km/hr for the majority of the time. Further to this I have attached some photos depicting the irrigation infrastructure and an example of a vegetation buffer onsite providing a barrier between an onsite perimeter access road and adjoining property.

Should you require any additional information please don't hesitate to contact me.

Kind Regards,
Peter Thompson
Environmental Compliance Manager



Plencove- logo2



Office: Unit 4/7 Sonia Court Raceview QLD 4305
Postal Address: P.O.Box 4353 Raceview, QLD 4305
Mobile: sch4p4(6) Personal Information
Fax: 3288 6831

peterthompson@nugrow.com.au

www.nugrow.com.au

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communication, reliance upon, copying or printing of this Email or any attachments is strictly prohibited, and you must immediately erase them permanently from your system, notify us and destroy any hard copies. Thank you.

From: VENTURA Simone [mailto:simone.ventura@ehp.qld.gov.au]
Sent: Thursday, 28 August 2014 3:23 PM
To: Peter Thompson
Subject: Nugrow amendment application

Hi Peter,

Following our discussion this morning, please see attached the draft amended conditions in relation to Nugrow's application to amend its BUA (ENBU05261913). The changes are marked in red.

sch4p4(6) Personal information

If you're able to get back to me tomorrow on whether Nugrow is agreeable to the proposed changes I will try to get the application finalised before I leave, if not, can you please let me know by Monday 8 September whether Nugrow is agreeable.

Happy to discuss.

Regards

Simone Ventura
Principal Project Officer, Waste and Land Contamination Assessment
Statewide Environmental Assessments
Telephone: 07 3330 5729 **Facsimile:** 07 3330 5875
www.ehp.qld.gov.au
Department of Environment and Heritage Protection
Level 9, 400 George Street, Brisbane Qld 4000
GPO Box 2454, Brisbane Qld 4001

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From: VENTURA Simone [simone.ventura@ehp.qld.gov.au]
Sent: Friday, 12 September 2014 11:58 AM
To: peterthompson@nugrow.com.au
Subject: Nugrow BUA amendment application granted
Attachments: ENBU05261913 - Nugrow_amend_DECISION NOTICE_20140910.pdf

Hi Peter,

As discussed, the department has decided to grant Nugrow's application to amend their beneficial use approval (number ENBU05261913). Please see attached a copy of the amended approval document.

The original document will be posted to you. If you have any questions please feel free to contact me.

Regards

Simone Ventura
Principal Project Officer, Waste and Land Contamination Assessment
Statewide Environmental Assessments
Telephone: 07 3330 5729 **Facsimile:** 07 3330 5875
www.ehp.qld.gov.au
Department of Environment and Heritage Protection
Level 9, 400 George Street, Brisbane Qld 4000
GPO Box 2454, Brisbane Qld 4001

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Notice

Amendment of an approval of a resource for beneficial use

This notice is issued by the chief executive, pursuant to section 168 of the *Waste Reduction and Recycling Act 2011* to advise you of a decision by the chief executive and your review and appeal rights.

Nugrow Roma Pty Ltd
4/7 Sonia Court
RACEVIEW QLD 4305

Our reference : PR: 409312, App. no. 543076

Attn: Mr Peter Thompson, Environmental Compliance Manager

Dear Mr Thompson

Re: Amendment application for approval of a resource by Nugrow Roma Pty Ltd for the beneficial use of multiple wastes in a soil rejuvenation program (ENBU05261913)

The chief executive has considered your application that was received on 12 May 2014 and decided to approve the application. The amendments take effect from the date of this Notice

This approval (ENBU05261913) is a specific approval of which Nugrow Roma Pty Ltd (ABN 88 151 756 517) has the benefit and it is subject to the conditions set out in the attached schedule, issued in accordance with section 166 of the *Waste Reduction and Recycling Act 2011*.

The approval of the resource remains in force until **23 January 2019** (the period of the approval) unless the approval is replaced, suspended or cancelled.

The issuing of this approval for the beneficial use of a resource does not warrant or imply the lawfulness of the activity under other legislation, or that all approvals necessary under other legislation have or will be approved. It is the responsibility of the applicant to identify and obtain all other approvals necessary for the proposed activity.

The issuing of this approval also does not remove the obligation for the holder of the approval to take all reasonable and practicable measures to prevent and/or to minimise the likelihood of environmental harm being caused (the 'general environmental duty', see s. 319 of the *Environmental Protection Act 1994*). Environmental harm is any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.

Guidance on acceptable approaches to monitoring compliance with this approval is provided in Appendix B of this document.

Additional Advice about the application

You may apply to the chief executive for a review of this decision within 14 days of receiving this notice. Applications must be made using the approved form, "Application for Internal Review of an Original Decision" (EM219), which is available at <www.ehp.qld.gov.au> using the publication number EM219 as a search term. The completed form must be sent to the address on the form.

An application to review a decision does not stay the original decision. If you apply for an internal review of this decision you can also apply to the chief executive (using the same form) or the Queensland Civil and Administrative Tribunal (using form 44, "Application to Stay a Decision" available at <www.qcat.qld.gov.au>) for a stay of the original decision.

Sections 174-179 of the *Waste Reduction and Recycling Act 2011* cover the internal review process.

Should you have any queries in relation to this Notice, please contact Simone Ventura in the telephone number listed below.

Yours sincerely,

	sch4-Signature
Signature	

10/09/2014
Date

Lindsay Delzoppo
Director, Statewide Environmental Assessments
Environment and Heritage Protection

Enquiries:

Simone Ventura, Principal Project Officer
Waste and Land Contamination Assessment
Level 9, 400 George Street, Brisbane Qld 4000
GPO Box 2454, Brisbane Qld 4001
Ph: (07) 3330 5729
Fax: (07) 3330 5875
Email: wlca@ehp.qld.gov.au

SCHEDULE: CONDITIONS

Limitations of approval

- The approved resources are limited to those listed that meet the respective criteria for use listed in *Table 1 – Resource criteria*¹, that are to be applied to land by Nugrow Roma Pty Ltd (holder of the approval) for the improvement of soils located at Iona Park, Millbank Boundary Road, Kogan Qld 4406 (Lot 3 on DY117) (the site).

Table 1 – Resource criteria²

Resource	Criteria
Green waste	Green waste will only be utilised in the following scenarios: (a) in onsite composting; (b) applied as mulch to the surface layer of the ground surface; and/or (c) incorporated within the soil (top 10cm only).
Food waste	Food waste (liquid and solid) will only be incorporated in onsite composting windrows.
Livestock manure	Livestock manure will be applied directly to land or used in manufacturing compost.
Biosolids	Biosolids will be applied directly to land or used in manufacturing compost. Biosolids to be directly applied to land meet at least <i>Stabilisation Grade B</i> ³ , and <i>Contaminant Grade C</i> ⁴ classified as suitable for <i>Restricted Use 2</i> under the New South Wales Environmental Protection Authority <i>Environmental Guidelines: Use and Disposal of Biosolids Products</i> (2000) (the NSW Guidelines). Biosolids to be used in manufacturing compost meet at least <i>Stabilisation Grade B</i> ⁵ , and <i>Contaminant Grade D</i> ⁶ under the NSW Guidelines.
Treated sewage effluent	Treated sewage effluent: (a) will be released to the main dam for storage prior to irrigation; and (b) does not have, or prior to release to the main dam will be treated by ozone disinfection on site ⁷ so that it does not have, <i>Escherichia coli</i> (E. Coli) concentrations that exceed 10,000 cfu/100mL found in 95% of the samples taken for a 12 month period ⁸ ; and (c) will not be used on food crop including minimally processed food crop .
Coal seam gas (CSG) produced water and drilling fluids	CSG produced water and drilling fluids used: (a) have a pH of at least 6 but not more than 10.5; and (b) have an electrical conductivity of less than 15,000 µS/cm.

¹ Any resource that is not used as stated in condition 1 is considered a waste and must be managed in accordance with the *Environmental Protection Act 1994* and *Waste Reduction and Recycling Act 2011*, and their subordinate legislation.

² Resource sampling and analysis for biosolids should be conducted in accordance with the procedures detailed in *Schedule 1— Biosolids sampling and analysis procedures* and *Schedule 2— Grading, sampling and compliance procedures* of the NSW Guidelines.

³ Biosolids must meet at least one of the requirements for pathogen reduction and the vector attraction requirements in Table 3–3 *Biosolids Stabilisation Requirements* of the NSW Guidelines.

⁴ Biosolids must not exceed the contaminant acceptance concentration limits for Grade C listed in Table 3–1 *Contaminant Concentration Thresholds* of the NSW Guidelines.

⁵ Biosolids must meet at least one of the requirements for pathogen reduction and the vector attraction requirements in Table 3–3 *Biosolids Stabilisation Requirements* of the NSW Guidelines.

⁶ Biosolids must not exceed the contaminant acceptance concentration limits for Grade D listed in Table 3–1 *Contaminant Concentration Thresholds* of the NSW Guidelines.

⁷ To remove any doubt, treated sewage effluent with *E. Coli* concentrations >10,000 cfu/100mL may be received on site however must be treated prior to being released to the main dam using ozone disinfection methods to ensure that *E. Coli* concentrations do not exceed 10,000 cfu/100mL found in 95% of the samples taken for a 12 month period.

⁸ Based on the Department of Energy and Water Supply (2008) *Water quality guidelines for recycled water schemes*, available at <www.dews.qld.gov.au>, and the *Public Health Regulation 2005*.

2. The resources must not have any properties nor contain any other contaminants at concentrations which may cause environmental harm⁹ when used in accordance with the conditions of this approval.
3. Prior to the use of any resource under this approval, the holder of the approval must obtain written consent to use the resource from the person who possesses the resource, and keep records of the consent.

Resource monitoring

4. Any monitoring to determine the quality of resources applied to land on the site must be carried out on samples that are representative of the resources to be used.
5. Where the composition of a resource has changed or is likely to change, sufficient monitoring must be conducted to detect and characterise the extent of any change.
6. An **appropriately qualified person** must monitor, record and interpret all parameters listed in *Table 1 – Resource criteria* as part of this approval.
7. All analyses undertaken as a part of this approval must be carried out by a laboratory that has NATA certification, or an equivalent certification, for such analyses.

Use of the resources

8. The use of the resources must ensure that:
 - a) the soil structure, stability and productive capacity of the land on the site is maintained or improved;
 - b) there are no toxic effects to either crops or pasture plants; and
 - c) yields and produce quality are maintained or improved.
9. The use of the resources must be undertaken in accordance with written procedures that:
 - a) identify potential risks to the environment from the use of the resource during routine operations, closure and an emergency
 - b) establish and maintain control measures that minimise the potential for environmental harm; and
 - c) ensure that reviews of environmental performance are undertaken at least annually.
10. The use of the resources must not result in soil on the site being contaminated soil, when investigated in accordance with the current of the National Environment Protection (Assessment of Site Contamination) Measure 1999.
11. The resources must not be released directly or indirectly to land, air, or **waters** in a way or at a concentration that would cause environmental harm.

Records

12. All information and records that are required by the conditions of this approval must be kept for a minimum of five (5) years, and must be provided to the **chief executive** upon request.

Noise

13. Noise resulting from the use of the resource must not cause an environmental nuisance.

Air

14. Odours or airborne contaminants which are noxious or offensive or otherwise unreasonably disruptive to public amenity or safety must not cause nuisance to any **sensitive place** or **commercial place**.

⁹ See section 14 of *Environmental Protection Act 1994*. Environmental harm includes any adverse effect or potential adverse effect on public amenity and safety, waters, and health of stock grazed and plants grown on land ameliorated by the resource.

Transportation of resources

15. The resources must be handled and transferred in a manner that prevents the release of those resources during transporting, loading and unloading.
16. The following information must be recorded for each load of resource transported to the site:
 - a) origin of the resource;
 - b) date of pickup of the resource;
 - c) date of delivery of the resource; and
 - d) quantity of the resource.

Compost manufacturing

17. Compost in which the resources are used must be manufactured at a rate of less than 200t per year¹⁰.
18. Biosolids used in the compost must be treated in an aerobic process for at least 14 days. During that time, the temperature of the biosolids must be $>40^{\circ}\text{C}$ and the average temperature $>45^{\circ}\text{C}$.
19. Any compost manufactured must meet the requirements for producing compost contained in Australian Standard 4454 *Compost, soil conditioners and mulches*.

Solid resource application to land

20. The application of biosolids, manures and compost to land must be conducted at an agronomic loading rate no greater than the lower of the nitrogen limited biosolids application rate (NLBAR) or the contaminant limited biosolids application rate (CLBAR) as determined in accordance with the NSW guidelines.
21. The following records must be kept for each land application of resources:
 - a) details of the land on which the application occurs;
 - b) date and time when the resource is applied;
 - c) the calculated application rate at which the resource is to be applied; and
 - d) the actual application rate.

Liquid resource application to land

22. The **liquid resources** to be irrigated to land must be of a quality that are suitable for irrigation, having been determined by an appropriately qualified person in accordance with the relevant assessment procedure listed in Appendix A.
23. Liquid resources irrigated to land on the site must only be sourced from the main dam and must:
 - a) not harm vegetation surrounding the irrigation area;
 - b) not cause soil erosion and soil structure damage;
 - c) not produce visible salting;
 - d) not cause surface ponding of the resource;
 - e) not result in surface runoff;
 - f) ensure that percolation of the resource beyond the plant root zone is minimised;
 - g) not exceed plant fertiliser requirements; and
 - h) not generate aerosol or cause spray drift, unless the irrigation methods comply with condition 24.
24. Irrigation of the liquid resources using **spray methods** must only occur:
 - a) at a pressure of equal to or less than 20 pounds per square inch (PSI); and

¹⁰ Manufacturing compost or soil conditioners at a rate of greater than 200t per year constitutes Environmentally Relevant Activity 53 Composting or soil conditioner manufacturing and requires an Environmental Authority under the *Environmental Protection Act 1994*.

- b) at a distance that is greater than 25 metres from the boundary of the site where there is vegetation screening between the irrigation area and the boundary, or at a distance that is greater than 50 metres from the boundary of the site where there is no vegetation screening.

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- 25. Animals must not be allowed to graze on land on the site, on which biosolids or treated sewage effluent has been applied, for a period of at least 30 days after application.

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- 26. The resources must be stored in a manner to prevent contact with stormwater runoff.
- 27. Any water that has come in contact with the resources in either storage or composting areas must be collected and recycled or irrigated to land in a manner that complies with conditions 8, 10, 11 and 23 as if it were a resource.

Impact assessment

- 28. An annual assessment of groundwater quality must be undertaken to determine any detrimental impacts of the use or if any environmental harm has, or is likely to be, caused by the use of the resources.
- 29. An annual assessment of soil quality of land where the resources have been applied must be undertaken to determine if any impact or environmental harm has or is likely to be caused by the use of the resources.
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DEFINITIONS

Words and phrases used throughout this approval are defined below. Where a definition for a term used in this approval is sought and the term is not defined within this permit the definitions provided in the relevant legislation shall be used.

Appropriately qualified person means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.

Biosolids means treated tank sludges and residues from a municipal sewage treatment plant including sedimentation tank and clarifier sludges, aerobically and anaerobically digested sludge and filter cake products from those sewage treatment plants.

Coal seam gas (CSG) production waters has the meaning in section 15A of the *Petroleum and Gas (Gas Production and Safety) Act 2004* and means CSG water or associated water for a petroleum tenure. It does not include the waste water resulting from simulation activities.

Chief executive means the Department of Environment and Heritage Protection or its successor.

Commercial place means a workplace used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees' accommodation or public roads.

Drilling fluids means liquids used in a drilling process for petroleum activities that are returned to the surface. It does not include residual drilling material or restricted stimulation fluids.

Liquid resources mean treated sewage effluent and CSG drilling fluids.

Main dam means the dam located on the site which is used for the storage of treated sewage effluent and CSG drilling fluids.

Minimally processed food crop means a crop for a food product that—

- (a) may be eaten raw; or
- (b) will be subjected to a minimal food process only.

Examples of a minimal food process—washing, cutting, peeling, packaging.

Residual drilling material means waste drilling materials including muds and cuttings or cement returns from well holes and which have been left behind after the drilling fluids are pumped out.

Restricted stimulation fluids has the meaning in section 206 of the *Environmental Protection Act 1994* and means fluids used for the purpose of stimulation, including fracturing, that contain the following chemicals in more than the maximum amount prescribed under a regulation—

- (a) petroleum hydrocarbons containing benzene, ethylbenzene, toluene or xylene;
- (b) chemicals that produce, or are likely to produce, benzene, ethylbenzene, toluene or xylene as the chemical breaks down in the environment.

Sensitive place means:

- (a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- (b) a motel, hotel or hostel; or an educational institution; or
- (c) a medical centre or hospital; or
- (d) a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or
- (e) a public park or gardens.

Site means Iona Park, Millbank Boundary Road, Kogan Qld 4406 (Lot 3 on DY117).

Spray methods for irrigation of liquid resources include those that are capable of generating aerosols and/or spray drift. They do not include methods such as drip, surface or sub surface irrigation.

Treated sewage effluent means sewage that has undergone treatment by sewage treatment works approved under the *Environmental Protection Act 1994* or the *Plumbing and Drainage Act 2002*.

Waters includes any river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water, natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

- END OF CONDITIONS -

EHP RTI DL Release

Release

Appendix A

Quality parameter	Assessment procedure
electrical conductivity	Salinity Management Handbook, with reference to Chapter 11; and/or Australian and New Zealand Guidelines for Fresh and Marine Water Quality, with reference to Volume 1 Chapter 4 and Volume 3 Chapter 9.
sodium adsorption ratio	
pH	<p>The assessment should consider:</p> <ul style="list-style-type: none"> • soil properties within the root zone to be irrigated (e.g. clay content, cation exchange capacity, exchangeable sodium percentage) • water quality of the proposed resource (e.g. salinity, sodicity) • climate conditions (e.g. rainfall) • leaching fractions • average root zone salinity (calculated) • crop salt tolerance (e.g. impact threshold and yield decline) • management practices and objectives (e.g. irrigation application rate, amelioration techniques) • broader landscape issues (e.g. land use, depth to groundwater) • any additional modelling and tests undertaken to support the varied water quality parameters.
heavy metals	<p>Australian and New Zealand Guidelines for Fresh and Marine Water Quality, with reference to Volume 1 Chapters 3 and 4 and Volume 3 Chapter 9.</p> <p>The assessment should aim to derive site specific trigger values (e.g. cumulative contaminant loading limit) based on the methodology provided in the above mentioned procedure.</p>

Appendix B

Advice

Please find following advice regarding the development of any monitoring programs used to help determine compliance with the conditions of approval. Monitoring programs and any written procedures for the use of the resources should be developed in accordance with best practice environmental management standards and reviewed regularly to ensure that current best practice is being implemented.

It is recommended that;

- Monitoring of biosolids to determine compliance with condition 1 should be conducted with samples taken at least every 120 dry tonnes¹¹.
- Monitoring of treated sewage effluent to determine compliance with condition 1 should be undertaken at least weekly.
- Monitoring of CSG drilling fluids and produced waters to determine compliance with condition 1 should be undertaken at least fortnightly.

Groundwater

Any groundwater monitoring program developed should provide for:

- a) Installation and monitoring of bores installed in accordance with relevant Australian standards in aquifer(s) potentially affected by the use of the resource; and
- b) The determination and keeping records of groundwater height and quality by sampling for at least the parameters, and at the frequency, stated in *Table 1 – Groundwater monitoring parameters*

Table 1 - Groundwater monitoring parameters

Parameter	Frequency
Standing groundwater level (metres AHD)	6 monthly
Arsenic	6 monthly
Cadmium	6 monthly
Chromium (Total)	6 monthly
Copper	6 monthly
Lead	6 monthly
Zinc	6 monthly
Nitrate	6 monthly
Chloride	6 monthly
Electrical conductivity (in-situ)	6 monthly
pH (in-situ)	6 monthly
<i>E. Coli</i>	6 monthly
Calcium	6 monthly
Nitrogen (total)	6 monthly
Phosphorous (total)	6 monthly
Sodium	6 monthly
Total Dissolved Solids	6 monthly

¹¹ Resource sampling and analysis for biosolids should be conducted in accordance with the procedures detailed in *Schedule 1—Biosolids sampling and analysis procedures* and *Schedule 2—Grading, sampling and compliance procedures* of the NSW Guidelines.

Soil

Any soil monitoring program should provide for monitoring of at least the parameters, and at the frequency, stated in *Table 2 – soil monitoring parameters*.

Table 2 - Soil monitoring parameters

Parameter	Frequency
Electrical conductivity (EC)	6 monthly
pH	6 monthly
Exchangeable Cation Exchange Capacity (ECEC)	Annually
Exchangeable Sodium Percentage (ESP)	Annually
Sodium Adsorption Ratio (SAR)	Annually
Arsenic	Annually
Cadmium	Annually
Chromium (total)	Annually
Copper	Annually
Lead	Annually
Mercury	Annually
Nickel	Annually
Selenium	Annually
Zinc	Annually
DDT/DDD/DDE	Annually
Aldrin	Annually
Dieldrin	Annually
Chlordane	Annually
Heptachlor and heptachlor epoxide	Annually
Hexachlorobenzene (HCB)	Annually
Lindane	Annually
Benzene hexachloride (BHC)	Annually
PCBs	Annually

Irrigation

Liquid resource being irrigated to land from the main dam should be monitored for at least the quality parameters and at the frequency specified in *Table 3 – Main dam monitoring parameters*.

Table 3 - Main dam monitoring parameters

Quality parameter	Frequency
Electrical conductivity	Fortnightly
Sodium absorption ratio (SAR)	Fortnightly
pH	Fortnightly
<i>E. Coli</i>	Monthly
Alkalinity (bicarbonate, carbonate and hydroxide)	Quarterly
Arsenic	Quarterly
Aluminium	Quarterly
Boron	Quarterly
Cadmium	Quarterly
Chromium (total)	Quarterly
Copper	Quarterly

Cobalt	Quarterly
Iron	Quarterly
Lead	Quarterly
Lithium	Quarterly
Manganese	Quarterly
Mercury	Quarterly
Molybdenum	Quarterly
Nickel	Quarterly
Selenium	Quarterly
Strontium	Quarterly
Vanadium	Quarterly
Zinc	Quarterly
Ammonium (NH ₄ ⁺)	Quarterly
Nitrate + nitrite	Quarterly
Total Kjeldahl Nitrogen (TKN)	Quarterly
Total Nitrogen	Quarterly
Total phosphorous	Quarterly
BTEX	Quarterly
Total dissolved solids (TDS)	Quarterly
Total petroleum hydrocarbons (TPH)	Quarterly
Flouride	Quarterly
Sulphate	Quarterly
Hardness (calculated)	6 monthly
Calcium, magnesium, sodium, and potassium	6 monthly
Chloride	6 monthly
Ortho phosphorous	6 monthly

From: VENTURA Simone [simone.ventura@ehp.qld.gov.au]
Sent: Friday, 12 September 2014 1:44 PM
To: MACKENZIE James
Subject: NuGrow BUA amended
Attachments: ENBU05261913 - Nugrow_amend_DECISION NOTICE_20140910.pdf

Hi James,

Recently an amendment application for NuGrow's Beneficial Use Approval for the use of multiple wastes at Iona Park, Kogan (ENBU05261913) was approved. The amendment provides for additional ozone disinfection of treated sewage effluent and spray irrigation of liquid resources.

A copy of the amended decision notice is attached. The decision notice and assessment report have been uploaded to Ecotrack. If you have any questions please feel free to contact me.

Regards

Simone Ventura
Principal Project Officer, Waste and Land Contamination Assessment
Statewide Environmental Assessments
Telephone: 07 3330 5729 **Facsimile:** 07 3330 5875
www.ehp.qld.gov.au
Department of Environment and Heritage Protection
Level 9, 400 George Street, Brisbane Qld 4000
GPO Box 2454, Brisbane Qld 4001

ehp



Notice

Amendment of an approval of a resource for beneficial use

This notice is issued by the chief executive, pursuant to section 168 of the *Waste Reduction and Recycling Act 2011* to advise you of a decision by the chief executive and your review and appeal rights.

Nugrow Roma Pty Ltd
4/7 Sonia Court
RACEVIEW QLD 4305

Our reference : PR: 409312, App. no. 543076

Attn: Mr Peter Thompson, Environmental Compliance Manager

Dear Mr Thompson

Re: Amendment application for approval of a resource by Nugrow Roma Pty Ltd for the beneficial use of multiple wastes in a soil rejuvenation program (ENBU05261913)

The chief executive has considered your application that was received on 12 May 2014 and decided to approve the application. The amendments take effect from the date of this Notice

This approval (ENBU05261913) is a specific approval of which Nugrow Roma Pty Ltd (ABN 88 151 756 517) has the benefit and it is subject to the conditions set out in the attached schedule, issued in accordance with section 166 of the *Waste Reduction and Recycling Act 2011*.

The approval of the resource remains in force until **23 January 2019** (the period of the approval) unless the approval is replaced, suspended or cancelled.

The issuing of this approval for the beneficial use of a resource does not warrant or imply the lawfulness of the activity under other legislation, or that all approvals necessary under other legislation have or will be approved. It is the responsibility of the applicant to identify and obtain all other approvals necessary for the proposed activity.

The issuing of this approval also does not remove the obligation for the holder of the approval to take all reasonable and practicable measures to prevent and/or to minimise the likelihood of environmental harm being caused (the 'general environmental duty', see s. 319 of the *Environmental Protection Act 1994*). Environmental harm is any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.

Guidance on acceptable approaches to monitoring compliance with this approval is provided in Appendix B of this document.

Release

Additional Advice about the application

You may apply to the chief executive for a review of this decision within 14 days of receiving this notice. Applications must be made using the approved form, "Application for Internal Review of an Original Decision" (EM219), which is available at <www.ehp.qld.gov.au> using the publication number EM219 as a search term. The completed form must be sent to the address on the form.

An application to review a decision does not stay the original decision. If you apply for an internal review of this decision you can also apply to the chief executive (using the same form) or the Queensland Civil and Administrative Tribunal (using form 44, "Application to Stay a Decision" available at <www.qcat.qld.gov.au>) for a stay of the original decision.

Sections 174-179 of the *Waste Reduction and Recycling Act 2011* cover the internal review process.

Should you have any queries in relation to this Notice, please contact Simone Ventura in the telephone number listed below.

Yours sincerely,

	sch4-Signature	
Signature		

10/09/2014
Date

Lindsay Delzoppo
Director, Statewide Environmental Assessments
Environment and Heritage Protection

Enquiries:

Simone Ventura, Principal Project Officer
Waste and Land Contamination Assessment
Level 9, 400 George Street, Brisbane Qld 4000
GPO Box 2454, Brisbane Qld 4001
Ph: (07) 3330 5729
Fax: (07) 3330 5875
Email: wlca@ehp.qld.gov.au

SCHEDULE: CONDITIONS

Limitations of approval

- The approved resources are limited to those listed that meet the respective criteria for use listed in *Table 1 – Resource criteria*¹, that are to be applied to land by Nugrow Roma Pty Ltd (holder of the approval) for the improvement of soils located at Iona Park, Millbank Boundary Road, Kogan Qld 4406 (Lot 3 on DY117) (the site).

Table 1 – Resource criteria²

Resource	Criteria
Green waste	Green waste will only be utilised in the following scenarios: (a) in onsite composting; (b) applied as mulch to the surface layer of the ground surface; and/or (c) incorporated within the soil (top 10cm only).
Food waste	Food waste (liquid and solid) will only be incorporated in onsite composting windrows.
Livestock manure	Livestock manure will be applied directly to land or used in manufacturing compost.
Biosolids	Biosolids will be applied directly to land or used in manufacturing compost. Biosolids to be directly applied to land meet at least <i>Stabilisation Grade B</i> ³ , and <i>Contaminant Grade C</i> ⁴ classified as suitable for <i>Restricted Use 2</i> under the New South Wales Environmental Protection Authority <i>Environmental Guidelines: Use and Disposal of Biosolids Products</i> (2000) (the NSW Guidelines). Biosolids to be used in manufacturing compost meet at least <i>Stabilisation Grade B</i> ⁵ , and <i>Contaminant Grade D</i> ⁶ under the NSW Guidelines.
Treated sewage effluent	Treated sewage effluent: (a) will be released to the main dam for storage prior to irrigation; and (b) does not have, or prior to release to the main dam will be treated by ozone disinfection on site ⁷ so that it does not have, <i>Escherichia coli</i> (E. Coli) concentrations that exceed 10,000 cfu/100mL found in 95% of the samples taken for a 12 month period ⁸ ; and (c) will not be used on food crop including minimally processed food crop .
Coal seam gas (CSG) produced water and drilling fluids	CSG produced water and drilling fluids used: (a) have a pH of at least 6 but not more than 10.5; and (b) have an electrical conductivity of less than 15,000 µS/cm.

¹ Any resource that is not used as stated in condition 1 is considered a waste and must be managed in accordance with the *Environmental Protection Act 1994* and *Waste Reduction and Recycling Act 2011*, and their subordinate legislation.

² Resource sampling and analysis for biosolids should be conducted in accordance with the procedures detailed in *Schedule 1— Biosolids sampling and analysis procedures* and *Schedule 2— Grading, sampling and compliance procedures* of the NSW Guidelines.

³ Biosolids must meet at least one of the requirements for pathogen reduction and the vector attraction requirements in Table 3–3 *Biosolids Stabilisation Requirements* of the NSW Guidelines.

⁴ Biosolids must not exceed the contaminant acceptance concentration limits for Grade C listed in Table 3–1 *Contaminant Concentration Thresholds* of the NSW Guidelines.

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EHP RTI DL Release

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Commercial place means a workplace used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees' accommodation or public roads.

Drilling fluids means liquids used in a drilling process for petroleum activities that are returned to the surface. It does not include residual drilling material or restricted stimulation fluids.

Liquid resources mean treated sewage effluent and CSG drilling fluids.

Main dam means the dam located on the site which is used for the storage of treated sewage effluent and CSG drilling fluids.

Minimally processed food crop means a crop for a food product that—

- (a) may be eaten raw; or
- (b) will be subjected to a minimal food process only.

Examples of a minimal food process—washing, cutting, peeling, packaging.

Residual drilling material means waste drilling materials including muds and cuttings or cement returns from well holes and which have been left behind after the drilling fluids are pumped out.

Restricted stimulation fluids has the meaning in section 206 of the *Environmental Protection Act 1994* and means fluids used for the purpose of stimulation, including fracturing, that contain the following chemicals in more than the maximum amount prescribed under a regulation—

- (a) petroleum hydrocarbons containing benzene, ethylbenzene, toluene or xylene;
- (b) chemicals that produce, or are likely to produce, benzene, ethylbenzene, toluene or xylene as the chemical breaks down in the environment.

Sensitive place means:

- (a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- (b) a motel, hotel or hostel; or an educational institution; or
- (c) a medical centre or hospital; or
- (d) a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or
- (e) a public park or gardens.

Site means Iona Park, Millbank Boundary Road, Kogan Qld 4406 (Lot 3 on DY117).

Spray methods for irrigation of liquid resources include those that are capable of generating aerosols and/or spray drift. They do not include methods such as drip, surface or sub surface irrigation.

Treated sewage effluent means sewage that has undergone treatment by sewage treatment works approved under the *Environmental Protection Act 1994* or the *Plumbing and Drainage Act 2002*.

Waters includes any river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water, natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

- END OF CONDITIONS -

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Appendix A

Quality parameter	Assessment procedure
electrical conductivity	Salinity Management Handbook, with reference to Chapter 11; and/or Australian and New Zealand Guidelines for Fresh and Marine Water Quality, with reference to Volume 1 Chapter 4 and Volume 3 Chapter 9.
sodium adsorption ratio	
pH	<p>The assessment should consider:</p> <ul style="list-style-type: none"> • soil properties within the root zone to be irrigated (e.g. clay content, cation exchange capacity, exchangeable sodium percentage) • water quality of the proposed resource (e.g. salinity, sodicity) • climate conditions (e.g. rainfall) • leaching fractions • average root zone salinity (calculated) • crop salt tolerance (e.g. impact threshold and yield decline) • management practices and objectives (e.g. irrigation application rate, amelioration techniques) • broader landscape issues (e.g. land use, depth to groundwater) • any additional modelling and tests undertaken to support the varied water quality parameters.
heavy metals	<p>Australian and New Zealand Guidelines for Fresh and Marine Water Quality, with reference to Volume 1 Chapters 3 and 4 and Volume 3 Chapter 9.</p> <p>The assessment should aim to derive site specific trigger values (e.g. cumulative contaminant loading limit) based on the methodology provided in the above mentioned procedure.</p>

Appendix B

Advice

Please find following advice regarding the development of any monitoring programs used to help determine compliance with the conditions of approval. Monitoring programs and any written procedures for the use of the resources should be developed in accordance with best practice environmental management standards and reviewed regularly to ensure that current best practice is being implemented.

It is recommended that;

- Monitoring of biosolids to determine compliance with condition 1 should be conducted with samples taken at least every 120 dry tonnes¹¹.
- Monitoring of treated sewage effluent to determine compliance with condition 1 should be undertaken at least weekly.
- Monitoring of CSG drilling fluids and produced waters to determine compliance with condition 1 should be undertaken at least fortnightly.

Groundwater

Any groundwater monitoring program developed should provide for:

- a) Installation and monitoring of bores installed in accordance with relevant Australian standards in aquifer(s) potentially affected by the use of the resource; and
- b) The determination and keeping records of groundwater height and quality by sampling for at least the parameters, and at the frequency, stated in *Table 1 – Groundwater monitoring parameters*

Table 1 - Groundwater monitoring parameters

Parameter	Frequency
Standing groundwater level (metres AHD)	6 monthly
Arsenic	6 monthly
Cadmium	6 monthly
Chromium (Total)	6 monthly
Copper	6 monthly
Lead	6 monthly
Zinc	6 monthly
Nitrate	6 monthly
Chloride	6 monthly
Electrical conductivity (in-situ)	6 monthly
pH (in-situ)	6 monthly
<i>E. Coli</i>	6 monthly
Calcium	6 monthly
Nitrogen (total)	6 monthly
Phosphorous (total)	6 monthly
Sodium	6 monthly
Total Dissolved Solids	6 monthly

¹¹ Resource sampling and analysis for biosolids should be conducted in accordance with the procedures detailed in *Schedule 1—Biosolids sampling and analysis procedures* and *Schedule 2—Grading, sampling and compliance procedures* of the NSW Guidelines.

Soil

Any soil monitoring program should provide for monitoring of at least the parameters, and at the frequency, stated in *Table 2 – soil monitoring parameters*.

Table 2 - Soil monitoring parameters

Parameter	Frequency
Electrical conductivity (EC)	6 monthly
pH	6 monthly
Exchangeable Cation Exchange Capacity (ECEC)	Annually
Exchangeable Sodium Percentage (ESP)	Annually
Sodium Adsorption Ratio (SAR)	Annually
Arsenic	Annually
Cadmium	Annually
Chromium (total)	Annually
Copper	Annually
Lead	Annually
Mercury	Annually
Nickel	Annually
Selenium	Annually
Zinc	Annually
DDT/DDD/DDE	Annually
Aldrin	Annually
Dieldrin	Annually
Chlordane	Annually
Heptachlor and heptachlor epoxide	Annually
Hexachlorobenzene (HCB)	Annually
Lindane	Annually
Benzene hexachloride (BHC)	Annually
PCBs	Annually

Irrigation

Liquid resource being irrigated to land from the main dam should be monitored for at least the quality parameters and at the frequency specified in *Table 3 – Main dam monitoring parameters*.

Table 3 - Main dam monitoring parameters

Quality parameter	Frequency
Electrical conductivity	Fortnightly
Sodium absorption ratio (SAR)	Fortnightly
pH	Fortnightly
<i>E. Coli</i>	Monthly
Alkalinity (bicarbonate, carbonate and hydroxide)	Quarterly
Arsenic	Quarterly
Aluminium	Quarterly
Boron	Quarterly
Cadmium	Quarterly
Chromium (total)	Quarterly
Copper	Quarterly

Cobalt	Quarterly
Iron	Quarterly
Lead	Quarterly
Lithium	Quarterly
Manganese	Quarterly
Mercury	Quarterly
Molybdenum	Quarterly
Nickel	Quarterly
Selenium	Quarterly
Strontium	Quarterly
Vanadium	Quarterly
Zinc	Quarterly
Ammonium (NH ₄ ⁺)	Quarterly
Nitrate + nitrite	Quarterly
Total Kjeldahl Nitrogen (TKN)	Quarterly
Total Nitrogen	Quarterly
Total phosphorous	Quarterly
BTEX	Quarterly
Total dissolved solids (TDS)	Quarterly
Total petroleum hydrocarbons (TPH)	Quarterly
Flouride	Quarterly
Sulphate	Quarterly
Hardness (calculated)	6 monthly
Calcium, magnesium, sodium, and potassium	6 monthly
Chloride	6 monthly
Ortho phosphorous	6 monthly

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