

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

APPROVAL UNDER SECTION 115B(2) IN RELATION TO THE PROPOSED ILLAWARRA WASTE WATER STRATEGY

I, the Minister for Urban Affairs and Planning after:

1. examining and considering various matters including the:
 - a) environmental impact of the proposed Illawarra Waste Water Strategy under Section 111 of the *Environmental Planning and Assessment Act 1979*;
 - b) environmental impact statement (EIS) for the proposed Illawarra Waste Water Strategy dated May 1999 prepared by Australian Water Technologies Environment, Science & Technology;
 - c) representations made in respect to the exhibition of the EIS for the proposed Illawarra Waste Water Strategy;
 - d) Representations Report from Sydney Water Corporation dated May 2000;
 - e) "Illawarra Waste Water Strategy Representations Report – EIS Proposal-Proposed Changes Subsequent to Exhibition of EIS" dated September, 2000; and
 - f) report from the Director-General of the Department of Urban Affairs and Planning dated May 2001 in respect of the EIS for the proposed Illawarra Waste Water Strategy; and
2. after consulting and considering the matters raised by the Minister for Information Technology, Minister for Energy, Minister for Forestry, and Minister for Western Sydney, and pursuant to Section 115B(2) of the *Environmental Planning and Assessment Act 1979*, give approval for Sydney Water Corporation to carry out the proposal subject to the conditions stated in Schedule 1 to this approval. The reasons for the imposition of these conditions are set out in a report entitled "Sydney Water Corporation – Illawarra Waste Water Strategy Consolidation of Bellambi, Wollongong, and Port Kembla Sewage Treatment Plants - Director-General's Report".

Dated this 18 day of May, 2001

Andrew Refshauge MP

Deputy Premier

Minister for Urban Affairs and Planning

Minister for Aboriginal Affairs

Minister for Housing

Schedule 1

CONDITIONS OF APPROVAL

This section provides the Department's recommended conditions of approval for the project under Section 115B(2) of the EP&A Act. These are based on the Department's assessment of the EIS, the representations made to Sydney Water Corporation and supplementary information and advice provided.

It is noted that the EIS contains extensive information on procedures and mitigation strategies to be implemented to ameliorate impacts of the proposal. The recommended conditions should therefore be implemented in conjunction with those procedures and mitigation strategies specified in the EIS. Where there is an inconsistency with the recommendations in the EIS, the recommendations in this report would prevail.

The following acronyms and abbreviations are used in this section:

ANZECC	Australian and New Zealand Environment and Conservation Council
Department, The	Department of Urban Affairs and Planning
Director-General, The	Director-General of the Department of Urban Affairs and Planning (or delegate)
DLWC	Department of Land and Water Conservation
DMP	dust management plan
DUAP	Department of Urban Affairs and Planning
EIS	environmental impact statement
EMP	Environmental Management Plan
EMR	Environmental Management Representative
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	NSW Environment Protection Authority
HIPAP	Hazardous Industry Planning Advisory Paper
ML/d	Megalitres per day
Minister, The	Minister for Urban Affairs and Planning
NPWS	National Parks and Wildlife Service
OAP	Overflow Abatement Program
RTA	Roads and Traffic Authority
SMS	Safety Management System
SPS	sewage pumping station
STP	sewage treatment plant
SSTP	storm sewage treatment plant
SWC	Sydney Water Corporation
UV	ultra violet

General

1. The proposal shall be carried out in accordance with:
 - the proposal contained in the EIS entitled "Illawarra Waste Water Strategy – Consolidation of Bellambi, Wollongong, and Port Kembla Sewage Treatment Plants", prepared for Sydney Water Corporation by Australian Water Technologies, Environment, Science & Technology dated May, 1999, incorporating such changes as described in the "Illawarra Waste Water Strategy Representations Report", prepared by Sydney Water Corporation dated May, 2000, and the "Illawarra Waste Water Strategy Representations Report – EIS Proposal-Proposed Changes Subsequent to Exhibition of EIS" dated September, 2000.
 - all identified plans, safeguards, and mitigation measures presented in the "Illawarra Waste Water Strategy Consolidation of Bellambi, Wollongong, and Port Kembla Sewage Treatment Plants" Representations Report, prepared by Sydney Water Corporation dated May, 2000; and
 - the Conditions of Approval granted by the Minister.
2. Despite the above, in the event of any inconsistency with the EIS, the Conditions of Approval granted by the Minister shall prevail.

3. Any modification to the proposal which would be inconsistent with the Conditions of Approval shall only be carried out with the prior written approval of the Minister.
4. It shall be the ultimate responsibility of SWC to ensure compliance with the conditions of this approval.
5. These conditions do not relieve SWC of the obligation to obtain all other approvals and licences from all relevant authorities required under any other Act. Without affecting the generality of the foregoing, SWC shall comply with the terms and conditions of such approvals and licences.

Compliance

6. Sydney Water Corporation shall:
 - comply with all reasonable requirements of the Director-General in respect of the implementation of any measures arising from the conditions of this approval;
 - bring to the attention of the Director-General any matter that may require further investigation and the issuing of instructions from the Director-General; and
 - shall implement these instructions to the satisfaction of the Director-General within such time that the Director-General may specify.

Pre-Construction Compliance Report

7. At least one month prior to commencement of substantial construction (or within such period as otherwise agreed by the Director-General), SWC shall submit for approval of the Director-General a compliance report detailing compliance with all relevant conditions that apply prior to commencement of substantial construction and shall address:
 - the dates of submissions of the various studies and/or requirements of various relevant conditions, and their approval and terms of approval; and
 - action taken or proposed to implement the recommendations made in terms of approvals and/or studies.

Pre-Operation Compliance Report

8. At least one month prior to commencement of operation (or within such period as otherwise agreed by the Director-General), SWC shall submit for approval of the Director-General a compliance report detailing compliance with all relevant conditions that apply prior to commencement of operation and shall address:
 - the dates of submissions of the various studies and/or requirements of various relevant conditions, and their approval and terms of approval; and
 - action taken or proposed to implement the recommendations made in terms of approvals and/or studies.

Dispute Resolution

9. In the case of a dispute between SWC and any public authority (but excluding any dispute between SWC and its contractors and/or subcontractors involved in the construction or operation of the project) in the implementation of the Conditions of Approval, the matter shall be referred to the Director-General for resolution, or if not resolved, to the Minister whose determination of the disagreement shall be final and binding on all parties.

Project Commencement

10. Sydney Water Corporation shall notify the Director-General and all relevant authorities in writing of the project commencement date(s) prior to construction and operation as relevant.

Contact Telephone Number

11. Prior to commencement of construction, SWC shall provide to the Director-General, EPA, DLWC, RTA, NSW Fisheries, Wollongong City Council, and all relevant government agencies, a 24 hour

contact telephone number which will reach a person who can arrange, within a reasonable time as appropriate to the nature of the issue, appropriate action to be taken. The contact telephone number shall also allow any member of the public to contact SWC with respect to seeking information or making a complaint.

12. An initial response to any complaint is to be made to the complainant within 24 hours of receipt. Sydney Water Corporation shall then:
 - investigate the concerns raised by the complainant and undertake all reasonable attempts to determine the cause of concern; and
 - if adverse impacts are identified, undertake all practicable measures to modify the activity which may be causing the impacts.

Complaints Register

13. Sydney Water Corporation shall maintain a Complaints Register which shall be:
 - used to record details of all complaints received and actions taken by SWC during the construction and operation stages; and
 - available to all relevant government agencies including but not limited to DUAP, EPA, DLWC, RTA, NSW Fisheries, NSW Health, and Wollongong City Council.

Community Notification and Liaison

14. Sydney Water Corporation shall, at three-monthly intervals during the construction stage, advertise in relevant local newspapers or as otherwise directed by the Director-General, the nature of works proposed for the forthcoming three months, the areas in which these works are proposed to occur, the hours of operation, and the contact telephone number.
15. During the construction stage, SWC shall keep the local community informed (by way of local newsletter, leaflets, newspaper advertisements, and community notice boards, etc.) of the progress of the project including any traffic disruptions and controls, construction of temporary detours, work required outside of the nominated working hours prior to such works being undertaken.

Intended Processing Capacity of Wollongong Sewage Treatment Plant

16. Sydney Water Corporation shall review its projected average dry weather sewage flow every five years, or at such other more frequent period as required by the Director-General, for the Bellambi, Wollongong, and Port Kembla catchments. The review shall be submitted to the EPA and the Director-General and accompanied by a report which:
 - revises the average dry weather flow projections to indicate the anticipated date when the intended design capacity of 59 megalitres per day of average dry weather flow is likely to be attained at Wollongong STP (predicted in the EIS to occur in 2021);
 - recommends strategies (including upgrade and/or amplification works) that it proposes to undertake in time to ensure the intended processing capacity of 59 megalitres per day at average dry weather flow is not exceeded, or design and/or operational changes to ensure that the effluent quality is equivalent to, or better than, design criteria implemented for this project.

Treatment Levels at Wollongong STP

17. Following commissioning of the upgraded Wollongong STP, effluent discharged during dry weather must be treated to tertiary level and be disinfected with ultraviolet radiation. Dry weather is defined as flows up to 177 ML/d or greater flow depending on operational changes made as a result of Condition No. 16 (ie. equivalent to three times average dry weather flow for the combined catchments of Bellambi, Port Kembla, and Wollongong) and tertiary treatment is defined as preliminary, primary, and secondary treatment with sand filtration. All flows (including those above 177 ML/d) must receive screening, grit removal, primary sedimentation, and disinfection.

Treatment Levels at Bellambi and Port Kembla STPs

18. Following commissioning of the proposal, effluent discharged from the Bellambi and Port Kembla STPs must receive screening, grit removal, primary sedimentation, and chlorination and dechlorination. Settled sludge must be removed from the digesters and primary sedimentation tanks for transfer to Wollongong STP, or other appropriate location, for treatment.

Storage and Transfer from Bellambi and Port Kembla STPs

19. Bellambi STP must include at least 9 ML of wet weather storage, and Port Kembla STP must include at least 5 ML of wet weather storage.
20. The Bellambi to Wollongong transfer system must be capable of transferring at least 69 ML/d of flow from the Bellambi sewerage catchment to Wollongong STP.
21. The Port Kembla to Wollongong transfer system must be capable of transferring at least 51 ML/d of flow from the Port Kembla sewerage catchment to Wollongong STP.
22. There must be no unlicensed discharges to waterways from scour valves on the rising mains constructed as part of the proposal.

Biosolids Processing

23. If sludge derived from Port Kembla sewerage catchment is contaminated then two separate sludge processing facilities must be provided at Wollongong STP (ie one to treat sludge from Bellambi and Wollongong catchments, and the other to treat sludge from the Port Kembla sewerage catchment) in order to prevent cross contamination of sludge.
24. Stabilisation facilities must be provided with the capacity to treat sludge from Bellambi, Port Kembla, and Wollongong sewerage catchments.
25. Sydney Water Corporation shall prepare, in consultation with the EPA, a report to the EPA, within two years of commissioning the Illawarra Waste Water Strategy, which identifies opportunities that may be available to improve the contaminant grading of sludge from Port Kembla sewerage catchment to Grade C or higher to enable beneficial reuse (eg source control programs, sewer infiltration reduction programs, etc). A preferred option must be identified in the report which shall also indicate a timetable for completion of works.

Co-generation Feasibility at Wollongong STP

26. Should co-generation of electricity from the digester gas at Wollongong STP not be initially provided then SWC shall prepare a report within nine months of letting of the contract for construction, to the EPA, which re-examines the economic and financial viability of energy recovery from gas produced at Wollongong STP. The report must include an analysis of gas generated from digestion of sludge from all catchments and provide sufficient detail of costs and analytical methods for independent evaluation.

Environmental Management Representative

27. A suitably qualified Environmental Management Representative (EMR) shall be available during construction activities at the site and be present on-site during any critical construction activities as defined in the Environmental Management Plan at Condition of Approval No. 32. The EMR shall have responsibility for considering and advising on matters specified in the conditions of approval and compliance with such and facilitation of an induction and training program for all persons involved with the construction activities. The following information shall be provided to the Director-General:
 - appropriateness of the qualifications of the EMR including demonstration of general compliance with the principles of AS/NZS ISO 14012:1996 *Guidelines for Environmental Auditing : Qualifications criteria for environmental auditors*;
 - role and responsibility of the EMR; and

- authority of the EMR including details of SWC's internal reporting structure. This shall include the authority to stop work immediately if in the view of the EMR an unacceptable impact is likely to occur or to require other reasonable steps to be taken to avoid or minimise any adverse impacts.
28. The appointment of the person nominated to serve as the EMR shall be approved by the Director-General prior to commencement of construction.
29. The EMR shall immediately bring to the attention of the Director-General any major issues resulting from the construction of the project which have not been dealt with expediently or adequately by SWC.

Environmental Management System

30. In the assessment of tenders for design, construction and/or operation of the proposal, SWC shall include as a key evaluation criterion, the tenderer's demonstrated commitment to environmental management. Demonstration should be by way of commitment of a recognised Environmental Management System (such as ISO 14000, BS 7750-1994 or similar) and/or a proven satisfactory environmental management performance record.
31. All sampling strategies and protocols undertaken as part of the monitoring programs required by these Conditions of Approval shall include sampling and analytical strategies in accordance with EPA approved analytical methods to ensure effectiveness and quality of the monitoring program. All laboratories undertaking the analysis of samples should be accredited by the National Association of Testing Authorities Australia (NATA).

Environmental Management Plan(s) (Construction Stage)

32. A project specific Environmental Management Plan(s) (Construction Stage), for the transfer pipelines, sewage pumping stations, wet weather treatment plant works at Bellambi and Port Kembla STPs, upgrade works at Wollongong STP, and the new ocean discharge pipeline shall be prepared by SWC to the satisfaction of the Director-General following consultation with the EPA, DLWC, NSW Fisheries, Wollongong City Council, and any other relevant government agency nominated by the Director-General, prior to commencement of construction works. The EMP shall be prepared in accordance with the conditions of this approval, all relevant Acts and Regulations and accepted environmental management best practice.
33. The EMP(s) shall be made publicly available on request and shall:
- address construction activities associated with all key sites including Stuart Park, Osborne Park, King George V Park; cycleways; and the ocean outfall,
 - cover specific environmental management objectives and strategies for the main environmental elements and include, but not be limited to: water quality; noise; air/odours; erosion and sedimentation; access and traffic; property acquisition and/or adjustments; groundwater contamination; waste/resource management; terrestrial and marine flora and fauna; hydrology and flooding; recreation areas; visual screening, landscaping, and rehabilitation; hazards and risks; resource use and recycling; and utilities.
 - address, but not be limited to:
 - identification of the statutory and other obligations which SWC is required to fulfil during project construction including all approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies which control SWC's construction of the proposal;
 - definition of the role, responsibility, authority, accountability and reporting mechanism applicable to people having responsibilities under the EMP;
 - measures to avoid and/or control the occurrence of environmental impacts;
 - measures (where practicable and cost effective) to provide positive environmental offsets to unavoidable environmental impacts;
 - the role of the EMR;

- environmental management procedures for construction processes which are important for the quality of the environment in respect of permanent and/or temporary works;
- monitoring, inspection and test plans for activities and environmental qualities which are important to the environmental management of the project including performance criteria, specific tests, protocols (eg. frequency and location) and procedures to follow;
- environmental management instructions for complex environmental control processes which do not follow common practice or where the absence of such instructions could be potentially detrimental to the environment;
- steps SWC intends to take to ensure that all plans and procedures are being complied with;
- requirements arising from consultation with relevant government agencies, Wollongong City Council including Council's Bicycle Consultative Committee; and
- any requirements Wollongong City Council may have regarding restoration works following construction activities.

Specific requirements for some of the main environmental elements referred to above shall be as required under the conditions of this approval and/or as required under any licence or other approval.

Environmental Monitoring (Construction)

34. Sydney Water Corporation shall submit reports to the Director-General in respect of the environmental performance of the construction works and compliance with the Environmental Management Plan (Construction Stage) and any other relevant conditions of this approval. The reports shall:
- be prepared at six-monthly intervals or at other such periods as requested by the Director-General to ensure adequate environmental performance over the duration of the construction works;
 - include, but not be limited to information on:
 - applications for consents, licences and approvals, and responses from relevant authorities;
 - implementation and effectiveness of environmental controls and conditions relating to the work undertaken;
 - identification of construction impact predictions made in the EIS and any supplementary studies and details of the extent to which actual impacts reflected the predictions;
 - details and analysis of results of environmental monitoring;
 - the number and details of any complaints, including a summary of the main areas of complaint, action taken, response given and intended strategies to reduce complaints of a similar nature; and
 - any other matter relating to the compliance by SWC with the conditions of this approval or as requested by the Director-General.
 - be submitted to the EPA, DLWC, Wollongong City Council, and any other relevant government agency nominated by the Director-General;
 - be made publicly available; and
 - be certified by the EMR.

Environmental Management Plan (Operation Stage)

35. Sydney Water Corporation shall prepare an Environmental Management Plan for the operation stage of the proposal prior to commissioning. The EMP (Operational Stage) shall be prepared to the satisfaction of the Director-General, following consultation with the EPA, DLWC, NSW Fisheries, Wollongong City Council, and any other relevant government agency nominated by the Director-General. The EMP (Operational Stage) shall be prepared in accordance with the conditions of this approval, all relevant Acts and Regulations and accepted best practice

management procedures. The EMP (Operational Stage) shall address each of the key sites including the transfer pipelines between Bellambi STP and Wollongong STP, and Port Kembla STP and Wollongong STP, (and associated pumping stations and vents), the wet weather STPs of Bellambi and Port Kembla, the upgraded Wollongong STP, and the new ocean outfall.

36. The EMP (Operational Stage) shall be made publicly available on request and shall address, but not be limited to:
- identification of the statutory and other obligations which SWC is required to fulfil including all licences/approvals and consultations/agreements required from authorities and other stakeholders, and key legislation and policies which control the SWC's operation of the project;
 - requirements of and compliance with relevant EPA guidelines;
 - sampling strategies and protocols to ensure the adequacy of the monitoring program including specific requirements of the EPA and the DLWC;
 - monitoring, inspection and test plans for all activities and environmental qualities which are important to the environmental performance of the project during its operation, including description of potential site impacts, performance criteria, specific tests and monitoring requirements, protocols (eg frequency and location) and procedures to follow;
 - detailed contingency procedures for dealing with: power failures; sewer overflow following failures at the wastewater pumping stations and/or during extended periods of wet weather flows; and structural failures in the wastewater transfer pipeline;
 - steps SWC intends to take to ensure that all plans and procedures are being complied with;
 - quantities and method of storage of the chemicals likely to be used and compliance with the requirements of the *Dangerous Goods Act*;
 - summary of management strategies employed for:
 - the management of all land compulsorily acquired for the purposes of construction and operating permanent infrastructure;
 - effluent management including monitoring at discharge points in terms of quality and quantity;
 - biosolids disposal;
 - noise;
 - access and traffic;
 - water quality (including erosion and sedimentation controls) at the effluent discharge points;
 - managing ocean discharge effects on the weedy sea dragons;
 - air quality (including dust and odours);
 - health and public safety;
 - landscaping and maintenance and issues relating to flora and fauna;
 - security;
 - groundwater;
 - waste/resource minimisation, management, removal and disposal;
 - hydrology and flooding; and
 - hazards and risks and contingency plans (emergency response).

Specific requirements for some of the main environmental elements referred to above shall be as detailed under the conditions of this approval and/or as required under any licence or approval.

Integration of the Illawarra Waste Water Strategy and the Sewerage Overflow Abatement Program

37. Sydney Water Corporation shall advise the Director-General and the EPA, prior to commencement of any construction arising out of the Overflow Abatement Program (OAP) for the Bellambi; Port Kembla, and Wollongong sewerage systems, of any linkage(s) between measures proposed in the OAP and the current proposal (eg any anticipated changes to the: frequency/volume of untreated discharges, reuse capabilities, water quality of treated discharges, capacity/flow regime, etc).

Integration of the Operation of the Storage/Wet Weather Treatment Plants With the Augmented Wollongong STP

38. Sydney Water Corporation shall prepare a report for the Director-General within two years of commissioning the Illawarra Waste Water Strategy, which identifies opportunities that may be available to integrate the operation of the storage/wet weather treatment plants and the transfer network in order to maximise the full treatment of all flows at Wollongong STP and minimise frequency and volumes of overflows. This may require developing detailed models of catchment and flow relationships and individual responses to wet weather events ie process controls to regulate the flows by using the storage capacities at the three STPs and the transfer pipelines, as appropriate.

Environmental Impact Prediction Verification

39. An Environmental Impact Prediction Verification Report which assesses the key impact predictions made in the EIS and any supplementary studies, shall:
- be submitted to the Director-General, the EPA and, upon request, to any other relevant government agency at 12 months and 2 years after commissioning of the Illawarra Waste Water Strategy and at any additional intervals the Director-General may require;
 - be prepared at SWC's expense;
 - detail the extent to which actual impacts reflect the predictions outlined in the EIS and any supplementary studies including, but not limited to, the following:
 - ocean discharge effects on the weedy sea dragons;
 - the level and extent of impacts on the aquatic environment in the zone surrounding the new discharge point from the Wollongong STP (eg microbiological concentrations, dilution model, etc)
 - water quality at recreational beaches, and in the mixing zones for each discharge point (ie ANZECC Water Quality Guidelines for Primary Contact Recreation);
 - effluent quality characterisation and toxicity (ANZECC Water Quality Guidelines for Maintenance of Aquatic Ecosystems including fish, crustacea, and shellfish);
 - wet weather overflow frequency for the STPs; and
 - effects of discharges on intertidal communities adjacent to Bellambi and Port Kembla STP cliff face outfalls.
 - assess the suitability of implemented mitigation measures and safeguards;
 - assess compliance with the Environmental Management Plan (Operational Stage) and Conditions of Approval; and
 - discuss any community feedback on the project and issues of concern raised following commencement of plant operations.
40. The technical studies required as part of the Report in Condition of Approval No. 39 shall be prepared by appropriately qualified, independent specialists.
41. Sydney Water Corporation shall implement all the requirements of the Director-General with respect to any measures arising from the report prepared in accordance with Condition of Approval No. 39.

Water Quality

42. As part of the EMP (Operational Stage) referred to in Condition of Approval No. 35, SWC shall prepare, in consultation with the EPA and DLWC, a detailed Water Quality Management Procedure. The Procedure shall:
- provide details of pollution control measures to be undertaken during the operation of the Illawarra Waste Water Strategy;
 - satisfy all relevant pollution control approval/licence requirements; and
 - reference environmental issues and goals set out in relevant EPA and other guidelines.

43. The Procedure shall address, but not be limited to:
- identification of baseline water quality monitoring locations;
 - demonstration that the discharges of the treated effluent from the Illawarra Waste Water Strategy will meet water quality criteria in relevant ANZECC guidelines;
 - design and implementation of monitoring programs to validate the predictions and to provide a basis for future decision making processes;
 - asset management of the Illawarra Waste Water Management Strategy as recommended by the proposal;
 - emergency response and clean-up procedures; and;
 - public notification procedures for potentially affected parties during periods when overflow emergency procedures are in place (ie. health issues for primary contact recreational users);
44. The Procedure shall be prepared prior to commissioning of the upgraded plant and shall be forwarded to the EPA.

Port Kembla and Bellambi Discharge Frequency

45. The project is to be designed and constructed such that when it is operational no more than 60 discharges are to occur in a ten year period from each of Bellambi and Port Kembla Storm STPs.

UV Light Disinfection

46. Prior to the commissioning of the upgraded plant, SWC shall prepare a detailed procedure, to the satisfaction of the NSW Health Department and the EPA, with the objective of optimising the UV light disinfection process for all likely operational modes of Wollongong STP.
47. The procedure shall make explicit provision for:
- periods when complete treatment would be completely or partially bypassed and when suspended solids levels are found to be elevated and light transmissivity is being reduced; and
 - an appropriately designed monitoring program to facilitate:
 - optimisation of the UV light disinfection process; and
 - ongoing monitoring of its UV light disinfection efficiency.
48. Sydney Water Corporation shall, at the request of NSW Health Department, take all necessary rectification action to the satisfaction of NSW Health Department, to ensure that the disposal of wastewater does not pose a potential hazard to public health, taking account of ANZECC water quality guidelines.

Effluent Reuse

49. Sydney Water Corporation shall prepare a report for the Director-General and the EPA on recycling/reuse for the treated effluent at Wollongong STP within the first year of this approval, and thereafter as requested by the Director-General. The report shall:
- identify how any proposal to recycle effluent at Wollongong STP relates to SWC's corporate recycling strategy and world's best practice;
 - examine the status of investigations into effluent reuse at Port Kembla with particular attention given to the current and any likely future industrial markets, including water quality requirements;
 - if appropriate, identify opportunities for implementing additional reuse ie more reuse than is suggested by the current proposal, and discuss the feasibility of achieving 100% reuse for average dry weather flows; and
 - discuss the implications for any expansion of the Wollongong STP ie will the STP need to be expanded beyond its proposed new boundaries in order to accommodate facilities associated with additional recycling.

Energy Use

50. Prior to finalising of detailed design of the plant, SWC shall identify all practical measures in relation to the reduction of on-site energy consumption during operation. Where practicable, such measures shall be incorporated into the plant's design and shall be operational at the time of commissioning of the upgrade.

Air Quality

51. There must be no increase in the total odour generation rate from the Wollongong STP following commissioning of the proposal.
52. Prior to commencement of STP process infrastructure construction, SWC shall prepare a detailed Odour Management Procedure in consultation with the EPA and Wollongong City Council. The Procedure shall detail:
- all response actions to reduce the expected odour emission rates from the proposal to existing or lower levels than those currently emitted from the Wollongong STP;
 - all aspects of odour management eg. identification of odour sources, control devices, treatment, adopted criteria and implementation of any necessary additional mitigation strategies, methodology for monitoring odour emissions (including representative meteorological conditions), reporting procedures, measures for dealing with exceedances, arrangements to inform residents and contact points, complaints handling systems, reporting of complaints; and
 - procedures for monitoring and assessing the operational effectiveness of the ventilation stacks associated with SPS along the transfer pipelines and, should problems be experienced, identify measures SWC shall take to eliminate such problems.
53. A specific Dust Management Procedure shall be prepared as part of the EMP (Construction) referred to in Condition of Approval No. 32. The Procedure shall:
- detail all dust control measures to be implemented during construction; and
 - include measures to reduce dust generation from stockpiles, cleared areas and other exposed surfaces.
54. All construction vehicles shall be maintained and covered as needed to prevent any loss of load, whether in the form of dust, liquid, solids or otherwise. The vehicles shall be maintained in such a manner that they will not track mud, dirt or other material onto any street which is opened and accessible to the public.

Vibration Management Procedure

55. As part of the EMP (Construction) referred to in Condition of Approval No. 32, SWC shall prepare, in consultation with Wollongong City Council, a Vibration Management Procedure. The Procedure shall provide full details of vibration control measures to be undertaken during construction stage.
56. The Procedure shall include, but not be limited to:
- a description of anticipated vibration generating activities and locations and duration of these activities;
 - impacts from site compounds/construction depots;
 - vibration control equipment to be fitted to machinery;
 - predicted vibration levels at sensitive receivers;
 - vibration monitoring and reporting procedures;
 - measures for dealing with exceedances;
 - arrangements to inform residents of construction activities likely to generate vibration; and
 - contact points for residents.

Noise

Noise Management Procedures

57. As part of the EMPs referred to in Conditions 32 and 35, SWC shall prepare, in consultation with Wollongong City Council, detailed Noise Management Procedures. The Procedures shall provide details of noise control measures to be undertaken during both the construction and operation stages.
58. The Procedures shall be prepared prior to construction, shall be made publicly available, and shall include, but not be limited to:
- tests for ascertaining acoustic parameters;
 - anticipated airborne noise for all major noise generating activities and locations and durations of these activities;
 - impacts from site compounds/construction depots;
 - noise control equipment to be fitted to machinery;
 - temporary noise mitigation measures such as noise barriers;
 - shrouds around stationary plant to be installed prior to the commencement of noisy activities;
 - predicted noise levels at sensitive receivers (such as schools, churches, hospitals etc.);
 - noise monitoring and reporting procedures;
 - measures for dealing with exceedances;
 - arrangements to inform residents of construction activities likely to affect their noise amenity ie. contact point for residents; and
 - compliance with relevant EPA guidelines as far as practicable, including the Environment Noise Control Manual, and the Industrial Noise Policy.

Construction Noise

59. Sydney Water Corporation shall monitor construction noise levels to verify compliance with the requirements specified in the Noise Management Procedure. Should monitoring indicate exceedance, SWC shall consult the EPA and implement any additional mitigation measures to ensure that “best practice” is being implemented.

Construction Hours

60. All construction activities including entry and departure of heavy vehicles shall be restricted to the hours 7.00 am to 6.00 pm (Monday to Friday); 8.00 am to 1.00 pm (Saturdays) and at no time on Sundays and public holidays. Works outside these hours which may occur include:
- any works which do not cause noise emissions to be audible at any nearby residential property;
 - the delivery of materials which is required outside these hours requested by police or other authorities for safety reasons; and
 - emergency work to avoid the loss of lives and/or property and/or to prevent environmental harm.

Operational Noise

61. Sydney Water Corporation shall review the operational noise (with particular attention given to compressors, blowers associated with the aeration tanks, aeration tanks, sludge dewatering plant, return activated sludge pumps, odour control plant, sludge pumps, reuse pumps, and effluent pumps) and undertake an analysis of daytime and night time noise levels at the surrounding residential areas during the normal operation of the Wollongong STP and all SPSs associated with the proposal. Should the review indicate a clear trend in noise levels which is inconsistent with the general predictions made in the EIS, SWC shall implement further noise mitigation measures.

Hazard Management

62. No later than two months prior to the commencement of commissioning of the upgraded plant, or within such further period as the Director-General may agree, SWC shall prepare and submit for the approval of the Director-General a Safety Management System report (SMS). Commissioning shall not commence until approval has been given by the Director-General.
63. The SMS shall cover all operations at the Bellambi and Port Kembla storm STPs, the upgraded Wollongong STP, transfer pipelines, and associated transport activities involving hazardous materials. The SMS shall clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to procedures. Records shall be kept on-site and shall be available for inspection by the Director-General upon request. The SMS shall be developed in accordance with the Department's Hazardous Industry Planning Advisory Paper (HIPAP) No. 9, "Safety Management".
64. The SMS shall also cover assessment and management of hazards associated with the storage and use of chemicals.
65. Twelve months after the commencement of operations of the upgraded plant or within such further period as the Director-General may agree, SWC shall carry out a comprehensive hazard audit of the Illawarra Waste Water Strategy – Consolidation of Bellambi, Wollongong, and Port Kembla Sewage Treatment Plants, and within one month of the audit submit a report to the Director-General. The audit shall be carried out at SWC's expense by a duly qualified independent person or team approved by the Director-General prior to commencement of the audit. Further audits shall be carried out every three years or as determined by the Director-General and a report of each audit shall within a month of the audit be submitted to the Director-General. Hazard audits shall be carried out in accordance with the Department's HIPAP No. 5 *Hazard Audit Guidelines*.

The audit shall include a review of the site safety management system and a review of all entries made in the incident register since the previous audit.

Acid Sulfate Soils

66. As part of the EMP (Construction) referred to in Condition of Approval No. 32, SWC shall prepare an Acid Sulfate Soil Management Plan in accordance with the "Acid Sulfate Soil Manual" prepared by the New South Wales Acid Sulfate Soil Management Advisory Committee, August 1998 (or its latest version), and Wollongong City Council's Fact Sheet E33 for control of acid sulfate soils.

Contaminated Soils Management

67. As part of the EMP (Construction) referred to in Condition of Approval No. 32, SWC shall prepare a Contaminated Soils Management Plan. The Plan shall address, but not be limited to:
- procedures for further soil investigations;
 - occupational health and safety procedures;
 - safeguards to prevent the migration of excavated material, leachate, or runoff; and
 - disposal requirements, ie. removal of contaminated spoil to an EPA approved facility.

Soil and Water Management

68. As part of the EMP (Construction) referred to in Condition of Approval No. 32, SWC shall prepare a comprehensive Soil and Water Management Procedure in accordance with the Department of Housing's guideline "Managing Urban Stormwater – Soils and Construction" (1998). The Procedure shall provide full details of all pollution control measures to be undertaken during the construction stage and satisfy all requirements for pollution control approval/licences. A copy of the Procedure shall be forwarded to the EPA, DLWC, and Wollongong City Council.
69. The Soil and Water Management Procedure shall incorporate a detailed Erosion and Sedimentation Control Plan which shall be prepared in consultation with DLWC and shall satisfy all

relevant pollution control approvals and licence conditions. A copy of the Erosion and Sedimentation Control Plan shall be forwarded to the DLWC and the EPA.

Traffic and Road Works

70. Traffic control plans shall be prepared in consultation with the RTA, Wollongong City Council and relevant stakeholders such as local industry and bicycle groups for areas where traffic restrictions will be required. Plans must also be prepared for the parts of the routes on the bicycle path which will disrupt bicycle and pedestrian traffic on the bicycle path and clearly identify safe alternative routes.
71. A road dilapidation report shall be prepared for all roads nominated by Wollongong City Council likely to be used by construction traffic. The report shall be prepared in consultation with Wollongong City Council prior to commencement of construction activities. Sydney Water Corporation and Wollongong City Council shall review the report as soon as practicable after construction is complete. Any road/footpath/cycleway damage (aside from that resulting from normal wear and tear) attributable to the construction of the proposal, shall be repaired to a standard at least equivalent to that existing prior to any disturbance.

Visual Impact Mitigation

72. All mitigation measures relating to the visual assessment contained in Section 9.2 of the EIS shall be incorporated unless otherwise agreed to by the Director-General.
73. All landscaping works shall be monitored and maintained at regular intervals to ensure their effectiveness. All costs of such monitoring and maintenance shall be borne by SWC unless otherwise agreed by the relevant property owner.

Heritage

74. Sydney Water Corporation shall implement all recommendations specified in Section 9.4 of the EIS.

Waste Disposal and/or Recycling

75. As part of the EMPs referred to in Conditions 32 and 35, SWC shall prepare detailed Waste Management Procedures to address the management of wastes during both the construction and operation stages. The Procedures shall be prepared prior to construction and operation, as appropriate, and shall identify requirements for waste avoidance, reduction, reuse and recycling. They shall also detail requirements for handling, stockpiling and disposal of wastes specifically spoil, concrete, contaminated soil or water, demolition material, cleared vegetation, oils, greases, lubricants, sanitary wastes, timber, glass, metal, etc. The procedures shall also identify any site for final disposal of any material and any remedial works required at the disposal site before accepting the material. Any waste material which is unable to be reused, reprocessed or recycled shall be disposed at a landfill licensed by the EPA to receive that type of waste.

Utilities and Services

76. Sydney Water Corporation shall, in consultation with the relevant service authority, identify all services potentially affected by construction activities to determine requirements for diversion, protection and/or support. Any alterations to utilities and services shall be carried out to the satisfaction of relevant authorities. The costs of any alterations shall be borne by SWC unless otherwise agreed to by the affected service/utility authority.