



**MAJOR PROJECT ASSESSMENT:
Early Release Lead-in Works for West
Horsley - West Dapto Urban Release Area
(MP10_0197)**



Director-General's
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979

October 2011

ABBREVIATIONS

CIV	Capital Investment Value
DECCW	Department of Environment, Climate Change and Water
Department	Department of Planning and Infrastructure, formerly Department of Planning
DGRs	Director-General's Requirements
Director-General	Director-General of the Department of Planning and Infrastructure
EA	Environmental Assessment
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPI	Environmental Planning Instrument
Infrastructure SEPP	State Environmental Planning Policy (Infrastructure) 2007
MD SEPP	State Environmental Planning Policy (Major Development) 2005
Minister	Minister for Planning and Infrastructure
OEH	Office of Environment and Heritage, formerly DECCW
PAC	Planning Assessment Commission
Part 3A	Part 3A of the <i>Environmental Planning and Assessment Act 1979</i>
PEA	Preliminary Environmental Assessment
PFM	Planning Focus Meeting
PPR	Preferred Project Report
Proponent	Sydney Water Corporation
Submissions Report	Response to Submissions report titled <i>Early Release Lead-in Works for West Horsley Submissions Report</i> prepared by Sydney Water Corporation and dated June 2011
SEPP	State Environmental Planning Policy
WCC	Wollongong City Council
WDURA	West Dapto Urban Release Area

Cover Photograph: Proposed water and wastewater pipeline alignments for West Horsley

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EXECUTIVE SUMMARY

Sydney Water Corporation (the Proponent) proposes to install, operate and maintain a 1.5 kilometre water pipeline and a 2 kilometre wastewater pipeline with connections to existing infrastructure in the West Horsley area, within the Wollongong local government area (LGA).

The project includes the construction of underground pipelines with valves, scour chambers and vent shafts, and upgrading the storage capacity of the existing wastewater pumping station located at Fairwater Drive, Horsley.

The project is expected to service up to 4,200 new dwellings within the new urban release precinct of West Horsley, which is located within the larger urban release area of West Dapto. It has a capital investment value of \$8 million and is expected to generate up to 20 construction jobs and less than one full-time operational position.

On 7 September 2009, the then Minister for Planning declared the project for water and wastewater services for the whole of the West Dapto Urban Release Area (WDURA) and adjacent growth areas to be subject to Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). On 3 November 2009, the Proponent lodged a Concept plan and associated project application for this project.

The Proponent is still pursuing approval of the concept plan and project application for the WDURA, however it has lodged a separate project application for the West Horsley Precinct to service a recently approved subdivision. Construction of this subdivision has recently commenced.

The project environmental assessment was placed on public exhibition between 2 March 2011 and 31 March 2011. The Department received a total of 8 submissions, all from public authorities including the Office of Environment and Heritage (formerly the Department of Environment, Climate Change and Water), Department of Primary Industries (formerly Industry and Investment NSW), Southern Rivers Catchment Management Authority, Wollongong City Council, Lake Illawarra Authority, NSW Office of Water, Roads and Traffic Authority and the Department of Health. No objections to the project were raised, subject to the implementation of conditions.

The key environmental issues associated with the project include: soil and water impacts, ecological impacts, traffic impacts and construction noise. Submissions on the project reflected these issues.

The Department has assessed the Proponent's Environmental Assessment, Submissions Report and Statement of Commitments, and submissions received from public agencies regarding the project. On balance, the Department considers the project to be justified and in the public interest.

In order to manage potential impacts resulting from the proposal, the Department has drafted a recommended instrument of approval incorporating conditions to ensure that the key issues addressed in this report are appropriately addressed and managed to acceptable levels. The conditions would also ensure that commitments made in the Environmental Assessment and Submissions Report are implemented as well as strengthening the management and mitigation of identified impacts.

The Department is satisfied that all environmental issues associated with the construction and operation of the project have been addressed and can be managed to acceptable levels, subject to the Proponent's Statement of Commitments and the Department's recommended conditions. The Department therefore recommends that the project be approved, subject to conditions.

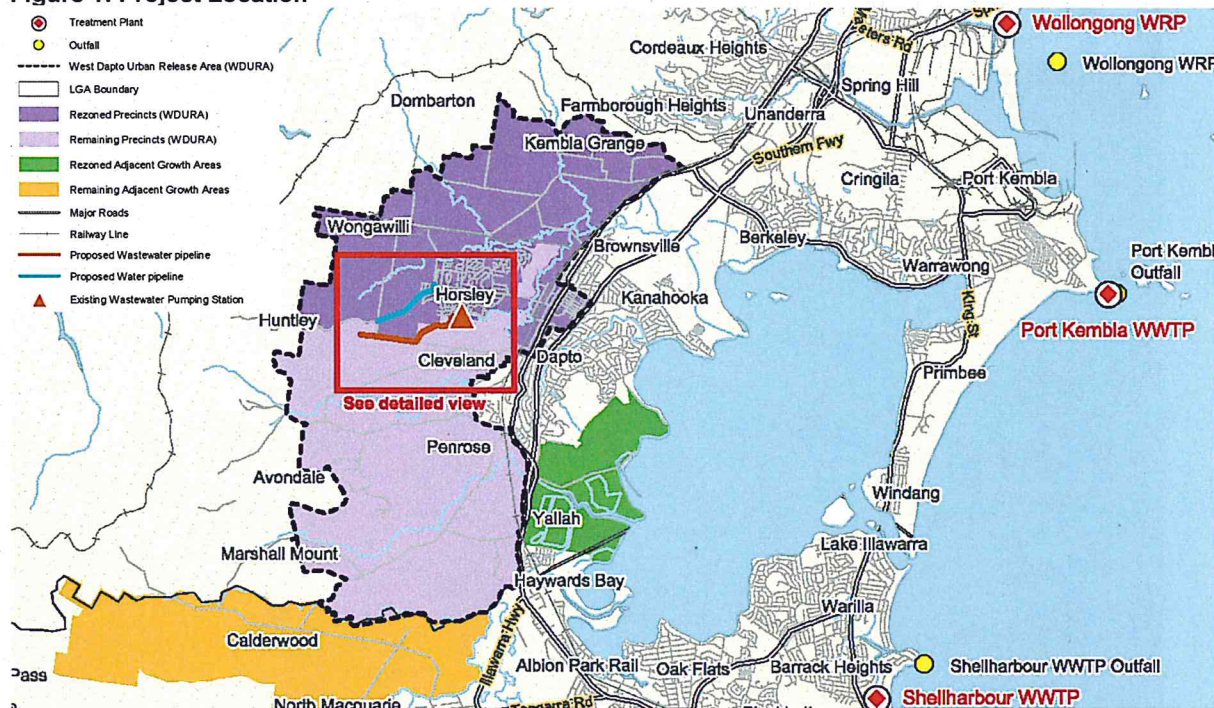
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1. BACKGROUND

Predicted growth in the Illawarra region is driving the requirement for an additional 38,000 new dwellings. The West Dapto Urban Release Area (WDURA) is expected to be able to provide up to an additional 19,350 new dwellings; and commenced over 20 years ago with the release of the suburb of Horsley (see Figure 1). However, due to low housing demand and high infrastructure costs, subsequent stages did not proceed.

Figure 1: Project Location



Source: Early Release Lead-in Works Environmental Assessment (Sydney Water Corporation, 2011)

The WDURA consists of seven precincts, with the West Horsley precinct being one of three that has recently been rezoned. The remainder of the release precincts are to be rezoned based on future demand.

On 3 November 2009, Sydney Water Corporation lodged an application under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for a Concept plan and associated project for water and wastewater services for the whole of the WDURA and adjacent growth areas.

On 6 May 2011 the Joint Regional Planning Panel approved a Development Application (DA-2010/693) for a 295-lot residential subdivision on Lot 601 DP 1054648 Bong Bong Road, within the West Horsley precinct (see Figure 2). Construction of this subdivision has recently commenced.

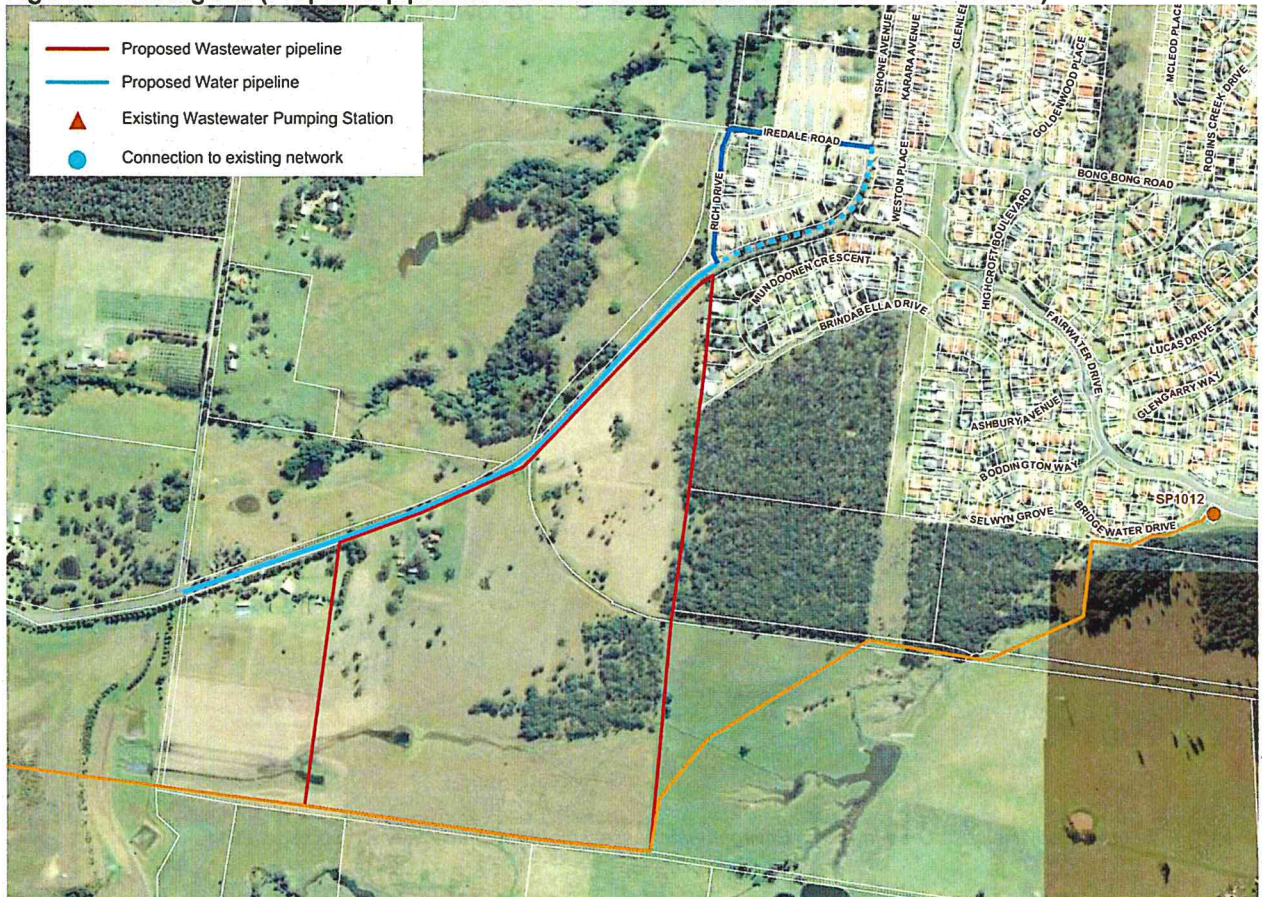
Sydney Water Corporation is still pursuing approval of the concept plan and project application for the WDURA, however it has lodged a separate project application for the West Horsley Precinct to service the recently approved subdivision. This project application is the subject of this assessment report. The environmental impacts of this proposal were considered in an Environmental Assessment and Submissions Report.

1.1. Location

The proposal is located 15 kilometres south west of Wollongong within the Illawarra Region (Figure 1). The proposed water pipeline would be within the existing road verge of Bong Bong

Road from Hayes Lane, and within the road formation of Iredell Road and Rich Drive, and connect to the existing water supply network on Shone Avenue. The proposed wastewater pipeline would be located between the southern boundary of the Illawarra Gun Club and the existing wastewater pumping station located at the corner of Fairwater Drive and Riverpark Way (Figures 2 and 3).

Figure 2: Existing site (Proposed pipelines shown in blue – water and brown – wastewater.)



Source: Early Release Lead-in Works Environmental Assessment (Sydney Water Corporation, 2011)

1.2. Surrounding Land Use

The proposal is located within an area that is primarily non-urban with a mix of residential, rural residential, industrial, commercial and agricultural land uses (see Figure 2). The pipeline is proposed to be located within land that is predominantly rural but will also pass through land containing low density residences and land zoned for environmental conservation.

The project is located within the Southern Rivers Catchment Management Area. The wastewater pipeline is located within the Reed Creek catchment, crossing ephemeral drainage lines a number of times.

2. PROPOSED PROJECT

2.1. Project Description

Sydney Water Corporation (the Proponent) proposes to install, operate and maintain a 1.5 kilometre water pipeline and a 2 kilometre wastewater pipeline with connections to existing infrastructure in the West Horsley area. The key components of the project are listed in Table 1 and the project layout is shown in Figure 2 and Figure 3.

Table 1: Key Project Components

Aspect	Description
Project Summary	The construction, operation and maintenance of a: • 1.5 kilometre water pipeline connecting to the existing water supply network; and • 2 kilometre wastewater pipeline including connection to and upgrade of storage facilities at the existing wastewater pumping station. The proposal also includes air release valves and approximately five vent shafts.
Water Pipeline	The 300 millimetre diameter water pipeline would be installed below ground level within the road verge of Bong Bong Road, and within the road formation of Rich Drive and Iredell Road for approximately 1.5 kilometres from Hayes Lane to Shone Avenue, West Horsley. Surface features associated with the pipeline include valves and scour chambers.
Wastewater Pipeline	The 300 millimetre diameter gravity fed wastewater pipeline would be installed below ground level for 2 kilometres between the boundary of the Illawarra Gun Club (Lot 61 DP 1063539) and the existing pumping station at the corner of Fairwater Drive and Riverpark Way. The alignment generally follows Reed Creek and crosses a number of ephemeral drainage lines. The leak tight wastewater system would comprise welded polyethylene pipes, fittings and maintenance shafts with no overflow points.
Wastewater Pumping Station Upgrade	Additional storage capacity upgrade of 152 cubic metres (m³) of the existing pumping station (SPS 1012) located at Fairwater Drive, Horsley.
Maintenance Structures	Maintenance structures to allow inspection of the wastewater pipes. Typically installed at changes of level, pipeline direction and/or pipe size.
Vent Shafts	Approximately five vent shafts along the wastewater pipeline route, located above ground with the locations to be determined during detailed design. The typical dimensions of a vent shaft are a 19 m tall pipe up to 0.3 m in diameter.
Construction	Construction of the proposal is expected to take approximately six to nine months to complete, and includes: • the progressive delivery of pipes to the site, with approximately two truck movements per day of pipe and fittings for the water pipeline and up to four truck movements per day of pipe and fittings for the wastewater pipeline. • a 10 metre disturbance corridor including excavation of trenches approximately 1.3 – 1.7 m wide, ranging in depth from 1.5 m for the drinking water pipeline to 3 – 5 m deep for the wastewater pipeline. • underboring beneath areas containing endangered ecological communities.

2.2. Amendment to the Water Pipeline Route

Subsequent to the receipt of the Submissions Report, the Proponent revised a section of its water pipeline route, such that it would be constructed within the road along Rich Drive and Iredell Road rather than Bong Bong Rd (see Figure 3). The primary justification for the change is to avoid disturbance of existing infrastructure, including the recently completed footpath pavement

construction by Wollongong City Council. Council has indicated its preference for the amended route.

The Department has considered this amendment and is satisfied the proposed change in pipeline route would not result in a change in the assessed impacts, particularly in relation to the key issues assessed in section 5.

2.3. Project Need and Justification

The NSW State Plan estimates that at least 300,000 new dwellings will be required over the next 25 years to accommodate growth throughout regional NSW, with the Illawarra region flagged to accommodate an additional 38,000 new dwellings.

The development of the West Dapto area began over 20 years ago with the release of the suburb of Horsley. However, due to high infrastructure costs and low housing demand further development did not proceed. The *Illawarra Regional Strategy 2006-2031* (Department of Planning, 2007) has since identified West Dapto as a priority new release area for the Illawarra region. It is expected that this new release area would deliver approximately 19,000 new dwellings over the next 30 to 40 years. The West Horsley precinct, located within the WDURA, is estimated to provide 4,200 new dwellings.

To support the new release areas, the *Illawarra Urban Development Program: Update* (Department of Planning, 2010) identified the delivery of key infrastructure such as the extension of the trunk networks of water, sewer and power as a key step in the land supply process. This is further strengthened through the objectives of the *Wollongong Local Environmental Plan (West Dapto) 2010*, requiring satisfactory arrangements to be made for the provision of designated State public infrastructure before the subdivision of land in an urban release area to satisfy needs that arise from development on the land, but only if the land is developed intensively for urban purposes.

The project was identified as part of the Proponent's Integrated Services Strategy for the provision of water and wastewater services to the WDURA and adjacent growth areas up to the year 2050.

The Department considers the provision of water and wastewater services for the West Horsley early release area is justified, based on the need to secure public infrastructure to support the development of the release area, particularly the recently approved subdivision on Lot 601 DP1054648.

3. STATUTORY CONTEXT

3.1. Major Project

On 7 September 2009 the then Minister for Planning declared the project for water and wastewater services for the whole of the WDURA and adjacent growth areas to be subject to Part 3A of the EP&A Act under section 75B of that Act.

As this project is a subset of that declaration, the early release lead-in works for West Horsley is also a major project subject to Part 3A of the EP&A Act. Therefore the Minister for Planning and Infrastructure is the approval authority.

Continuing operation of Part 3A

Part 3A of the EP&A Act, as in force immediately before its repeal on 1 October 2011 and as modified by Schedule 6A to the Act, continues to apply to transitional Part 3A projects. Director-General's environmental assessment requirements (DGRs) have been issued in respect of this project and the environmental assessment report was lodged prior to 1 October 2011. The project is therefore a transitional Part 3A project.

Consequently, this report has been prepared in accordance with the requirements of Part 3A and associated regulations, and the Minister (or his delegate) may approve or disapprove of the carrying out of the project under section 75J of the Act.

Approval Authority

On 14 September 2011, the Minister for Planning and Infrastructure delegated responsibility for the determination of project applications under Part 3A of the EP&A Act to the Deputy Director-General where:

- there are fewer than 25 submissions in the nature of objections in respect of the project application;
- the relevant local Council does not object to the proposal; and
- a political donations disclosure has not been made.

As no public submissions were received, the local Council does not object and no political disclosure statement was made, the Deputy Director-General, Development Assessment and Systems Performance may determine the application under delegated authority.

3.2. Concept Plan and Project Applications

The Proponent applied for approval of a concept plan under section 75M of the EP&A Act on 3 November 2009. The Concept plan and associated project application addresses the water and wastewater services required for the whole of the WDURA and adjacent growth areas.

The Proponent is still pursuing approval of the concept plan and project application. However, on 3 November 2010 a separate project application was lodged with the Department specifically for the West Horsley Precinct to service the recently approved subdivision. The project application for the West Horsley Precinct is the subject of this report.

3.3. Permissibility

The proposal is located on land within the Wollongong local government area. Both the *Wollongong Local Environment Plan (West Dapto) 2010* and the *Wollongong Local Environment Plan 2009* apply to the area.

Under the *Wollongong LEP (West Dapto) 2010* the proposal is prohibited in all zones:

- RU2 Rural Landscape;
- R2 Low Density Residential;
- E2 Environmental conservation; and
- E3 Environmental Management.

However, the proposal is required to facilitate the objectives of the RU2 and R2 zones and has considered the objectives of the E2 and E3 zones to prevent damage or provide for a limited range of development that does not have adverse effects on areas of high or special ecological, scientific, cultural or aesthetic values in developing the project.

Under the *Wollongong LEP 2009* the proposal is located solely within the E3 Environmental Management zone and is also prohibited. As above, the objectives of this zone also include the provision for a limited range of development that does not have adverse effects on areas with special ecological, scientific, cultural or aesthetic values.

Notwithstanding the LEP provisions, the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) applies to this project. Clauses 106 and 125 of the Infrastructure SEPP allow development for the purpose of sewage and water reticulation systems to be carried out by or on behalf of a public authority without consent on any land. The Proponent is a public authority and all works would be carried out by or on behalf of the Proponent. Therefore the project is permissible within all zones.

3.4. Environmental Planning Instruments

Sydney Water has considered the project against the relevant provisions of State Environmental Planning Policies (SEPPs) and other environmental planning instruments in section 5.2 of the EA (see Appendix A). The Department is satisfied that there are no environmental planning instruments that substantially govern the carrying out of the project.

3.5. Objects of the EP&A Act

Decisions made under the EP&A Act must have regard to the objects of the Act, as set out in Section 5 of the Act. The relevant objects are:

- (a) *to encourage:*
 - (i) *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
 - (ii) *the promotion and co-ordination of the orderly and economic use and development of land,*
 - (iii) *the protection, provision and co-ordination of communication and utility services,*
 - (iv) *the provision of land for public purposes,*
 - (v) *the provision and co-ordination of community services and facilities, and*
 - (vi) *the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
 - (vii) *ecologically sustainable development, and*
 - (viii) *the provision and maintenance of affordable housing, and*
- (b) *to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*
- (c) *to provide increased opportunity for public involvement and participation in environmental planning and assessment.*

Of particular relevance to the environmental assessment and eventual determination of the subject project application by the Minister, are those objects stipulated under section 5(a). Relevantly, the objects stipulated under (i), (ii), (iii), (vi) and (vii) are significant factors informing determination of the application (noting that the proposal does not raise significant issues relating to land for public purposes, community services and facilities or affordable housing). With respect to ecologically sustainable development, the EP&A Act adopts the definition in the *Protection of the Environment Administration Act 1991*. This is discussed further in Section 3.6.

In addition to the above, the agency and community consultation undertaken as part of the assessment process (see Section 4 of this report), address objects 5(b) and (c) of the Act.

3.6. Ecologically Sustainable Development

The EP&A Act adopts the definition of Ecologically Sustainable Development (ESD) found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

- (a) *the precautionary principle,*
- (b) *inter-generational equity,*
- (c) *conservation of biological diversity and ecological integrity,*
- (d) *improved valuation, pricing and incentive mechanisms.*

It is important to recognise that while the EP&A Act requires that the principles of ecologically sustainable development be encouraged, it provides other objects that must be equally included in the decision-making process for any proposal.

The Department has considered the need to encourage the principles of ecologically sustainable development, in addition to the need for the proper management and conservation of natural resources such as: the orderly development of land considering land use; the need for the project as a whole (which comprises a utility provision); and, the protection of the environment including threatened species and endangered ecological communities in Section 5 of this report.

The Department considers that the project generally promotes the principles of ESD as it is proposed to be undertaken in a manner that minimises environmental impacts, including to biodiversity, and considers inter-generational equity through provision of water and wastewater services over the longer term for the West Horsley precinct.

3.7. Statement of Compliance

In accordance with section 75I of the EP&A Act, the Department is satisfied that the Director-General's environmental assessment requirements have been complied with.

4. CONSULTATION AND SUBMISSIONS

4.1. Exhibition

Under section 75H(3) of the EP&A Act, the Director-General is required to make the environmental assessment (EA) of an application publicly available for at least 30 days. After accepting the EA, the Department publicly exhibited it from 2 March 2011 until 31 March 2011 (30 days) on the Department's website, and at the following exhibition locations:

- Dapto District Library (93-109 Princes Highway, Dapto);
- Wollongong City Council (41 Burelli Street, Wollongong);
- Nature Conservation Council (Level 2/5 Wilson Street, Newtown);
- Department of Planning (84 Crown St, Wollongong); and
- Department of Planning (23-33 Bridge Street, Sydney).

The Department also advertised the public exhibition in the Illawarra Mercury on 2 March 2010 and notified relevant State authorities and Wollongong Council in writing.

The Department received seven submissions during exhibition and one after the exhibition of the EA, all from public authorities. No submissions were received from the general public or special interest groups.

A summary of the issues raised in submissions is provided below.

4.2. Public Authority Submissions

Submissions and comments received from public authorities on the EA and the Submissions Report are summarised below.

The **Office of Environment and Heritage (OEH)** (formerly the Department of Environment, Climate Change and Water) does not object to the project. OEH was initially concerned about the lack of detail in the assessment of impacts on Endangered Ecological Communities, threatened species and Aboriginal heritage. However, it is satisfied that if sensitive areas are avoided through underboring and site management, no offsetting would be required (for vegetation loss) and recommended conditions of approval for management of impacts to flora and fauna and Aboriginal heritage.

OEH also recommended additional Statements of Commitments and mitigation measures to limit other impacts resulting from the project, covering landscape rehabilitation and the provision of project specific noise and vibration management and erosion and sediment control.

The **Department of Primary Industries (DPI)** (formerly NSW Industry & Investment) does not object to the proposal. However, DPI does not concur with the conclusions of the Environmental Risk Analysis in respect to potential impacts on aquatic flora and fauna, soil erosion and sedimentation of waterways. DPI also raised concerns regarding weed management during construction of the project. DPI recommended conditions of approval to mitigate the risks of erosion and sedimentation.

The **Southern Rivers Catchment Management Authority (CMA)** supports the proposed routes for the wastewater and water pipelines. The CMA noted that most of the vegetation communities in the area are either threatened or over-cleared, and recommended avoiding any further disturbance of these vegetation communities. The CMA also recommended that the Proponent take appropriate measures to further avoid the spread of weeds between remnant patches of vegetation.

Wollongong City Council (WCC) does not object to the proposal, but raised issues about the flora and fauna assessment, traffic impacts, the proposed civil works within the road reserve and impacts to stormwater drainage. WCC's comments on the project include:

- recommendations for completing bat and arborist investigations along the water pipeline corridor and proposing an offset for Illawarra Grassy Woodland;
- the requirement for a permit under Section 138 of the *Roads Act 1993*; and
- preferred alignments for the positioning of water and sewer mains with regards to the roads and footpaths.

The **Lake Illawarra Authority (LIA)** generally supports the mitigation measures proposed during construction and the installation of leak tight pipes. LIA is however, concerned about the potential impact of future development on the environment of Lake Illawarra and wants to be kept informed of new developments in the West Dapto Urban Release Area and adjoining areas.

The **NSW Office of Water (NOW)** does not object to the proposal. NOW noted that the proposal is mostly located away from watercourses and remnant riparian vegetation, although it does cross three small ephemeral drainage lines. However, NOW did query whether the planned trenching of the ephemeral drainage lines and any planned temporary or permanent crossings would result in unacceptable impacts to watercourse stability. NOW recommends that:

- the advice of a fluvial geomorphologist be obtained to determine if the creek crossings should be trenched or under bored;
- the erosion potential be reduced by considering scour calculations for bankful flow to determine the depth of the trench at crossings and the location of any areas of high sodicity; and
- changes be made to the Statement of Commitments for flora and fauna, geomorphology, rehabilitation and monitoring, groundwater and soils.

The **Roads and Traffic Authority (RTA)** does not object to the proposal in principle given that it only affects local roads.

The **Department of Health (DoH)** does not object to the proposal.

4.3. Proponent's Response to Submissions

The Proponent provided a response to the issues raised in submissions (see Appendix B). No changes were made to the proposed project.

The Department has considered the Proponent's Submissions Report, the submissions made and additional information provided by the Proponent (as discussed in section 2.2) in preparing this assessment.

APPENDIX 1 - PROJECT SITE



5. ASSESSMENT

The Department considers the key environmental issues for the project to be:

- Biodiversity;
- Water Quality and Hydrology;
- Traffic and Transport;
- Noise and Vibration; and
- Aboriginal Heritage.

All other issues are considered adequately addressed by the EA and Submissions Report. The identified key issues are considered in detail in the following sections.

5.1. Biodiversity

The EA includes a flora and fauna impact assessment by EcoLogical Australia. The assessment draws on previous studies in the WDURA and additional field surveys of the proposed pipeline routes.

The proposal would disturb a corridor approximately 3.5 kilometres in length, including:

- approximately 3.4 hectares of cleared roadside, electricity easement or pasture;
- possible removal of one hollow bearing tree;
- temporary disturbance of soil; and
- potential disruption of water flow at three sections of an ephemeral drainage line.

The proposal also has the potential to increase weed invasion and result in erosion and sedimentation of minor creeklines.

Six vegetation communities were identified within the study area, four of which meet the definition of two Endangered Ecological Communities (EEC) listed under the *Threatened Species Conservation Act 1995* (TSC Act) – Illawarra Lowlands Grassy Woodland EEC and Swamp Oak Floodplain Forest EEC. The Magenta Lilly Pilly (*Syzygium paniculatum*), a threatened flora species listed under both the TSC Act and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), was identified along the Bong Bong Road easement. This species, however, was not considered further as it does not occur naturally in the area and is a commonly used as a landscaping plant.

Targeted surveys for the Illawarra Greenhood Orchid (*Pterostylis gibbosa*) were completed for a wastewater pipeline in the south east portion of the study site. Targeted surveys were not completed for the orchid along the water pipeline due to the absence of suitable habitat and high levels of long term disturbance. Opportunistic searches were however completed for the orchid and other flora species of conservation significance throughout the survey period, and the *P. gibbosa* was not recorded in the area that would be impacted by the project.

The assessment identified four hollow bearing trees in the study area, two of which have the potential to be affected by the proposal. However, the Proponent has indicated that one of these hollow bearing trees has recently been removed as part of the upgrade of Bong Bong Road. The assessment concludes that the remaining tree is not of high quality and is unlikely to provide important habitat for any threatened species. The Department also notes that removal of the remaining tree has been approved as part of the Development Application for the residential development on Lot 601 DP 1054648.

The vegetation classified as Illawarra Lowlands Grassy Woodland EEC also qualifies as potential Koala habitat. Five Koala sightings have been recorded within ten kilometres of the site since 2000 with the closest being eight kilometres away. No koalas were detected during field surveys. Therefore, the provisions of *SEPP 44 - Koala Habitat Protection* do not apply.

Nine other fauna species, listed under either the TSC Act or the EPBC Act are considered likely to utilise the site and have the potential to be affected by the proposal. These species include eight species of bat, the Gang-gang Cockatoo and the Green and Golden Bell Frog. However, no threatened fauna species were identified on site during the field surveys, although one migratory species, the Cattle Egret (*Ardea ibis*), was recorded in grazing land south of the study area. The assessment concludes that the proposal will not substantially affect this species or suitable habitat for this species.

The Department also notes that targeted surveys for threatened bat species were not completed due to the limited impact and quality of hollow bearing trees, the heavily disturbed context and negligible impacts to foraging habitat.

Mitigation

The Proponent has proposed measures in the project design to avoid impacts to sensitive vegetation and habitat, by under boring the pipelines beneath the EEC vegetation and avoiding impacts to hollow bearing trees where possible.

The Proponent has also proposed a range of management and mitigation measures during construction, including retaining large and hollow bearing trees in situ where possible, fencing of designated work areas, locating construction facilities in already cleared areas, limiting the construction impacts to a maximum 10 metre wide corridor and restoring the impacted areas to a pre-work condition.

Consideration

The Department has considered the Proponents' biodiversity assessment and is satisfied that the level of assessment undertaken for the project is sufficient to enable the Department to form a view on the existing biodiversity values on site and likely extent and significance of impacts associated with these project elements.

In assessing the acceptability of the biodiversity impacts, the Department has considered whether the Proponent has demonstrated that impacts on biodiversity have been avoided wherever possible and, where unavoidable, whether viable options exist to mitigate the impacts of the project.

The Proponent has sought approval for specific route alignments within a ten metre wide disturbance corridor. The project design and construction methodology has reduced the impacts on flora and fauna to a minimum level. The Proponent's assessment stated that the potential impact on threatened flora and fauna species, endangered ecological communities and their habitats will not be significant.

The Department agrees with the assessment and notes that the level of impact to native vegetation is predicted to be small given the existing nature of the site, the proposed alignment and construction methodology. The Department also notes that the impacts to the Greenhood Orchid and threatened bat species are unlikely to be significant given the absence of suitable habitat and the commitments and mitigation measures proposed as noted above.

The Department is supportive of commitments to avoid areas of higher ecological sensitivity as much as possible, including under boring of the Illawarra Lowlands Grassy Woodland and Swamp Oak Floodplain Forest Endangered Ecological Communities, retaining hollow bearing trees where possible and rehabilitating cleared areas to the pre-existing condition following the completion of the work. There is, however, the potential for indirect impacts to the roots of trees from under boring. The Department has, therefore, recommended a condition of approval to ensure underboring is deep enough to address this potential impact.

Although the removal of the one hollow bearing tree within the project area has been approved under the subdivision DA, the construction of the project may still result in its removal.

Consequently the Department has recommended a condition of approval to ensure that if the tree is removed during construction of the project, appropriate procedures are implemented to minimise impacts on any fauna that may be utilising the hollow.

With respect to a requirement to offset impacts to biodiversity, the Department considers that as there are no proposed impacts to endangered ecological communities or threatened species, then a biodiversity offset package is unnecessary.

Overall, the Department and OEHS is satisfied that the proposed pipeline corridors have been selected to avoid intact vegetation and that, subject to the implementation of appropriate management measures as outlined above, the potential biodiversity impacts of the project would be acceptable and manageable.

5.2. Water Quality and Hydrology

The proposal is located within the Reed Creek catchment, which drains to Lake Illawarra. The proposed wastewater pipeline would be located adjacent to – and twice cross – Reed Creek, an ephemeral drainage line, and cross other ephemeral drainage lines (see Figures 3, 4 and 5). As the proposed water pipeline would be constructed wholly within the road reserve, potential water impacts, particularly surface water, would be more associated with the proposed wastewater pipeline.

Figure 3: Proposed pipelines shown in light blue – water and brown – wastewater. Reed Creek is shown as dark blue.



Source: Early Release Lead-in Works Environmental Assessment (Sydney Water Corporation, 2011)

Figure 4 – Location of Reed Creek in the vicinity of the wastewater pipeline crossing

Source: Early Release Lead-in Works Environmental Assessment (Sydney Water Corporation, 2011)

Figure 5 – Location of Reed Creek in the vicinity of the wastewater pipeline crossing showing previous disturbance (clearing for easement, culvert installation works and informal access point)

Source: Early Release Lead-in Works Environmental Assessment (Sydney Water Corporation, 2011)

The project has the potential to cause erosion and sedimentation of Reed Creek and the receiving waters of Lake Illawarra, both during construction and following, if rehabilitation is unsuccessful. The risk of potential impact is greatest at proposed waterway crossings, which could also result in scour following rainfall.

Excavation of the pipeline trenches may also encounter groundwater, particularly adjacent to drainage lines and following rainfall.

Following exhibition the Proponent provided the Department with a copy of the *West Dapto Urban Release Area and Adjacent Growth Areas – Geology, Soils and Groundwater Assessment* (Coffey Geotechnics Pty Ltd, 10 May 2010). This assessment identifies minor sheet erosion, gully erosion and stream bank erosion throughout the area, with a very high potential for erosion along the creek lines. Reed Creek is not considered to be a sensitive chain of ponds, valley fill or channelised fill system. The ephemeral drainage lines are formed from farm dams with no instability issues with most of the vegetation being cleared grassland for pasture or weeds.

Salinity levels are expected to be low to moderate with no recorded salinity problems in the area. The EA also indicates that the proposal is not in an area at risk of acid sulphate soils.

Mitigation

Measures were built into the project design to avoid and/or minimise impacts to waterways. The Proponent has committed to completing construction works in waterways and in other areas in accordance with general construction mitigation measures, such as:

- erosion and sediment control measures in accordance with *Managing Urban Stormwater: Soils and Construction* (Landcom 2004);
- scheduling works when there is no water in Reed Creek or diverting the creek when this is not possible;
- The use of leak-tight pipes proposed would limit the amount of stormwater inflow into the wastewater systems and prevent tree root infiltration;
- progressive trenching; and
- limiting the construction corridor width to 10 metres.

The Proponent has also committed to reinstating areas disturbed by the pipeline following completion of the works.

Consideration

The EA concludes that the impacts on Reed Creek from installation of the wastewater pipeline would be minimal. Operational impacts from the wastewater pipeline are predicted to be minimal as the pipeline would be buried and has been designed for no dry- or wet-weather overflows, limiting the potential for localised impacts on creeks.

The OEH, DPI and NOW raised concerns about the potential erosion and sedimentation impacts on Reed Creek, including Lake Illawarra downstream of the proposal. The Department considers that potential impacts from erosion and sedimentation can be mitigated to satisfactory levels, provided appropriate erosion and sediment controls are implemented and maintained throughout the construction phase.

The Department has therefore recommended a condition of approval requiring the preparation of a soil and water management plan for the project. The plan is to include design details of the depth of the pipeline and erosion and sediment plans for all creek and drainage line crossings prepared in accordance with *Managing Urban Stormwater: Soils and Conservation* (Landcom, 2004) and *Managing Stormwater: Urban Soils and Construction 2A Installation of Services* (DECC 2008).

Whilst the Proponent has committed to reinstating areas disturbed by the pipeline following construction, the Department considers that areas with high erosive potential, such as that along the wastewater pipeline, should be stabilised progressively and immediately after each section of pipe has been laid. The Department has therefore recommended a condition of approval requiring the progressive stabilisation of disturbed areas.

5.3. Traffic and Transport

The proposed water main would be constructed within the road reserve of Bong Bong Road, Rich Drive and Iredell Road, between Hayes Lane and Shone Avenue (see Figure 3 and Figure 7). Access for the wastewater pipeline and pumping station would be via Bong Bong Road, Sierra Drive, Fairwater Drive and Riverpark Way.

Wollongong City Council is currently undertaking major road works in accordance with the West Dapto Access Strategy, including upgrading Shone Avenue and providing an alternate access route between Fairwater Drive and Cleveland Road connecting to the Princes Highway. These road works are expected to be complete prior to the commencement of the proposed works.

Figure 6 Current Road Network



The construction of the project would result in temporary increases in construction traffic, temporary lane closures along Bong Bong Road, Rich Drive and Iredell Road, and temporary disruption to property access particularly near Bridgewater Drive, Riverpark Way and Fairwater Drive. During construction, which is predicted to last approximately six to nine months, it is expected that daily traffic movements would increase as set out in Table 2.

Table 2: Daily construction traffic movements

	<i>Water pipeline</i>	<i>Wastewater pipeline</i>
Spoil/fill truck movements	Up to 10	Up to 16
Delivery of pipes and fittings	2	Up to 4
Concrete truck movements	Up to 10	Up to 10
Staff vehicle movements (typically cars)	Approximately 40	Approximately 40

Construction traffic would also occur during the upgrade of the pumping station, with heavy vehicles required during the earthworks phase. Overall construction traffic associated with this upgrade is not expected to generate traffic volumes that would impact the capacity of the surrounding roads. The Proponent considers that traffic impacts required to construct the proposal would not significantly impact the safety of the local road system.

Operational traffic associated with routine inspections and maintenance of the water and wastewater pipelines is expected to be negligible and is not expected to affect the functioning of any regional or local road.

Mitigation

The Proponent would prepare a Traffic Management Plan and has committed to negotiating temporary access arrangements with property owners during the construction period and to restoring any areas impacted by construction to their prior condition. That part of the water pipeline within Rich Drive and Iredell Road has been designed such that construction would close the western and northern sides of the respective roads, which do not provide the sole access to the properties on that side.

The Proponent also commits to ongoing consultation with Wollongong City Council with regard to traffic management and to locating access points and tracks to minimise impacts to local residents and vegetation.

During operation and where maintenance or emergency activities require a road closure or temporary loss of access to a property, the Proponent would implement the Proponent's standard operational procedures to manage the impacts.

Consideration

The Department acknowledges that potential impacts from an increase in construction traffic, particularly heavy vehicles, although temporary, are likely if not appropriately managed. The Department supports the Proponent's commitments to minimise these impacts through a Traffic Management Plan and by ongoing consultation with Wollongong City Council and property owners where access is temporarily disrupted.

Wollongong City Council wanted assurances that the location of the water pipeline would comply with the final alignment of the Bong Bong Road upgrade. The Department therefore recommends a condition to require the Proponent, in consultation with Council, to identify roads and footpaths with the potential to be impacted by the project and to prepare and implement measures to manage traffic impacts. Any damage to these roads or footpaths is to be repaired by the Proponent to the satisfaction of Council.

The Department is therefore satisfied that traffic impacts do not pose a constraint to the project proceeding subject to the implementation of the proposed statement of commitments and recommended conditions of approval.

5.4. Noise and Vibration

The EA includes a qualitative construction noise assessment for the project based on the *Interim Construction Noise Guidelines (DECCW 2009)*. The Proponent justifies the use of a qualitative assessment as the works would be completed progressively and unlikely to impact any individual or sensitive land use for more than three weeks in total.

The area surrounding the proposal is predominantly classified as residential, rural residential, and agricultural with a characteristic low ambient noise level. The closest residential receivers are located approximately 20 metres from the proposed pipeline alignment and a school is located approximately 200 metres from the wastewater pipeline.

Noise impacts associated with vehicle movements, generators, delivery and removal of materials, excavation, installation of pipes and other general construction activities are expected to cause some disturbance to a number of residences in the area. However, impacts from construction noise and vibration are expected to be short-term, localised and occur during daytime hours (Monday to Friday 7am to 6pm, Saturday 8am to 1pm with no work on Sunday or public holidays).

The assessment also considered noise impacts from increased traffic from the construction of the project in accordance with the *Review of the Environmental Criteria for Road Traffic Noise* and vibration impacts in accordance with *Assessing Vibration: A Technical Guideline*. The assessment concludes that any increase in noise from construction traffic would be insignificant and that vibration levels are unlikely to exceed the DECCW criteria for human comfort and are not expected to cause structural damage.

During operation the main source of noise would be from the operation of the pumps at the pumping station and from periodic maintenance and inspections of the pipeline and pump station. The noise generated from these activities is not likely to cause a significant change to the existing acoustic environment particularly as the existing pumps are not proposed to change as a result of the storage upgrade of the pump station.

Mitigation

The Proponent commits to adopting standard working hours, operating plant in a quiet and efficient manner, maintaining and repairing machinery that becomes noisy, implementing feasible and reasonable alternative work practices and using silenced equipment and noise shielding around stationary plant if necessary.

Consideration

The Department acknowledges that noise impacts causing disturbance at nearby sensitive receivers from the construction of the proposal is likely. The Department also acknowledges that works are likely to progress quickly and are not expected to impact any one resident for more than three weeks.

The Department also acknowledges OEH's comments regarding noise impacts including the recommendation that works should not exceed 5dBA above background and the preparation of a noise and vibration management plan to manage these impacts. The Department notes the Proponent's statement that, due to the progressive nature of the proposal, that no one receiver would be negatively impacted for more than 3 weeks which is consistent with the *Interim Construction Noise Guidelines*.

The Department is, therefore, satisfied that the construction noise is unlikely to pose an unacceptable impact with the implementation of the proposed statement of commitments and the temporary nature of construction works.

5.5. Aboriginal Heritage

A predictive desktop model was used to target field surveys of areas where there was the potential to identify Aboriginal objects or potential archaeological deposits. During targeted field surveys one stone artefact was identified within the initial wastewater pipeline alignment. No potential archaeological deposits were identified.

The assessment was conducted in accordance with the draft *Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation* (DECC 2005).

Mitigation

The proposed pipeline alignment was realigned to avoid the identified site. The Proponent states that overall the pipeline routes are expected to have minimal impacts on Aboriginal heritage values.

Consideration

Following exhibition, the Proponent provided the OEH and the Department with a copy of the draft Aboriginal heritage assessment undertaken by Biosis Research for the whole of the WDURA. OEH indicated its support for the proposed management recommendations in the Aboriginal heritage assessment as it relates to this project and considers it important that consultation with the Aboriginal community continues at every stage of the proposed development.

The Department is satisfied that an appropriate level of assessment has been completed to provide sufficient information for the Department to form a view that the existing Aboriginal heritage values and archaeological potential of the site are low.

The Department supports the Proponent's approach to avoid the identified stone artefact by realigning the pipeline and the commitment for ongoing consultation with the registered Aboriginal parties and is satisfied that Aboriginal heritage does not pose a constraint to the project proceeding.

6. CONCLUSION

The Department considers that the Early Release Lead-in Works for West Horsley proposal would entail the provision of essential services (water and wastewater) to the new release area.

The key environmental impacts associated with the proposal relate to biodiversity, water quality and hydrology, traffic and transport, noise and vibration and Aboriginal Heritage.

The Department has assessed the Proponent's Environmental Assessment, Submissions Report and Statement of Commitments as well as submissions received from agencies and Wollongong City Council on the proposal. Based on its assessment, the Department is satisfied that sufficient justification exists for the project.

The Department is also satisfied that the Proponent has generally undertaken a robust and conservative assessment of the impacts of the proposal and that the impacts of the proposal can be managed and/or mitigated to an acceptable level.

In order to manage potential impacts resulting from the proposal, the Department has prepared recommended conditions of approval for the project (see Appendix D). These conditions would ensure that the key issues addressed in this report are appropriately addressed and managed to acceptable levels. The conditions would also ensure that commitments made in the Environmental Assessment and Submissions Report are implemented as well as strengthening the management and mitigation of identified impacts. The Proponent has reviewed and accepted the proposed conditions.

The Department notes that the project would provide water and wastewater services for the proposed new release area at West Horsley and would assist in meeting the targets in the State Plan for housing in the Illawarra region. It is also consistent with the *Illawarra Regional Strategy 2006-2031* (Department of Planning, 2007) which identifies West Dapto as a priority release area for the region.

The Department considers that, on balance, the project is justified, given its benefits to the broader community by providing essential services to the new release area and the recently approved subdivision. The Department therefore considers the project to be in the public interest and recommends that this project be approved subject to the recommended conditions of approval.

7. RECOMMENDATION

It is RECOMMENDED that the Deputy Director-General:

- **consider** the findings and recommendations of this report;
- **approve** the project application, subject to conditions; and
- **sign** the attached instrument of project approval (see Appendix D).

18/10/11
A/Director
Infrastructure Projects

18.10.11

A/Deputy Director-General
Development Assessment & Systems Performance

APPENDIX A ENVIRONMENTAL ASSESSMENT

See the Department's website at

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4401

APPENDIX B SUBMISSIONS

See the Department's website at

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4401

APPENDIX C PROPONENT'S RESPONSE TO SUBMISSIONS

See the Department's website at

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4401

APPENDIX D RECOMMENDED CONDITIONS OF APPROVAL
