24 March 2015
Mr Shannon Sullivan
Planning Manager
ESS Planning Pty Ltd
C/o Hydro Aluminium
Sydney NSW 2000

Economic Benefits - Hydro Aluminium Smelter Masterplan

Dear Shannon,

The redevelopment of the Hydro Aluminium smelter at Kurri Kurri provides an opportunity for the release and development of a substantial amount of residential and employment generating uses.

The redevelopment of the smelter will provide approximately 375 hectares of additional developable land, and reserve 1,300 hectares as environmental conservation land.

There will be a number of economic benefits associated with the site's redevelopment, including:

- Ongoing jobs expansion of approximately **6,900 jobs**, with **3,840 blue collar jobs** and **3,060 white collar jobs** (full-time, part-time and casual direct jobs)
- **13,160 direct construction jobs** and **20,710 indirect supplier jobs**, for a total construction phase employment benefit of **33,870 jobs** (full-time, part-time and casual jobs)
- Expansion of ongoing jobs will result in an additional **$448.6 million worker income per annum**
- The expansion in population from the delivery of new housing and subsequent population growth is expected to expand local retail spend by **$58.4 million** at full development
- Publically available conservation areas can provide significant benefits to their local area
- We have examined three regional areas that have publically accessible conservation areas, which the NSW Office of Environment and Heritage (OEH) generated the following benefits for each national park within its region:
  - North East, approximately $1 million regional value added activity resulting in 11 jobs per national park
  - Far South Coast, approximately $2 million regional value added activity resulting in 34 jobs per national park
  - Far West NSW, approximately $0.5 million regional value added activity resulting in 8 jobs per national park.
- Publically available conservation areas can provide significant benefits to local areas. Whilst the composition for the subject site is yet to be finalised, the potential benefit to Cessnock could be within the range illustrated above.

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1 Potential Employment Benefits

The maximum potential employment benefits stemming from the redevelopment of the subject site are derived from both the ongoing operations of employment generating land uses and the construction of the land uses outlined in Table 1 below:

Ongoing Employment Per Land Use

HYDRO ALUMINIUM MASTERPLAN TABLE 1

LAND USE	LAND SIZE	GFA (SQM)	SQM PER JOB[1]	ONGOING EMPLOYMENT
Heavy Industrial	34.38ha	120,330	200	600
General Industrial	125.5ha	439,250	150	2,900
Business Park	38.18ha	133,630	40.5	3,300
Residential	128ha	1,275,700	N/A	N/a
Neighbourhood Centre	5,046m^2	2,523	25	100
Total				**6,900**

[1]*Urbis employment benchmarks*

Source: Hydro Aluminium; ABS; Urbis

1.1 CONSTRUCTION JOBS

Urbis have estimated that the capital expenditure associated with the construction of the above uses to be approximately $305.5 million. This capital expenditure is expected to generate employment of **13,160 direct construction jobs** and **20,710 indirect supplier jobs**.

Indirect supplier jobs stem from an increased demand for materials, services and products from a whole range of suppliers, as a result of increased consumption generated by the wages of new employees.

In economic terms, it represents the absorption of excess supply in other parts of the economy driven by an increase in aggregate demand in the retail industry.

Indirect employment impacts are measured using employment multipliers derived from the Australian National Accounts Input-Output tables, 1996-97. When using these multipliers, a number of issues need to be kept in mind:

- The multipliers reflect how the economy was structured in 1996-97. Since then, the structure of the economy has changed, and the actual impacts are likely to have changed.
- The multipliers are based on a static view of the economy, and do not consider price changes driven by changes in demand. This means that results from Input-Output multiplier analysis are likely to represent the upper bound of employment impacts.

- The multipliers are national multipliers, not regional. Therefore, while many of the directly created jobs will be filled by locals, many of the indirect jobs are likely to be filled elsewhere.

Total Employment Impact of Proposal

URBIS EMPLOYMENT IMPACT MODEL TABLE 2

Development Option/ Type of Employment	Direct Employment	Supplier Employment *Multiplier Effects*	Total Jobs[2]
Construction Phase	13,160	20,714	33,874

1. Total Employment - full-time, part-time and casual
2. Indicates the estimated number of jobs over the life of the construction project plus ongoing multiplier effects. Jobs are for the equivalent of one year of employment.
3. Indicates the estimated number of ongoing jobs as a result of the proposed expansion (ie the floorspace increase)
Source : Urbis

1.2 ONGOING EMPLOYMENT

The heavy and general industrial areas are expected to support a combined **3,500 jobs**. The business park and neighbourhood centres are expected to generate **3,300** and **100 jobs** respectively.

Different types of development attract different types of tenants, and subsequently produce different types of jobs. Urbis benchmarked the job distribution amongst comparable industrial, business park and community retail centres to identify the below job distribution.

Industrial jobs reference the Tomago Industrial Park, while Business Park jobs have referenced Warabrook Business Park. As such they represent the maximum achievable job potential.

Urbis estimates an ongoing / operational employment of **6,900 jobs**, with **3,840 blue collar jobs** and **3,060 white collar jobs**.

Forecast Employment by Industry Sector

URBIS EMPLOYMENT IMPACT MODEL TABLE 3

Industry	Industrial	Business Park	Neighbourhood Centre	Total[1]
Agriculture, forestry & fishing	11	7	0	18
Mining	34	28	0	63
Manufacturing	1,936	160	2	2,098
Elec., gas, water & waste services	71	49	0	120
Construction	467	126	10	603
Wholesale trade	145	165	2	311
Retail trade	101	229	19	350
Accommodation & food services	174	38	10	222
Transport, postal & warehousing	172	559	3	734
Information media & telecomm.	4	59	1	63
Financial & insurance services	2	29	2	33
Rental, hiring & real estate service	28	34	2	64
Prof., scientific & tech. services	74	808	6	888
Administrative & support services	24	138	3	165
Public administration & safety	21	137	14	171
Education & training	70	65	10	145
Health care & social assistance	21	441	11	473
Arts & recreation services	4	3	2	10
Other	141	224	4	369
Total	3,500	3,300	100	6,900

Source: Hydro Aluminium; ABS; Urbis

Using a similar methodology, and ABS Census data, Urbis have identified that the industry distribution outlined in Table 3 effectively translates to **3,840 blue collar jobs** and **3,060 white jobs.**

Forecast Employment by Industry Sector and Blue Collar/White Collar

URBIS EMPLOYMENT IMPACT MODEL TABLE 4

	Industrial	Business Park	Neighbourhood Centre	Total
Blue Collar Workers	2,500	1,300	40	3,840
White Collar Workers	1,000	2,000	60	3,060
Total	3,500	3,300	100	6,900

Source: Hydro Aluminium; ABS; Urbis

1.3 WORKER INCOME

Urbis have estimated the increase in worker income from the subject site's redevelopment as **$448.6 million** at full occupancy.

Worker income has been estimated using the national average worker income for the industry sectors outlined in Table 5 applied to the jobs distribution identified in Table 3 previously.

Forecast Employment by Industry Sector

INCREASE IN INCOME FROM JOB EXPANSION, $ MILLIONS TABLE 5

Industry	Industrial	Business Park	Neighbourhood Centre	Total
Agriculture, forestry & fishing	$0.6	$0.4	$0.0	$1.1
Mining	$4.5	$3.7	$0.0	$8.2
Manufacturing	$127.7	$10.6	$0.2	$138.4
Elec., gas, water & waste services	$6.3	$4.3	$0.0	$10.6
Construction	$36.6	$9.9	$0.8	$47.3
Wholesale trade	$9.3	$10.7	$0.1	$20.1
Retail trade	$3.5	$8.0	$0.7	$12.2
Accommodation & food services	$4.6	$1.0	$0.3	$5.9
Transport, postal & warehousing	$12.2	$39.5	$0.2	$51.9
Information media & telecomm.	$0.3	$4.4	$0.1	$4.7
Financial & insurance services	$0.1	$2.3	$0.1	$2.5
Rental, hiring & real estate services	$1.6	$1.9	$0.1	$3.5
Prof., scientific & tech. services	$6.0	$65.9	$0.5	$72.5
Administrative & support services	$1.2	$6.7	$0.1	$8.0
Public administration & safety	$1.5	$9.6	$1.0	$12.1
Education & training	$4.1	$3.8	$0.6	$8.4
Health care & social assistance	$1.1	$23.0	$0.6	$24.7
Arts & recreation services	$0.2	$0.1	$0.1	$0.4
Other	$6.2	$9.8	$0.2	$16.1
Total	$227.6	$215.5	$5.5	$448.6

Source: Urbis; ABS Average Weekly Earnings, Australia Nov 2014

2 Residential Development and Population Growth

This section will consider the benefits associated with the delivery of housing (approximately 2,100 additional lots) and the subsequent population growth.

Population growth from additional residential component of the proposed masterplan will increase the retail spend available to local businesses by approximately $58.4 million at full development.

Urbis have estimated future population to be 5,460 based on Cessnock's 2011 household size of 2.6 applied to the 2,100 lots associated with the residential component of the proposed masterplan.

The growth in retail spend is estimate from existing per capita spend of $10,700 per annum, and the anticipated population growth of 5,460 people.

3 Environmental Conservation Area

This section will consider the potential economic benefits associated with the 1,300 hectare of conservation land proposed in the masterplan.

Urbis notes that the masterplan does not yet identify specific uses associated with the environmental conservation, or whether this land will be publically accessible.

Urbis utilised published tourism data associated with environmental conservation areas and parks as the key data input for this stage.

Conservation areas already existing in The Hunter and Mid North Coast:

- Arakoon State Conservation Area
- Barrington Tops State Conservation Area
- Black Bulga State Conservation Area
- Copeland Tops State Conservation Area
- Glenrock State Conservation Area
- Gumbaynggirr State Conservation Area.

Table 7 illustrates that the employment and regional value added activity can provide significant economic benefits to the local community.

The estimated economic contribution from NSW Office of Environment and Heritage (OEH) park management and spending by visitors, who come from outside the region, is shown below.

Economic Impacts of Protected Areas

REGIONAL NSW (2009) TABLE 7

	North-East NSW	Far South Coast NSW	Far West NSW
Regional Value-Added Activity	$124M	$62M	$12M
$ per Park	$1M	$2M	$0.5M
Employment	1915	921	203
Jobs per Park	11	34	8

Source: NSW OEH; Urbis

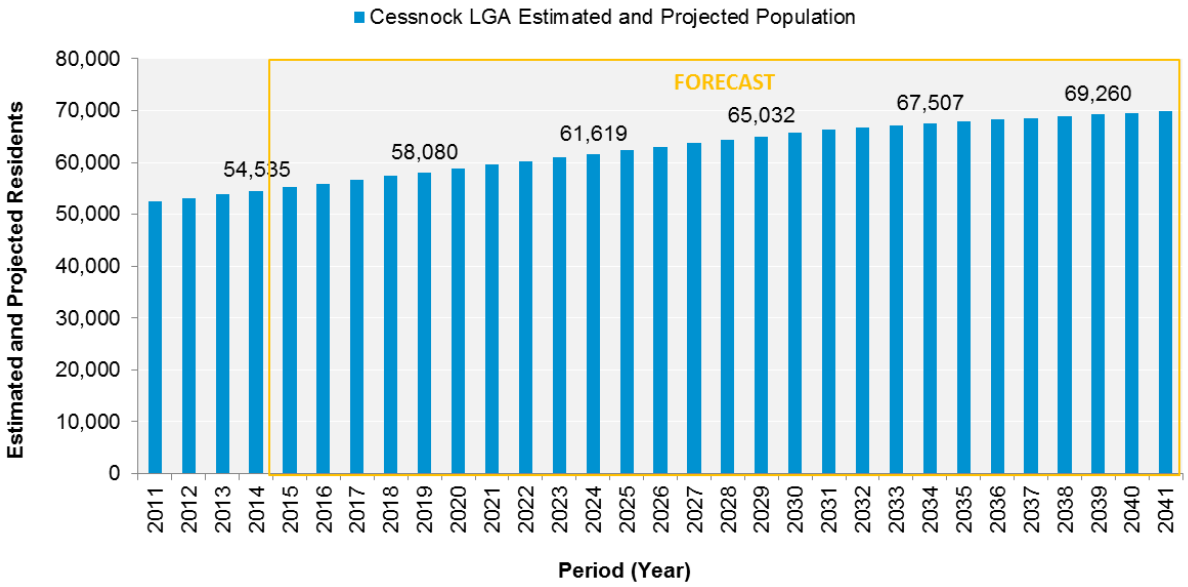
While the composition for the proposed masterplan is not yet finalised Table 7 provides a range of outcomes that could potentially achieved pending the final format of the conservation area.

Appendix

Estimated and Projected Population

CESSNOCK LGA

CHART 2

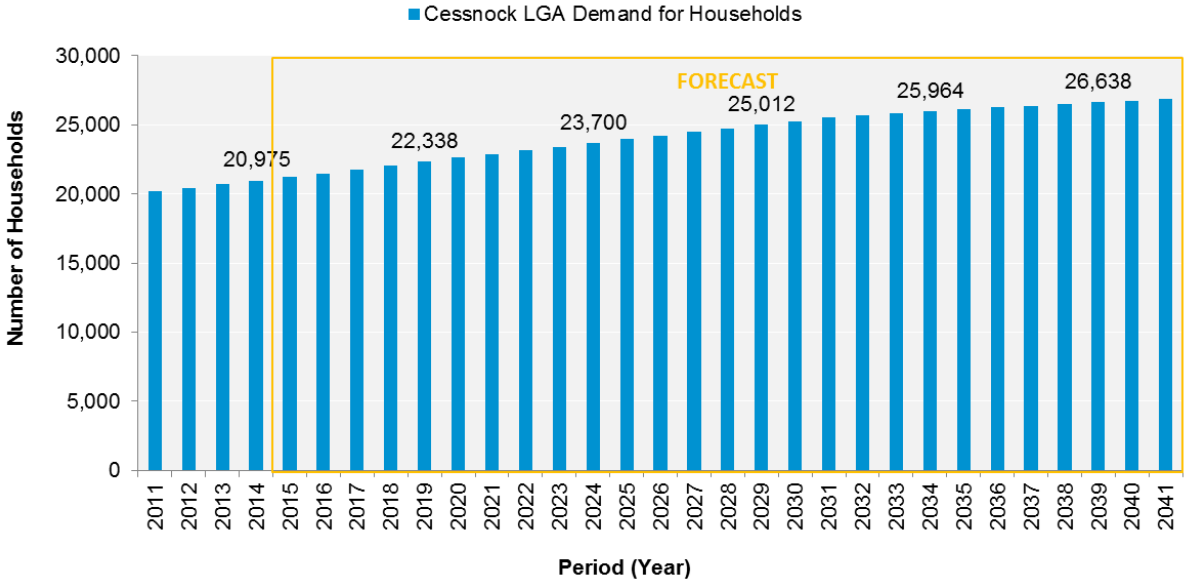


Source: ABS; DTS; Urbis

Demand for Households

CESSNOCK LGA

CHART 3



Source: ABS; DTS; Urbis

I trust that this assessment will assist you in demonstrating the economic benefits of the proposed masterplan. Please do not hesitate to contact me if you have any questions.

Yours sincerely,

Clinton Ostwald
Director