Redfern Waterloo Authority

150 Pitt Street
Redfern NSW

Hydraulic and Fire Services Scheme Development

FINAL ISSUE

armstrong

REDFERN WATERLOO DEVELOPMENT AUTHORITY

FORMER RACHEL FORSTER HOSPITAL REDEVELOPMENT SITE

Hydraulic and Fire Services Scheme Development

May, 2007

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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Job number 107/106

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1.0 INTRODUCTION

This report outlines the preliminary design intent and progress report for the hydraulic and fire services as part of the future proposed "brownfield" site development of the former Rachel Forster Hospital site at 134-150 Pitt Street, Redfern. The proposed project is for existing buildings constructed for hospital use to be demolished, upgraded and reconstructed to include a new building constructed for residential use

This report includes development proposals and investigation to date for the inclusion of the following hydraulic and fire services within the proposed development:

Potable Cold Water Service

Potable Hot Water Service

Non Potable Cold Water Service

Warm Water Service

Non Potable Hot Water Service

Recycled Water System

Irrigation System

Water Treatment System

Water Storage

Waste Water Treatment System

Sanitary Plumbing

Sanitary Drainage

Grease Waste System

Garbage Areas

Trade Waste System

Sewer Drainage

Sewer Encasement

Natural Gas System

Roof Water Drainage System

Siphonic Roof Water Drainage

Stormwater Drainage System

Sub-soil Drainage System

Stormwater Detention

Fire Hydrant System

Fire Hose Reel System

Fire Sprinkler System

Emergency Warning and Intercommunication System

Smoke Detection System

Fire Extinguishers

Solid waste handling System

Capping off Services During Demolition Work

2.0 THE PROPOSED DEVELOPMENT

The proposal is for the redevelopment of the former Rachel Forster Hospital site for residential purposes. The current building is redundant to the requirements of the NSW Department of Health. The proposed development involves the construction of a class 2 multi storey residential development with underground car park facilities. The proposal involves the construction of new buildings, adaptive reuse of some existing structures by constructing additional areas and elements and demolition of redundant existing buildings and structures and removal from site.

3.0 PROPOSED DESIGN

The proposed design on this brown field site, consists of a proposal to construct four main structures on the existing site after demolishing inferior or unwanted existing structures. The proposal must be considered with Architectural Drawings A001 to A012 dated 20th march 2007.

The existing Building 1, which is located adjacent to the southern boundary, is to be generally retained, and additional storeys are to be added to the height of a building structure. The completed area of Building 1 is proposed to be increased to approximately 6,728 sq. m.

A new Building 2 of approximately 1,510 sq. m is proposed to be constructed of three storeys height incorporating the existing heritage colonnade frontage to Pitt Street.

The existing Building 3 on the north boundary to Albert Street is proposed to be demolished and a new building of three storeys and 4250 sq m is proposed above two basement car park levels. A new replacement electrical substation may be required to be installed to comply with an application to Energy Australia requirements to replace existing.

Anew building 4 of approximately 1,510 sq. m is proposed to the rear of the Pitt Street frontage on the western boundary of the property above two basement car park levels.

A landscaped forecourt is proposed between Building 2 frontage and the Pitt Street Boundary.

4.0 HYDRAULIC SERVICES

4.1 General

New services would be required for the proposed development to comply with all Authorities, Building Codes of Australia, Manufacturers recommendations, Australian Standard Codes and regulations. Any existing services being made redundant should be uncovered and capped off to comply with Authorities, and gas and water meters returned to the Authority having jurisdiction over the service supply.

4.2 Building and Australian Standards Code Requirements

The hydraulics, fire and waste systems would be designed to comply with all relevant codes and standards, including:

- Provision of hydraulic services systems in accordance with: AG 601, AS 3500 2003, NSW Plumbing Code of Practice, Local Government Regulations, Manufacturers Guidelines and Requirements, MP2 Standards, Workcover requirements and NSW OH&S Act, Authorities having jurisdiction over the works and current best tradesman work practices.
- Building Code of Australia and referenced Standards and codes

- Fire engineered solutions that are proposed, would incorporate any Fire Engineered Report outlining solutions proposed for the project Construction Certificate Conditions
- Fire suppression and emergency evacuation systems should comply with Australian Standards, Codes, Regulations, Building Code of Australia, Fire Authority requirements.
- Solid Waste plans and handling is proposed to comply with Sydney City Council solid waste handling Regulations, Codes and Design
- NSW Government BASIX Requirements are proposed to be utilised within this project.
- Australian Standards, Codes, Regulations and Authority requirements pertaining to the works is proposed to be incorporated into all services in any proposed development.

4.3 Potable Domestic Cold Water System

An 80mm incoming domestic water supply, meter and backflow device exists on site at the southern end of the Pitt Street frontage. This service would require to be capped off at the street on the Sydney Water water main and the water meter removed and returned to Sydney Water during demolition works. Calculations would be made on any proposed project to engineer a reticulated supply in the appropriate sizes, as well as ascertain whether the existing supply size is adequate or any requirement to upgrade the supply to deliver adequate potable water for human consumption. Proposals should ensure a constant delivery for potable use at all faucets, cisterns, make-up supply, outlets and hot water heaters.

Sydney Water Pressure and Flow Inquiry as well as a water main diagram are included with this scheme report as Annexure ‘A’.

4.4 Non Potable Cold Water System

A non potable system from roof rainwater storage tanks and tertiary treated recycled rainwater reticulation could be considered for reuse within the proposed site for laundry hot water, cistern flushing and planter bed drip feed irrigation and general wash down. All proposed non potable outlets would be engineered and require indication of ‘Warning Non Potable Water Do not Drink’ to regulations and the distribution pipe work colour coded. The whole system should comply with AS3500, manufacturer requirements, Authorities and Department of Health regulations.

4.5 Potable Hot water Service

A centralised natural gas flow and return hot water system should be considered with individual remote hot water flow meters for each unit. The hot water system would propose utilising preheat from solar collectors on the roof, mechanical services waste heat and gas flue waste heat to decrease energy consumption. The central hot water heating system energy consumption should be metered to obtain efficiency and billing readings.

4.6 Non Potable Hot Water

Consideration could be given to the alternative use of treated rainwater storage for use in laundry areas for clothes washing facilities provided suitable water treatment is installed.

4.7 Warm Water Service

It is proposed that all hot water to be used for ablutions within any building would be thermostatically controlled to below 50deg. Centigrade to comply with AS3500. Hot water for laundry and kitchen sinks would not be required to be thermostatically controlled.

4.8 Recycled Water System

Consideration could be given to capturing and storing roof water and rainwater for reuse within the building. The stored water should be filtered, disinfected and carry residual

disinfection before use in WC flushing, clothes washing and wash down including drip feed and sprinkler irrigation. The recycled water storage system for flushing and laundry use, could also have a Sydney Water town main fill back up reserved for low tank levels. There could be two tanks systems. One tank would be for flushing use and possibly laundry use, containing only roof water run-off. The other stormwater runoff could be contained within extra storage of any underground stormwater detention system for irrigation. This storage would not be for possible human contact unless treated to ARMCA/NZ Guidelines. Any recycled water system would be marked as "Warning - Non Potable Water Do Not Drink" and all distribution pipe work coloured lilac according to AS3500.

4.9 Irrigation System

Drip feed irrigation could be utilised for garden beds. After hours irrigation timer could be utilised for lawn areas. All irrigation would be controlled by a time clock and soil moisture detection unit as well as rain detection units. Irrigation for planter beds is a detailed issue that would require landscaping coordination at the detailed design and operational planning phase of any future development.

4.10 Water Treatment System

Should a recycled water system be considered, it could be provided with automatic filtration and disinfection by UV radiation, RO or an Ozone unit, followed by hypochlorite dosing to retain 2ppm Chlorine residual. Monitors would automatically alarm system dosing failure. Such a system would require a maintenance management program to be adhered to.

4.11 Rainwater Water Storage

Roof water storage could be by the use of polyethylene storage tanks above or below ground depending on the final proposed building design. Stormwater OSD and storage could be through the use of concrete underground tanks proposed in Annexure 'E'.

4.12 Waste Water Treatment System

There is a possibility of utilising a staged waste membrane bio reactor with post tertiary treatment for recycling treated grey water for WC flushing. This proposal has merit, would require separate black water and grey water drainage systems and programmed maintenance plan. This proposal has not been discussed as a priority of the scheme design

4.13 Sanitary Plumbing

A new sanitary plumbing system would be required to be engineered for any new proposed buildings to comply with AS3500.

4.14 Sewer Drainage

The existing sewer drainage system and house service connection would be required to be replaced as it is unsuitable for servicing the proposed new residential development. A new house drainage system and boundary trap should be installed to drain the sewer to the Sydney Water sewer main in accordance with AS3500. A Section 73 application should be made to Sydney Water after DA approval for confirmation. A sewer diagram of the existing buildings as well as the position of the Sydney Water sewer mains is included as Annexure 'B' with this report.

4.15 Sewer Encasement

A 225mm Sydney Water sewer main sideline transgresses onto the site in the North east corner of the site at the Albert Street frontage. Sewer main connections are available at the west end of the Albert Street frontage, and central of the south boundary. Any sewer passing under or through the site affected by the confluence of the building foundations would be required to be concrete encased to conform to Sydney Water "Building Over Sewer" requirements or diverted around the building as permitted. A Section 73 Application should be

made to Sydney Water after DA approval for conformation of encasement requirements. Reference should be made to details contained in Annexure 'B'.

4.16 Natural Gas System

Natural gas is available to the site and it is proposed that this energy would be used to heat the building, hot water and cooking. A main gas meter would be installed for the development and remote individual gas meters for each unit, central hot water, space heating and central mechanical plant. A site plan showing the natural gas mains available to supply the site is included as Annexure 'D' in this project.

Any existing natural gas supply and gas meter would require excavating, capping off and returning the existing site gas meter to the Authority during demolition works.

4.17 Roof Water Drainage System

Roof water drainage would be by box gutters, eaves gutters, sumps, flashings, downpipes and overflows and would be developed as the proposed structure design is progressed.

4.18 Siphonic Drainage System

Any proposal for a roof siphonic drainage system would be included if the conditions and economy for use is available on the project. Siphonic drainage could be adapted where pipe concealment and flat grade is required within the proposed structure.

4.19 Stormwater Drainage System

Currently there is a 300mm main stormwater line traversing the site. A search at the NSW Department of Lands has revealed that there are no registered stormwater easements relating to this property, nor are there any on the adjoining properties. There would be a requirement to propose to the City of Sydney Council, an upgrade of the stormwater drainage from the site for any new development proposal. A site detention system would be required to retain all run off from the site as possible. There would be an opportunity to reuse rainwater storage and that portion not reused or detained would drain to and be connected to a City of Sydney stormwater street main. Site detention could be situated in the proposed landscape forecourt area and communal open space area. Any discharge to a stormwater main or kerb and gutter would first be required to pass through a silt arrestor. Footpath crossings would use transition sectional drainage and finished kerb entry all as approved by the City of Sydney Council.

The site could incorporate swale and garden infiltration or soakage areas on landscaped designs for runoff areas. A stormwater flood path would also required to be incorporated in the proposed project design

A Sydney Council stormwater main traverses east to west along George Street. The stormwater drainage from the Rachel Forster site could be proposed to be laid south down Pitt Street to connect to this main and drain any runoff from the proposed redevelopment from this site to the City of Sydney Council approval.

The NSW Departments of Lands property plans and Council map have been included pertaining to this development and are included as 'Annexure C' in this report.

4.20 Sub-Soil Drainage System

A sub soil drainage system would be proposed to be installed behind retaining walls, below floor slabs for property drainage where in ground subterranean water pressures would be encountered. Any sub basement, basement car parks, basement areas and built up garden areas, retaining walls, planter beds and light wells would require a sub soil drainage system

4.21 Storm Water Detention

A stormwater detention OSD system would be incorporated within any proposal to retain stormwater flows from a developed site to below the flow that would be experienced by the pre development conditions. The detention system could also in corporate a silt arrestor and incorporate extra storage volume for stormwater reuse. Refer Annexure 'E'.

4.22 Solid Waste Disposal System

Consideration would be made to the correct layout and design of any solid waste garbage chutes including fire protection, ventilation, back flow disconnection water supply and receiving receptacle areas. Such a system would incorporate maintenance access for blockages and aesthetic chute finishes inside the building.

4.23 Solid Waste Handling Plan

A solid waste handling plan would be considered in the proposal based on the Sydney City Council current 'Code for waste handling in Buildings".

4.24 Demolition Material Recycling Plan

A demolition material recycling plan would be considered for all material during deconstruction activities. There would be opportunity to classify materials into metal classes, glazing, concrete, brickwork, timber a other classifications and plan the recycling process for disposal from site for processing and reuse as useful end products. Roadways and transport routes from site to recycling and waste depots would require planning and permission from Authorities to conform with all requirements.

4.25 Sanitary Fixtures, Fittings and Tapware Outlets

Sanitary fixtures installed in the project would be ergonomic, economic, aesthetically pleasing for the use they are required for and be "AAA" rated for water use. Tap ware and water outlets would be ergonomically designed and 'AAA' rated for water flows. All water pipe work installed in the project would be engineered for adequate size and flows as well as insulated to retain the thermostatic properties of the water medium, allow expansion and deliver acoustic attenuation.

4.26 Tenancy Provisions

The following tenant supplementary services would be proposed to be provided to tailor for their specified needs:

- Individual remote water, gas and hot water usage metering to each individual apartment dwellings.
- Acoustic attenuation of all stormwater, sanitary plumbing, drainage and other pipe work passing within the structure to below tolerable BCA decibel rated standards.

5.0 STORMWATER ONSITE DETENTION (OSD)

5.1 General

Onsite detention will be installed on site to prevent any upgraded catchment areas from causing increasing load capacities to the existing City of Sydney Council stormwater system and aid in detention for water reuse if required and if acceptable by the Local Authority

5.2 Code Requirements

Stormwater site detention will comply with AS3500, City of Sydney Council, Australian rainfall and Runoff, Building Codes, Regulations, structural requirements and acceptable detention calculations to comply with the proposed development

5.3 Design Criteria

The design is proposed to calculate the rainfall catchment on site considering the new proposed development that considers time of overland flows, flood paths, site retention, rainfall intensities and grades and coefficients of surfaces and piped drains and incorporate the discharge factor as against the pre development discharge. There would be a requirement to construct storage and detention capacities to reduce the new proposed discharge to below or equal to current discharge rates. The proposed design would also consider retention and storage within the detention system for reuse storage capacity throughout the site.

The final design proposal would need to comply and be acceptable to City of Sydney council Engineering Department policy for the site prior to any Construction Certificate approval.

6.0 ELECTRICAL SUPPORT SYSTEMS

6.1 General

Electrical support systems for pumps, fire systems and water treatment systems would connect to the main supply and have an emergency supply backup in accordance with the requirements of the Building Code Regulations, Supply Authorities and Codes having jurisdiction over the structure. A new electrical substation may be necessary and DA plans and electrical loads referred to Energy Australia for detail design consideration.

6.2 Code Requirements

These works shall comply with AS3000, electrical supply Authority Codes, Requirements and regulations, Australian Standards, supplier and Manufacturer requirements.

Any installation work on the proposed development would be carried out by a licensed installer.

7.0 FIRE SERVICES

7.1 General

The fire protection system will be designed for a Class 2 Building under 25m in height with underground or basement car parking for over 40 cars. Consideration of the services in the proposed design shall include any Fire Engineering Report, situation and use of the buildings and areas, any extra fire hazard, fire and life safety escape routes and free standing areas.

A Sydney Water pressure and flow certificate for the site is included as ‘Annexure A’ for this project.

7.2 Code Requirements

The code requirements would be Australian Standards, Building Code of Australia, City of Sydney Council requirements and NSW Fire Brigade Regulations.

7.3 Sprinklers

Code requirements are contained in AS2118, Associated Standards and Fire Engineers Report

7.4 Fire Hydrants

Code requirements are contained in AS2419 and Associated Standards, Codes, Regulations and Authority requirements

7.5 Fire Hose Reels

Code requirements are contained in AS1221 and Associated Standards, Codes, Regulations and Authority Requirements.

7.6 Automatic Fire Detection and Alarm System

Code requirements are contained in AS1670 and Associated Standards, Codes, Regulations and Authority Requirements

7.7 Portable Fire Extinguishers

Code requirements are contained in AS2444 and Associated Standards, Codes, Regulations and Authority requirements

7.8 Emergency Warning and Intercommunication System (EWIS)

Code requirements are contained in AS2220 and Associated Standards, Codes, Regulations and Authority requirements.

7.9 Fire Control Centres

Code requirements are contained in AS2220 and BCA, Associated Standards, Codes Regulations and Authority requirements.

7.10 Fire Extinguishers

Fire extinguishers are proposed throughout any proposed building to conform with BCA, Australian Standards and comply with use, distance and size to match the risk.

8.0 BUILDING SYSTEMS CONTROL

A building system control has not been established at this stage but a proposal would integrate all building services systems.

9.0 ENVIRONMENTAL CONSIDERATIONS

The following are proposed environmental considerations applying to this proposal:

a) Reuse of roof water and rainwater run off.

b) Utilising solar energy for hot water preheat

c) Utilising waste heat from mechanical services for hot water pre heat

d) Using natural gas for heating

e) Utilising low water flow fixtures and tap ware within the proposal

f) Reuse rainwater for spray irrigation with rain and moisture detector controls

g) Utilising drip feed irrigation for planter areas with moisture detectors

h) Proposing a construction solid waste management and recycling plan

i) Proposing a demolition solid waste management and recycling plan

j) Proposing strict compliance with asbestos removal plan

k) Proposing an operational solid waste management and recycling plan on occupation.

l) Proposing recycling fire system test dumped water.

m) Proposing consideration to treat and recycle grey waste water

n) Propose the use of air admittance valves instead of terminating vent pipes on sanitary system.

o) Proposing the use of low front end loading washing machines and low energy dryers

p) Proposing the use of variable speed pumps

ANNEXURE 'A'

Sydney water Pressure and Flow Certificate

Sydney WATER

Postal Address:
P.O. Box 53
NSW 1235

Pressure Inquiry No : **3349**
Contact Person : Robert Wickham
Contact No : (02) 93506973
Fax No : (02) 93504564

Date : 31 January, 2007

Armstrong Consulting
P.O Box 2006
East Woonona NSW **2517**
Attention : **Denis Armstrong**

Your Pressure Inquiry Dated : **31/01/07**
Property Address: **150 Pitt Street, Redfern 2016**

The expected maximum and minimum pressures available in the water main given below relate to modelled existing demand conditions, either with or without extra flows for emergency firefighting, and are not to be construed as availability for normal domestic supply for any proposed development.

ASSUMED CONNECTION DETAILS

Street Name	**Pitt Street**		Side of Street		**West**
Nearest Cross Street	**Albert Street**	Distance & Direction from Nearest Cross Street	**50**	m	**South**

Approximate Ground Level (AHD): **35** **metres**
Nominal Size of Water Main (DN): **250** **mm**

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

	NORMAL SUPPLY CONDITIONS		
1.	**Maximum Pressure**	**50**	metre head
	Minimum Pressure	**36**	metre head

	WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow (L/s)	Minimum Pressure (m head)
	Fire Hose Reel Installations (Normally two hose reels simultaneously)	**0.66**	**36**
2 & 3.	**Fire Hydrant / Sprinkler Installations** (Minimum pressures are based on the design pressure expected to be maintained for 95% of the time)	**10**	**33**
		15	**33**
		20	**33**
		25	**33**
		30	**33**
		35	**33**
		40	**32**
		45	**32**
	Maximum Permissible Flow	**N/A**	**N/A**
4 & 5.	**Fire Installations based on peak demand.** (Minimum pressures are based on the design pressure expected to be maintained with flows combined with peak demand in the water main.)	**10**	**31**
		15	**31**
		20	**31**
		25	**31**
		30	**30**
		35	**30**
		40	**30**
		45	**30**
	Maximum Permissible Flow	**196**	**20**

(Please refer to reverse side for NOTES)

Robert Wickham
Senior Planner
Asset Planning

General Notes

This report is provided on the understanding that (i) the applicant has fully and correctly supplied the information necessary to produce and deliver the report and (ii) the following information is to be read and understood in conjunction with the results provided.

1. Under its Act and Operating Licence, Sydney Water is not required to design the water supply specifically for fire fighting. The applicant is therefore required to ensure that the actual performance of a fire fighting system, drawing water from the supply, satisfies the fire fighting requirements.

2. Due to short-term unavoidable operational incidents, such as mainbreaks, the regular supply and pressure may not be available all of the time.

3. To improve supply and/or water quality in the water supply system, limited areas are occasionally removed from the primary water supply zone and put onto another zone for short periods or even indefinitely. This could affect the supply pressures and flows given in this letter. This ongoing possibility of supply zone changes etc, means that the validity of this report is limited to one (1) year from the date of issue. It is the property owner's responsibility to periodically reassess the capability of the hydraulic systems of the building to determine whether they continue to meet their original design requirements.

4. Sydney Water will provide a pressure report to applicants regardless of whether there is or will be an approved connection. Apparent suitable pressures are not in any way an indication that a connection would be approved without developer funded improvements to the water supply system. These improvements are implemented under the Sydney Water 'Urban Development Process'.

5. Pumps that are to be directly connected to the water supply require approval of both the pump and the connection. Applications are lodged through Sydney Water Business Centres and agencies. Where possible, on-site recycling tanks are recommended for pump testing to reduce water waste and allow higher pump test rates.

6. Periodic testing of boosted fire fighting installations is a requirement of the Australian Standards. To avoid the risk of a possible 'breach' of the Operating Licence, flows generated during testing of fire fighting installations are to be limited so that the pressure in Sydney Water's system is not reduced below 15 metres. Pumps that can cause a breach of the Operating Licence anywhere in the supply zone during testing will not be approved. This requirement should be carefully considered for installed pumps that can be tested to 150% of rated flow.

Notes on Models

1. Calibrated computer models are used to simulate maximum demand conditions experienced in each supply zone. Results have not been determined by customised field measurement and testing at the particular location of the application.

2. Regular updates of the models are conducted to account for issues such as urban consolidation, demand management or zone change.

3. Demand factors are selected to suit the type of fire-fighting installation. Factor 1 indicates pressures due to system demands as required under Australian Standards for fire hydrant installations. Factor 2 indicates pressures due to peak system demands.

4. When fire-fighting flows are included in the report, they are added to the applicable demand factor at the nominated location during a customised model run for a single fire. If adjacent properties become involved with a coincident fire, the pressures quoted may be substantially reduced.

5. Modelling of the requested fire fighting flows may indicate that local system capacity is exceeded and that negative pressures may occur in the supply system. Due to the risk of water contamination and the endangering of public health, Sydney Water reserves the right to refuse or limit the amount of flow requested in the report and, as a consequence, limit the size of connection and/or pump.

6. The pressures indicated by the modelling, at the specified location, are provided without consideration of pressure losses due to the connection method to Sydney Water's mains.

7. Modern pipes have quality assured, factory applied, concrete lining. Some older pipes are, however, designated CICLIS (cast iron concrete lined in-situ). In this situation, results are obtained using conservative modelling techniques to account for the uncertain quality of the lining. However, it is recommended that the applicant obtain verification of any results by field-testing. Appropriate notification to Sydney Water by the accredited service provider shall be given before testing is undertaken (conditions may apply). Sydney Water can provide technical support on a "charge-out basis" if required.

ANNEXURE 'B'

i) Sydney Water Property Sewer Diagram

ii) Sydney Water Area Services Diagram

H&S.73.

METROPOLITAN WATER SEWERAGE AND DRAINAGE BOARD
SEWERAGE SERVICE DIAGRAM
Municipality of South Sydney (Redfern) No. 119658

SYMBOLS AND ABBREVIATIONS

	Boundary Trap	R.V.	Reflux Valve	I.P.	Induct Pipe	Bsn.	Basin
	Pit		Cleaning Eye	M.F.	Mica Flap	Shr.	Shower
G.I.	Grease Interceptor	VERT.	Vertical Pipe	T.	Tubs	W.I.P.	Wrought Iron Pipe
	Gully	V.P.	Vent. Pipe	K.S.	Kitchen Sink	C.I.P.	Cast Iron Pipe
P.T.	P. Trap	S.V.P.	Soil Vent. Pipe	W.C.	Water Closet	F.W.	Floor Waste
R.S.	Reflux Sink	D.C.C.	Down Cast Cowl	B.W.	Bath Waste	W.M.	Washing Machine

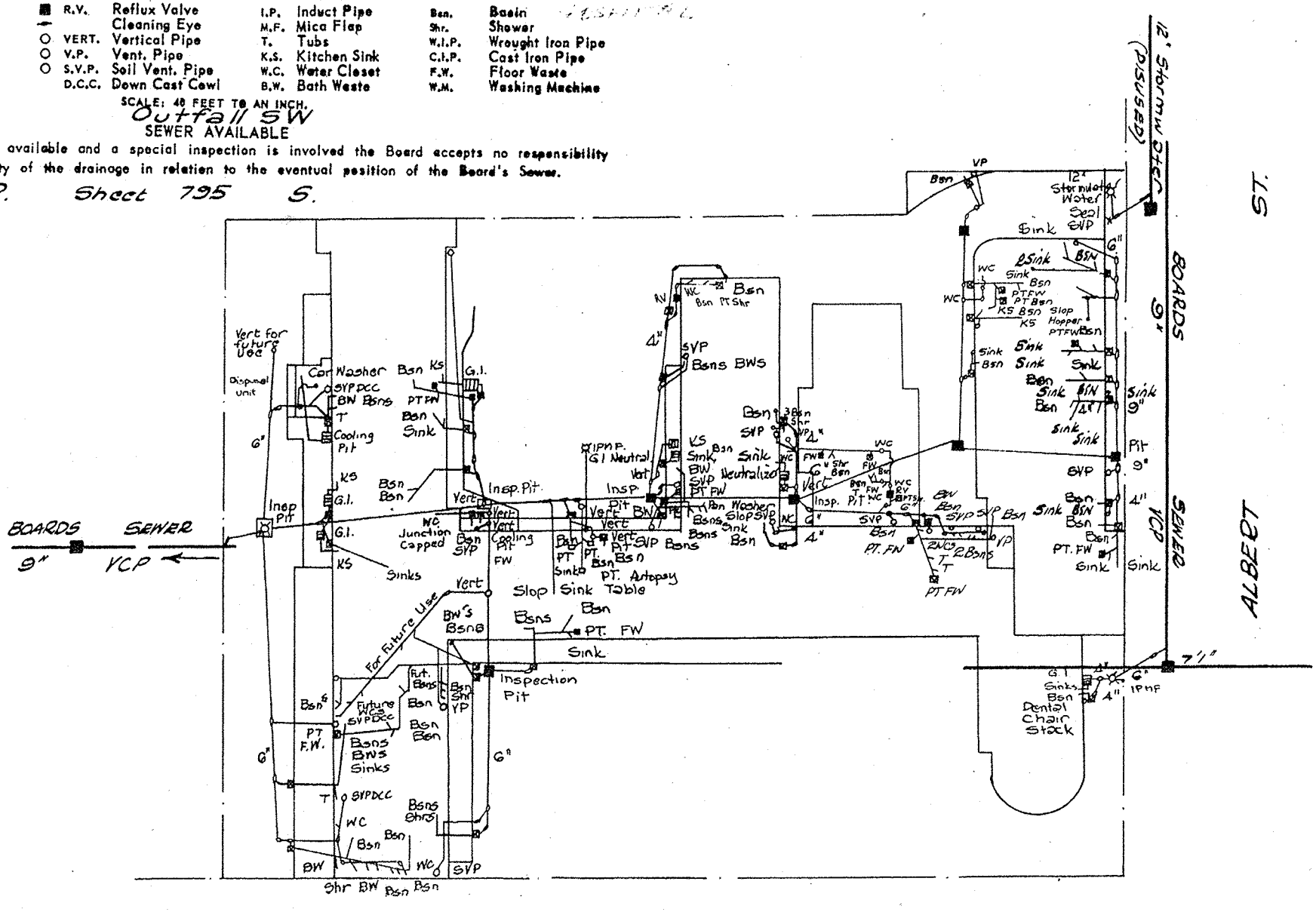
SCALE: 40 FEET TO AN INCH.

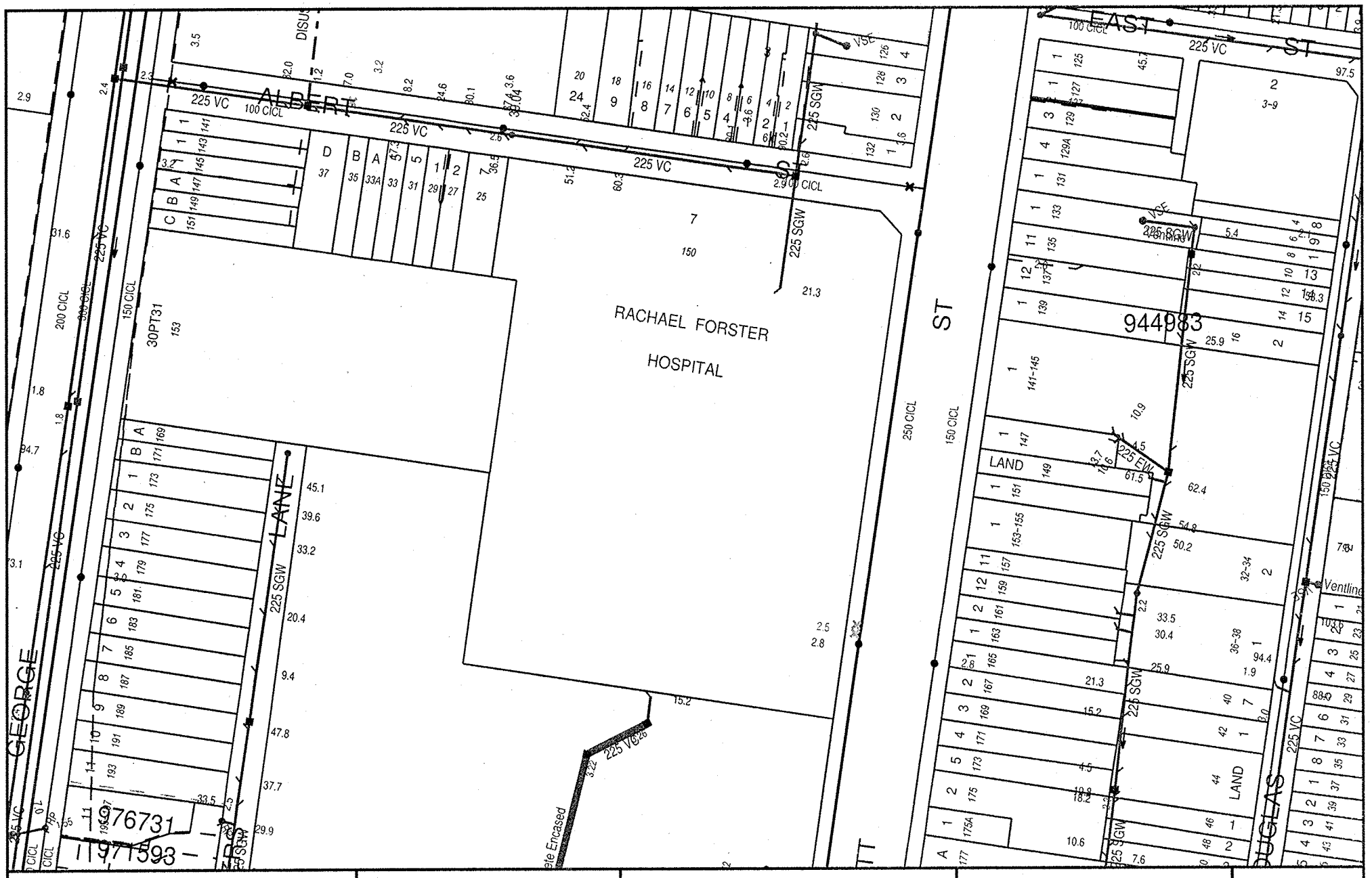
Outfall SW

SEWER AVAILABLE

Where the sewer is not available and a special inspection is involved the Board accepts no responsibility for the suitability of the drainage in relation to the eventual position of the Board's Sewer.

B.T.R. Sheet 795 S.





MGA Zone 56 (mm) Central Co-ord: 333841 6248078	Suburb: REDFERN Map:15 Grid:D9 Edition:Sydney UBD Edition 41 CMA Sheet: 1845-43-32	Scale: 1:906 Produced By: Barbara Baldwin Date: 30/01/2007	

ANNEXURE 'C'

NSW Department of Lands Registered Survey of the Site

FP 62657

P.W.D. PHOTOSTAT No. 11541

12657

C.T. Vol. 1504 Fol. 107

PLAN OF

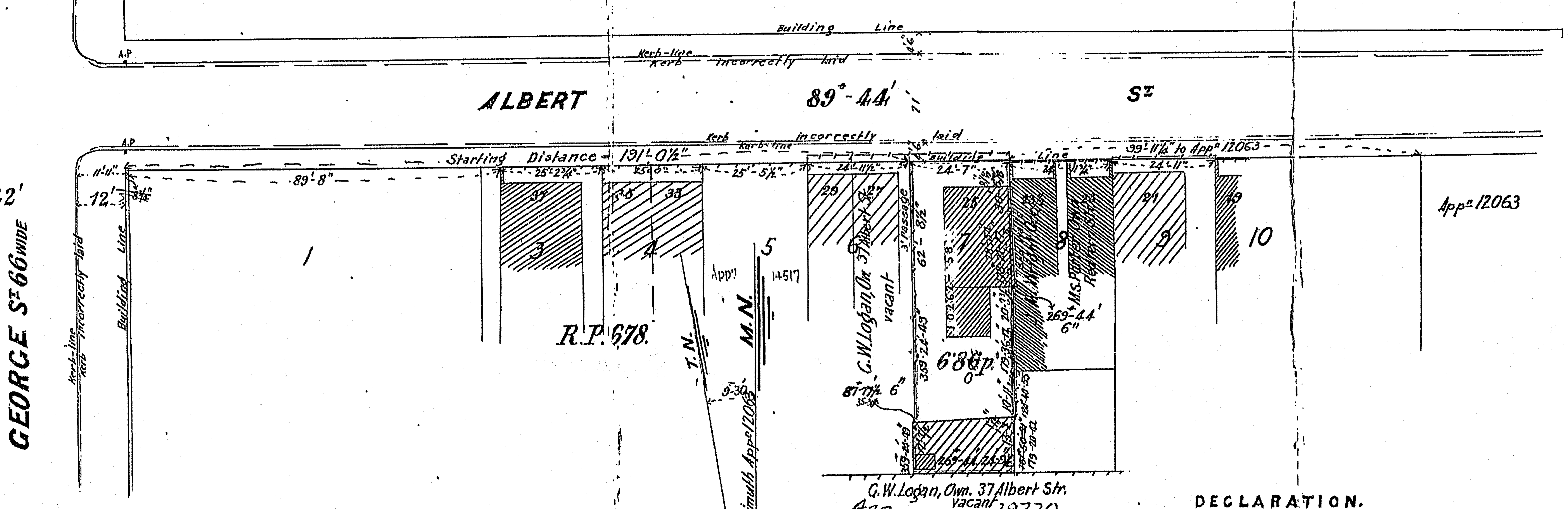
AMENDED APPLICATION 12657

being Lot 7 and part Lot 8 of G. C. Turner's Subdn

REDFERN

Parish of Alexandria County of Cumberland.

Scale: 20 Ft to an Inch.



DECLARATION.

I Samuel Joseph Pollitzer of 146 King Str. Sydney, Licensed Surveyor, specially licensed under the R. P. Act, do hereby solemnly & sincerely declare that the boundaries & measurements shewn on this plan are correct for the purposes of the said Act, & that the said plan & the survey of the land to which the same relates, have been prepared & made by me, and I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Oaths Act 1900.

S. Pollitzer L.S.

Subscribed and declared before me at Sydney this 9th day of March A.D. 1903

[signature]

Date of Survey: 15.5.02

Corrections in Red made by me this 23rd. 3. 03 S.P.

Signature of Applicant

AMENDMENTS AND/OR ADDITIONS NOTED ON PLAN IN REGISTRAR GENERAL'S OFFICE.

I, Bruce Richard Davies, Under Secretary for Lands and Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this day.

13th August, 1981

Redfern B7555 36

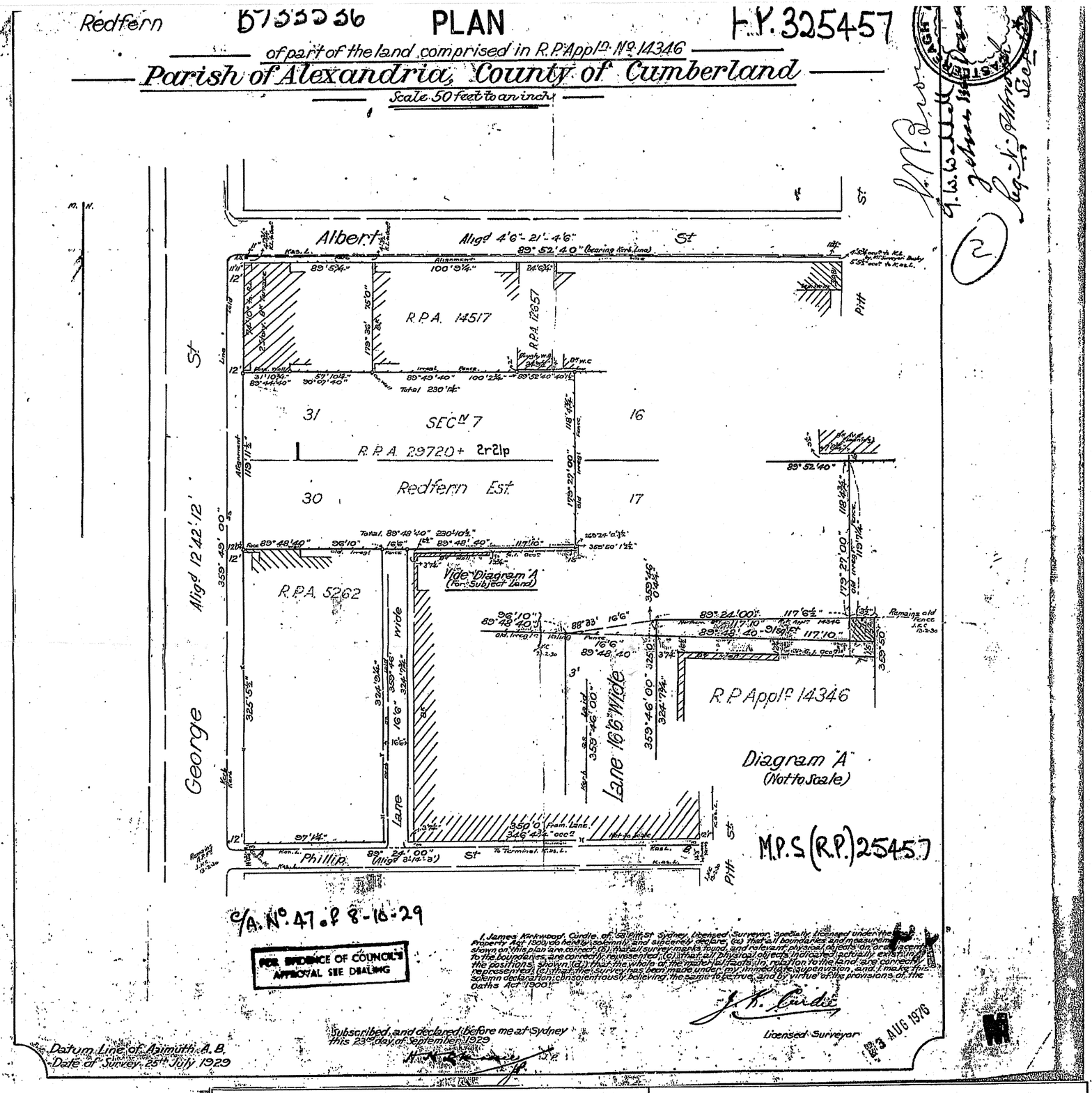
PLAN

H.Y. 325457

of part of the land comprised in R.P.Applⁿ. No. 14346

Parish of Alexandria, County of Cumberland

Scale 50 feet to an inch



I James Kirkwood Curdie of 68 Pitt St Sydney Licensed Surveyor specially licensed under the Property Act 1900 do hereby solemnly and sincerely declare, (a) that all boundaries and measurements shown on this plan are correct, (b) that all survey marks found and relevant physical objects in order ascertain to the boundaries are correctly represented, (c) that all physical objects indicated actually existing in the positions shown, (d) that the whole of the matters in relation to the land are correctly represented, (e) that the survey has been made under my immediate supervision, and I make this Solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Oaths Act 1900.

J. K. Curdie
Licensed Surveyor

Subscribed and declared before me at Sydney this 23rd day of September 1929

3 AUG 1976

LOT NUMBERS ADDED IN REGISTRAR GENERAL'S OFFICE.

Table of mm

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 17th day of May, 1978

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 325457

FEET	INCHES	METRES
-	0 1/2	0.013
-	2	0.051
-	3 1/2	0.089
-	4 1/4	0.108
-	9 1/2	0.241
-	11	0.279
-	11 3/4	0.298
1	-	0.305
1	2 1/2	0.368
1	2 3/4	0.375
1	5	0.432
1	6 1/2	0.470
3	-	0.914
3	7 1/4	1.099
4	3 1/2	1.308
4	3 3/4	1.314
4	5 1/2	1.359
4	5 3/4	1.365
4	6	1.372
7	8 3/4	2.356
11	9 3/8	3.591
11	11	3.632
12	-	3.658
12	0 1/4	3.664
12	1	3.683
14	-	4.267
14	0 3/4	4.286
14	3	4.343
16	6	5.029
17	8 3/4	5.404
18	0 1/2	5.499
21	-	6.401
24	6 3/4	7.487
24	9 1/2	7.557
31	10 3/4	9.722
40	1 1/2	12.230
42	-	12.802
57	10 1/4	17.634
74	10	22.809
75	-	22.860
89	5 3/4	27.273
96	10	29.515
97	1 1/4	29.597
100	2 3/4	30.550
100	9 1/4	30.715
117	6 1/2	35.827
117	10	35.916
118	4 3/4	36.087
119	7 1/4	36.455
119	11 1/2	36.563
230	1 1/4	70.136
230	10 1/2	70.371
324	7 3/4	98.952
324	9 1/4	98.990
325	-	99.060
325	5 1/2	99.200
346	4 3/4	105.581
350	-	106.680

AC	RD	P	SQ M
-	2	21	2555

50 FT	SQ M
91	8.5
910	84.5

1

REDFERN ST
REDFERN
GIBBONS ST
MARIAN ST
TURNER ST
JONES L.
ALBERT ST
EAST ST
MARGARET ST
GIBBONS ST
CORNWALLIS L.
ROSEHILL
REGENT
BOUNDARY ST
WYNDHAM ST
CHAPEL L
RD
B 25
56·0 Acs
B 26
Acs
RENWICK
GEORGE
BOTANY
PITT
DOUGLASS
CASTLEREAGH
ELIZABETH
PHILLIP
BYRNES L.
GRAYS L.
MOON ST
RAGLAN ST
B26
R64 - R65
8·3 Acs
R66 - R67
R67 2·3 Acs
R63 - R64
1·3 Acs
R66 - R63
0·6 Acs
R61 - R62 Part
KETTLE ST
R60 - R61
6·4 Acs
R42 - R48
1·8 Ac Tot
S-S44
0·1 Ac.
R41 - R60
4·7 Acs
R41 - R42
7·8 Acs Total
(7·2)
ALDERSON ST
BILLSTONE ST
WALKER ST
CURTIS ST
MOREHEAD ST
YOUNG ST
TELOPEA ST
ZAMIA
MARRIOTT ST
YOUNG L.
Overflow from Foul Sewer (Cnt 2) to Sewer (Cont 146)
Relief Sewer
Summit
Connection to Storm
File 86/892
1Q34 - R 61
12·1 Acs Tot.
N O R T H C O
C. S.W.C.
D 20284

ANNEXURE 'D'

Gas Authority Supply Map

Agility

Network Protection

FACSIMILE

To: Mr Denis Armstrong
Date: Thursday, 1 February 2007 10:49:58 AM
From: Velda Bremner

Fax no: 042850778
No of pages including cover: 02
Tel: (02) 9565 7035

Message:

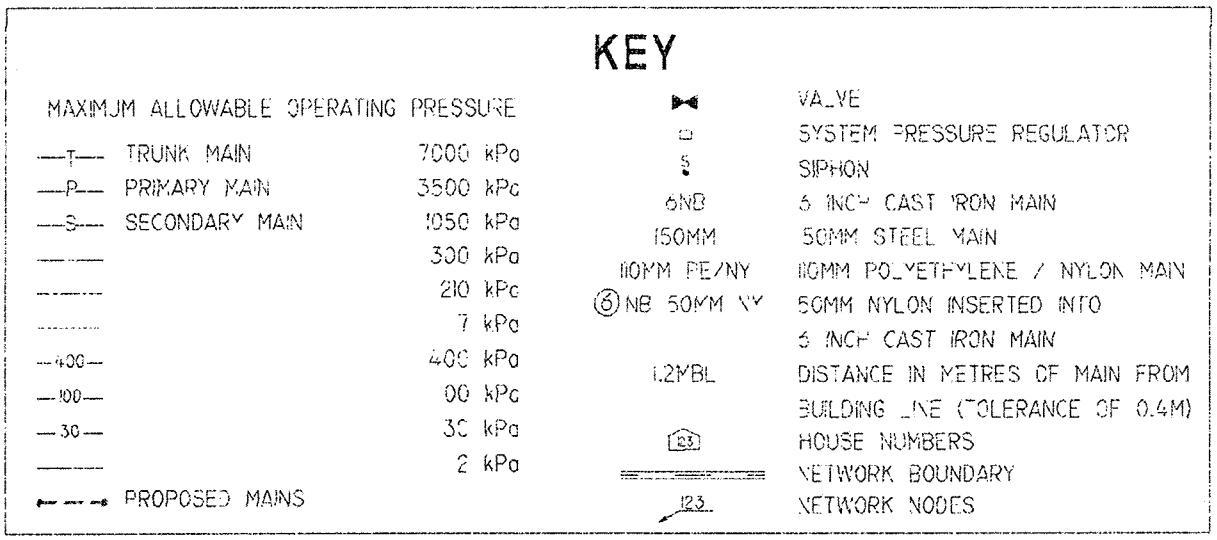
SOCS Enquiry Numbers: 11301663

In reply to your enquiry, there are gas mains at the location of your intended work as per the attached map. For an explanation of the map, please see the key below. The following excavation guidelines apply:

Excavation Guidelines:

If you are going to excavate/bore within 0.4m of the gas main location as indicated on the map you must excavate carefully by hand. If you can't locate the gas main, contact the local depot.

South: (02) 9565 7105



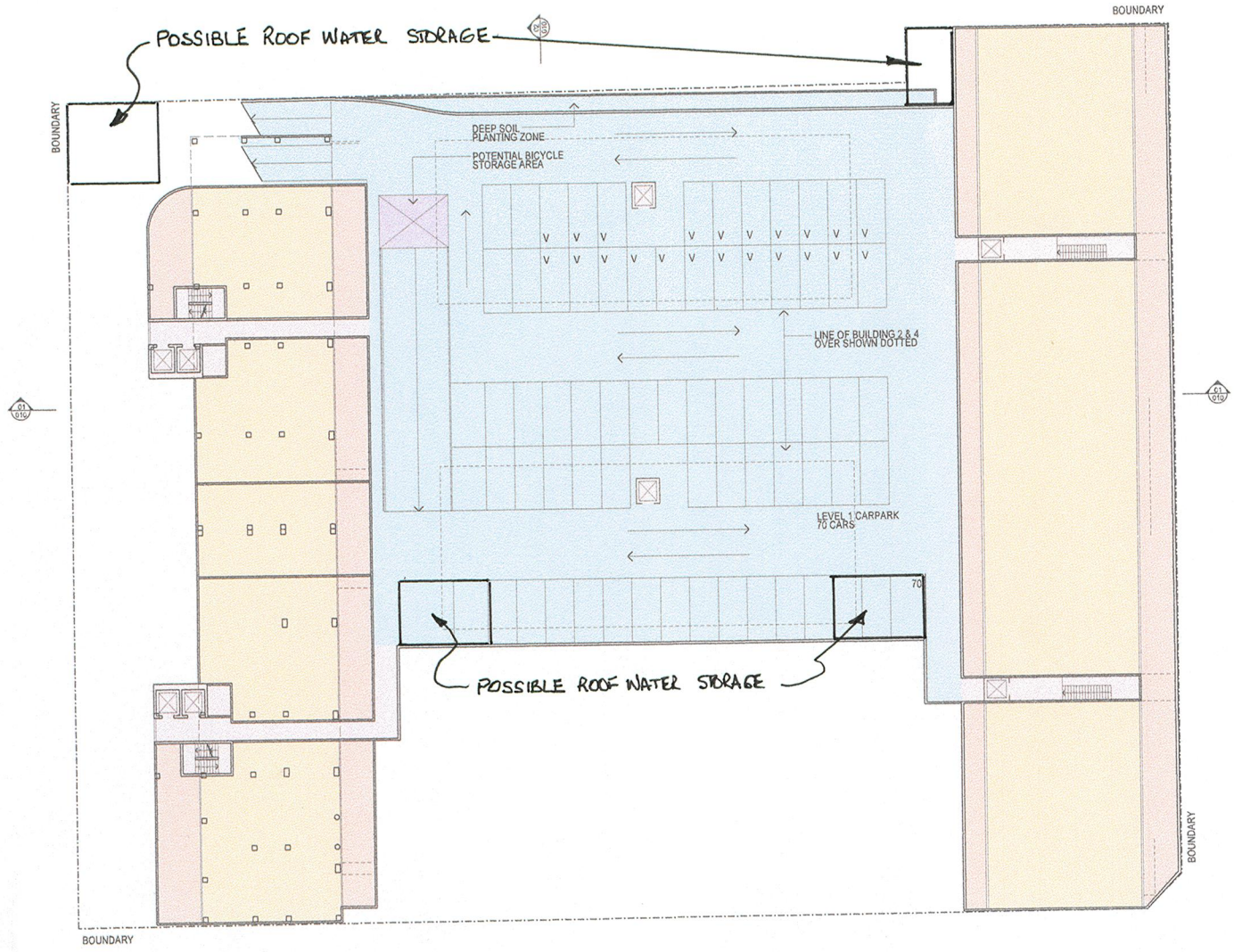
Warning: This company's plans show the position of it's underground gas mains and installations in public gazetted roads only, individual customers services are not included on these plans. These plans have been prepared solely for the Companies own use and may show the position of such underground mains and installations relative to fences, buildings etc., as at the time the mains etc were installed and not necessarily corrected to take account of any subsequent change in particular. Agility will accept no liability for inaccuracies in the information or lack of information on such plans for any cause whatsoever arising. Persons excavating or carrying out other earthworks will be held responsible for any damage caused to the Companies underground mains and equipment.

In case of Emergency Phone 131909 (24 hours)


THIS SCALED
PITT ST
ALBERT ST
GEORGE ST
RENWICK ST
PHILLIP
E
D
405
406
407
410
424
425
422
423
426
404
421
419
418
403
100
402
32MM NY
50MM NY
50MM
2.5MBL
1.8MBL
1.5MBL
2.4MBL
0.8MBL
1.0MBL
3.0MBL
175
191
195

ANNEXURE 'E'

Possible OSD and Rainwater Storage sites



PROJECT CONCEPT PLAN OF REDEVELOPMENT OF RACHEL FORSTER HOSPITAL

BASEMENT FLOOR PLAN

SCALE:200 @ A1

20/03/2007

A 003

armstrong Consulting Engineers
PO Box 2006, Woonona East
NSW 2517
Ph: +61+2 4285 0777

armstrong ...engineering a benefit into the project

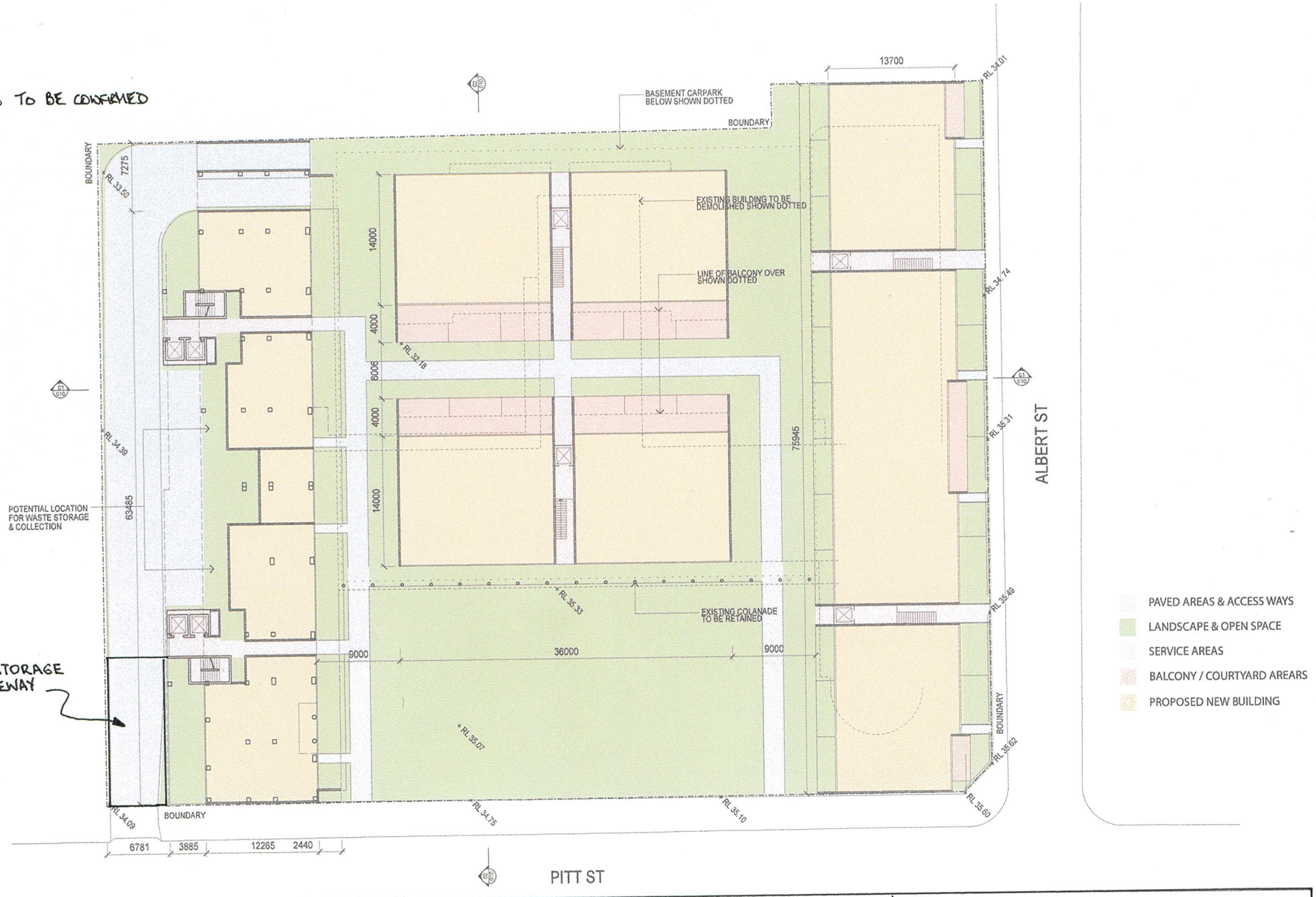
Scheme Concept Stormwater Storage and OSD Position SK-3

(Sketch Only- Not to Scale)

24th may 2007

Lippmann
Masterplanning
Architecture
Interiors
Lippmann Associates
570 Crown Street
Surry Hills NSW 2010
Sydney, Australia
+61 2 9318 0844

NOTE:
FINAL PAVEMENT LEVELS TO BE CONFIRMED



PROJECT CONCEPT PLAN OF REDEVELOPMENT OF RACHEL FORSTER HOSPITAL

LEVEL 1 FLOOR PLAN

SCALE:200 @ A1

20/03/2007

A 004

armstrong Consulting Engineers
PO Box 2006, Woonona East
NSW 2517
Ph: +61+2 4285 0777

armstrong
...engineering a benefit into the project

Scheme Concept Stormwater Storage and OSD Position SK-4

(Sketch Only – Not to Scale)

24th may 2007

Lippmann

Masterplanning
Architecture
Interiors

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Sydney, Australia
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