Southern Geotechnics
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Approved pursuant to Orders 2, 7 & 12
Keatte Waldon
Director, Metropolitan & Regional Projects North.
25/7/12

201026-e:amw
12 July, 2012

La Vie Developments Pty Ltd
PO Box 323
Kingsgrove, NSW 2208
Attn: Dr. Brett Gooley

Dear Sir,

RE: SPECIALIST MEDICAL CENTRE
AVONDALE & HUNTLEY RDS & GOOLAGONG ST, PENROSE
METHODOLOGIES FOR PROPOSED EARTHWORK OPERATIONS

As requested by Steven Dill of Jordan, Mealey & Partners, we have prepared a methodology for three activities described in their Additional Soil & Water Management Plan For Major Removal Events, dated July 2012.

The work to be covered by this additional plan comprises the removal of fill placed in an acoustic mound along the eastern side of the site, fronting Goolagong St; and also the removal of a rock wall and regrading of the fill slopes in the south-eastern portion of the site.
The additional plan contains recommendations for the removal and transport processes, and also for the management of soil and water controls during and following the exercise.
Drains additional to those shown on the current Soil and Water Management Plan by Martens & Associates have been proposed along the south-sloping boundary with Goolagong St, and also to divert run-off around the stockpile of material arising from the relocated acoustic mound.
Earth bridges are proposed to provide additional cover to the gas pipeline, on the alignments of the two truck routes which will be utilised in relocating the acoustic mound material.

The geotechnical methodologies have been prepared in compliance with the Court Orders issued for the remediation of part of your site, and in response to the letter dated 28 June 2012 from the NSW Department of Infrastructure and Planning.
The methodologies have been prepared for:

- The removal of the rock wall in the south-eastern portion of the site
- The removal of the acoustic mound in the central eastern portion of the site
- The removal of a portion of the main stockpile in the eastern portion of the site (the initial stockpile reduction)

The site constraints will likely require that the acoustic mound is removed firstly, in order to provide access for trucks to transport the rocks from the northern portion of the rock wall to the temporary stockpile area in the existing excavated platform in the north-eastern corner of the site. This sequence of work is detailed in the Additional Plan by Jordan, Mealey & Partners.

Yours faithfully,
Southern Geotechnics

per: Lex Welham
MIEAust, CPEng(Reg)

METHODOLOGY FOR REMOVAL OF ACOUSTIC MOUND (Court Order 7(a))

The following geotechnical recommendations are intended to complement the soil and water management practices in the SWMPs prepared for the site, and which are recommended for earthworks which are carried out in in accordance with "Soils and Construction, Volume 1, 4th Edition, Managing Urban Stormwater, Landcom (March 2004)".

The sequence of work at the acoustic mound should include:

1. Construction of the new drainage channel (marked X on the Proposed Site Management Plan) along the boundary with Goolagong St, below the proposed working area.
2. The maintenance of Drainage Channel C1 along the toe of the fill stockpile, as this drain will direct run-off from some of the acoustic mound area and the temporary haul road to Basin C.
3. Excavation to commence in the north-western corner of the acoustic mound and work southwards, removing as much material as possible while still able to direct run-off from the working area by the use of temporary drains towards Drain C1 and Basin C.
4. Progressively remove the remaining soil and overspill from the acoustic mound from the natural slope down to the boundary, retaining as much as possible of any natural grassed surface exposed beneath the fill.
5. The use of temporary contour drains should be considered to direct run-off away from the bare slopes and towards the existing sediment basin, while the revegetation is carried of the slope is carried out. Final topsoiling and grassing of the bench along Drain C1 will be carried out after the completion of haulage of the rock wall material through this area.

The placement of the soil arising from the acoustic mound within a stockpile will be carried out with spreading and shaping by dozer to the recommended 2H:1V slopes. The provision of soil and water management measures for the construction and completion of the temporary stockpile is covered in the additional plan.

METHODOLOGY FOR REMOVAL OF ROCK WALL (Court Order 2(a))

The rock wall was constructed to support a drainage berm at the toe of the main stockpile of soil and rock arising from the excavation of the medical centre building platforms in the north-eastern portion of the site.

Drainage berms were required to direct runoff from the eastern and south-eastern portions of the site to Basin C, the rock-lined overflow from which bisects the wall as it drains towards Council's stormwater drainage system on Goolagong St.

We understand that the overflow to Basin C will be reconstructed to be consistent with the original design, but at an alignment and gradient to reflect the batter realigned during removal of the remainder of the rock wall.

The planning of work for the removal of the rock wall will consider the need to maintain an effective spillway to Basin C, and may require separate haulage of rocks from the southern and northern portions of the wall, to avoid potential blockage of the spillway by a haul road.
A silt fence and appropriate sediment controls will need to be installed or maintained downslope of the working area, prior to commencing remedial works.

The sequence of work in the removal of the rock wall should include:

1. Removal of rocks immediately adjacent to the **northern** side of the existing spillway, to allow reconstruction of the rock lined spillway while retaining the southern side to continue to provide protection to nearby residences. The removal process should also select for reuse in the spillway, those hard, durable, rocks which have not exhibited the "onion-skin" weathering which has affected some of the siltstone rock.
2. Progressively work northwards from the reconstructed spillway, removing the upper layers of rocks, and transporting them to be stacked in the location shown on the CEH plans and Site Management Plan.
3. Expose the subsoil drain behind the lower portion of the wall, and recover the drainage material for possible reuse as surfacing of site roads. Some gravel may be left at the toe of the slope to provide a trafficable path to assist with future maintenance of Drain X.
4. As the rock wall is progressively removed, the remaining soil is to be battered at design gradient of 4(H):1(V). A maximum allowable batter is 2(H):1(V) where minimum berm width to suit a reinstated Drain C1, requires a steeper batter bank.
5. The shaping of the northern end of the section where the wall is removed may best be carried out in conjunction with the final shaping, and revegetation of the southern end of the removed acoustic mound.
6. Removal of the wall on the **southern** side of the spillway is simplified by the increased width of berm available, and will require progressive removal of layers of rock, and temporarily battering the soil back to a gradient of 2(H) :1(V), to reduce the risk of localised slumping, and yet retain a working platform for the excavator to reach and remove the lower layers of rock.
7. Following removal of the rocks, and the recovery of the granular material in the subsoil drain, the remaining soil is to be battered at design gradient of 4(H):1(V). A maximum allowable batter is 2(H):1(V) where a minimum berm width of 7m is required to be retained for the crest of the eastern bank of Basin C.
8. Care is to be taken to ensure Basin C stability is not impacted upon during deconstruction of the stacked rock wall. The new earth bank that replaces the stacked rock wall is to be revegetated as soon as possible after completing earthworks, to ensure that the exposure time of bare soil is minimised.

METHODOLOGY FOR INITIAL STOCKPILE REDUCTION (Court Order 12(a))

The initial stockpile reduction requires the removal of 50% of its volume within a certain time frame, and in order to reduce the potential disturbance to the grassed eastern face of the stockpile, we recommend that the sequence of work should include:

1. Construct soil and water management controls on the western side of the stockpile, with drainage channels to Basin B and Basin C formalised and maintained.
2. Commence excavation along the western side of the stockpile, and progressively work towards the east, following the natural ground surface while it slopes upwards towards the natural crest of the ridge marked on the proposed site management plan
3. Depending on the volume required to be excavated, continue excavation of fill towards the east, maintaining a gradient of say 2% down towards the north-west and south-west, to direct run-off to the drainage channels feeding to Basins B & C. In areas where large boulders are present which might result in voids and localised ponding of rainfall, surface drains should be constructed towards the south-west, to direct run-off to Basin C.
4. The excavation may be carried out from the north-western and south-western corners, to assist with drainage, and to reduce the time lost to bad weather, while maintaining an all-weather road along the western side of the stockpile.
5. When eventually working to remove the stockpiled soil on the eastern side of the natural ridge line, a bund comprising the existing grassed fill slope, and at least 1m high, should be retained as long as is practicable to divert run-off to Drain C1 and then to Basin C.

We note that the plans provide for regular engineering input and on-going review of the performance of the constructed works, particularly following major rainfall events, and again on completion of the earthworks and landscaping.

Copies of the Survey Plan and Proposed Site Management Plan are attached.

CEH CRAVEN, ELLISTON & HAYES (DAPTO) PTY. LTD.
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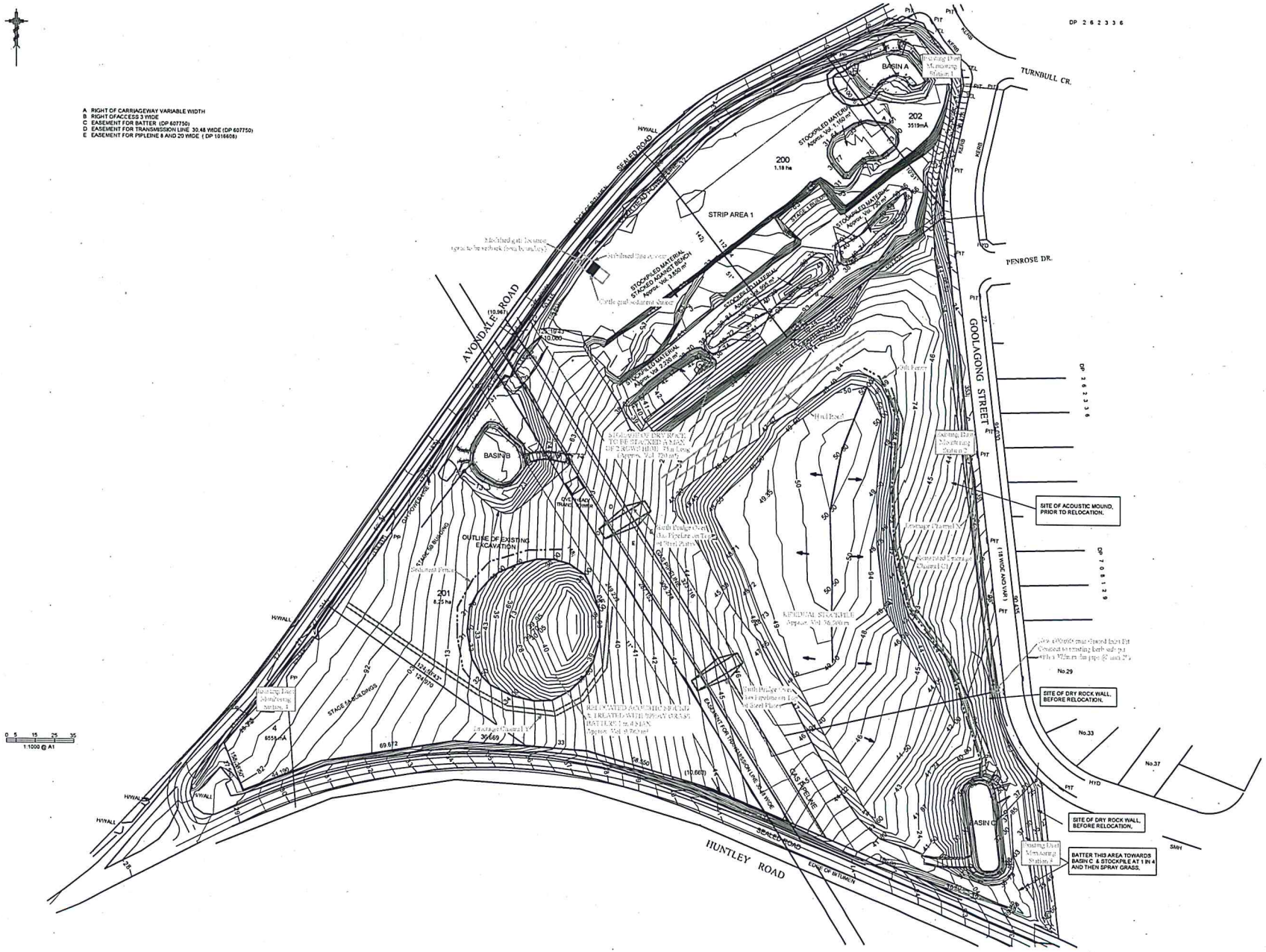
BSI BSI ISO 9001

PLAN 1 - BASE SURVEY

LOTS 200, 201 & 202 DP 1156078 & 4 DP 258024
CNR HUNTLEY AND AVONDALE RD'S

DATE	4/04/2012	AMENDMENTS	SURVEY FILE: D208150-Relocation Plan 1A
SURVEYOR	B.E.S.		DWG FILE: D208150-Base Survey
DRAWN	B.E.S.		
CHECKED	B.E.S.		

DRAWING No.
A1-D208150-PLAN 1
SCALE 1:1000
Sheet 1 of 1 Sheets



PROPOSED SITE MANAGEMENT PLAN

SCALE - 1:1000 @ A1, 1:2000 @ A3

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Proposed Hospital Precinct.
Additional Site Management Plan.
For: LA VIE DEVELOPMENTS PTY LTD.
At: Cnr of Avondale & Huntley Roads, Penrose.

REVISIONS:

Date	Designed	Job Number
6/7/12	G.M.	20120070
Drawn	Checked	Scale
S.D.		As Shown

Sheet 1 of 1