

# STORMWATER MANAGEMENT PLAN (FOR DA)

## PROPOSED SINGLE DWELLING

### Lot 6, No.128 ELANORA ROAD, ELANORA HEIGHTS

#### GENERAL NOTES

1. FINAL LOCATION OF NEW DOWNPIPES TO BE DETERMINED BY BUILDER/ARCHITECT AT TIME OF CONSTRUCTION.
2. THESE DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTS AND OTHER CONSULTANTS DRAWINGS. ANY DISCREPANCIES TO BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH WORK.
3. ALL MATERIALS AND WORKMANSHIP TO BE IN ACCORDANCE WITH AS/NZS 3500.3:2003 STORMWATER DRAINAGE, BCA AND LOCAL COUNCIL POLICY/CONSENT/REQUIREMENTS.
4. ALL DIMENSIONS AND LEVELS TO BE VERIFIED BY BUILDER ON-SITE PRIOR TO COMMENCEMENT OF WORKS. THESE DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS NOR TO BE USED FOR SETOUT PURPOSES.
5. ALL SURVEY INFORMATION AND PROPOSED BUILDING AND FINISHED SURFACE LEVELS SHOWN IN THESE DRAWINGS ARE BASED ON LEVELS OBTAINED FROM DRAWINGS BY OTHERS.
6. ALL STORMWATER DRAINAGE PIPES ARE TO BE uPVC AT MINIMUM 1% GRADE UNLESS NOTED OTHERWISE.
7. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND LEVEL ALL EXISTING SERVICES OR OTHER STRUCTURES WHICH MAY AFFECT/BE AFFECTED BY THIS DESIGN PRIOR TO COMMENCEMENT OF WORKS.
8. ALL PITS WITHIN DRIVEWAYS TO BE 150mm THICK CONCRETE OR EQUAL.
9. THIS PLAN IS THE PROPERTY OF NY CIVIL ENGINEERING AND MAY NOT BE USED OR REPRODUCED WITHOUT WRITTEN PERMISSION FROM NY CIVIL ENGINEERING.

#### PLAN SPECIFIC NOTES

1. **ROOF DRAINAGE NOTE:** AS 3500 ROOF DRAINAGE REQUIRES EAVES GUTTERS TO BE SIZED FOR 20 YEAR 5 MIN. STORM = 205mm/hr. FOR EAVES GUTTERS, AS 3500.3:2003 THEN HAS THE FOLLOWING REQUIREMENTS:
  - i) FOR TYPICAL STANDARD QUAD GUTTER WITH  $A_e = 6000\text{mm}^2$  AND GUTTER SLOPE 1:500 AND STEEPER, THIS REQUIRES ONE DOWNPIPE PER  $30\text{m}^2$  ROOF AREA.
  - ii) DOWNPIPES TO BE MINIMUM 90mm DIA. OR 100 x 50mm FOR GUTTERS SLOPE 1:500 AND STEEPER.
  - iii) OVERFLOW METHOD TO FIGURE G1 OF AS 3500.3:2003 IT IS THE RESPONSIBILITY OF THE PLUMBER AND / OR BUILDER TO COMPLY WITH THIS. THIS DRAWING SHOWS PRELIMINARY LOCATIONS / NUMBERS OF DOWNPIPES ONLY WHICH ARE TO BE VERIFIED BY BUILDER / PLUMBER
2. **TREE PRESERVATION:** IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ANY PRIOR APPROVAL REQUIRED FROM COUNCIL WITH RESPECT TO POTENTIAL IMPACT ON TREES FOR ANY WORKS SHOWN ON THIS DRAWING PRIOR TO THE COMMENCEMENT OF THOSE WORKS
3. ALL ROOF GUTTERS TO HAVE OVERFLOW PROVISION IN ACCORDANCE WITH AS 3500.3:2003 AND SECTIONS 3.5.3, 3.7.5 AND APPENDIX G OF AS 3500.3:2003
4. THIS DRAWING IS NOT TO BE USED FOR SET-OUT PURPOSES - REFER TO ARCHITECTURAL DRAWINGS
5. LOCATION OF SURFACE STORMWATER GRATED INLET PITS MAY BE VARIED OR NEW PITS INSTALLED AT THE CONSTRUCTION STAGE PROVIDED DESIGN INTENT OF THIS DRAWING IS MAINTAINED

SURFACE INLET PIT  
SURFACE INLET PIT  
(WITH ENVIROPOD 200 MICRON)  
ACCESS GRATE  
(WITH ENVIROPOD 200 MICRON)  
450 SQUARE INTERVAL  
450 X 450  
GRATE LEVEL = 75.50  
SL 75.50  
INVERT LEVEL = RL 75.20  
IL 75.20  
PROPOSED DOWNPIPE  
90mm DIA. OR 100mm x 50mm MIN.  
NATURAL GROUND FINISHED  
DESIGN LEVEL

#### LEGEND

GRATED TRENCH DRAIN  
ABSORPTION TRENCH  
PROPOSED ROOF GUTTER FALL  
PROPOSED DOWNPIPE SPREADER  
STORMWATER PIPE 100mm DIA. MIN. UNO  
SUBSOIL PIPE  
EXISTING STORMWATER PIPE  
INSPECTION RISER  
RAINWATER HEAD

#### DRAINAGE NOTES

##### PIPE SIZE:

THE MINIMUM PIPE SIZE SHALL BE:

- 90mm DIA WHERE THE LINE ONLY RECEIVES ROOFWATER RUNOFF; OR
- 100mm DIA WHERE THE LINE RECEIVES RUNOFF FROM PAVED OR UNPAVED AREAS ON THE PROPERTY

THE MINIMUM PIPE VELOCITY SHOULD BE 0.6 m/s AND A MAXIMUM PIPE VELOCITY OF 6.0 m/s DURING THE DESIGN STORM.

##### PIPE GRADE:

THE MINIMUM PIPE GRADE SHALL BE:

- 1.0% FOR PIPES LESS THAN 225mm DIA (UNO)
- 0.5% FOR ALL LARGER PIPES (UNO)

PIPES WITH A GRADIENT GREATER THAN 20% WILL REQUIRE ANCHOR BLOCKS AT THE TOP AND BOTTOM OF THE INCLINED SECTION; AND AT INTERVALS NOT EXCEEDING 3.0m

ANCHOR BLOCKS ARE DESIGNED ACCORDING TO *CLAUSE 3.5.3 OF AS3500.3-1990*

##### DEPTH OF COVER FOR PVC PIPES:

MINIMUM PIPE COVER SHALL BE AS FOLLOWS:

LOCATION	MINIMUM COVER
NOT SUBJECT TO VEHICLE LOADING	100mm SINGLE RESIDENTIAL 300mm ALL OTHER DEVELOPMENTS
SUBJECT TO VEHICLE LOADING UNDER A SEALED ROAD	450mm WHERE NOT IN A ROAD 600mm
UNSEALED ROAD	750mm
PAVED DRIVEWAY	100mm PLUS DEPTH OF CONCRETE

SEE AS2032 INSTALLATION OF UPVC PIPES FOR FURTHER INFORMATION.

CONCRETE PIPE COVER SHALL BE IN ACCORDANCE WITH AS3725-1989 *LOADS ON BURIED CONCRETE PIPES*, HOWEVER A MINIMUM COVER OF 450mm WILL APPLY.

WHERE INSUFFICIENT COVER IS PROVIDED, THE PIPE SHALL BE COVERED AT LEAST 50mm THICK OVERLAY AND SHALL THEN BE PAVED WITH AT LEAST:

- 150mm REINFORCED CONCRETE WHERE SUBJECT TO HEAVY VEHICLE TRAFFIC;
- 75mm THICKNESS OF BRICK OR 100mm OF CONCRETE PAVING WHERE SUBJECT TO LIGHT VEHICLE TRAFFIC; OR
- 50mm THICK BRICK OR CONCRETE PAVING WHERE NOT SUBJECT TO VEHICLE TRAFFIC.

##### CONNECTIONS TO STORMWATER DRAINS UNDER BUILDINGS:

SHALL BE CARRIED OUT IN ACCORDANCE WITH *SECTION 3.10 OF AS3500.3-1990*

##### CONNECTIONS TO COUNCIL SYSTEM:

IF PROPOSED DRAINAGE SYSTEM IS DESIGNED TO CONNECT TO COUNCIL'S DRAINAGE SYSTEM, IT IS ADVISED THAT A 'WORKS PERMIT' IS OBTAINED FROM THE RESPECTIVE COUNCIL PRIOR TO COMMENCEMENT OF WORKS

##### ABOVE GROUND PIPEWORK:

SHALL BE CARRIED OUT IN ACCORDANCE WITH *SECTION 6 OF AS3500.3-1990*

##### PIT SIZES AND DESIGN:

DEPTH (mm)	MINIMUM PIT SIZE (mm)
UP TO 450mm	450 x 450
450mm TO to 600mm	600 x 600
600mm TO 900mm	600 x 900
900mm TO 1500mm	900 x 900 (WITH STEP IRONS)
1500mm TO 2000mm	1200 x 1200 (WITH STEP IRONS)

ALL PIPES SHOULD BE CUT FLUSH WITH THE WALL OF THE PIT.

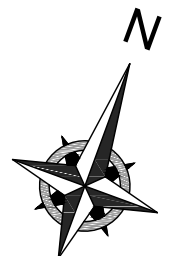
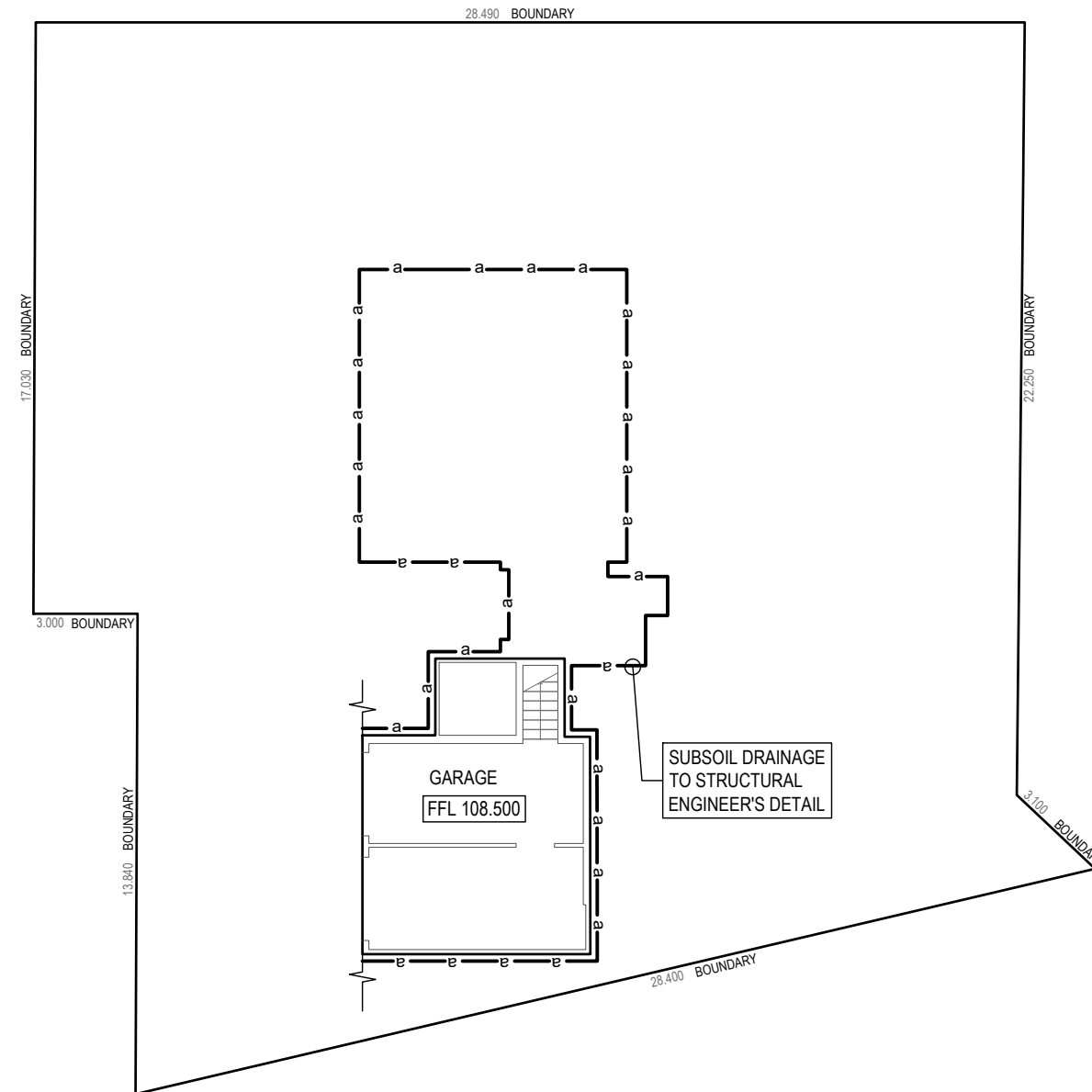
PITS GREATER THAN 600mm DEEP SHALL HAVE A MINIMUM ACCESS OPENING OF 600 x 600mm

THE GRATED COVERS OF PITS LARGER THAN 600 x 600mm ARE TO BE HINGED TO PREVENT THE GRATE FROM FALLING INTO THE PIT.

THE BASE OF THE DRAINAGE PITS SHOULD BE AT THE SAME LEVEL AS THE INVERT OF THE OUTLET PIPE. RAINWATER SHOULD NOT BE PERMITTED TO POND WITHIN THE STORMWATER SYSTEM

- **TRENCH DRAINS:**  
CONTINUOUS TRENCH DRAINS ARE TO BE OF WIDTH NOT LESS THAN 150mm AND DEPTH NOT LESS THAN 100mm. THE BARS OF THE GRATING ARE TO BE PARALLEL TO THE DIRECTION OF SURFACE FLOW.
- **STEP IRONS:**  
PITS BETWEEN 1.2m AND 6m ARE TO HAVE STEP IRONS IN ACCORDANCE WITH AS1657. FOR PITS GREATER THAN 6m OTHER MEANS OF ACCESS MUST BE PROVIDED.
- **PVC PITS:**  
PVC PITS WILL ONLY BE PERMITTED IF THEY ARE NOT A GREATER SIZE THAN 450 x 450mm (MAXIMUM DEPTH 450mm) AND ARE HEAVY DUTY
- **IN-SITU PITS:**  
IN-SITU PITS ARE TO BE CONSTRUCTED ON A CONCRETE BED OF AT LEAST 150mm THICK. THE WALLS ARE TO BE DESIGNED TO MEET THE MINIMUM REQUIREMENTS OF *CLAUSE 4.6.3 OF AS3500.4-1990*. PITS DEEPER THAN 1.8m SHALL BE CONSTRUCTED WITH REINFORCED CONCRETE.
- **GRATES:**  
GRATES ARE TO BE GALVANISED STEEL GRID TYPE. GRATES ARE TO BE OF HEAVY-DUTY TYPE IN AREAS WHERE THEY MAY BE SUBJECT TO VEHICLE LOADING.

REVISION	DRAWN	DESCRIPTION	DATE	PLAN BY	DRAWING TITLE	APPROVED BY	DESIGNED	CHECKED
A	MR	ISSUED FOR DA	10.03.2020	 T 0416 334 977 E <a href="mailto:admin@nycivilengineering.com.au">admin@nycivilengineering.com.au</a> W <a href="http://www.nycivilengineering.com.au">www.nycivilengineering.com.au</a>	DETAILS, NOTES & LEGEND PROJECT TITLE PROPOSED SINGLE DWELLING LOT 6, No.128 ELANORA ROAD ELANORA HEIGHTS	 NADER ZAKI MIEAust CPEng NER	MR	YR
							SHEET SIZE	SCALE
							A3	-
							ISSUE	No. IN SET
							A	8
							JOB REFERENCE	DRAWING No.
						E200021	D1	



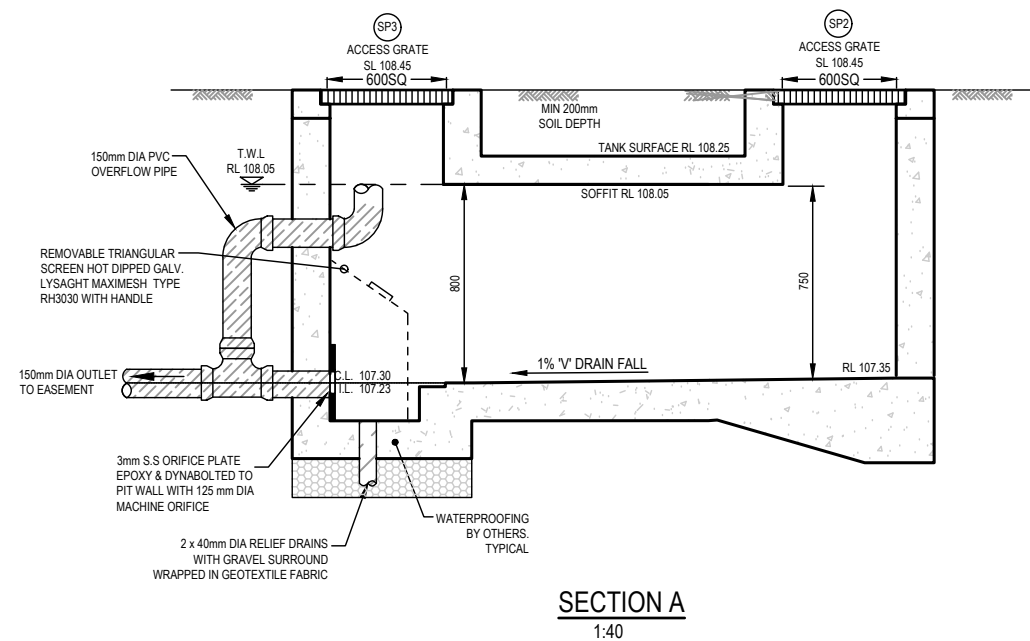
PLANS ARE FOR CONCEPT ONLY  
AND NOT FOR CONSTRUCTION

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A	MR	ISSUED FOR DA	10.03.2020	 T 0416 334 977 E admin@nycivilengineering.com.au W www.nycivilengineering.com.au	BASEMENT PLAN	NADER ZAKI MIEAust CPEng NER	MR	YR
					PROJECT TITLE		SHEET SIZE	SCALE
					PROPOSED SINGLE DWELLING LOT 6, No.128 ELANORA ROAD ELANORA HEIGHTS		A3	1:200
							ISSUE	No. IN SET
							A	8
						JOB REFERENCE E200021	DRAWING No. D2	

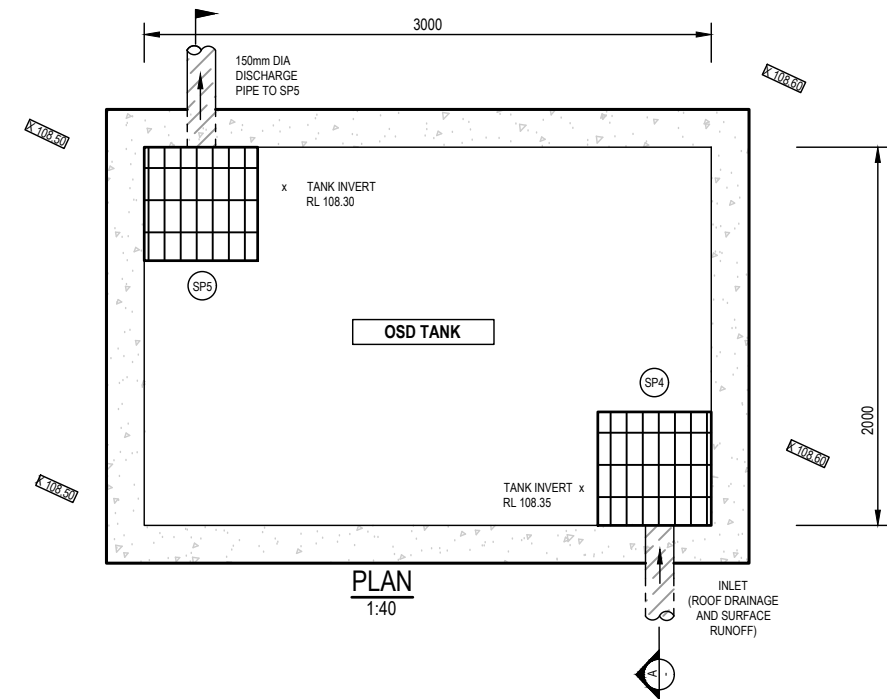




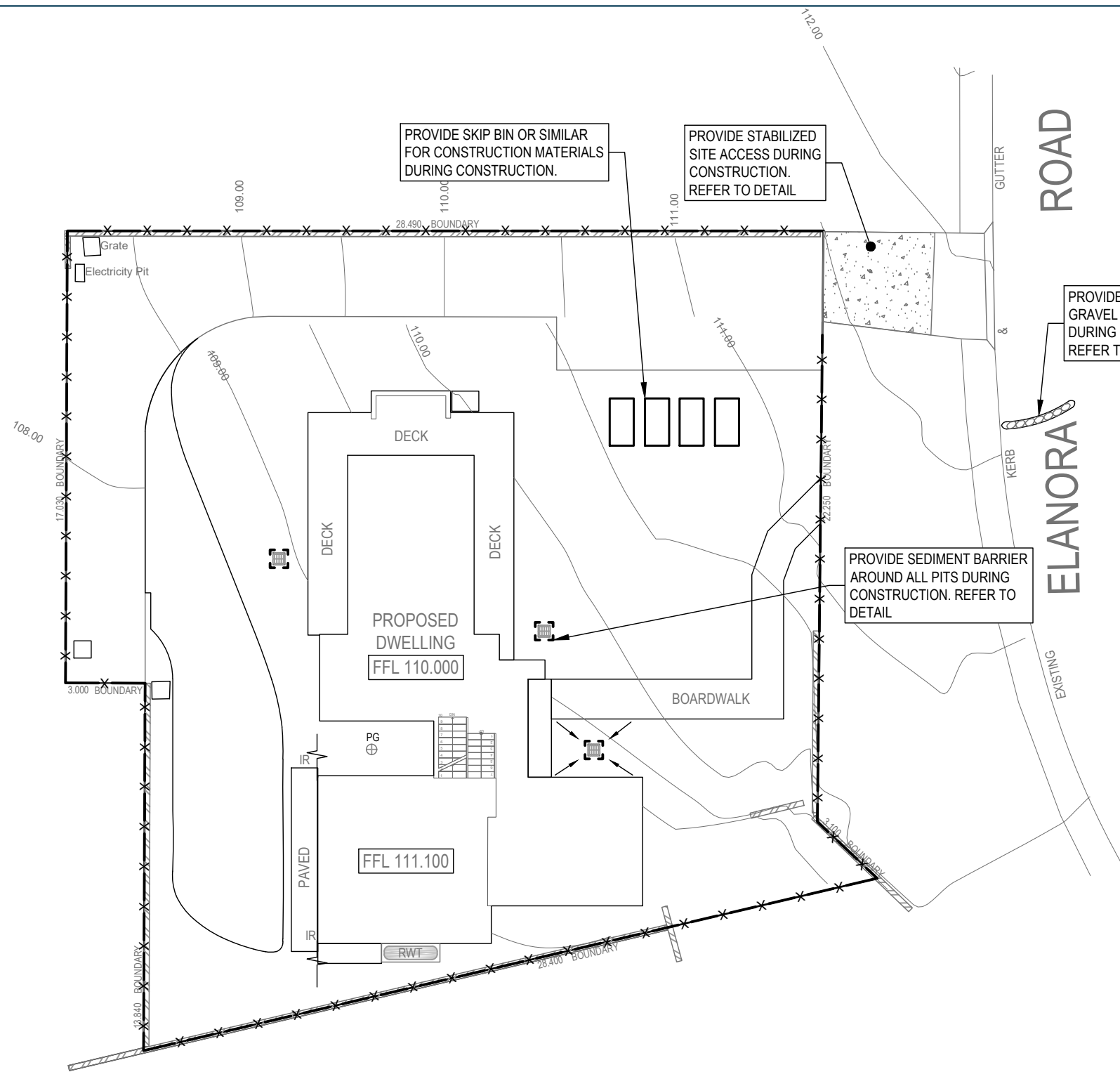




OSD TANK - BELOW GROUND  
1:40



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A	MR	ISSUED FOR DA	10.03.2020	 <p>T 0416 334 977 E <a href="mailto:admin@nycivilengineering.com.au">admin@nycivilengineering.com.au</a> W <a href="http://www.nycivilengineering.com.au">www.nycivilengineering.com.au</a></p>	OSD DETAILS	NADER ZAKI MIEAust CPEng NER	MR	YR
							SHEET SIZE	SCALE
					PROJECT TITLE		A3	AS NOTED
					PROPOSED SINGLE DWELLING LOT 6, No.128 ELANORA ROAD ELANORA HEIGHTS		ISSUE	No. IN SET
							A	8
						JOB REFERENCE E200021	DRAWING No. D6	



#### DUST CONTROL:

• NOTE: DURING EXCAVATION, DEMOLITION AND CONSTRUCTION, ADEQUATE MEASURES SHALL BE TAKEN TO PREVENT DUST FROM AFFECTING THE AMENITY OF THE NEIGHBORHOOD.

THE FOLLOWING MEASURES MUST BE ADOPTED:

1. PHYSICAL BARRIERS SHALL BE ERECTED AT RIGHT ANGLES TO PREVENT WIND DIRECTION OR SHALL BE PLACED AROUND OR OVER DUST SOURCES TO PREVENT WIND OR ACTIVITY FROM GENERATING DUST.
2. EARTHWORKS AND SCHEDULING ACTIVITIES SHALL BE MANAGED TO COINCIDE WITH THE NEXT STAGE OF DEVELOPMENT TO MINIMISE THE AMOUNT OF TIME THE SITE IS LEFT TO CUT OR EXPOSED.
3. ALL MATERIALS SHALL BE STORED OR STOCKPILED AT THE BEST LOCATIONS.
4. THE GROUND SURFACE SHOULD BE DAMPENED SLIGHTLY TO PREVENT DUST FROM BECOMING AIRBORNE BUT SHOULD NOT BE WET TO THE EXTENT THAT RUN-OFF OCCURS.
5. ALL VEHICLES CARRYING SOIL OR RUBBLE TO OR FROM THE SITE SHALL AT ALL TIMES BE COVERED TO PREVENT THE ESCAPE OF DUST.
6. ALL EQUIPMENT WHEELS SHALL BE WASHED BEFORE EXISTING THE SITE USING MANUAL OR AUTOMATED SPRAYERS AND DRIVE - THROUGH WASHING BAYS.
7. GATES SHALL BE CLOSED BETWEEN VEHICLE MOVEMENTS SHALL BE FITTED WITH SHADE CLOTH.
8. CLEANING OF FOOTPATHS AND ROADWAYS SHALL CARRIED OUT DAILY.
9. ALL BUILDERS REFUSE, SPOIL AND/OR MATERIAL UNSUITABLE FOR USE IN LANDSCAPE AREAS SHALL BE REMOVED FROM SITE ON COMPLETION OF THE BUILDING WORKS.

#### LEGEND:

UNDISTURBED VEGETATION	
SEDIMENT FENCE	
STOCK PILES	
STABILIZED SITE ACCESS	
MESH & GRAVEL INLET FILTER	
WATER DIVERSION	
STORMWATER PIT WITH SEDIMENT BARRIER	

#### NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSPECTED AND MAINTAINED DAILY BY SITE MANAGER IN ACCORDANCE WITH COUNCIL REQUIREMENTS.
2. ALL STOCKPILES TO BE CLEAR FROM DRAINS, GUTTERS AND FOOTPATHS.
3. DRAINAGE IS TO BE CONNECTED TO STORMWATER SYSTEM AS SOON AS POSSIBLE.
4. ROADS AND FOOTPATH TO BE SWEEPED DAILY AS REQUIRED BY COUNCIL.
5. IF YOU DO NOT COMPLY WITH COUNCIL REQUIREMENTS & DOCUMENTATION, YOU MAY BE LIABLE TO PROSECUTION FROM GOVERNMENT AUTHORITIES.



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					PROJECT TITLE		SHEET SIZE	SCALE
					PROPOSED SINGLE DWELLING LOT 6, No.128 ELANORA ROAD ELANORA HEIGHTS		A3	1:200
							ISSUE	No. IN SET
							A	8
						JOB REFERENCE	DRAWING No.	
						E200021	D7	



**CONSTRUCTION NOTES:**

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENTS AREA OF ANY ONE SECTION. THE CATCHMENTS AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10 YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5m LONG STAR PICKETS INTO GROUND AT 2.5m INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



## NTS

**NOTE:**

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METERS FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METERS IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILIZE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (LOW FLOW) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METERS ON THE DOWNSLOPE.

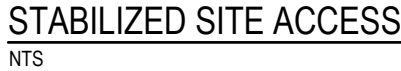


**CONSTRUCTION NOTES:**

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STRAW FILTER AND SEDIMENT FENCE FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

**INSTRUCTION NOTES:**

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm(h) x 400mm(w).
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.



### CONSTRUCTION NOTES:

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASED OR 30mm AGGREGATE
4. ENSURE THE STRUCTURE IS AT LEAST 15m LONG OR TO BUILD ALIGNMENT AND AT LEAST 3 METERS WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILIZED ACCESS, CONSTRUCT A HUMP IN THE STABILIZED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

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A	MR	ISSUED FOR DA	10.03.2020	  T 0416 334 977 E <a href="mailto:admin@nycivilengineering.com.au">admin@nycivilengineering.com.au</a> W <a href="http://www.nycivilengineering.com.au">www.nycivilengineering.com.au</a>	SEDIMENT CONTROL DETAILS	NADER ZAKI MIEAust CPEng NER	MR	YR
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