

**PRELIMINARY FOOTING REPORT**

**Job No: 22944**

**Date: 07/07/2017**

AT: NO. 162 CHURCHILL ROAD, PROSPECT  
FOR: HOUSE & LAND SA

Site Classification: P (due to tree effects)  
Soil Classification: M-D  
Design Wind Speed: N1  
Flexible Connections: Not Required  
Building Construction: 6 Three Storey Articulated Brick Veneer Dwellings

Site Photos:



Photo 1



Photo 2

Adelaide 1 Hawke Street, Albert Park SA 5014

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Photo 3



Photo 4

# RCI CONSULTING ENGINEERS

1 Hawke Street, Albert Park

## Surface Soil Borelogs

**Job No:** 22944 (1 of 3)  
**Date Sampled:** 28/06/2017  
**Site Address:** 162 Churchill Road, Prospect

**Sampled By:** AS Drilling  
**Sampling Method:** Hand Gear  
**Logged By:** JF

BH1	BH2	BH3	BH4	Symbol	Description	Colour	Texture	MC	Bearing	Est Ipt (Ave)
0.00 - 0.45	0.00 - 0.35	0.00 - 0.30	0.00 - 0.30	SC	clayey SAND	dark brown grey	friable	D-SM	LM	0.005
0.45 - 1.00	0.35 - 0.85	0.30 - 0.90	0.30 - 0.95	CH	silty sandy CLAY	red dark brown orange	v/stiff	≤PL	H	0.032
1.00 - 1.35	0.85 - 1.65	0.90 - 1.35	0.95 - 1.55	CL	sandy CLAY	orange brown red grey	firm to friable	<PL	LM-L	0.015
1.35 - 2.15	1.65 - 2.35	1.35 - 2.15	1.55 - 2.40	CL-SC	sandy CLAY clayey Sand	red grey orange	friable	<PL	L	0.008
2.15 - 3.00	2.35 - 3.00	2.15 - 3.00	2.40 - 3.00	CL	sandy CLAY	grey orange brown	friable	>PL	L	0.012

Ys = 35 Ys = 36 Ys = 38 ys = 39  
Δyst = 11 Δyst = 11 Δyst = 11 Δyst = 11

### Remarks

Water table was not encountered during drilling.  
Site is classified P due to tree effects.

Ys: 39 mm  
Δyst: 11 mm  
Ymc: 38  
Yme: 20  
Site Classification: **P**

# RCI CONSULTING ENGINEERS

1 Hawke Street, Albert Park

## Surface Soil Borelogs

**Job No:** 22944 (2 of 3)  
**Date Sampled:** 28/06/2017  
**Site Address:** 162 Churchill Road, Prospect

**Sampled By:** AS Drilling  
**Sampling Method:** Hand Gear  
**Logged By:** JF

BH5	BH6	BH7	BH8	Symbol	Description	Colour	Texture	MC	Bearing	Est Ipt (Ave)
0.00 - 0.35	0.00 - 0.25	0.00 - 0.25	0.00 - 0.20	SC	clayey SAND	dark brown grey	friable	D-SM	LM	0.005
0.35 - 0.95				CH	silty sandy CLAY	red dark brown orange	v/stiff	≤PL	H	0.032
	0.25 - 0.95	0.25 - 0.75	0.20 - 0.80	CH	CLAY some Sand	red dark brown orange	v/stiff	≤PL	MH	0.035
0.95 - 1.45	0.95 - 1.65	0.75 - 1.55	0.80 - 1.60	CL	sandy CLAY	orange brown red grey	firm to friable	<PL	LM-L	0.015
1.45 - 2.30	1.65 - 2.50	1.55 - 2.25	1.60 - 2.35	CL-SC	sandy CLAY clayey Sand	red grey orange	friable	<PL	L	0.008
2.30 - 3.00	2.50 - 3.00	2.25 - 3.00	2.35 - 3.00	CL	sandy CLAY	grey orange brown	friable	>PL	L	0.012

Ys = 37 Ys = 43 Ys = 39 ys = 42  
Δyst = 11 Δyst = 11 Δyst = 11 Δyst = 11

### Remarks

Water table was not encountered during drilling.  
Site is classified P due to tree effects.

Ys: 43 mm  
Δyst: 11 mm  
Ymc: 41  
Yme: 22  
Site Classification: **P**

# RCI CONSULTING ENGINEERS

1 Hawke Street, Albert Park

## Surface Soil Borelogs

**Job No:** 22944 (3 of 3)  
**Date Sampled:** 28/06/2017  
**Site Address:** 162 Churchill Road, Prospect

**Sampled By:** AS Drilling  
**Sampling Method:** Hand Gear  
**Logged By:** JF

BH9				Symbol	Description	Colour	Texture	MC	Bearing	Est Ipt (Ave)
0.00 - 0.20				SC	clayey SAND	dark brown grey	friable	D-SM	LM	0.005
0.20 - 0.80				CH	CLAY some Sand	red dark brown orange	v/stiff	≤PL	MH	0.035
0.80 - 1.60				CL	sandy CLAY	orange brown red grey	firm to friable	<PL	LM-L	0.015
1.60 - 2.35				CL-SC	sandy CLAY clayey Sand	red grey orange	friable	<PL	L	0.008
2.35 - 3.00				CL	sandy CLAY	grey orange brown	friable	>PL	L	0.012

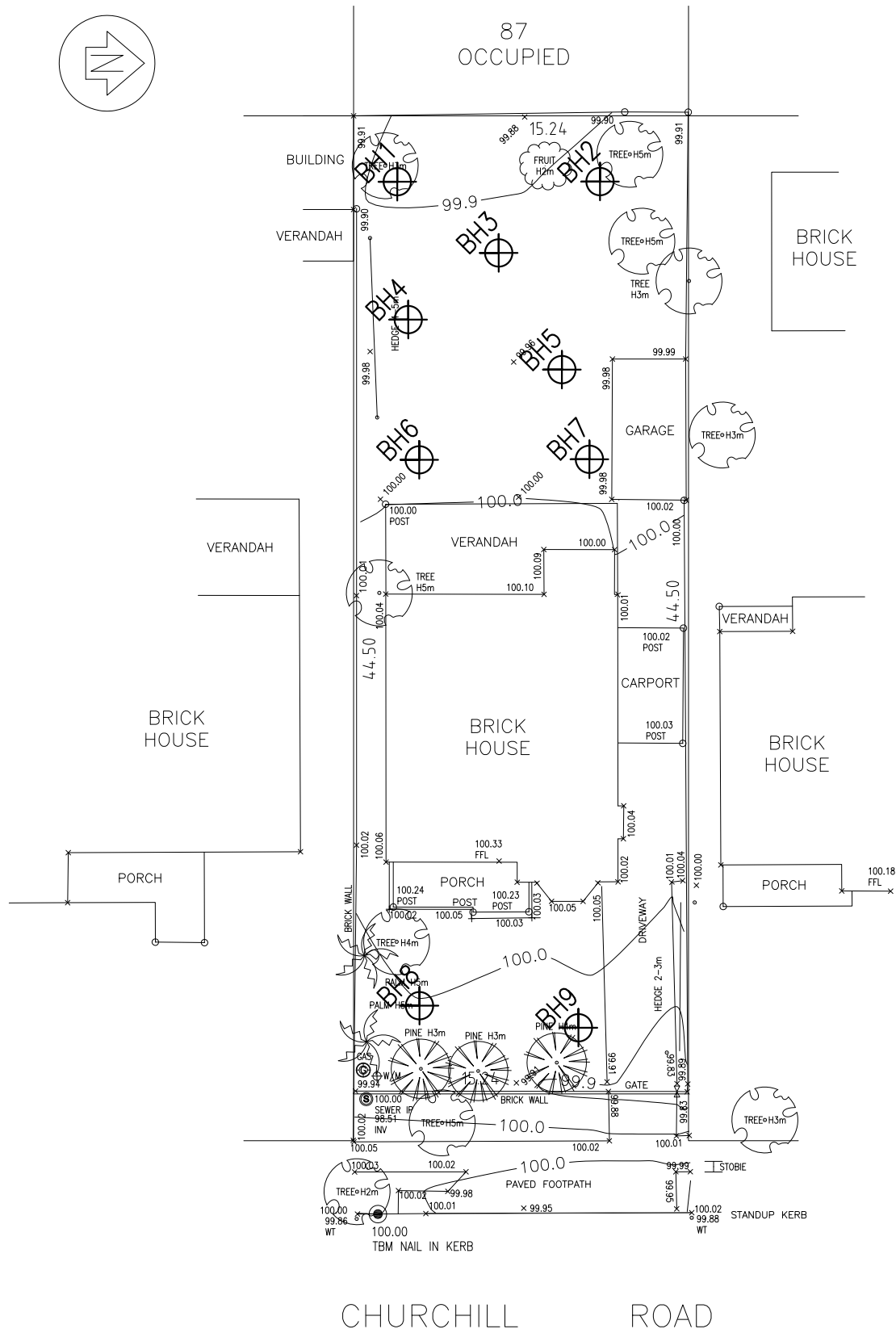
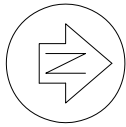
Ys = 42

Δyst = 11

### Remarks

Water table was not encountered during drilling.  
Site is classified P due to tree effects.

Ys: 42 mm  
Δyst: 11 mm  
Ymc: 40  
Yme: 21  
Site Classification: **P**



## BOREHOLE LOCATION PLAN

ADDRESS:  
NO. 162 CHURCHILL ROAD  
PROSPECT

CLIENT: HOUSE & LAND SA

DRAWN: J.C.

SCALE: N.T.S

DATE: 7-Jul-17

JOB No:  
**P22944**

← — LAP ST1 WITH B1 FOR 2000mm MIN

WHERE BRITTLE FLOOR COVERINGS (eg TILED SURFACES) ARE TO BE USED OVER AN AREA GREATER THAN 10m<sup>2</sup> FLEXIBLE ADHESIVE IS TO BE USED BETWEEN THE FLOOR COVERING AND SLAB. APPLY IN ACCORDANCE TO MANUFACTURERS SPECIFICATION TO ALLOW FOR POSSIBLE CONCRETE SHRINKAGE.

1/N16 STARTER BAR CENTRAL IN BRICK PIER, CAST 300mm INTO FOOTING WITH 100mm COG. LAP 600mm WITH PIER REINFORCEMENT. WIDEN FOOTING LOCALLY TO SUIT PIER.

**BREAK IN POUR:**

BREAKS IN FOOTINGS TO BE FORMED UP WITH REINFORCEMENT TO EXTEND THROUGH FORM WORK WITH ADEQUATE LENGTH TO PROVIDE LAPS WITH FUTURE REINFORCEMENT. MESH TO CONTINUE PAST BREAK IN POUR A MIN OF 300mm (2 BARS MINIMUM). ALL PREVIOUS POURS TO BE SCABBLED BACK REMOVING ANY LOOSE CONCRETE AND DUST FROM PREVIOUS POURS. COAT WITH ONE COAT OF BONDCRETE OR SIMILAR PRIOR TO POURING. ADDITIONAL POURS CONTACT THIS OFFICE FOR FURTHER ADVICE IF REQUIRED.

BREAK IN POUR.  
REFER NOTE  
ABOVE

300mm MIN

LAP

BREAK IN POUR.  
REFER NOTE  
ABOVE

300mm MIN

LAP

**TYPICAL SECTIONS THROUGH BREAK IN POUR**

NOT TO SCALE

OUTLINE OF EXISTING HOUSE —  
EXTENT OF 125mm SLAB/DOUBLE  
MESH AND PIERS TO BE CONFIRMED  
ON SITE AT TRENCH INSPECTION  
(SUBJECT TO DEMOLITION)

FOOTINGS CONSTRUCTED ON  
BOUNDARY TO BE FOUNDED INTO  
NATURAL SOIL OR CONTROLLED FILL  
A MINIMUM OF 600mm BELOW THE  
EXISTING ADJACENT ALLOTMENT  
GROUND LEVEL

STORMWATER PIPE TO BE ACTUAL 100Ø  
(DNV) PIPE LAGGED & FITTED WITH  
FLEXIBLE CONNECTIONS IN ACCORDANCE  
WITH SOIL CLASSIFICATION OR PROVIDE  
SLEEVE TO ALLOW 100Ø PIPE TO PASS  
THROUGH.

STORMWATER PIPE TO BE ACTUAL 100Ø  
(DNV) PIPE LAGGED & FITTED WITH  
FLEXIBLE CONNECTIONS IN ACCORDANCE  
WITH SOIL CLASSIFICATION OR PROVIDE  
SLEEVE TO ALLOW 100Ø PIPE TO PASS  
THROUGH.

 **BOREHOLE**  
(REFER TO BORELOG)

DEPTH OF FILL FOUND IN BOREHOLE

HOLE 1	0mm	HOLE 4	0mm	HOLE 7	0mm
HOLE 2	0mm	HOLE 5	0mm	HOLE 8	0mm (OFF PAGE)
HOLE 3	0mm	HOLE 6	0mm	HOLE 9	0mm (OFF PAGE)

ALL FOOTING BEAMS ARE "B1"  
UNLESS NOTED OTHERWISE

**FOOTING PLAN**

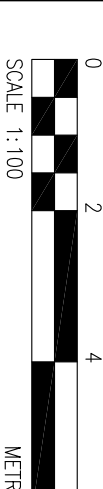
ADDRESS: No 162 CHURCHILL ROAD  
PROSPECT

CLIENT: HOUSE &amp; LAND SA

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JOB No. **F22944** SHEET No. 1 of 1 ISSUE No. —

DRAWN : J.M. DESIGN D.A. DATE: 5-Jul-17



No. REVISION BY DATE

**FOOTING BEAMS**

BEAM	WIDTH (mm)	DEPTH (mm)	REINFORCEMENT TOP NO. SIZE NO. BOTTOM NO. SIZE NO.
B1	300	800	4 N16 4 N16
B2	350	800	4 N16 4 N16
ST1	300	800	4 N16 4 N16



**SLAB:**  
100mm THICK SLAB REINFORCED WITH ONE LAYER OF  
SL92 TOP WITH 20mm COVER. WHERE THE DEPTH OF  
FILL BELOW THE SLAB PANELS EXCEEDS 400mm  
INCREASE SLAB DEPTH TO 125mm AND PLACE AN  
ADDITIONAL LAYER OF SL72 MESH BOTTOM WITH 30mm  
OF BOTTOM COVER. (REFER TO LEGEND). N20 CONCRETE  
UNLESS NOTED OTHERWISE. (FOR ALL JOBS LOCATED IN  
CORROSION ZONE, CONCRETE STRENGTH FOR EXTERNAL  
FOOTINGS (EXPOSED FACE) MUST BE N32 CONCRETE).


**SOIL CLASSIFICATION: S/M-D**  
— 10mm THICK LAGGING AROUND STORMWATER AND  
SEWER DRAIN PENETRATIONS THROUGH EXTERNAL  
FOOTINGS  
— FLEXIBLE CONNECTIONS IN SEWER & STORMWATER  
DRAIN ARE NOT REQUIRED

**GENERAL NOTES**


- THIS DRAWING TO BE READ IN CONJUNCTION WITH THE  
FOOTING CONSTRUCTION REPORT AND ARCHITECTURAL  
DRAWINGS. IF ANY CONFLICT OCCURS CONTACT THIS  
OFFICE IMMEDIATELY
- THIS FOOTING PLAN ASSUMES THE SITEWORKS AND  
DRAINAGE ARE CARRIED OUT IN ACCORDANCE WITH THE  
FOOTING CONSTRUCTION REPORT.
- THESE DRAWING ARE NOT TO BE SCALED FROM. ALL  
WRITTEN DIMENSIONS ARE IN mm UNLESS NOTED  
OTHERWISE.
- ALL FOOTINGS TO BE FOUNDED A MINIMUM 100mm  
INTO NATURAL SOIL OR CONTROLLED FILL IF PRESENT  
(REFER TO BORELOGS). FOOTING TO BE TRENCHED OR  
PIERED AS REQUIRED TO ENSURE 100mm MINIMUM  
FOUNDING.
- PIERS AND EXTENT OF THICKENED SLAB/DOUBLE MESH  
ARE SHOWN INDICATIVELY ONLY AND SHALL BE  
CONFIRMED ON SITE AT THE TIME OF A TRENCH  
INSPECTION.

**LEGEND**

 3/N12 x 2000mm LONG CRACK CONTROL  
BARS TIED TO UNDERSIDE OF TOP MESH.  
STEP IN FOOTING BEAM. REFER TO FOOTING  
CONSTRUCTION REPORT FOR DETAILS.

 1200mm LONG (MIN) x FOOTING WIDTH WIDE  
PIER FOUND 100mm INTO NATURAL SOIL.  
REINFORCE WITH 4/N12 RODS VERTICAL WHERE  
DEPTH BELOW BASE OF FOOTING EXCEEDS  
400mm. EXTENT OF PIERS TO BE CONFIRMED  
ON SITE.

 SET DOWN IN RAFT SLAB REFER TO FOOTING  
CONSTRUCTION REPORT FOR DETAILS. ENSURE  
FOOTING DEPTHS ARE MAINTAINED BELOW SET  
DOWN.

 125mm THICK SLAB WITH TWO LAYERS OF  
MESH. ONE LAYER PLACED WITH 20mm TOP  
COVER AND THE OTHER WITH 30mm BOTTOM  
COVER. REFER TO SLAB NOTES FOR MESH  
SIZE. AREA SHOWN HATCHED IS INDICATIVE  
ONLY AND IS TO BE CONFIRMED ON SITE.



## NOTES:

ANY SURPLUS SPOIL FROM SITEWORKS IS THE OWNERS RESPONSIBILITY AND SHOULD BE REMOVED OR DISPERSED AS APPROPRIATE. UNLESS STATED OTHERWISE IN THE BUILDING CONTRACT, THIS SPOIL SHOULD BE STOCKPILED SUCH THAT IT DOES NOT OBSTRUCT SITE ACCESS AND CAN BE EASILY REMOVED FROM THE SITE.

THE REMAINING WALLS SHOWN ON THIS PLAN ARE TO BE CONSTRUCTED BY THE OWNER EXCEPT WHERE THE REMAINING WALL FORMS PART OF THE BUILDING STRUCTURE OR WHERE ANY OTHER WORKS WITH THE BUILDING CONTRACT. ALL EXISTING WORKS WITH THE BUILDING CONTRACT ARE TO BE REMOVED PRIOR TO THE START OF THE BUILDING WORKS. THE REMAINING WALLS SHOWN ON THIS PLAN ARE TO BE CONSTRUCTED BY THE OWNER EXCEPT WHERE THE REMAINING WALL FORMS PART OF THE BUILDING STRUCTURE OR WHERE ANY OTHER WORKS WITH THE BUILDING CONTRACT. ALL EXISTING WORKS WITH THE BUILDING CONTRACT ARE TO BE REMOVED PRIOR TO THE START OF THE BUILDING WORKS.

OWNER TO RETAIN ANY MINOR CUT/FILL ON THE BOUNDARIES WITH A CONCRETE PLINTH, SLEEPER OR SIMILAR.

2.0 KILOLITRE THIN COMBINATION DETENTION/RETENTION TANK (1.0 KILOLITRE FOR DETENTION AND 1.0 KILOLITRE FOR RETENTION – BY OWNER). RETENTION SECTION OF TANK TO BE PLUMED TO AT LEAST A WC, WATER HEATER OR ALL LANDRY COLD WATER OUTLETS. THE TANK SHALL ALSO BE LOADED INTO THE MAINS WATER SYSTEM. REFER TO DETAIL SHEET FOR TANK SETUP.

STORMWATER PIPES AS A SEALED SYSTEM USED TO CONNECT RRI1 TO RRI2 TO COMBINATION TANK. REFER TO FOOTING CONSTRUCTION REPORT ATTACHMENT SHEET S51.

STORMWATER PIPES AS A SEALED SYSTEM (90% PVC U/N/O) USED TO CONNECT COMBINATION TANK OVERFLOW/OUTLET PIPE AND PIPES NOT CONNECTED TO TANK TO THE STREET WATER TABLE (VIA THE FRONT BOUNDARY SLUMP).

STORMWATER PIPES UNDER GRASSY FLOW USED TO CONNECT SURFACE STORMWATER DRAINS TO THE PIT/PUMP CHAMBER.

ENSURE GRASSY FLOW PIPES MAINTAIN SUFFICIENT GRADE TO MEET THE APPROPRIATE OUTLET AS SHOWN ON THIS PLAN. CONSTRUCT ANY SEALED SYSTEM PIPES SUCH THAT THEY DO NOT INTERFERE WITH THE GRASSY FLOW SYSTEM.

WHERE GRATED SURFACE STORMWATER SLUMPS ARE USED GRADE SOL/PAVING IN TOWARDS SLUMPS IN ACCORDANCE WITH THE "BENCH" NOTES ON THIS PAGE. ALTERNATIVELY CONSTRUCT UNLINED SPOON DRAINS WITH 0.3% GRADIENT AS PER THE DETAILS ON ATTACHMENT SHEET PD1.

SLUMP SIZES AND QUANTITY ARE DIAGRAMATIC ONLY. ADDITIONAL AND/OR LARGER SLUMPS MAY BE REQUIRED DEPENDING ON AREAS THEY SERVICE AND PAVEMENT TYPE USED.

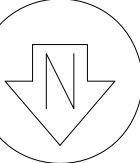
## PARAMETERS FOR DESIGN:

- (TO BE CONFIRMED BY THE BUILDER AS CORRECT PRIOR TO ANY COUNCIL APPROVALS BEING ISSUED):
  - 25mm MAX DEEP REBATE
  - PERIMETER PAINTING SETDOWN 75mm BELOW UNDERSIDE OF REBATE (Visual perimeter fence management provided to AS 3660)
  - SEGMENTAL BLOCK/BRICK PAINTING TO BE USED FOR PARKS AND DRIVEWAYS (DRAINWAY/LIGHT VEHICULAR TRAFFIC)
    - 60mm THICK (DRAINWAY/LIGHT VEHICULAR TRAFFIC)
    - 40mm THICK (PEDESTRIAN TRAFFIC)
  - PERIMETER PAINTING TO BE 1000mm WIDE
  - PERIMETER PAINTING CROSS-FALL AS PER "BENCH" NOTES
- IF ANY OF THE ABOVE PARAMETERS ARE CHANGED/ALTERED OR SETDOWNS ARE DIFFERENT, A REVIEW OF THIS PLAN WILL BE NECESSARY.

2.9 L/s AND A PIT VOLUME OF 4.5m<sup>3</sup>.

THE ABOVE REQUIREMENTS ARE BASED ON THE FOLLOWING ASSUMPTIONS: COUNCIL TO CONFIRM THE BELOW CRITERIA AND/OR ANY ADDITIONAL REQUIREMENTS PRIOR TO ANY APPROVALS BEING ISSUED.

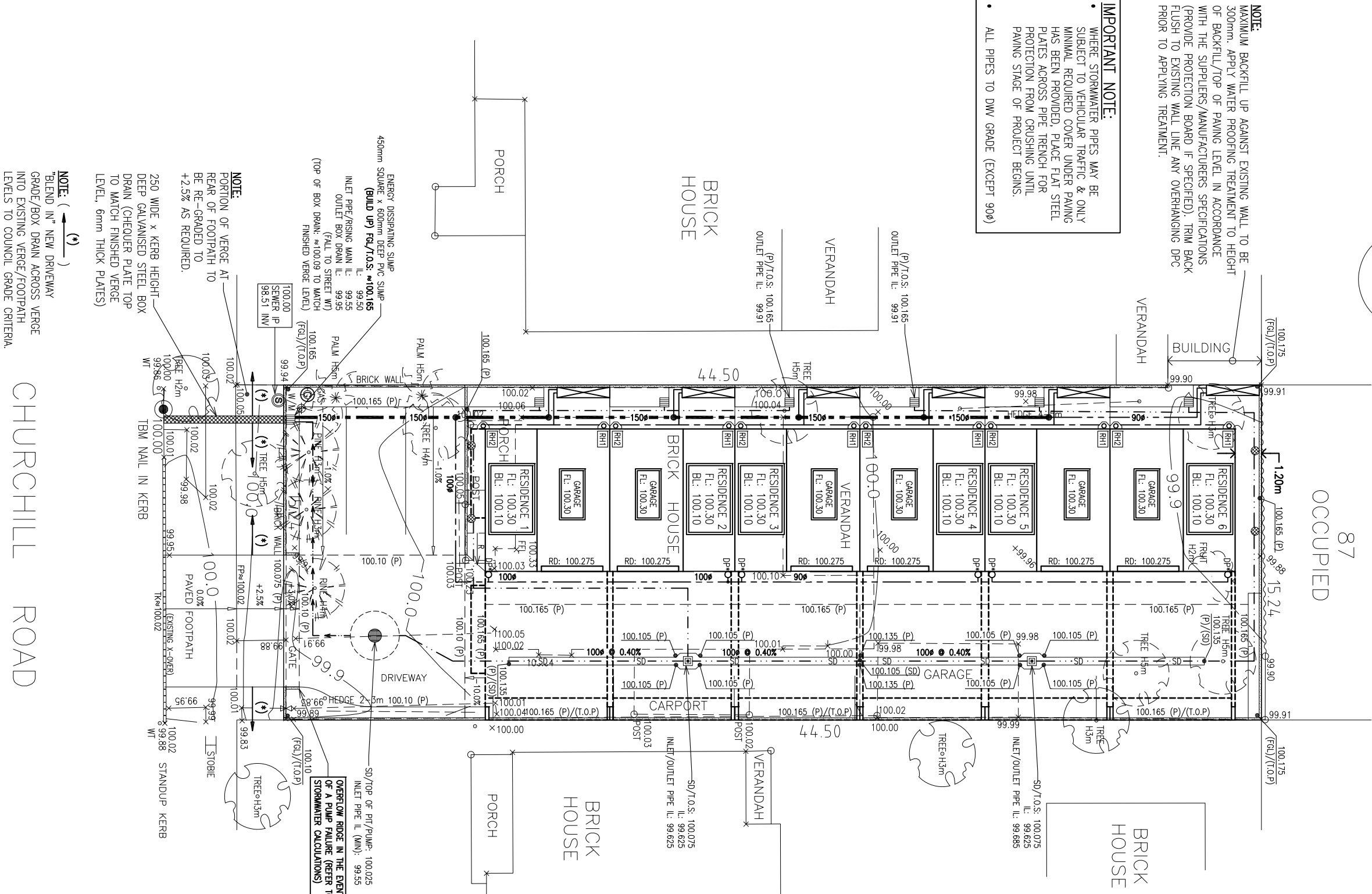
- TWO PUMPS SHALL BE PROVIDED, EACH CAPABLE OF THE DESIGN FLOW RATES.
- THE PUMPS SHALL BE CONFIGURED TO AUTOMATICALLY START AS THE DUTY PUMP.
- THE DUTY PUMP SHALL BE CONFIGURED TO AUTOMATICALLY REVERT TO THE ALTERNATE PUMP & A VISIBLE ALARM BE INITIATED IN THE EVENT THAT THE DUTY PUMP FAILS.
- IN THE EVENT THAT BOTH PUMPS FAIL TO OPERATE, AN AUDIBLE ALARM SHALL BE INITIATED.
- (--->--->) DESIGNATES RISING MAIN TO FRONT SLUMP/STREET WATER TABLE WHICH EVER APPLICABLE – REFER TO PLAN.



NOTE: 300mm BICYCLIST UP AGAINST EXISTING WALL TO BE 300mm APPLY WATER PROOFING TREATMENT TO HEIGHT OF BICYCLIST TOP OF PAVING LEVEL IN ACCORDANCE WITH THE SUPPLIERS MANUFACTURERS SPECIFICATIONS (PROVIDE PROTECTION BOARD IF SPECIFIED). TRIM BACK FLUSH TO EXISTING WALL LINE. ANY OVERHANGING PRC PRIOR TO APPLYING TREATMENT.

## IMPORTANT NOTE:

- WHERE STORMWATER PIPES MAY BE SUBJECT TO VEHICULAR TRAFFIC & ONLY MINIMAL REQUIRED COVER UNDER PAVING HAS BEEN PROVIDED, PLACE FLAT STEEL PROTECTION FROM CRUSHING UNTIL PAVING STAGE OF PROJECT BEGINS.
- ALL PIPES TO DWV GRADE (EXCEPT 900)



## SITEWORKS PLAN

(THIS PLAN IS TO BE READ IN CONJUNCTION WITH SEWER PLAN – SHEET 2 OF 2)

## SITEWORKS PLAN

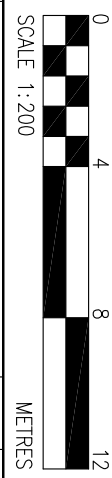
ADDRESS: No. 162 Churchill Road, PROSPECT, SA

CLIENT: HOUSE & LAND SA

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JOB No. C22944  
SHEET No. 1 of 2  
ISSUE No. B

DRAWN: H.C. DESIGNED: D.A. DATE: 20-Feb-17



SCALE 1:200

No.	REVISION	BY	DATE
A.	RE-DESIGN TO 6 DWELLINGS	H.C.	10/06/17
B	SOIL CLASSIFICATION AMENDED. (SOILS RECEIVED)	J.M	07/07/17


## GENERAL NOTES:

SITEWORKS AND STORMWATER DRAINAGE ARE TO BE CONSTRUCTED BY THE OWNER OR THE OWNERS REPRESENTATIVE (I.E. THE BUILDER WHERE STATED WITHIN THE BUILDING CONTRACT). THIS DOCUMENT IS TO BE READ IN CONJUNCTION WITH THE FOOTING CONSTRUCTION REPORT AND ARCHITECTURAL DRAWINGS. ANY DISCREPANCIES ARE TO BE REPORTED TO THIS OFFICE IMMEDIATELY.

## SOIL CLASSIFICATION:

- S/M-D
- 10mm THICK LAGGING AROUND STORMWATER AND SEWER DRAIN PENETRATIONS THROUGH EXTERNAL FOOTINGS
- FLEXIBLE CONNECTIONS IN SEWER & STORMWATER DRAINS ARE NOT REQUIRED
- BENCH: BUILDING AREA TO BE BENCHMARKED TO 200mm BELOW THE FINISHED FLOOR LEVEL.
- GRADE SITE AWAY FROM HOUSE AS FOLLOWS:-
- GRADE PAVED AREAS 25mm IN 1000mm
- GRADE GRASSED AREAS 5mm IN 1000mm

## STORMWATER:

- GRAVITY FLOW STORMWATER SYSTEM IS TO BE LAID @ 1 IN 250 MIN GRADE WITH 100mm MIN COVER EXCEPT AS NOTED BELOW UNDERSIDE OF PAVING:-
- 50mm (SUBJECT TO PEDESTRIAN TRAFFIC)
- 75mm (SUBJECT TO LIGHT VEHICULAR TRAFFIC)
- 450mm (UNPAVED DRIVEWAYS)
- WHERE COVER CANNOT BE ACHIEVED ENCLOSE STORMWATER PIPE WITHIN A CAST IRON SLEEVE OF THICKNESS:-
- 2.9mm (SUBJECT TO PEDESTRIAN TRAFFIC)
- 5.0mm (SUBJECT TO LIGHT VEHICULAR TRAFFIC)

SURVEY: THIS IS NOT A BOUNDARY SURVEY, THEREFORE THE RELATIONSHIP BETWEEN OCCUPATION AND THE PLOTTED BOUNDARY IS INDICATIVE. LEVELS ARE BASED ON A TEMPORARY DATUM (UNO). THE DATUM (SHOWN ON THIS PLAN) IS TO BE LOCATED PRIOR TO COMMENCING SITEWORKS.

## DESIGN LEGEND

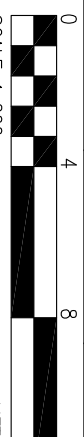
- 250 SQUARE x 250 DEEP "BENCH" RAINWATER PIT (PVO), (SERIES 250) OR SIMILAR (UNO)
- GRADED SURFACE STORMWATER DRAIN 900 (UNO)
- STORMWATER PIPE (GRAVITY FLOW) – 1000 PVC (UNO) AT 1 IN 250 (0.4%) MIN FALL (UNO)
- STORMWATER PIPE (SEALED SYSTEM) – 900 PVC (UNO)

EXISTING TREES AND STRUCTURES ON SITE TO BE DEMOLISHED/REMOVED BY OWNER PRIOR TO CONSTRUCTION UNLESS OTHERWISE STATED.

## SURVEY LEGEND

- TEMPORARY BENCH MARK
- CABLE PIT
- STOIBE
- PIN/SPIKE/NAIL
- WATER METER
- PEG FOUND
- SEWER IP
- PSM
- ELECTRICITY
- GAS
- PALM TREE
- BRUSH FENCE
- PINE TREE
- G1 FENCE
- TREE
- IF FENCE EXISTING RETAINING WALL TREE DIMENSIONS ARE NOTED AS:
- H: TREE HEIGHT
- C: TRUNK CIRCUMFERENCE
- B: TRUNK DIAMETER
- S: TREE CANOPY SPREAD





No.	REVISION	BY	DATE
A.	RE-DESIGN TO 6 DWELLINGS	H.C.	10.06.17
B	SOIL CLASSIFICATION AMENDED. (SOILS RECEIVED)	J.M	07.07.17

**GENERAL NOTES:**  
SITEWORKS AND STORMWATER DRAINAGE ARE TO BE CONSTRUCTED BY THE OWNER OR THE OWNERS REPRESENTATIVE (IE. THE BUILDER WHERE STATED WITHIN THE BUILDING CONTRACT). THIS DOCUMENT IS TO BE READ IN CONJUNCTION WITH THE FOOTING CONSTRUCTION REPORT AND ARCHITECTURAL DRAWINGS. ANY DISCREPANCIES ARE TO BE REPORTED TO THIS OFFICE IMMEDIATELY.

- SOIL CLASSIFICATION: S/M-D**
- 10mm THICK LAGGING AROUND STORMWATER AND SEWER DRAIN PENETRATIONS THROUGH EXTERNAL FOOTINGS
  - FLEXIBLE CONNECTIONS IN SEWER & STORMWATER DRAINS ARE NOT REQUIRED
- BENCH:**  
BUILDING AREA TO BE BENCHMARKED TO 200mm BELOW THE FINISHED FLOOR LEVEL.  
GRADE SITE AWAY FROM HOUSE AS FOLLOWS:-
- GRADE PAVED AREAS 25mm IN 1000mm
  - GRADE GRASSSED AREAS 5mm IN 1000mm

**SEWER:**  
THIS SEWER DESIGN IS BASED ON THE SHORTEST POSSIBLE RUN, BUILDER/PLUMBER TO CONFIRM SEWER CONNECTION INVERT LEVEL AND ASSUMED LAYOUT PROVIDED ON THIS DRAWING. CONTACT THIS OFFICE IMMEDIATELY IF ANY DISCREPANCIES EXIST AS THE FLOOR LEVEL AND/OR UNDERMINING PIER DEPTHS MAY NEED TO BE REVISED.  
TOP OF FLOOD GULLY AND PAVING AROUND FLOOD GULLY TO BE CONSTRUCTED 150mm BELOW THE LOWEST FUTURE CONNECTED TO THE DRAIN.

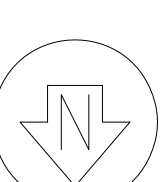
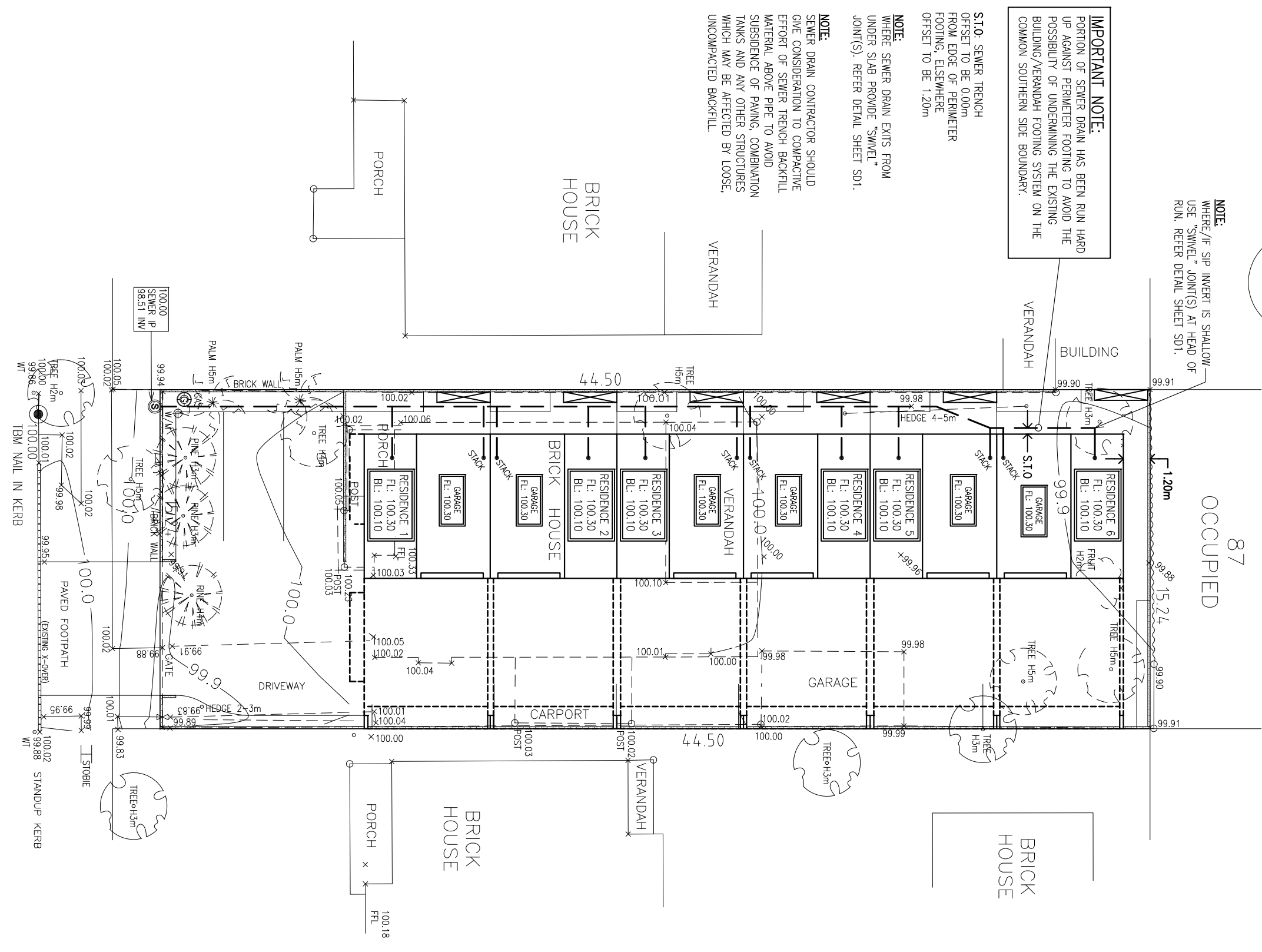
**SURVEY:**  
THIS IS NOT A BOUNDARY SURVEY. THEREFORE THE RELATIONSHIP BETWEEN OCCUPATION AND THE PLOTTED BOUNDARY IS INDICATIVE. LEVELS ARE BASED ON A TEMPORARY DATUM (JNO). THE DATUM (SHOWN ON THIS PLAN) IS TO BE LOCATED PRIOR TO COMMENCING SITEWORKS.

#### DESIGN LEGEND

- : INTERNAL SEWER DRAIN LOCATION (TO BE CONFIRMED BY BUILDER)  
--- : SEWER PIPE 100mm MIN AT 1.65% MIN (1 IN 60)  
--- : BATTERS/EAIRHWORK EMBANKMENTS TO BE BUILT OR BATTER  
--- : EXISTING TREES AND STRUCTURES ON SITE TO BE DEMOLISHED/REMOVED BY OWNER PRIOR TO CONSTRUCTION UNLESS OTHERWISE STATED.

#### SURVEY LEGEND

- TEMPORARY BENCHMARK  
⊕ STOBIE  
⊕ WATER METER  
⊕ SEWER IP  
⊕ ELECTRICITY  
✕ PALM TREE  
✕ PINE TREE  
⊕ TREE  
--- IF FENCE EXISTING RETAINING WALL  
--- TREE DIMENSIONS ARE NOTED AS:  
H: TREE HEIGHT  
B: TREE DIAMETER  
C: TRUNK CIRCUMFERENCE  
S: TREE CANOPY SPREAD
- CABLE PIT  
● PIN/SPIKE/NAIL  
■ PEG FOUND  
■ PSM  
⊕ GAS  
○ BRUSH FENCE  
○ G1 FENCE



**NOTE:**  
WHERE/IF SIP INVERT IS SHALLOW USE "SWAEL" JOINT(S) AT HEAD OF RUN. REFER DETAIL SHEET SD1.

**IMPORTANT NOTE:**  
PORTION OF SEWER DRAIN HAS BEEN RUN HARD UP AGAINST PERIMETER FOOTING TO AVOID THE POSSIBILITY OF UNDERMINING THE EXISTING BUILDING/VERANDAH FOOTING SYSTEM ON THE COMMON SOUTHERN SIDE BOUNDARY.

**S10 - SEWER TRENCH**  
OFFSET TO BE 0.00m FROM EDGE OF PERIMETER FOOTING, ELSEWHERE OFFSET TO BE 1.20m

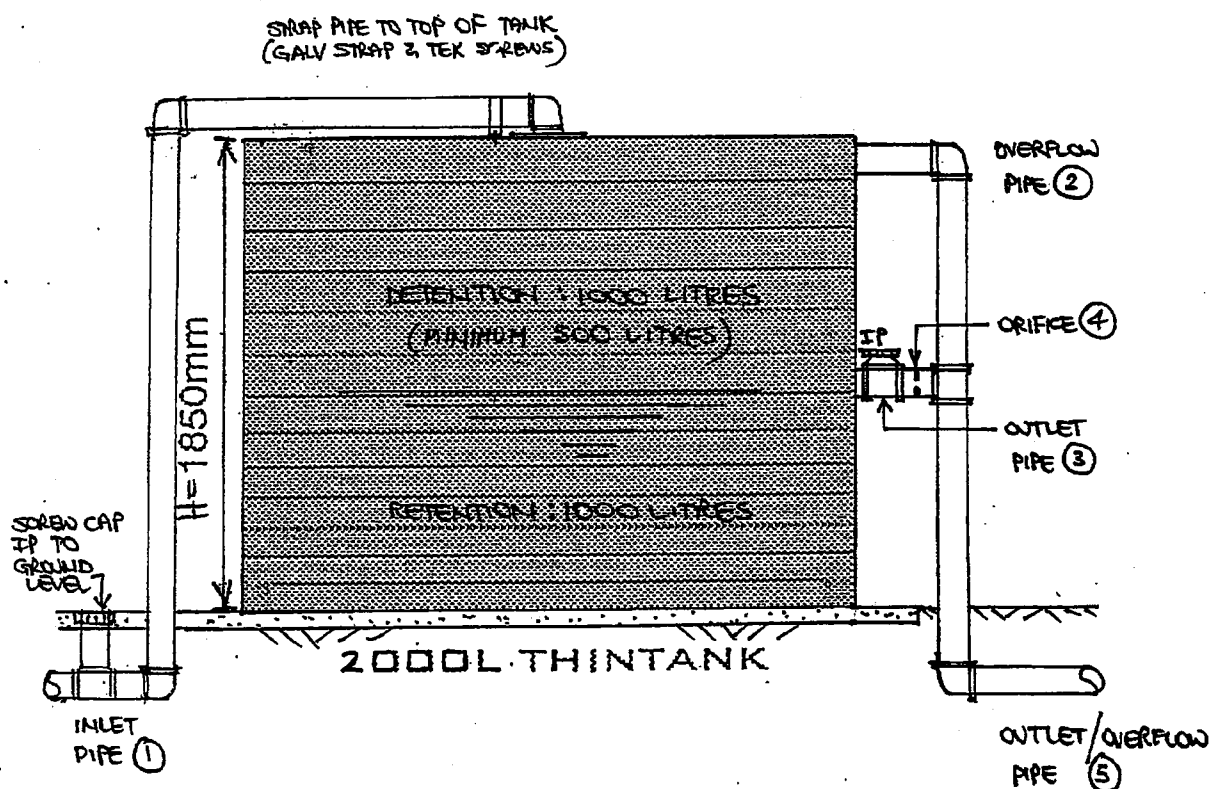
**NOTE:**  
WHERE SEWER DRAIN EXITS FROM UNDER SLAB PROVIDE "SWAEL" JOINT(S). REFER DETAIL SHEET SD1.

**NOTE:**  
SEWER DRAIN CONTRACTOR SHOULD GIVE CONSIDERATION TO COMPACTIVE EFFORT OF SEWER TRENCH BACKFILL MATERIAL ABOVE PIPE TO AVOID SUBSIDENCE OF PAVING. COMBINATION TANKS AND ANY OTHER STRUCTURES WHICH MAY BE AFFECTED BY LOOSE, UNCOMPACTED BACKFILL.

CHURCHILL ROAD

PROJECT:	No. 162 Churchill Road, Prospect			
CLIENT:	House and Land SA			
JOB No:	C22944	SHEET:		CHECK:
DATE:	Jun 2017	By:		Rev: A

"THIN TANK" SETUP (MAXIPLAS OR SIMILAR)  
(DIAGRAMMATIC)



- ① INLET PIPE  $\phi = 90\text{mm}$
- ② OVERFLOW PIPE  $\phi = 90\text{mm}$
- ③ OUTLET PIPE  $\phi = 90\text{mm}$
- ④ ORIFICE  $\phi = 10\text{mm}$
- ⑤ OUTLET/OVERFLOW PIPE  $\phi = 90\text{mm}$

NOTE: support base for tank as per the suppliers recommendation (base or support should be seated on firm natural ground or if found in fill, then fill should be placed ideally as controlled fill or base should be pierced to natural)

### Pre Development Flow Rate from Site

ARI Stormwater event: 20 years  
Time of Concentration: 10 minutes  
Intensity: 88.93 mm/hr

Building /Site use	Area m <sup>2</sup>	Runoff Coefficients
Roof	270	1.00
Paving	85	0.90
Garden	323	0.25
Total		678 m <sup>2</sup>

Weighted runoff coefficient (Cw) = 0.63

$$Q = C \cdot I \cdot A \cdot 10^{(-4)/360}$$

**Q = 10.55 l/s**

### Post Development Flow Rate from Site

Allowable Outflow rate: 10.55 l/s

### Consider Flow Rate from Roof

	Area m <sup>2</sup>
Total Roof	420
% to Tank	55
% To Street	45

	Area m <sup>2</sup>	Runoff Coefficient
Roof To Tank	231	1.00
Total		231 m <sup>2</sup>

Weighted runoff coefficient (Cw) = 1.000

Tank Storage = 3000 litres (500 Litres x 6 Dwellings)  
Tank flow from site = 1.14 l/s (0.19 l/s x 7 Dwellings)

Return Period

Time of concentration: 15 min

Duration mins	Intensity (i) mm/hr	Flow Rate (Q) m3/s	inflow m3	outflow m3	Storage Required	Overflow m3	Overflow Flow Rate l/s
5	120.65	0.0077	2.3	0.7	1.6	0.0	0.00
6	111.98	0.0072	2.6	0.7	1.9	0.0	0.00
10	88.93	0.0057	3.4	0.9	2.6	0.0	0.00
15	72.37	0.0046	4.2	1.0	3.2	0.2	0.17
20	61.79	0.0040	4.8	1.2	3.6	0.6	0.47
25	54.31	0.0035	5.2	1.4	3.9	0.9	0.57
30	48.69	0.0031	5.6	1.5	4.1	1.1	0.60
40	40.73	0.0026	6.3	1.9	4.4	1.4	0.58
50	35.3	0.0023	6.8	2.2	4.6	1.6	0.52
60	31.32	0.0020	7.2	2.6	4.7	1.7	0.46
90	24.02	0.0015	8.3	3.6	4.7	1.7	0.32
120	19.83	0.0013	9.2	4.6	4.5	1.5	0.21
180	15.08	0.0010	10.5	6.7	3.8	0.8	0.07

$$Q = C \cdot I \cdot A \cdot 10^{(-4)/360}$$

	Area m2	Runoff Coefficient
Roof To Street	189	1.00

Total 189 m<sup>2</sup>

Duration mins	Intensity (i) mm/hr	Flow Rate (Q) l/s
5	120.65	6.33
6	111.98	5.88
10	88.93	4.67
15	72.37	3.80
20	61.79	3.24
25	54.31	2.85
30	48.69	2.56
40	40.73	2.14
50	35.3	1.85
60	31.32	1.64
90	24.02	1.26
120	19.83	1.04
180	15.08	0.79

$$Q = C \cdot I \cdot A \cdot 10^{(-4)/360}$$

Max Outflow From Roof to Street In Critical Storm =

7.47 l/s (Orifice + Tank O/flow + Roof to Street)

### Consider Flow rate From Un-Detained Surface Stormwater (Driveway/Front Yard)

Intensity: 88.93 mm/hr (20 year ARI 10 Minute Duration)

Building /Site use	Area m <sup>2</sup>	Runoff Coefficients
Paving	5	0.90
Garden	7	0.10
Total		12 m <sup>2</sup>

Weighted runoff coefficient (Cw) = 0.43

$$Q = C \cdot I \cdot A \cdot 10^{(-4)}/360$$

$$Q = 0.13 \text{ l/s}$$

Therefore Max Allowable Outflow From Pit/Pump=  
(Refer to Pit/Pump Calculations)

2.95 l/s (Pre Flow Rate - Roof Outflow - Undetained Surface Water)

### Detention Tank Orifice Size

Flow rate from tank 0.19 l/s

$$Q = AC(2gH)^{(1/2)}$$

C = 0.6

A = Orifice area

g = 9.8 m/s<sup>2</sup>

Q = Outflow

Consider total head 800 mm

Area = 80.0 mm<sup>2</sup>

Therefore Diameter = 10 mm

**Sump Pump Design - Prospect Council**

Job No: 22944-A  
 Address: No. 162 Churchill Road, Prospect  
 Client: House & Land SA

Contributory Area = 441 m<sup>2</sup>

Rear Facade Area = 195 m<sup>2</sup> (2/3 of area allowing for some shielding)  
 Paved Area = 210 m<sup>2</sup>  
 Open area = 36 m<sup>2</sup>

**Pumping Rate**

Design Storm Event 1:20 years ARI Storm  
 Roof System Capacity 1:20 years ARI Storm

Run-off Coefficient

Facade Area =	195 m <sup>2</sup>	1
Paved Area =	210 m <sup>2</sup>	0.9
Open area =	36 m <sup>2</sup>	0.1
Run-off Coefficient (weighted Average)		0.88

Pump Rate = 2.9 L/sec (minimum)

TC	Intensity 1:20		Flow 1:20 Q <sub>paved</sub>	1:20 Q <sub>open</sub>	1:20 Q <sub>facade</sub>	Q <sub>in</sub>	Q <sub>out</sub>	Vol in	Vol out	Storage
5	121.0	121.0	6.35	0.12	6.55	13.03	2.9	3908	870	3038
7	105.0	105.0	5.51	0.11	5.69	11.31	2.9	4748	1218	3530
10	89.0	89.0	4.67	0.09	4.82	9.58	2.9	5749	1740	4009
15	72.0	72.0	3.78	0.07	3.90	7.75	2.9	6977	2610	4367
20	62.0	62.0	3.26	0.06	3.36	6.68	2.9	8010	3480	4530
25	54.0	54.0	2.84	0.05	2.93	5.81	2.9	8721	4350	4371
30	48.7	48.7	2.56	0.05	2.64	5.24	2.9	9438	5220	4218
35	44.3	44.3	2.33	0.04	2.40	4.77	2.9	10016	6090	3926
40	40.7	40.7	2.14	0.04	2.20	4.38	2.9	10517	6960	3557
45	37.8	37.8	1.98	0.04	2.05	4.07	2.9	10988	7830	3158
50	35.3	35.3	1.85	0.04	1.91	3.80	2.9	11402	8700	2702
55	33.2	33.2	1.74	0.03	1.80	3.57	2.9	11796	9570	2226
60	31.3	31.3	1.64	0.03	1.70	3.37	2.9	12132	10440	1692
90	24.0	24.0	1.26	0.02	1.30	2.58	2.9	13954	15660	-1706
120	19.8	19.8	1.04	0.02	1.07	2.13	2.9	15349	20880	-5531
180	15.1	15.1	0.79	0.02	0.82	1.63	2.9	17558	31320	-13762
Required Tank Volume for selected pump rate (L)										4530

Therefore Adopt pump with 2.9 L/sec Pumping Rate  
 Total Storage Capacity/Tank Volume = 4530 L (Min)

**Design Ideology: (To be confirmed by council as satisfactory)**

Driveway has been designed to have an overland flow path to the street therefore sump/pump design has been based on a 1:20 year storm event allowing for an overland flow path for a 1:100 year storm event in conjunction with the specified pumping rate or a pump failure.