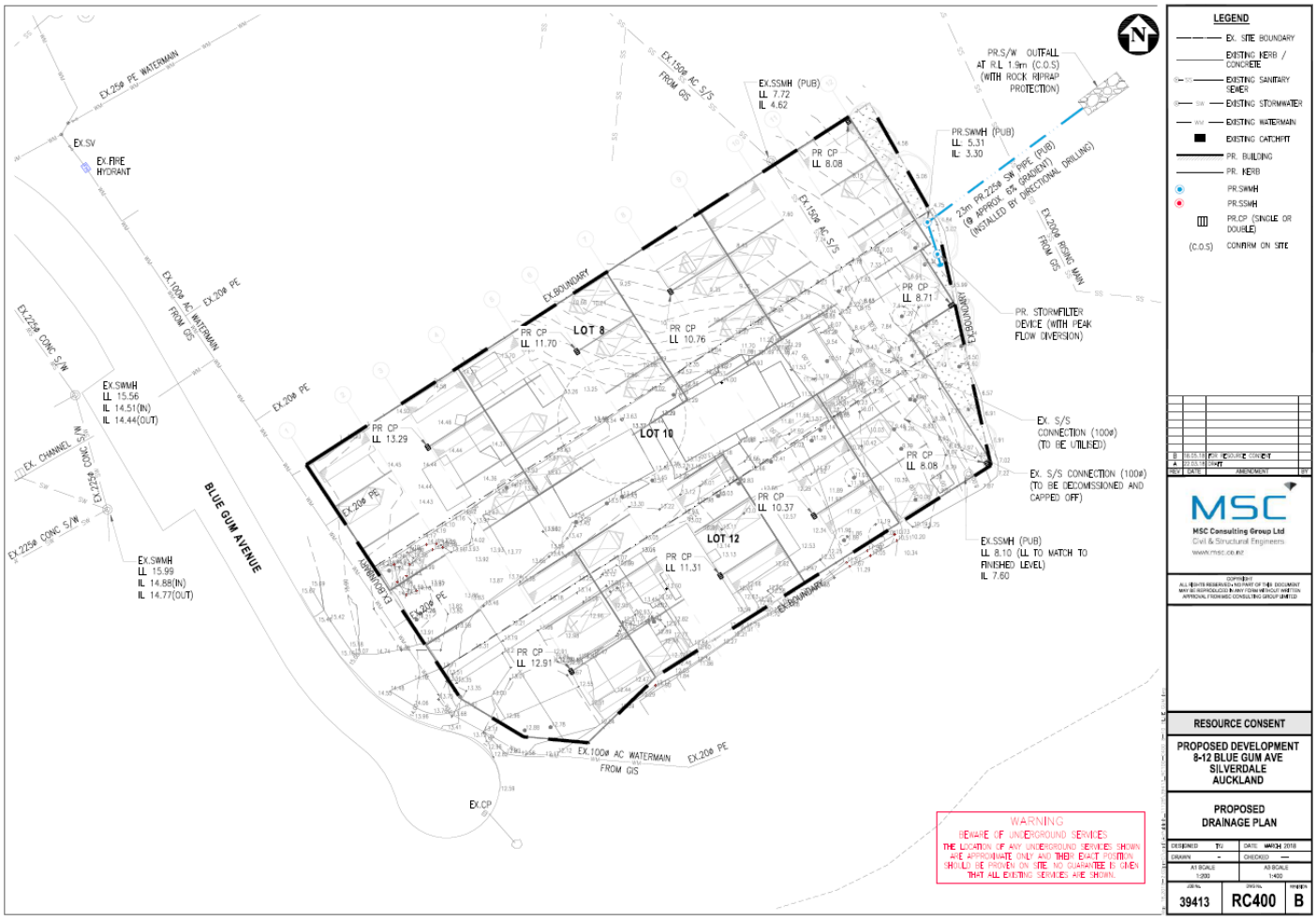

Figure 1: Proposed drainage plan

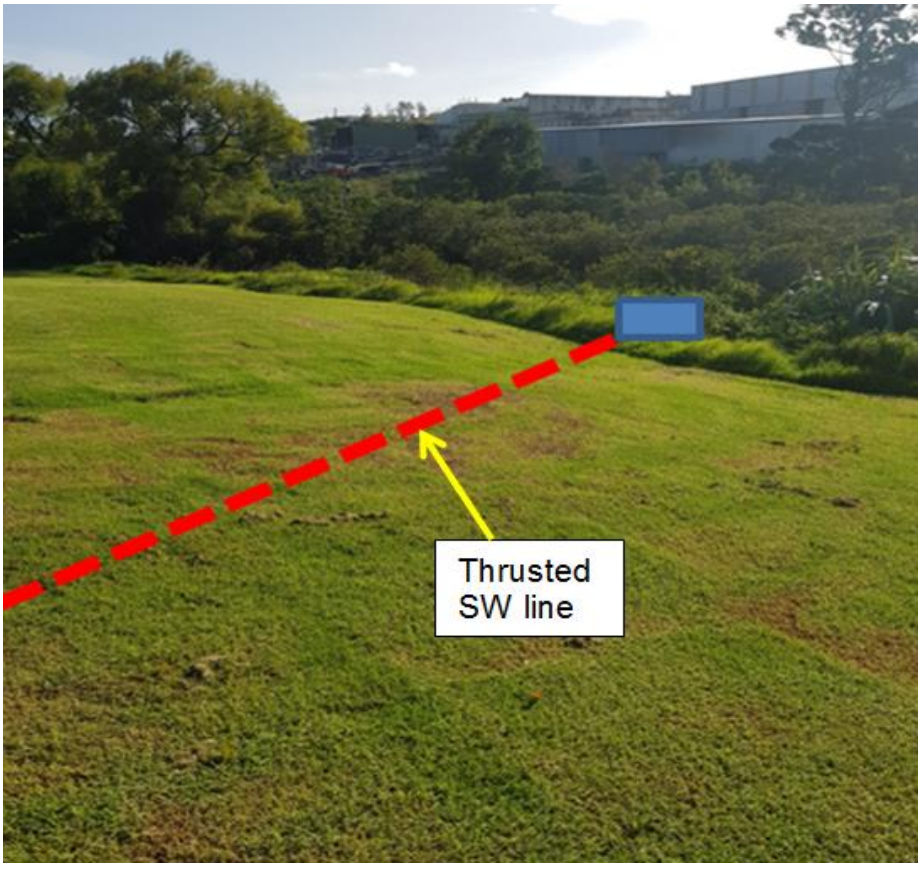

Figure 2: Approximate location of the storm water infrastructure

STORMWATER CATCHMENT AND PIPE ANALYSIS

18/05/2018 By: TYJ Reference No: 39413

Project: 8-12 Blue Gum Ave, Silverdale

Assumptions:

c=0.9 for roof areas
c=0.85 for paved areas
c=0.3 for permeable areas

design rainfall: 96.6mm/hr to reflect HIRDs V3 10% AEP (w/cc)

8, 10 & 12 Blue Gum

Area (ha)	C No.	Int (mm/hr)	Q = 2.78CiA	
0.3701	0.90	96.6	89.45	Assumed 80% imperviousness
	0.85	96.6	0.00	

Max.Flow (L/Sec) 89.45

14 Blue Gum Ave. (Neighboring site) - MPD

Area (ha)	C No.	Int (mm/hr)	Q = 2.78CiA	
0.0912	0.90	96.6	22.04	Assumed 80% imperviousness
	0.85	96.6	0.00	

Max.Flow (L/Sec) 22.04

Max.Flow (Combined) (L/Sec) 111.49

	Roughness Factor	Pipe size(mm)	Grade(1 in)	%
	1.5	225	16.67	6

VELOCITY (m/sec)	2.82	
CAPACITY (Q = VA)	112.05	(> Max. flow (combined), i.e. ok)

Extreme rainfall assessment with climate change

Projected temperature change: 2.1° C
Rainfall intensities (mm/h)

		Duration									
ARI (y)	aep	10m	20m	30m	60m	2h	6h	12h	24h	48h	72h
1.58	0.633	65.4	47.1	38.6	27.8	17.9	9.0	5.8	3.7	2.2	1.6
2.00	0.500	69.6	50.1	41.2	29.7	19.2	9.6	6.2	4.0	2.4	1.7
5.00	0.200	84.6	61.2	50.6	36.7	24.0	12.3	8.1	5.3	3.1	2.3
10.00	0.100	96.6	70.2	58.2	42.2	27.9	14.5	9.6	6.4	3.8	2.9
20.00	0.050	109.8	80.1	66.4	48.2	32.2	17.0	11.3	7.6	4.5	3.3
30.00	0.033	118.2	86.4	71.8	52.2	35.1	18.7	12.5	8.4	5.0	3.7
40.00	0.025	124.8	91.2	75.6	55.0	37.1	19.8	13.3	9.0	5.3	3.9
50.00	0.020	130.2	95.1	78.8	57.3	38.6	20.7	14.0	9.4	5.6	4.1
60.00	0.017	134.4	98.1	81.2	59.2	40.0	21.5	14.5	9.8	5.8	4.3
80.00	0.012	141.6	102.9	85.8	62.4	42.3	22.8	15.5	10.5	6.2	4.6

Figure 3: Storm water calculations