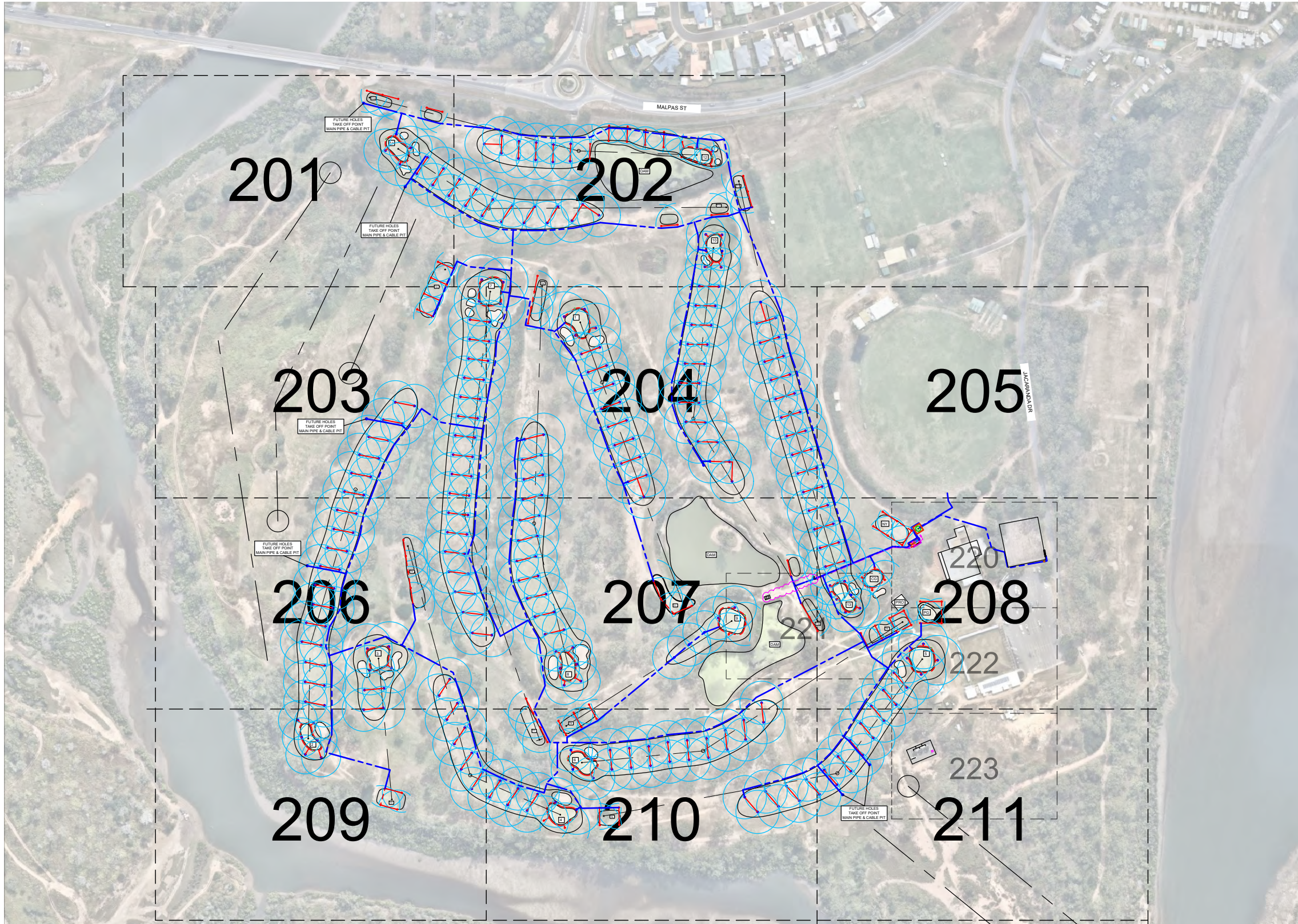


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DRAWING TABLE		
DRAWING NUMBER	TITLE	REV
15888-200	BITS GOLF COURSE - KEY PLAN	A
15888-200-1	BITS GOLF COURSE - ROTOR PERFORMANCE DATA	A
15888-201	BITS GOLF COURSE - LAYOUT 1	A
15888-202	BITS GOLF COURSE - LAYOUT 2	A
15888-203	BITS GOLF COURSE - LAYOUT 3	A
15888-204	BITS GOLF COURSE - LAYOUT 4	A
15888-205	BITS GOLF COURSE - LAYOUT 5	A
15888-206	BITS GOLF COURSE - LAYOUT 6	A
15888-207	BITS GOLF COURSE - LAYOUT 7	A
15888-208	BITS GOLF COURSE - LAYOUT 8	A
15888-209	BITS GOLF COURSE - LAYOUT 9	A
15888-210	BITS GOLF COURSE - LAYOUT 10	A
15888-211	BITS GOLF COURSE - LAYOUT 11	A
15888-212	BITS GOLF COURSE - LAYOUT 12	A
15888-220	BITS GOLF COURSE WATER SUPPLY - LAYOUT 1	A
15888-221	BITS GOLF COURSE WATER SUPPLY - LAYOUT 2	A
15888-222	BITS GOLF COURSE WATER SUPPLY - LAYOUT 3	A
15888-223	BITS GOLF COURSE WATER SUPPLY - LAYOUT 4	A

**KEY DESIGN DATA - CONCEPT STAGE  
BITS GOLF CLUB**

<b>GOLF COURSE - CURRENT 13 HOLES</b>	
CURRENT AREA (13 HOLES)	11.4 HA
SOIL, TYPICAL	LOAM
PLANT	SPORTS TURF - HIGH USE
PLANT FACTOR	0.8 (OPTIMUM GROWTH)
WINDOW	7.00PM TO 4.00AM
IRRIGATION TIME	9 HR/DAY
PEAK DEMAND	34 MM/WK
PUMP DUTY CAPACITY	Q= 22 (30 <sup>^</sup> ) l/s @ H=70M
ROTOR GROUPING RANGE:	UP TO 15 X ROTORS
EXISTING PS POWER	22KW (40 FLA @ 415V) FIXED - GOLF
NEW PUMP POWER	33KW <sup>^</sup> (60 FLA @ 415V) VFD - GOLF
PEAK VOLUME, WEEK	3.9 ML/WK
AVERAGE VOLUME, YEAR	66 ML/YR
ASSUMES YEAR ROUND USAGE & IRRIGATION PROGRAM	
<b>ESTIMATES FOR FUTURE GOLF DEMAND - 18 HOLES<sup>^</sup></b>	
AREA	15.8
PUMP FUTURE CAPACITY	Q= 30 L/S @ H= 70M
PEAK VOLUME, WEEK	5.4 ML/WK
AVERAGE VOLUME, YEAR	92 ML/YR
<b>POWER SUPPLY - EXISTING BITS PUMPS</b>	
POWER/LOAD - GOLF	22KW / 40FLA @ 415
POWER/LOAD - SPORTS	22KW / 40FLA @ 415
POWER / LOAD - GOLF + SPORTS	44KW / 80FLA @ 415V
<b>POWER SUPPLY - NEW BITS PUMPS</b>	
INCLUDES FUTURE CAPACITY	
POWER/LOAD - GOLF 13 HOLES	22KW / 40FLA @ 415V
POWER/LOAD - GOLF 18 HOLES	33KW / 40FLA @ 415V
POWER/LOAD - SPORTS	11KW / 40FLA @ 415V
POWER / LOAD - GOLF + SPORTS	44KW / 80FLA @ 415V

**KEY DESIGN DATA - CONCEPT STAGE - RW SUPPLY ALL SITES  
BITS SPORTS CLUBS, BITS GOLF & DENNIS PARK RL**

**ALL SITES ESTIMATED DEMAND SUMMARY \***

AREA, TOTAL SITES	19.43 HA
FLOW PEAK DEMAND	42 L/S
VOLUME, PEAK WEEK	6.65 ML/WK
AVERAGE VOLUME, YEAR	112 ML/YR
<b>CURRENT RECYCLED WATER SUPPLY CAPACITY <sup>^</sup></b>	
FLOW, IN/OUT BITS TANKS	30 TO 35 L/S
FLOW, IN/OUT DENNIS PARK TANKS	13 L/S
COMBINED FLOW, IN/OUT BITS & DP	43 L/S
PEAK VOLUME, WEEK	## ML/WK (GRC-TBC)
AVERAGE VOLUME, YEAR	119 ML/YR (GRC-IMP)

**NOTES:**

A. (\*) BASED ON AVERAGE BOM DATA, CURRENT SITE AREAS INCLUDE PROPOSED SPORTS FIELD EXTENSIONS WHERE SHOWN ON DRAWINGS. DOES NOT INCLUDE POTENTIAL FUTURE 5 GOLF HOLES, WHICH WOULD INCREASE GOLF PUMP STATION FLOW FROM 22 L/S TO 30 L/S AND TOTAL FLOW DEMAND TO 50 L/S.

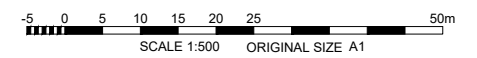
C. (\*) BITS TANK IS LIMITED TO 30 L/S WHEN DENNIS PARK IS OPERATING AT THE SAME TIME (8.30PM TO 3AM). GRC WATER OPERATORS ADVISED DENNIS PARK USAGE TIMES ARE SIGNIFICANTLY LOWER THAN BITS, PERHAPS RELATED TO SEASONAL FIELD USAGE, WHICH MAY OFFER SOME ALLOCATION FLEXIBILITY. GOLF HOURS 7PM-4AM.

D. (\*) IF GOLF COURSE AREAS ARE SIGNIFICANTLY EXTENDED (EG, 5 HOLES ~ 4.4 HA) IN THE FUTURE THE STP CAPACITY, INCLUDING VOLUME, PUMP/PIPE SIZE, TANKS AND IN FLOWS WILL REQUIRE REVIEW AS THE ESTIMATED GOLF DEMAND WILL INCREASE PROPORTIONALLY BY 38% AND THE SYSTEM DESIGN IS AT OR NEAR CAPACITY WITHIN THE AVAILABLE TIME WINDOWS, BASED ON THE INFORMATION PROVIDED BY GRC TO DATE.

E. GRC TO CONFIRM RW SUPPLY CAPACITY TO BITS/DENNIS PARK, STP MAY HAVE ALLOCATION SUPPLY OTHER SITES, EG - RED MUD DAM DURING DAY TIME HOURS

**IRR OPTIONS 1&2**  
2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
FOR COMMENT & APPROVAL



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL



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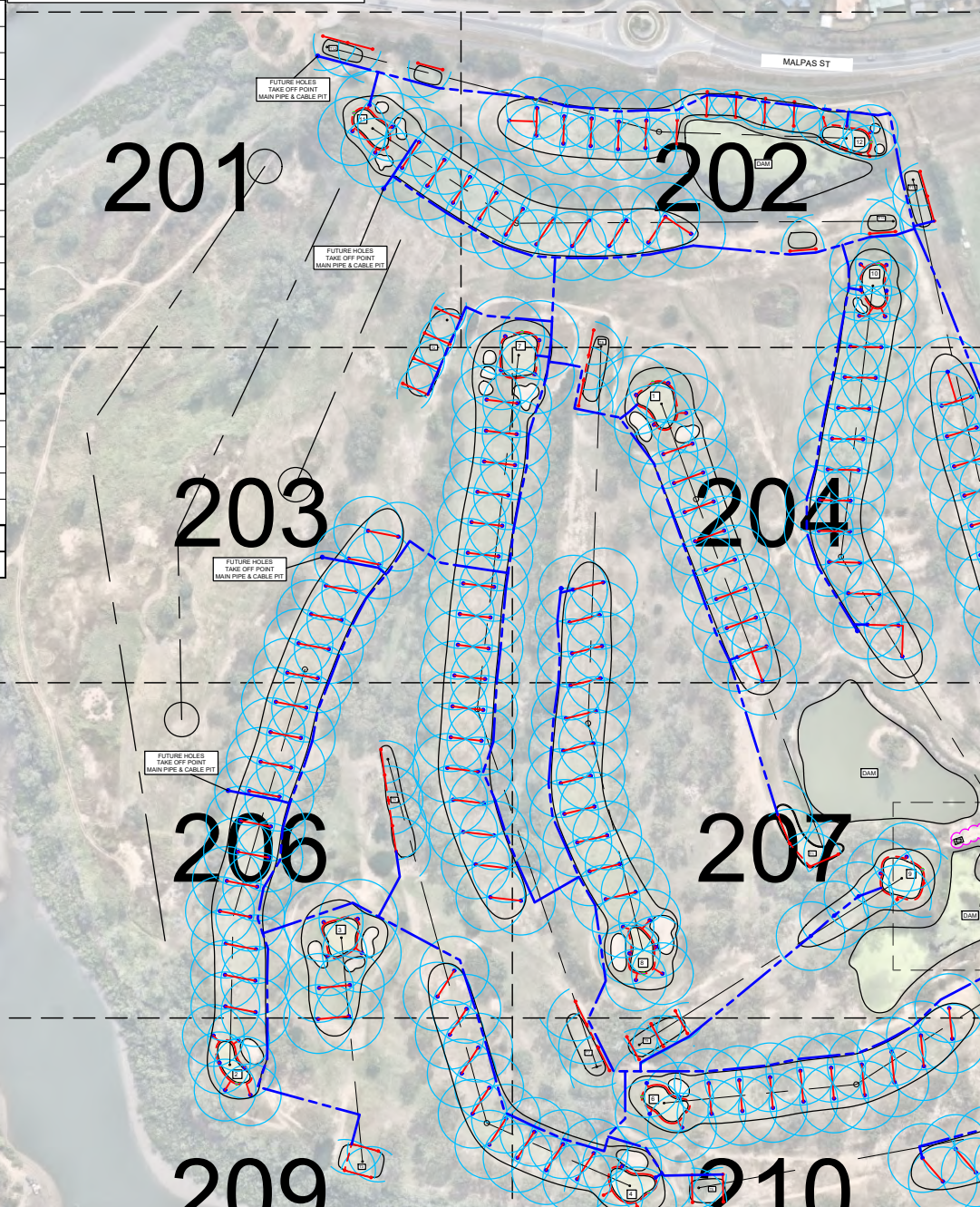
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CHECKED:	PH
APPROVED:	SJ
DATE:	12/05/2021
DRAFT REF:	4-GRC-d2

CLIENT:	GLADESTONE REGIONAL COUNCIL
	182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX
PROJECT:	DETAILED DESIGN IRRIGATION SYSTEM BITS GOLF COURSE - KEY PLAN
DRAWING No.	15888-200
SHEET	1 OF 18
REVISION	A



SCORECARD - TBC BY BITS GC		
HOLE	LENGTH (M)	IRRIG AREA (M <sup>2</sup> )
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
<b>SUB TOTAL - EXIST</b>		
14		
15		
16		
17		
18		
<b>SUB TOTAL-FUTURE</b>		
<b>TOTAL - FUTURE</b>		

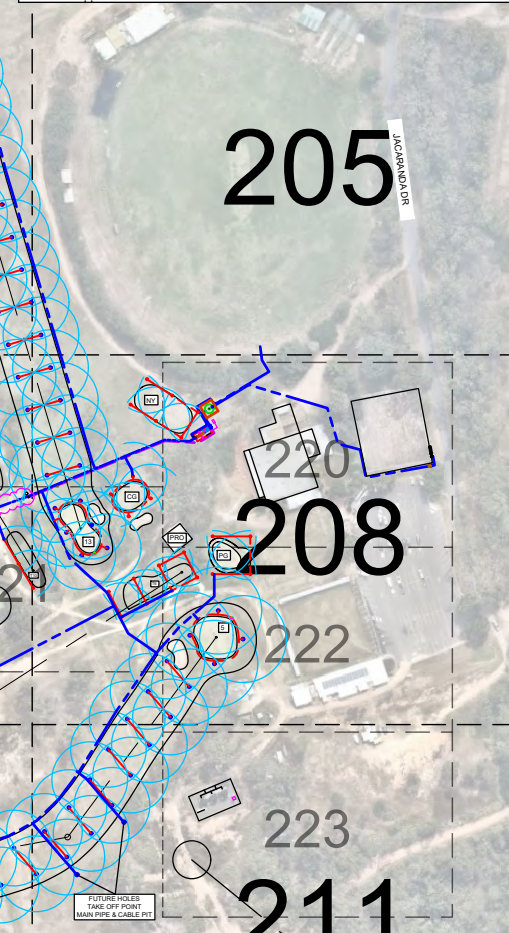
**DESIGN NOTE**  
SCORECARD DATA TO BE CONFIRMED IN DETAILED DESIGN WITH INPUT FROM BITS GOLF CLUB FOR EXISTING & FUTURE IRRIGATED AREAS



**OPTION 1 - ROTOR PERFORMANCE DATA**

TORO													
TYPICAL AREA-SIZE	MODEL #	NOZZLE #	ARC °	PRESSURE (kPa)	RADIUS (M)	FLOW (LPM)	LATERAL SPACE (M)	ROTOR SPACE (M)	PATTERN	APPLIC RATE (MM/HR)	DISTRIBUTION UNIFORMITY (%)	COEFFICIENT UNIFORMITY %	SCHEDULING COEFFICIENT
GREEN-LARGE	INF34	35	360	448	24.1	124	20	20	SQUARE	18.7	89	91	1.1
FWY-DEF & GRN-MED	INF34	33	360	448	21	87	18	18	SQUARE	16.1	89	93	1.1
FAIRWAY-NARROW	INF34	31	360	448	17.7	57	18	16	RECT	12	89	92	1.1
FAIRWAY-TARGETED	INF34	31	180	448	17.7	57	17	14	RECT	24	90	93	1.1
GREEN-SMALL/MED	INF34	31	360	448	17.7	57	16	16	SQUARE	13.5	90	93	1.1
GREEN-SMALL	INF34	31	360	448	17.7	57	16	15	RECT	14.4	89	93	1.1
GREEN-SMALL/NAR	INF34	31	360	448	17.7	57	15	15	SQUARE	15.3	90	93	1.1
GREEN-SMALL/NAR	INF34	31	360	448	17.7	57	14	14	SQUARE	17.6	92	94	1.1
TEE - NARROW WIDTH	INF34	33	180	448	21	87	-	15	SINGLE ROW	20	75	82	1.3
FAIRWAY-NARROW	INF34	33	360	448	21	87	-	18	SINGLE ROW	8.6	79	84	1.2
<b>KEY PERFORMANCE INDICATORS</b>				<b>AVERAGE</b>	<b>448</b>	<b>AVERAGE</b>	<b>73</b>		<b>AVERAGE</b>	<b>16</b>	<b>87.2</b>	<b>90.8</b>	<b>1.1</b>

KPTS ARE NOT WEIGHTED. THE MAJORITY OF ROTORS IN TERMS OF QUANTITY ARE THE FAIRWAY-DEFAULT & GREEN MEDIUM (ITEM 2 - BOLD) BASED ON 18X18M SQUARE GRID PATTERN.  
NOTE (\*): TABLE COVERS MAJORITY OF COMBINATIONS HOWEVER FOR SPECIFIC ARC'S TO LIMIT OVERTHROW NOT SHOWN, CALCULATE SPECIFIC PRECIPITATION RATES FOR SPECIFIC NOZZLE & ARC



**OPTION 1 - TORO MODEL INF34 - SM (E)**

**DESIGN NOTES**  
**SCHEDULING COEFFICIENT - PERFORMANCE OPTIONS:**  
DESIGN SPACING AND PATTERNS ARE MOSTLY DICTATED BY SHAPES AND OBSTACLES TO DETERMINE THE LAYOUT THAT BEST SUITS THE SITE, THEN A PRESSURE IS SELECTED FOR THE RESULTANT LAYOUT TO PROVIDE THE OPTIMUM PERFORMANCE IN TERMS OF DISTRIBUTION UNIFORMITY (%), COEFFICIENT OF UNIFORMITY - CHRISTIANSEN (%) AND SCHEDULING COEFFICIENT. THE PERFORMANCE IS LARGELY RELIANT ON THE PRODUCTS AVAILABLE TO MEET CRITERIA, AND THERE IS NO VALUE IN A SUBSTANDARD HYDRAULIC DESIGN AND STOCK LILAC PIPE IS GENERALLY LIMITED TO PN12.5. IN THIS CASE TWO MANUFACTURERS WITH THE BEST PERFORMANCE DATA TO COMPARE HAVE BEEN SELECTED ACROSS THE RANGE OF SPACINGS BEING USED IN THE DESIGN. BOTH OPTIONS HAVE A HIGH LEVEL UNIFORMITY AND VERY GOOD SCHEDULING COEFFICIENT, AND EITHER CAN BE RECOMMENDED ON THIS BASIS. ROTOR COSTS WILL NOT BE SIGNIFICANTLY DIFFERENT IN THE SCALE OF PROJECT. OTHER KEY PERFORMANCE INDICATORS MAY BE CONSIDERED OF VALUE, SUCH AS; PRESSURE, FLOW RATES & PRECIPITATION RATES - IN WHICH CASE OPTION 1 HAS SEVERAL ADVANTAGES WITH LOWER OPERATING PRESSURE, FLOWS & PRECIPITATION RATES WHILST OFFERING THE SAME SCHEDULING COEFFICIENT IN MAJORITY OF SPACINGS. OTHER FACTORS TO CONSIDER FOR SELECTING ROTOR OPTIONS INCLUDE THE CONTROL SYSTEM CAPABILITY, AS VALVE IN HEAD TYPE GOLF ROTORS ARE INTEGRAL WITH THE MANUFACTURERS CONTROL SYSTEM & SOFTWARE.

**CONTROL SYSTEM OPTIONS - OVERVIEW:**  
BOTH SYSTEMS ARE INTEGRAL WITH THE MANUFACTURERS ROTORS AND HAVE THE CAPABILITY FOR REQUIRED PROGRAMMING WITH MAPS & SENSOR INPUTS SUCH AS FLOW METERS AND ENVIRONMENTAL SENSORS FOR ADVANCED FLOW MANAGEMENT AND SEASONAL SCHEDULING.

**OPTION 1 - TORO**  
CENTRAL CONTROL SOFTWARE - LYNX W/ MOBILE APP/NSN INTERFACE HARDWARE, I/O - SMART MODULE FOR ROTORS WITH SMART HUB FOR PUMP STN & FLOW METER CONNECT. 2 WIRE (2.5MM<sup>2</sup>) CONTROL SYSTEM & GROUNDING  
**OPTION 2 - RAIN BIRD**  
CENTRAL CONTROL SOFTWARE-STRATUS II C/W MI APP/GSP INTERFACE HARDWARE, I/O - IC-OUT FOR ROTORS WITH IC-IN FOR PUMP STN & FM CONNECT. 2 WIRE (2.5MM<sup>2</sup>) CONTROL SYSTEM & GROUNDING

**RECOMMENDATION**  
IN THE EARLY STAGES OF DETAILED DESIGN, OPERATORS RECEIVE A INTERACTIVE DEMONSTRATION OF THE CENTRAL CONTROL SOFTWARE FROM EACH MANUFACTURER OF THE NOMINATED OPTIONS TO ACCESS. SUGGESTED AGENDA 1 HOUR FOR HARDWARE & 1 HOUR FOR SOFTWARE EVALUATION OF EACH OEM CONTROLS. ALTERNATIVELY HYDROPLAN CAN PROVIDE A BRIEF EVALUATION OF THE TWO OPTIONS.

**IRR OPTIONS 1&2**  
2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
FOR COMMENT & APPROVAL

Smart WaterMark logo, North arrow, and scale bar (0-50m). Scale: 1:500 ORIGINAL SIZE A1.

**OPTION 2 - ROTOR PERFORMANCE DATA**

RAIN BIRD													
TYPICAL AREA-SIZE	MODEL #	NOZZLE #	ARC °	PRESSURE (kPa)	RADIUS (M)	FLOW (LPM)	LATERAL SPACE (M)	ROTOR SPACE (M)	PATTERN	APPLIC RATE (MM/HR)	DISTRIBUTION UNIFORMITY (%)	COEFFICIENT UNIFORMITY %	SCHEDULING COEFFICIENT
GREEN-LARGE	702	48	360	483	22.3	124	20	20	SQUARE	21	85	91	1.1
FWY-DEF & GRN-MED	702	36	360	483	19.8	104	18	18	SQUARE	19.3	83	88	1.1
FAIRWAY-NARROW	702	28	360	483	17.4	90	18	16	RECT	15.8	89	92	1.1
FAIRWAY-TARGETED	752	28	180	483	17.4	90	17	14	RECT	40.4	84	90	1.1
GREEN-SMALL/MED	702	28	360	483	17.4	90	16	16	SQUARE	21	87	91	1.1
GREEN-SMALL	702	28	360	483	17.4	90	16	15	RECT	22.4	86	91	1.1
GREEN-SMALL/NAR	702	28	360	483	17.4	90	15	15	SQUARE	22.4	86	91	1.1
GREEN-SMALL/NAR	702	28	360	483	17.4	90	14	14	SQUARE	27.5	92	95	1.0
TEE - NARROW WIDTH	752	36	180	483	21	86	-	15	SINGLE ROW	23.4	76	86	1.2
FAIRWAY-NARROW	702	36	360	483	19.8	104	-	18	SINGLE ROW	10.1	83	89	1.1
<b>KEY PERFORMANCE INDICATORS</b>				<b>AVERAGE</b>	<b>483</b>	<b>AVERAGE</b>	<b>96</b>		<b>AVERAGE</b>	<b>22.3</b>	<b>85.1</b>	<b>90.4</b>	<b>1.1</b>

KPTS ARE NOT WEIGHTED. THE MAJORITY OF ROTORS IN TERMS OF QUANTITY ARE THE FAIRWAY-DEFAULT & GREEN MEDIUM (ITEM 2 - BOLD) BASED ON 18X18M SQUARE GRID PATTERN.  
NOTE (\*): TABLE COVERS MAJORITY OF COMBINATIONS HOWEVER FOR SPECIFIC ARC'S TO LIMIT OVERTHROW NOT SHOWN, CALCULATE SPECIFIC PRECIPITATION RATES FOR SPECIFIC NOZZLE & ARC

REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					

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DESIGNER:	EM	CLIENT:	GLADESTONE REGIONAL COUNCIL
CHECKED:	PH	PROJECT:	182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX
APPROVED:	SJ	PROJECT:	DETAILED DESIGN IRRIGATION SYSTEM
DATE:	12/05/2021	PROJECT:	BITS GOLF COURSE - ROTOR PERFORMANCE DATA
DRAFT REF:	4-GRC-d2	DRAWING No.	15888-200-1
		SHEET	2 OF 18
		REVISION	A

Drawing by: D:\Work\2021\G.C.D.15888-200-1\15888-200-1.dwg, 12/05/2021 8:19 PM, Original Size: ISO FULL BLEED A1 (420.00 x 297.00 MM)



**LEGEND:**

	RECYCLED WATER SIGN, TYPE/SIZE ####
	PUMP, TYPE/SIZE ####
	TANK, TYPE/SIZE ####
	LOW LEVEL SENSOR (NOT SHOWN)
	BACKFLOW ASSEMBLY, TYPE/SIZE ####
	IRRIGATION CONTROLLER, TYPE ####
	WEATHER SENSOR, TYPE ####
	FLOW METER, TYPE/SIZE ####
	ISOLATION VALVE (DN## LINE SIZE) C/W 910 VB
	FILTER AUTO SCREEN, DN##, 200 MICRON
	DN50 AIR VALVE C/W 910VB (NOT SHOWN)
	DN25 QCV C/W 910VB (NOT SHOWN)
	DN## SOLENOID VALVE, TYPE #### * (CONCEPT)
	DN## SOLENOID VALVE, TYPE ####
	DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
	DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
	DN### HDPE PN12.5 LILAC MAIN PIPE - A
	DN### HDPE PN12.5 LILAC MAIN PIPE - B* (CONCEPT)
	DN### HDPE PN12.5 LILAC MAIN PIPE - C
	DN### HDPE PN12.5 LILAC LAT PIPE - A* (CONCEPT)
	DN### HDPE PN12.5 LILAC LAT PIPE - B
	DN### HDPE PN12.5 LILAC LAT PIPE - C
	POWER CABLE & CONDUIT ROUTE (240-415V)
	CONTROL WIRE ROUTE A, ## (NOT SHOWN)
	CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING

**IRR OPTIONS 1&2**  
2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
FOR COMMENT & APPROVAL

FUTURE HOLES  
TAKE OFF POINT  
MAIN PIPE & CABLE PIT

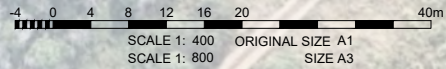
FUTURE HOLES  
TAKE OFF POINT  
MAIN PIPE & CABLE PIT

REFER TO DWG 15888-201  
REFER TO DWG 15888-202

REFER TO DWG 15888-201  
REFER TO DWG 15888-202

REFER TO DWG 15888-201  
REFER TO DWG 15888-203

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A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					



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CHECKED: PH  
APPROVED: SJ  
DATE: 12/05/2021  
DRAFT REF: 4-GRC-d2

CLIENT: GLADESTONE REGIONAL COUNCIL  
182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX

PROJECT: DETAILED DESIGN IRRIGATION SYSTEM  
BITS GOLF COURSE - LAYOUT 1

DRAWING No. 15888-201 SHEET 3 OF 18 REVISION A



**LEGEND:**

- RECYCLED WATER SIGN, TYPE/SIZE #####
- PUMP: TYPE/SIZE #####
- TANK, TYPE/SIZE #####
- LOW LEVEL SENSOR (NOT SHOWN)
- BACKFLOW ASSEMBLY, TYPE/SIZE #####
- IRRIGATION CONTROLLER, TYPE #####
- WEATHER SENSOR, TYPE #####
- FLOW METER, TYPE/SIZE #####
- ISOLATION VALVE (DN# LINE SIZE) C/W 910 VB
- FILTER AUTO SCREEN, DN###, 200 MICRON
- DN50 AIR VALVE C/W 910VB (NOT SHOWN)
- DN25 QCV C/W 910VB (NOT SHOWN)
- DN## SOLENOID VALVE, TYPE ##### \* (CONCEPT)
- DN## SOLENOID VALVE, TYPE #####
- DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
- DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
- DN## HDPE PN12.5 LILAC MAIN PIPE - A
- DN## HDPE PN12.5 LILAC MAIN PIPE - B\* (CONCEPT)
- DN## HDPE PN12.5 LILAC MAIN PIPE - C
- DN## HDPE PN12.5 LILAC LAT PIPE - A\* (CONCEPT)
- DN## HDPE PN12.5 LILAC LAT PIPE - B
- DN## HDPE PN12.5 LILAC LAT PIPE - C
- POWER CABLE & CONDUIT ROUTE (240-415V)
- CONTROL WIRE ROUTE A, ## (NOT SHOWN)
- CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING

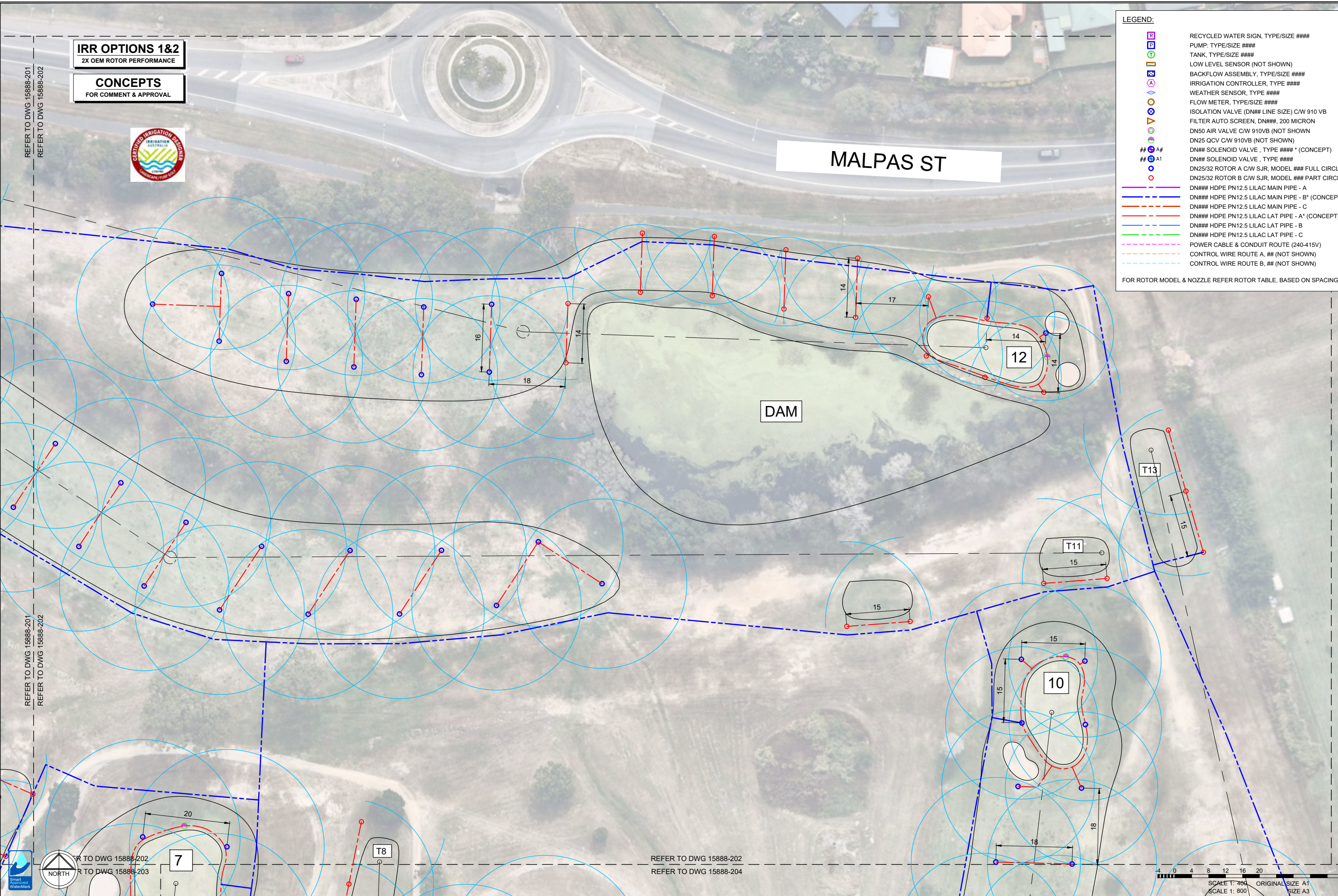
**IRR OPTIONS 1&2**  
2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
FOR COMMENT & APPROVAL



**MALPAS ST**

**DAM**

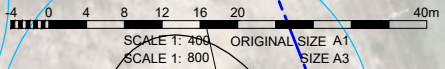


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REFER TO DWG 15888-202  
REFER TO DWG 15888-204

REFER TO DWG 15888-202  
REFER TO DWG 15888-203



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					



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DES/DRAWN: EM  
CHECKED: PH  
APPROVED: SJ  
DATE: 12/05/2021  
DRAFT REF: 4-GRC-d2

CLIENT: GLADESTONE REGIONAL COUNCIL  
182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX  
PROJECT: DETAILED DESIGN IRRIGATION SYSTEM  
BITS GOLF COURSE - LAYOUT 2  
DRAWING No. 15888-202  
SHEET 4 OF 18  
REVISION A

Drawing file: D:\Work\4-DWG\CAD\4-DWG\15888-203.dwg (User: jhp) Date: 12/05/2021 1:19 PM Original Size: 850 Full Bleed A3 (420.00 x 297.00 MM)



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REFER TO DWG 15888-202  
REFER TO DWG 15888-203

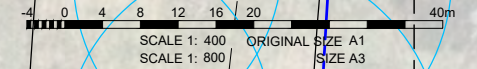
**LEGEND:**

- RECYCLED WATER SIGN, TYPE/SIZE ####
- PUMP, TYPE/SIZE ####
- TANK, TYPE/SIZE ####
- LOW LEVEL SENSOR (NOT SHOWN)
- BACKFLOW ASSEMBLY, TYPE/SIZE ####
- IRRIGATION CONTROLLER, TYPE ####
- WEATHER SENSOR, TYPE ####
- FLOW METER, TYPE/SIZE ####
- ISOLATION VALVE (DN## LINE SIZE) C/W 910 VB
- FILTER AUTO SCREEN, DN##, 200 MICRON
- DN50 AIR VALVE C/W 910VB (NOT SHOWN)
- DN25 QCV C/W 910VB (NOT SHOWN)
- DN## SOLENOID VALVE, TYPE #### \* (CONCEPT)
- DN## SOLENOID VALVE, TYPE ####
- DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
- DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
- DN### HDPE PN12.5 LILAC MAIN PIPE - A
- DN### HDPE PN12.5 LILAC MAIN PIPE - B\* (CONCEPT)
- DN### HDPE PN12.5 LILAC MAIN PIPE - C
- DN### HDPE PN12.5 LILAC LAT PIPE - A\* (CONCEPT)
- DN### HDPE PN12.5 LILAC LAT PIPE - B
- DN### HDPE PN12.5 LILAC LAT PIPE - C
- POWER CABLE & CONDUIT ROUTE (240-415V)
- CONTROL WIRE ROUTE A, ## (NOT SHOWN)
- CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING

FUTURE HOLES  
TAKE OFF POINT  
MAIN PIPE & CABLE PIT

REFER TO DWG 15888-203  
REFER TO DWG 15888-206



Drawing file: D:\Work\ENVC\GCD\15888-201.dwg Date: 11/11/2021 11:19:19 AM Original Size: ISO Full Bleed A3 (420.00 x 297.00 MM)



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					

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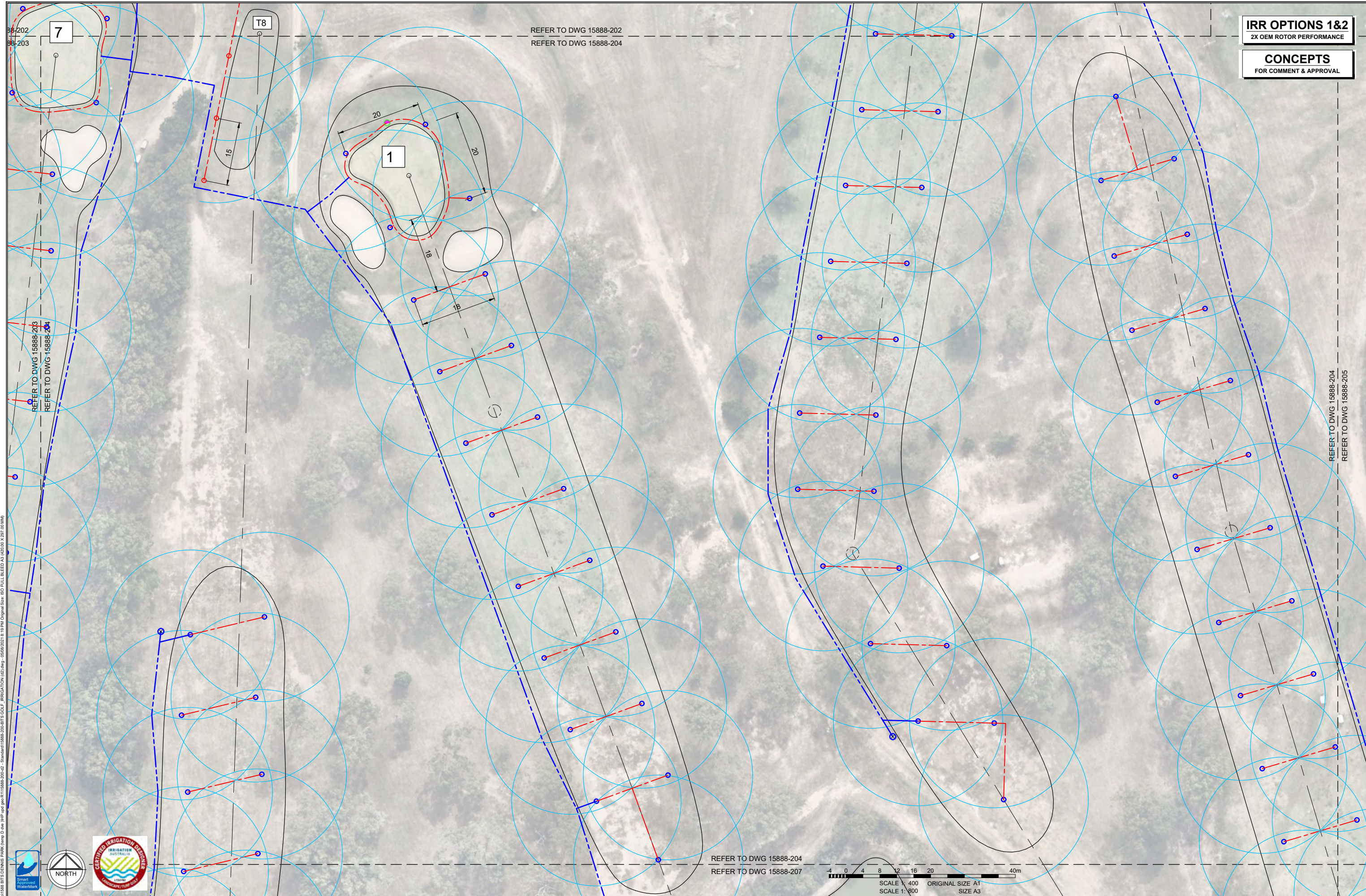
DES/DRAWN: EM  
CHECKED: PH  
APPROVED: SJ  
DATE: 12/05/2021  
DRAFT REF: 4-GRC-d2

CLIENT: GLADESTONE REGIONAL COUNCIL  
182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX

PROJECT: DETAILED DESIGN IRRIGATION SYSTEM  
BITS GOLF COURSE - LAYOUT 3

DRAWING No. 15888-203 SHEET 5 OF 18 REVISION A





**IRR OPTIONS 1&2**  
2X OEM ROTOR PERFORMANCE

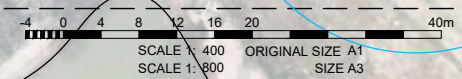
**CONCEPTS**  
FOR COMMENT & APPROVAL

REFER TO DWG 15888-202  
REFER TO DWG 15888-204

REFER TO DWG 15888-203  
REFER TO DWG 15888-204

REFER TO DWG 15888-204  
REFER TO DWG 15888-205

REFER TO DWG 15888-204  
REFER TO DWG 15888-207



Drawing file: D:\Work\DWG\CAD\DWG\15888-204.dwg Date: 12/05/2021 8:19 PM Original Size: ISO FULL BLEED A3 (420.00 x 297.00 MM)



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					



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DES/DRAWN: EM  
CHECKED: PH  
APPROVED: SJ  
DATE: 12/05/2021  
DRAFT REF: 4-GRC-d2

CLIENT: GLADESTONE REGIONAL COUNCIL  
182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX  
PROJECT: DETAILED DESIGN IRRIGATION SYSTEM  
BITS GOLF COURSE - LAYOUT 4  
DRAWING No. 15888-204 SHEET 6 OF 18 REVISION A





**LEGEND:**

- RECYCLED WATER SIGN, TYPE/SIZE ####
- PUMP, TYPE/SIZE ####
- TANK, TYPE/SIZE ####
- LOW LEVEL SENSOR (NOT SHOWN)
- BACKFLOW ASSEMBLY, TYPE/SIZE ####
- IRRIGATION CONTROLLER, TYPE ####
- WEATHER SENSOR, TYPE ####
- FLOW METER, TYPE/SIZE ####
- ISOLATION VALVE (DN## LINE SIZE) C/W 910 VB
- FILTER AUTO SCREEN, DN###, 200 MICRON
- DN50 AIR VALVE C/W 910VB (NOT SHOWN)
- DN25 QCV C/W 910VB (NOT SHOWN)
- DN## SOLENOID VALVE, TYPE #### \* (CONCEPT)
- DN## SOLENOID VALVE, TYPE ####
- DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
- DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
- DN### HDPE PN12.5 LILAC MAIN PIPE - A
- DN### HDPE PN12.5 LILAC MAIN PIPE - B\* (CONCEPT)
- DN### HDPE PN12.5 LILAC MAIN PIPE - C
- DN### HDPE PN12.5 LILAC LAT PIPE - A\* (CONCEPT)
- DN### HDPE PN12.5 LILAC LAT PIPE - B
- DN### HDPE PN12.5 LILAC LAT PIPE - C
- POWER CABLE & CONDUIT ROUTE (240-415V)
- CONTROL WIRE ROUTE A, ## (NOT SHOWN)
- CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING

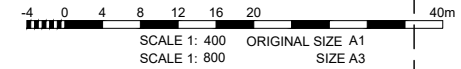
REFER TO DWG 15888-204  
REFER TO DWG 15888-205

JACARANDA DR

REFER TO DWG 15888-205  
REFER TO DWG 15888-208

**IRR OPTIONS 1&2**  
2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
FOR COMMENT & APPROVAL



Drawing: D:\Work\DWG\CAD\15888-208.dwg Date: 12/05/2021 10:19:00 AM User: sjr Original Size: ISO Full BLEED A3 (420.00 x 297.00 MM)



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					



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DES/DRAWN:	EM
CHECKED:	PH
APPROVED:	SJ
DATE:	12/05/2021
DRAFT REF:	4-GRC-d2

CLIENT:	GLADESTONE REGIONAL COUNCIL		
PROJECT:	182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX		
DRAWING No.	15888-205	SHEET	7 OF 18
REVISION			A



**LEGEND:**

- RECYCLED WATER SIGN, TYPE/SIZE ####
- PUMP, TYPE/SIZE ####
- TANK, TYPE/SIZE ####
- LOW LEVEL SENSOR (NOT SHOWN)
- BACKFLOW ASSEMBLY, TYPE/SIZE ####
- IRRIGATION CONTROLLER, TYPE ####
- WEATHER SENSOR, TYPE ####
- FLOW METER, TYPE/SIZE ####
- ISOLATION VALVE (DN## LINE SIZE) C/W 910 VB
- FILTER AUTO SCREEN, DN##, 200 MICRON
- DN50 AIR VALVE C/W 910VB (NOT SHOWN)
- DN25 QCV C/W 910VB (NOT SHOWN)
- DN## SOLENOID VALVE, TYPE #### \* (CONCEPT)
- DN## SOLENOID VALVE, TYPE ####
- DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
- DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
- DN## HDPE PN12.5 LILAC MAIN PIPE - A
- DN## HDPE PN12.5 LILAC MAIN PIPE - B\* (CONCEPT)
- DN## HDPE PN12.5 LILAC MAIN PIPE - C
- DN## HDPE PN12.5 LILAC LAT PIPE - A\* (CONCEPT)
- DN## HDPE PN12.5 LILAC LAT PIPE - B
- DN## HDPE PN12.5 LILAC LAT PIPE - C
- POWER CABLE & CONDUIT ROUTE (240-415V)
- CONTROL WIRE ROUTE A, ## (NOT SHOWN)
- CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING

**FUTURE HOLES  
TAKE OFF POINT  
MAIN PIPE & CABLE PIT**

REFER TO DWG 15888-203  
REFER TO DWG 15888-206

REFER TO DWG 15888-206  
REFER TO DWG 15888-207

Drawing: D:\Work\ENVO\G:\CD\15888-206.dwg Date: 30/07/2021 8:19 PM Original Size: 80 Full Bleed A3 (420.00 x 297.00 MM)

SCALE 1: 400 ORIGINAL SIZE A1  
SCALE 1: 800 SIZE A3

REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					



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DES/DRAWN: EM  
CHECKED: PH  
APPROVED: SJ  
DATE: 12/05/2021  
DRAFT REF: 4-GRC-d2

CLIENT: GLADESTONE REGIONAL COUNCIL  
182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX  
PROJECT: DETAILED DESIGN IRRIGATION SYSTEM  
BITS GOLF COURSE - LAYOUT 6  
DRAWING No. 15888-206 SHEET 8 OF 18 REVISION A



**IRR OPTIONS 1&2**  
2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
FOR COMMENT & APPROVAL

REFER TO DWG 15888-204  
REFER TO DWG 15888-207

**LEGEND:**

- RECYCLED WATER SIGN, TYPE/SIZE ####
- PUMP, TYPE/SIZE ####
- TANK, TYPE/SIZE ####
- LOW LEVEL SENSOR (NOT SHOWN)
- BACKFLOW ASSEMBLY, TYPE/SIZE ####
- IRRIGATION CONTROLLER, TYPE ####
- WEATHER SENSOR, TYPE ####
- FLOW METER, TYPE/SIZE ####
- ISOLATION VALVE (DN## LINE SIZE) C/W 910 VB
- FILTER AUTO SCREEN, DN##, 200 MICRON
- DN50 AIR VALVE C/W 910VB (NOT SHOWN)
- DN25 QCV C/W 910VB (NOT SHOWN)
- DN## SOLENOID VALVE, TYPE #### \* (CONCEPT)
- DN## SOLENOID VALVE, TYPE ####
- DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
- DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
- DN### HDPE PN12.5 LILAC MAIN PIPE - A
- DN### HDPE PN12.5 LILAC MAIN PIPE - B\* (CONCEPT)
- DN### HDPE PN12.5 LILAC MAIN PIPE - C
- DN### HDPE PN12.5 LILAC LAT PIPE - A\* (CONCEPT)
- DN### HDPE PN12.5 LILAC LAT PIPE - B
- DN### HDPE PN12.5 LILAC LAT PIPE - C
- POWER CABLE & CONDUIT ROUTE (240-415V)
- CONTROL WIRE ROUTE A, ## (NOT SHOWN)
- CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING

DISCONNECT SUCTION PIPE & POWER TO EXISTING PUMP SHED, MAKE SAFE

CONNECT NEW SUCTION PIPE TO NEW PUMP UNIT/S

**DAM**

**8**

**9**

**T10**

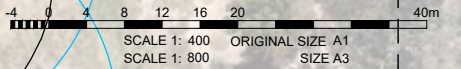
**T1**

REFER TO DWG 15888-206  
REFER TO DWG 15888-207

REFER TO DWG 15888-207  
REFER TO DWG 15888-208

REFER TO DWG 15888-207  
REFER TO DWG 15888-210

Drawing file: D:\Work\DWG\GCD\15888-207.dwg; Plotted: 12/05/2021 11:11:15 AM; Plotter: HP DesignJet T1100; Plot Style: HYDROPLAN.ctb; Plot Size: A1 (297mm x 420mm); Plot Scale: 1:800



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL

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APPROVED: SJ  
DATE: 12/05/2021  
DRAFT REF: 4-GRC-d2

CLIENT: GLADESTONE REGIONAL COUNCIL  
PROJECT: 182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX  
PROJECT: DETAILED DESIGN IRRIGATION SYSTEM  
BITS GOLF COURSE - LAYOUT 7  
DRAWING No. 15888-207  
SHEET 9 OF 18  
REVISION A

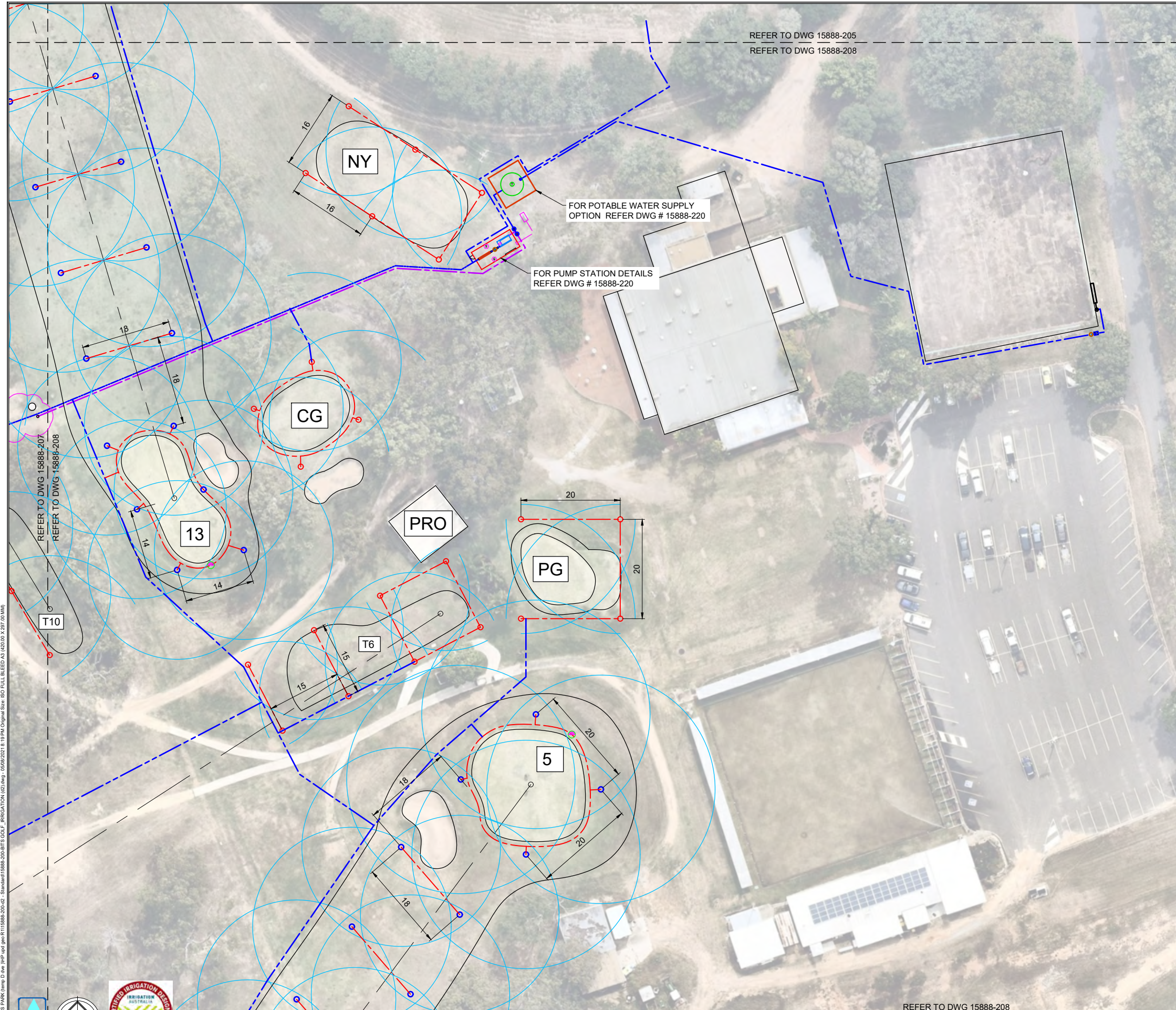


REFER TO DWG 15888-205  
REFER TO DWG 15888-208

**LEGEND:**

	RECYCLED WATER SIGN, TYPE/SIZE ####
	PUMP, TYPE/SIZE ####
	TANK, TYPE/SIZE ####
	LOW LEVEL SENSOR (NOT SHOWN)
	BACKFLOW ASSEMBLY, TYPE/SIZE ####
	IRRIGATION CONTROLLER, TYPE ####
	WEATHER SENSOR, TYPE ####
	FLOW METER, TYPE/SIZE ####
	ISOLATION VALVE (DN## LINE SIZE) C/W 910 VB
	FILTER AUTO SCREEN, DN###, 200 MICRON
	DN50 AIR VALVE C/W 910VB (NOT SHOWN)
	DN25 QCV C/W 910VB (NOT SHOWN)
	DN## SOLENOID VALVE, TYPE #### * (CONCEPT)
	DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
	DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
	DN### HDPE PN12.5 LILAC MAIN PIPE - A
	DN### HDPE PN12.5 LILAC MAIN PIPE - B* (CONCEPT)
	DN### HDPE PN12.5 LILAC MAIN PIPE - C
	DN### HDPE PN12.5 LILAC LAT PIPE - A* (CONCEPT)
	DN### HDPE PN12.5 LILAC LAT PIPE - B
	DN### HDPE PN12.5 LILAC LAT PIPE - C
	POWER CABLE & CONDUIT ROUTE (240-415V)
	CONTROL WIRE ROUTE A, ## (NOT SHOWN)
	CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING



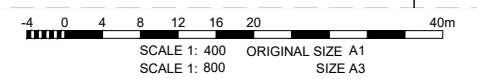
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REFER TO DWG 15888-208  
REFER TO DWG 15888-211

**IRR OPTIONS 1&2**  
2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
FOR COMMENT & APPROVAL



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					



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CHECKED: PH  
APPROVED: SJ  
DATE: 12/05/2021  
DRAFT REF: 4-GRC-d2

CLIENT: GLADESTONE REGIONAL COUNCIL  
182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX

PROJECT: DETAILED DESIGN IRRIGATION SYSTEM  
BITS GOLF COURSE - LAYOUT 8

DRAWING No. 15888-208 SHEET 10 OF 18 REVISION A

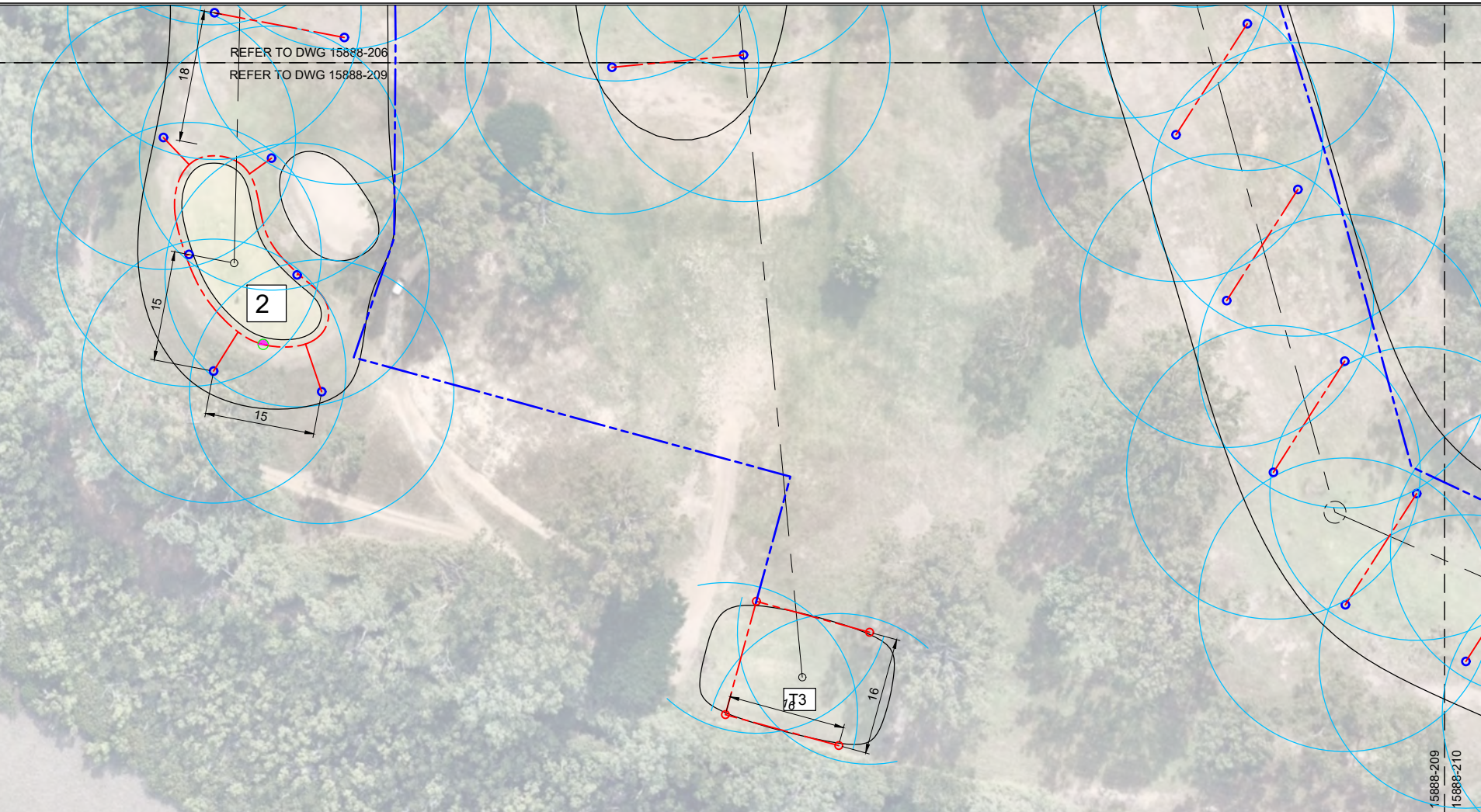


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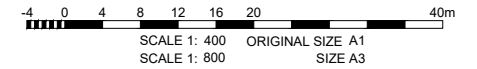
	RECYCLED WATER SIGN, TYPE/SIZE ####
	PUMP, TYPE/SIZE ####
	TANK, TYPE/SIZE ####
	LOW LEVEL SENSOR (NOT SHOWN)
	BACKFLOW ASSEMBLY, TYPE/SIZE #####
	IRRIGATION CONTROLLER, TYPE #####
	WEATHER SENSOR, TYPE #####
	FLOW METER, TYPE/SIZE #####
	ISOLATION VALVE (DN## LINE SIZE) C/W 910 VB
	FILTER AUTO SCREEN, DN###, 200 MICRON
	DN50 AIR VALVE C/W 910VB (NOT SHOWN)
	DN25 QCV C/W 910VB (NOT SHOWN)
	DN## SOLENOID VALVE, TYPE ##### * (CONCEPT)
	DN## SOLENOID VALVE, TYPE #####
	DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
	DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
	DN### HDPE PN12.5 LILAC MAIN PIPE - A
	DN### HDPE PN12.5 LILAC MAIN PIPE - B* (CONCEPT)
	DN### HDPE PN12.5 LILAC MAIN PIPE - C
	DN### HDPE PN12.5 LILAC LAT PIPE - A* (CONCEPT)
	DN### HDPE PN12.5 LILAC LAT PIPE - B
	DN### HDPE PN12.5 LILAC LAT PIPE - C
	POWER CABLE & CONDUIT ROUTE (240-415V)
	CONTROL WIRE ROUTE A, ## (NOT SHOWN)
	CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING



**IRR OPTIONS 1&2**

**CONCEPTS**  
FOR COMMENT & APPROVAL



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL						



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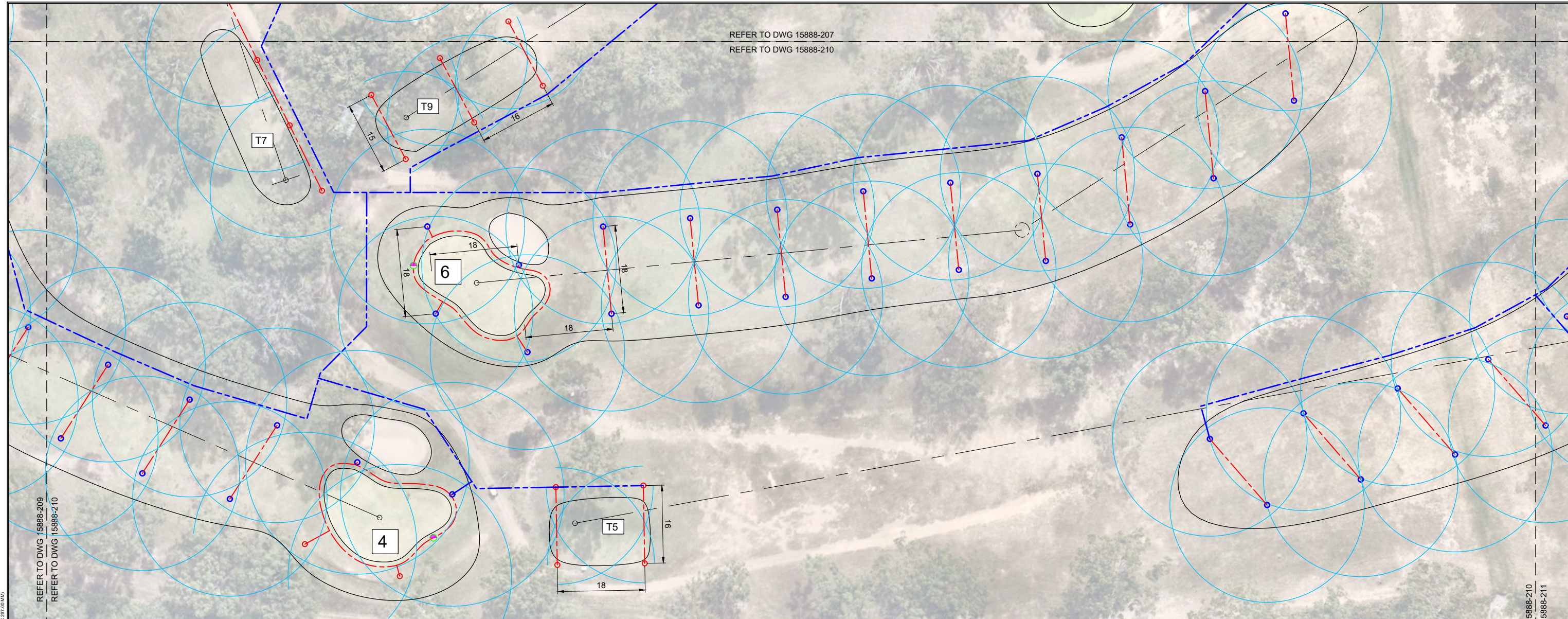
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CHECKED: **PH**  
APPROVED: **SJ**  
DATE: **12/05/2021**  
DRAFT REF: **4-GRC-d2**

CLIENT: **GLADESTONE REGIONAL COUNCIL**  
**182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX**  
PROJECT: **DETAILED DESIGN IRRIGATION SYSTEM**  
**BITS GOLF COURSE - LAYOUT 9**  
DRAWING No. **15888-209** SHEET **11** OF **18** REVISION **A**



REFER TO DWG 15888-207  
REFER TO DWG 15888-210



REFER TO DWG 15888-209  
REFER TO DWG 15888-210

REFER TO DWG 15888-210  
REFER TO DWG 15888-211

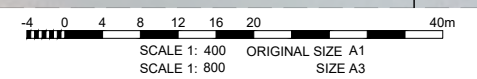
**LEGEND:**

- RECYCLED WATER SIGN, TYPE/SIZE ####
- PUMP: TYPE/SIZE ####
- TANK, TYPE/SIZE ####
- LOW LEVEL SENSOR (NOT SHOWN)
- BACKFLOW ASSEMBLY, TYPE/SIZE ####
- IRRIGATION CONTROLLER, TYPE ####
- WEATHER SENSOR, TYPE ####
- FLOW METER, TYPE/SIZE ####
- ISOLATION VALVE (DN# LINE SIZE) C/W 910 VB
- FILTER AUTO SCREEN, DN###, 200 MICRON
- DN50 AIR VALVE C/W 910VB (NOT SHOWN)
- DN25 QCV C/W 910VB (NOT SHOWN)
- DN## SOLENOID VALVE, TYPE #### \* (CONCEPT)
- DN## SOLENOID VALVE, TYPE ####
- DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
- DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
- DN### HDPE PN12.5 LILAC MAIN PIPE - A
- DN### HDPE PN12.5 LILAC MAIN PIPE - B\* (CONCEPT)
- DN### HDPE PN12.5 LILAC MAIN PIPE - C
- DN### HDPE PN12.5 LILAC LAT PIPE - A\* (CONCEPT)
- DN### HDPE PN12.5 LILAC LAT PIPE - B
- DN### HDPE PN12.5 LILAC LAT PIPE - C
- POWER CABLE & CONDUIT ROUTE (240-415V)
- CONTROL WIRE ROUTE A, ## (NOT SHOWN)
- CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING

**IRR OPTIONS 1&2**  
2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
FOR COMMENT & APPROVAL



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					



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DES/DRAWN: EM  
CHECKED: PH  
APPROVED: SJ  
DATE: 12/05/2021  
DRAFT REF: 4-GRC-d2

CLIENT: GLADESTONE REGIONAL COUNCIL  
182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX  
PROJECT: DETAILED DESIGN IRRIGATION SYSTEM  
BITS GOLF COURSE - LAYOUT 10  
DRAWING No. 15888-210 SHEET 12 OF 18 REVISION A

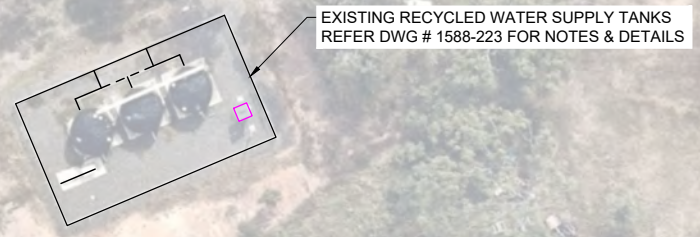


REFER TO DWG 15888-208  
REFER TO DWG 15888-211

**LEGEND:**

- RECYCLED WATER SIGN, TYPE/SIZE ####
- PUMP, TYPE/SIZE ####
- TANK, TYPE/SIZE ####
- LOW LEVEL SENSOR (NOT SHOWN)
- BACKFLOW ASSEMBLY, TYPE/SIZE ####
- IRRIGATION CONTROLLER, TYPE ####
- WEATHER SENSOR, TYPE ####
- FLOW METER, TYPE/SIZE ####
- ISOLATION VALVE (DN## LINE SIZE) C/W 910 VB
- FILTER AUTO SCREEN, DN###, 200 MICRON
- DN50 AIR VALVE C/W 910VB (NOT SHOWN)
- DN25 QCV C/W 910VB (NOT SHOWN)
- DN## SOLENOID VALVE, TYPE #### \* (CONCEPT)
- DN## SOLENOID VALVE, TYPE ####
- DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
- DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
- DN### HDPE PN12.5 LILAC MAIN PIPE - A
- DN### HDPE PN12.5 LILAC MAIN PIPE - B\* (CONCEPT)
- DN### HDPE PN12.5 LILAC MAIN PIPE - C
- DN### HDPE PN12.5 LILAC LAT PIPE - A\* (CONCEPT)
- DN### HDPE PN12.5 LILAC LAT PIPE - B
- DN### HDPE PN12.5 LILAC LAT PIPE - C
- POWER CABLE & CONDUIT ROUTE (240-415V)
- CONTROL WIRE ROUTE A, ## (NOT SHOWN)
- CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING



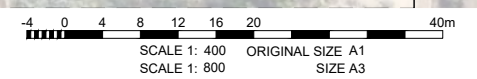
FUTURE HOLES  
TAKE OFF POINT  
MAIN PIPE & CABLE PIT

REFER TO DWG 15888-210  
REFER TO DWG 15888-211

REFER TO DWG 15888-211  
REFER TO DWG 15888-212

**IRR OPTIONS 1&2**  
2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
FOR COMMENT & APPROVAL



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					



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DES/DRAWN: EM  
CHECKED: PH  
APPROVED: SJ  
DATE: 12/05/2021  
DRAFT REF: 4-GRC-d2

CLIENT: GLADESTONE REGIONAL COUNCIL  
182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX  
PROJECT: DETAILED DESIGN IRRIGATION SYSTEM  
BITS GOLF COURSE - LAYOUT 11  
DRAWING No. 15888-211 SHEET 13 OF 18 REVISION A

Drawing file: D:\Work\DWG\CAD\DWG\15888-211.dwg (p1) 12/05/2021 8:19 PM Original Size: ISO FULL BLEED A3 (420.00 x 297.00 MM)



REFER TO DWG 15888-211  
 REFER TO DWG 15888-212

**LEGEND:**

- RECYCLED WATER SIGN, TYPE/SIZE ####
- PUMP, TYPE/SIZE ####
- TANK, TYPE/SIZE ####
- LOW LEVEL SENSOR (NOT SHOWN)
- BACKFLOW ASSEMBLY, TYPE/SIZE ####
- IRRIGATION CONTROLLER, TYPE ####
- WEATHER SENSOR, TYPE ####
- FLOW METER, TYPE/SIZE ####
- ISOLATION VALVE (DN## LINE SIZE) C/W 910 VB
- FILTER AUTO SCREEN, DN###, 200 MICRON
- DN50 AIR VALVE C/W 910VB (NOT SHOWN)
- DN25 QCV C/W 910VB (NOT SHOWN)
- DN## SOLENOID VALVE, TYPE #### \* (CONCEPT)
- DN## SOLENOID VALVE, TYPE ####
- DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
- DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
- DN### HDPE PN12.5 LILAC MAIN PIPE - A
- DN### HDPE PN12.5 LILAC MAIN PIPE - B\* (CONCEPT)
- DN### HDPE PN12.5 LILAC MAIN PIPE - C
- DN### HDPE PN12.5 LILAC LAT PIPE - A\* (CONCEPT)
- DN### HDPE PN12.5 LILAC LAT PIPE - B
- DN### HDPE PN12.5 LILAC LAT PIPE - C
- POWER CABLE & CONDUIT ROUTE (240-415V)
- CONTROL WIRE ROUTE A, ## (NOT SHOWN)
- CONTROL WIRE ROUTE B, ## (NOT SHOWN)

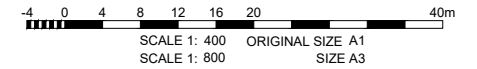
FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING

Drawing file: D:\Work\ENVC\GCD\15888-212.dwg; User: jhp; Date: 12/05/2021 10:19 PM; Original Size: ISO FULL BLEED A3 (420.00 x 297.00 MM)



**IRR OPTIONS 1&2**  
 2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
 FOR COMMENT & APPROVAL



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					



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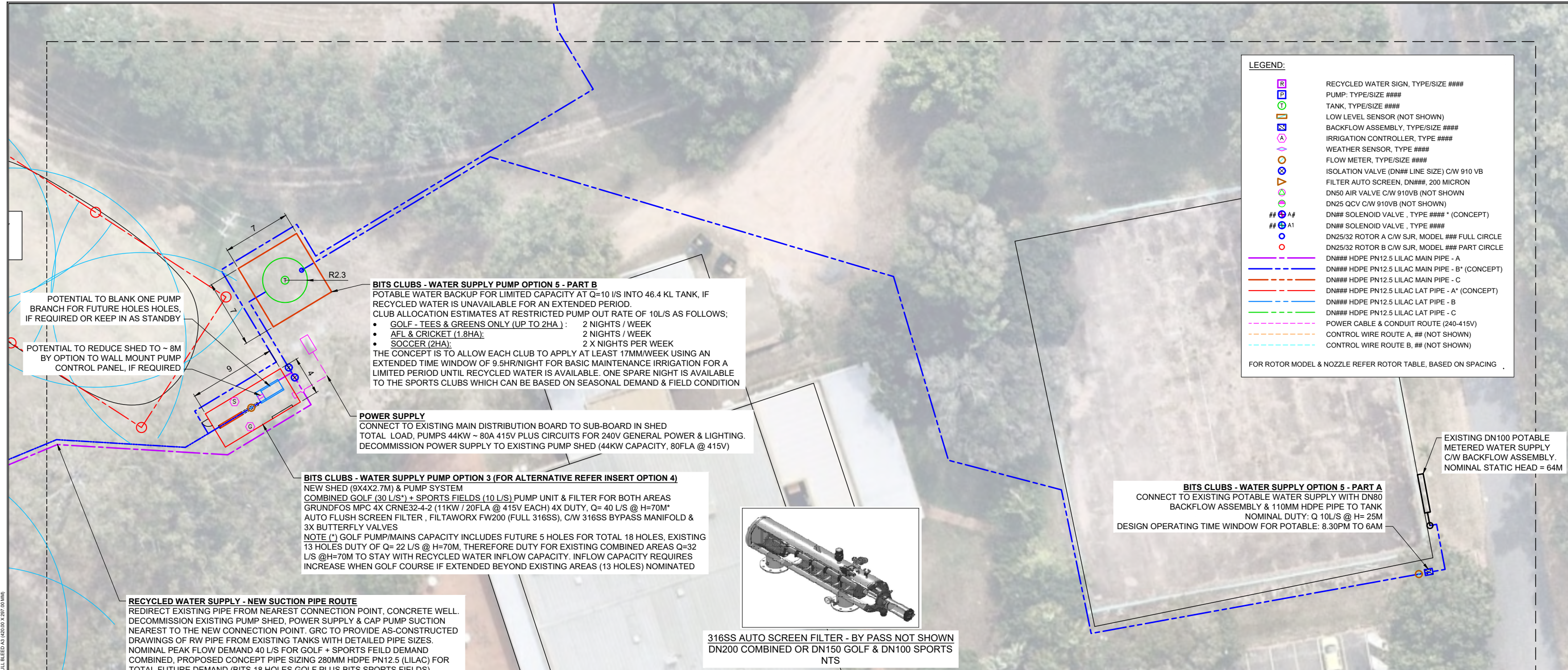
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DES/DRAWN: EM  
 CHECKED: PH  
 APPROVED: SJ  
 DATE: 12/05/2021  
 DRAFT REF: 4-GRC-d2

CLIENT: GLADESTONE REGIONAL COUNCIL  
 182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX  
 PROJECT: DETAILED DESIGN IRRIGATION SYSTEM  
 BITS GOLF COURSE - LAYOUT 12  
 DRAWING No. 15888-212 SHEET 14 OF 18 REVISION A





**LEGEND:**

- RECYCLED WATER SIGN, TYPE/SIZE ####
- PUMP, TYPE/SIZE ####
- TANK, TYPE/SIZE ####
- LOW LEVEL SENSOR (NOT SHOWN)
- BACKFLOW ASSEMBLY, TYPE/SIZE ####
- IRRIGATION CONTROLLER, TYPE ####
- WEATHER SENSOR, TYPE ####
- FLOW METER, TYPE/SIZE ####
- ISOLATION VALVE (DN## LINE SIZE) C/W 910 VB
- FILTER AUTO SCREEN, DN##, 200 MICRON
- DN50 AIR VALVE C/W 910VB (NOT SHOWN)
- DN25 QCV C/W 910VB (NOT SHOWN)
- DN## SOLENOID VALVE , TYPE #### \* (CONCEPT)
- DN## SOLENOID VALVE , TYPE ####
- DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
- DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
- DN### HDPE PN12.5 LILAC MAIN PIPE - A
- DN### HDPE PN12.5 LILAC MAIN PIPE - B\* (CONCEPT)
- DN### HDPE PN12.5 LILAC MAIN PIPE - C
- DN### HDPE PN12.5 LILAC LAT PIPE - A\* (CONCEPT)
- DN### HDPE PN12.5 LILAC LAT PIPE - B
- DN### HDPE PN12.5 LILAC LAT PIPE - C
- POWER CABLE & CONDUIT ROUTE (240-415V)
- CONTROL WIRE ROUTE A, ## (NOT SHOWN)
- CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING

**BITS CLUBS - WATER SUPPLY PUMP OPTION 5 - PART B**  
 POTABLE WATER BACKUP FOR LIMITED CAPACITY AT Q=10 L/S INTO 46.4 KL TANK, IF RECYCLED WATER IS UNAVAILABLE FOR AN EXTENDED PERIOD.  
 CLUB ALLOCATION ESTIMATES AT RESTRICTED PUMP OUT RATE OF 10L/S AS FOLLOWS;

- GOLF - TEES & GREENS ONLY (UP TO 2HA) : 2 NIGHTS / WEEK
- AFL & CRICKET (1.8HA): 2 NIGHTS / WEEK
- SOCCER (2HA): 2 X NIGHTS PER WEEK

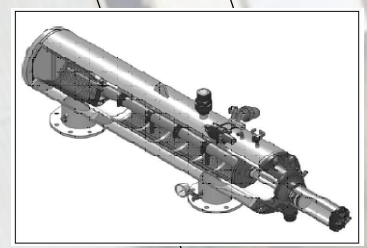
THE CONCEPT IS TO ALLOW EACH CLUB TO APPLY AT LEAST 17MM/WEEK USING AN EXTENDED TIME WINDOW OF 9.5HR/NIGHT FOR BASIC MAINTENANCE IRRIGATION FOR A LIMITED PERIOD UNTIL RECYCLED WATER IS AVAILABLE. ONE SPARE NIGHT IS AVAILABLE TO THE SPORTS CLUBS WHICH CAN BE BASED ON SEASONAL DEMAND & FIELD CONDITION

**POWER SUPPLY**  
 CONNECT TO EXISTING MAIN DISTRIBUTION BOARD TO SUB-BOARD IN SHED  
 TOTAL LOAD, PUMPS 44KW ~ 80A 415V PLUS CIRCUITS FOR 240V GENERAL POWER & LIGHTING.  
 DECOMMISSION POWER SUPPLY TO EXISTING PUMP SHED (44KW CAPACITY, 80FLA @ 415V)

**BITS CLUBS - WATER SUPPLY PUMP OPTION 3 (FOR ALTERNATIVE REFER INSERT OPTION 4)**  
 NEW SHED (9X4X2.7M) & PUMP SYSTEM  
 COMBINED GOLF (30 L/S\*) + SPORTS FIELDS (10 L/S) PUMP UNIT & FILTER FOR BOTH AREAS  
 GRUNDFOS MPC 4X CRNE32-4-2 (11KW / 20FLA @ 415V EACH) 4X DUTY, Q= 40 L/S @ H=70M\*  
 AUTO FLUSH SCREEN FILTER , FILTAWORX FW200 (FULL 316SS), C/W 316SS BYPASS MANIFOLD & 3X BUTTERFLY VALVES  
 NOTE (\*) GOLF PUMP/MAINS CAPACITY INCLUDES FUTURE 5 HOLES FOR TOTAL 18 HOLES, EXISTING 13 HOLES DUTY OF Q= 22 L/S @ H=70M, THEREFORE DUTY FOR EXISTING COMBINED AREAS Q=32 L/S @H=70M TO STAY WITH RECYCLED WATER INFLOW CAPACITY. INFLOW CAPACITY REQUIRES INCREASE WHEN GOLF COURSE IF EXTENDED BEYOND EXISTING AREAS (13 HOLES) NOMINATED

**RECYCLED WATER SUPPLY - NEW SUCTION PIPE ROUTE**  
 REDIRECT EXISTING PIPE FROM NEAREST CONNECTION POINT. CONCRETE WELL. DECOMMISSION EXISTING PUMP SHED, POWER SUPPLY & CAP PUMP SUCTION NEAREST TO THE NEW CONNECTION POINT. GRC TO PROVIDE AS-CONSTRUCTED DRAWINGS OF RW PIPE FROM EXISTING TANKS WITH DETAILED PIPE SIZES. NOMINAL PEAK FLOW DEMAND 40 L/S FOR GOLF + SPORTS FEILD DEMAND COMBINED, PROPOSED CONCEPT PIPE SIZING 280MM HDPE PN12.5 (LILAC) FOR TOTAL FUTURE DEMAND (BITS 18 HOLES GOLF PLUS BITS SPORTS FIELDS)

**DOSING:**  
 NO SPECIFIC ALLOWANCE HAS BEEN MADE AT THE CONCEPT STAGE ON-SITE, OR AT STP, FOR ADDITIONAL WATER TREATMENT OR DOSING. POTENTIAL OPTIONS ARE ACID (pH), LIQUID CALCIUM (Na) & SURFACANTS (HW/HS). CHEMICAL STORAGE, BUNDING, SAFETY SHOWER & OPERATOR TRAINING TO BE CONSIDERED. GRC TO CONFIRM IF ANY SPECIFIC DOSING REQUIREMENT ON-SITE.



316SS AUTO SCREEN FILTER - BY PASS NOT SHOWN  
 DN200 COMBINED OR DN150 GOLF & DN100 SPORTS  
 NTS

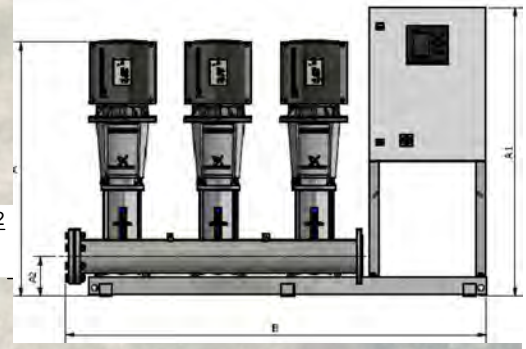
**BITS CLUBS - WATER SUPPLY OPTION 5 - PART A**  
 CONNECT TO EXISTING POTABLE WATER SUPPLY WITH DN80 BACKFLOW ASSEMBLY & 110MM HDPE PIPE TO TANK  
 NOMINAL DUTY: Q 10L/S @ H= 25M  
 DESIGN OPERATING TIME WINDOW FOR POTABLE: 8.30PM TO 6AM

EXISTING DN100 POTABLE METERED WATER SUPPLY C/W BACKFLOW ASSEMBLY. NOMINAL STATIC HEAD = 64M

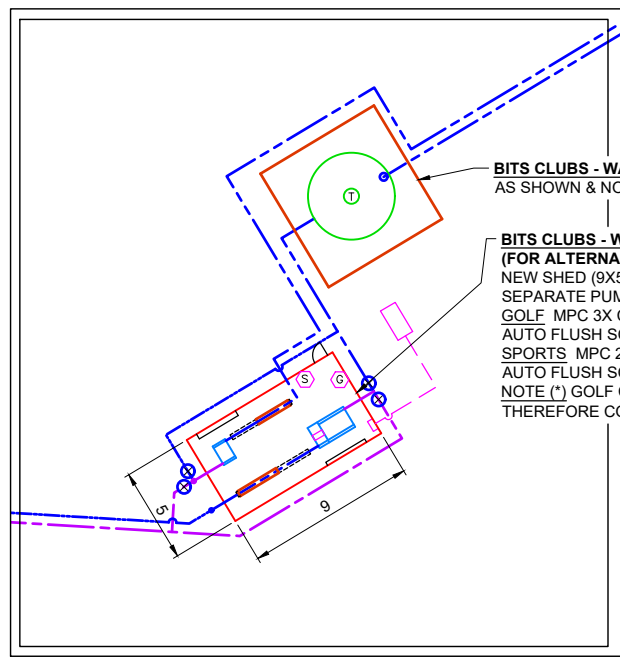


COMBINED GOLF + SPORTS PUMP UNIT GA-4XCRNE32-4-2  
 INCLUDES FUTURE OR STANDBY  
 NTS

SPORTS ONLY PUMP UNIT GA-2XCRNE15-4  
 NTS



GOLF ONLY PUMP UNIT GA-3XCRNE32-4-2  
 INCLUDES FUTURE OR STANDBY  
 NTS

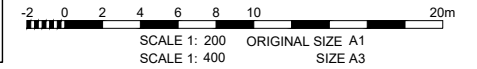


**BITS CLUBS - WATER SUPPLY PUMP OPTION 5 - PART B**  
 AS SHOWN & NOTES ON BASE DRAWING ABOVE

**BITS CLUBS - WATER SUPPLY PUMP OPTION 4 (FOR ALTERNATIVE REFER OPTION 3 - ON BASE DRAWING)**  
 NEW SHED (9X5X2.7M) & PUMP SYSTEM  
 SEPARATE PUMP UNITS & FILTERS FOR GOLF & SPORTS FIELDS  
 GOLF MPC 3X CRNE32-4-2 (11KW EACH) 3X DUTY\*, Q= 30 L/S @ H=70M  
 AUTO FLUSH SCREEN FILTER , FILTAWORX FW150EX (316SS) & BYPASS  
 SPORTS MPC 2X CRNE15-4 (5.5KW EACH) 2X DUTY, Q= 10 L/S @ H=70M  
 AUTO FLUSH SCREEN FILTER , FILTAWORX FW100EX (316SS) & BYPASS  
 NOTE (\*) GOLF CAPACITY FOR EXISTING 13 HOLES IS Q= 22 L/S @ H=70M, THEREFORE COMBINED FLOW CAPACITY Q= 32 L/S FOR EXISTING AREAS.

**IRR OPTIONS 1&2**  
 2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
 FOR COMMENT & APPROVAL



**PRO**

REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					

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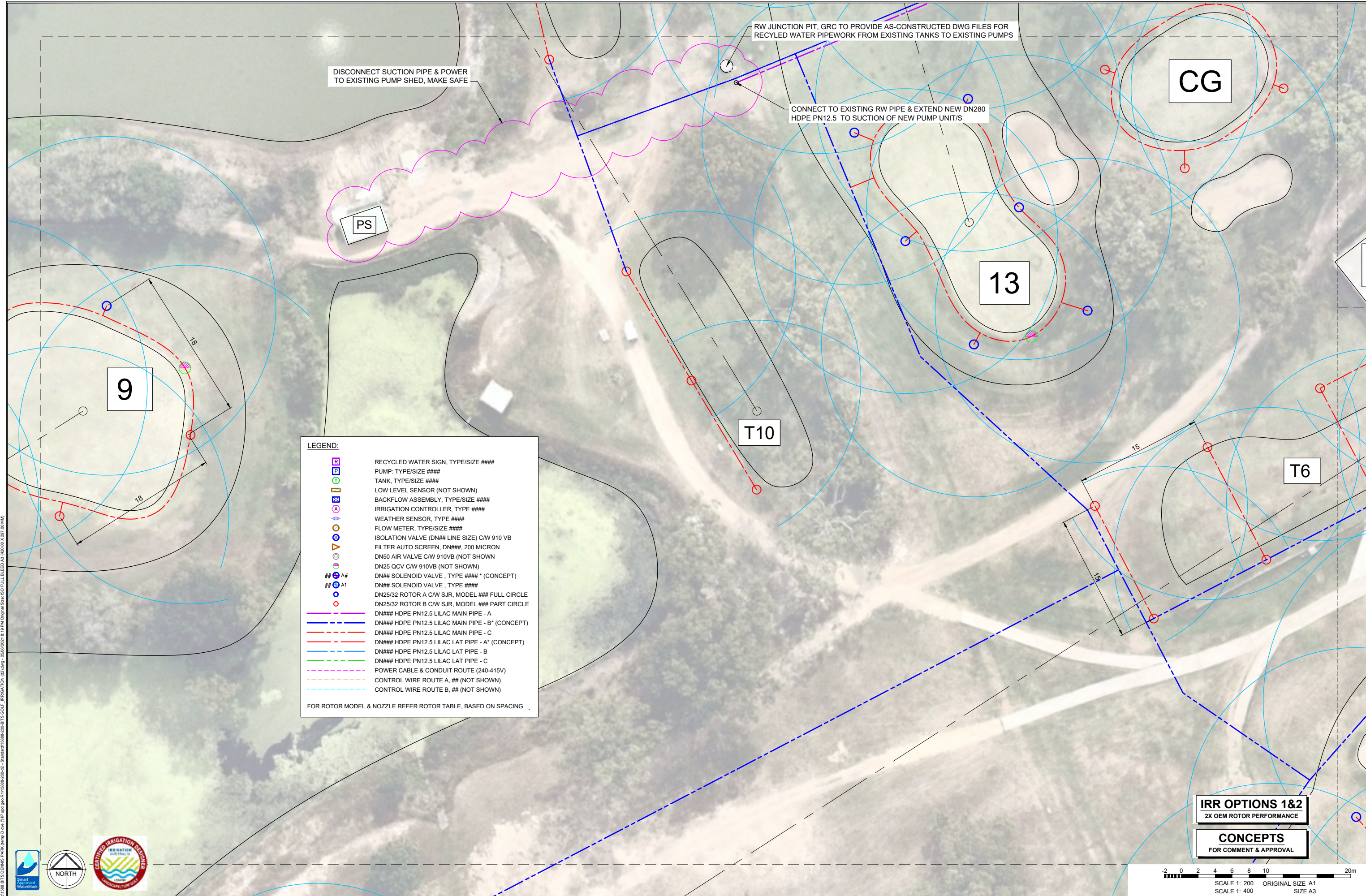
**DES/DRAWN:** EM  
**CHECKED:** PH  
**APPROVED:** SJ  
**DATE:** 12/05/2021  
**DRAFT REF:** 4-GRC-d2

**CLIENT:** GLADESTONE REGIONAL COUNCIL  
 182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX

**PROJECT:** DETAILED DESIGN IRRIGATION SYSTEM  
 BITS GOLF COURSE WATER SUPPLY - LAYOUT 1

**DRAWING No.** 15888-220  
**SHEET** 15 **OF** 18  
**REVISION** A





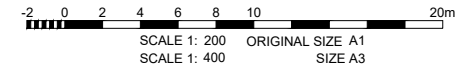
**LEGEND:**

- [R] RECYCLED WATER SIGN, TYPE/SIZE ####
- [P] PUMP, TYPE/SIZE ####
- [T] TANK, TYPE/SIZE ####
- [L] LOW LEVEL SENSOR (NOT SHOWN)
- [B] BACKFLOW ASSEMBLY, TYPE/SIZE ####
- [I] IRRIGATION CONTROLLER, TYPE ####
- [W] WEATHER SENSOR, TYPE ####
- [F] FLOW METER, TYPE/SIZE ####
- [I] ISOLATION VALVE (DN## LINE SIZE) C/W 910 VB
- [F] FILTER AUTO SCREEN, DN##, 200 MICRON
- [A] DN50 AIR VALVE C/W 910VB (NOT SHOWN)
- [Q] DN25 QCV C/W 910VB (NOT SHOWN)
- [S] DN## SOLENOID VALVE, TYPE #### \* (CONCEPT)
- [S] DN## SOLENOID VALVE, TYPE ####
- [R] DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
- [R] DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
- [A] DN### HDPE PN12.5 LILAC MAIN PIPE - A
- [B] DN### HDPE PN12.5 LILAC MAIN PIPE - B\* (CONCEPT)
- [C] DN### HDPE PN12.5 LILAC MAIN PIPE - C
- [A] DN### HDPE PN12.5 LILAC LAT PIPE - A\* (CONCEPT)
- [B] DN### HDPE PN12.5 LILAC LAT PIPE - B
- [C] DN### HDPE PN12.5 LILAC LAT PIPE - C
- [P] POWER CABLE & CONDUIT ROUTE (240-415V)
- [A] CONTROL WIRE ROUTE A, ## (NOT SHOWN)
- [B] CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING.

**IRR OPTIONS 1&2**  
2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
FOR COMMENT & APPROVAL



Drawing file: D:\Work\4-GR-C\4-GR-C-D2\4-GR-C-D2.dwg - 19 PM Original Size: ISO Full BLEED A3 (420.00 x 297.00 MM)



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					

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DES/DRAWN:	EM	CLIENT:	GLADESTONE REGIONAL COUNCIL
CHECKED:	PH	PROJECT:	182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX
APPROVED:	SJ	PROJECT:	DETAILED DESIGN IRRIGATION SYSTEM BITS GOLF COURSE WATER SUPPLY - LAYOUT 2
DATE:	12/05/2021	DRAWING No.	15888-221
DRAFT REF:	4-GRC-d2	SHEET	16 OF 18
		REVISION	A





**LEGEND:**

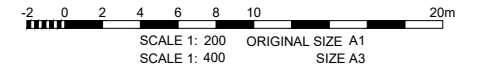
- R RECYCLED WATER SIGN, TYPE/SIZE ####
- P PUMP, TYPE/SIZE ####
- T TANK, TYPE/SIZE ####
- L LOW LEVEL SENSOR (NOT SHOWN)
- B BACKFLOW ASSEMBLY, TYPE/SIZE ####
- A IRRIGATION CONTROLLER, TYPE ####
- W WEATHER SENSOR, TYPE ####
- F FLOW METER, TYPE/SIZE ####
- I ISOLATION VALVE (DN## LINE SIZE) C/W 910 VB
- F FILTER AUTO SCREEN, DN##, 200 MICRON
- A DN50 AIR VALVE C/W 910VB (NOT SHOWN)
- Q DN25 QCV C/W 910VB (NOT SHOWN)
- S DN## SOLENOID VALVE , TYPE #### \* (CONCEPT)
- S DN## SOLENOID VALVE , TYPE ####
- R DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
- R DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
- DN### HDPE PN12.5 LILAC MAIN PIPE - A
- DN### HDPE PN12.5 LILAC MAIN PIPE - B\* (CONCEPT)
- DN### HDPE PN12.5 LILAC MAIN PIPE - C
- DN### HDPE PN12.5 LILAC LAT PIPE - A\* (CONCEPT)
- DN### HDPE PN12.5 LILAC LAT PIPE - B
- DN### HDPE PN12.5 LILAC LAT PIPE - C
- POWER CABLE & CONDUIT ROUTE (240-415V)
- CONTROL WIRE ROUTE A, ## (NOT SHOWN)
- CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING

Drawing: D:\Work\41588\41588-01\41588-01.dwg (JHP) 12/05/2021 8:19 PM Original Size: ISO Full BLEED A3 (420.00 x 297.00 MM)

**IRR OPTIONS 1&2**  
2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
FOR COMMENT & APPROVAL



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					



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DES/DRAWN: EM  
CHECKED: PH  
APPROVED: SJ  
DATE: 12/05/2021  
DRAFT REF: 4-GRC-d2

CLIENT: GLADESTONE REGIONAL COUNCIL  
182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX  
PROJECT: DETAILED DESIGN IRRIGATION SYSTEM  
BITS GOLF COURSE WATER SUPPLY - LAYOUT 3  
DRAWING No. 15888-222 SHEET 17 OF 18 REVISION A



Drawing file: D:\Work\ENVC\GCD\HSP\wp015886\_15886-223.dwg - 15/05/2021 8:19 PM Original Size: ISO Full BLEED A3 (420.00 x 297.00 MM)



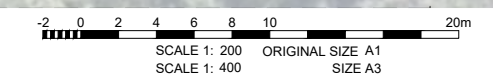
**LEGEND:**

- R RECYCLED WATER SIGN, TYPE/SIZE ####
- P PUMP, TYPE/SIZE ####
- T TANK, TYPE/SIZE ####
- L LOW LEVEL SENSOR (NOT SHOWN)
- B BACKFLOW ASSEMBLY, TYPE/SIZE ####
- A IRRIGATION CONTROLLER, TYPE ####
- W WEATHER SENSOR, TYPE ####
- F FLOW METER, TYPE/SIZE ####
- I ISOLATION VALVE (DN## LINE SIZE) C/W 910 VB
- A FILTER AUTO SCREEN, DN##, 200 MICRON
- A DN50 AIR VALVE C/W 910VB (NOT SHOWN)
- A DN25 QCV C/W 910VB (NOT SHOWN)
- A DN## SOLENOID VALVE , TYPE #### \* (CONCEPT)
- A DN## SOLENOID VALVE , TYPE ####
- A DN25/32 ROTOR A C/W SJR, MODEL ### FULL CIRCLE
- A DN25/32 ROTOR B C/W SJR, MODEL ### PART CIRCLE
- DN### HDPE PN12.5 LILAC MAIN PIPE - A
- DN### HDPE PN12.5 LILAC MAIN PIPE - B\* (CONCEPT)
- DN### HDPE PN12.5 LILAC MAIN PIPE - C
- DN### HDPE PN12.5 LILAC LAT PIPE - A\* (CONCEPT)
- DN### HDPE PN12.5 LILAC LAT PIPE - B
- DN### HDPE PN12.5 LILAC LAT PIPE - C
- POWER CABLE & CONDUIT ROUTE (240-415V)
- CONTROL WIRE ROUTE A, ## (NOT SHOWN)
- CONTROL WIRE ROUTE B, ## (NOT SHOWN)

FOR ROTOR MODEL & NOZZLE REFER ROTOR TABLE, BASED ON SPACING

**IRR OPTIONS 1&2**  
2X OEM ROTOR PERFORMANCE

**CONCEPTS**  
FOR COMMENT & APPROVAL



REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION	REV	ISSUED	D.DWN	APRVD	REVISION DESCRIPTION
A	30/07/2021	EM	SJ	CONCEPTS - FOR COMMENT & APPROVAL					



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The arrangement and general details as shown on this drawing are essentially diagrammatic and must be applied to the circumstances as found on site.

DES/DRAWN: EM  
CHECKED: PH  
APPROVED: SJ  
DATE: 12/05/2021  
DRAFT REF: 4-GRC-d2

CLIENT: GLADESTONE REGIONAL COUNCIL  
182-21 BITS CLUB SITE & DENNIS PARK SPORTS COMPLEX  
PROJECT: DETAILED DESIGN IRRIGATION SYSTEM  
BITS GOLF COURSE WATER SUPPLY - LAYOUT 4  
DRAWING No. 15888-223 SHEET 18 OF 18 REVISION A