

LEGEND: STORM WATER IRRIGATION SYSTEM TO BE DISTRIBUTED OVER PARTS OF THE ELECTRICAL EASEMENT & OUTER SYDNEY ORBITAL CORRIDOR

SPRINKLER TYPE 1 NAAN DAN JAIN - RIVULIS PLASTIC IMPACT SPRINKLER ON 25mm RISER MINIMUM 1.2m IN HEIGHT OF THE GROUND. BLUE 3.5 JET @ 300kPa ON A GENERAL 15m x 15m GRID. - THE INTENT IS TO USE UP EXCESS STORM WATER AND MAINTAIN A LOW LEVEL IN THE BIO-RETENSION STORAGE DAM TO ENABLE STORAGE OF STORM WATER FROM RAIN EVENTS. THE IRRIGATION IS TO TRIGGER NOMINALLY 2 DAYS AFTER RAIN EVENTS SUBJECT TO WATER IN THE STORAGE DAM AND LOCAL WEATHER AND SOIL CONDITIONS. IN SHORT THIS IS A WASTE WATER DISPOSAL SYSTEM AND NOT A PRECISE IRRIGATION SYSTEM OF A HIGH VALUE LANDSCAPE OR CROP.

- NOTE ALL SPRINKLERS TO BE ON RISER AT 1200mm ABOVE GROUND AND FIRMLY SECURED TO A MINIMUM 2100mm OR 2400mm LENGTH STARR STAKE. GENERALLY LATERAL SUPPLY PIPE IS TO HAVE 250mm COVER. THE LONGER 2400mm STAKES TO BE USED IN ALL STORM BASINS.

IRRIGATION MAINLINE, "IRRIGATION MAINS BELOW" ID TAPE TO BE LAID IN FINAL 200mm COVER. PIPE TO BE MINIMUM 350mm COVER. COVER UNDER ACCESS ROADWAYS AND DRIVEWAYS SHALL INCREASE TO 600mm COVER OR TO ENGINEERS REQUIREMENTS AND TO BE SLEEVED. - SIZES AS SHOWN MINIMUM PE100, PN12.5 PLAIN BLACK.

STATION LATERAL PIPE - MINIMUM PE100 PN10, GENERALLY SHALLOW TRENCHED INTO THE GROUND WITH NOMINAL 250mm COVER. WHERE LATERALS CROSS ACCESSWAYS THEY ARE TO BE BURIED WITH NOMINAL 600mm COVER AND SLEEVED. LATERAL PIPE TO BE PLAIN BLACK. ALL LATERAL PIPE TO BE SIZE AS SHOWN OR LARGER. SADDLES MAYBE USED TO SPRINKLER RISERS AND MUST USE STAINLESS STEEL NUTS AND BOLTS RATED TO MINIMUM PN16.

IRRIGATION CONTROL CABLE HUNTER DECODER CABLE IDWIRE 2 MINIMUM 3.2mm TO 4KMS. TWISTED PAIR TO BE LAID IN A MINIMUM 32mm BLACK WITH ORANGE STRIPE PE CONDUIT BETWEEN VALVES. ALL CABLES TO BE LAID ADJACENT TO IRRIGATION MAINS AND TERMINATE IN EITHER A SOLENOID VALVE ASSEMBLY PIT OR A VISCONT P2 PIT WITH CONCRETE PIT COVER. ALL CABLE TO INCLUDE HUNTER APPROVED CABLE JOINERS AND SURGE PROTECTION AS RECOMMENDED BY HUNTER. REFER TO HUNTER AREA MANAGER. ON 0417465244. 2 CABLE PATHS REFER TO DRAWING.

CABLE PIT,VISCONT P2 WITH CONCRETE PIT COVER. MAX DISTANCE BETWEEN 100m.

CONDUITS SIZED AS SHOWN OR LARGER. TO EXTEND A MINIMUM OF 1m PAST OR BEYOND KERB OR PATH OR DRIVEWAY EDGE, ETC.

STATION SOLENOID VALVE - HUNTER IGV - WITH DECODER AND GROUNDING AS NECESSARY SOLENOID VALVES TO BE PLACED IN GROUND - REFER TO TYPICAL DETAIL ON PLAN.

VALVE SIZE
VALVE ID NUMBER
APPROXIMATE ZONE FLOW

ISOLATION BALL VALVE 150mm OR LESS - SIZE AS SHOWN AND LOCATED IN COMMERCIAL IRRIGATION VALVE PIT WITH BOLT DOWN COVER FINISHED FLUSH WITH GROUND LEVEL.

FILTER - REFER TO NOTES ON PLAN FOR EACH PUMP STATION.

PUMP- REFER TO NOTES ON PLAN FOR GENERAL PUMP STATION INFORMATION - CONTRACTOR TO COMPLETE THE FINAL PUMP STATION DESIGN AND LAYOUT.

PUMP CONTROL PANEL- REFER TO NOTES ON PLAN FOR THE PUMP STATION

IRRIGATION CONTROLLER - REFER TO NOTES ON PLAN FOR THE IRRIGATION CONTROL SYSTEM.

PULSE FLOW METER- REFER TO NOTES ON PLAN AT THE PUMP STATION

0 10m 20m 40m 60m 80m 100m
scale:

ENVIRONMENTAL CONSERVATION

FLOOD STORAGE BASIN 1

FLOOD STORAGE BASIN 3 FOR TNSW

STORAGE BASIN

LOT 2 WH

ELECTRICAL EXCLUSION AROUND THE STAUNCHAN TOWER.

STORM WATER IRRIGATION/DISTRIBUTION SYSTEM.

- IRRIGATION PUMP STATION AND IRRIGATION CONTROLLER TO BE LOCATED ON THE SOUTHERN EMBANKMENT OF THE STORMWATER STORAGE BASIN.
THE SYSTEM IS TO BE DESIGNED TO REDUCE THE WATER LEVEL IN THE STORAGE BASIN AFTER RAIN EVENTS TYPICALLY COMMENCING 2 DAYS AFTER RAINFALL OR WHEN THE DAM IS AT FULL CAPACITY. THE IRRIGATION PUMP STATION TO BE A QUAD VERTICAL MULTISTAGE PUMP SYSTEM - EQUAL TO LOWARA eSV15-07 COMPLETE YURN KEY ON MANIFOLDS ETC. COMBINED (4 PUMPS) PUMP DUTY TO BE MINIMUM 18LT/SEC @ 650kPa. -PUMPS TO BE EQUAL TO LOWARA eSV 15-07 EACH 5.5kw.

PUMP STATION TO INCORPORATE 150mm 316 STAINLESS STEEL HD MANIFOLDING AND ALL ISOLATION VALVES - PUMP SYSTEM TO BE "TURN KEY" FROM BROWN BROS ENGINEERING AND INCLUDE SITE COMMISSIONING.

A STAINLESS STEEL "FILTAWORX" 150mm 80 MESH (200 MICRON) ONLINE SELF CLEANING SCREEN FILTER IS TO BE INSTALLED DOWN STREAM FROM THE IRRIGATION PUMPS MODEL "FW150-EL" COMPLETE WITH 240v POWERED CONTROLLER AND ISOLATION VALVES BEFORE AND AFTER THE FILTER.

IRRIGATION CONTROLLER TO BE HUNTER ACC2 - 2 WIRE DECODER TYPE COMPLETE WITH SECURE MODEM AND INTERNET ACCESS FOR WEATHER DATA (OR LOCAL HUNTER SUPPLIED WEATHER STATION). SELF ADJUSTING BASED ON WEATHER DATA PARAMETERS: DELAY, CANCEL, SUSPENSION & ACTIVATE OF THE IRRIGATION PROGRAMING SUBJECT TO CURRENT CONDITIONS AND "IF/THEN" CONDITIONS. REPORTING FAULTS AND ALARMS AND REMOTE ACCESS CONTROL OF THE IRRIGATION IN REAL TIME. USER ACTIVITY LOG AND HISTORY OF EVENTS.

THE IRRIGATION CONTROLLER IS TO REPORT FAULTS WITHIN THE SYSTEM TO THE OPERATORS VIA EMAIL OR SMS. AND BE CAPABLE OF PROVIDING HISTORICAL SYSTEM OPERATIONAL DATA.

THE IRRIGATION SYSTEM SHALL BE CAPABLE TO AUTOMATICALLY SUSPEND IRRIGATION IN THE EVENT OF RECENT PAST HEAVY RAINFALL (SELECTABLE UP TO 7 DAYS IN THE PAST. FINAL APPLICATION RATES AND OPERATIONAL TIMES TO BE DETERMINED ON SITE GIVEN THE FINAL CONDITIONS, SOIL, SLOPE, PLANTING AND SPRINKLER TYPES FOR EACH STATION. OPERATE UP TO (2) TWO STATIONS AT A TIME. - SUBJECT TO HYDRAULIC LIMITATIONS.

THE IRRIGATION SYSTEM DOWNSTREAM FROM THE PUMP SHALL INCLUDE A COMPATIBLE PULSE FLOW METER WITH MAXIMUM 10LT PER PULSE AND THE METER TO INCLUDE A REAL TIME LCD DISPLAY OF CURRENT FLOW RATE AND TOTAL CUMULATIVE FLOW. EQUAL TO BERMAD EUROMAG WITH 608 READER AND DISPLAY WITH OUTPUT CAPABILITY OF REAL TIME FLOW AND CUMULATIVE FLOW.

HOUSING OF THE IRRIGATION PUMPS. PUMP CONTROLS FILTER AND IRRIGATION CONTROL SYSTEM AND ALL COMPONENTS TO BE TO FUTURE DETAIL AND AS SIZED BY THE CONTRACTOR AND APPROVED BY THE ARCHITECTS OR AUTHORITY WITH JURISDICTION. ESTIMATED BUILDING SIZE TO BE A SMALL SHED NOMINALLY 6m X 2.4m. (A well insulated and ventilated container could be suitable).

NOTE :
SPRINKLERS BELOW
RETAINING WALL TO BE
OFF SET BY 15m OR AT
TOP EDGE OF SLOPE TO
FLOOD STORAGE BASIN

FLOOD STORAGE BASIN 2

ELECTRICAL EXCLUSION AROUND THE STAUNCHAN TOWER.

ELECTRICAL EXCLUSION AROUND THE STAUNCHAN TOWER.

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INDEPENDENT IRRIGATION DESIGNERS:
MATTHEW WILSON
AMERICAN SOCIETY
IRRIGATION
CONSULTANTS



KEY:

Sheet 01

Sheet 02

Sheet 03



C 23-12-2024 AMEND IRRIGATION TO STORMWATER BASIN 2 AND BIORETENTION BASIN
A RESUME FOR COUNCIL SUBMISSION - STORM WATER IRRIGATION SYSTEMS
B 18-12-2024 FOR COUNCIL SUBMISSION - STORM WATER IRRIGATION SYSTEMS
A 13-12-2024 DRAFT

REV DATE: AMENDMENT: BY:
CLIENT:



PROJECT:
**ALSPEC INDUSTRIAL
BUSINESS PARK
ORCHARD HILLS
STORM WATER IRRIGATION**
TITLE: **PROPOSED PLAN
OF STORM WATER
REUSE AND DISPOSAL
VIA IRRIGATION**

CAD BY: DESIGN BY: CHECKED BY:
M.W. M.W.

DATE: 13-12-24 DATE: 13-12-24 DATE:

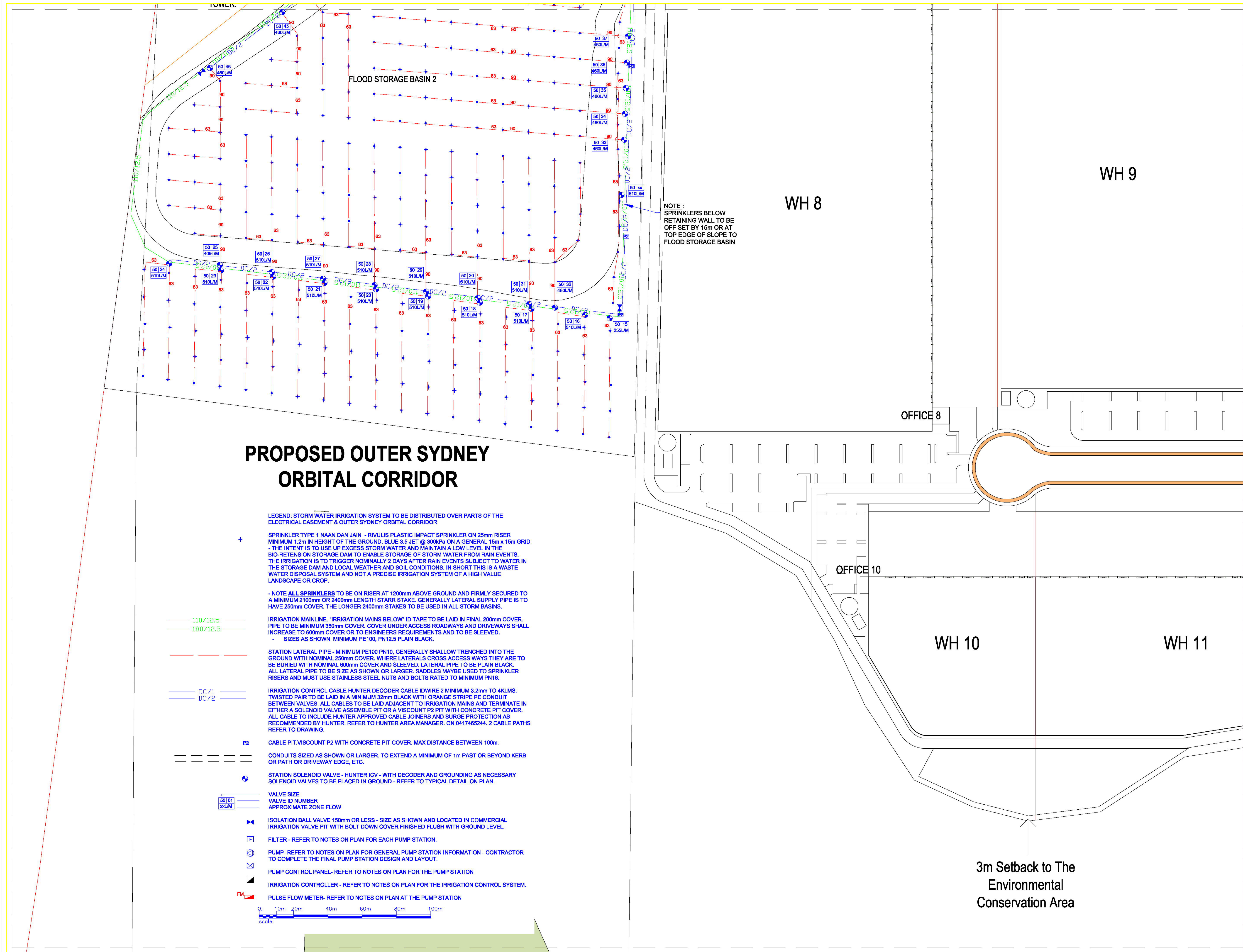
BASE BY: HBB DATE: 09-12-2024

SHEET: 01 of 03 SCALE: 1:1000 @A1

DRAWING No: SHEET No: REV
2413-SWI-SHEET 01 -C

TOTAL IRRIGATION DESIGNERS
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FOR REVIEW COUNCIL SUBMISSION AND PRE-TENDER - NOT FOR CONSTRUCTION



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AMERICAN SOCIETY
IRRIGATION
CONSULTANTS

ASIC
PROFESSIONAL MEMBER

NORTH

KEY:

Sheet 01

Sheet 02

Sheet 03

DIAL BEFORE YOU DIG
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C	23-12-2024	ADDED IRRIGATION TO STORMWATER BASIN 2 AND BIORETENTION BASIN.	MM
A	18-12-2024	FOR COUNCIL SUBMISSION - STORM WATER IRRIGATION SYSTEMS.	MM
B	18-12-2024	FOR COUNCIL SUBMISSION - STORM WATER IRRIGATION SYSTEMS.	MM
A	13-12-2024	DRAFT	MM

REV. DATE: AMENDMENT: BY:

CLIENT:

HBB
PROPERTY

PROJECT:

ALSPEC INDUSTRIAL BUSINESS PARK ORCHARD HILLS STORM WATER IRRIGATION

TITLE: **PROPOSED PLAN OF STORM WATER REUSE AND DISPOSAL VIA IRRIGATION**

CAD BY:	DESIGN BY:	CHECKED BY:
M.W.	M.W.	
DATE:	DATE:	DATE:
13-12-24	13-12-24	

BASE BY: **HBB** DATE: **09-12-2024**

SHEET: **02 of 03** SCALE: **1:1000 @A1**

DRAWING No: SHEET No. REV

2413-SWI-SHEET 02 -C

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GENERAL NOTES

1. IRRIGATION SCOPE

Introduction:

These plans show general irrigation disposal of storm water irrigation system to be installed. It is general in nature and the contractor shall finalize the pump station design and irrigation works layout subject to final site conditions. The irrigation works shall include all pipes, valves, sprinklers, cable, sleeves and conduits, irrigation controller, cabinets, modems and Internet connection for 12 months and all brackets, fixings and incidentals, etc, labour, trenching and backfilling for the installation of the proposed irrigation system as shown on the plans.

Final location for the irrigation pump station to be confirmed on site. The supply of power by the head contractor as necessary to be determined on site. Final location and connection and placement of, mains, sprinklers, valves, laterals, irrigation controller/s are to be determined on site and are to be to the final approval of the head contractor, the client and any Council DA requirements and with consideration of all other trades.

The successful irrigation sub-contractor shall be required to finalize the design and liaise closely with the head contractor and also with all other trades as necessary and coordinate the timing and installation of any critical path items.

The irrigation works shall comprise, but is not limited to, the complete supply installation and commissioning of fully working and operational system/s subject to final client requirements and Council DA determinations.

The head contractor to provide power for controller/s and pumps and pump housing and the final points of connection for irrigation. Refer to plans for approximate locations and flow and pressure requirements.

Final location of the irrigation pipes, cables, the location of solenoid valves and final lateral pipe routes to the sprinklers as shown shall be approved by the head contractor to ensure the construction timetable can be met and all gardens as shown are adequately watered from the water supplies.

Irrigation mains shall include a blue **Irrigation ID** with **Trace wire** tape directly over the main in the final 200mm of trench backfill.

Irrigation mains under access, roadway, service vehicle tracks, paths etc to be to a depth as required by the site engineer and is to be sleeved in a straight line or a sweeping long curve of sufficient size to install the irrigation services through. Generally this would be minimum 250Ø.

Blue or Blue Striped PE pipe IS NOT to be used for irrigation supply on this site. Straight black pipe is to be used. PN10 maybe used for PE laterals. Refer to notes on plan and legend on sheets 1 and 2.

The contractor shall also be required to conduct a full and complete, documented services search (Dial Before You Dig) for depth and location and marking of ALL and any possible services and work with the head contractor and all trades for services location and identification. Such, approvals and service identification work, exposure and protection of any services shall be the full and complete responsibility of the sub-contractor.

The work generally is also to include and or allow for:

- Working in with any other site trades as required or nominated by the head contractor.
- Supply and include for all labour and machinery, for the installation of the system to the client's approval.
- Adjustment and fine tuning of the completed and installed irrigation system as directed and or as necessary and to industry "Best Practice"
- Maintain continuity of use, repair and or replacement of any service affected by the installation of the irrigation system.
- Excavation in all classes of material, imported bedding material, compaction and final backfilling.
- Boring and or sleeving under all/any existing and established pavements, and roads etc
- Final determination and adjustment where necessary and seek approval for mains placement, valves, sprinklers etc.
- All incidental work as may be necessary for the required performance and operation of the irrigation system.
- Minimum 12 month warranty defect liability period on all materials and workmanship.

2. DESIGN

The equipment shown on the plans are diagrammatic in scale. The Irrigation Contractor shall generally follow the design as shown and shall allow to make alterations of the general layout or zoning as maybe required by site constraints. The Irrigation sub-contractor shall check on site, all measurements and final location of equipment and notify the client by written notice and alternate option on any variations to the design should it be required due to site conditions. The contractor shall be responsible for the final working of all installed, and any alterations made to the specified irrigation equipment and design including sprinkler placement and nozzle selection.

3. QUALITY

All work is to be carried out under the direct supervision of suitably qualified and licensed personnel and shall conform to all and any relevant Australian Standards, and all local authority requirements.

All materials are to be new and the best of their kind. Installation, methodology, fit and finish shall be to industry best practice.

4. MATERIALS AND COMPONENTS

All piping shall conform to Australian Standards and be of the type and size of that indicated on the drawings. During construction all pipework shall be securely capped or plugged to prevent the entry of foreign matter. Pipes are to be sealed at all times when work is not expressly being carried out on that section of pipe.

Isolation valves and or cable joints, other than with a solenoid valve, shall be clearly shown on the "as constructed plans" with triangulated measurements and shall be located in a minimum 1419 commercial valve box with bolt tight lockable lids. Mainline isolation valves and solenoid valve boxes shall be fitted flush with ground, or soil level.

Sprinklers shall be: as shown in the Legend and typical detail. All sprinkler locations are indicative only, contractor to finalize as necessary on site with actual conditions. Nozzles to be installed as noted on the drawings or as otherwise determined by the contractor.

The sprinkler spacing may not be consistent due to the odd widths of areas and other site obstructions or features. The contractor shall measure and adjust accordingly on site and make final adjustments as necessary with due consideration for other site obstructions.

Final sprinkler nozzle size, arc and radius to be adjusted as required on site. typically sprinklers are to be on a 15m x 15m grid. application rates is approximately 3.8mm/hr. CU is in the 89-92% range. Final run times and application rates are to be calculated by the contractor and added to the final WAE drawing which a copy is to be added inside the controller cabinet or pump shed.

All sprinklers shall be fitted to "swing arm joint" of 25mm.

Solenoid valves shall be of size as indicated on the drawings. They shall each be preceded by an isolation ball valve of at least the same size and housed in a protective valve box as generally shown on the detail in the drawing. Solenoid valves shall be Hunter ICV with dirty water screens and include decoder as necessary complete with grounding and surge devices at intervals as recommended by Hunter.

Pipework cover shall be minimum 350mm over mains & laterals 250mm cover or as noted on the plans unless site services or other latent conditions prevent such cover. Where cover is limited, this is to be approved by the client & noted on WAE plans. Cover under service access tracks or formed roads should be minimum 750mm or as required by site engineers and are to be sleeved.

Low voltage control cabling. Refer to notes on the plan and Legend for irrigation cable type for the system. Final cable size to be confirmed by the contractor and sleeved in a PE conduit and laid in the shadow of a mainline or lateral pipework. Cables shall be laid on one continuous side in the shadow of the pipework and may only cross over the top of pipework at tee junctions.

All cables shall be joined or terminated using an approved waterproof type cable joiner and a plastic zip cable tie shall be used at the base of each set of joints to bundle cables neatly together and provide extra mechanical strength. Heat Shrink joiners are NOT permissible.

Generally all valve boxes shall be of "lay over" type, commercial grade minimum 1419 VB in size or larger as required complete with a bolt or other type of lockable lid. Rainbird Brand preferred.

PUMPS AND PUMP CONTROL

The contractor shall use the notes on the plan to design, supply and install in conjunction with the Head contractor and architects approval for a pump room to house all the necessary pump/s, pump control and irrigation controller, valves meters and filters etc. The pump room shall provide suitable OH& S criteria and ensure suitable vermin proofing while maintaining suitable ventilation and insulation and which allows suitable space for the installation and servicing of all equipment safely. Refer to notes on plan for pump duties and pump selections, suggested housing etc.

INSPECTION, TESTING COMMISSIONING AND MAINTENANCE- IRRIGATION

The contractor is to provide an experienced representative as may be required for inspections given 72hrs notice. Any work found not to be to the satisfaction of, this specification, the plans or the Project Supervisor is to be repaired or replaced as directed in a professional and workmanship like manner to the satisfaction of the Project Supervisor. The cost of repairing and or replacement of any unsatisfactory work shall be totally borne by the contractor.

5. COMPLETION

WORK AS EXECUTED DRAWINGS AND MANUALS. - IRRIGATION

Keep on site at all times and update daily a set of drawings showing final locations of all equipment as necessary. Allow to Submit final draft set of as built drawings for approval by the Project Manager the client and or the client's agent. Final drawings shall be of equivalent scale, look and feel as that which were originally supplied for tender and shall include all changes, the contractors name, contact details and date of completion and acceptance by the client.

Upon final inspection and acceptance by the client, make any adjustments/ add any additional information requested and submit with application for practical completion and operational acceptance along with irrigation plans in hard copy and electronically in dwg..

- 2 sets of prints in A1 and 3 reduced sets in A3
- 1 x set drawings in AutoCAD .dwg format, and .pdf on email or thumb drive.
- Laminated set of plans to be included in each of the Irrigation controller Cabinets.

Completion date and any compliance certificates from any authority having jurisdiction over the works to be referenced on the final WAE plans.

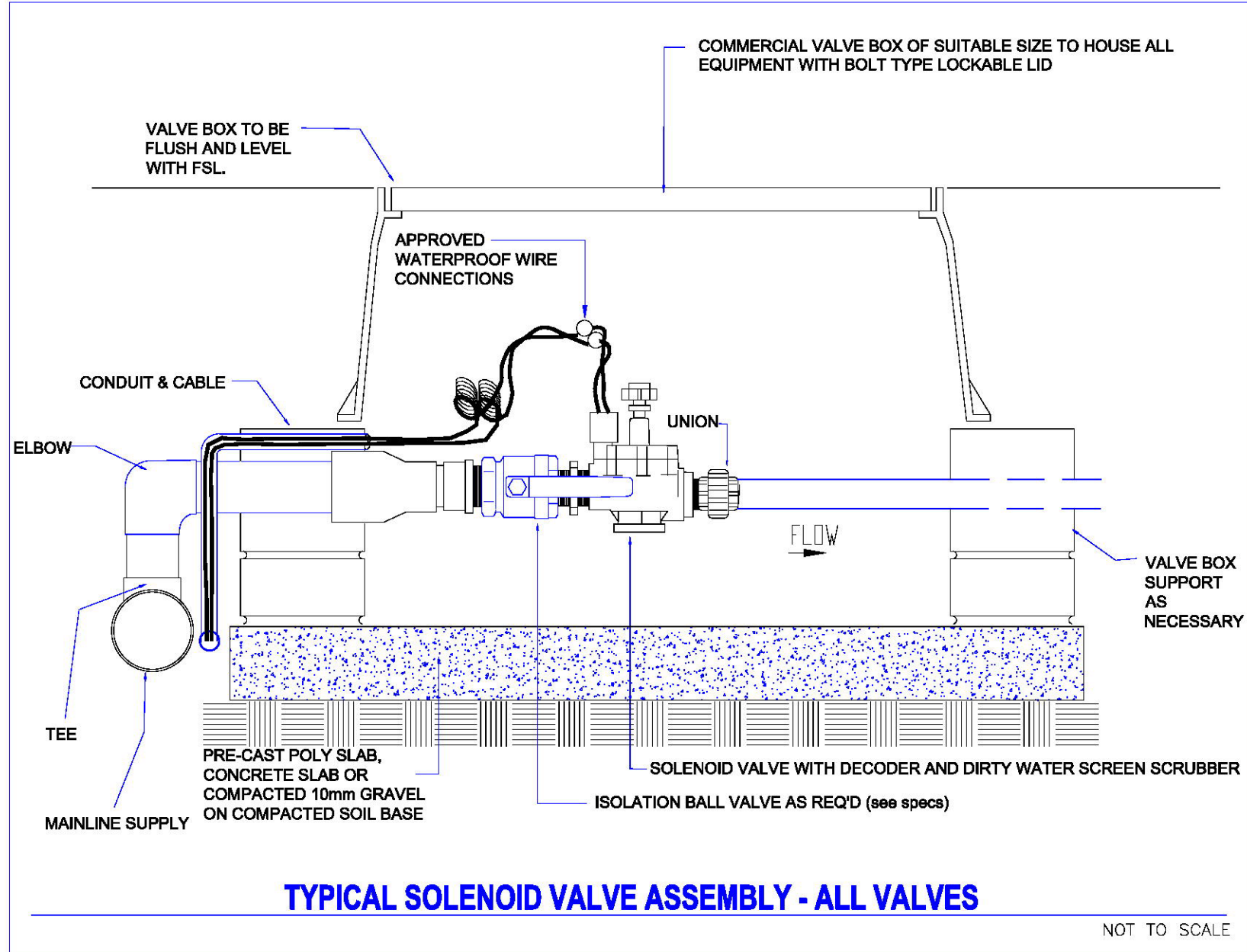


APPROVED COMMERCIAL ISOLATION AND OR SOLENOID VALVE BOX



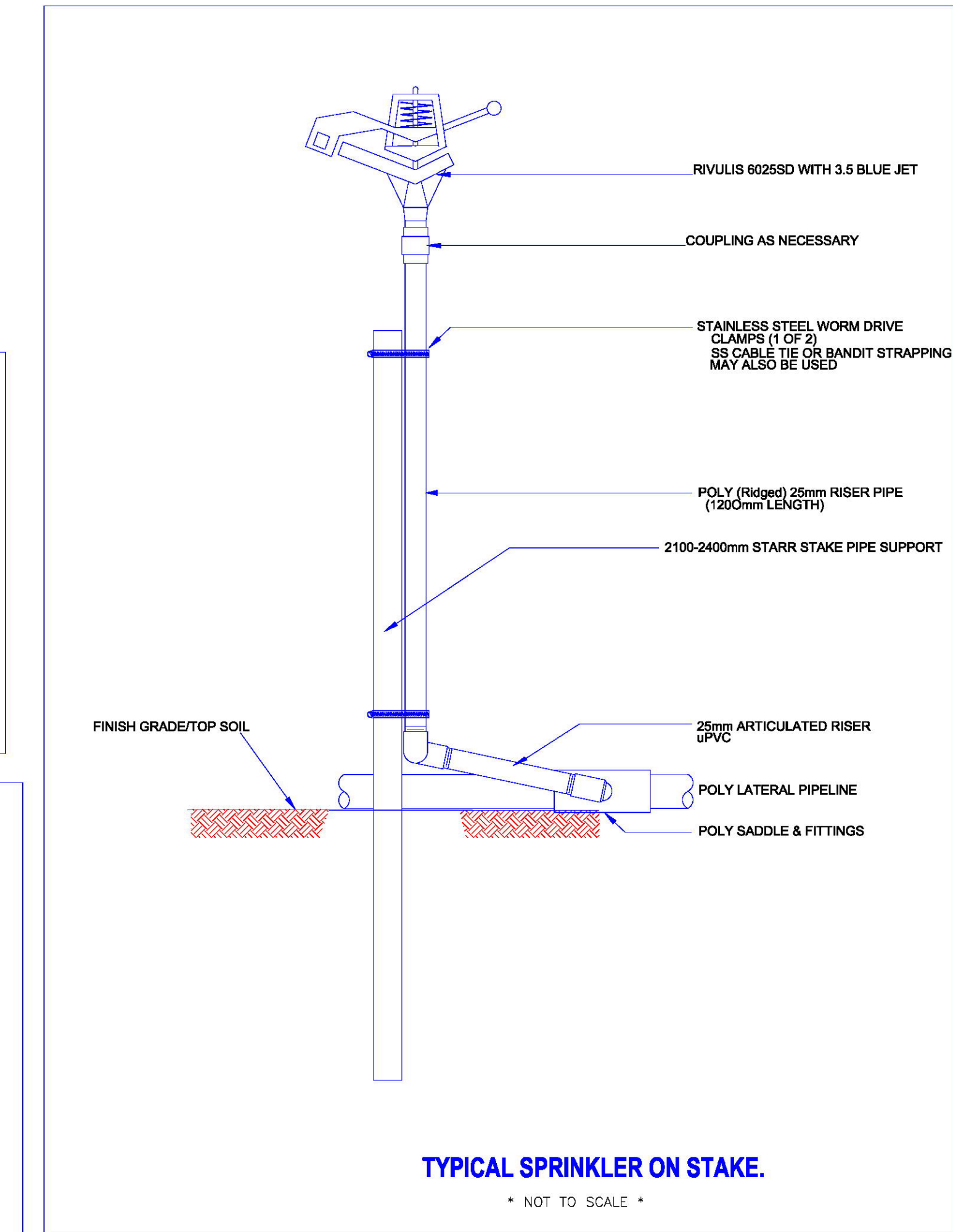
APPROVED SOLENOID VALVE

APPROVED CABLE CONDUIT CABLE, CABLE PITS, ID TAPE FOR CABLE CONDUIT AND DECODER INSTALLATION



TYPICAL SOLENOID VALVE ASSEMBLY - ALL VALVES

NOT TO SCALE



TYPICAL SPRINKLER ON STAKE.

• NOT TO SCALE •

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KEY:

Sheet 01

Sheet 02

Sheet 03



C	23-12-2024	ADDED IRRIGATION TO STORMWATER, SHEET 2 AND DORETENSION BASIN.	HW
		A RESUSE FOR COUNCIL SUBMISSION- STORM WATER IRRIGATION SYSTEMS.	
B	18-12-2024	FOR COUNCIL SUBMISSION- STORM WATER IRRIGATION SYSTEMS.	HW
A	13-12-2024	DRAWN	HW

REV DATE: AMENDMENT: BY:

CLIENT:



PROJECT:
ALSPEC INDUSTRIAL BUSINESS PARK ORCHARD HILLS STORM WATER IRRIGATION
TITLE: **PROPOSED PLAN OF STORM WATER REUSE AND DISPOSAL VIA IRRIGATION**

CAD BY:	DESIGN BY:	CHECKED BY:
M.W.	M.W.	
DATE:	DATE:	DATE:
13-12-24	13-12-24	
BASE BY:	DATE:	
HBB	09-12-2024	
SHEET:	SCALE:	
03 of 03	1:1000 @A1	
DRAWING No:	SHEET No:	REV
2413-SWI-SHEET 03 -C		

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