marline
BUILDING SERVICES ENGINEERS

About Marline Engineering Newcastle

At Marline, we take a comprehensive approach when designing your new development.

With in-house electrical, mechanical and hydraulic engineers, Marline Engineering makes your engineering design needs a breeze. We are able to adjust, implement and create designs on AutoCAD and REVIT which makes it easy for contractors and builders to build our designs.

We advise you on the most affordable, practical and effective solutions and systems based on the site and legal factors.

As consulting engineers, Marline has also expanded the range of services to provide a wide range of building services disciplines including Air-conditioning, Electrical, Hydraulics, Fire Protection and Lift Services.

Marline has seen a huge amount of growth in the Energy sector. We provide services that go above and beyond the standard regulatory requirements and offer unique solutions to your Section J or JV3 Alternative solution reports. We also offer a fast NABERS and BEEC certification that ensures advertising for commercial properties are fully compliant with the CBD advertising rules and regulations.

With engineering consulting experience that dates back as far as 1975, we're one of the best engineering companies in Australia, and have developed the kind of projects that residential and commercial property developers benefit from.

Our Newcastle engineering firm continues to grow, however our team prides itself on every customer receiving the kind of high quality workmanship and personalised service that our company is known for.

To accommodate the expansion and demand for engineering services within Newcastle and throughout New South Wales, Marline Engineering has almost doubled the number of highly trained employees in the last five years.

Our engineering firm currently employs ten engineers, eight technical assistants and an office administrator. As a result, we continue to be leaders amongst engineering companies in Australia, with a large portfolio and a positive attitude.

PROJECT No:
MN14834

CLIENT:
WEDGETAIL PROJECT CONSULTING

ARCHITECT:

MECHANICAL - ELECTRICAL - HYDRAULIC - FIRE - ENERGY - NABERS - STORMWATER - SECTION J - BEEC

Fire Detection Services

PROPOSED EXTENSION
WOOD WASTE PROCESSING BUILDING
ANL TEA GARDENS, PINDIMAR ROAD, TEA GARDENS, NSW 2324

DRAWING SCHEDULE

FD-00-000	COVER SHEET
FD-00-001	LEGEND & NOTES
FD-10-001	WOOD WASTE PROCESSING BUILDING - FIRE DETECTION LAYOUT

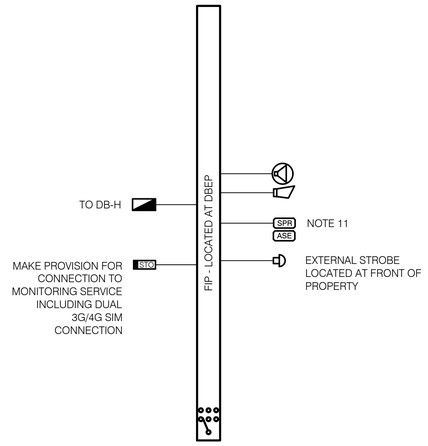
100% ISSUE

FIRE DETECTION SERVICES

NOTE: SOME ITEMS MAY NOT BE USED

FIRE DETECTION & OWS

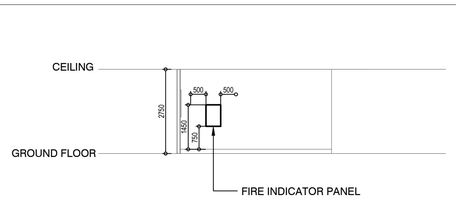
FIP	FIRE INDICATOR PANEL
FAS	FIRE ALARM SHUTDOWN TRIP - CO-ORDINATE WITH OTHER TRADES
	SURFACE MOUNTED SPEAKER
	RECESSED SPEAKER
	HORN SPEAKER
	FIRE ALARM BELL & STROBE



FIRE DETECTION & BUILDING OCCUPANT WARNING SYSTEM BLOCK DIAGRAM

NOTES:

1. PROVIDE A COMPLETE BUILDING OCCUPANT WARNING SYSTEM TO BE PROVIDED IN ACCORDANCE WITH BCA/NCC 2022, SPECIFICATION 20C7, LOCAL COUNCIL, AS 1670.1, & FIRE ENGINEERING REPORT REQUIREMENTS
2. FIP TO BE A DIGITAL ADDRESSABLE TYPE.
3. THE PROVISION FOR MONITORING IS TO INCLUDE PRIMARY & BACKUP TELEPHONE LINES & ALL ASSOCIATED COSTS. THE ONLY COST PROVIDED BY THE CLIENT IS FOR THE ANNUAL SUPERVISORY SERVICE.
4. STROBE TO BE INSTALLED AT DESIGNATED BUILDING ENTRY POINT.
6. PROVIDE SIGNAL, CABLING & CONTROL TO UNLOCK ALL EXIT DOORS IN THE EVENT OF A FIRE. LIAISE WITH SECURITY CONTRACTOR & DOOR INSTALLERS ON DETAILS. ACTIVATION OF BREAK GLASS UNITS SHALL ALSO UNLOCK ALL EXIT DOORS.
7. PROVIDE FIRE ALARM SHUTDOWN CONTROL CABLING TO THE MSSB CONTROL PANEL AND ALL REQUIRED DUCTED AIR-HANDLING MECHANICAL EQUIPMENT TO INITIATE AUTOMATIC SHUTDOWN WHEN IN ALARM MODE. CO-ORDINATE WITH THE MECHANICAL TRADE AS REQUIRED AND PROVIDE ALL ASSOCIATED CABLING AND CONTROLS.
8. THE NUMBER & LOCATION OF BOWS SPEAKERS ARE INDICATIVE ONLY. THE CONTRACTOR SHALL ALLOW SUFFICIENT SPEAKERS (ADDITIONAL SPEAKERS IF REQUIRED) TO PROVIDE THE SOUND LEVEL REQUIRED IN ALL AREAS AS PER AS1670.
9. PROVIDE NEW ZONE BLOCK DIAGRAMS ADJACENT THE FIP . ZONE BLOCK DIAGRAMS ARE TO BE PERMANENTLY FIXED, ENGRAVED TRAFFOLYTE TYPE AS PER AS 1670.1.
10. PROVIDE COMPLETE DOCUMENTATION OF THE INSTALLATION AS PER AS 1670.1 REQUIREMENTS INCLUDING, BUT NOT LIMITED TO: AS-INSTALLED DOCUMENTATION, EQUIPMENT DETAILS, TEST CERTIFICATES, MAINTENANCE LOGS, AND ZONE BLOCK DIAGRAMS.
11. SPRINKLER CONTRACTOR TO PROVIDE INTERFACE TO FIP TO ACTIVATE OCCUPANT WARNING SYSTEM UPON FLOW SWITCH ACTIVATION. SUPPLY AND INSTALL AN ASE TO ALLOW FOR MONITORING OF THE RESIDENTIAL SPRINKLER SYSTEM IN ACCORDANCE WITH BCA/NCC 2022 SPECIFICATION 23C3.



FIRE INDICATOR PANEL MOUNTING DETAIL

NOTES:
1. FIRE INDICATOR PANEL TO BE INSTALLED SO THE CONTROLS AND INDICATORS ARE NOT LESS THAN 750mm AND NOT MORE THAN 1850mm ABOVE FLOOR LEVEL.
2. A MINIMUM CLEARANCE OF 1m IN FRONT AND 0.5m TO EACH SIDE TO BE MAINTAINED IN ACCORDANCE WITH AS1670.1 REQUIREMENTS.

FIRE DETECTION SERVICES NOTES

FIRE SERVICES
1. ALL WORKS TO THE DRY FIRE DETECTION AND BOWS SYSTEM ARE TO BE COMPLETED THE CURRENT SERVICE AND MAINTENANCE CONTRACTOR.
2. PROVIDE A COMPLETE FIRE DETECTION AND ALARM SYSTEM (BOWS) AS DETAILED AND IN ACCORDANCE WITH AS 1670.1, NCC/BCA 2022, THE CONTRACT DRAWINGS, & THE SPECIFICATION. PROVIDE ALL EQUIPMENT NECESSARY TO COMPLETE A WORKING INSTALLATION, INCLUDING FDCIE, DETECTORS, ALL CABLING, POWER SUPPLIES, ACCESS EQUIPMENT, AND ACCESSORIES.
3. PROVIDE A BUILDING OCCUPANT WARNING SYSTEM THROUGH SPEAKERS, HORNS, SOUND PROJECTORS, AND VISUAL ALARM DEVICES IN ACCORDANCE WITH AS 1670.4. QUANTITY AND POSITION OF FIRE ALARM SPEAKERS SHOWN IS INDICATIVE ONLY. PROVIDE ADDITIONAL SPEAKERS AS REQUIRED TO MEET THE SOUND PRESSURE LEVELS THROUGHOUT THE BUILDING AS SPECIFIED IN AS 1670.1. ALLOW FOR 5 ADDITIONAL SPEAKERS, PROVIDE TO CLIENT'S REPRESENTATIVE IF ALL 5 ARE NOT UTILISED UPON COMPLETION OF CONTRACT.
4. PROVIDE A COMPLETE CONCEALED SPACE DETECTION SYSTEM IN ACCORDANCE WITH AS 1670.1 THE CONCEALED SPACE DETECTION LAYOUT SHOWN IS INDICATIVE ONLY. FINAL POSITIONING OF ALL DETECTORS IS TO BE CO-ORDINATED WITH ALL OTHER IN-CEILING EQUIPMENT AND STRUCTURES. ACCESS IS TO BE PROVIDED TO ALL CONCEALED SPACE DETECTORS FOR MAINTENANCE AND TESTING. ALL CONCEALED SPACE DETECTORS ARE TO BE A PHOTOELECTRIC SMOKE TYPE AS PER AS 1670.1 APPENDIX M UNLESS NOTED OTHERWISE. PROVIDE AN ADDITIONAL 10 DETECTORS TO CATER FOR DETAILED CO-ORDINATION WITH ALL IN-CEILING EQUIPMENT AND STRUCTURE ON SITE.
5. FULLY COORDINATE THE FINAL LOCATION OF ALL CEILING MOUNTED DETECTORS AND SPEAKERS WITH LIGHTING AND MECHANICAL AND ARCHITECTURAL LAYOUTS. LIAISE WITH ALL TRADES ON SITE AND PROVIDE ALL INFORMATION TO ENSURE WORKS DO NOT CONFLICT WITH OTHER SERVICES. IMPORTANT: DETECTORS ARE NOT TO BE INSTALLED WITHIN 900mm OF ANY AIR-SUPPLY OPENING (AS 1670.1 CLAUSE 5.1.4).
6. EACH DETECTOR ZONE SHALL BE LOADED TO MAXIMUM 75% OF THE CIRCUIT CAPACITY.
7. THE FIRE TRADE SHALL BE RESPONSIBLE FOR THE PROVISION OF A FIRE SAFETY MANAGEMENT PLAN DURING THE CONSTRUCTION PERIOD. THIS IS TO BE DEVELOPED IN CONJUNCTION WITH THE CLIENT'S REPRESENTATIVE, SUPERINTENDENT, ARCHITECT, CERTIFIER, AND NSW FIRE SERVICE.
8. PROVIDE ZONE BLOCK DIAGRAMS ADJACENT THE FDCIE (FIP) AS PER AS 1670.1. ZONE BLOCK DIAGRAMS ARE TO BE A PERMANENTLY MOUNTED, INDELLIBLE, AND COLOUR CODED TYPE BASED ON THE AS-CONSTRUCTED FLOOR PLANS.

SEALING AND LABELLING:
1. ALL SERVICE PENETRATIONS THROUGH FIRE RATED ELEMENTS MUST BE FIRE SEALED AS PER BCA/NCC 2022 SPECIFICATION 13. PROVIDE REMOVABLE SEALING METHODS (FIRE PILLOWS, ETC) IN LARGE PENETRATIONS TO ALLOW FOR INSTALLATION OF FUTURE SERVICES.
2. SEAL ALL PENETRATIONS THROUGH ANY ACOUSTIC WITH AN APPROVED ACOUSTIC SEALANT TO MATCH THE ORIGINAL RATING OF THE PENETRATED BARRIER. PROVIDE ACOUSTIC RATED WALL BOXES FOR ALL SERVICES/OUTLETS INSTALLED IN ACOUSTIC WALLS.
3. SEAL ALL CONDUITS, DUCTS, AND BUILDING ENTRY POINTS TO PREVENT THE INGRESS OF MOISTURE, DIRT, AND VERMIN. EXTERNAL ENVELOPE PENETRATIONS ARE TO BE SEALED TO MATCH THE ORIGINAL ACOUSTIC/SMOKE/FIRE RATING PERFORMANCE OF THE PENETRATED BARRIER.
4. STRUCTURAL MEMBERS AND CAST WALLS OR COLUMNS SHALL NOT BE CUT OR CHASED WITHOUT PRIOR WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.
5. ALL SERVICES SHALL BE COMPREHENSIVELY LABELED TO CLEARLY INDICATE THEIR FUNCTION. EACH ITEM OF EQUIPMENT SHALL BE NUMBERED AND TAGGED. ALL LABELLING IS TO BE OF A PERMANENT, INDELLIBLE TYPE OF ENGRAVED TRAFFOLYTE OR SIMILAR.

CONDUIT:
1. CONDUITS AND FITTINGS SHALL COMPLY WITH AS2052, AS/NZS 2053.1-2001, AS/NZS 2053.2-2001, AS/NZS 2053.3-1995, AS/NZS 2053.4-1995, AS/NZS 2053.5-2001, AS/NZS 2053.6-2001, AS/NZS 2053.7-2002, AS/NZS 2053.8-1995 AND ANY OTHER APPLICABLE STANDARD.
2. ALL SURFACE MOUNTED CONDUITS SHALL BE INSTALLED IN AN ORDERED MANNER PARALLEL TO WALLS, FLOORS AND CEILINGS AS APPLICABLE BUT ALL CONDUITS CAST IN CONCRETE POURS SHALL BE INSTALLED TO THE MOST SUITABLE DIRECT ROUTE. ALL CONDUITS LAID IN PLASTER OR IN WALL CHASES SHALL BE FIRMLY FIXED IN POSITION TO PREVENT MOVEMENT AND/OR VIBRATION
3. IF SURFACE MOUNTED CABLING IS REQUIRED VIA EXTERNAL WALL/ROOF AREAS, CABLING MUST BE CONCEALED IN CONDUIT AND STEEL HAT SECTION FOR THE ENTIRE LENGTH OF CONDUIT. STEEL HAT SECTION IS TO BE SEALED TO PREVENT THE INGRESS OF MOISTURE AND VERMIN AND IS TO BE PAINTED TO MATCH THE SURROUNDING WALL. THE INSTALLATION SHALL BE COMPLETED TO THE SATISFACTION AND APPROVAL OF THE CLIENT'S REPRESENTATIVE.
4. PROVIDE PVC COATED DRAW WIRES IN ALL CONDUITS. THE ENDS OF ALL DRAW WIRES SHALL BE SECURELY FIXED IN PLACE TO PREVENT ACCIDENTAL REMOVAL.
5. PROVIDE ELECTRICAL CONDUITS OF FLAT WALLED HEAVY-DUTY ORANGE PVC TYPE AND COMMUNICATIONS CONDUITS OF FLAT WALLED LIGHT DUTY WHITE PVC TYPE. PROVIDE CONDUITS OF THE SIZE AND QUANTITY SHOWN ON THE SITE PLAN(S). CORRUGATED CONDUIT OF ANY TYPE IS NOT ACCEPTABLE.
6. USE ONLY LARGE RADIUS SWEEP BENDS FOR CHANGES IN DIRECTION AND TRANSITIONS TO VERTICAL RISES. ENSURE THAT CONDUIT BEND RADII ARE LARGER THAN THE MINIMUM BEND RADII OF THE CABLES INSTALLED.
7. CONDUIT SADDLES SHALL BE SPACED A MAXIMUM OF 1200MM APART FOR METALLIC CONDUITS OR 1000MM APART FROM NON-METALLIC CONDUITS. IN AREAS SUBJECT TO HIGH AMBIENT TEMPERATURES THE SADDLE SPACING FOR NON-METALLIC CONDUITS SHALL BE REDUCED TO 500MM.

CABLING:
1. ALL CABLE SIZES NOMINATED ON DRAWINGS ARE MINIMUM SIZES EXCLUDING DERATING FOR INSTALLATION FACTORS SUCH AS SPACING, ROUTING, ETC. FINAL SIZES TO BE IN ACCORDANCE WITH AS/NZS 3008 AND AS/NZS 3017. SUBMIT FINAL CABLE SIZES TO SUPERINTENDENT FOR APPROVAL PRIOR TO ORDERING. VARIATIONS RESULTING FROM FAILURE TO COMPLY WITH THIS REQUIREMENT WILL BE REJECTED.
2. SUBCIRCUIT MINIMUM CABLE SIZES (INCREASE SIZE WHERE NECESSARY FOR REASONS OF VOLTAGE DROP OR DERATING TO AS/NZS 3008.1 AND AS/NZS 3000):
   - LIGHTING SUBCIRCUITS, INCLUDING EMERGENCY LIGHTING: 2.5mm² Cu
   - GENERAL POWER SUBCIRCUITS: 2.5mm² Cu
   - CONTROL CIRCUIT INCLUDING ALARMS, EWIS, ETC: 2.5mm² Cu
   - FLEXIBLE CORDS: 30/0.25mm² Cu
3. SUPPORT ALL CABLING IN CEILING SPACE ON CABLE TRAY AND/OR CATENARY WIRE. CATENARY SYSTEMS SHALL BE TIGHTLY INSTALLED WITH ENDS INCORPORATING TURN BUCKLES. CATENARY WIRES SHALL BE OF THE APPROVED TYPE. NO MORE THAN SIX TPS CABLES SHALL BE SUPPORTED ON A SINGLE CATENARY CABLING SUPPORT SYSTEM.
4. WHERE SUBMAIN/SUBCIRCUIT SUPPLIES ARE PROVIDED FOR OTHER TRADES, THE ELECTRICAL CONTRACTOR IS TO LIAISE WITH THE APPROPRIATE TRADE AND CONFIRM RATINGS AND FINAL LOCATIONS OF CABLE TERMINATIONS.
5. ALL FINAL SUBCIRCUIT CABLING IS TO BE CONCEALED. ALL CABLING IN CEILING VOIDS IS TO BE FIXED CLEAR OF CEILING AND CEILING SUPPORTS. POWER FINAL SUBCIRCUIT CABLING IS TO BE GENERALLY RUN CONCEALED IN STUD WALLS OR INSTALLED IN CONDUIT CAST INTO BUILDING STRUCTURE AS APPROPRIATE TO OUTLET LOCATIONS. SURFACE MOUNTED CABLING IS ONLY TO BE PROVIDED ON DIRECTION OF THE S.R. AND IS TO BE CONCEALED IN SURFACE MOUNTED CONDUIT PAINTED TO MATCH THE SURROUNDING SURFACE. CONDUIT IS TO BE SECURELY FIXED IN PLACE AND SEALED TO PREVENT THE INGRESS OF DUST, MOISTURE, AND VERMIN.

EARTHING AND BONDING
1. SUPPLY AND INSTALL THE COMPLETE EARTHING SYSTEM FOR THE INSTALLATION INCLUDING ALL ELECTRODES, CABLING, CLAMPS, TEST-LINKS AND ALL ASSOCIATED ACCESSORIES AND EQUIPMENT IN ACCORDANCE WITH AS/NZS 3000 AND ANY OTHER RELEVANT STANDARD.
2. LIGHTING FITTINGS, SOCKED OUTLETS AND FIXED TO APPLIANCES SHALL BE EARTHED BY MEANS OF THE EARTH CONDUCTOR WHICH FORMS PART OF THE RESPECTIVE CIRCUIT CABLING. BARE-EARTH CONNECTIONS ARE NOT ACCEPTABLE.
3. THE MECHANICAL AND HYDRAULICS SYSTEMS AS WELL AS ANY FIXTURES SHALL BE BONDED AND EARTHED IN THEIR ENTIRETY BY THE ELECTRICAL TRADE.

TESTING AND COMMISSIONING
1. UPON COMPLETION OF WORKS, CARRY OUT TESTING FOR THE WORKS COMPLETED AND PROVIDE ELECTRICAL CERTIFICATE OF TEST STATING THAT THE ELECTRICAL INSTALLATION, TO THE EXTENT IT IS AFFECTED BY THE ELECTRICAL WORK, HAS BEEN TESTED TO ENSURE THAT IT IS ELECTRICALLY SAFE AND IS IN ACCORDANCE WITH THE REQUIREMENTS OF THE AS/NZS 3000 AND ANY OTHER REQUIREMENTS APPLYING UNDER THE NSW WORK HEALTH AND SAFETY REGULATION 2017 TO THE ELECTRICAL INSTALLATION. THE ELECTRICAL TRADE SHALL ALLOW FOR THESE WORKS TO BE CARRIED OUT BY AN INDEPENDENT COMMISSIONING SPECIALIST.
2. WHERE AN ITEM OF EQUIPMENT OR INSTALLATION FAILS A TEST OR THE DESIRED DESIGN CONDITIONS ARE NOT MET, THE ELECTRICAL TRADE SHALL BE RESPONSIBLE FOR RECTIFICATION THE PROBLEM AND RECOMMISSIONING OF THE EQUIPMENT/INSTALLATION AS REQUIRED.
3. PROVIDE TEST REPORTS FOR ALL SYSTEMS. PROVIDE THE CLIENT WITH ALL TEST RESULTS, ROUND FOR REVIEW. THE CERTIFICATE OF PRACTICAL COMPLETION WILL ONLY BE SIGNED AFTER THE COMPLETE TEST REPORTS HAVE BEEN REVIEWED. INCLUDE A HARD AND SOFT COPY OF THE FULL TEST REPORTS IN THE OPERATION AND MAINTENANCE MANUALS.

HANDOVER & DEFECTS LIABILITY PERIOD
1. GUARANTEE ALL WORK AND MATERIALS AS TO QUALITY, WORKMANSHIP, AND AGAINST DEFECTS FOR A PERIOD OF 12 MONTHS FROM THE DATE OF ISSUE OF THE CERTIFICATE OF PRACTICAL COMPLETION. DURING THIS PERIOD, PROMPTLY REPLACE ALL DEFECTIVE EQUIPMENT, FIXTURES, AND MATERIALS AT NO ADDITIONAL COST. THIS INCLUDES ALL LABOUR AND COSTS NECESSARY FOR THE REMOVAL OF DEFECTIVE PARTS OF COMPONENTS AND OF INSTALLING AND TESTING REPLACEMENTS. PROMPTLY RESPOND TO ALL DEFECTS AND MAINTENANCE ISSUES WITH RAISED BY THE CLIENT OR SUPERINTENDENT DURING THE DEFECTS LIABILITY PERIOD.
2. THE CONTRACTOR WILL BE REQUIRED TO FULLY DEMONSTRATE AND TRAIN THE CLIENT'S STAFF ON THE OPERATION OF EACH INSTALLATION. THIS SHALL BE CARRIED OUT ONCE PRIOR TO HANDOVER AND ONCE ONE (1) MONTHS POST-HANDOVER IF REQUIRED. SPECIALIST SUB-CONTRACTORS/INSTALLERS SHALL BE IN ATTENDANCE.
3. THE ENTIRE INSTALLATION SHALL BE HANDED OVER TO THE CLIENT NEW, CLEAN AND FREE FROM ANY DAMAGE OR DEFECT.
4. PRIOR TO HAND OVER, THE ELECTRICAL TRADE SHALL SUBMIT TO THE CLIENT'S REPRESENTATIVE A COPY OF THE HEALTH AND SAFETY FILE, INSTALLATION OPERATION AND MAINTENANCE MANUALS, TESTING AND COMMISSIONING REPORTS, AND AS BUILT DRAWINGS FOR REVIEW AND APPROVAL. ONCE APPROVED, THE ELECTRICAL TRADE SHALL PROVIDE TO THE CLIENT, THREE HARD AND SOFT COPIES OF THESE DOCUMENTS. NEITHER PRACTICAL NOR FINAL COMPLETION WILL BE CERTIFIED UNTIL THESE DOCUMENTS HAVE BEEN APPROVED AND RECEIVED BY THE CLIENTS REPRESENTATIVE.
5. UPON COMPLETION OF THE WORKS, AND PRIOR TO THE ISSUE OF THE NOTICE OF PRACTICAL COMPLETION, SUPPLY REVIEWED AND AMENDED (AS MAY HAVE BEEN REQUIRED) REPRODUCIBLE AS-CONSTRUCTED DRAWINGS, IN AutoCAD SHOWING THE COMPLETE SERVICES INSTALLATION "AS CONSTRUCTED". PROVIDE ONE (1) A3 SET OF THESE DRAWINGS, BOUND INTO THE OPERATING AND MAINTENANCE MANUAL TOGETHER WITH AN ELECTRONIC COPY OF AutoCAD AND PDF FILES ON USB STORAGE MEDIA.
6. SUPPLY THREE (3) HARD COPIES AND TWO (2) ELECTRONIC COPIES OF THE OPERATING AND MAINTENANCE MANUALS PRIOR TO THE DATE OF PRACTICAL COMPLETION. THE ELECTRONIC COPY SHALL BE IN PDF FORMAT, SINGLE FILE WITH SHOP DRAWINGS AND TESTING AND COMMISSIONING DATA INCLUDED. THESE MANUALS INCLUDE AS A MINIMUM:
   - GENERAL DESCRIPTION OF SYSTEMS.
   - MANUFACTURER'S DIRECTIONS.
   - NORMAL OPERATING PROCEDURES.
   - EMERGENCY OPERATING PROCEDURES.
   - ELECTRICAL AND CONTROL SYSTEMS DESCRIPTIONS.
   - METHOD OF ADJUSTING SYSTEMS.
   - LIST OF EQUIPMENT INSTALLED WITH MANUFACTURERS' NAMES, ADDRESSES AND TELEPHONE NUMBERS.
   - MAINTENANCE INSTRUCTIONS FOR EQUIPMENT AND SYSTEMS.
   - A COPY OF ALL TEST RESULTS.
   - SYSTEM COMPLIANCE CERTIFICATION.
   - 'AS CONSTRUCTED' DRAWINGS

   ALSO INCLUDE: GUARANTEES, CERTIFICATES OF APPROVALS, PERFORMANCE AND TEST DATA SHEETS, COMMISSIONING RECORDS, MANUFACTURERS TEST RESULTS, MANUFACTURERS DIRECTIONS, ETC. RETAIN ANY MANUFACTURERS DIRECTIONS ON SITE FOR REFERENCE AND LATER INCLUSION IN THE OPERATING AND MAINTENANCE MANUALS. REFER TO ELECTRICAL SPECIFICATION FOR FULL REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS ALONG WITH MINIMUM TRAINING REQUIREMENTS.
7. THE CONTRACTOR SHALL UNDERTAKE THERMAL IMAGING OF ALL SWITCHBOARDS PRIOR TO PRACTICAL COMPLETION AND AGAIN PRIOR TO THE END OF THE DEFECTS LIABILITY PERIOD. PROVIDE A REPORT PRESENTING THE RESULTS AND WHERE CABLE/JOINT/EQUIPMENT TEMPERATURES LIE OUTSIDE GENERALLY ACCEPTABLE OR SAFE VALUES, THE ELECTRICAL SHALL BE RESPONSIBLE FOR PROVISION OF REMEDIAL MEASURES.

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Rev	Date	Reason for Issue	Drawn	Design	Verify
4	21.08.24	100% ISSUE	D.M.	J.H.	J.H.
3	02.07.24	100% ISSUE FOR REVIEW	D.M.	J.H.	J.H.
2	19.06.24	REVISED AS REQUESTED	D.M.	J.H.	J.H.
1	03.06.24	50% ISSUE FOR REVIEW	D.M.	J.H.	J.H.

Project
PROPOSED EXTENSION WOOD WASTE PROCESSING BUILDING
ANL TEA GARDENS
PINDIMAR ROAD, TEA GARDENS, NSW 2324

Drawing Title
LEGEND & NOTES

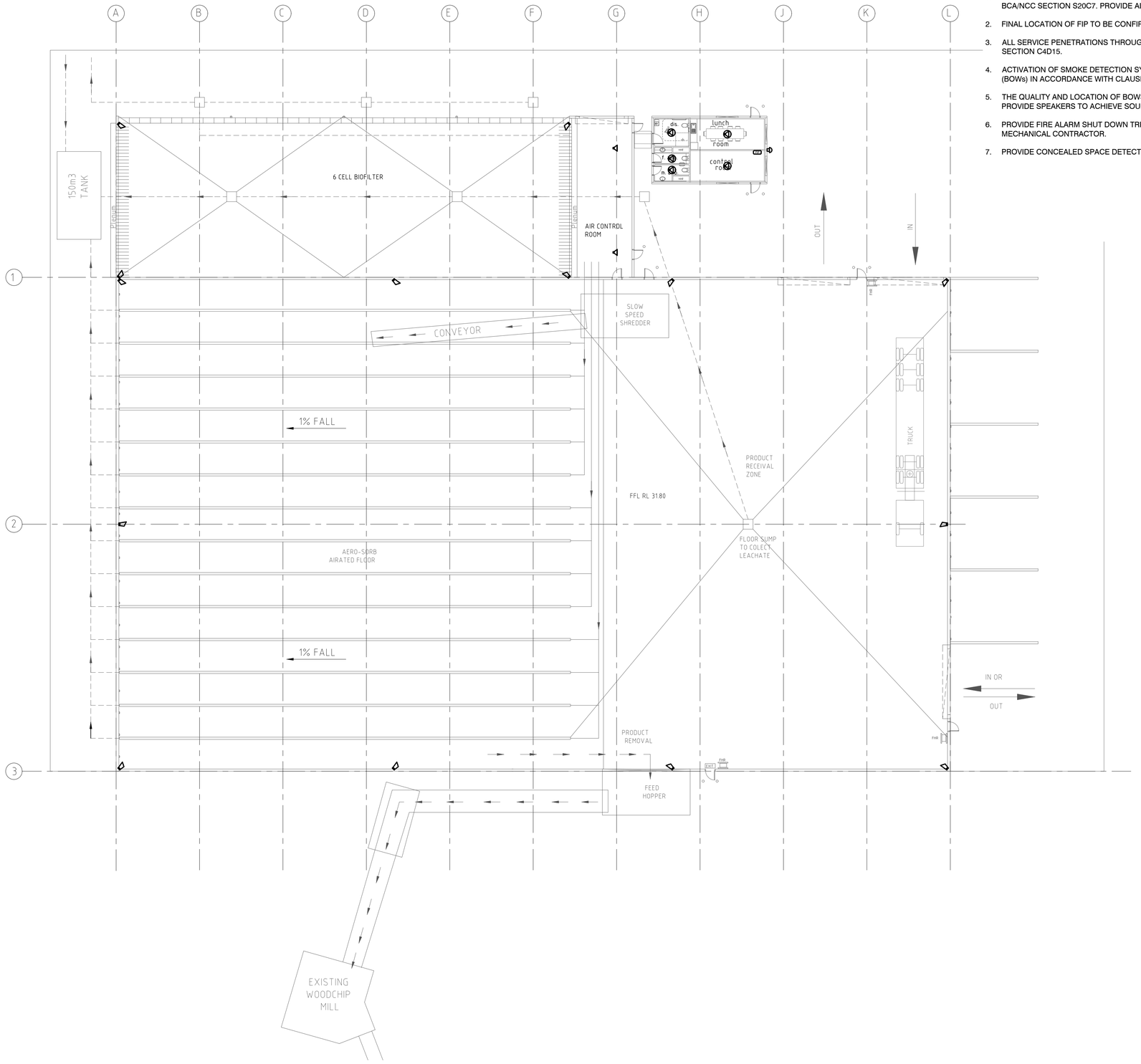
Discipline
FIRE DETECTION SERVICES

Scale N.T.S @ A1

Job No. MN14834

Drawing No. FD-00-001

Rev 4



FIRE DETECTION NOTES:

1. PROVIDE A COMPLETE BUILDING OCCUPANT WARNING SYSTEM IN ACCORDANCE WITH AS 1670.1, AND BCA/NCC SECTION S20C7. PROVIDE ALL NECESSARY EQUIPMENT AND CABLING FOR A COMPLIANT SYSTEM.
2. FINAL LOCATION OF FIP TO BE CONFIRMED ON SITE - ENSURE CLEARANCES AS PER AS 1670.1
3. ALL SERVICE PENETRATIONS THROUGH FIRE RATED ELEMENTS MUST BE FIRE SEALED AS PER BCA/NCC SECTION C4D15.
4. ACTIVATION OF SMOKE DETECTION SYSTEM WILL OPERATE AN BUILDING OCCUPANT WARNING SYSTEM (BOWs) IN ACCORDANCE WITH CLAUSE 3.22 OF AS 1670.1.
5. THE QUALITY AND LOCATION OF BOWS SPEAKERS ARE INDICATIVE ONLY - FIRE ALARM CONTRACTOR TO PROVIDE SPEAKERS TO ACHIEVE SOUND LEVELS AS PER FIRE ENGINEERS REPORT.
6. PROVIDE FIRE ALARM SHUT DOWN TRIP TO ALL MECHANICAL AIR HANDLING PLANT - CO-ORDINATE WITH MECHANICAL CONTRACTOR.
7. PROVIDE CONCEALED SPACE DETECTORS IN ACCORDANCE WITH AS1670.1 REQUIREMENTS.

MECHANICAL — ELECTRICAL — HYDRAULIC — FIRE — ENERGY — NABERS — STORMWATER — SECTION J — BEEC

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Project
PROPOSED EXTENSION WOOD WASTE PROCESSING BUILDING
ANL TEA GARDENS
PINDIMAR ROAD, TEA GARDENS, NSW 2324

Drawing Title
WOOD WASTE PROCESSING BUILDING
FIRE DETECTION LAYOUT

Discipline
FIRE DETECTION SERVICES

Scale 1:200 @ A1

Job No. MN14834

Drawing No. FD-10-001

Rev 4