

DAVID FLORIDA LABORATORY

BUILDING 65, SHIRLEY'S BAY

Yves Saulnier

Executive Director, Corporate Services & Human Resources

SUMP PUMP REPLACEMENT NON-CLEAN ROOMS



Canadian
Agence spatiale

JOSEF BERGERON

Director, Security & Facilities

M. FARID, P. Eng.

Manager, Safety Operations & Security

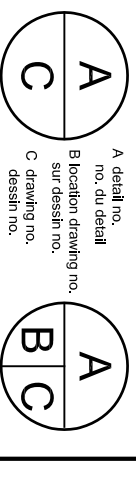
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No.	Revision	Date
5.		
4.		
3.		
2.	ISSUED FOR TENDER	15/09/11
1.	ISSUED 99% REVIEW	15/08/08

PROFESSIONAL STAMP



project
DAVID FLORIDA LABORATORY
BUILDING NO. 65, SHIRLEY'S BAY, ONTARIO

SUMP PUMP
REPLACEMENT
NON-CLEAN ROOMS

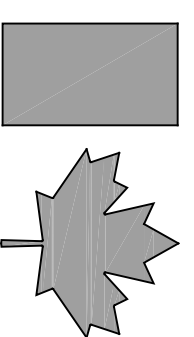
drawing
sheet

COVER SHEET

designed	checked
drawn	designed
checked	executed
approved	approved
scale	scale

project no. **CSA15-MSA**

drawing no. **-----**

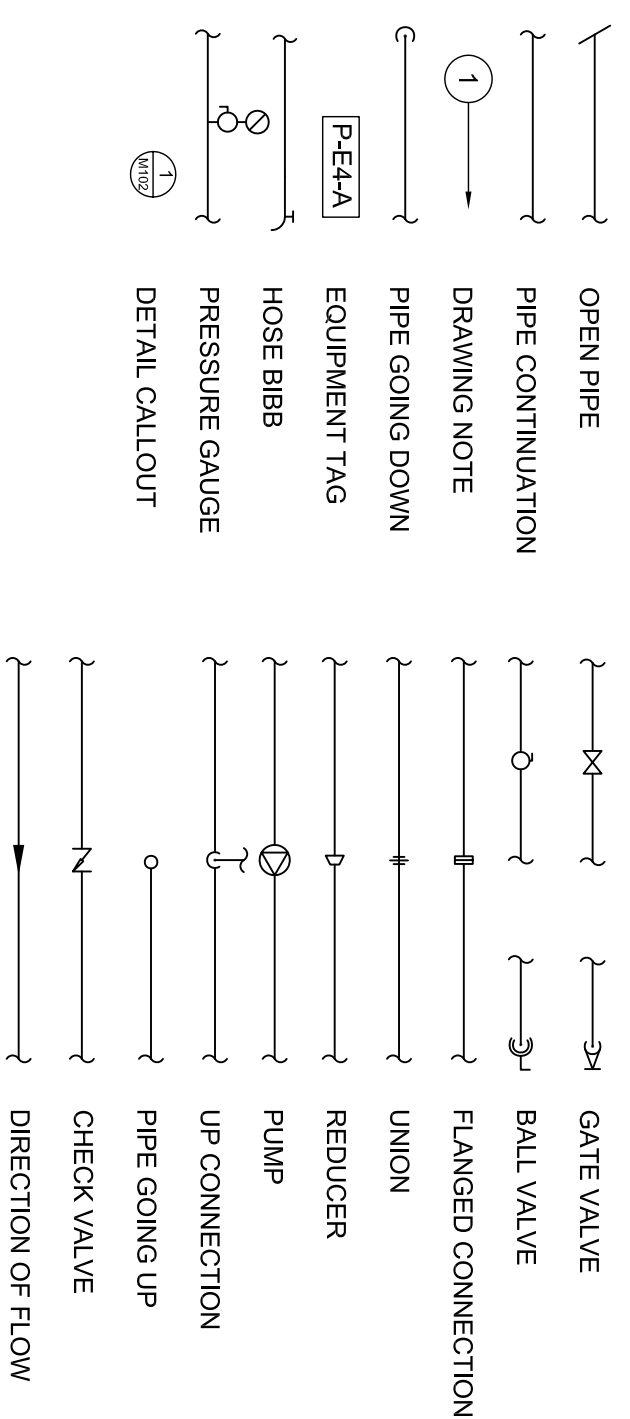


Canadian
Space Agency

Agence spatiale
canadienne

SEPTEMBER 2015

MECHANICAL LEGEND



DRAWING LIST

GENERAL	
DRAWING #	M100
DRAWING TITLE	MECHANICAL
AREA OF WORK	M100
DETAILS	M101
DETAILS	M102
DETAILS & SCHEDULES	M103
ELECTRICAL	
GENERAL NOTES, LEGEND & DRAWING LIST	E001
PARTIAL BASEMENT POWER LAYOUTS - DEMOLITION AND NEW	E100

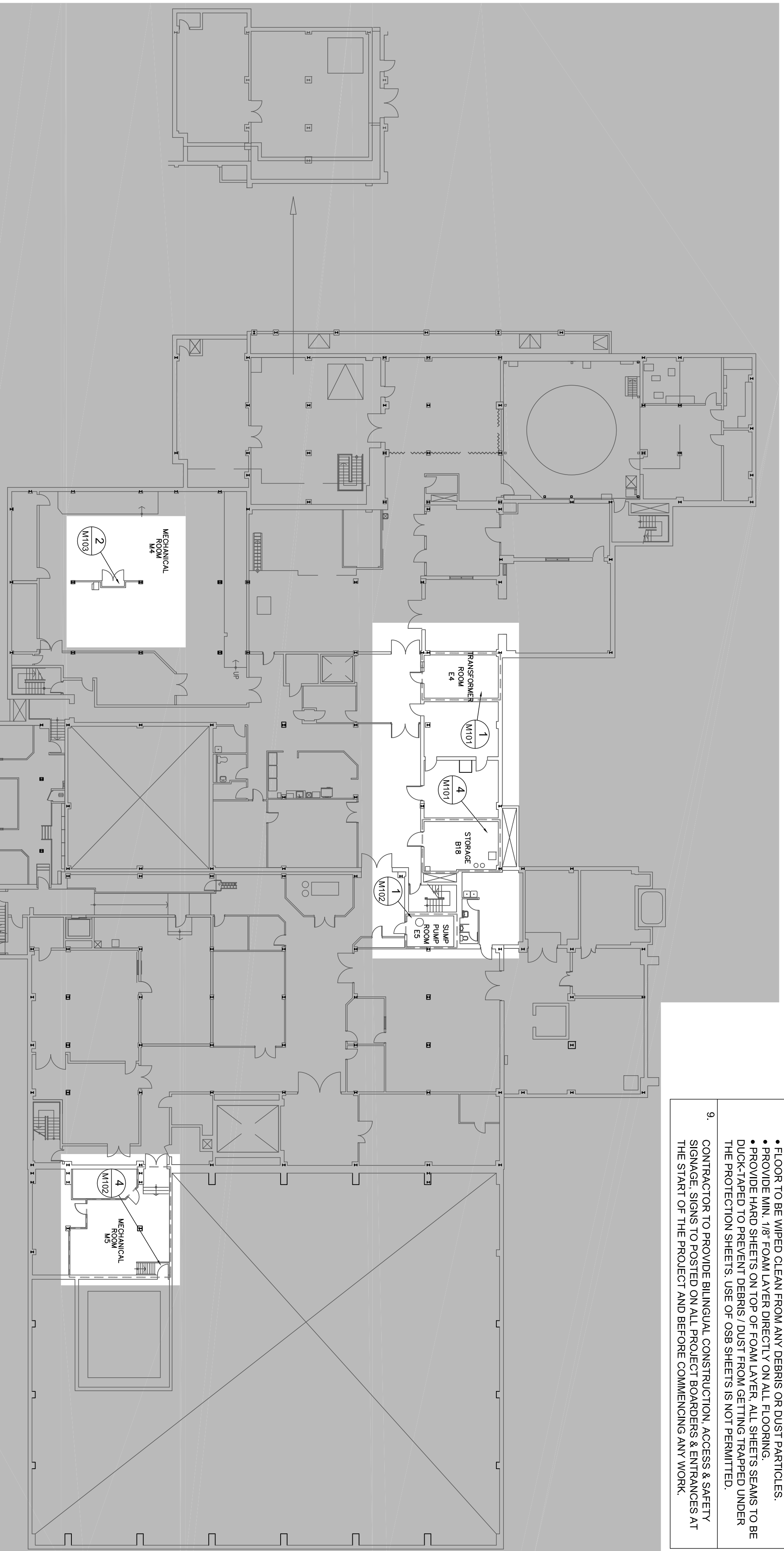
GENERAL NOTES

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND SPECIFICATIONS FROM THIS AND ALL OTHER DISCIPLINES.
- SITE PLANS AND ARCHITECTURAL BACKGROUNDS IN DRAWINGS ARE REPRESENTATIVE ONLY. THESE BACKGROUNDS ARE BASED ON THE EXISTING DRAWINGS MADE AVAILABLE BY THE OWNER. ACTUAL SITE CONDITIONS AND LATEST ARCHITECTURAL DOCUMENTS MAY VARY FROM DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW THE SITE CONDITIONS AND VERIFY ALL INFORMATION BEFORE COMMENCING WORK. ANY DISCREPANCIES, DEMOLITIONS & NEW INSTALLATIONS TO INCLUDE IN THE TENDER PRICE AT ALL NECESSARY LABOR AND MATERIAL LOCATIONS FOR A FULLY OPERABLE SYSTEM AS INTENDED. COORDINATE EXACT LOCATIONS OF NEW EQUIPMENT WITH EXISTING STRUCTURES, OTHER SERVICES AND TRADES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR CAREFUL AND DETAILED COORDINATION OF ALL SERVICE OUTAGES REQUIRED TO EXECUTE THIS PROJECT. COORDINATE AND SCHEDULE ALL OUTAGES TO OWNERS' SATISFACTION.
- CSA SHALL BE GIVEN THE OPTION OF RETAINING ANY REMOVED COMPONENTS OR EQUIPMENT. COORDINATE AND HAND OVER TO CSA PROJECT MANAGERS AS REQUIRED. DISPOSE OF ANY REMAINING OR UNWANTED EQUIPMENT OR SERVICES AND REMOVE OFF SITE IN A LEGAL MANNER AND COMPLY WITH THE ENVIRONMENTAL PROTECTION ACT. ONTARIO REGULATIONS FOR WASTE MANAGEMENT PROGRAM. CERTIFICATE OF DISPOSAL TO BE HANDED OVER TO OWNER AFTER REMOVALS ARE DONE.
- WHERE PENETRATIONS ARE CREATED IN EXISTING BUILDING PARTITIONS, CONTRACTOR SHALL PROVIDE FIRESTOP AND FIRE-RATED SEALANT AROUND INSTALLED SERVICES TO MAINTAIN THE FIRE RATING OF THE EXISTING PARTITIONS. CONTRACTOR TO PROTECT ALL ARCHITECTURAL FINISHES & EXISTING SURFACES RELATIVE TO PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING SURFACES INCLUDING REPAIR TO ALL DAMAGED SURFACES INCLUDING ANY PAINT TOUCHUPS REQUIRED. REPAIR ALL WALLS, FLOORS & CEILING IN CORE AREA WHERE MECHANICAL & ELECTRICAL SERVICES PASS THROUGH.
- SMOKE EATERS & POWERED EXHAUST FANS VENTED TO OUTSIDE OF BUILDING MUST BE USED DURING ALL BRAZING / WELDING / SOLDERING / CUTTING / GRINDING ACTIVITIES TO MINIMIZE CONTAMINATION & ODOR TO ADJACENT AREAS PARTICULARLY IN CLEAN ROOMS. PROVIDE 72 HOURS NOTICE TO CSA TO ARRANGE FOR HOT WORK PERMITS.
- TEMPORARY SLIMP PUMPS CONNECTED TO EXISTING BUILDING SERVICES MUST BE SUPPLIED AND USED BY CONTRACTOR DURING DEMOLITION OF EXISTING EQUIPMENT TO ELIMINATE FLOODING RISK TO ADJACENT AREAS. PROVIDE 72 HOURS NOTICE TO CSA TO ARRANGE FOR ANY SERVICES SHUTDOWNS. CONTRACTOR SHALL CONFIRM LOCATIONS OF TEMPORARY EQUIPMENT ON SITE PRIOR TO COMMENCING DEMOLITION AND NEW WORKS.
- PROVIDE FLOOR PROTECTION TO ENTIRE PROJECT AREAS AS FOLLOW:
 - FLOOR TO BE WIPED CLEAN FROM ANY DEBRIS OR DUST PARTICLES.
 - PROVIDE MIN. 1/8" FOAM LAYER DIRECTLY ON ALL FLOORING.
 - PROVIDE HARD SHEETS ON TOP OF FOAM LAYER. ALL SHEETS SEAMS TO BE DUCK-TAPED TO PREVENT DEBRIS / DUST FROM GETTING TRAPPED UNDER THE PROTECTION SHEETS. USE OF OSH SHEETS IS NOT PERMITTED.
- CONTRACTOR TO PROVIDE BILINGUAL CONSTRUCTION, ACCESS & SAFETY SIGNAGE. SIGNS TO POSTED ON ALL PROJECT BOARDS & ENTRANCES AT THE START OF THE PROJECT AND BEFORE COMMENCING ANY WORK.

GENERAL NOTES

- ACCESS TO THE SITE FOR MATERIAL, WORK FORCES AND FOR WASTE REMOVAL IS TO BE COORDINATED WITH CSA PROJECT MANAGER. USE ONLY ELEVATORS DESIGNATED BY CSA AND PROTECT THEM FROM DAMAGE.
- EXACT TARPING LIMITS AND ACCESS ROUTES TO BE DETERMINED ON SITE IN COORDINATION WITH CSA PROJECT MANAGER.
 - ALL TARS TO BE NEW HEAVY DUTY POLYETHYLENE WATER / MILDREW / FUNK RESISTANT WHITE TARP SHEETING. TARP SHOULD BE SECURED TO THE GROUND BY STRAPS OR CHAINS. TARS SHOULD BE UNSTRUTTED AS NEEDED FOR USE IN TARP CONSTRUCTION UNLESS APPROVED BY CSA.
 - APPROVED METHODS TO ATTACH STUDS / TARS TO BUILDING AS FOLLOW:
 - ON FLOORS: HEAVY DUTY COMMERCIAL DOUBLE SIDED TAPE TO SECURE METAL STUDS TO FLOORS. USE OF SCREWS OR TAPCOONS ARE NOT PERMITTED.
 - ON DRYWALLS / MASONRY / METAL SIDING WALLS: DUCT OR TUCK TAPE IS NOT ALLOWED DIRECTLY ON BUILDING FINISHES AS IT WILL DAMAGE THEM WHEN REMOVED. APPLY MASKING PAINT GREEN TAPE FIRST AND THEN DUCT / TUCK TAPE ON TOP OF IT. STUDS CAN BE SCREWED TO DRYWALL / MASONRY WALLS GIVING THAT ALL HOLES WILL BE PATCHED & PAINTED (WHOLE WALL / AREA TO BE PAINTED. SMALL / LOCAL PAINT PATCHES ARE NOT PERMITTED).
 - TARS SHOULD BE HANGED OFF BUILDING STEEL STRUCTURAL USING HIGH STRENGTH TARS. TARS SHOULD BE UNSTRUTTED AS NEEDED FOR CROSS RUNS OR TO DISTRIBUTE TARS LOAD.
 - HANGING TARS FROM BUILDING SERVICES / DUCTWORK, CONDUITS, PIPES, SUPPORTS, HANGERS, ETC.) IS NOT PERMITTED.
 - CONTRACTOR IS RESPONSIBLE FOR CLEANING, PATCHING, REPAIRING & PAINTING ALL DAMAGED SURFACES & TAPE MARKS AFTER REMOVING TARS AND TEMPORARY UNISTRUTS.
- CONTRACTOR SHALL BE RESPONSIBLE TO KEEP THE OWNERS ACCESS AREAS AND CORRIDORS CLEAN AT ALL TIMES.
 - CLEAN AND REMOVE ALL DEMOLITION AND CONSTRUCTION WASTE FROM PROJECT SITE ON DAILY BASIS AND UPON COMPLETION OF PROJECT.
 - LOADING AND UNLOADING OF MATERIALS SHALL BE DESIGNATED FOR CONTRACTOR TO PROVIDE ALL CLEANING EQUIPMENT & SUPPLIES. USE OF BUILDING CLEANING EQUIPMENT OR SUPPLIES ARE NOT PERMITTED.
- DO NOT SUBJECT ANY PART OF THE BUILDING TO ANY NOISE, DUST OR ANY OTHER UNACCEPTABLE ENVIRONMENTAL CONDITIONS DURING THE COURSE OF THE PROJECT. ANY NOISY / DUSTY / SMELLY ACTIVITIES SHALL BE DONE AFTER REGULAR WORKING HOURS OR WEEKENDS. COORDINATE WITH CSA PROJECT MANAGER WITH A MINIMUM NOTICE OF 72 HOURS.
- CONTRACTOR & SUB-TRADE WORKERS HAVE TO BE ESCORTED AT ALL TIMES WHILE IN BUILDING AND ON CAMPUS.
 - CSA WILL PROVIDE SECURITY COMMISSIONAIRES TO ESCORT.
 - PRIOR TO PROJECT START, GC TO PROVIDE A FULL LIST OF ALL PERSONNEL WORKING ON THE PROJECT AS WELL AS ENGINEERS, SUPPLIERS & INSPECTORS. IF POSSIBLE AT LEAST 72 HOURS NOTICE FOR ANY ADDITIONAL NAMES OR FOR ANY OTHER CSA OR DEERLY OF WORK. CHANGE IN SCHEDULE THAT AFFECTS THE NEED FOR SECURITY ESCORTS. INDIVIDUALS WHO ARE NOT ON THAT LIST WILL BE DENIED ACCESS WITH NO EXCEPTION.
- GENERAL CONTRACTOR REPRESENTATIVE HAS TO BE PRESENT ON SITE AT ALL TIMES AND ACCOMPANY ALL SUB-TRADES WORKERS. SUB-TRADES ARE NOT ALLOWED TO BE ON SITE OR TO WORK WITHOUT THE PRESENCE OF GC - NO EXCEPTIONS.
- CSA IS COMMITTED TO ENSURING A HEALTHY AND SAFE ENVIRONMENT FOR ITS EMPLOYEES, CONTRACTORS AND VISITORS AND WILL ALIGN ITSELF WITH THE REQUIREMENTS OF THE OHSAS 18001. THE FOLLOWING ARE PROVIDED AS REFERENCE AND ARE THERE TO ASSIST THE CONTRACTING COMPANY WHO PERFORMS THE WORK AND ACCEPTS THIS COMMITMENT COMPLETELY.
 - ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT: [HTTP://WWW.E-LAWS.GOV.ON.CA](http://www.e-laws.gov.on.ca)
 - INFRASTRUCTURE HEALTH AND SAFETY ASSOCIATION (GUIDE TO DEVELOPING HEALTH AND SAFETY POLICIES AND PROGRAMS IN CONSTRUCTION) A COMPREHENSIVE GUIDE GEARED TO MID- TO LARGE-SIZED GENERAL CONTRACTORS FOR DEVELOPING AND IMPLEMENTING AN EFFECTIVE HEALTH AND SAFETY PROGRAM: [HTTP://WWW.IHSA.CA](http://www.IHSA.ca)
 - INFRASTRUCTURE HEALTH AND SAFETY ASSOCIATION (CONSTRUCTION HEALTH AND SAFETY MANUAL - GUIDANCE ON HAZARD CONTROL FOR ONTARIO CONTRACTORS: [HTTP://WWW.IHSA.CA](http://www.IHSA.ca)
- A COPY OF ALL APPLICABLE TRAINING CERTIFICATES MUST BE PROVIDED PRIOR TO COMMENCING ANY WORK. CERTIFICATES MUST SHOW EXACT COMPANY NAME AND ADDRESS. CALLI PROVIDE THE TRAINING. THE COMPANY MUST PROVIDE THE TRAINING. THE COMPANY MUST DEMONSTRATE THE WORKERS AS BEING COMPETENT OPERATORS. FURTHER TRAINING MAY BE REQUESTED BY THE CSA PRIOR TO COMMENCING ANY WORK AT NO ADDITIONAL COST.
- GC TO PROVIDE A MINIMUM OF 48 HOURS NOTICE TO CSA PRIOR FOR ANY DELIVERIES. GENERAL CONTRACTOR MUST BE ON SITE TO RECEIVE THE SHIPMENT. IF THE DELIVERY PERTAINS TO LIFTING EQUIPMENT, THE QUALIFIED CONTRACTOR SCHEDULED TO USE THE EQUIPMENT MUST INSPECT AND RECEIVE THE LIFT FROM THE COMPANY.
- ALL TRADES TO FOLLOW BUILDING SERVICE ELEVATIONS STANDARD AS FOLLOWS:

ZONE 1	CEILING STRUCTURE
ZONE 2	CEILING STRUCTURE
ZONE 3	CEILING STRUCTURE
ZONE 4	SUPPLEMENTED CEILING
ZONE 5	SUPPLEMENTED CEILING



1 AREA OF WORK
M100 / SCALE / ECHELLE: 1:200



JOSEE BERGERON
Director, Security & Safety

M. FARID, P. Eng.
Manager, Building Operations & Security

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No.	Revision	Date
1.	ISSUED FOR WORK REVIEW	15/04/2015
2.	ISSUED FOR REVIEW	
3.		
4.		
5.		

PROFESSIONAL STAMP

A: A. OVGOROV
B: M. FARID
C: 2015-08-08

A: A. OVGOROV
B: M. FARID
C: 2015-08-08

PROJECT: DAVID FLORIDA LABORATORY BUILDING No. 65, SHIRLEY'S BAY, ONTARIO

DESIGN: MECHANICAL REPLACEMENT NON-CLEAN ROOMS

DESIGNED: A. OVGOROV

DRAWN: M. FARID

DATE: 2015-08-08

SCALE: NTS

PROJECT NO.: CSA15-M5A

DRAWING NO.: M100

MECHANICAL

DRAWING LIST, GENERAL NOTES, LEGEND AND AREA OF WORK

APPROVED: M. FARID

DATE: 2015-08-08

SCALE: NTS

PROJECT NO.: CSA15-M5A

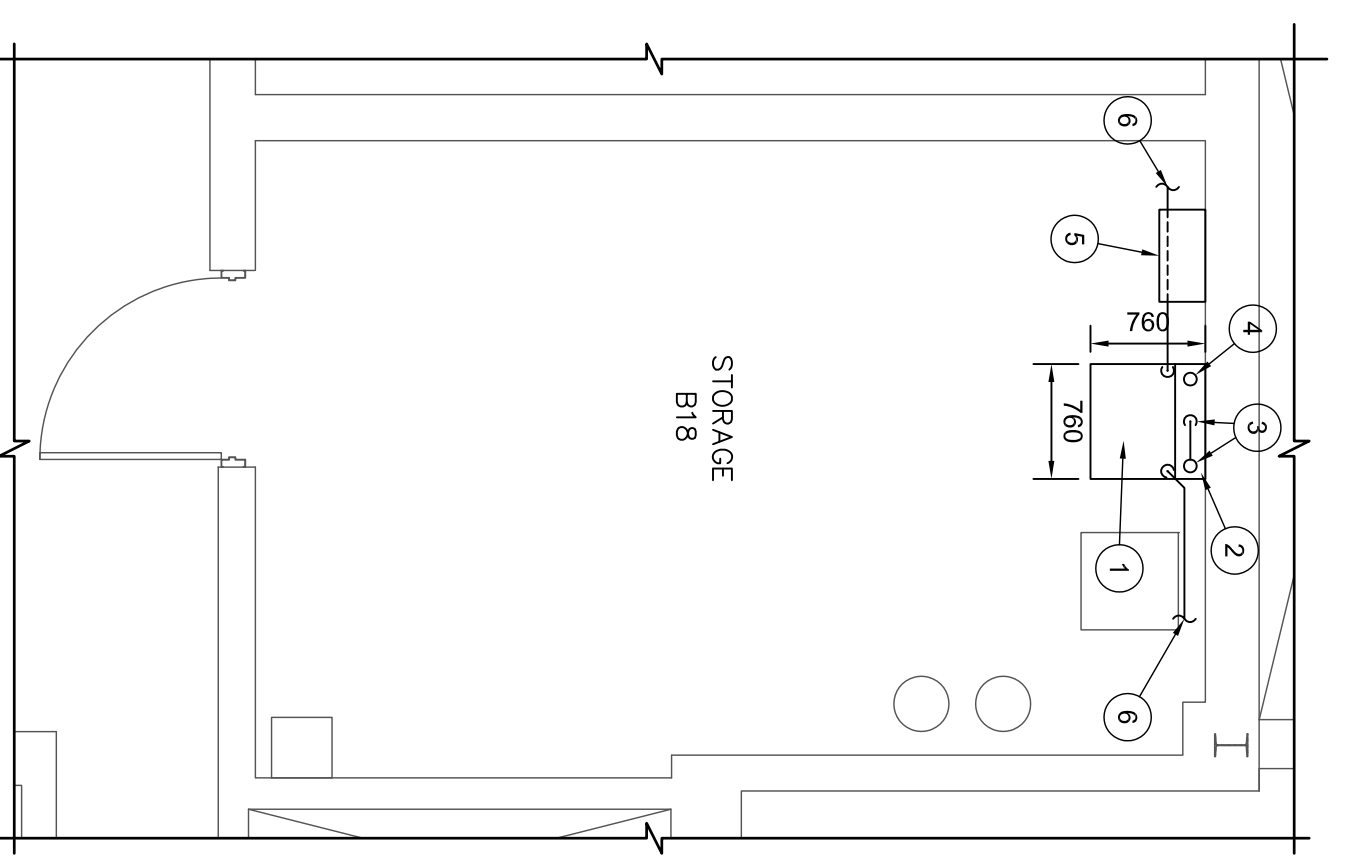
DRAWING NO.: M100

DRAWINGS NOTES

- 1 EXISTING 1830 x 1220 x 2360 DEEP SUMP PIT E4 WITH DOUBLE-OPENING HATCHES.
- 2 305mm WIDE PERMANENT SUMP COVER PLATE TO BE REPLACED. EXISTING SUMP PIT OUTLET PIPES FOR PUMPS E4A AND E4B ARE ROUTED THROUGH COVER PLATE.
- 3 EXISTING 100ø SUMP PIT INSULATED OUTLET PIPING CONNECTED TO EXISTING SUBMERSIBLE SUMP PUMPS E4A AND E4B.
- 4 EXISTING CONTROL PANEL FOR DUPLEX SUMP PUMPS E4A AND E4B. CONTROL PANEL TO BE REPLACED WITH NEW AND CONNECTED TO EXISTING BAS.
- 5 SHADED AREA IS DEMOLITION AND NEW INSTALLATION SCOPE. NEW WORK TO THE INTO EXISTING PIPING IN SAME MANNER AS EXISTING LAYOUT. REFER TO 1-M103 FOR GENERAL INSTALLATION DETAIL FOR SUBMERSIBLE SUMP PUMPS.
- 6 EXISTING 760 x 760 x 1270 DEEP SUMP PIT B18 WITH OPENING HATCH.
- 7 200mm WIDE PERMANENT SUMP COVER PLATE. EXISTING SUMP PIT OUTLET PIPES FOR P-B18A AND P-B18B ARE ROUTED THROUGH COVER PLATE.
- 8 EXISTING 75ø SUMP PIT OUTLET PIPING CONNECTED TO EXISTING SUBMERSIBLE SUMP PUMPS P-B18A AND P-B18B.
- 9 EXISTING 75ø VENT PIPING FOR SUMP PIT B18.
- 10 EXISTING CONTROL PANEL FOR DUPLEX SUMP PUMPS P-B18A AND P-B18B. CONTROL PANEL TO BE REPLACED WITH NEW AND CONNECTED TO EXISTING BAS.
- 11 EXISTING 50ø DRAIN LINE THROUGH COVER PLATE INTO SUMP PIT B18.
- 12 COVER PLATE WITH OPENING HATCH PROVIDING ACCESS TO SUMP PIT B18.
- 13 EXISTING 75ø SUMP PIT B18 DISCHARGE PIPING THROUGH ROOM TO THE INTO 100ø BUILDING SANITARY LINE.
- 14 EXISTING 75ø SUMP PIT B18 VENT LINE THROUGH ROOM AND OUT REAR WALL.
- 15 50ø DRAIN LINE, OPEN TO SUMP PIT B18; CONTIGUOUS THROUGH ROOM.
- 16 SHADED AREA IS DEMOLITION AND NEW INSTALLATION SCOPE. NEW WORK TO THE INTO EXISTING PIPING IN SAME MANNER AS EXISTING LAYOUT. REFER TO 1-M103 FOR GENERAL INSTALLATION DETAIL FOR SUBMERSIBLE SUMP PUMPS.



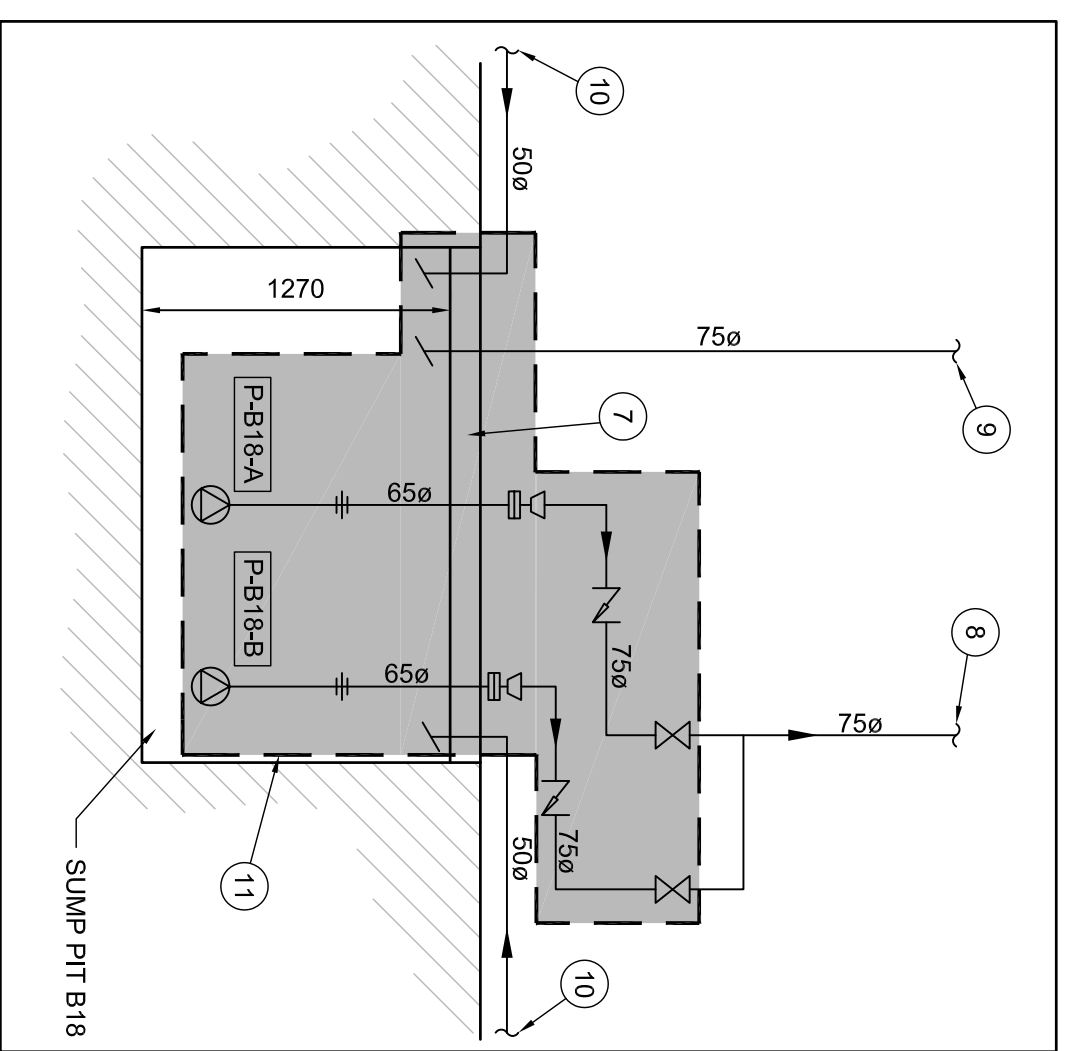
5 SUMP PIT B18 PHOTO
M101 / SCALE / ECHELLE: NTS



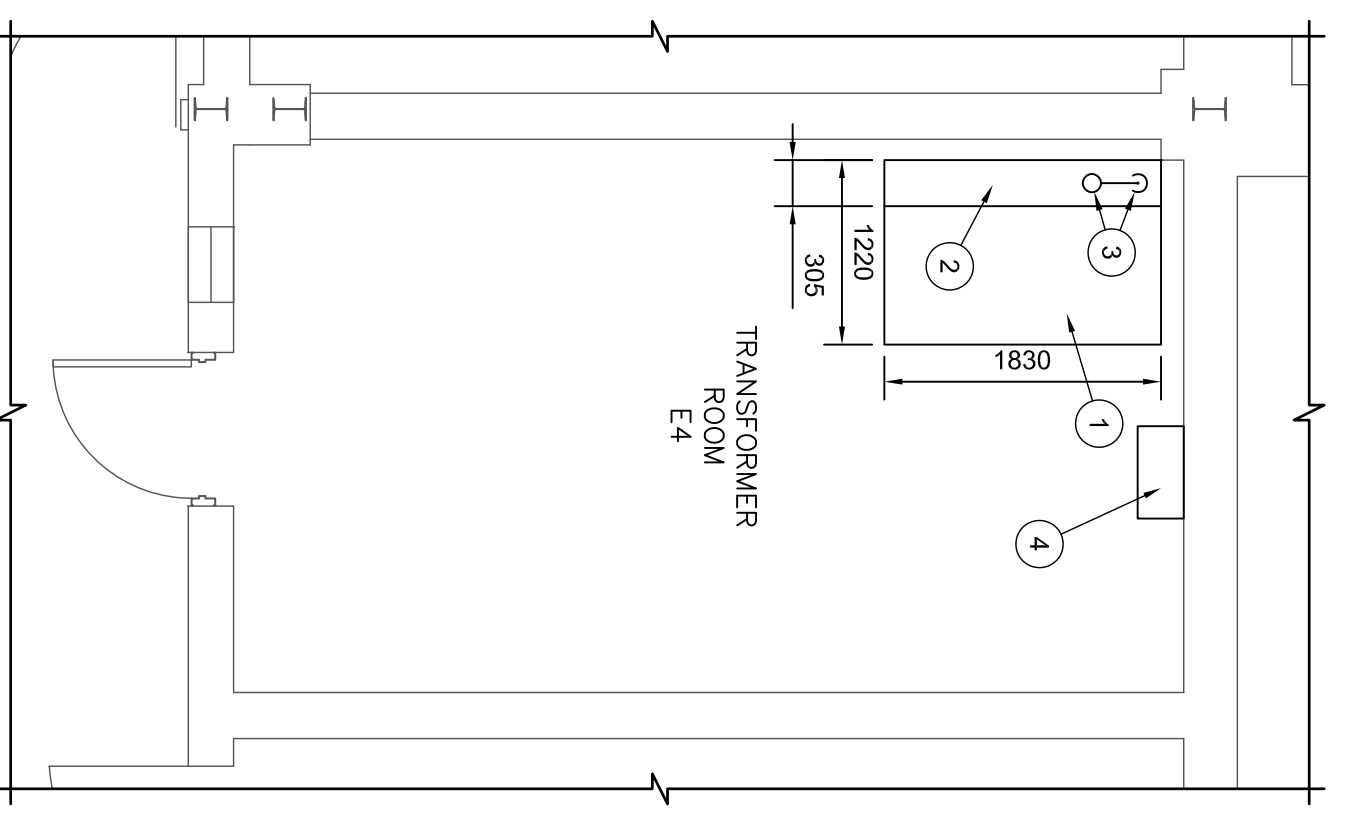
4 ROOM B18 PLAN VIEW
M101 / SCALE / ECHELLE: 1:50

SCOPE OF WORK

1.	DEMOLISH SUMP PUMPS P-B18A AND P-B18B INCLUDING DISCHARGE ELBOWS, DISCHARGE GATE AND CHECK VALVES, DISCHARGE PIPING UP TO GATE VALVES, GUIDE BARS, CONTROL PANEL, COVER PLATE, AND CONTROL DEVICES.
2.	INSTALL NEW SUMP PUMPS AS PER PUMP SCHEDULE. INCLUDING NEW DISCHARGE PIPING UP TO DEMOLITION POINT. INSTALL NEW UNION ON DISCHARGE PIPING WITHIN PIT. PROVIDE AND INSTALL NEW COVER PLATE, DRAIN PIPE THROUGH COVER PLATE, NEW CONTROL PANEL, AND CONTROL DEVICES. CONNECT NEW CONTROL PANEL TO BAS SYSTEM. REFER TO BAS CONNECTION REQUIREMENTS ON DRAWING M103.



6 SUMP PIT B18 EXISTING/DEMOLITION
M101 / SCALE / ECHELLE: NTS



1 ROOM E4 PLAN VIEW
M101 / SCALE / ECHELLE: 1:50

DRAWINGS NOTES

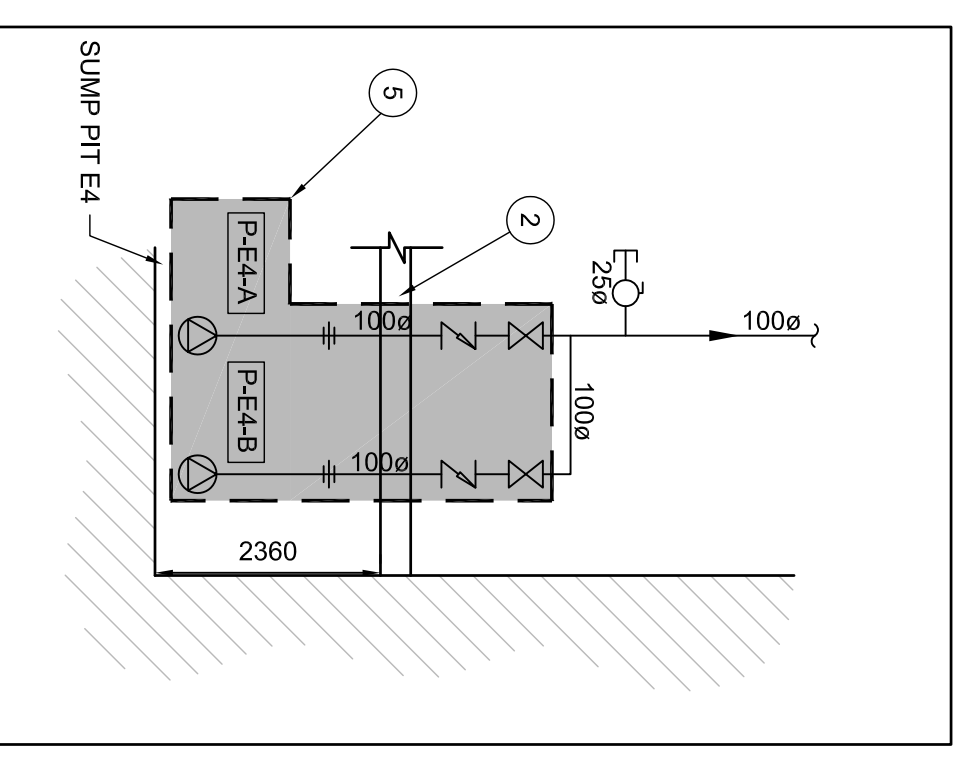
- 1 EXISTING 1830 x 1220 x 2360 DEEP SUMP PIT E4 WITH DOUBLE-OPENING HATCHES.
- 2 305mm WIDE PERMANENT SUMP COVER PLATE TO BE REPLACED. EXISTING SUMP PIT OUTLET PIPES FOR PUMPS E4A AND E4B ARE ROUTED THROUGH COVER PLATE.
- 3 EXISTING 100ø SUMP PIT INSULATED OUTLET PIPING CONNECTED TO EXISTING SUBMERSIBLE SUMP PUMPS E4A AND E4B.
- 4 EXISTING CONTROL PANEL FOR DUPLEX SUMP PUMPS E4A AND E4B. CONTROL PANEL TO BE REPLACED WITH NEW AND CONNECTED TO EXISTING BAS.
- 5 SHADED AREA IS DEMOLITION AND NEW INSTALLATION SCOPE. NEW WORK TO THE INTO EXISTING PIPING IN SAME MANNER AS EXISTING LAYOUT. REFER TO 1-M103 FOR GENERAL INSTALLATION DETAIL FOR SUBMERSIBLE SUMP PUMPS.

SCOPE OF WORK

1. DEMOLISH SUMP PUMPS P-E4A AND P-E4B, INCLUDING DISCHARGE ELBOWS, DISCHARGE GATE AND CHECK VALVES, DISCHARGE PIPING UP TO GATE VALVES, GUIDE BARS, CONTROL PANEL, COVER PLATE, AND CONTROL DEVICES.
2. INSTALL NEW SUMP PUMPS AS PER PUMP SCHEDULE. INCLUDING NEW DISCHARGE PIPING UP TO DEMOLITION POINT. INSTALL NEW UNION ON DISCHARGE PIPING WITHIN PIT. PROVIDE AND INSTALL NEW COVER PLATE, DISCHARGE VALVES, GUIDE BARS, DISCHARGE ELBOWS, CONTROL PANEL, AND CONTROL DEVICES. CONNECT NEW CONTROL PANEL TO BAS SYSTEM. REFER TO BAS CONNECTION REQUIREMENTS ON DRAWING M103.



2 SUMP PIT E4 PHOTO
M101 / SCALE / ECHELLE: NTS



3 SUMP PIT E4 EXISTING/DEMOLITION
M101 / SCALE / ECHELLE: NTS

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2.	ISSUED FOR TENDER	150602
1.	ISSUED FOR REVIEW	150401
No.	Revision	Date

PROFESSIONAL STAMP

A	A: design no.	A
C	B: drawing no.	B
	C: revision no.	C

project
DAVID FLORIDA LABORATORY
BUILDING No. 65, SHIRLEY'S BAY, ONTARIO

project
SUMP PUMP REPLACEMENT NON-CLEAN ROOMS

MECHANICAL DETAILS

designed		concl'd	
date		date	
drawn		checked	
date		date	
reviewed	A. OVG/DOV	approved	
date	2015-09-18	date	
approved	M. FARID	approved	
date	2015-09-18	date	
scale		scale	

JOSEE BERGERON
 Director, Security & Facilities
M. FARID, P. Eng.
 Manager, Building Operations & Security

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No.	Revision	Date
1.	ISSUED FOR REVIEW	15/04/22
2.	ISSUED FOR TENDER	15/04/22
3.		
4.		
5.		

PROJECT	DAVID FLORIDA LABORATORY BUILDING No. 65, SHIRLEY'S BAY, ONTARIO
PROJECT NO.	CSA15-M5A
DRAWING NO.	M102

DESIGNED	A. OVGODOV	DESIGNED
DRAWN	M. FARID	DRAWN
DATE	2015-09-18	DATE
APPROVED	M. FARID	APPROVED
DATE	2015-09-18	DATE
SCALE		SCALE

MECHANICAL DETAILS

SCOPE OF WORK	DEMOLISH SUMP PUMP P-ES-1-A, P-ES-1-B, P-ES-2-A, AND P-ES-2-B, INCLUDING DISCHARGE ELBOWS, DISCHARGE GATE AND CHECK VALVES, DISCHARGE PIPING UP TO GATE VALVES, GUIDE BARS, CONTROL PANEL, COVER PLATE, AND CONTROL DEVICES.
SCOPE OF WORK	INSTALL NEW SUMP PUMPS AS PER PUMP SCHEDULE, INCLUDING NEW DISCHARGE PIPING UP TO DEMOLITION POINT. INSTALL NEW UNION ON DISCHARGE PIPING WITHIN PIT. PROVIDE AND INSTALL NEW COVER PLATE, DISCHARGE VALVES, GUIDE BARS, DISCHARGE ELBOWS, CONTROL PANEL, AND CONTROL DEVICES. CONNECT NEW CONTROL PANEL TO BAS SYSTEM. REFER TO BAS CONNECTION REQUIREMENTS ON DRAWING M103.

SCOPE OF WORK

- DEMOLISH SUMP PUMPS P-ES-1-A, P-ES-1-B, P-ES-2-A, AND P-ES-2-B, INCLUDING DISCHARGE ELBOWS, DISCHARGE GATE AND CHECK VALVES, DISCHARGE PIPING UP TO GATE VALVES, GUIDE BARS, CONTROL PANEL, COVER PLATE, AND CONTROL DEVICES.
- INSTALL NEW SUMP PUMPS AS PER PUMP SCHEDULE, INCLUDING NEW DISCHARGE PIPING UP TO DEMOLITION POINT. INSTALL NEW UNION ON DISCHARGE PIPING WITHIN PIT. PROVIDE AND INSTALL NEW COVER PLATE, DISCHARGE VALVES, GUIDE BARS, DISCHARGE ELBOWS, CONTROL PANEL, AND CONTROL DEVICES. CONNECT NEW CONTROL PANEL TO BAS SYSTEM. REFER TO BAS CONNECTION REQUIREMENTS ON DRAWING M103.



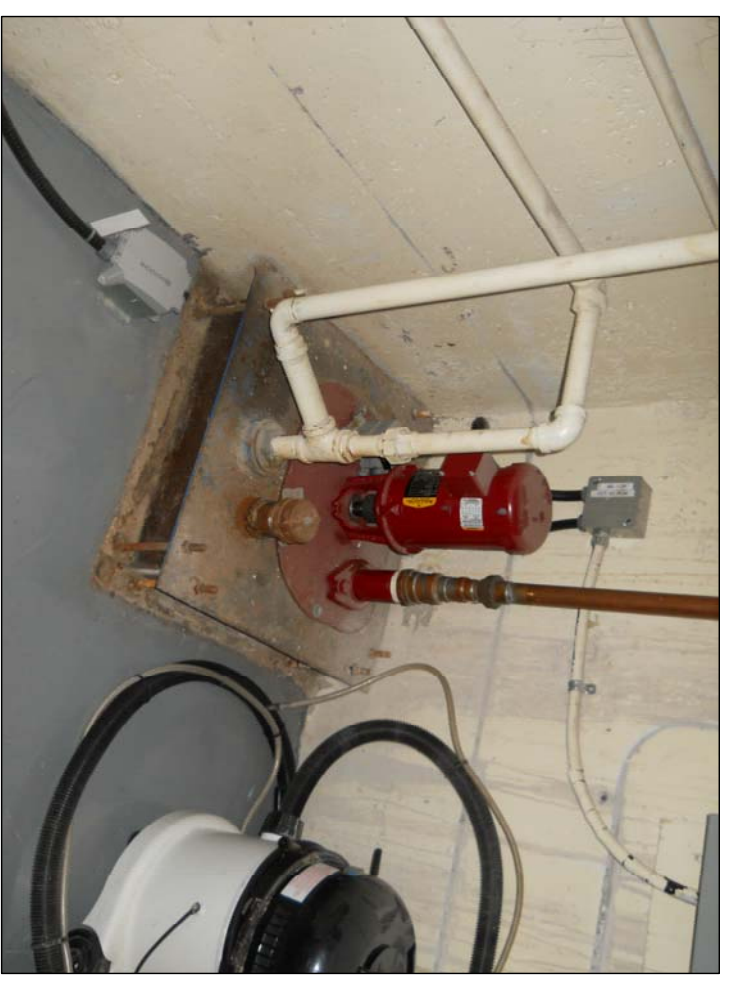
3 SUMP PITS ES-1 AND ES-2 PHOTO
 M102 / SCALE / ECHELLE: NTS

DRAWINGS NOTES

- EXISTING 760 x 760 x 2280 DEEP SUMP PIT ES-1 WITH OPENING HATCH.
- EXISTING 915 x 915 x 2280 DEEP SUMP PIT ES-2 WITH OPENING HATCH.
- 360mm WIDE PERMANENT SUMP COVER PLATE TO BE REPLACED. EXISTING SUMP PIT OUTLET PIPES FOR P-ES-1-A AND P-ES-1-B ARE ROUTED THROUGH COVER PLATE.
- 305mm WIDE PERMANENT SUMP COVER PLATE TO BE REPLACED. EXISTING SUMP PIT OUTLET PIPES FOR P-ES-2-A AND P-ES-2-B ARE ROUTED THROUGH COVER PLATE.
- EXISTING 75a SUMP PIT OUTLET PIPING CONNECTED TO EXISTING PUMPS P-ES-1-A AND P-ES-1-B.
- EXISTING 75a SUMP PIT OUTLET PIPING CONNECTED TO EXISTING PUMPS P-ES-2-A AND P-ES-2-B.
- EXISTING CONTROL PANEL FOR DUPLEX SUMP PUMPS P-ES-1-A AND P-ES-1-B CONTROL PANEL TO BE REPLACED WITH NEW AND CONNECTED TO EXISTING BAS.
- EXISTING CONTROL PANEL FOR DUPLEX SUMP PUMPS P-ES-2-A AND P-ES-2-B CONTROL PANEL TO BE REPLACED WITH NEW AND CONNECTED TO EXISTING BAS.
- 50a VENT LINE FOR SUMP PIT ES-2.
- DRAIN LINE OPEN TO SUMP PIT ES-2, CONTINUES THROUGH ROOM.
- COVER PLATE WITH OPENING HATCH PROVIDING ACCESS TO SUMP PIT ES-2.
- SHADED AREA IS DEMOLITION AND NEW INSTALLATION SCOPE. NEW WORK TO THE INTO EXISTING PIPING IN SAME MANNER AS EXISTING LAYOUT. REFER TO 1-M103 FOR GENERAL INSTALLATION DETAIL FOR SUMMERSIBLE SUMP PUMPS.
- COVER PLATE WITH OPENING HATCH PROVIDING ACCESS TO SUMP PIT ES-1.
- EXISTING 75a SUMP PIT ES-1 DISCHARGE PIPING THROUGH ROOM TO THE INTO 100a BUILDING SANITARY LINE.
- EXISTING 75a SUMP PIT ES-2 DISCHARGE PIPING THROUGH ROOM TO THE INTO 100a BUILDING STORM LINE.
- DRAIN LINE OPEN TO SUMP PIT ES-1, CONTINUES THROUGH ROOM.

SCOPE OF WORK

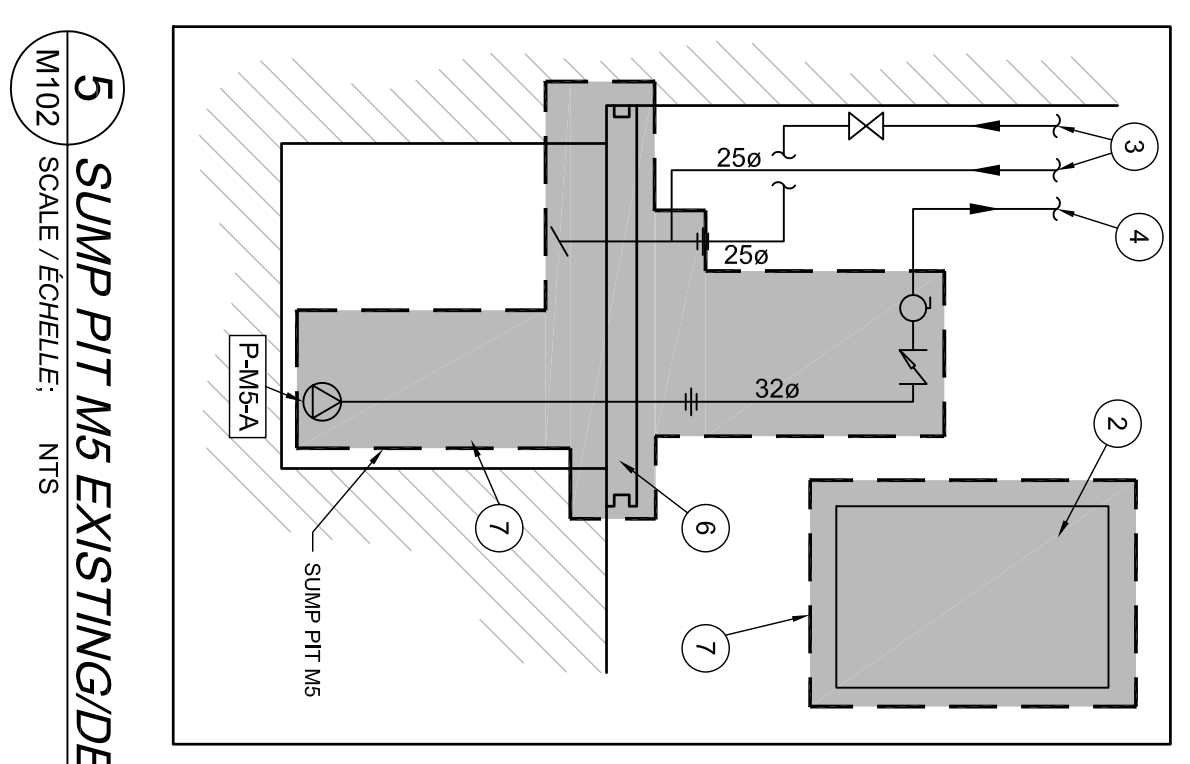
- DEMOLISH SUMP PUMP P-MS-A, INCLUDING DISCHARGE ELBOWS, DISCHARGE GATE AND CHECK VALVES, DISCHARGE PIPING UP TO GATE VALVES, GUIDE BARS, CONTROL PANEL, COVER PLATE, AND CONTROL DEVICES.
- INSTALL NEW SUMP PUMPS AS PER PUMP SCHEDULE, INCLUDING NEW DISCHARGE PIPING UP TO DEMOLITION POINT. INSTALL NEW UNION ON DISCHARGE PIPING WITHIN PIT. PROVIDE AND INSTALL NEW COVER PLATE, DISCHARGE VALVES, GUIDE BARS, DISCHARGE ELBOWS, CONTROL PANEL, AND CONTROL DEVICES. CONNECT NEW CONTROL PANEL TO BAS SYSTEM. REFER TO BAS CONNECTION REQUIREMENTS ON DRAWING M103.



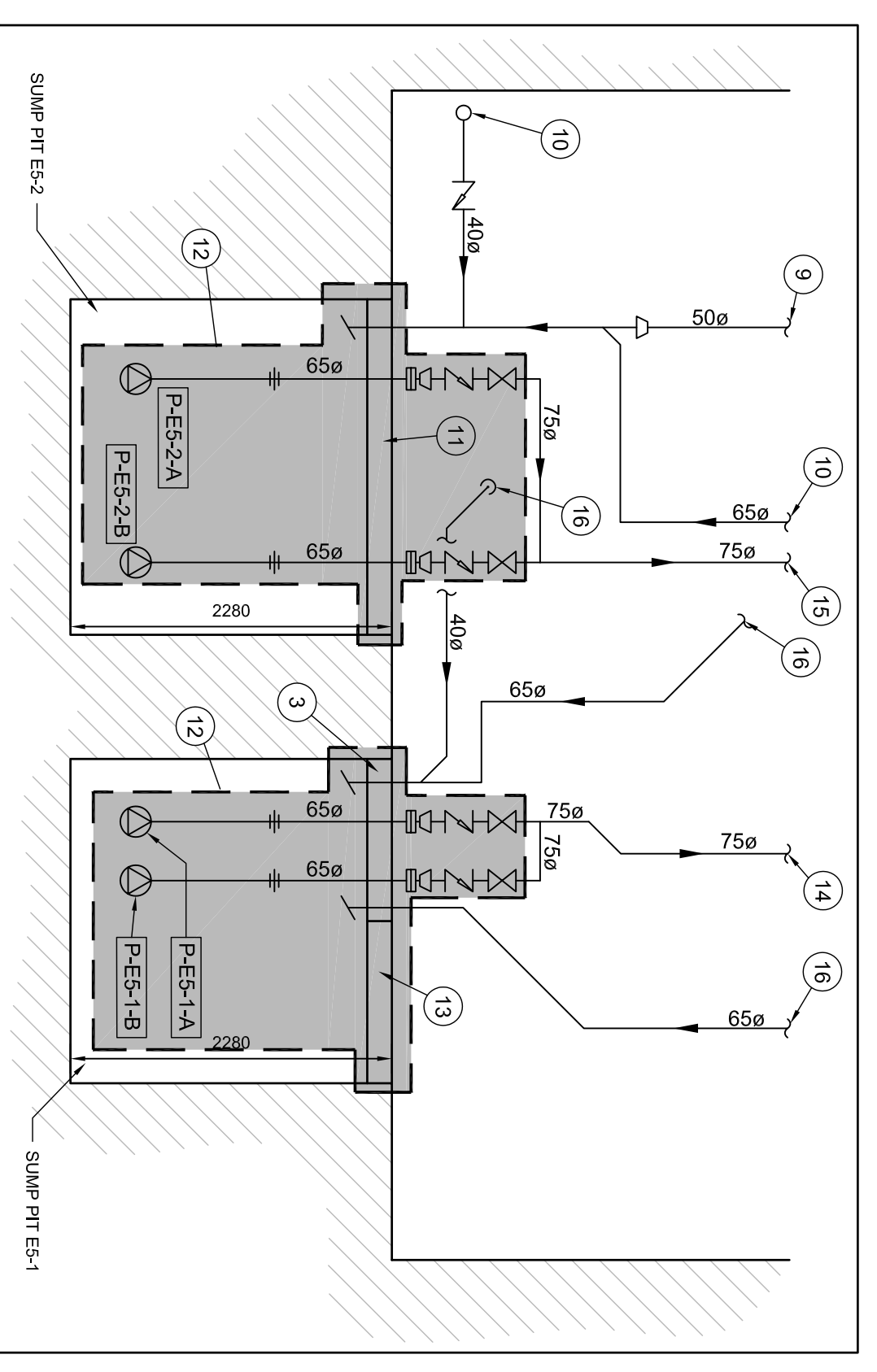
6 SUMP PITS M5 PHOTO
 M102 / SCALE / ECHELLE: NTS

DRAWINGS NOTES

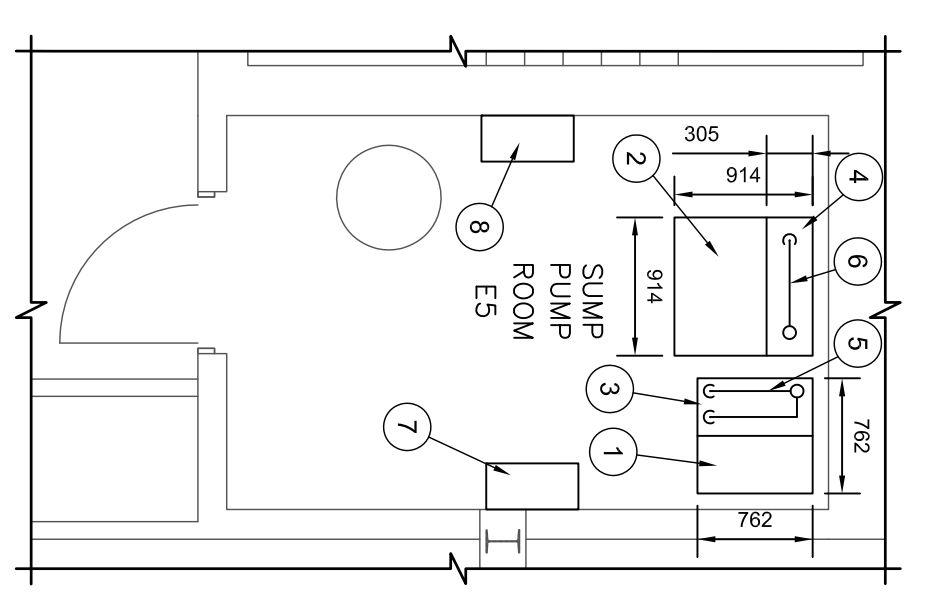
- EXISTING 610 x 610 SUMP PIT M5 WITH RAISED PIT COVER TO BE DEMOLISHED AND REPLACED WITH NEW COVER PLATE.
- EXISTING CONTROL PANEL FOR PUMP M5-A, CONTROL PANEL TO BE REPLACED WITH NEW AND CONNECTED TO EXISTING BAS. PANEL IS LOCATED UNDERNEATH STAIRS.
- EXISTING 25a SPRINKLER DRAIN LINES FROM SPRINKLER NETWORK TO SUMP PIT M5.
- EXISTING 32a SUMP PIT M5 DISCHARGE LINE THROUGH ROOM.
- EXISTING 65a SANITARY PIPING THROUGH ROOM TO SANITARY MAIN.
- EXISTING 135mm HIGH PIT COVER TO BE REPLACED.
- SHADED AREA IS DEMOLITION AND NEW INSTALLATION SCOPE. NEW WORK TO THE INTO EXISTING PIPING IN SAME MANNER AS EXISTING LAYOUT. REFER TO 1-M103 FOR GENERAL INSTALLATION DETAIL FOR SUMMERSIBLE SUMP PUMPS.



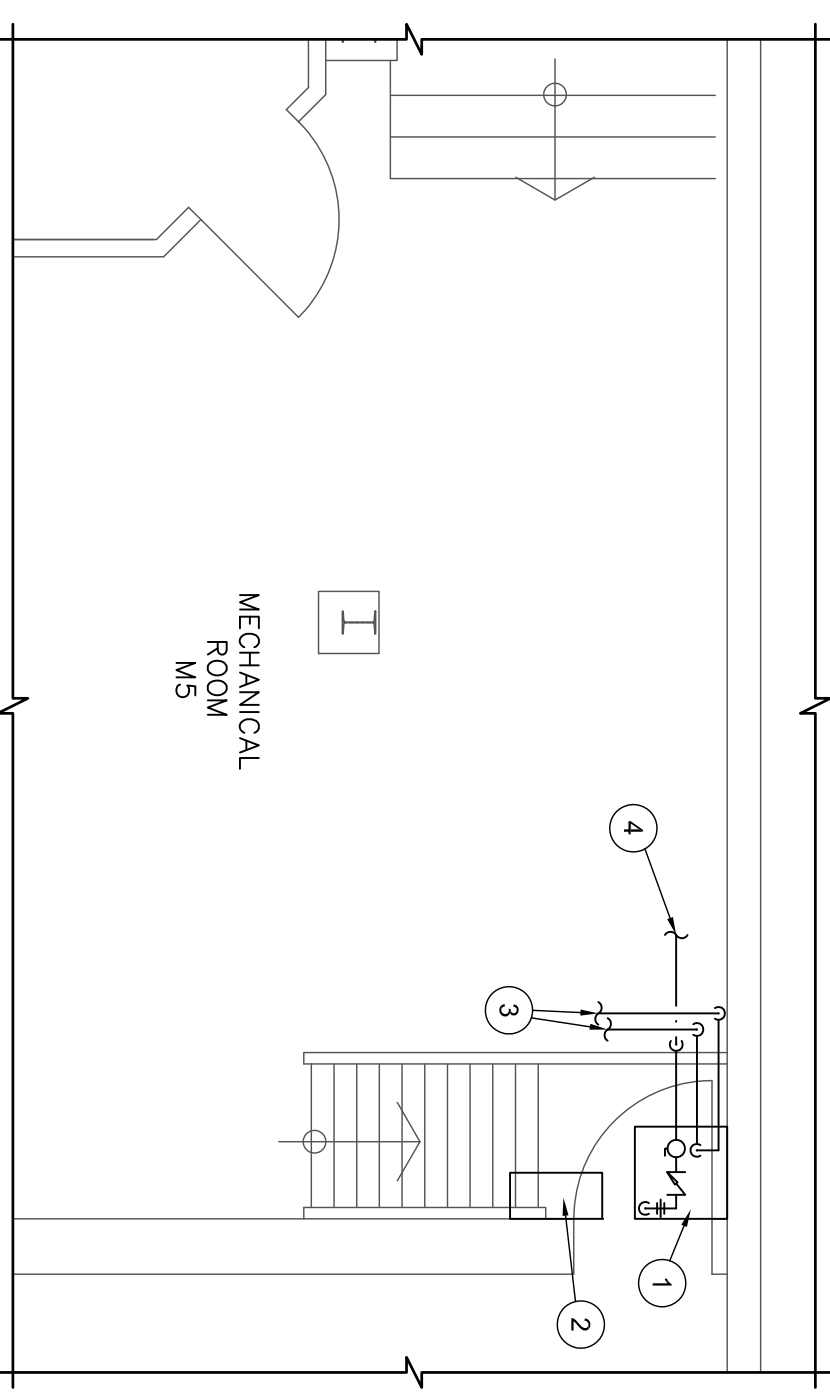
5 SUMP PIT M5 EXISTING/DEMOLITION
 M102 / SCALE / ECHELLE: NTS



2 SUMP PITS ES-1/ES-2 EXISTING/DEMOLITION
 M102 / SCALE / ECHELLE: NTS



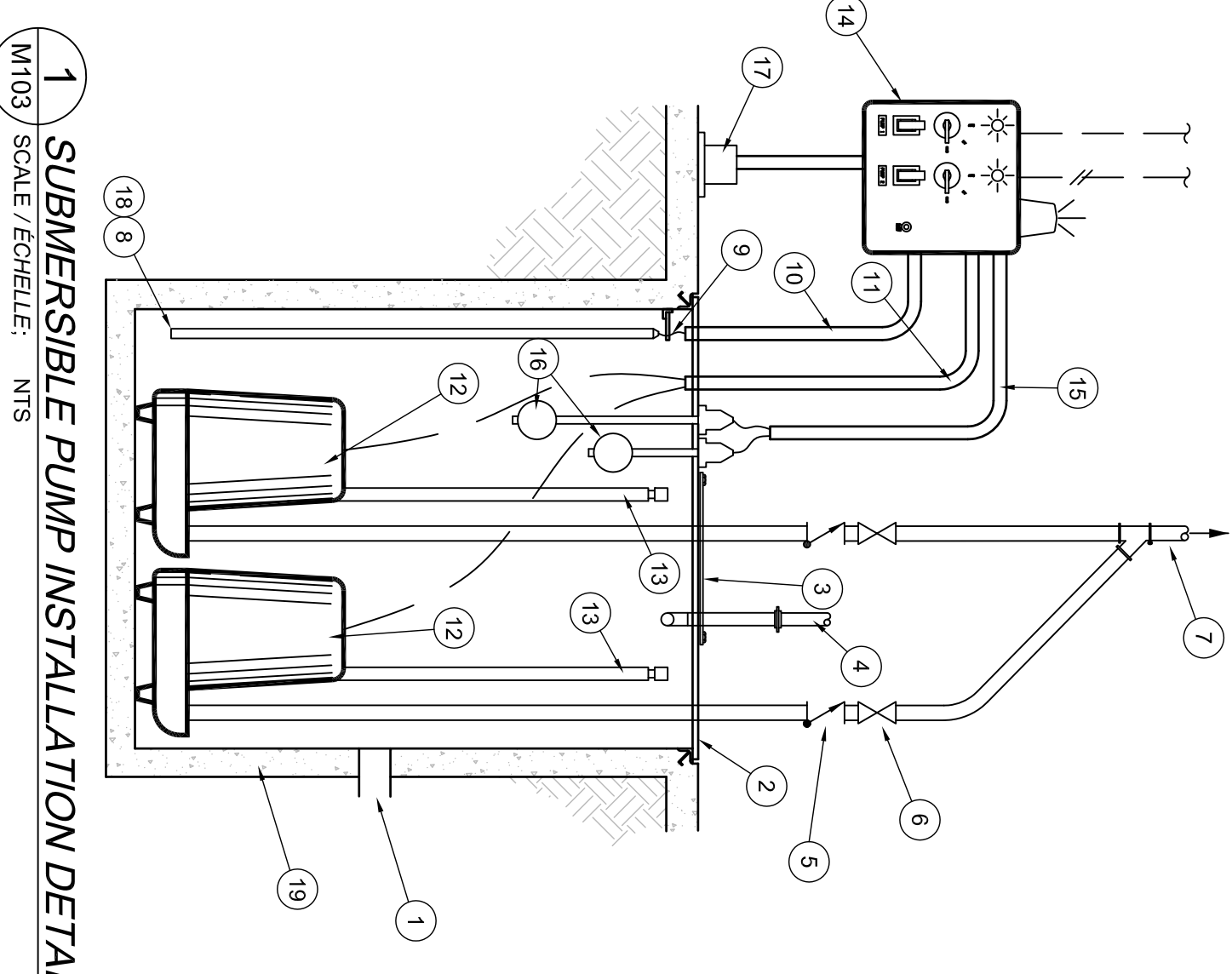
1 ROOM ES PLAN VIEW
 M102 / SCALE / ECHELLE: 1:50



4 ROOM M5 PLAN VIEW
 M102 / SCALE / ECHELLE: 1:50

DRAWINGS NOTES

- 1 EXISTING BELOW GRADE INLET PIPING INTO SUMP PIT.
- 2 EXISTING COVER PLATE WITH INSPECTION DOOR. PROVIDE NEW COVER PLATE FOR ALL SUMP PITS. PLATE TO BE SUPPLIED AND INSTALLED BY DIVISION 22 AND BOLTED DOWN TO PROVIDE AIR-TIGHT SEAL. REPLACE EXISTING ANGLE BRACKETS WITH NEW CORROSION RESISTANT STEEL ANGLE BRACKETS ON SUMP PIT PERIMETER TO SUPPORT NEW COVER PLATE. BRACKETS SHALL BE ANCHORED TO THE STRUCTURE AND SEALED PROPERLY TO AVOID ESCAPE OF SEWER GASES OUT OF PIT. ANGLE BRACKETS AND COVER PLATE TO BE CAPABLE OF SUPPORTING 500 LBS CONTRACTOR FOR NEW COVER PLATES. PROVIDE NEW FLOOR BRACKETS, RAIL-GUARDS, GUIDE BARS, DISCHARGE/VENT PIPING THROUGH COVER PLATE, AND ALL OTHER COVER PLATE ACCOUTREMENTS FOR EACH PIT.
- 3 EXISTING INSPECTION DOOR IN COVER PLATE. PROVIDE NEW INSPECTION DOOR FOR SUMP PITS.
- 4 EXISTING VENTILATION GRADE INLET PIPING. IF PIPING INTERFERES WITH NEW INSTALLATION, DEMOLISH OUT OF PIT AND REINSTATE UPON COMPLETION OF NEW WORK. NEW PIPING TO MATCH EXISTING DIAMETER.
- 5 PROVIDE AND INSTALL NEW CHECK VALVE ON DISCHARGE PIPING OF EACH SUMP PUMP AND DEMOLISH EXISTING VALVE. NEW CHECK VALVES ARE TO BE INSTALLED OUTSIDE OF SUMP PIT AND BEFORE SHUTOFF VALVES.
- 6 PROVIDE AND INSTALL NEW DISCHARGE SHUTOFF VALVE AND DEMOLISH EXISTING VALVE.
- 7 EXISTING COMMON PIT DISCHARGE PIPING.
- 8 NEW SUMP PIT LEVEL SENSOR. SENSOR IS TO PROVIDE LEVEL READINGS FOR PUMP OFF, ONE PUMP ON, BOTH PUMPS ON, AND HIGH LEVEL ALARM CONDUIT FROM PIT TO CONTROLLER.
- 9 NEW SENSOR SETPOINTS:
PUMP OFF - 40% PIT DEPTH
PUMP ON - 60% PIT DEPTH
HIGH LEVEL ALARM - 90% PIT DEPTH
- 10 EXISTING PIT SENSORS ARE TO BE DEMOLISHED.
- 11 ALL CONCRETE SUMP PITS SHALL BE REPAIRED - WATER IN EACH SUMP PIT SHALL BE DRAINED OUT TO CONTAINERS SUPPLIED BY CONTRACTOR. EVERY PIT SHALL BE CLEANED AND DRIED TO RECEIVE WATERPROOF SEALANT MATERIAL. CONTRACTOR SHALL REPAIR ERODED CONCRETE OF SUMP PITS, REPAIR & SELF-LEVEL BOTTOM OF PITS AND PROVIDE WATERPROOF SEALING OF THE SUMP PITS INCLUDING MATERIALS SPECIFIED.
- 12 NEW 50# CONDUIT FROM PIT CONTROL PANEL TO NEW PUMPS. CONDUIT IS TO BE WALL-MOUNTED WHERE POSSIBLE, AND FLOOR-MOUNTED WHERE WALLS ARE INACCESSIBLE. TERMINATE CONDUIT THROUGH COVER PLATE INTO SUMP PIT. POWER WIRING FOR NEW PUMPS TO BE SUPPLIED AND INSTALLED BY DIVISION 26.
- 13 NEW SUMP PUMPS. EXISTING PUMPS TO BE REMOVED AND NEW PUMPS TO BE DISCHARGE PIPING, WITH NEW GUIDE ELBOWS, OUT OF PIT TO THE INTO NEW CHECK VALVES. RE-USE EXISTING LIFT CHAINS.
- 14 PROVIDE AND INSTALL NEW PIT/WALL-MOUNTED GUIDE BARS FOR SUMP PUMP. DEMOLISH EXISTING GUIDE BARS WHERE PRESENT.
- 15 NEW WALL-MOUNTED PIT CONTROLLER AND CONTROL PANEL. CONTROLLER IS TO BE CONNECTED TO EXISTING BAS (SEE 24-M103). POWER TO CONTROLLER AND FROM CONTROLLER TO SUMP PUMPS BY DIVISION 26. CONTROLLER AND PANEL SUPPLIED AND INSTALLED BY DIVISION 22. CONNECTION TO BAS BY DIVISION 26. DIVISION 25 TO SUPPLY AND INSTALL NEW NETWORK AUTOMATION ENGINE (NAE-35) (OR NAE-25). NEW FIELD SERVER MODULE TO NETWORK CONTROL MODULE (N2) (OR N2-25). NETWORK CONTROL MODULE (N2) (OR N2-25) IS RESPONSIBLE TO RUN NEW MS/TP 18 GAUGE CABLES FROM ALL NEW PUMP PANELS TO COMMUNICATION 18 CLOSET LOCATED IN M4 MECHANICAL ROOM AND TO COMMUNICATE VIA NEW NETWORK AUTOMATION ENGINE (NAE-35) (OR NAE-25) AND NEW FIELD SERVER MODULE TO EXISTING BAS.
- 16 NEW 50# CONDUIT FROM PIT CONTROL PANEL TO FLOAT LEVEL CONTROLS. CONDUIT TO BE WALL-MOUNTED WHERE POSSIBLE, AND FLOOR-MOUNTED WHERE WALLS ARE INACCESSIBLE. TERMINATE CONDUIT THROUGH COVER PLATE INTO SUMP PIT. WIRING FOR FLOAT LEVEL CONTROLS TO BE BY DIVISION 22.
- 17 NEW FLOAT LEVEL CONTROLS FOR SUMP PIT. FLOAT LEVEL CONTROLS ARE TO BE TIED BACK TO PIT CONTROLLER AND ACT AS BACKUP SENSORS TO NEW LEVEL SENSOR. FLOATS ARE TO BE SET TO ACTIVATE AT "ONE PUMP ON" AND HIGH LEVEL ALARM LEVELS SET FOR LEVEL SENSOR.
- 18 NEW 50# CONDUIT FROM PIT CONTROL PANEL TO NEW FLOOR-MOUNTED FLOOD SENSOR. CONDUIT IS TO BE WALL-MOUNTED WHERE POSSIBLE, AND FLOOR-MOUNTED WHERE WALLS ARE INACCESSIBLE. ONE FLOOD SENSOR IS REQUIRED FOR EACH PUMP ROOM.
- 19 NEW FLOAT LEVEL CONTROLS FOR SIMPLEX SYSTEM SUMP PIT. FLOATS ARE TO PROVIDE SETPOINTS FOR PUMP OFF, ONE PUMP ON, AND HIGH LEVEL ALARM SETPOINTS. FLOATS TO BE CONNECTED TO NEW PIT CONTROLLER VIA CONDUIT FROM PIT TO CONTROLLER.



1 SUBMERSIBLE PUMP INSTALLATION DETAIL
SCALE / ECHELLE: M103 / NTS

PUMP SCHEDULE

PUMP ID	MANUFACTURER	MODEL	SUMP PIT	TYPE	FLOW HEAD (L/s)	HEAD (m)	MOTOR (hp)	VOLTAGE (V)	PHASE (Ø)	FREQUENCY (Hz)	CURRENT (A)	IMPELLER DIAMETER (mm)	COMMENTS
P-E5-1A	XYLEM	FVGT-CP-3068 ES-1	ES-1	SUBMERSIBLE	6.1	8.9	2.7	600	3	60	2.8	94	1.2, 3, 4, 5, 6, 9
P-E5-1B	XYLEM	FVGT-CP-3068 ES-1	ES-1	SUBMERSIBLE	6.1	8.9	2.7	600	3	60	2.8	94	1.2, 3, 4, 5, 6, 9
P-E5-2A	XYLEM	FVGT-CP-3065 ES-2	ES-2	SUBMERSIBLE	20.2	6.4	3	600	3	60	3.3	160	1.2, 3, 4, 5, 6, 9
P-E5-2B	XYLEM	FVGT-CP-3065 ES-2	ES-2	SUBMERSIBLE	20.2	6.4	3	600	3	60	3.3	160	1.2, 3, 4, 5, 6, 9
P-B18-A	XYLEM	FVGT-CP-3068 B18	B18	SUBMERSIBLE	6.1	8.9	2.7	600	3	60	2.8	94	1.2, 3, 4, 5, 6, 9
P-B18-B	XYLEM	FVGT-CP-3068 B18	B18	SUBMERSIBLE	6.1	8.9	2.7	600	3	60	2.8	94	1.2, 3, 4, 5, 6, 9
P-E4-A	XYLEM	FVGT-CP-3065 E4	E4	SUBMERSIBLE	20.2	6.4	3	600	3	60	3.3	160	1.2, 3, 4, 5, 6, 9
P-E4-B	XYLEM	FVGT-CP-3065 E4	E4	SUBMERSIBLE	20.2	6.4	3	600	3	60	3.3	160	1.2, 3, 4, 5, 6, 9
P-M5-A	XYLEM	FVGT-DS-3045 M5	M5	SUBMERSIBLE	1.1	6.7	1.1	120	1	60	10	78	1.2, 3, 4, 5, 6, 9, 10

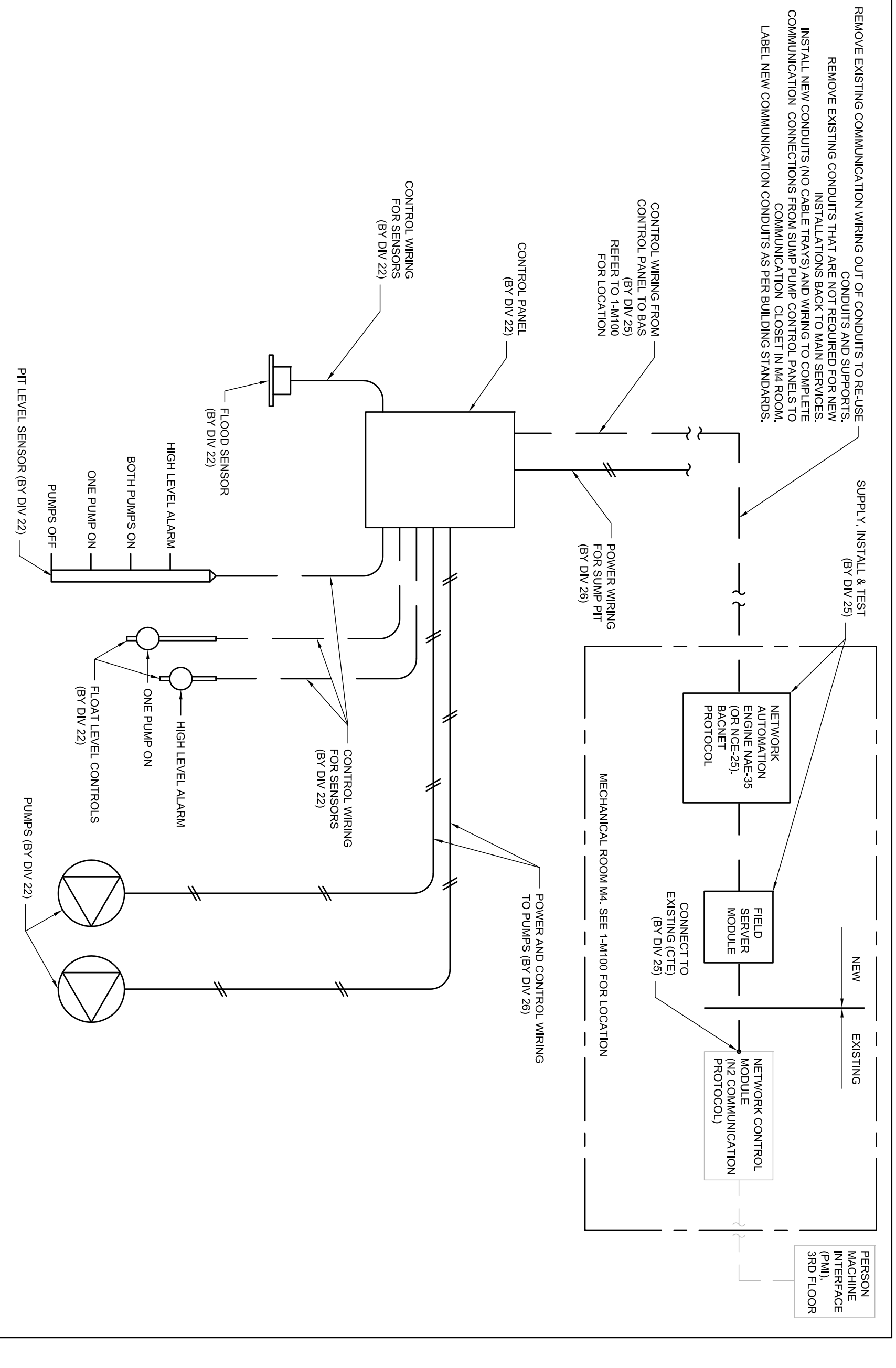
- COMMENTS:**
- 1 - PROVIDE AND INSTALL NEW CONTROL PANEL FOR SUMP PIT. COMPLETE WITH POWER SUPPLIES TO PIT PUMPS AND PIT CONTROLLER.
 - 2 - PROVIDE AND INSTALL NEW LEVEL SENSOR FOR SUMP PIT.
 - 3 - PROVIDE AND INSTALL NEW DISCHARGE ELBOW AND DISCHARGE PIPING FOR SUMP PIT.
 - 4 - PROVIDE AND INSTALL NEW FLOOR-MOUNTED FLOOD SENSOR FOR SUMP PIT.
 - 5 - PROVIDE AND INSTALL NEW FLOATS FOR SUMP PIT.
 - 6 - PROVIDE AND INSTALL NEW FLOOR-MOUNTED HOIST FOR SUMP PIT.
 - 7 - PROVIDE AND INSTALL NEW WALL-MOUNTED HOIST FOR SUMP PIT.
 - 8 - NEW WALL-MOUNTED HOIST CAN BE SHARED BETWEEN BOTH PITS WITHIN ROOM.
 - 9 - PROVIDE AND INSTALL NEW COVER PLATE. COMPLETE WITH ANGLE FRAMES, BRACKETS FOR FLOATS, RAIL-GUARDS, GUIDE BARS, AND OTHER ACCOUTREMENTS. WITH INSPECTION DOOR FOR SUMP PIT.
 - 10 - PROVIDE AND INSTALL ADDITIONAL VALVE ON DISCHARGE PIPING, DOWNSTREAM OF ISOLATION VALVE, THAT CAN BE THROTTLED TO PRODUCE 0.6m OF ADDITIONAL HEAD ON SYSTEM.

CONTROL POINT SCHEDULE

ROOM	ID	DESCRIPTION	TYPE	UNIT	TYPE	RANGE	SUPPLY BY DIV	INSTALL BY DIV	WIRED BY DIV	NOTES
E5	P-E5-1-A-ST	PUMP P-E5-1A STATUS	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
E5	P-E5-1-B-ST	PUMP P-E5-1B STATUS	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
E5	E5-FL-ST	ROOM E5 FLOOD SENSOR STATUS	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
E5	E5-H-LA	PIT E5 HIGH LEVEL ALARM	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
E5	P-E5-2-A-ST	PUMP P-E5-2A STATUS	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
E5	P-E5-2-B-ST	PUMP P-E5-2B STATUS	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
E5	E5-2-H-LA	PIT E5-2 HIGH LEVEL ALARM	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
B18	P-B18-A-ST	PUMP P-B18-A STATUS	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
B18	P-B18-B-ST	PUMP P-B18-B STATUS	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
B18	B18-FL-ST	ROOM B18 FLOOD SENSOR STATUS	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
B18	B18-H-LA	PIT B18 HIGH LEVEL ALARM	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
E4	P-E4-A-ST	PUMP P-E4-A STATUS	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
E4	P-E4-B-ST	PUMP P-E4-B STATUS	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
E4	E4-FL-ST	ROOM E4 FLOOD SENSOR STATUS	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
E4	E4-H-LA	PIT E4 HIGH LEVEL ALARM	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
M6	P-M5-FL-ST	PUMP P-M5 FLOOD SENSOR STATUS	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
M6	M5-H-LA	PIT M5 HIGH LEVEL ALARM	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-
M5	M5-H-LA	PIT M5 HIGH LEVEL ALARM	DI	ON/OFF	CURRENT SENSING SWITCH	-	25	25	25	-

GENERAL NOTES:

1. CONTROL PANELS OF SUMP PUMPS TO HAVE CONNECTION ABILITY TO EXISTING BAS SYSTEM AND HAVE BACKUP COMPATIBLE DATA COMMUNICATION PROTOCOLS. REFER TO SPECIFICATION FOR DETAILS.



2 INSTALLATION SCHEMATIC AND CONTROLS DIAGRAM
SCALE / ECHELLE: M103 / NTS

Canadian Space Agency
Agence spatiale canadienne

JOSEF BERGERON
Director, Space & Facilities

M. FARID, P. Eng.
Manager, Building Operations & Security

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2.	ISSUED FOR TENDER	16/06/20
3.		
4.		
5.		

PROFESSIONAL STAMP

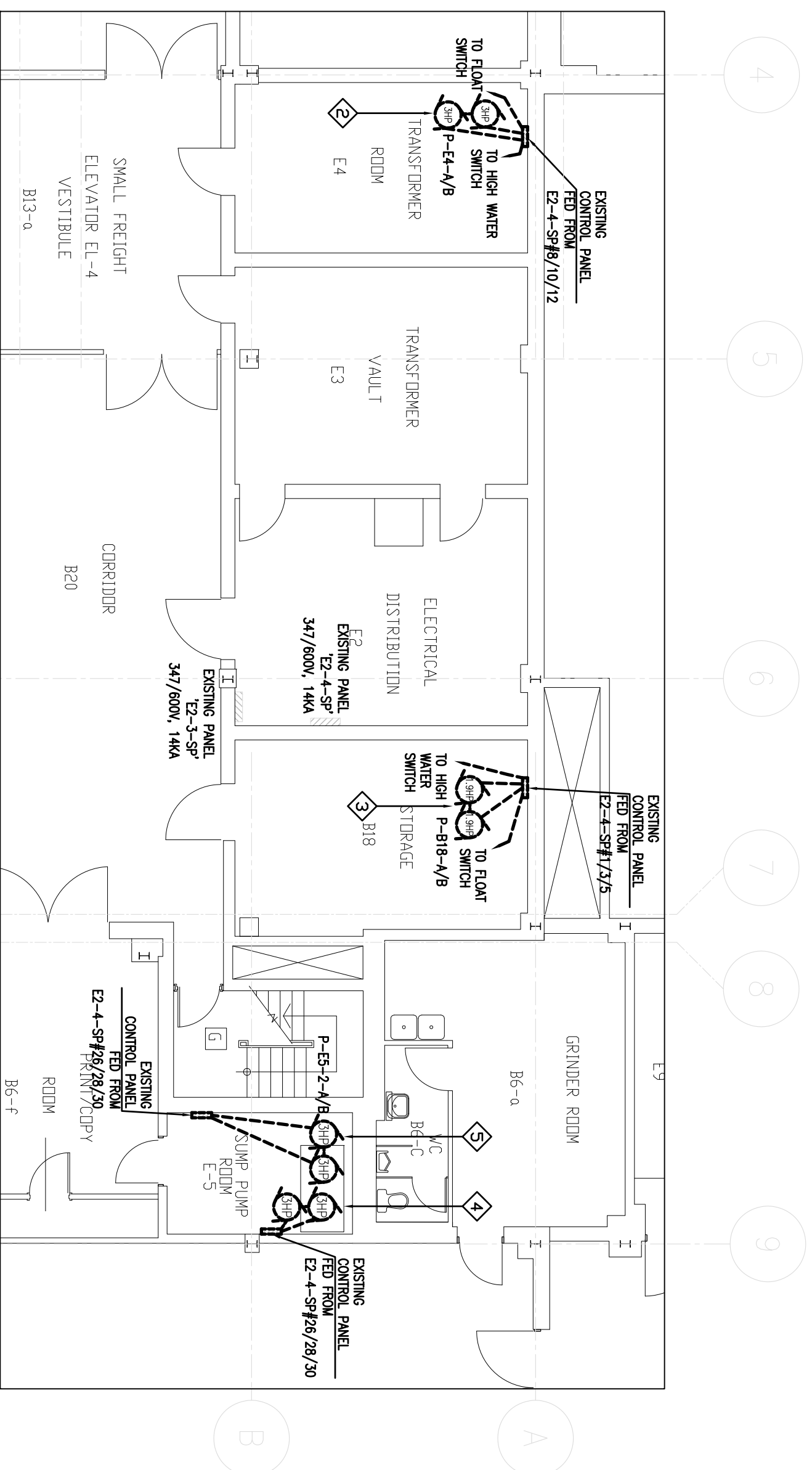
DAVID FLORIDA LABORATORY
BUILDING No. 65, SHIRLEY'S BAY, ONTARIO

SUMP PUMP REPLACEMENT NON-CLEAN ROOMS

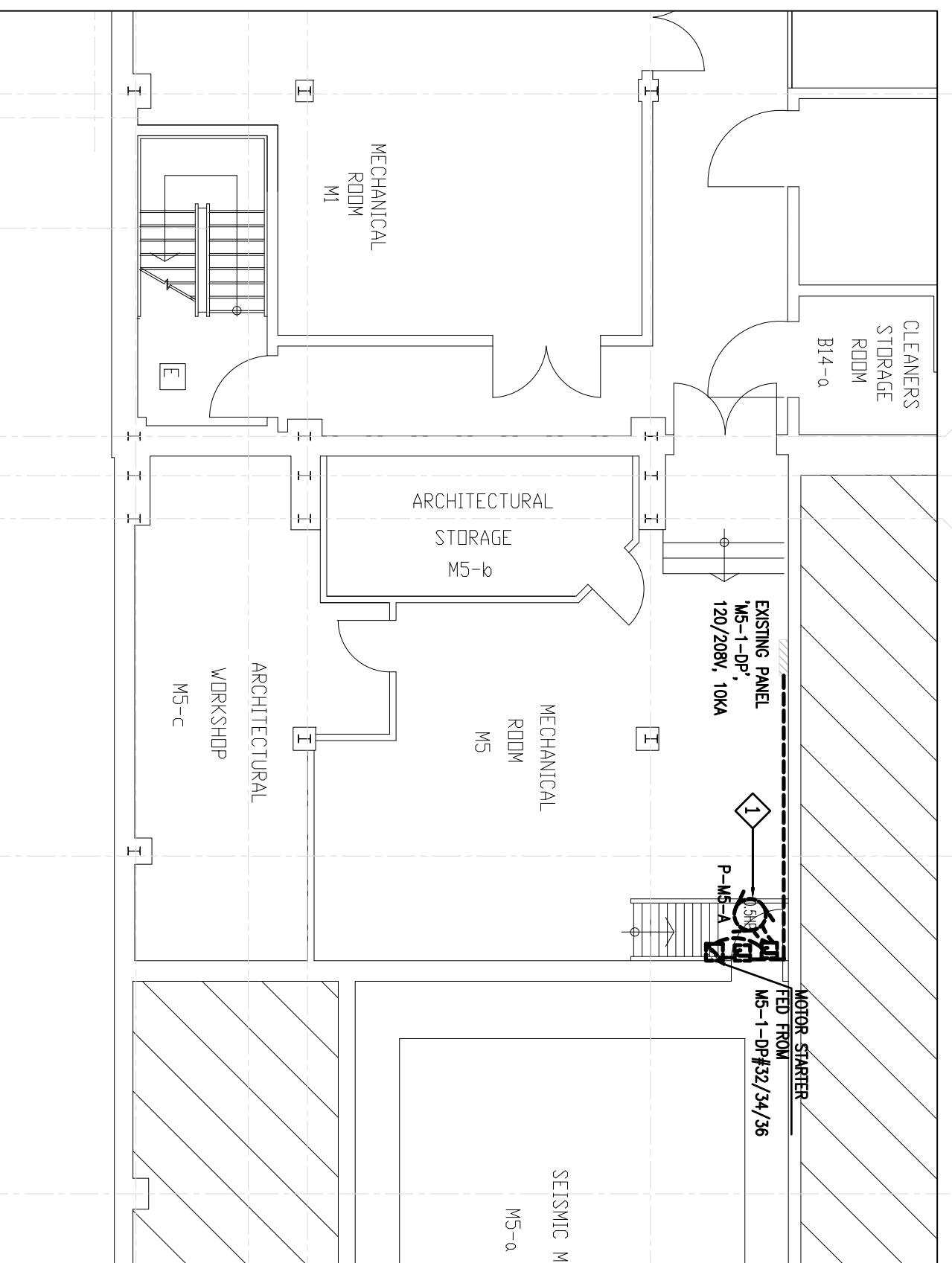
MECHANICAL DETAILS & SCHEDULES

designed: A. OYDOROV
drawn: M. FARID
date: 2015-06-08
approved: M. FARID
date: 2015-06-08
scale:

project no.: CSA15-M5A
drawing no.: M103
no. du projet: no. du dessin

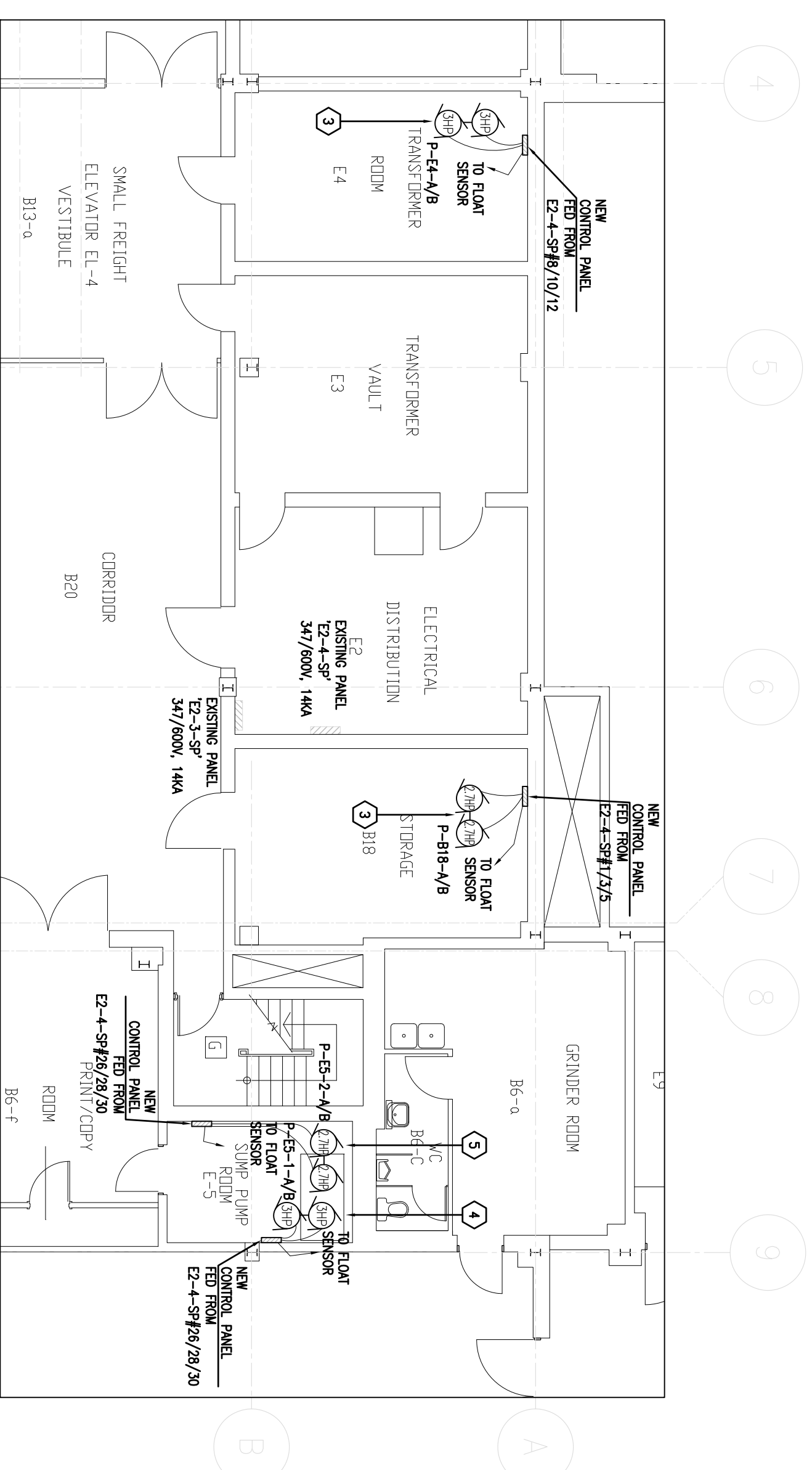


1 DEMO PLAN VIEW -TRAN. RM E4, STORAGE. RM B18 & SUMP PUMP RM E5
E100 SCALE: 1:100

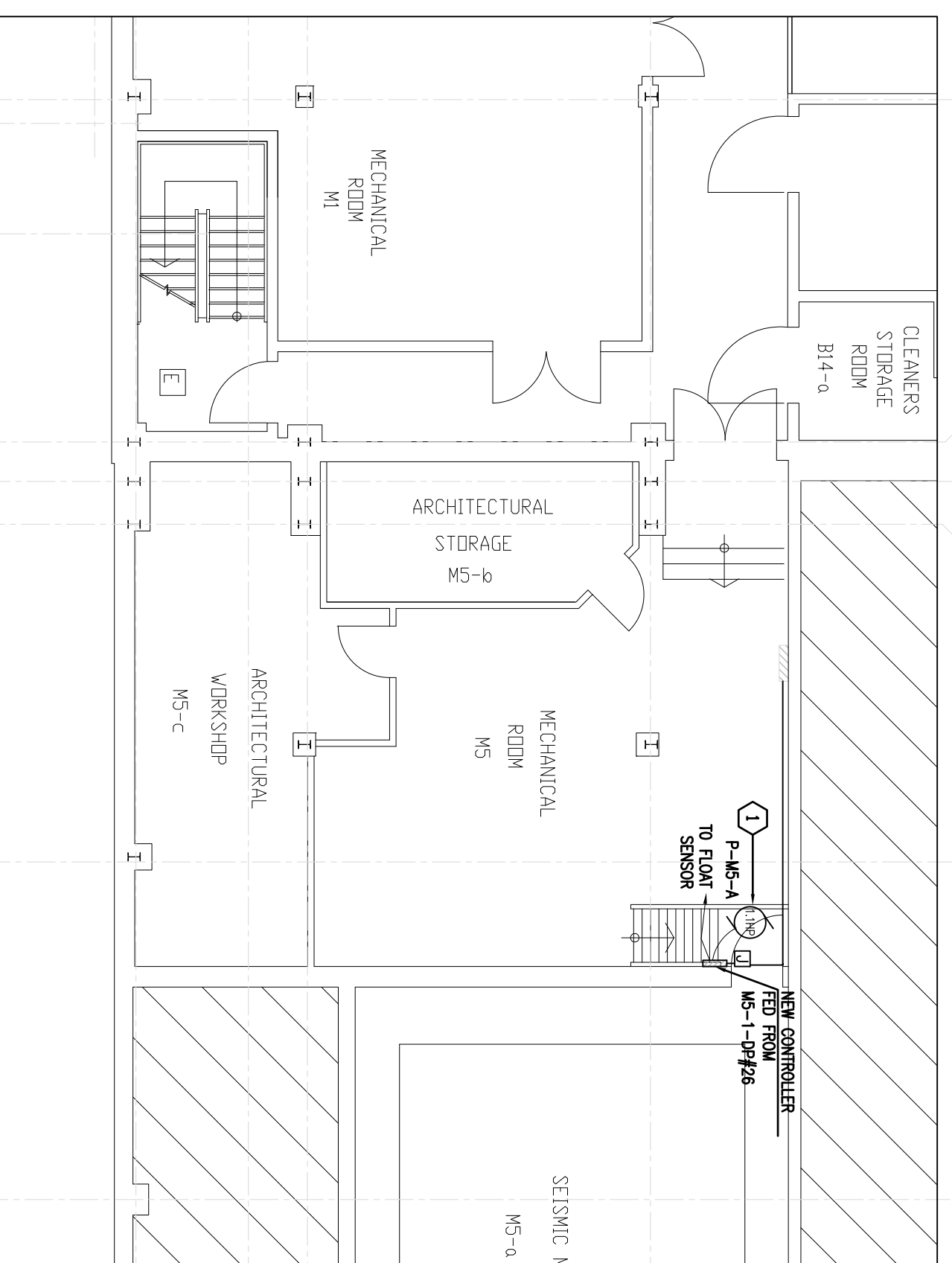


2 DEMO PLAN VIEW - MECHANICAL ROOM M5
E100 SCALE: 1:100

- DEMOLITION DRAWING NOTES:
- 1 EXISTING DUPLEX SUMP PUMP IN MECHANICAL ROOM M5 TO BE REMOVED BY MECHANICAL. DIVISION 26 TO REMOVE WIRES C/W CONDUIT BACK TO JUNCTION BOX. PUMP MOTOR STARTER TO BE REMOVED BY DIVISION 26. COORDINATE WORK WITH MECHANICAL.
 - 2 EXISTING DUPLEX SUMP PUMP IN ELECTRICAL ROOM E4 TO BE REMOVED BY MECHANICAL. DIVISION 26 TO DISCONNECT POWER FEEDER AT PUMP MOTOR AND COIL WIRES FOR RE-CONNECTION. MAKE ELECTRICALLY SAFE. COORDINATE WORK WITH MECHANICAL.
 - 3 EXISTING DUPLEX SUMP PUMP IN STORAGE ROOM B18 TO BE REMOVED BY MECHANICAL. DIVISION 26 TO DISCONNECT POWER FEEDER AT PUMP MOTOR AND COIL WIRES FOR RE-CONNECTION. MAKE ELECTRICALLY SAFE. COORDINATE WORK WITH MECHANICAL.
 - 4 EXISTING DUPLEX PERIMETER SUMP PUMP IN ELECTRICAL ROOM E5 TO BE REMOVED BY MECHANICAL. DIVISION 26 TO DISCONNECT POWER FEEDER AT PUMP MOTOR AND COIL WIRES FOR RE-CONNECTION. MAKE ELECTRICALLY SAFE. COORDINATE WORK WITH MECHANICAL.
 - 5 EXISTING DUPLEX SEWAGE PUMP IN ELECTRICAL ROOM E5 TO BE REMOVED BY MECHANICAL. DIVISION 26 TO DISCONNECT POWER FEEDER AT PUMP MOTOR AND COIL WIRES FOR RE-CONNECTION. MAKE ELECTRICALLY SAFE. COORDINATE WORK WITH MECHANICAL.



3 NEW PLAN VIEW -TRAN. RM E4, STORAGE. RM B18 & SUMP PUMP RM E5
E100 SCALE: 1:100



4 NEW PLAN VIEW - MECHANICAL ROOM M5
E100 SCALE: 1:100

- NEW DRAWING NOTES:
- 1 NEW COLUMN SUMP PUMP P-M5-A C/W SUBSEA CABLE AND CONTROLLER BY MECHANICAL. 120V, 14, 2P, 1.1HP, FLA 10A. DIVISION 26 TO REPLACE AN EXISTING 1P SPARE BREAKER WITH A NEW 25A, 1P BREAKER IN PANEL M5-1-SP C/W NEW WIRING 2#12-GND-21 MAKE UP TO CONTROLLER AND CONTROLLER TO PUMP MOTOR. FLOAT SWITCH AND HIGH WATER DEVICES ARE BY MECHANICAL TO BE WIRED BY ELECTRICAL. PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT CONNECTION AT PUMP. COORDINATE WORK WITH MECHANICAL. REFER TO MANUFACTURER MANUAL FOR WIRING DIAGRAM.
 - 2 NEW DUPLEX SUMP PUMP P-E4-A/B C/W 16M SUBSEA CABLE AND DUPLEX CONTROL PANEL BY MECHANICAL. 575V, 34, 3HP, FLA 33A. DIVISION 26 TO MAKE POWER RE-CONNECTION TO CONTROL PANEL. EXISTING WIRES AND CONDUIT MAY BE REUSED PER CONDUIT. MAKE PUMP MOTOR, FLS (LEAKAGE SENSOR) AND FLOATS SENSOR CABLE CONNECTIONS TO CONTROL PANEL. PROVIDE ADDITIONAL WIRING AND CONDUIT IF REQUIRED. REFER TO MANUFACTURER MANUAL FOR WIRING DIAGRAM. COORDINATE WORK WITH MECHANICAL. FASTEN CABLE SECURELY AND PROVIDE UNISTRUT SUPPORT IF REQUIRED.
 - 3 NEW DUPLEX SUMP PUMP P-B18-A/B C/W 16M SUBSEA CABLE AND DUPLEX CONTROL PANEL BY MECHANICAL. 575V, 34, 27HP, FLA 28A. DIVISION 26 TO MAKE POWER RE-CONNECTION TO CONTROL PANEL. EXISTING WIRES AND CONDUIT MAY BE REUSED PER CONDUIT. MAKE PUMP MOTOR, FLS (LEAKAGE SENSOR) AND FLOAT SENSOR CABLE CONNECTIONS TO CONTROL PANEL. PROVIDE ADDITIONAL WIRING AND CONDUIT IF REQUIRED. REFER TO MANUFACTURER MANUAL FOR WIRING DIAGRAM. COORDINATE WORK WITH MECHANICAL. FASTEN CABLE SECURELY AND PROVIDE UNISTRUT SUPPORT IF REQUIRED.
 - 4 NEW DUPLEX PERIMETER SUMP PUMP P-E5-1-A/B C/W 16M SUBSEA CABLE AND DUPLEX CONTROL PANEL BY MECHANICAL. 575V, 34, 3HP, FLA 33A. DIVISION 26 TO MAKE POWER RE-CONNECTION TO CONTROL PANEL. EXISTING WIRES AND CONDUIT MAY BE REUSED PER CONDUIT. MAKE PUMP MOTOR, FLS (LEAKAGE SENSOR) AND FLOAT SENSOR CABLE CONNECTIONS TO CONTROL PANEL. PROVIDE ADDITIONAL WIRING AND CONDUIT IF REQUIRED. REFER TO MANUFACTURER MANUAL FOR WIRING DIAGRAM. COORDINATE WORK WITH MECHANICAL. FASTEN CABLE SECURELY AND PROVIDE UNISTRUT SUPPORT IF REQUIRED.
 - 5 NEW DUPLEX SEWAGE PUMP P-E5-2-A/B C/W 16M SUBSEA CABLE AND DUPLEX CONTROL PANEL BY MECHANICAL. 575V, 34, 3HP, FLA 33A. DIVISION 26 TO MAKE POWER RE-CONNECTION TO CONTROL PANEL. EXISTING WIRES AND CONDUIT MAY BE REUSED PER CONDUIT. MAKE PUMP MOTOR, FLS (LEAKAGE SENSOR) AND FLOAT SENSOR CABLE CONNECTIONS TO CONTROL PANEL. PROVIDE ADDITIONAL WIRING AND CONDUIT IF REQUIRED. REFER TO MANUFACTURER MANUAL FOR WIRING DIAGRAM. COORDINATE WORK WITH MECHANICAL. FASTEN CABLE SECURELY AND PROVIDE UNISTRUT SUPPORT IF REQUIRED.

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2.	ISSUED FOR TENDERS	15/04/2015
3.		
4.		
5.		

PROFESSIONAL STAMP
A: Author
B: Designer
C: Checker
D: Drafter
E: Engineer
F: Field Engineer
G: Geotechnical Engineer
H: Hydrologist
I: Inspector
J: Inspector (Construction)
K: Inspector (Electrical)
L: Inspector (Mechanical)
M: Inspector (Structural)
N: Inspector (Transportation)
O: Inspector (Water Resources)
P: Inspector (Wildlife)
Q: Inspector (Zoning)
R: Inspector (Other)
S: Inspector (Other)
T: Inspector (Other)
U: Inspector (Other)
V: Inspector (Other)
W: Inspector (Other)
X: Inspector (Other)
Y: Inspector (Other)
Z: Inspector (Other)

PROJECT	PROJECT
DAVID FLORIDA LABORATORY	PROJECT
BUILDING NO. 65, SHIRLEY'S BAY, ONTARIO	
SUMP PUMP REPLACEMENT NON-CLEAN ROOMS	DESIGN

ELECTRICAL PARTIAL BASEMENT POWER LAYOUTS - DEMO & NEW

DATE	BY	APPROVED
2015-09-08	A. OUDOVY	
2015-09-08	M. FARID	
2015-09-08		