



**AMENDMENT NO. 4 TO THE  
TENDER DOCUMENTS**

**Defence Construction (1951) Limited**

**CLOSING DATE/TIME:** As indicated on the *Electronic Bidding System*

**PROJECT NO.:** TRS19008\_82525

**AMENDMENT DATE:** August 13, 2026

**PROJECT TITLE:** Fire System Replacement, B052  
Trenton, Ontario

**TO ALL TENDERERS:**

**THE PURPOSE OF THIS AMENDMENT IS TO GIVE EFFECT TO THE FOLLOWING:**

1. To **ISSUE** Addendum No.1, attached (15 pages). The closing time and location remain unchanged.

**End of Amendment No. 4**



## Addendum No. 01

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**Project** TRE-UPG B052 (HGR 10) FIRE PUMPHOUSE

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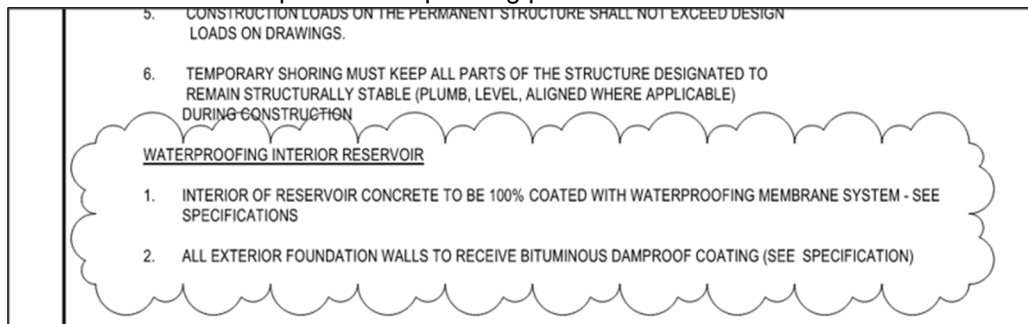
*Addendum clarifications, revisions, deletions and inclusions shall be read with, and form part of, the original bid documents. All parties tendering the subject project shall take note of and include for the following revisions and/or information provided which supplement the Drawings and Specifications.*

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### 1.0 Changes to Drawings

#### 1.1 Drawing 200 – General Notes

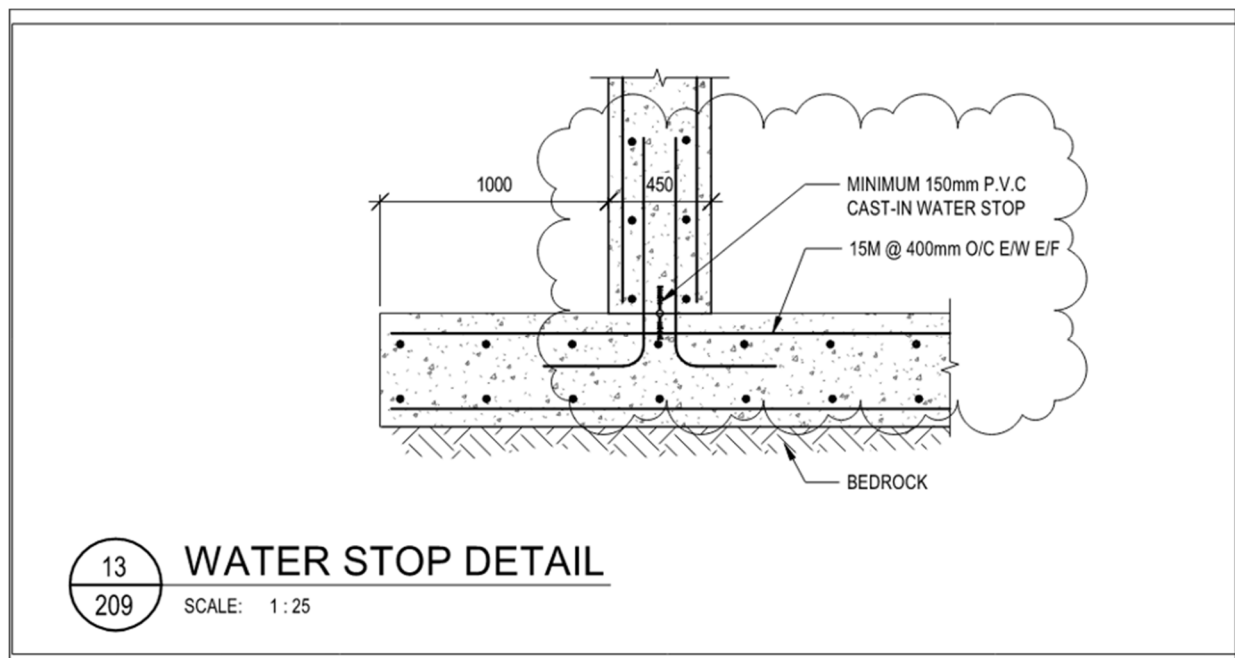
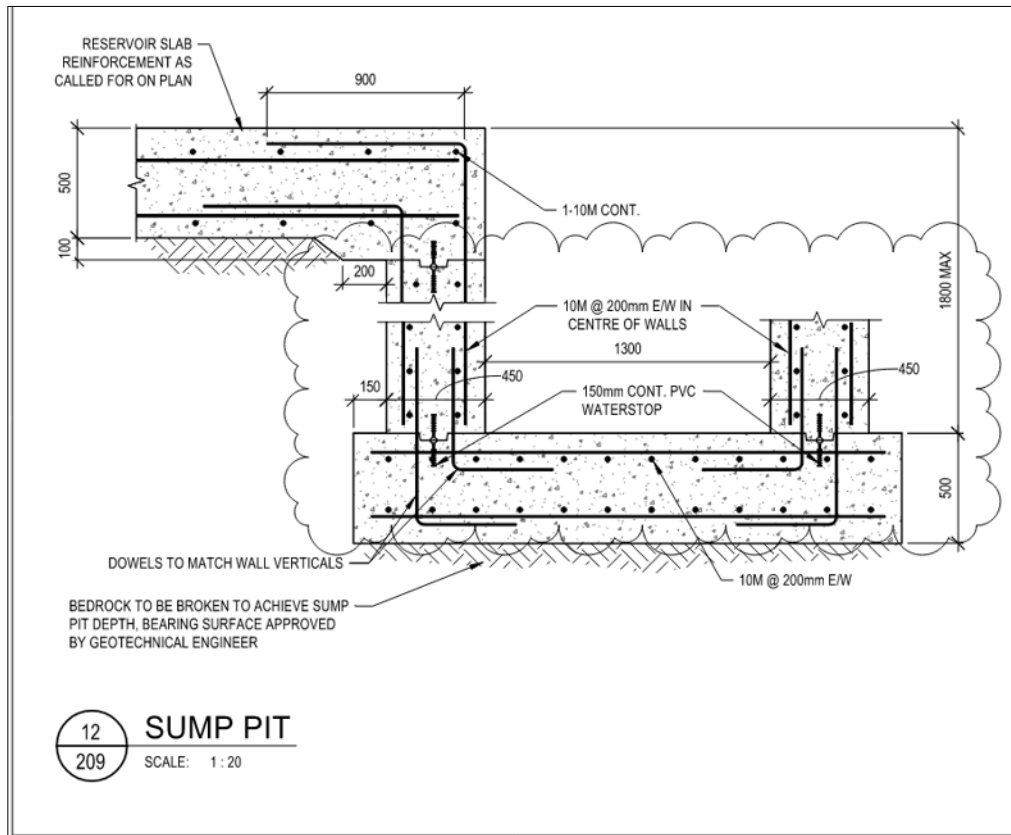
##### .1 Removed acceptable waterproofing product manufacturers.



#### 1.2 Drawing 206 – Building Sections

##### .1 Detail 1 – Changed sloped insulation percentage and water proofing notes. Concrete slab to be flat.

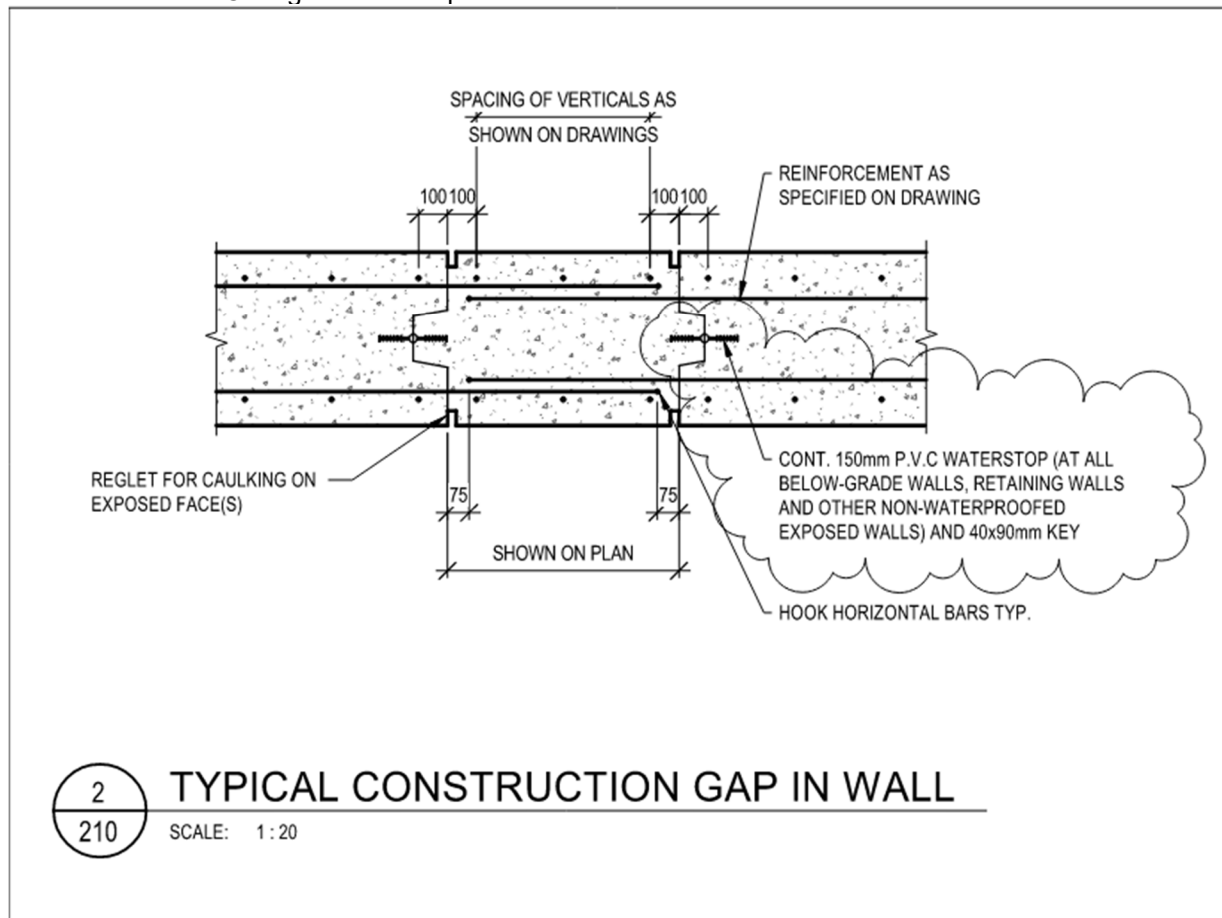






#### 1.4 Drawing 210 – Details Cont.

##### .1 Detail 2 – Changed water stop size.



#### 1.5 Drawing 401 – Legends, Schedules & Drawing List

##### .1 Detail 1 Key Plan

##### .1 Delete Area of Work hatch over Building 57 and reference to Drawing 404.



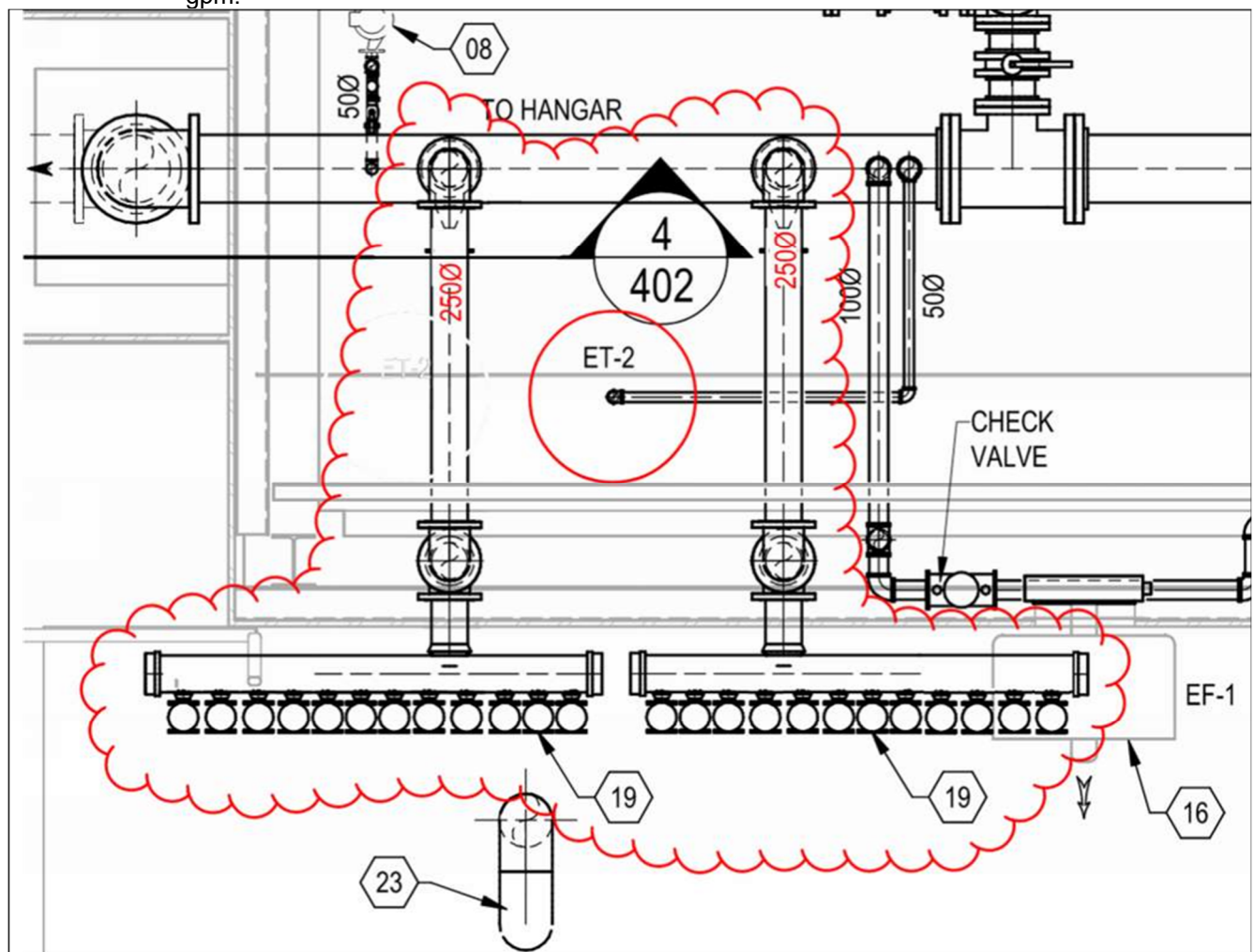
.2 Add two (2) general notes on this drawing.

- 04 The red-painted pipes above the slab in the sprinkler valve stations are assumed to contain lead. Contractors shall include the required health and safety measures, as well as any associated handling, removal, and disposal costs, in their quotations.
- 05 Maximum allowable downtime of the existing fire suppression in Hangar 10 to permit the below-slab pipe replacement work is 6 weeks (consecutive). Contractors shall make provisions to ensure fire suppression is back online, either permanently or temporarily until final tie-ins/commissioning can be completed for the new supply, within this timeframe.

## 1.6 Drawing 402 – Fire Protection Plans

### .1 Detail 1 Floor Plan – Fire Protection

- .1 Revise Drawing Note 19 as follows: “Provide 250mm test header with twelve (12) 65mm hose connections and two (2) non-threaded connections.”.
- .2 Provide second test header as shown in the sketch below for total capacity to 6,000 gpm.



### .2 Detail 2 Building Section – Fire Protection

- .1 Water reservoir volume to be revised as follows: “Reservoir active volume minimum 1,020,600L.”

## 1.7 Drawing 405 - Hangar 10 Water Main Tie-In

- .1 Replace this drawing in its entirety with the attached Drawing 405 – Hangar 10 Water Main Tie-In, dated August 7, 2026.
- .1 Revisions are identified by revision clouds (bubble areas).

## 1.8 Drawing 406 - Hangar 10 Existing Water Main Valve Off

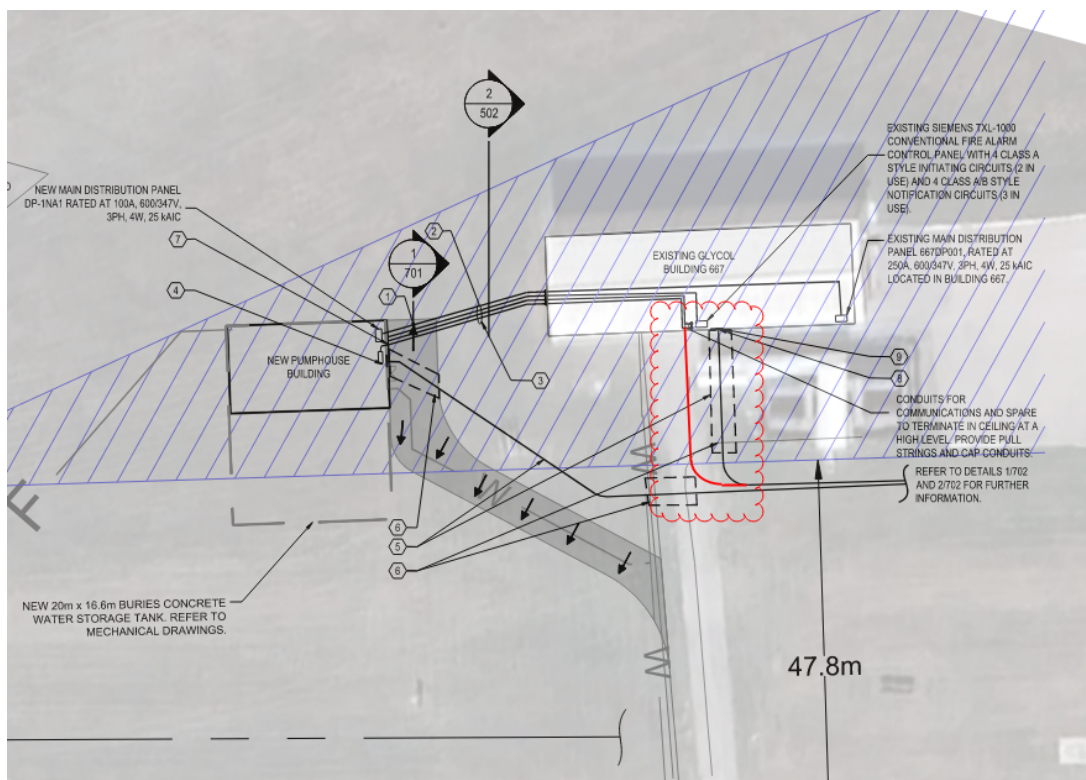
- .1 Replace this drawing in its entirety with the attached Drawing 406 – Hangar 10 Existing Water Main Valve Off, dated August 7, 2026.
- .1 Revisions are identified by revision clouds (bubble areas).

## 1.9 Drawing 407 – Fire Protection System Schematics and Details

- .1 Sequence of Operations
- .1 Add the following note: “Fire pumps to stagger start per NFPA 20 12.7.2.5 (2019 Edition).”

## 1.10 Drawing 502 – Electrical Site Plan and Details

- .1 Concrete duct bank to be routed as shown below to avoid existing structures, exact routing to be confirmed on site before installation.



## 1.11 Drawing 503 – Electrical Pump House – Power Layout

- .1 Detail 3 Conduit Entry Elbow Detail
- .1 Replace wall-mounted communication LB fittings with a wall-mounted pull box. Communications conduits shall rise from the pull box and penetrate the wall with a minimum bending radius of 10 times the inside conduit diameter.
- .2 Provide a duplex receptacle adjacent to the communications backboard for telecommunications equipment.

## 1.12 Drawing 505 – Electrical Pump House Fire Alarm Layout

- .1 All fire alarm wiring shall be FAS 105 type in accordance with FMD 4003.
- .2 Fire alarm zone schedule provided.
- .3 Detail 2 Fire Alarm Riser Diagram – Pump House Building
  - .1 Fire alarm riser schematic revised to show DCLC wiring between the Pump House and Glycol Building 667, complete with isolation modules, grounding and surge protection.
  - .2 Fire alarm riser schematic revised to show Class A loops for alarm annunciation.
  - .3 Fire alarm load summary table updated and reference to manufacturer names deleted.

## 2.0 Changes to Specifications

### 2.1 Section 03 30 00 – Cast-In-Place Concrete

- .1 Replace 2.4 Mixes
  1. Alternative 1 - Performance Method for specifying concrete: to meet DCC Representative performance criteria to CSA A23.1/A23.2.
  - .2 Ensure concrete supplier meets performance criteria as established below and provide verification of compliance as in Quality Control Plan.
  - .3 Provide concrete mix to meet following hard state requirements:
    - .1 Durability and class of exposure: C-1.
    - .2 Compressive strength at 28 days: 35 Mpa minimum.
    - .3 Intended application: Piers, Foundation walls, exterior suspended slabs, Exterior Slabs, taxiway PCC slab, bollards.
    - .4 Aggregate size 20 mm maximum.
    - .5 Admixture: Crystalline to be added 2% ratio based on weight of cement to all tank walls and slabs.
  - .4 Provide concrete mix to meet following hard state requirements:
    - .1 Durability and class of exposure: N.
    - .2 Compressive strength at 28 days: 35 Mpa minimum.
    - .3 Intended application: Footings, Interior suspended slab,
    - .4 Aggregate size 20 mm maximum.
    - .5 Admixture: Crystalline to be added 2% ration based on weight of cement to all tank walls and slabs

### 2.2 Add Section 07 14 00 – Liquid Applied Polyurethane Waterproofing.

Addendum Issued By:



Martin Ma, P.Eng., M.A.Sc., LEED®AP BD+C, PMP, BCIN

Senior Mechanical Engineer

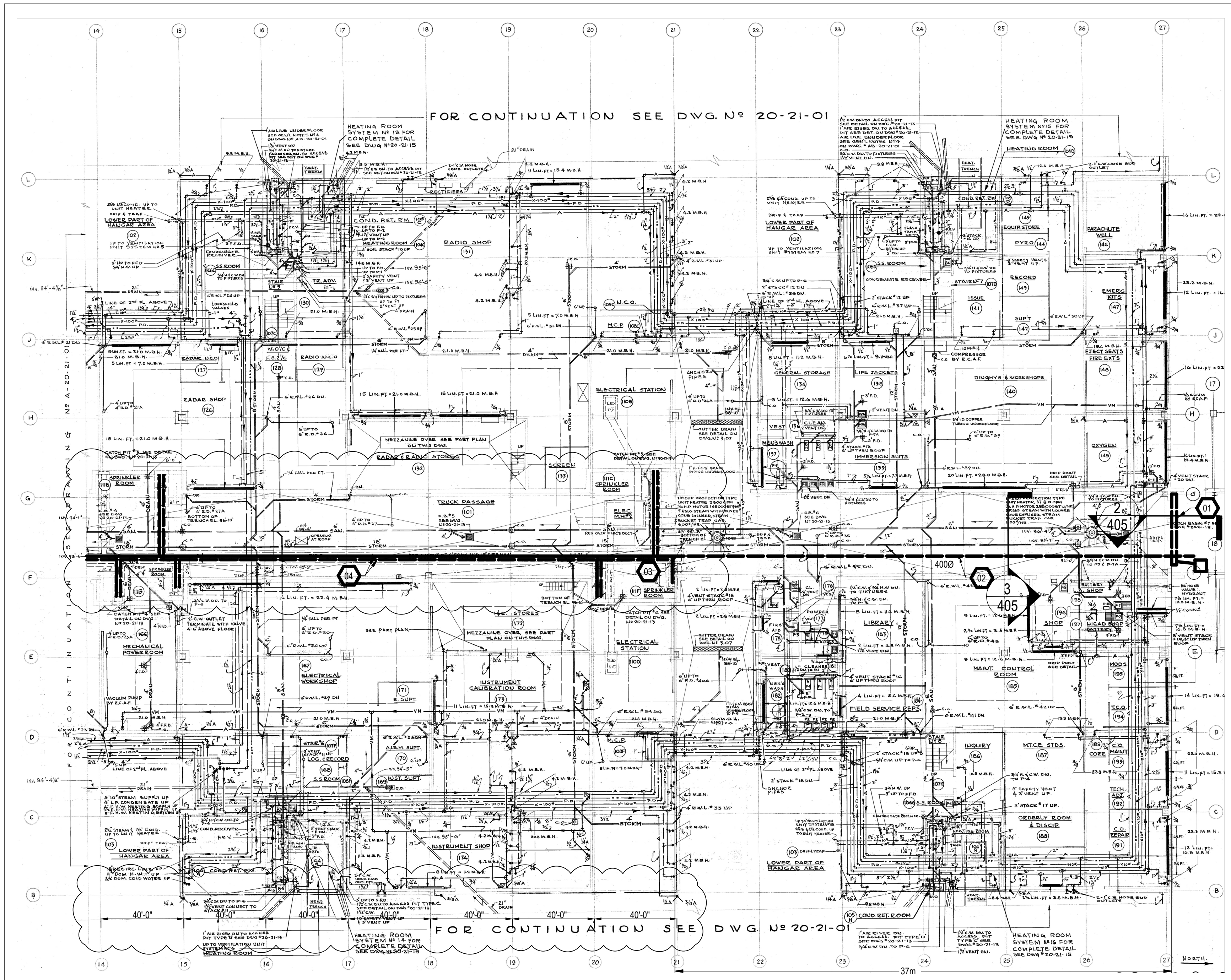
#### Attachments:

- Drawing 405 - Hangar 10 Water Main Tie-In
- Drawing 406 - Hangar 10 Existing Water Main Valve Off
- Drawing 503 - Electrical Pump House – Power Layout
- Drawing 505 - Electrical Pump House Fire Alarm Layout
- Section 07 14 00 - Liquid Applied Polyurethane Waterproofing

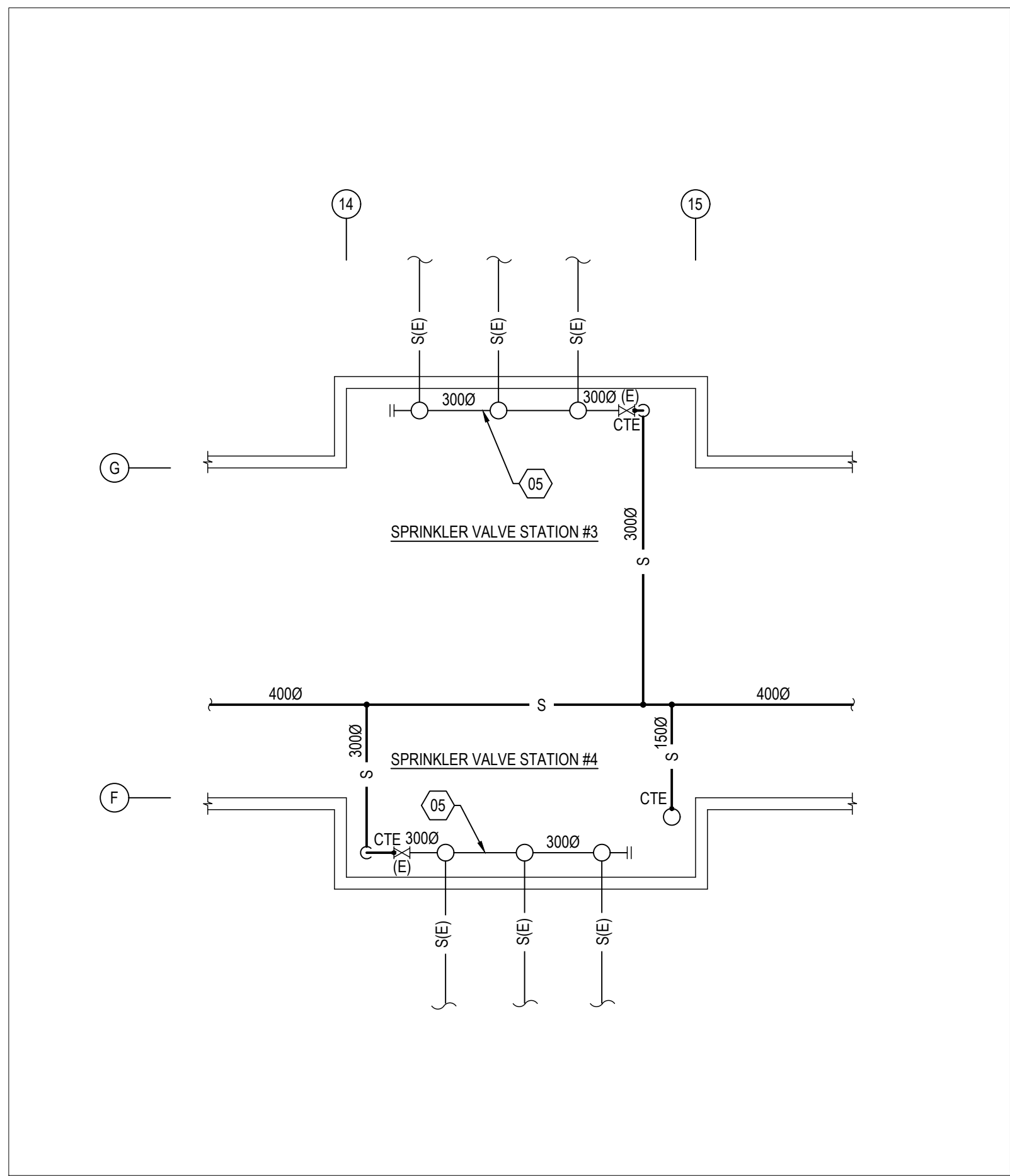
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**End of Addendum No. 01**

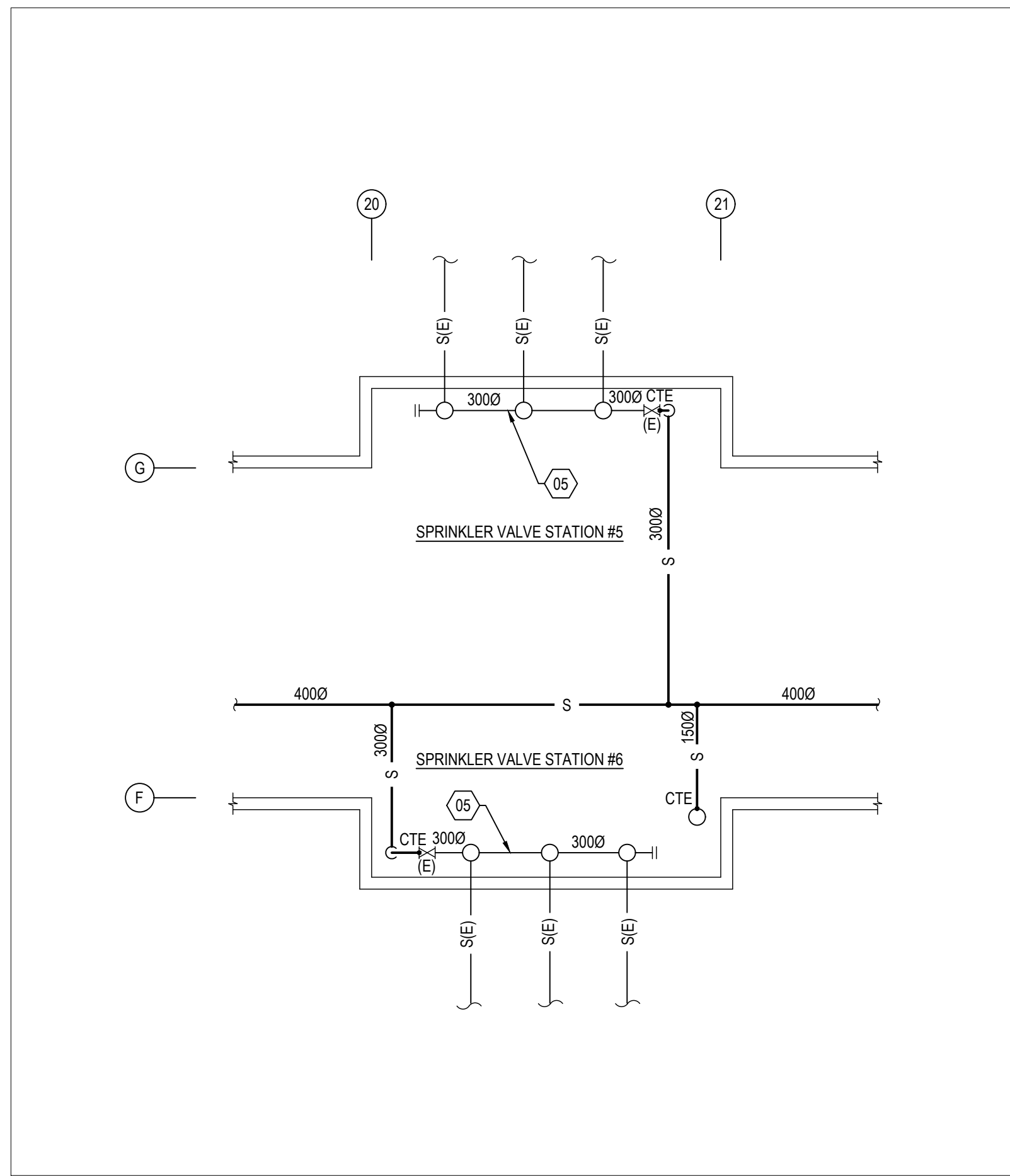




1 GROUND FLOOR SECTION "A" PLAN - MODIFICATIONS  
SCALE: N.T.S.



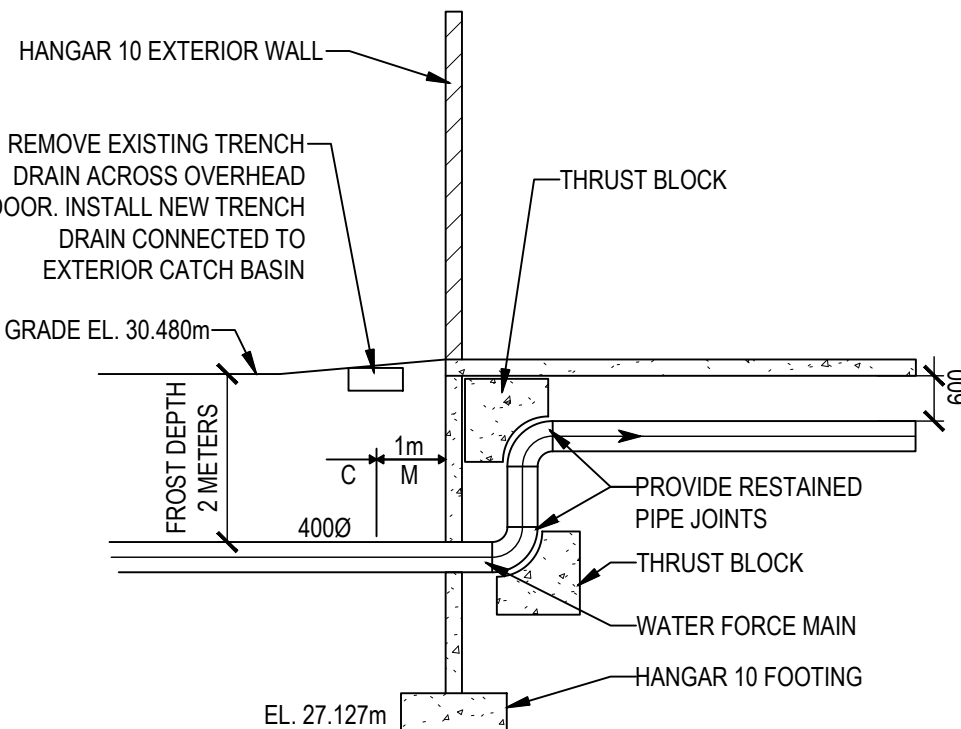
4 VALVE STATION PIPING LAYOUT - NEW WORK  
SCALE: N.T.S.



5 VALVE STATION PIPING LAYOUT - NEW WORK  
SCALE: N.T.S.

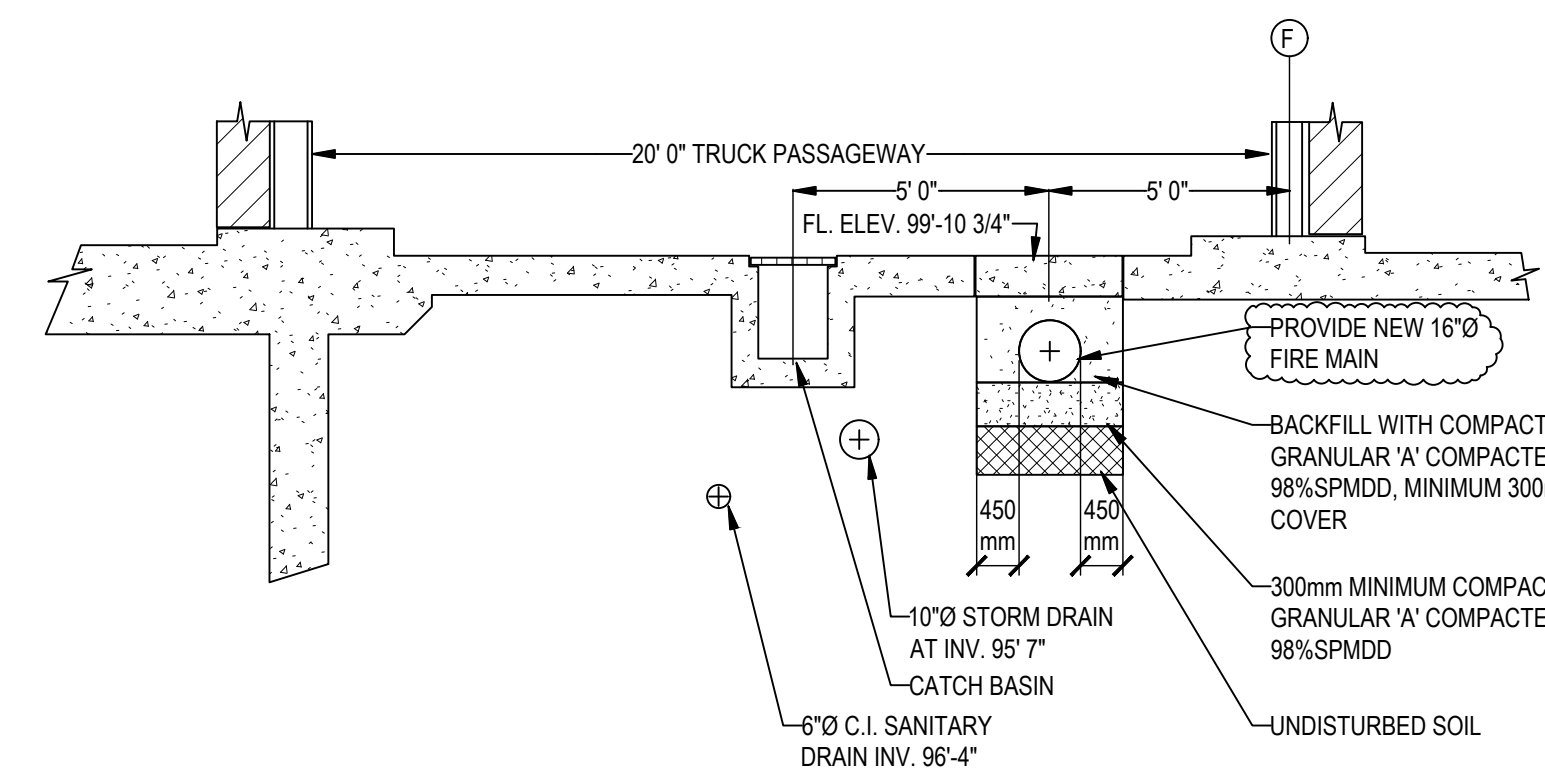
#### DRAWING NOTES

- REMOVE EXISTING TRENCH DRAIN FOR INSTALLATION OF NEW WATER MAIN. PROVIDE NEW TRENCH DRAIN WITH HEAVY DUTY GRATING FOR TRUCK TRAFFIC. CONNECT TRENCH DRAIN OUTLET TO ADJACENT CATCH BASIN.
- PROVIDE NEW 400mm WATER MAIN UNDERNEATH EXISTING FLOOR SLAB TO CONNECT TO EXISTING BURIED WATER MAIN. SAWCUT FLOOR SLAB, PROVIDE COMPACTED SAND BEDDING, AND REINSTATE SLAB AFTER WATER MAIN INSTALLATION. SCAN SLAB BEFORE CUTTING. OBTAIN STRUCTURAL ENGINEER'S APPROVAL BEFORE CUTTING SLAB.
- CONNECT TO END OF EXISTING WATER MAIN.
- REMOVE EXISTING 400mm WATER MAIN, 150mm FOAM LINE, AND 150mm AND 250mm SPRINKLER LINES IN EXISTING TRENCH. PROVIDE NEW 400mm WATER MAIN, NEW 150mm AND 300mm BRANCHES TO EXISTING SPRINKLER VALVE STATIONS. CONNECT TO EXISTING SPRINKLER HEADERS, FLUSH AND TEST SPRINKLER SYSTEMS.
- EXISTING SPRINKLER HEADER TO REMAIN.
- CUT EXISTING SPRINKLER LINE AT APPROXIMATELY THIS LOCATION. PROVIDE NEW 150mm SPRINKLER LINE CONNECTING TO EXISTING SPRINKLER RISER (TYPICAL FOR 3).
- CUT EXISTING SPRINKLER LINE AT APPROXIMATELY THIS LOCATION. PROVIDE NEW 300mm SPRINKLER LINE CONNECTING TO EXISTING SPRINKLER HEADER (TYPICAL FOR 6).



2 HANGAR 10 WATER MAIN ENTRY - SECTION  
SCALE: N.T.S.

NOTE: DIMENSIONS ARE APPROXIMATE. SCAN SLAB TO CONFIRM EXISTING FM LOCATION.



3 SECTION THRU TRUCK PASSAGE WAY ALONG COL. LINE 25  
SCALE: N.T.S.



6 SPRINKLER VALVE STATION (TYPICAL) - PIPING DEMOLITION  
SCALE: N.T.S.

LEVEL OF SECURITY | NIVEAU DE SÉCURITÉ

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Jp2g Consultants Inc.  
ENGINEERS • PLANNERS • PROJECT MANAGERS

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Jp2g PROJECT No.: 19-5022A



AREA OF WORK

|     |            |                              |       |
|-----|------------|------------------------------|-------|
| 7   | 2026/08/07 | ISSUED FOR ADDENDUM NO. 1    | WQ/CJ |
| 6   | 2025/11/20 | ISSUED FOR TENDER            | AM/BH |
| 5   | 2025/10/21 | ISSUED FOR 100% RESUBMISSION | AM/BH |
| 4   | 2025/03/07 | ISSUED FOR 100% SUBMISSION   | AM/BH |
| 3   | 2024/12/16 | ISSUED FOR 90% REVIEW REV. 1 | AM/BH |
| 2   | 2024/03/31 | ISSUED FOR 60% REVIEW REV. 2 | AM/CK |
| NO. | DATE       | REVISION                     | APPR. |

SCALE | ÉCHELLE

LOCATION | EMPLACEMENT  
8 WING TRENTON  
CFB TRENTON, ONTARIO

PROJECT | PROJET  
TRE-UPG B052 (HGR 10) FIRE  
PUMPHOUSE

TRADE | MÉTIER  
MECHANICAL  
DATE  
2026/08/07

SUBJECT | SUJET

HANGAR 10 WATER MAIN TIE-IN

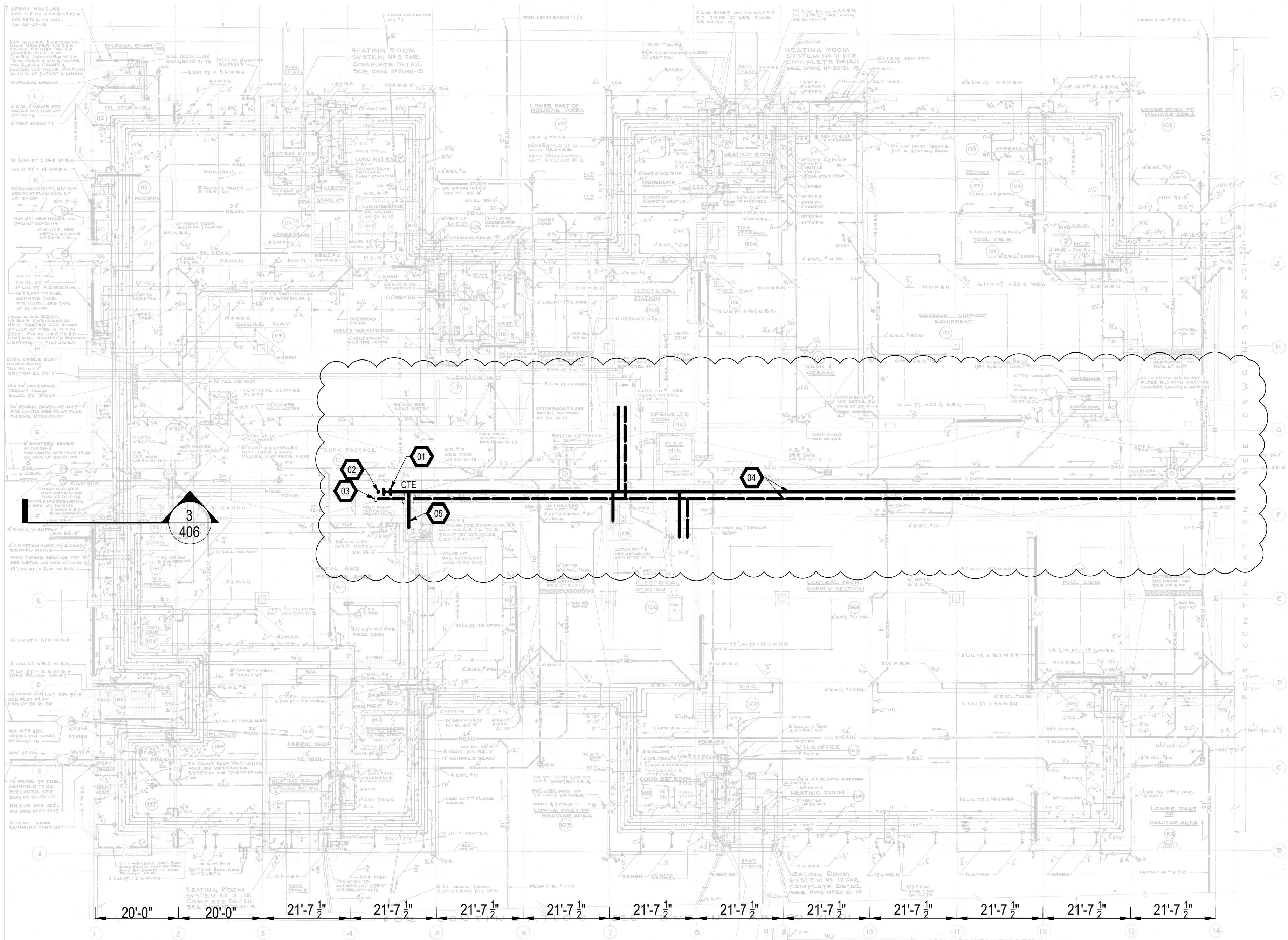
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|-------------------|------------------|-----------------|---------------------|
| PRODUCTION        | DESIGNED   ÉTUDE | REVIEWED   REVU | DES O   AGENT CONC  |
| A.MACDONALD       |                  |                 | S.C.                |
| DRAWN   DESSINÉ   |                  |                 | PRO MGR   GÉST PROJ |
| C.KUEHL           |                  |                 | P.O.                |
| CHECKED   VÉRIFIÉ |                  |                 | DES MGR   GÉST CONC |
| M.M.A             |                  |                 | S.C.                |
| COORDINATION      |                  |                 | FIRE   INCENDIE     |

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N.002108.03  
PF NUMBER | NO. DP  
500006750

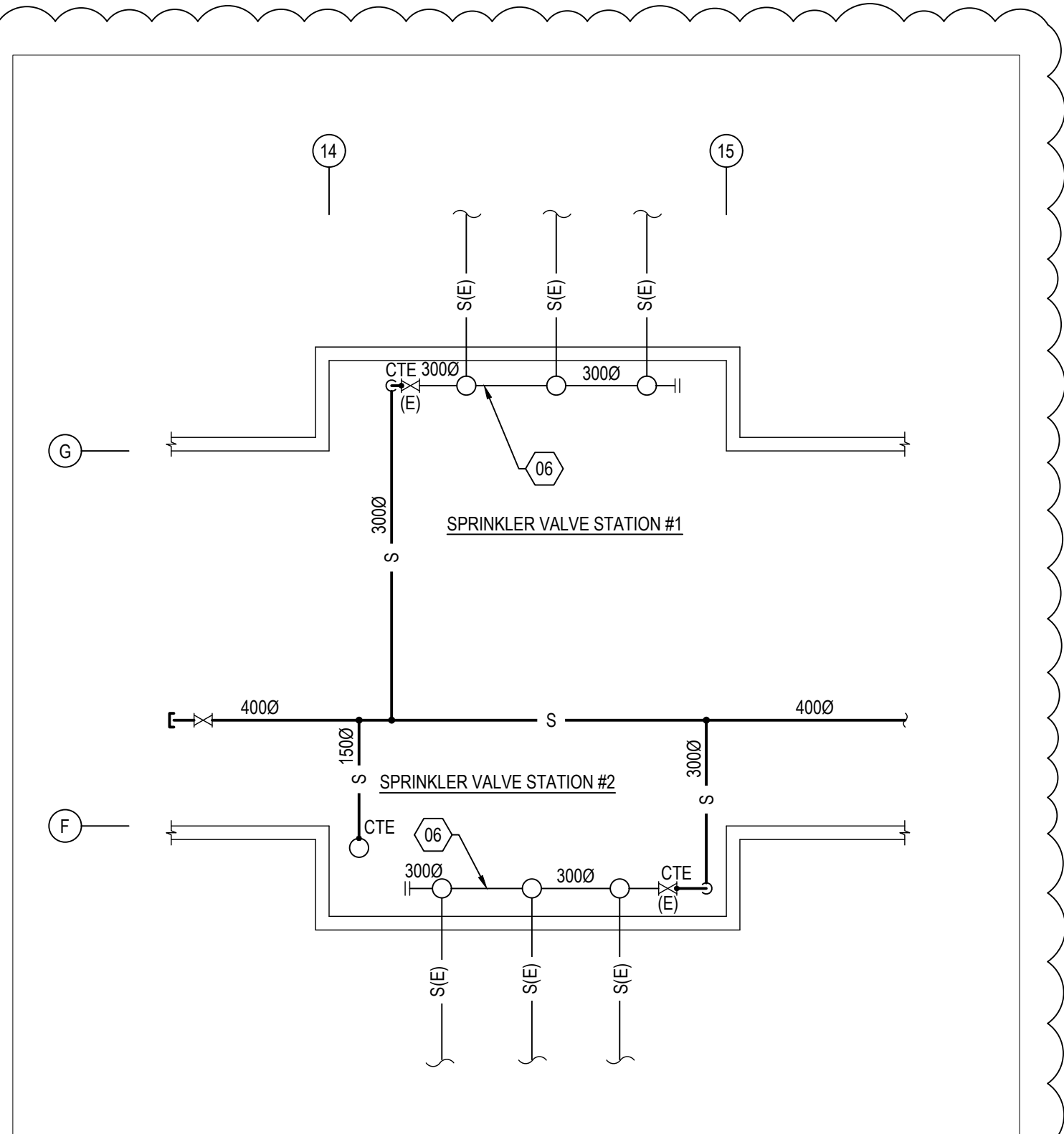
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L-T81-3006/68 - 405

Canada



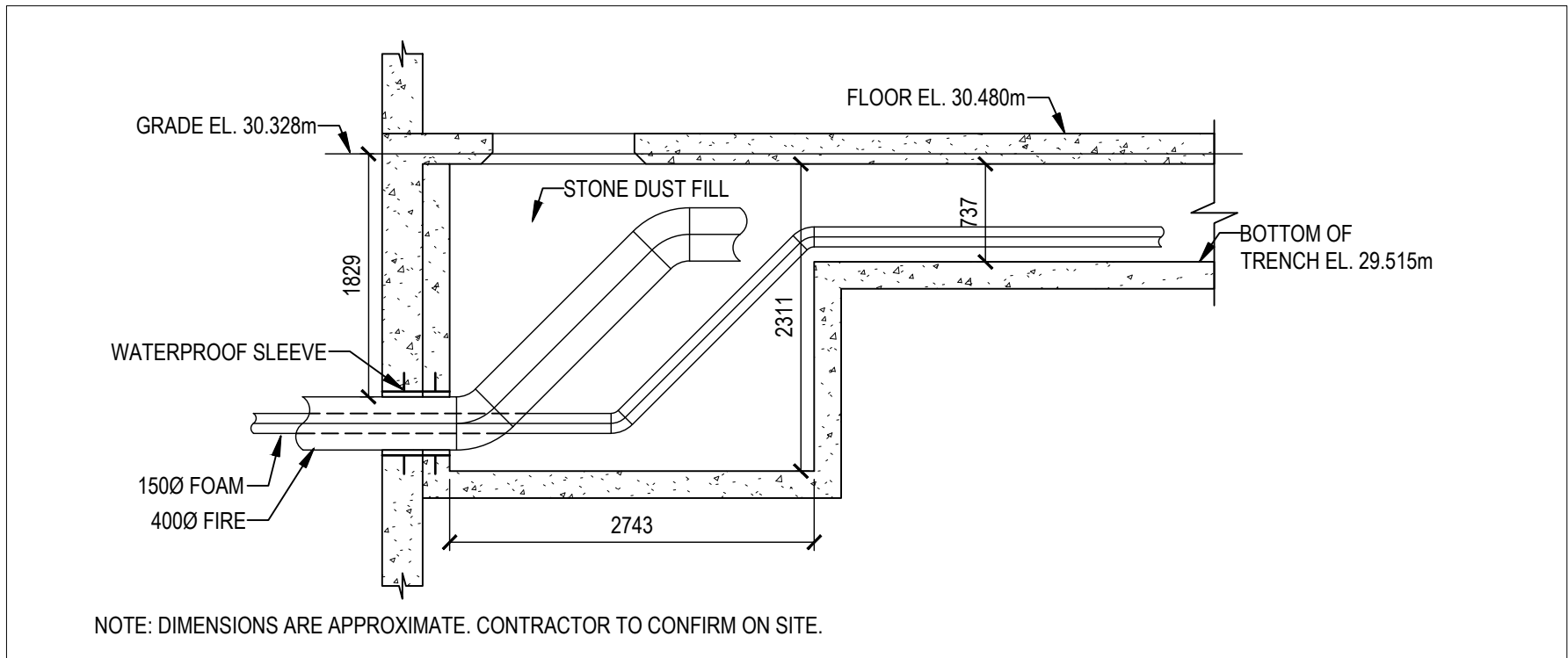


1 GROUND FLOOR SECTION "B" PLAN - MODIFICATIONS  
SCALE: N.T.S.

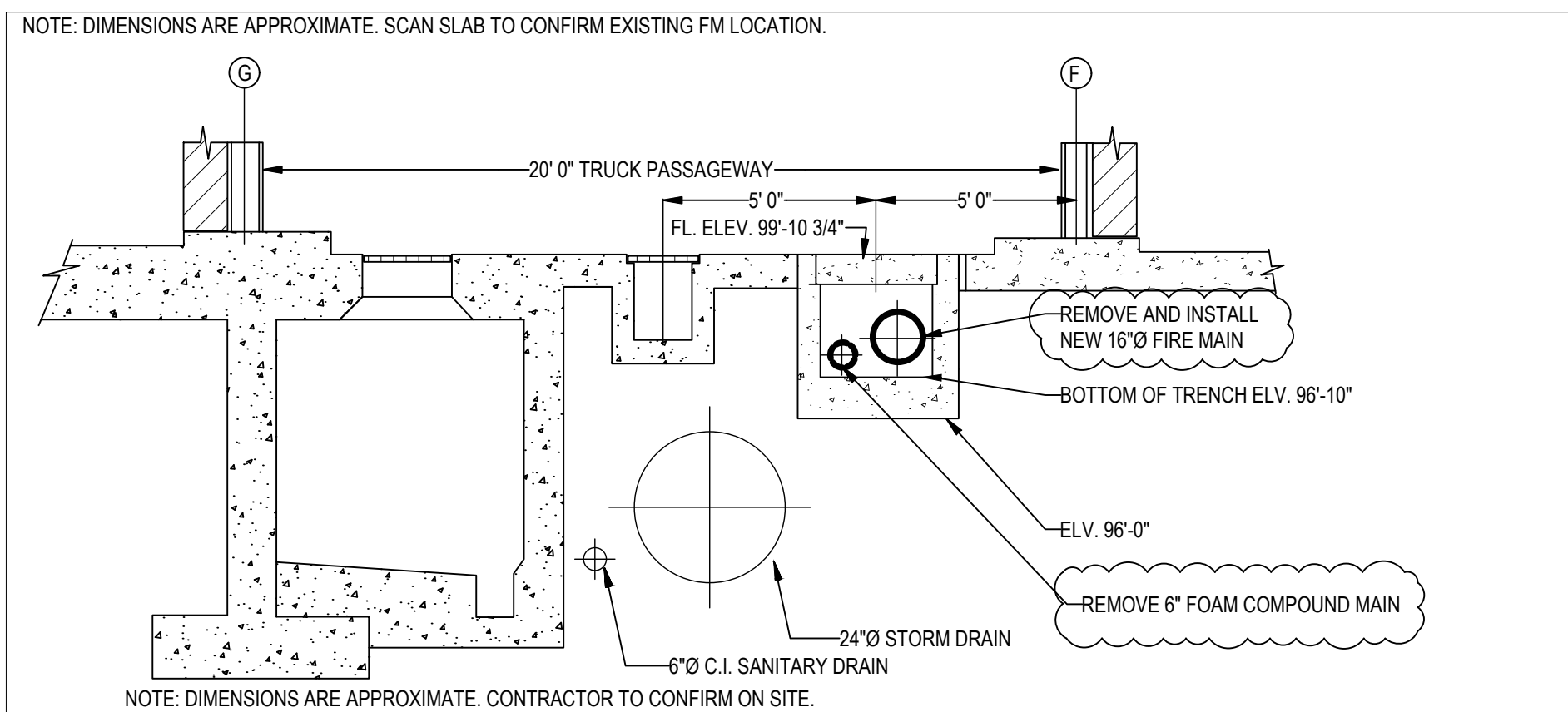


2 VALVE STATION PIPING LAYOUT - NEW WORK  
SCALE: N.T.S.

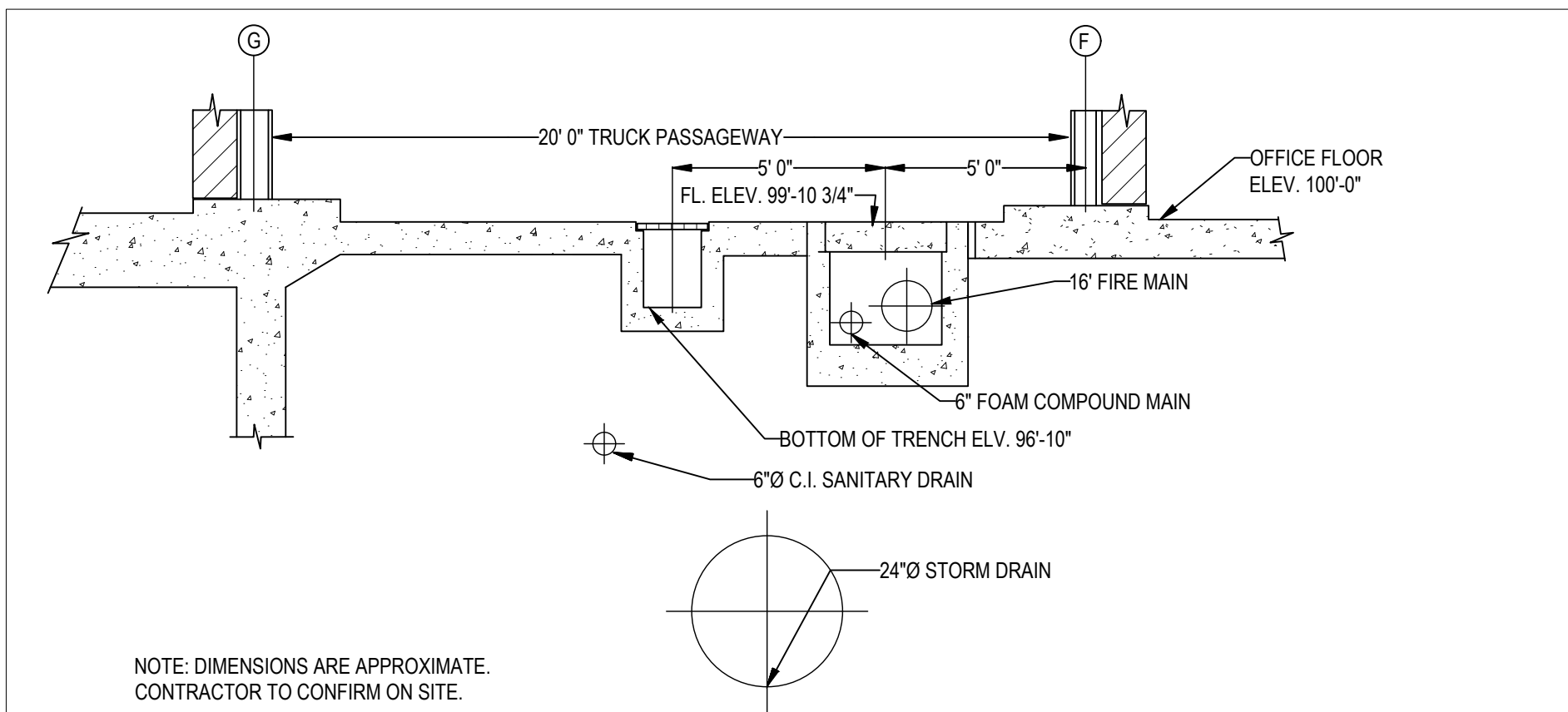
- DRAWING NOTES**
- SAWCUT FLOOR AND PROVIDE NEW VALVE ON EXISTING BURIED WATER MAIN. VALVE TO BE USED FOR ISOLATING OLD PUMP BUILDING SUPPLY ONCE NEW BUILDING IS IN OPERATION.
  - PROVIDE A NEW 400mm WATER MAIN TO APPROXIMATELY THIS LOCATION (SOUTH OF THE VALVE PIT). THE EXISTING 400mm WATER MAIN SOUTH OF THIS LOCATION SHALL REMAIN IN SERVICE UNTIL THE NEW PUMP HOUSE IS FULLY COMMISSIONED. FOLLOWING COMMISSIONING OF THE NEW PUMP HOUSE, CAP THE EXISTING 400mm WATER MAIN AT APPROXIMATELY THIS LOCATION AND ABANDON IN PLACE.
  - CUT AND CAP EXISTING FOAM LINE AT APPROXIMATELY THIS LOCATION.
  - REMOVE EXISTING 400mm WATER MAIN, 150mm FOAM LINE, AND 150mm AND 250mm SPRINKLER LINES IN EXISTING TRENCH. PROVIDE NEW 400mm WATER MAIN, NEW 150mm AND 300mm BRANCHES TO EXISTING SPRINKLER VALVE STATIONS. CONNECT TO EXISTING SPRINKLER HEADERS, FLUSH AND TEST SPRINKLER SYSTEMS.
  - REMOVE AND REPLACE THE EXISTING 300mm DRAIN LINE CONNECTED TO THE PIT VALVE WITH A NEW 300mm DRAIN LINE.
  - EXISTING SPRINKLER HEADER TO REMAIN.



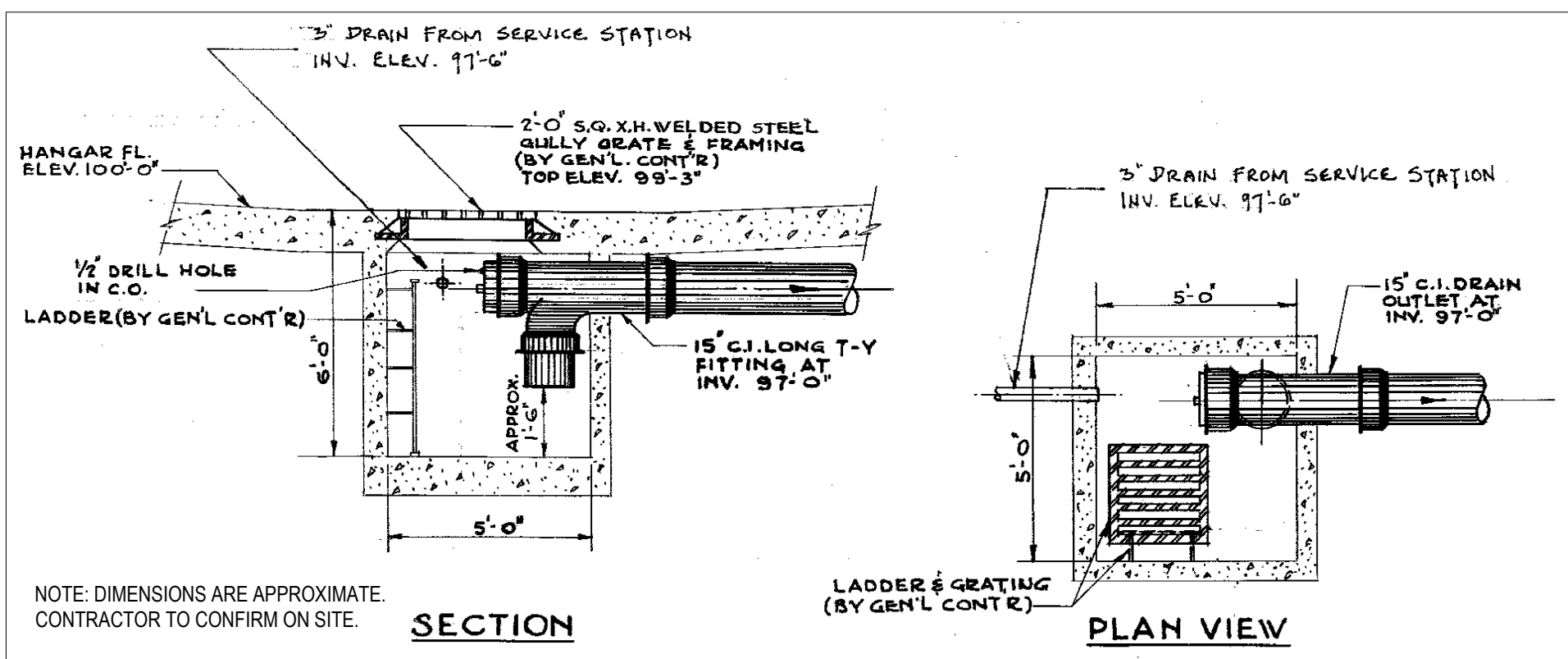
3 SECTION THRU TRUCK PASSAGEWAY - EXISTING SERVICES  
SCALE: N.T.S.



4 SECTION "B-B" THRU TRUCK PASSAGE BETWEEN COL. LINE 7&8  
SCALE: N.T.S.



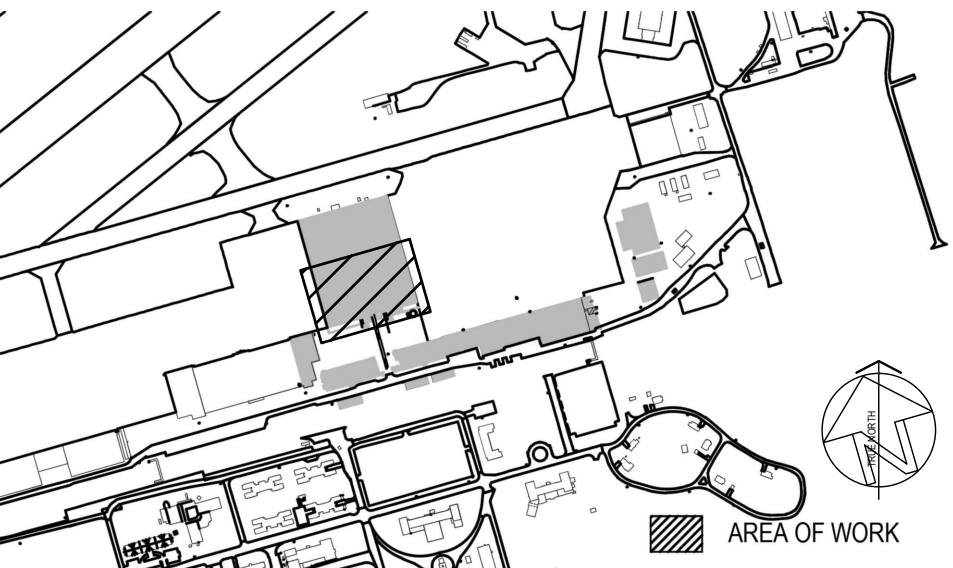
5 SECTION "A-A" THRU TRUCK PASSAGE ALONG COL. LINE 1  
SCALE: N.T.S.



6 TYPICAL DETAIL OF CATCH BASIN NO. 1 TO 12 IN HANGAR AREA  
SCALE: N.T.S.

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| NO. | DATE       | REVISION                     | APPR. |

|                 |
|-----------------|
| SCALE   ÉCHELLE |
|-----------------|

LOCATION | EMPLACEMENT  
8 WING TRENTON  
CFB TRENTON, ONTARIO

PROJECT | PROJET  
TRE-UPG B052 (HGR 10) FIRE  
PUMPHOUSE

TRADE | MÉTIER  
MECHANICAL

DATE  
2026/08/07

SUBJECT | SUJET  
HANGAR 10 EXISTING WATER MAIN  
VALVE OFF

|                   |                     |
|-------------------|---------------------|
| DESIGNED   ÉTUDE  | DES O   AGENT CONC  |
| DRAWN   Dessiné   | PRO MGR   GEST PROJ |
| CHECKED   VÉRIFIÉ | DES MGR   GEST CONC |
| COORDINATION      | S.C.                |
|                   | FIRE   INCENDIE     |

WBS NUMBER | NO. DRT  
N.002108.03

PF NUMBER | NO. DP  
500006750

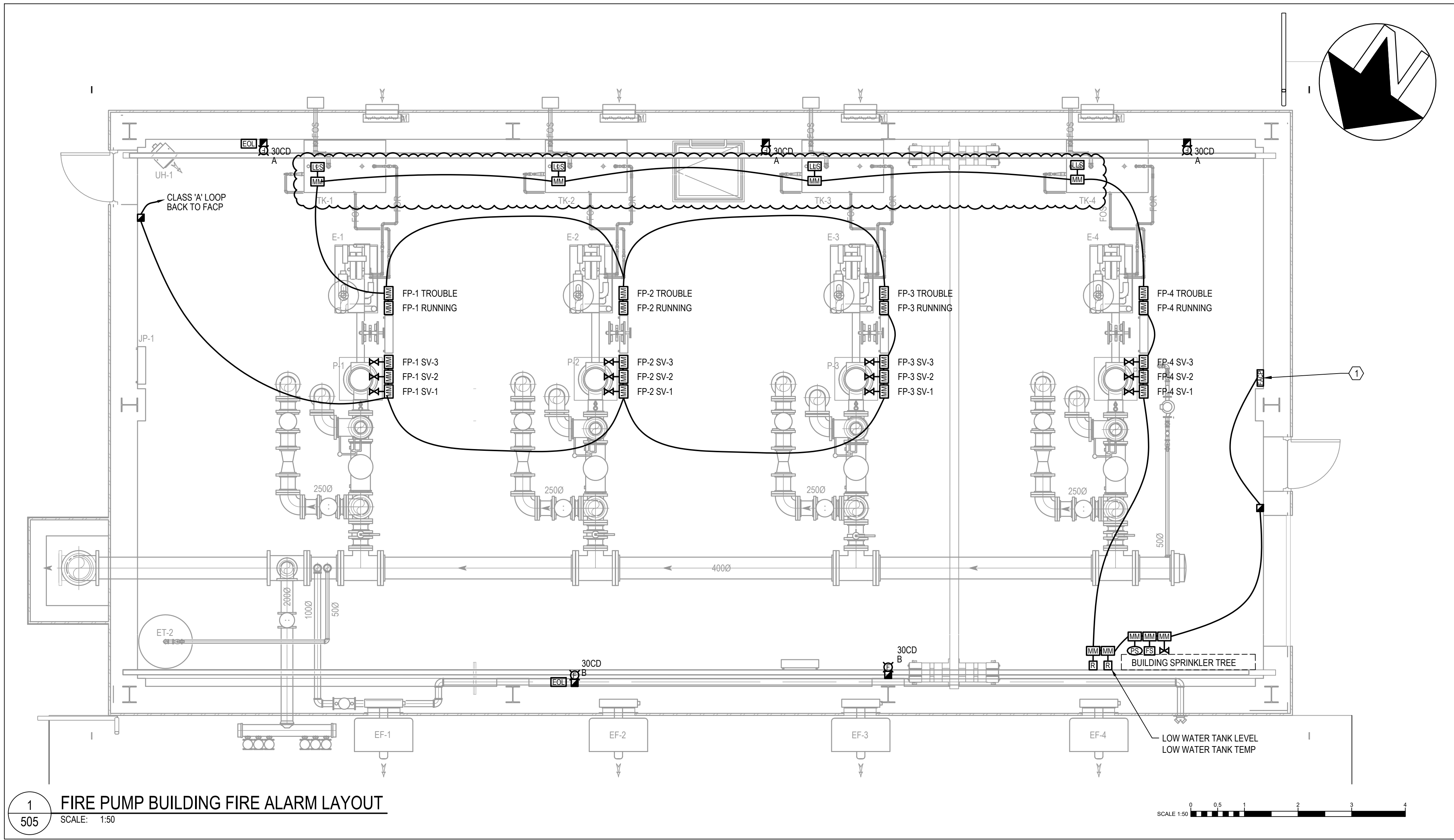
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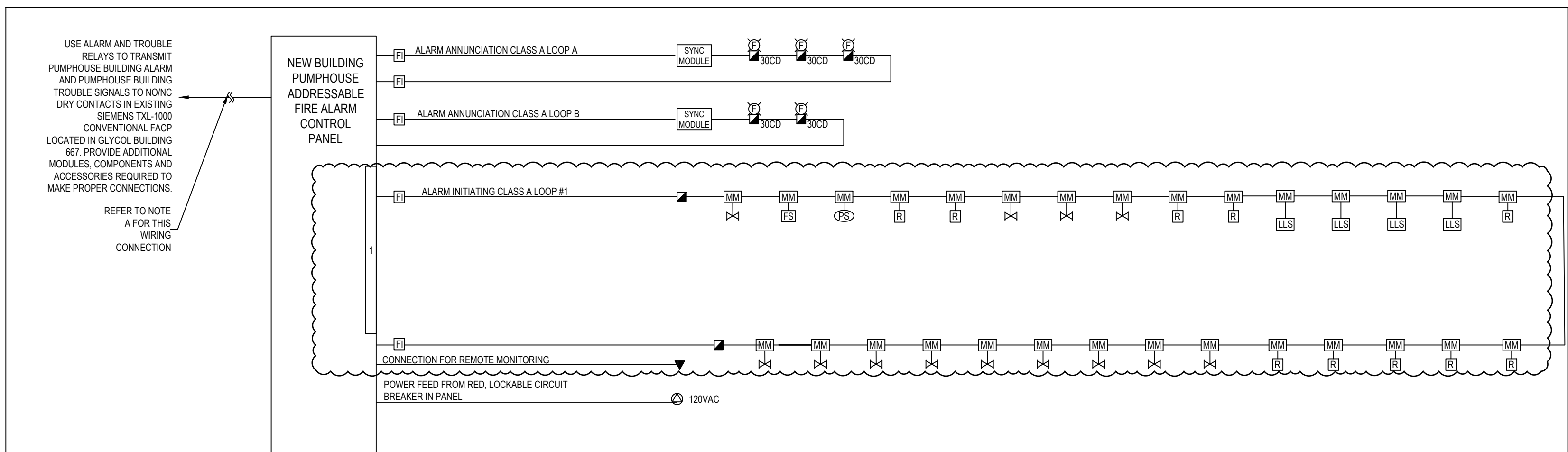








1  
505 FIRE PUMP BUILDING FIRE ALARM LAYOUT  
SCALE: 1:50



- NOTES:
- THIS RISER DIAGRAM IS FOR INFORMATION PURPOSES ONLY. THIS INTENT OF THIS RISER DIAGRAM AND THE ZONE SCHEDULES ARE TO SHOW THE ZONING OF THE FIRE ALARM DEVICES AND THE CLASSIFICATION OF CIRCUITS. REFER TO FLOOR PLANS FOR EXACT QUANTITIES OF FIRE ALARM DEVICES.
  - NOT ALL FIRE ALARM SYSTEM COMPONENTS HAVE BEEN INCLUDED ON THE RISER DIAGRAM. THE CONTRACTOR SHALL DETERMINE BY REVIEW OF PLANS, SITE REVIEW AND CONSULTATION WITH THE MANUFACTURER EXACT SYSTEM COMPONENT AND ACCESSORY REQUIREMENTS FOR THE DEVICES. INSTALLATION OF ALL DEVICES SHALL BE PERFORMED IN ACCORDANCE WITH CANULC-S524.
  - THIS CONTRACTOR SHALL HIRE A CERTIFIED FIRE ALARM CONTRACTOR TO TEST AND VERIFY THE PROPER OPERATION OF THE FIRE ALARM SYSTEM(S) AND ALL COMPONENTS. TEST AND VERIFICATION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH CANULC-S533, CANULC-S537, REPROGRAM EXISTING CONVENTIONAL SIEMENS TXL-1000 SYSTEM AS REQUIRED.
  - FOR THE CONNECTION BETWEEN THE NEW PUMPHOUSE BUILDING AND THE EXISTING GLYCOL BUILDING PROVIDE DCLC WIRING WITH FAULT ISOLATOR MODULES IMMEDIATELY BEFORE ENTERING AND AFTER EXITING EACH BUILDING. GROUND CABLE SHIELD AT MAIN FIRE ALARM CONTROL PANEL ONLY. PROVIDE FIRE ALARM-RATED SURGE PROTECTION AT BOTH BUILDING ENTRY POINTS, BONDED TO THE BUILDING GROUNDING SYSTEM. INSTALL WIRING IN A DEDICATED RACEWAY SEPARATE FROM POWER CIRCUITS. INSTALL TEST AND VERIFY IN ACCORDANCE WITH CANULC-S524 AND CANULC-S536. COORDINATE ALL WIRING REQUIREMENTS WITH THE FIRE ALARM SYSTEM MANUFACTURER.
  - ALL FIRE ALARM WIRING SHALL BE FAS 125 TYPE IN ACCORDANCE WITH FMD 4003.
  - THE CONTRACTOR SHALL PROVIDE AN AS-BUILT RISER DIAGRAM AND PASSIVE GRAPHIC FOR THE PUMPHOUSE BUILDING UPON COMPLETION OF THE WORK. THE CONTRACTOR SHALL UPDATE THE EXISTING RISER DIAGRAM AND PASSIVE GRAPHIC IN GLYCOL BUILDING 667.
  - THIS CONTRACTOR SHALL PERFORM AND AUDIBILITY TEST TO ENSURE REQUIREMENTS OF ALL APPLICABLE CODES AND STANDARDS, AS WELL AS THE AUTHORITIES HAVING JURISDICTION HAVE BEEN MET.

2  
506 FIRE ALARM RISER DIAGRAM - PUMPHOUSE BUILDING  
SCALE: N.T.S.

| INITIATION SUPERVISORY CIRCUIT             |            |                |            |             |                |              |              |                |                    |               |                 | OTHER CONNECTED DEVICES                                                                                                                                                                                     |            |              |      |              |     | FIRE ALARM LOAD SUMMARY |                                |                          |     |              |     |
|--------------------------------------------|------------|----------------|------------|-------------|----------------|--------------|--------------|----------------|--------------------|---------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------|------|--------------|-----|-------------------------|--------------------------------|--------------------------|-----|--------------|-----|
| SMOKE DETECTOR                             |            |                | DUCT SMOKE |             |                | PULL STATION |              |                | ADDRESSABLE MODULE |               |                 | FAULT ISOLATOR                                                                                                                                                                                              |            | RELAY MODULE |      | RELAY BASE   |     | MAGLOCK                 | TOTAL SUPERVISORY CURRENT (mA) | TOTAL ALARM CURRENT (mA) |     |              |     |
| QTY                                        | DRAW (6mA) | STANDBY(0.6mA) | QTY        | DRAW (17mA) | STANDBY(0.3mA) | QTY          | DRAW (4.8mA) | STANDBY(4.8mA) | QTY                | DRAW (10.8mA) | STANDBY(10.8mA) | QTY                                                                                                                                                                                                         | DRAW (9mA) | STANDBY(9mA) | QTY  | DRAW (6.5mA) | QTY | DRAW (0.2mA)            |                                |                          | QTY | DRAW (260mA) |     |
| LOOP 1                                     | 0          | 0.0            | 0.0        | 0           | 0.0            | 0.0          | 2            | 9.6            | 9.6                | 29            | 312.2           | 313.2                                                                                                                                                                                                       | 6          | 54.0         | 55.0 | 0            | 0.0 | 0                       | 0.0                            | 0                        | 0.0 | 376.8        | 0.0 |
| NOTES:                                     |            |                |            |             |                |              |              |                |                    |               |                 |                                                                                                                                                                                                             |            |              |      |              |     |                         |                                |                          |     |              |     |
| 1. CURRENT DRAW BASED OFF 24VDC OPERATION. |            |                |            |             |                |              |              |                |                    |               |                 | BATTERY SIZE CALCULATION:<br>PROVIDE MINIMUM OF 18AH BATTERY CAPACITY TO ACCOMMODATE<br>INITIATION AND ANNUNCIATION CIRCUIT LOADS. FINAL BATTERY SIZE<br>TO BE DETERMINED BY FIRE ALARM EQUIPMENT PROVIDER. |            |              |      |              |     |                         |                                |                          |     |              |     |

| FIRE ALARM ZONE SCHEDULE |                                |       |             |
|--------------------------|--------------------------------|-------|-------------|
| ZONE                     | DESCRIPTION                    | ALARM | SUPERVISORY |
| 1                        | PUMPHOUSE BUILDING             | X     |             |
| 2                        | FP-1 TROUBLE                   |       | X           |
| 3                        | FP-1 RUNNING                   |       | X           |
| 4                        | FP-2 TROUBLE                   |       | X           |
| 5                        | FP-2 RUNNING                   |       | X           |
| 6                        | FP-3 TROUBLE                   |       | X           |
| 7                        | FP-3 RUNNING                   |       | X           |
| 8                        | FP-4 TROUBLE                   |       | X           |
| 9                        | FP-4 RUNNING                   |       | X           |
| 10                       | FP-1 SV-1                      |       | X           |
| 11                       | FP-1 SV-2                      |       | X           |
| 12                       | FP-1 SV-3                      |       | X           |
| 13                       | FP-2 SV-1                      |       | X           |
| 14                       | FP-2 SV-2                      |       | X           |
| 15                       | FP-2 SV-3                      |       | X           |
| 16                       | FP-3 SV-1                      |       | X           |
| 17                       | FP-3 SV-2                      |       | X           |
| 18                       | FP-3 SV-3                      |       | X           |
| 19                       | FP-4 SV-1                      |       | X           |
| 20                       | FP-4 SV-2                      |       | X           |
| 21                       | FP-4 SV-3                      |       | X           |
| 22                       | SPRINKLER TREE CHECK VALVE     | X     |             |
| 23                       | SPRINKLER TREE FLOW SWITCH     | X     |             |
| 24                       | SPRINKLER TREE PRESSURE SWITCH | X     |             |
| 25                       | LOW WATER TANK LEVEL           |       | X           |
| 26                       | LOW WATER TANK TEMPERATURE     |       | X           |
| 27                       | LOW LEVEL FUEL SWITCHES        |       | X           |
| 28                       | LOW LEVEL FUEL SWITCHES        |       | X           |
| 29                       | LOW LEVEL FUEL SWITCHES        |       | X           |
| 30                       | LOW LEVEL FUEL SWITCHES        |       | X           |

## GENERAL NOTES

- ALL FIRE ALARM WORKS SHALL BE COMPLETED AND VERIFIED, COMMISSIONED/TESTED IN ACCORDANCE WITH APPLICABLE CODES/STANDARDS, INCLUDING BUT NOT LIMITED TO CANULC-S524 AND CANULC-S537.
- PROVIDE AND INSTALL STROBES IN ACCORDANCE WITH CANULC-S524. AMBIENT DECIBEL LEVELS WILL BE HIGH DURING FIRE PUMP OPERATION. STROBES TO BE PLACES VISIBLE BETWEEN EQUIPMENT ROWS.
- THIS RISER DIAGRAM IS FOR INFORMATION PURPOSES ONLY. NUMBER OF DEVICES IS DIAGRAMMATIC ONLY. REFER TO FIRE ALARM DRAWINGS FOR EXACT QUANTITIES AND LOCATIONS OF DEVICES.
- THE FIRE ALARM CONTROL PANEL IS TO BE LOCATED IN THE MAIN ENTRANCE.
- THIS CONTRACTOR TO PROVIDE FIRE ALARM PANEL AND DEVICES. THIS CONTRACTOR TO INSTALL AND CONNECT ALL DEVICES.
- SYNCHRONIZATION MODULES TO BE PROVIDED AS INDICATED FOR STROBE SYNCHRONIZATION.
- EXACT SYSTEM AND COMPONENT REQUIREMENTS TO BE COORDINATED WITH APPROVED SPRINKLER SHOP DRAWINGS.
- DATA COMMUNICATION LINK BETWEEN FIRE ALARM PANEL AND FIELD INITIATION DEVICES TO BE CLASS 'A' CIRCUIT WITH ONE SUPPLY PATH AND RETURNING THROUGH AN ALTERNATE PATH TO THE FIRE ALARM PANEL. CONDUIT RUNS TO HAVE MINIMUM 1.2M SEPARATION HORIZONTALLY AND 300MM VERTICALLY.
- PROVIDE ZONE ISOLATION MODULES SO THAT A FAULT IN ONE FIRE ALARM ZONE WILL NOT AFFECT THE NORMAL OPERATION OF INPUT/FIELD DEVICES IN ANOTHER ZONE.
- THIS CONTRACTOR SHALL PROVIDE ALL REQUIRED ADDRESSABLE MODULES AND WIRING FOR CONNECTION OF NON-ADDRESSABLE EQUIPMENT (E.G. SPRINKLER MONITORING DEVICES).
- THE CONTRACTOR SHALL PROVIDE AN AS-BUILT RISER DIAGRAM UPON COMPLETION OF THE WORK.
- FIRE ALARM SYSTEM SHALL BE CONNECTED TO CAMPUS WIDE FIRE ALARM MONITORING NETWORK.
- PROVIDE CLASS A INITIATION CIRCUITS AND NOTIFICATION CIRCUITS.
- WIRING SHALL BE SOLID TINNED COPPER, ANNEALED CONDUCTORS WITH CODED PVC INSULATION, AND WITH OVERALL RED PVC JACKET. CABLES SHALL BE CSA CERTIFIED, ULC LISTED, 300 VOLT, 105°C. ALL CABLES SHALL BE MINIMUM 1HR RATED. INITIATING CIRCUITS SHALL BE 18 AWG MINIMUM AND IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. SIGNAL CIRCUITS SHALL BE 12 AWG MINIMUM AND IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. CONTROL CIRCUITS SHALL BE 14 AWG MINIMUM AND IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

## CONSTRUCTION NOTES

- PROVIDE NEW ADDRESSABLE FIRE ALARM CONTROL PANEL, DETECTORS, MANUAL PULLSTATION, MOTORIZED BELLS AND STROBES. NEW FIRE ALARM CONTROL PANEL SHALL BE LINKED BACK TO EXISTING FIRE ALARM CONTROL PANEL IN GLYCOL BUILDING 667 FOR NOTIFICATION OF ALARM AND TROUBLE CONDITIONS. REFER TO RISER DIAGRAM ON THIS DRAWING FOR FURTHER DETAILS.

| MAXIMUM WIRE LENGTH FOR NACS |        |        |        |        |                         |
|------------------------------|--------|--------|--------|--------|-------------------------|
| TOTAL SIGNAL LOAD (mA)       | 18 AWG | 16 AWG | 14 AWG | 12 AWG | MAXIMUM LOOP RESISTANCE |
| 60.0                         | 716    | 1143   | 1829   | 2591   | 30.0                    |
| 120.0                        | 360    | 567    | 915    | 1296   | 15.0                    |
| 300.0                        | 143    | 229    | 366    | 579    | 6.0                     |
| 600.0                        | 71     | 114    | 183    | 259    | 3.0                     |
| 900.0                        | 47     | 76     | 122    | 174    | 2.0                     |
| 1200.0                       | 36     | 56     | 91     | 129    | 1.5                     |
| 1500.0                       | 29     | 46     | 73     | 105    | 1.2                     |
| 1700.0                       | 24     | 38     | 61     | 87     | 1.0                     |

- NOTES:
- MAXIMUM VOLTAGE DROP SHALL NOT EXCEED 1.8 VOLTS.
  - DESIGN BASIS NAC ARE RATED FOR 1700mA EACH.

| WIRE SIZE (AWG) |  | LENGTH (m) |  |
|-----------------|--|------------|--|
| 12              |  | 3049       |  |
| 14              |  | 2429       |  |
| 16              |  | 1518       |  |
| 18              |  | 955        |  |

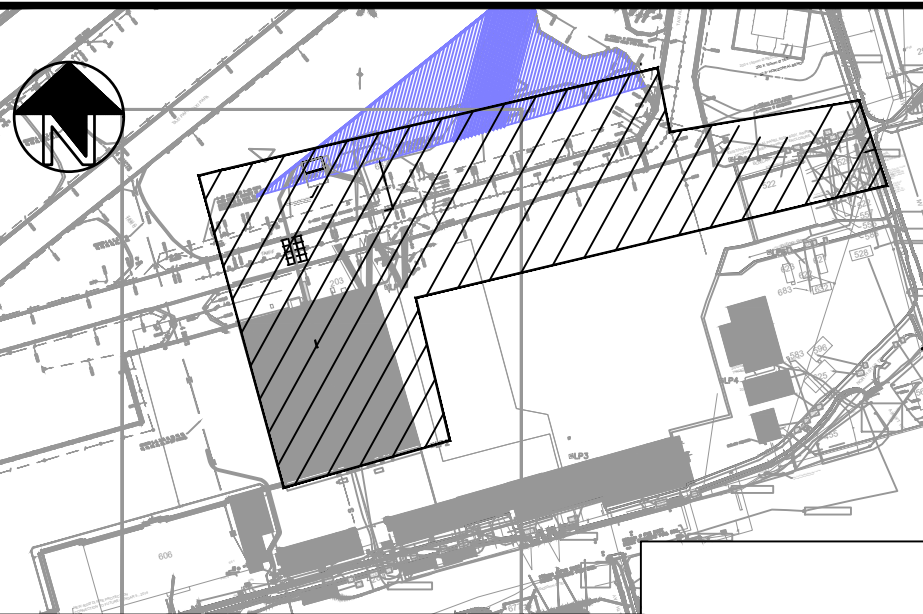
- NOTES:
- REFER TO RISER DIAGRAM FOR WIRE SIZE. 16 AWG TO BE USED UNLESS INDICATED OTHERWISE.
  - WIRING SHALL BE TWISTED NON-SHIELDED PAIR WIRE.
  - MAXIMUM CIRCUIT RESISTANCE IS 40Ω.

|         |     | ANNUNCIATING CIRCUIT LOADING |                      |              |               |             |       |
|---------|-----|------------------------------|----------------------|--------------|---------------|-------------|-------|
|         |     | HORN/BELL                    | EXPLOSION PROOF BELL |              | STROBE (30cd) |             |       |
| CIRCUIT | QTY | DRAW (20mA)                  | QTY                  | DRAW (200mA) | QTY           | DRAW (64mA) | TOTAL |
| A       | 3   | 60.0                         | 0                    | 0.0          | 3             | 282.0       | 342.0 |
| B       | 2   | 40.0                         | 0                    | 0.0          | 2             | 188.0       | 228.0 |
| TOTAL   | 5   | 100.0                        | 0                    | 0.0          | 5             | 470.0       | 570.0 |

- NOTES:
- MAX VOLTAGE DROP SHOULD NOT EXCEED 1.8 VOLTS
  - NACS ARE RATED FOR 1700MA MAX.
  - REFER TO TABLES ON THIS DRAWING FOR WIRING AND EOL SIZING.

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|   |            |                           |       |
|---|------------|---------------------------|-------|
| 8 | 2026/08/07 | ISSUED FOR ADDENDUM NO. 1 | RK    |
| 7 | 2025/11/20 | ISSUED FOR TENDER         | RK    |
| 6 | 2025/10/21 | RE-ISSUED FOR 100%        | RK    |
| 5 | 2025/03/07 | 100% SUBMISSION           | RK    |
| 4 | 2024/12/13 | 90% SUBMISSION REV01      | RK    |
| 3 | 2024/07/31 | 90% SUBMISSION            | RK    |
| 2 | 2024/03/31 | 60% RE-SUBMISSION         | RK    |
| 1 | 2022/03/25 | 60% SUBMISSION            | PS    |
|   | DATE       | REVISION                  | APPR. |

SCALE | ÉCHELLE  
SCALE AS SHOWN

LOCATION | EMPRECEMENT

8 WING TRENTON  
C/FB TRENTON  
ONTARIO

PROJECT | PROJET

TRE-UPG B052 (HGR 10) FIRE  
PUMPHOUSE

TRADE | MÉTIER  
ELECTRICAL

DATE  
2026/08/07

SUBJECT | SUJET

ELECTRICAL PUMPHOUSE  
FIRE ALARM LAYOUT

|                   |                   |                 |                      |
|-------------------|-------------------|-----------------|----------------------|
| PRODUCTION        | DESIGNED   ÉTUDIÉ | REVIEWED   REVU | DES O   AGENT CORK   |
| RK/PS             | XX   XX           |                 | S.C.                 |
| DRAWN   DESSINÉ   |                   |                 | PROJ MGR   GEST PROJ |
| HB                |                   |                 | P.O.                 |
| CHECKED   VÉRIFIÉ |                   |                 | DES MGR   GEST CORK  |
| AD                |                   |                 | S.C.                 |
| COORDINATION      |                   |                 | FIRE   IRKENDIE      |

WBS NO. | NO. OTP  
N.002108.03

PF NO. | NO. DP  
500006750

DWG. NO. | NO. DESSIN  
L-T81-3006/68-505



**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 03 30 00 – Cast-in-Place Concrete.

**1.2 REFERENCE STANDARDS**

- .1 ASTM International (ASTM):
  - .1 ASTM D412: Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
  - .2 ASTM D5957: Standard Guide for Flood Testing Horizontal Waterproofing Installations
- .2 Canadian General Standards Board (CGSB):
  - .1 CAN/CGSB-37.58: Membrane, Elastomeric, Cold-Applied Liquid, for Waterproofing
- .3 CSA Group (CSA):
  - .1 CSA A23.1/A23.2: Concrete Materials and Methods of Concrete Construction / Test Methods and Standard Practices for Concrete

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for applied rubberized asphalt waterproofing and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit 2 copies of WHMIS SDS in accordance with Section 01 35 43 - Environmental Procedures.
- .3 Quality Control;
  - .1 Manufacturer approval letter of the designated applicator.
- .4 Reports:
  - .1 Submit a written flood test report confirming the date, duration, water depth, and inspection findings.

**1.4 QUALITY ASSURANCE**

**1.5 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Stand roll materials on end.
- .3 Remove only in quantities required for same day use.



- .4 Store insulation protected from sunlight and weather and deleterious materials.

## **1.6 SITE CONDITIONS**

- .1 Ambient Conditions.
- .2 Temperature, relative humidity, moisture content.
  - .1 Apply membranes only when surfaces and ambient temperatures are within manufacturers' prescribed limits.
  - .2 Do not install membrane when air and substrate temperature remains below 5 degrees C, or when wind chill gives equivalent cooling effect.
  - .3 Install membrane on dry substrate, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into system.

## **1.7 WARRANTY**

- .1 For the Work of this Section 07 14 00 – Liquid Applied Polyurethane Waterproofing the warranty period is 12 months.

## **Part 2 Products**

### **2.1 PERFORMANCE REQUIREMENTS**

- .1 Waterproofing System: capable of resisting moisture/water head of 2500 mm, and preventing moisture migration to interior.

### **2.2 MATERIALS**

- .1 Waterproofing membrane: Two-component, high-build, polyurethane-based, liquid-applied elastomeric coating.
- .2 Detail / Vertical Grade: Nonsag, trowel-grade or vertical-grade formulation of the primary membrane for vertical surfaces, cants, and crack-bridging detail.
- .3 Primer (Porous Substrates): Moisture-mitigating epoxy primer compatible with the polyurethane membrane and concrete substrate.
- .4 Bonding Agent (Non-Porous / Metal Substrates): Single-part silane-based or manufacturer-approved adhesion promoter for smooth substrates.

### **2.3 SYSTEM PROPERTIES**

- .1 Total Wet Film Thickness (WFT): Minimum 1.5 mm (60 mils) applied in a minimum of two coats.
- .2 Elongation at Break: Compliant with ASTM D412 elastomeric crack-bridging thresholds.



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**Part 3            Execution**

**3.1            EXAMINATION**

- .1    Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable in accordance with manufacturer's written instructions.
  - .1       Visually inspect substrate in presence of DCC Representative.
  - .2       Inform DCC Representative of unacceptable conditions immediately upon discovery.
  - .3       Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from DCC Representative.
- .2    Before start of Work make sure:
  - .1       Substrates are firm, straight, smooth, dry, free of snow, ice or frost, contamination and swept clean of dust and debris.
  - .2       Curbs have been built.
  - .3       Drains have been installed at proper elevations relative to finished surfaces.
  - .4       Sleeves, vents, pipes and other items passing through substrates receiving work of this Section are properly and rigidly installed.

**3.2            PREPARATION**

- .1    Cover walls, walks and adjacent work where materials hoisted or used.
- .2    Use warning signs and barriers. Maintain in good order until completion of Work.
- .3    Protect from traffic and damage. Comply with precautions deemed necessary by DCC Representative.
- .4    Place plywood runways over work to enable movement of material and other traffic.

**3.3            PREPARATION OF CONCRETE**

- .1    Fill surface honeycomb depressions and voids with latex filler.
- .2    Any cracking 2-6mm in substrate to be epoxy injected prior to coating
- .3    All corners to receive 12mm cant before waterproofing application
- .4    Apply primer to dry substrate in accordance with CAN/CGSB-37.58.

**3.4            MEMBRANE**

- .1    Install liquid applied polyurethane coating in accordance with CAN/CGSB-37.58.

**3.5            SITE QUALITY CONTROL**

- .1    Thickness Verification: Perform wet film thickness checks during application at regular intervals
- .2    Visual Inspection: Inspect cured membrane for pinholes, blisters, voids, or discontinuities before flood testing



.3 Flood Testing Procedure (ASTM D5957):

- .1 Contractor to perform hydrostatic water test to ensure water tightness. Contractor to notify DCC Representative minimum 72 hours before performing test.
- .2 Cure Time: Allow the membrane to fully cure for a minimum of 24 to 48 hours (or as required by the manufacturer) before water contact
- .3 Preparation: Plug all drains and penetrations within the test area securely to withstand water pressure.
- .4 Perform test while exterior is unexcavated to observe any exterior leaks.
- .5 Water Depth: Fill the contained area with clean water maximum operating level and measure level from top of slab.
- .6 Duration: Maintain the water level for a continuous period of 48 hours.
- .7 Inspection: Monitor the water level for unexpected drops (excluding evaporation) and perform regular visual inspections of the substrate underside for dampness or active leaks.
- .8 Failure Protocol: If a leak occurs, drain the area immediately, locate the breach, allow the substrate to dry, repair the membrane according to manufacturer guidelines, and repeat the 48-hour flood test. If leak is due to cracking in substrate additional epoxy inject crack sealing to be performed. Testing to continue until passed.

**3.6 PROTECTION**

- .1 Ensure membrane is undamaged before application of protection board.

**END OF SECTION**