

STONY MOUNTAIN INSTITUTION

STONY MOUNTAIN, MANITOBA

SMI UNIT 6, SANITARY LINE FAILURE SOLUTION



Public Works and
Government Services
Canada

Travaux publics et
Services gouvernementaux
Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

PRIME/STRUCTURAL CONSULTANT

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2017-1050



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CONSULTING STRUCTURAL ENGINEERS

MECHANICAL CONSULTANT



DRAWING INDEX

STRUCTURAL DRAWINGS

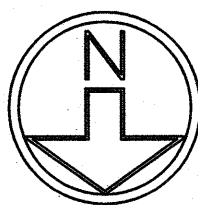
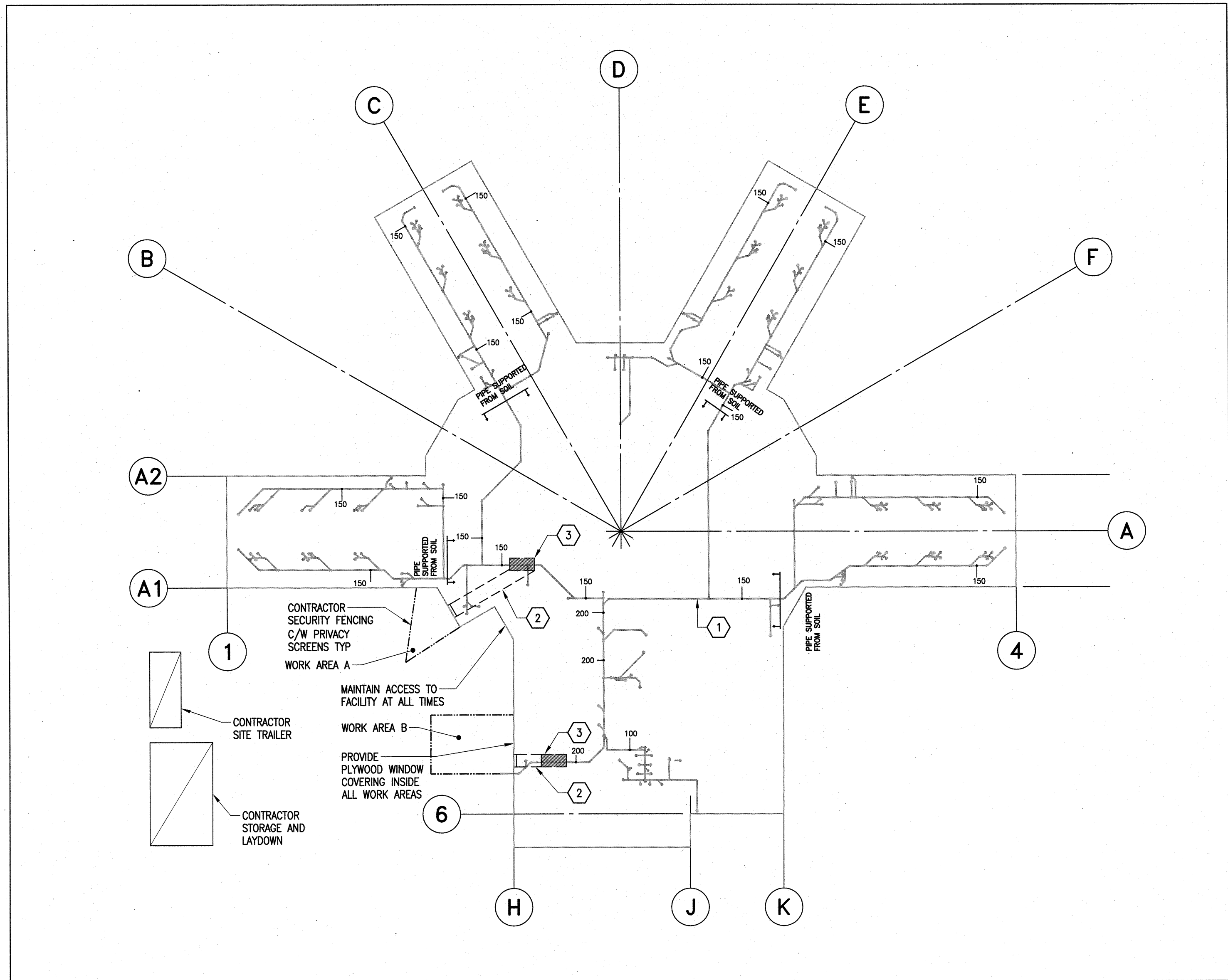
S0.1 DRAWING INDEX, GENERAL NOTES, KEY PLAN
S2.1 PARTIAL FOUNDATION PLAN, PARTIAL MAIN FLOOR PLAN
S4.1 SECTIONS

MECHANICAL DRAWINGS

MP2.1 MAIN FLOOR - PLUMBING PLAN

KEY NOTES

- 1 FLUSH & CLEAN ALL SANITARY LINES. CONDUCT SONDE LOCATION SCAN. REFER TO MP2.1 FOR FULL SCOPE OF WORK.
- 2 EXCAVATE ACCESS TO TWO KNOWN REPAIR AREAS AND RESTORE FOLLOWING COMPLETION OF PIPE INVESTIGATION AND REPAIR WORK. REFER TO S2.1 AND S4.1 FOR FULL SCOPE OF WORK.
- 3 AFTER ON-SITE REVIEW OF PIPING CONDITIONS WITH DEPARTMENTAL REPRESENTATIVE AND CONSULTANT REPAIR SANITARY LINES AT TWO KNOWN LOCATIONS AND VERIFY REPAIRS AS PER MECHANICAL DRAWINGS AND SPECIFICATIONS. REFER TO MP2.1 FOR FULL SCOPE OF WORK.



PROJECT KEY PLAN AND CONTRACTOR STAGING PLAN

1:300

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Revision	Description	Date
1	RE-ISSUED FOR CONSTRUCTION	18-05-01
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Client: PUBLIC WORKS AND
GOVERNMENT SERVICES
CANADA
User: CORRECTIONAL SERVICE CANADA

Project title: SMI UNIT 6, SANITARY LINE
FAILURE SOLUTION

STONY MOUNTAIN INSTITUTION
STONY MOUNTAIN, MANITOBA

Designed by: IM
Drawn by: MAH
Approved by: JAW
PWGSC Project Manager: TL

Drawing title: DRAWING INDEX, COORDINATION
KEY PLAN

Project no./No. du projet: R.089813.001
Drawing no./No. du dessin: S0.1
Revision no.: 1

GENERAL NOTES

- STRUCTURAL DESIGN BASED ON THE MANITOBA BUILDING CODE 2011 EDITION.
- IMPORTANCE CATEGORY: HIGH
- SEISMIC SITE CLASSIFICATION: NOT APPLICABLE
- DO NOT SCALE DRAWINGS.
- DO NOT BACKFILL UNTIL GROUND FLOOR STRUCTURE IS IN PLACE AND BASEMENT SLABS HAVE BEEN POURED AND CURED.
- ALL DIMENSIONS ARE TO BE VERIFIED WITH THE PROJECT DRAWINGS AND EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION.
- THESE STRUCTURAL DRAWINGS SHOW THE COMPLETED STRUCTURE AND DO NOT INDICATE ALL COMPONENTS NECESSARY FOR SAFETY DURING CONSTRUCTION. THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY ON AND AROUND THE JOBSITE DURING CONSTRUCTION.

CAST-IN-PLACE CONCRETE

I CONCRETE

- ALL CONCRETE IS TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF CSA-A23.1-14 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION" AND CSA-A23.2-14 "METHOD OF TEST FOR CONCRETE".
- PROVIDE CERTIFICATION THAT MIX PROPORTIONS SELECTED WILL PRODUCE CONCRETE OF QUALITY, YIELD AND STRENGTH AS SPECIFIED IN CONCRETE MIXES, AND WILL COMPLY WITH CSA-A23.1. CERTIFICATION LETTER TO BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
- PROVIDE CERTIFICATION THAT PLANT, EQUIPMENT, AND MATERIALS TO BE USED IN CONCRETE COMPLY WITH REQUIREMENTS OF CSA-A23.1. CERTIFICATION LETTER TO BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
- CONCRETE PROPERTIES SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE DRAWINGS.

EXTERIOR WALL AND GRADE BEAM REPAIRS: 32 MPA MIN. AT 28 DAYS
CLASS OF EXPOSURE: F-2
ENTRAINED AIR/CATEGORY: 2 (4% TO 7%)
AGGREGATE MAX. 20 MM
CURING TYPE: TYPE 2 - ADDITIONAL
PLACABILITY: SELF-CONSOLIDATING CONCRETE

UNLESS INDICATED OTHERWISE THE GENERAL CONTRACTOR SHALL SPECIFY CONCRETE SLUMP APPROPRIATE WITH PLACEMENT METHODS AND SITE CONDITIONS. THE GENERAL CONTRACTOR SPECIFIED SLUMP MUST BE SHOWN ON THE CERTIFICATION LETTER AND CONCRETE DELIVERY TICKET.

- UNLESS NOTED OTHERWISE CONCRETE CURING TO CONFORM TO THE LATEST EDITION OF CSA-A23.1-14 AS FOLLOWS:
A) TYPE 1 - BASIC: 3 DAYS $\geq 10^{\circ}\text{C}$ AND FOR A TIME NECESSARY TO ATTAIN 40% OF THE SPECIFIED STRENGTH.
B) TYPE 2 - ADDITIONAL: 7 DAYS $\geq 10^{\circ}\text{C}$ AND FOR A TIME NECESSARY TO ATTAIN 70% OF THE SPECIFIED STRENGTH.
C) TYPE 3 - EXTENDED: 7 DAYS WET CURING $\geq 10^{\circ}\text{C}$.

- AIR ENTRAINING ADMIXTURES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C260/C260M-10A "STANDARD SPECIFICATION FOR AIR ENTRAINING ADMIXTURES FOR CONCRETE". SUPERPLASTICIZING ADMIXTURES SHALL CONFORM TO ASTM C494/C494M "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE" OR ASTM C1017/C1017M "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR USE IN PRODUCING FLOWING CONCRETE" WHEN FLOWING CONCRETE IS APPLICABLE. AIR ENTRAINMENT ADMIXTURES TO HAVE A DURABILITY FACTOR GREATER THAN 75, WHEN TESTED TO ASTM STANDARDS C666/C666M PROCEDURE A. SPACING FACTOR FOR ANY AIR ENTRAINING ADMIXTURE MUST BE 0.17MM OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM C457 "STANDARD TEST METHOD FOR MICROSCOPICAL DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE".

II REINFORCING STEEL

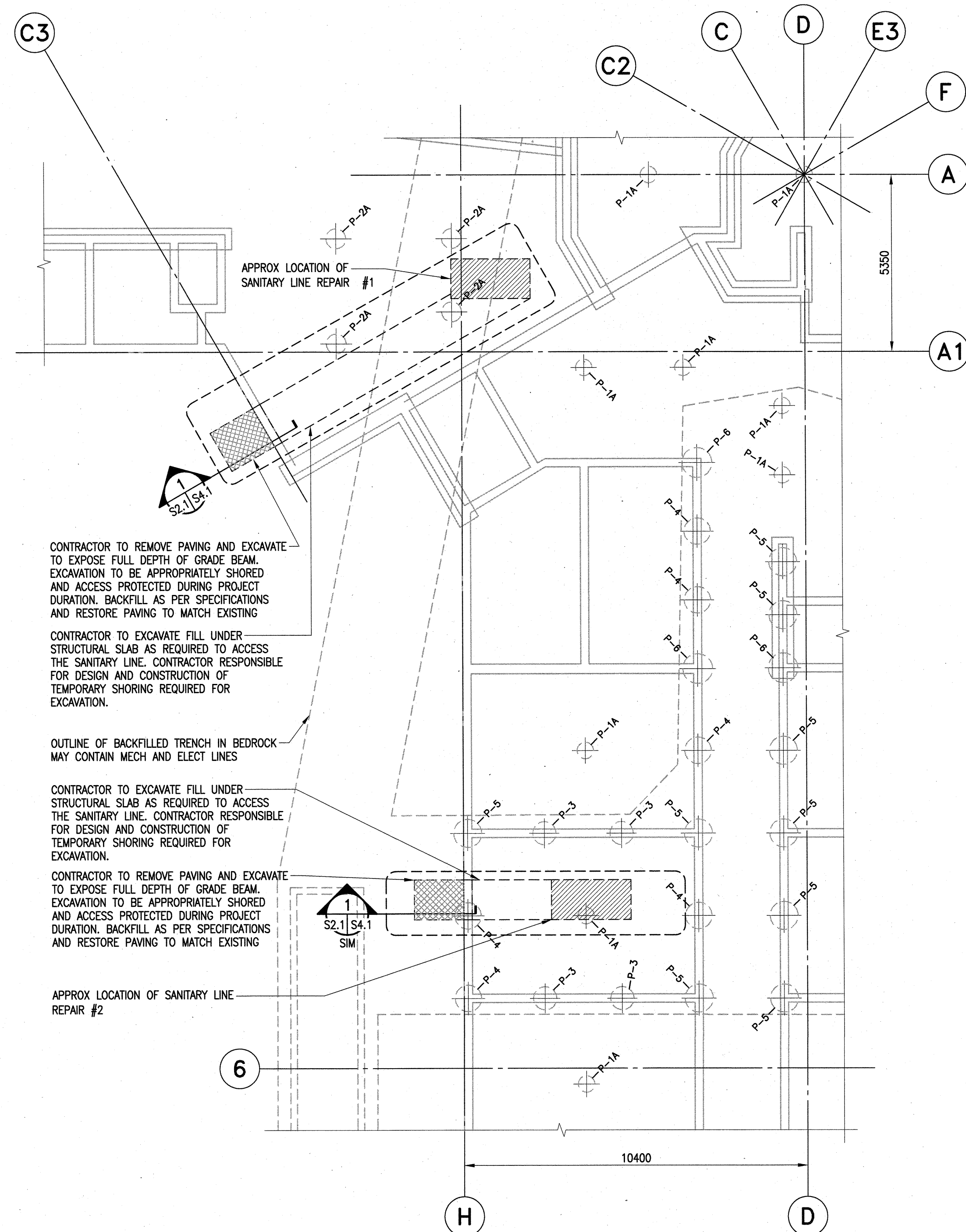
- ALL REINFORCING STEEL TO BE CSA-G30.18M-09 GRADE 400R DEFORMED BARS EXCEPT COLUMN TIES AND BEAM STIRRUPS WHICH SHALL BE GRADE 400W STEEL.
- ALL REINFORCING IS TO BE DETAILED IN ACCORDANCE WITH THE LATEST EDITION OF THE REINFORCING STEEL INSTITUTE OF CANADA - MANUAL OF STANDARD PRACTICE, EXCEPT OTHERWISE NOTED.
- REINFORCING STEEL COVER IS TO CONFORM TO CAN/CSA A23.3-14 "DESIGN OF CONCRETE STRUCTURES FOR BUILDINGS" AND AS FOLLOWS:

GRADE BEAMS:
EXPOSURE CLASS: F-2 50 MM BOTTOM TO TIES 40MM SIDES AND TOP TO TIES.

- ALL REINFORCING TO BE HELD IN PLACE, AND TIED BY THE USE OF PROPER ACCESSORIES, SUCH AS HI-CHAIRS, SPACERS, ETC. TO BE SUPPLIED BY THE REINFORCING STEEL FABRICATOR. HI-CHAIRS TO HAVE 4 LEGS AND TO BE STAPLED OR NAILED TO THE FORMWORK.
- ALL MISCELLANEOUS CONCRETE PADS AND CURBS ARE TO BE REINFORCED WITH A MINIMUM OF 10M AT 400 MM O/C EACH WAY, UNLESS NOTED.
- WHEN CONCRETE BEAMS ARE CAST INTO A WALL CHASE, DOWELS SIZE AND NUMBER SAME AS BEAM REINFORCING ARE TO BE PROVIDED FROM WALL, UNLESS OTHERWISE SHOWN ON PLAN.

III FORMWORK

- SHEARMAT OR APPROVED CARDBOARD VOIDFORM WITH A MIN. DEPTH OF 150 MM SHALL BE USED AS THE BOTTOM FORM FOR STRUCTURAL SLABS. SELECT AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ACCESSORIES SUCH AS HI-CHAIRS, SPACERS, ETC. SHALL BE SUPPORTED BY PADS OF PLYWOOD OR TEMPERED HARDBOARD TO PREVENT PUNCTURING THE VOIDFORM.
- UNLESS NOTED OTHERWISE PROVIDE SLIP JOINT ALL PAVING OR CONCRETE SLABS ON GRADE AGAINST STRUCTURAL MEMBERS WITH 12 MM ASPHALT IMPREGNATED FIBREBOARD.
- ALL CONSTRUCTION JOINT KEYS ARE TO BE A MINIMUM OF 40 MM DEEP.
- PLACE 10 MIL POLYETHYLENE UNDER ALL SLABS ON FILL AND OVER TOP OF VOIDFORM.

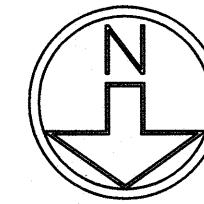
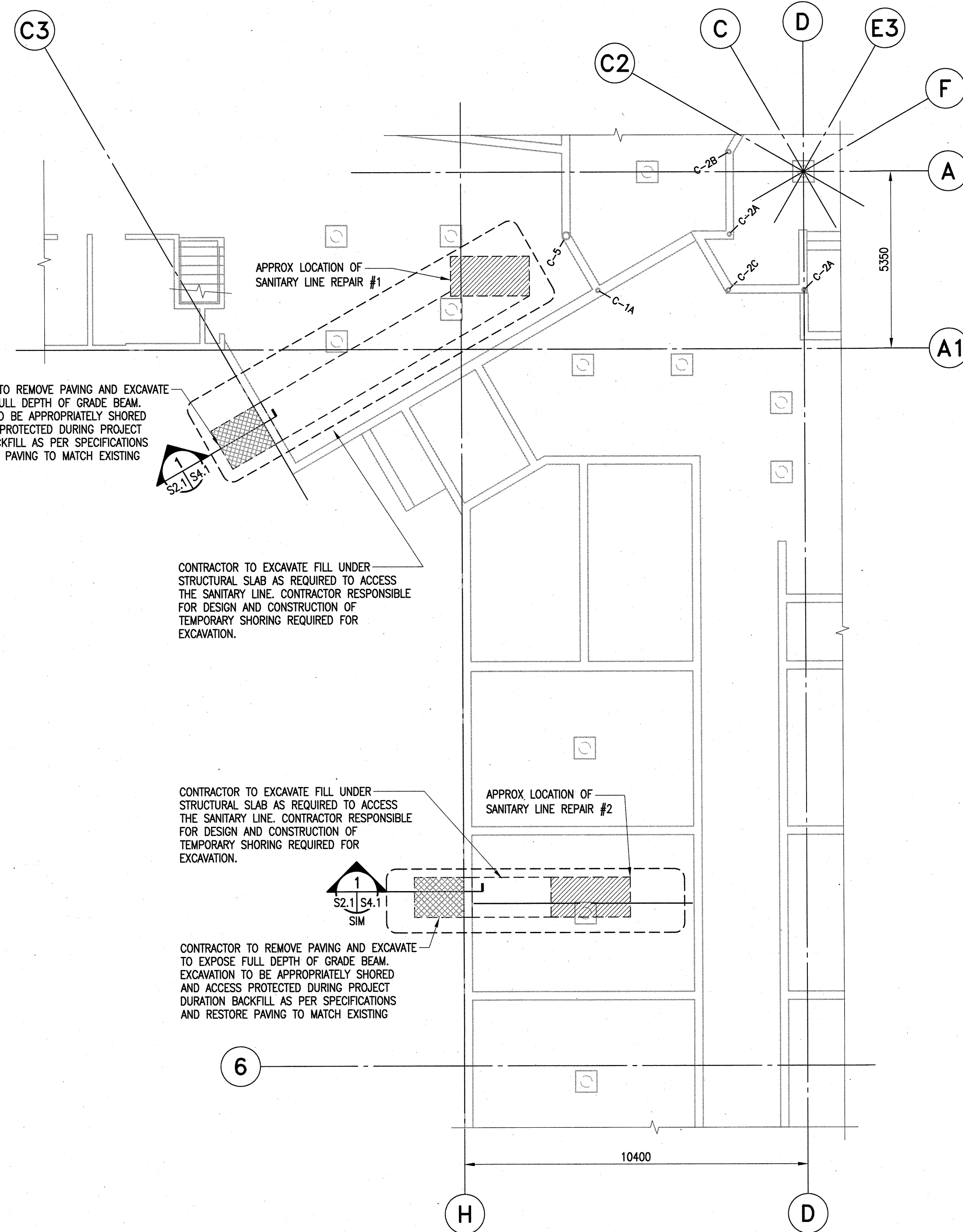


PARTIAL FOUNDATION PLAN

1 : 100

NOTE:

- P-# INDICATES EXISTING PILE
- EXCAVATION ROUTES MAY ENCOUNTER BURIED SERVICES. CONTRACTOR TO EXERCISE ALL CAUTION DURING EXCAVATION. ALL SERVICES TO REMAIN OPERATIONAL DURING EXCAVATION

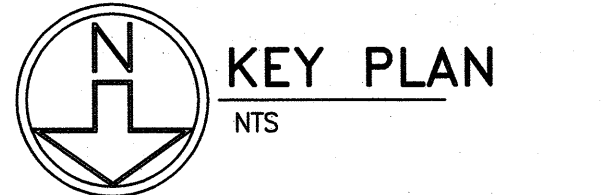
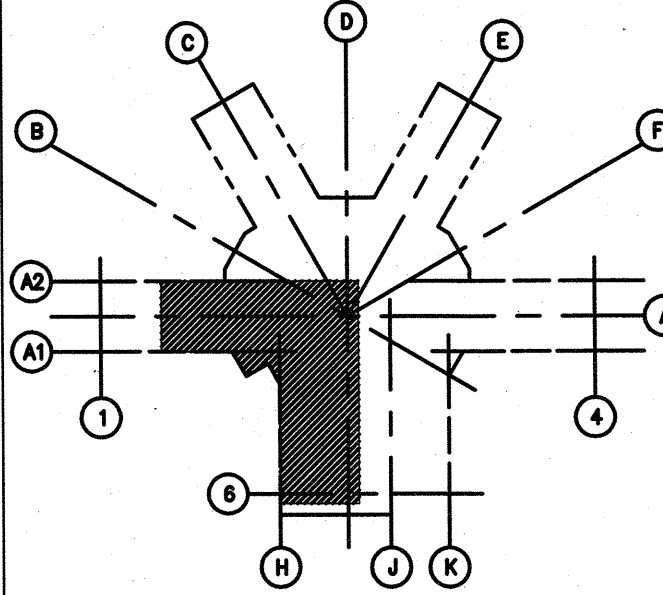


PARTIAL MAIN FLOOR PLAN

1 : 100

NOTE:

- C-# INDICATES EXISTING COLUMN
- EXCAVATION ROUTES MAY ENCOUNTER BURIED SERVICES. CONTRACTOR TO EXERCISE ALL CAUTION DURING EXCAVATION. ALL SERVICES TO REMAIN OPERATIONAL DURING EXCAVATION



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PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
CORRECTIONAL SERVICE CANADA

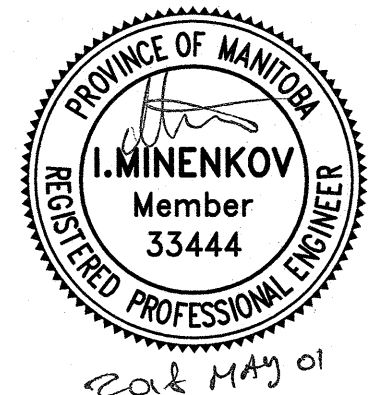
Project title: SMI UNIT 6, SANITARY LINE FAILURE SOLUTION

STONY MOUNTAIN INSTITUTION
STONY MOUNTAIN, MANITOBA

Designed by IM	Conçu par
Drawn by RJM/MAH	Dessiné par
Approved by JAW	Approuvé par
PWGSC Project Manager TL	Administrateur de Projets TPSGC

Drawing title: PARTIAL FOUNDATION PLAN
PARTIAL MAIN FLOOR PLAN
GENERAL NOTES

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.089813.001	S2.1 OF 3	1



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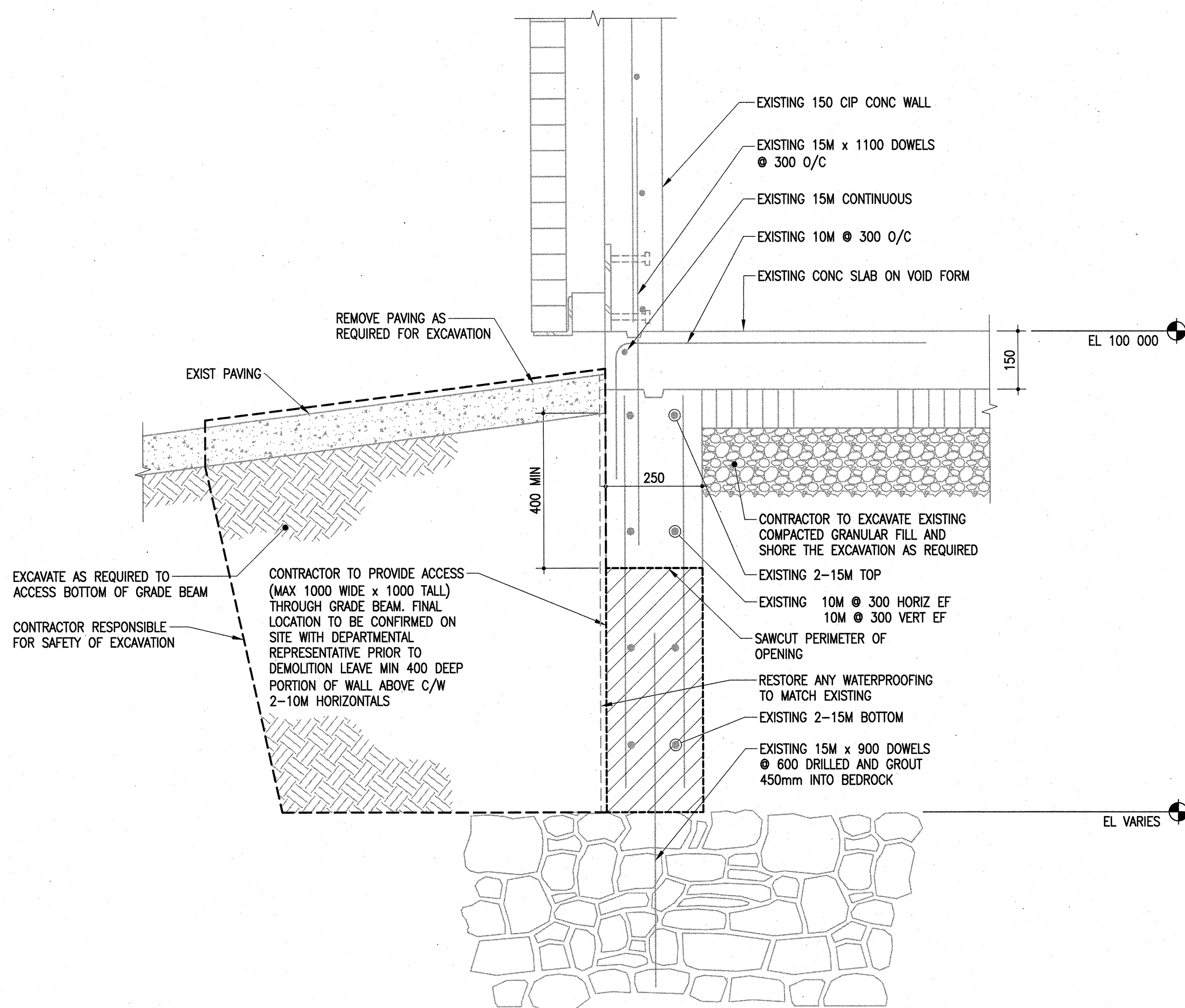
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CANADA
User: CORRECTIONAL SERVICE CANADA
Utilisateur:

Project title: SMI UNIT 6, SANITARY LINE
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Projet:

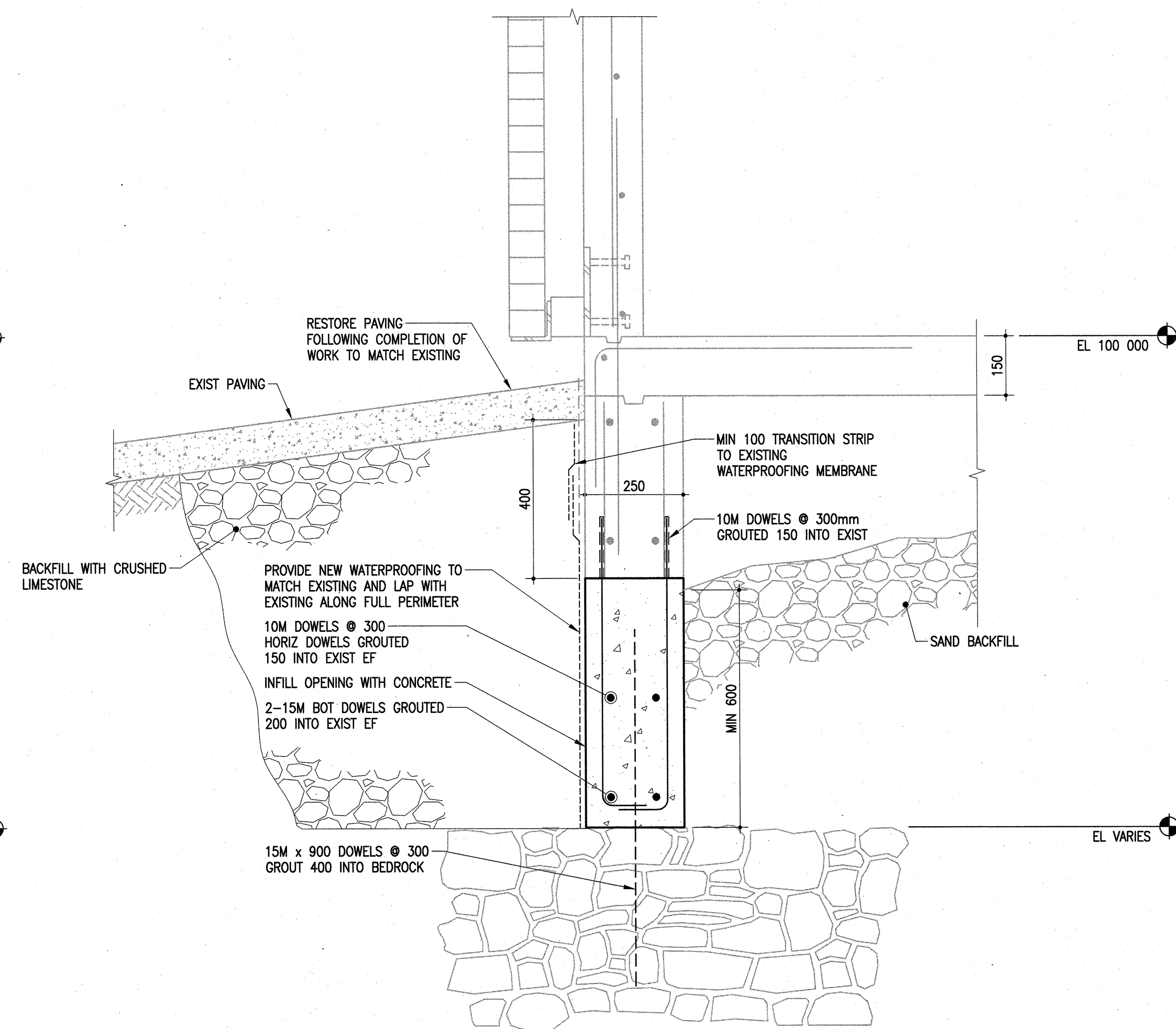
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Designed by: IM
Drawn by: RJM/MAH
Approved by: JAW
PWGSC Project Manager: TL
Administrateur de Projets TPSGC: TL
Drawing title: SECTIONS
Titre du dessin:

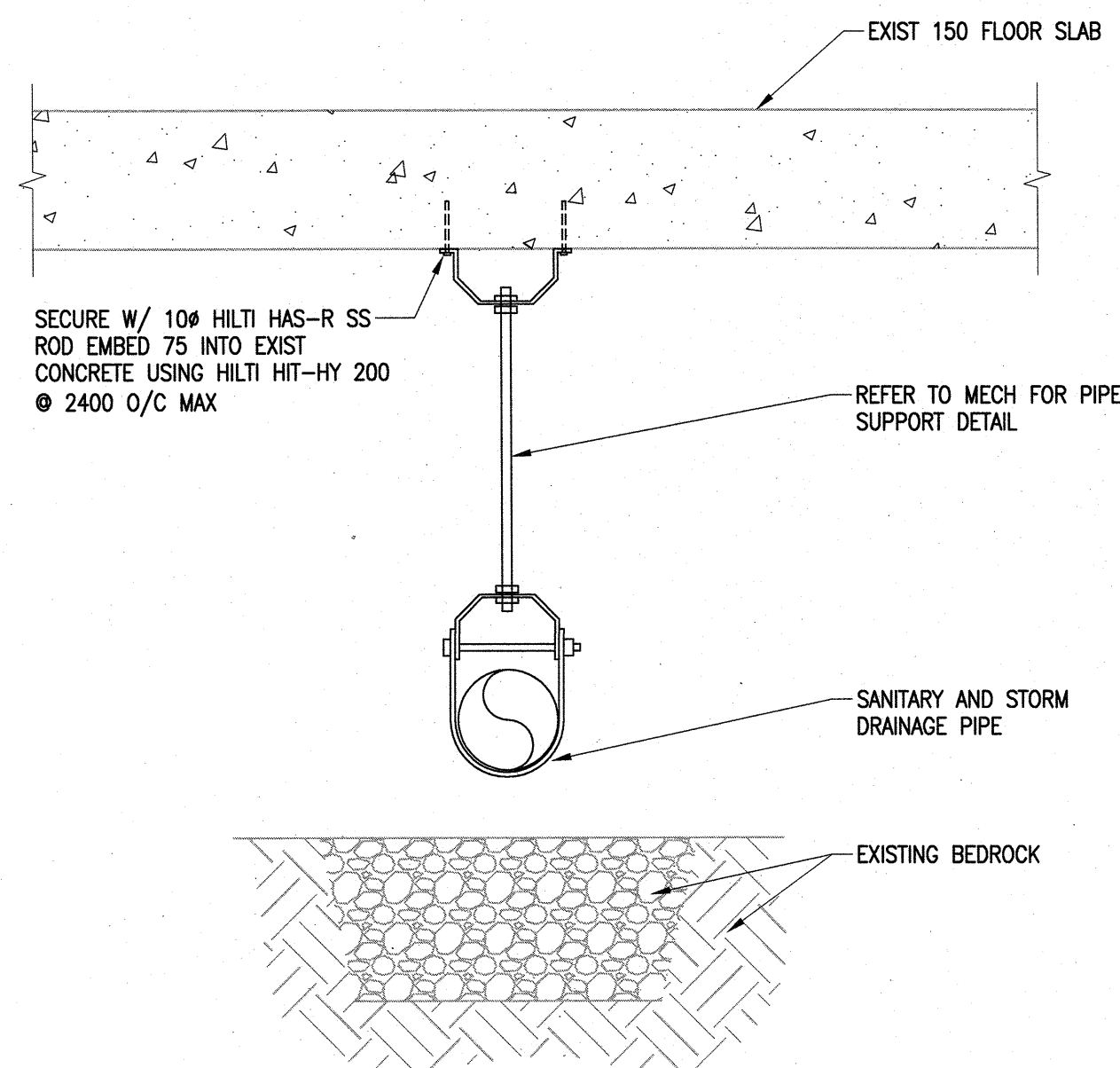
Project no./No. du projet: R.089813.001
Drawing no./No. du dessin: S4.1
Revision no.: 1
OF 3



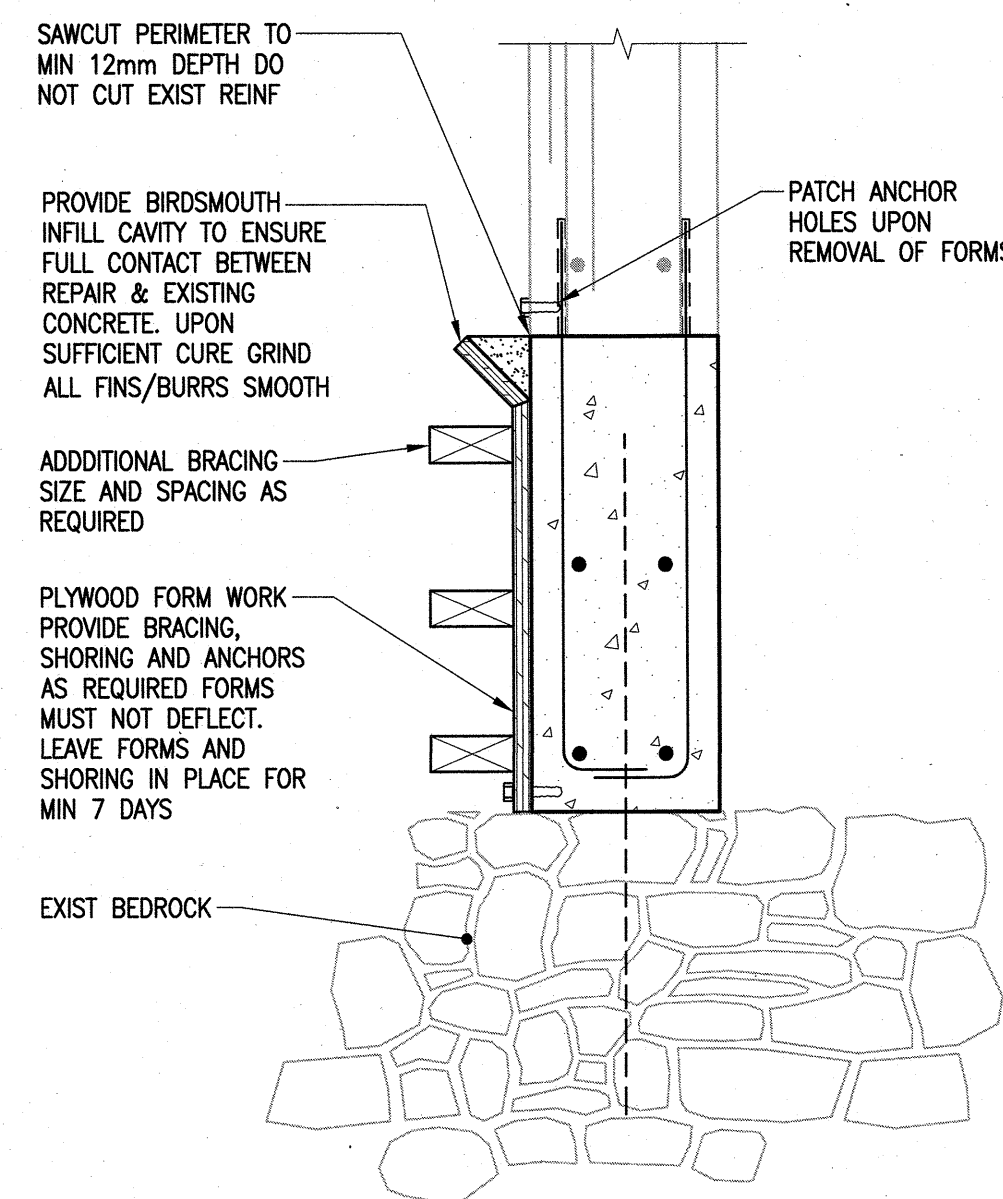
1 SECTION: GRADE BEAM
EXCAVATION AND DEMOLITION
S2.1 S4.1 1:10



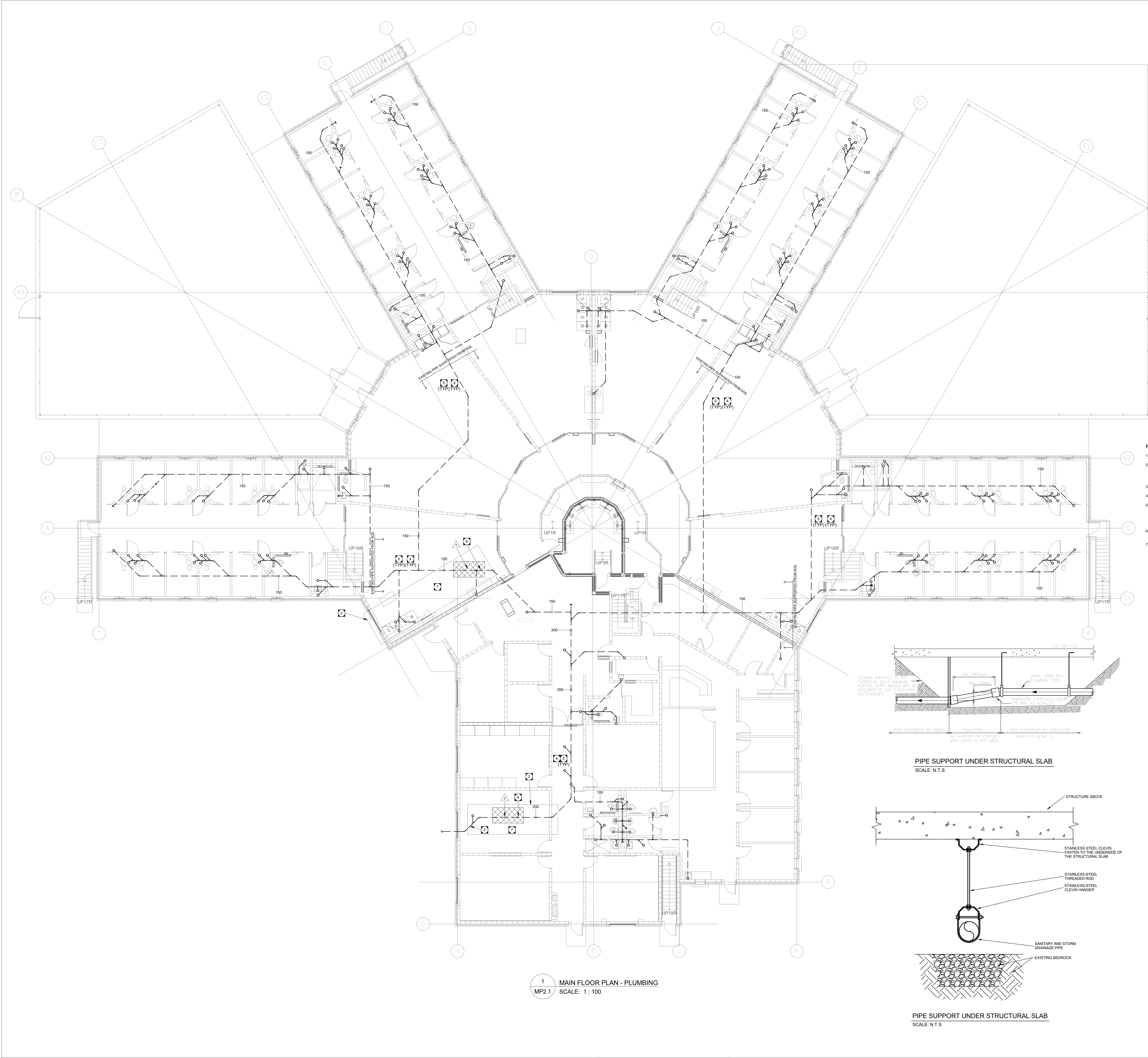
2 SECTION: GRADE BEAM REPAIR
S2.1 S4.1 1:10



3 PIPE SUPPORT UNDER STRUCTURAL SLAB DETAIL
S4.1 N.T.S.



4 TYPICAL FORM & POUR DETAIL
S4.1 1:10

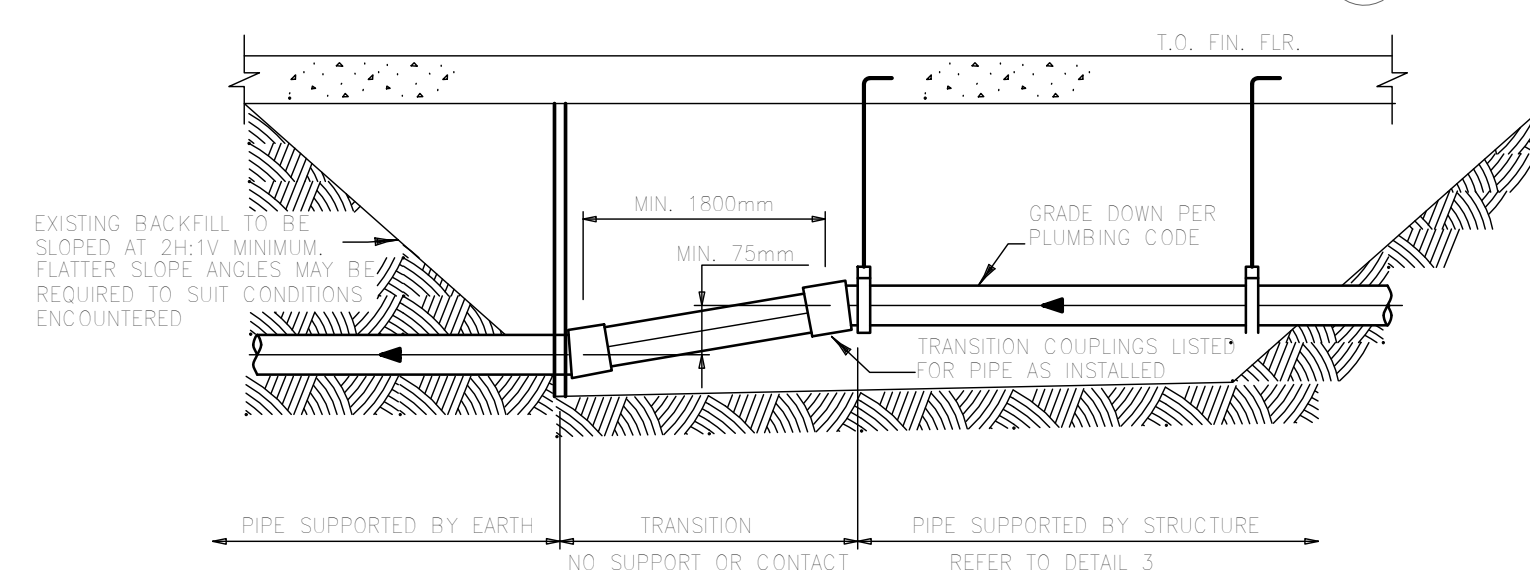


PLUMBING GENERAL NOTES

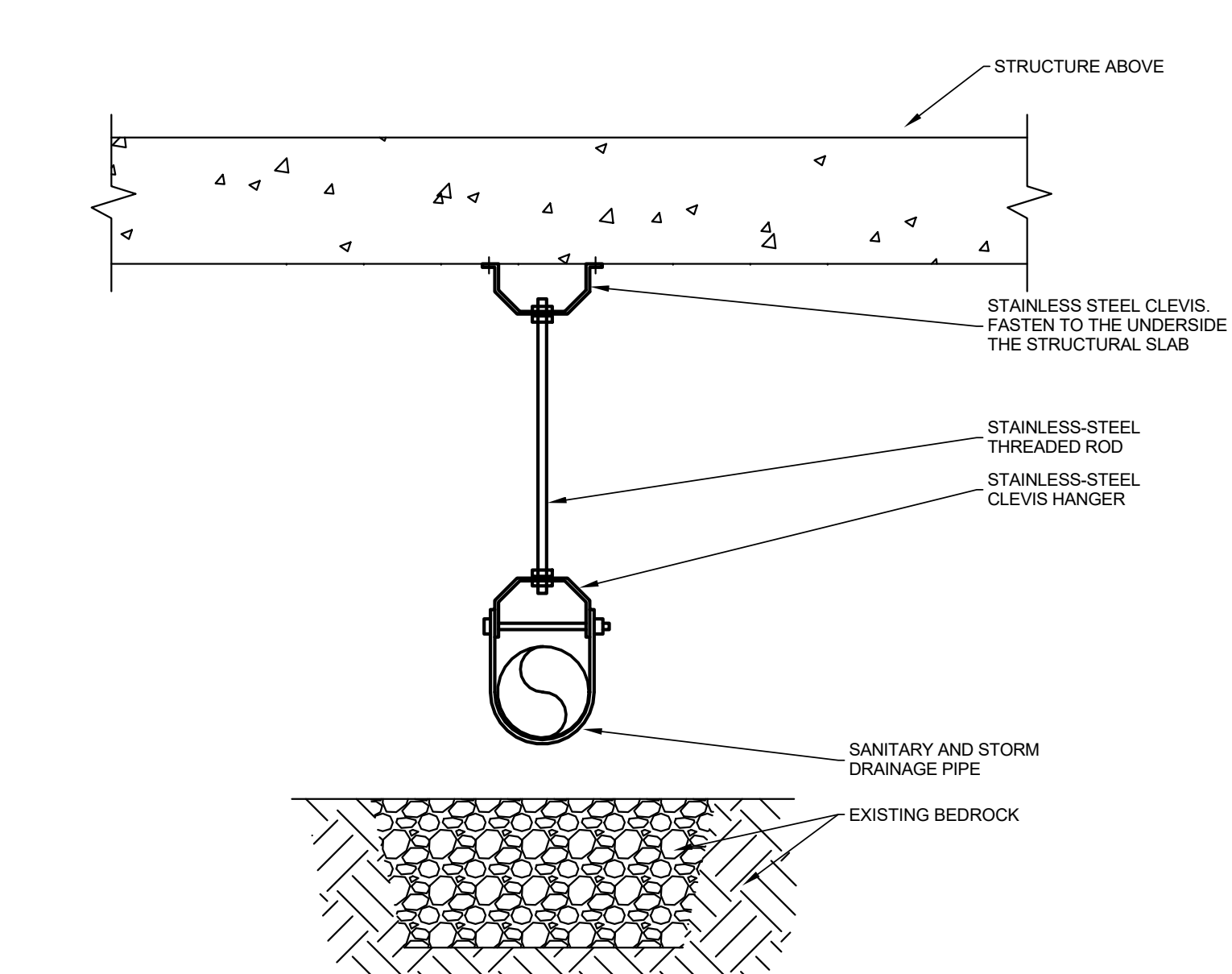
- CONFORM TO APPLICABLE CODE FOR DEMOLITION WORK, DUST CONTROL, PRODUCTS REQUIRING ELECTRICAL DISCONNECTION OR RECONNECTION.
- CONFORM TO APPLICABLE REGULATORY PROCEDURES WHEN DISCOVERING HAZARDOUS OR CONTAMINATED MATERIALS.
- PROTECT EXISTING MATERIALS, EQUIPMENT, AND SYSTEMS WHICH ARE NOT TO BE DEMOLISHED.
- DISCONNECT, REMOVE, CAP, AND IDENTIFY DESIGNATED UTILITIES WITHIN DEMOLITION AREAS.
- REMOVE, CUT, AND PATCH WORK IN A MANNER TO MINIMIZE DAMAGE AND TO PROVIDE MEANS OF RESTORING SYSTEMS TO ORIGINAL CONDITION.
- DEMOLISH IN AN ORDERLY AND CAREFUL MANNER. REMOVE DEMOLISHED MATERIALS FROM SITE EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE. UPON COMPLETION OF WORK, LEAVE AREAS IN CLEAN CONDITION.
- THE LOCATION AND ROUTING OF PIPES SHOWS THE INTENT OF THE DESIGN. THE CONTRACTOR SHALL ALLOW FOR THE POSSIBILITY OF INTERFERENCES AND SHALL RESOLVE WITH OTHER TRADES ON SITE. ANY CHANGES TO THE DESIGN INTENT REQUIRE APPROVAL BY THE ENGINEER.
- PATCH AND MAKE GOOD ALL AREAS DAMAGED BY DEMOLITION WORK TO MATCH EXISTING FINISHES. REFER TO SITE FOR FINISHES.
- THE INTERRUPTION OF ANY SERVICES SHALL BE COORDINATED WITH THE BUILDING OWNER AND SHALL BE KEPT TO A MINIMUM.

KEY NOTES

- REMOVE FALLEN SECTION OF PIPING WITHIN THE SHADED AREA SHOWN. PROVIDE NEW PIPE AND FITTINGS.
- PIPE WITHIN THIS BOUNDARY THAT IS CURRENTLY SUPPORTED ON SOIL TO BE REVERSED SO THAT IT IS SUPPORTED FROM STRUCTURE ABOVE. SCAN FLOOR ABOVE AND PROVIDE NEW HANGERS FOR PIPING. REFER TO DETAIL AND SPECIFICATIONS. PIPE TO BE SUPPORTED WHERE ACCESS TO THE PIPING IS AVAILABLE BASED ON CONFINED SPACE REQUIREMENTS. ADJUST PIPE ELEVATIONS TO ENSURE NATIONAL PLUMBING CODE SLOPE REQUIREMENTS ARE MAINTAINED.
- ENSURE EXISTING TRANSITION TO SUPPORT FROM SURROUNDING SOIL IS IN GOOD CONDITION. REFER TO THE DETAIL FOR THE TRANSITION REQUIREMENTS.
- CONTRACTOR TO COORDINATE FLUSHING OF THE EXISTING BELOW SLAB PIPING WITH CORRECTIONAL SERVICES AND WITH THE CONTRACTOR PROVIDING SONDE DEVICE TESTING.
- FLUSH AND CLEAN ALL SANITARY PIPING BELOW MAIN FLOOR STRUCTURE. PRIOR TO THE START OF THE LOCATION CHECK OF THE PIPING, FLUSHING OF THE PIPING TO BE COMPLETED FROM WITHIN THE MAIN FLOOR SPACE AT LAUNDRIES OR OTHER DRAIN ACCESS POINTS. PROVIDE REPORT TO DEPARTMENTAL REPRESENTATIVE UPON COMPLETION OF FLUSHING AND CLEANING OF PIPING. NOTE ANY SECTIONS WHERE FLUSHING WAS NOT ABLE TO BE PROPERLY FLUSHED AND INDICATE ANY SECTIONS THAT MAY HAVE FAILED.
- PROVIDE A PRESSURE TEST OF NEW PIPING. REFER TO SPECIFICATIONS ON REQUIREMENTS OF PRESSURE TESTING AND ANY REPORTS THAT ARE REQUIRED. COORDINATE ANY REQUIRED SYSTEM SHUT DOWNS WITH DEPARTMENT REPRESENTATIVE.
- CONFIRM EXACT PIPE LOCATIONS ON PLANS AND PROVIDE PHOTOS OF THE PIPING ARRANGEMENT IN THE SPACE BELOW THE STRUCTURE, AS PERMITTED BY THE CONFINED SPACE REQUIREMENTS.



PIPE SUPPORT UNDER STRUCTURAL SLAB
SCALE: N.T.S.



PIPE SUPPORT UNDER STRUCTURAL SLAB
SCALE: N.T.S.

MECHANICAL DRAWINGS

PLUMBING DRAWINGS
MP2.1 CRAWLSPACE - PLUMBING PLAN - LINE REPAIR AND REMAINING PIPE INVESTIGATION

PLUMBING LINE TYPE

— SAN — SANITARY WASTE BELOW FLOOR OR GRADE

PLUMBING SYMBOLS

⊕	FLOOR DRAIN
—○	PIPE RISE
—◇	PIPE DROP
⊕○	TRAP
—	CLEAN OUT
⊕	KEY NOTE
△	DEMOLITION NOTE
1 M1.1	DRAWING HEADER

Public Works and Government Services Canada

REAL PROPERTY SERVICES

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Région de l'ouest

Certificate of Authorization

Epp Slepman Engineering Inc.

No. 4035

PROVINCE OF MANITOBA

D.A. EPP

Member 10097

REGISTERED PROFESSIONAL ENGINEER

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Revision/Revision	Description/Description	Date/Date
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PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

User

Utilisateur

CORRECTIONAL SERVICE CANADA

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Approved by/Approuvé par
DE

Designed by/Concept par
AM

Drawn by/Dessiné par
DK

PWSSC Project Manager/Administrateur de Projets TPSCG
TL

PWSSC Architectural and Engineering Resources Manager/
Ressources Architectural et de Directeur d'ingénierie, TPSCG

Client/client

Drawing title/Titre du dessin

CRAWLSPACE - PLUMBING PLAN - LINE REPAIR AND REMAINING PIPE INVESTIGATION

Project No./No. du projet
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Sheet/ Feuille
MP2.1
OF 1

Revision no./
Revision
B

Correctional Service Canada