

- NOTES:
1. PIPE TO BE DESIGNED AS IDENTIFIED IN SPECIFICATION E20.
 2. PIPE SUBMITTALS TO BE IN ACCORDANCE WITH SPECIFICATION E20.
 3. HDPE LINER TO BE IN ACCORDANCE WITH SPECIFICATION E23.

1 DIRECT-JACKED PIPE DETAIL
- NTS

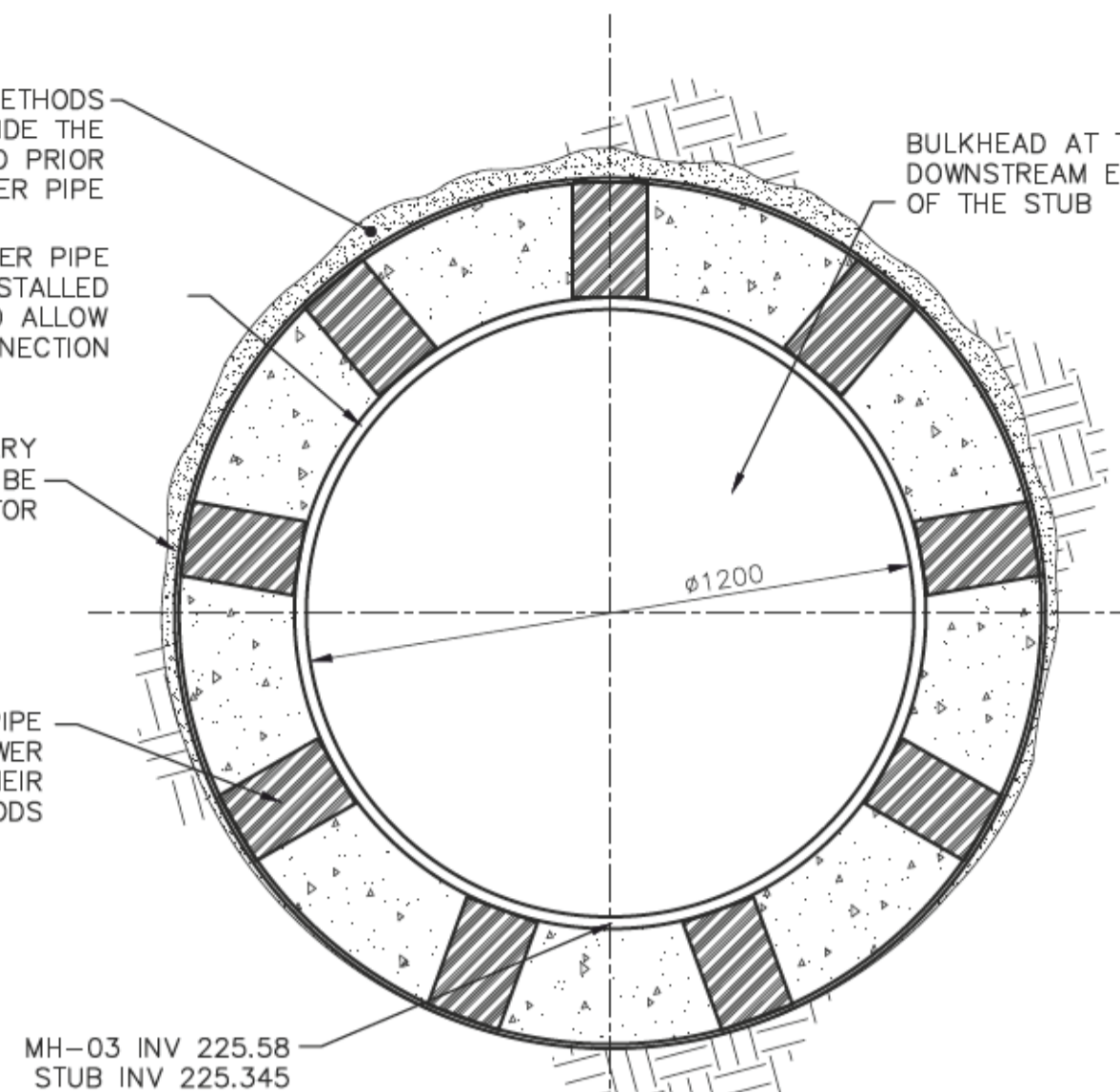
IF THE CONTRACTORS MEANS AND METHODS CREATE AN ANNULAR SPACE OUTSIDE THE PRIMARY LINING IT SHALL BE GROUTED PRIOR TO INSTALLATION OF THE CARRIER PIPE

1200Ø SDR35 PVC CARRIER PIPE BELL END OF PIPE SHALL BE INSTALLED ON THE DOWNSTREAM END TO ALLOW FOR FUTURE HAND TUNNEL CONNECTION

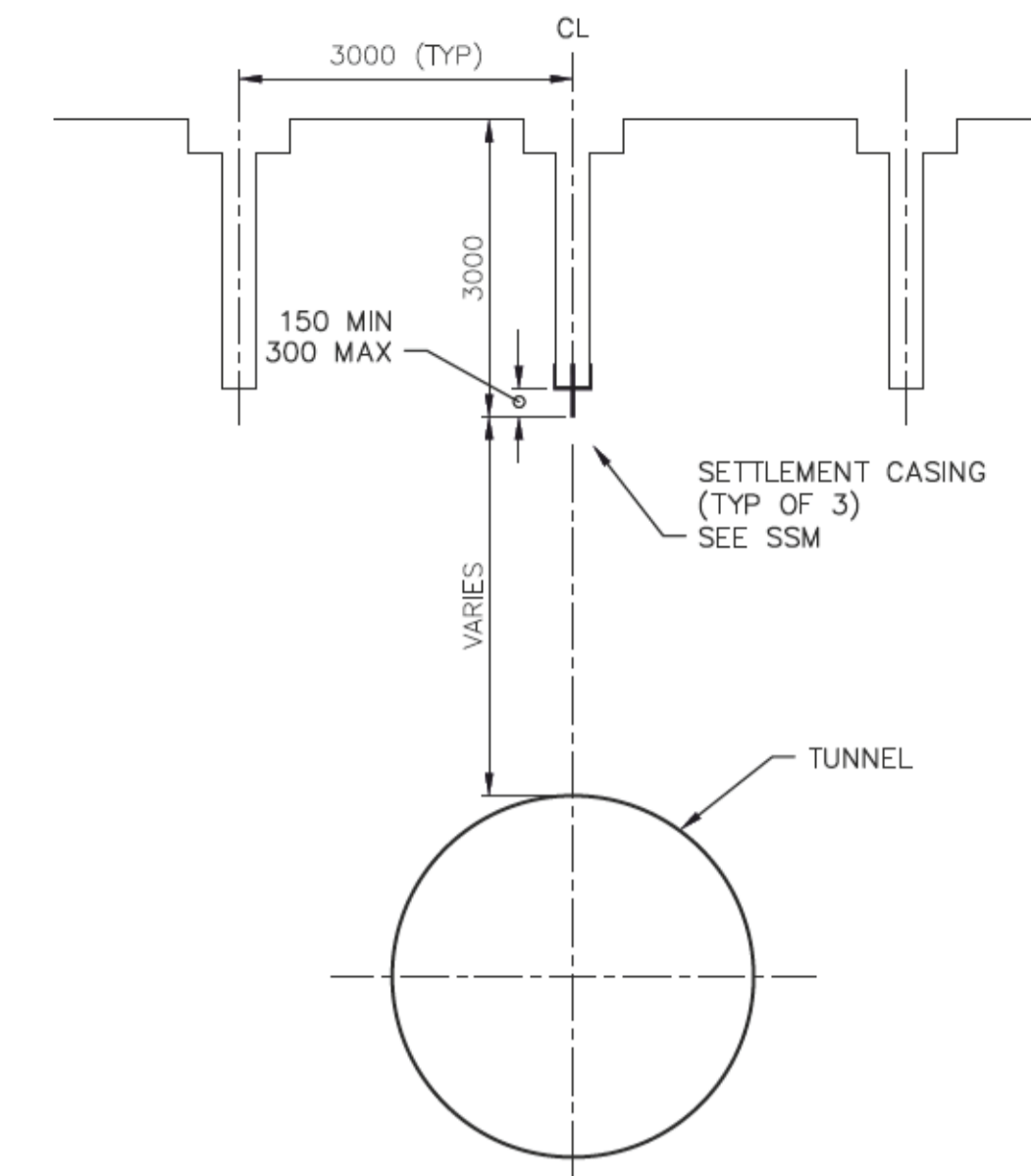
CASING PIPE / PRIMARY HAND TUNNEL LINER TO BE DESIGNED BY CONTRACTOR

CONTRACTOR TO DESIGN PIPE SUPPORT TO MATCH SANITARY SEWER DESIGN ELEVATIONS BASED ON THEIR PROPOSED MEANS AND METHODS

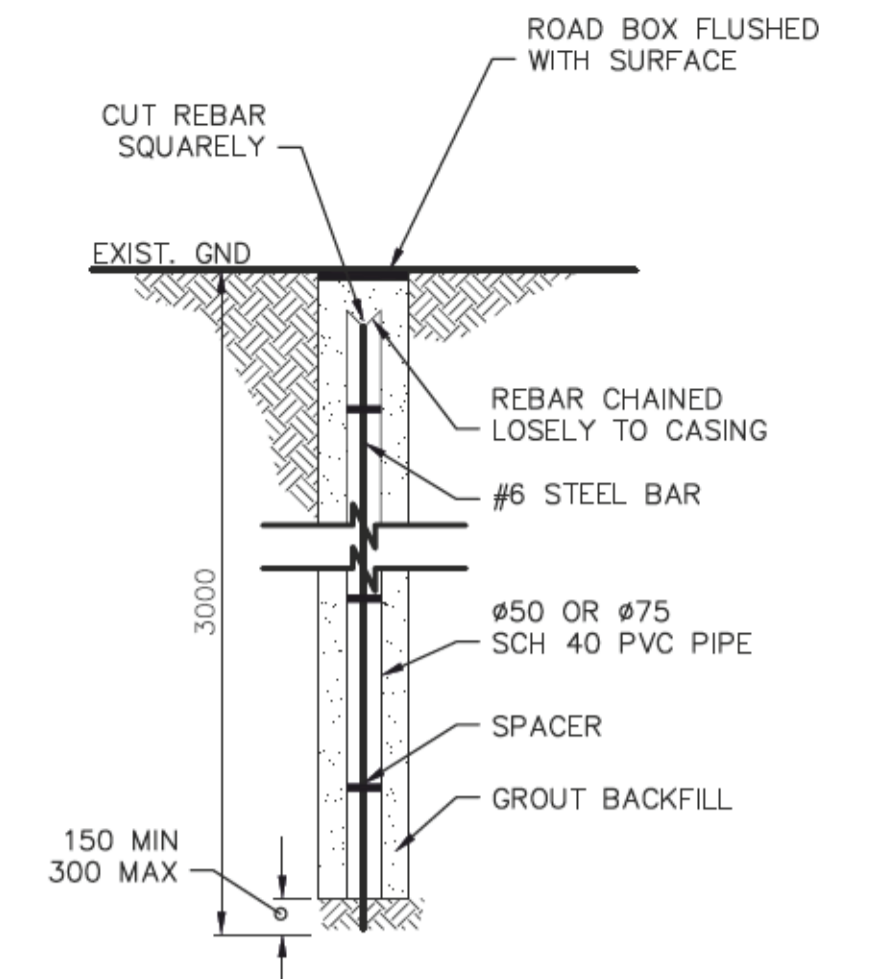
MH-03 INV 225.58
STUB INV 225.345



4 HAND TUNNEL CROSS SECTION
- NTS



SUBSURFACE MONITORING ARRAY



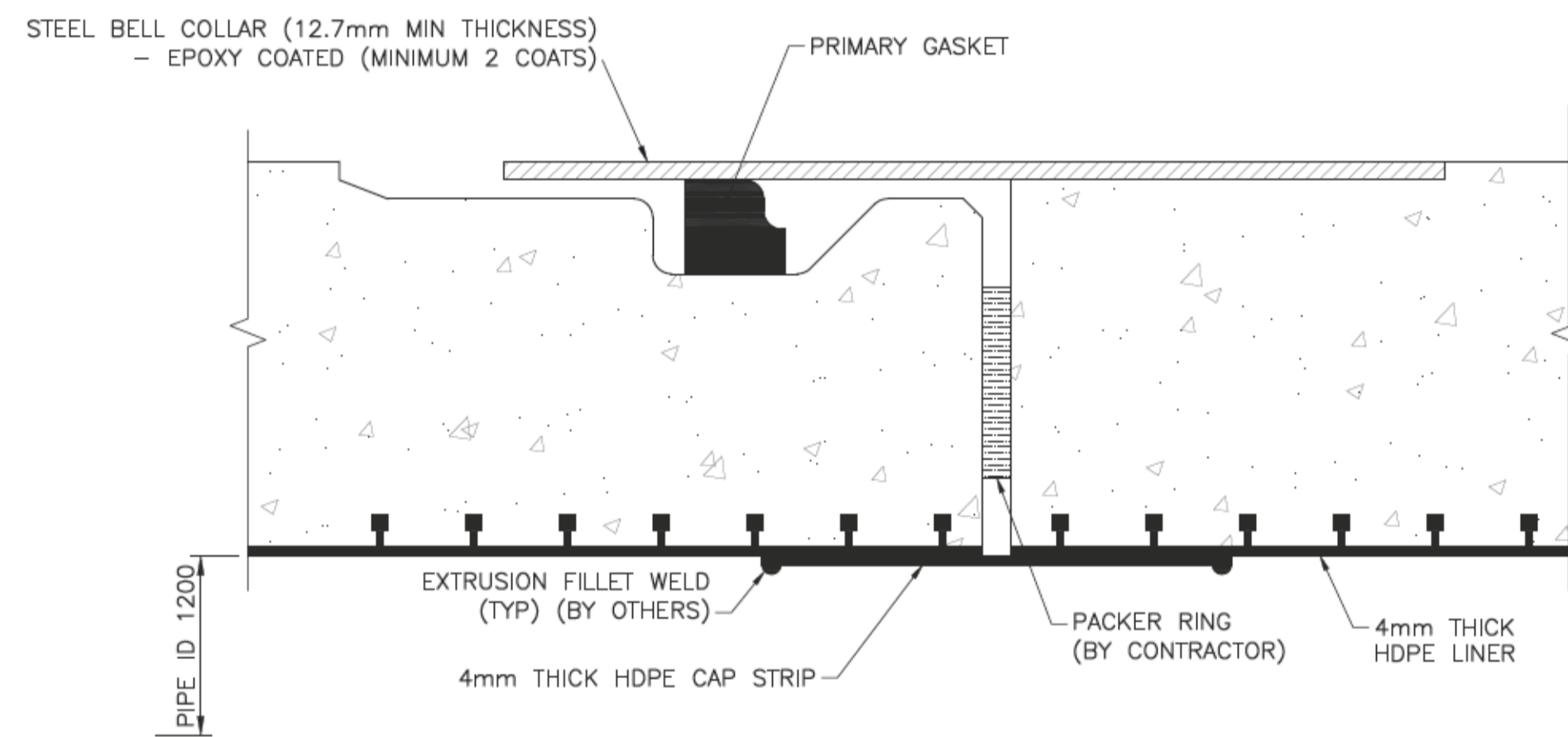
SUBSURFACE MONITORING POINTS (SSM)

NOTE: REFER TO SPECIFICATIONS AND DRAWINGS FOR EXACT INSTALLATION LOCATION.

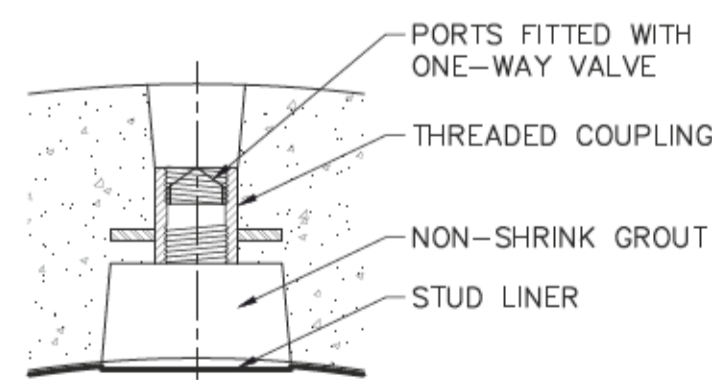
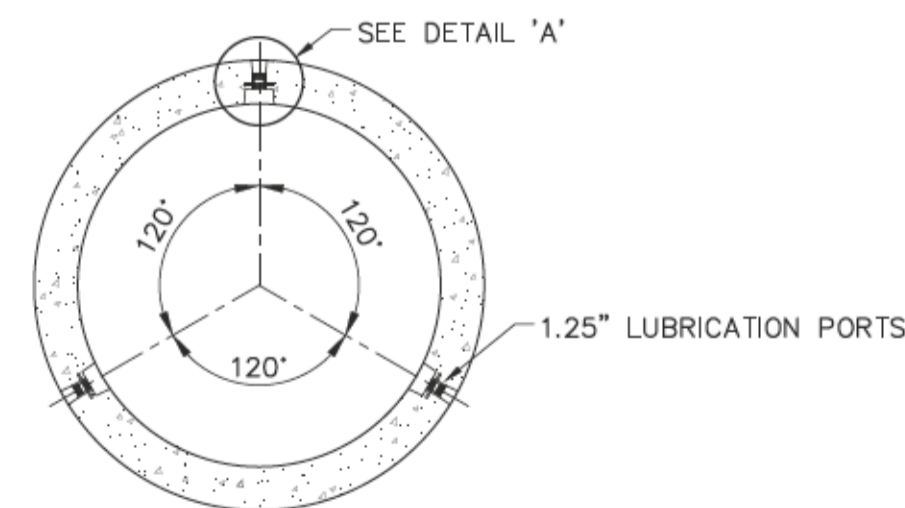
5 MONITORING POINT DETAILS
- NTS

HAND TUNNEL NOTES:

1. HAND TUNNEL PRIMARY LINER TO BE SELECTED AND DESIGNED BY THE CONTRACTOR BASED ON THE GEOTECHNICAL CONDITIONS AND MEANS AND METHODS CHOSEN.
2. PVC PIPE TO BE BLOCKED IN PLACE AND THE ANNULUS GROUTED USING A LOW HEAT OF HYDRATION CEMENTITIOUS MIX. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE BLOCKING, FLOATING, AND BUCKLING CALCULATIONS. METHOD OF BLOCKING / BRACING SHALL BE DESIGNED BY THE CONTRACTOR AND SHALL BE USED IN A WAY THAT DOES NOT EXPOSE THE NEW CARRIER PIPE TO DAMAGE AS A RESULT OF INSTALLATION, INCLUDING OVALITY, BUCKLING, OR HEAT OF HYDRATION. THE CONTRACTOR MAY CHOOSE TO GROUT THE ANNULAR SPACE IN ONE LIFT OR MULTIPLE. DENSITY OF THE GROUT SHALL BE NOTED IN THE PROPOSED CALCULATIONS.
3. CONTRACTOR MUST SUBMIT AN INSTALLATION PLAN FOR REVIEW BY THE CONSULTANT WHICH INCLUDES, AT A MINIMUM, THE FOLLOWING:
 - CARRIER PIPE INSTALLATION AND SUPPORT.
 - GROUTING PROCEDURE COMPLETE WITH PROPOSED MATERIAL STRENGTHS, HEAT OF HYDRATION CALCULATIONS OR TEST RESULTS, BUOYANCY CALCULATIONS, BUCKLING CALCULATIONS, BASED ON GROUTING PRESSURE AND LIFT PLAN.
4. GROUT TESTING SHALL BE DONE IN ACCORDANCE WITH ASTM C109. MINIMUM ONE TEST PER 30M3. MIX DESIGN SHALL BE INCLUDED IN THE INSTALLATION PLAN SUBMITTAL.
5. CONTRACTOR SHALL REFER TO THE CRITICAL TIMING OF THE PROJECT AND SCHEDULE THE WORK NEEDED FOR THE HAND TUNNEL / DOWN STREAM CONNECTION STUB TO ACCOMMODATE THE CONNECTION FROM THE LIFT STATION CONTRACT. CONTRACTOR SHALL INSTALL AN INFLATABLE PLUG IN THE PVC PIPE TO ISOLATE THE TWO POTENTIAL SITES BETWEEN THE HAND TUNNEL CARRIER PIPE.



2 SAMPLE JACKING PIPE JOINT DETAIL
- NTS



DETAIL 'A'

- NOTES:
1. GROUT PORTS TO BE FILLED WITH NON-SHRINK GROUT AFTER CONTACT GROUTING.

3 LUBRICATION/GROUT PORT DETAIL
- NTS



FOR INDEX SEE
C-3-102

PROPERTY LIMITS DELINEATION DELINEATION OF PROPERTY LIMITS AS SHOWN ON THIS DWG DOES NOT REPRESENT A "LEGAL SURVEY". KGS GROUP AND ASSOCIATED ENGINEERING MAKES NO REPRESENTATION OR WARRANTY AS TO THE ACCURACY OF PROPERTY LIMITS DELINEATED ON THIS DWG, NOR ON THE DIMENSIONAL ACCURACY OF DWG FEATURES RELATIVE TO THOSE PROPERTY LIMITS. <small>WHOLE NUMBERS INDICATE MILLIMETRES DECIMALIZED NUMBERS INDICATE METRES</small>	WARNING IF POWER EQUIPMENT OR EXPLOSIVES ARE TO BE USED FOR EXCAVATION ON THIS PROJECT THE CONTRACTOR MUST: <ol style="list-style-type: none"> 1) NOTIFY THE GAS COMPANY OF THE PROPOSED LOCATION OF EXCAVATION. 2) TAKE PRECAUTION TO AVOID DAMAGE TO GAS COMPANY INSTALLATIONS. SEE PROVINCIAL REGULATION 210/72 FOR DETAILS	LOCATION APPROVED UNDERGROUND STRUCTURES SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____ NOTE: LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.	VERTICAL DATUM: CGVD28 (HT2.0 Geoid) HORIZONTAL DATUM: NAD83 (June 1990), Zone 14	KGS GROUP Associated Engineering	ENGINEER'S SEAL TUNNELLING WORKS 2024-Apr-19	ENGINEER'S SEAL CIVIL WORKS CONSULTANT DRAWING NUMBER C-3-108	THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT ENGINEERING SERVICES DIVISION CENTREPORT SOUTH REGIONAL WATER AND WASTEWATER SERVICING - PHASE 1A (CONTRACT 3) MISCELLANEOUS DETAILS SHEET 1	SHEET 8 OF 9 CITY DRAWING NUMBER 13446																									
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