

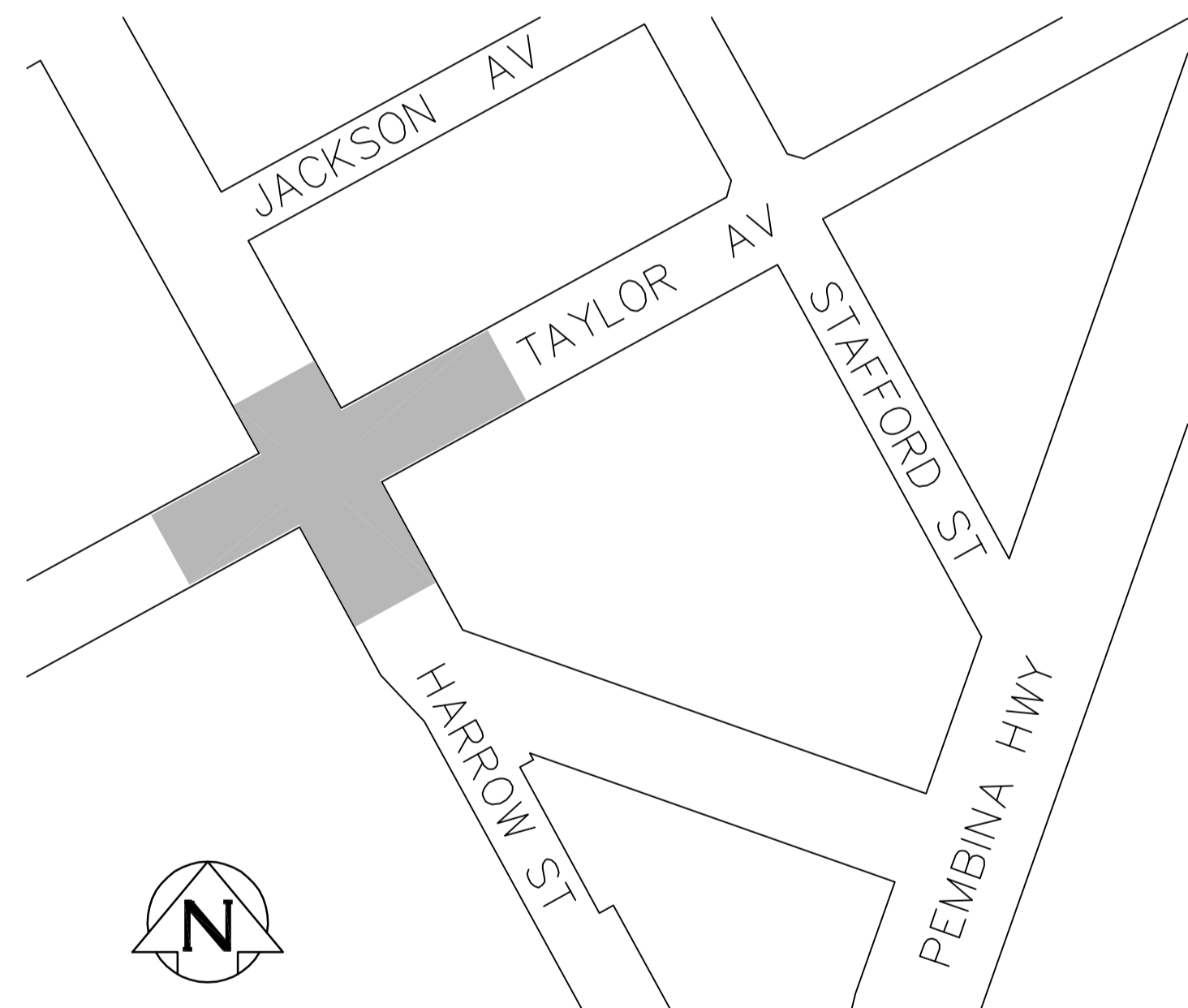


THE CITY OF WINNIPEG

WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

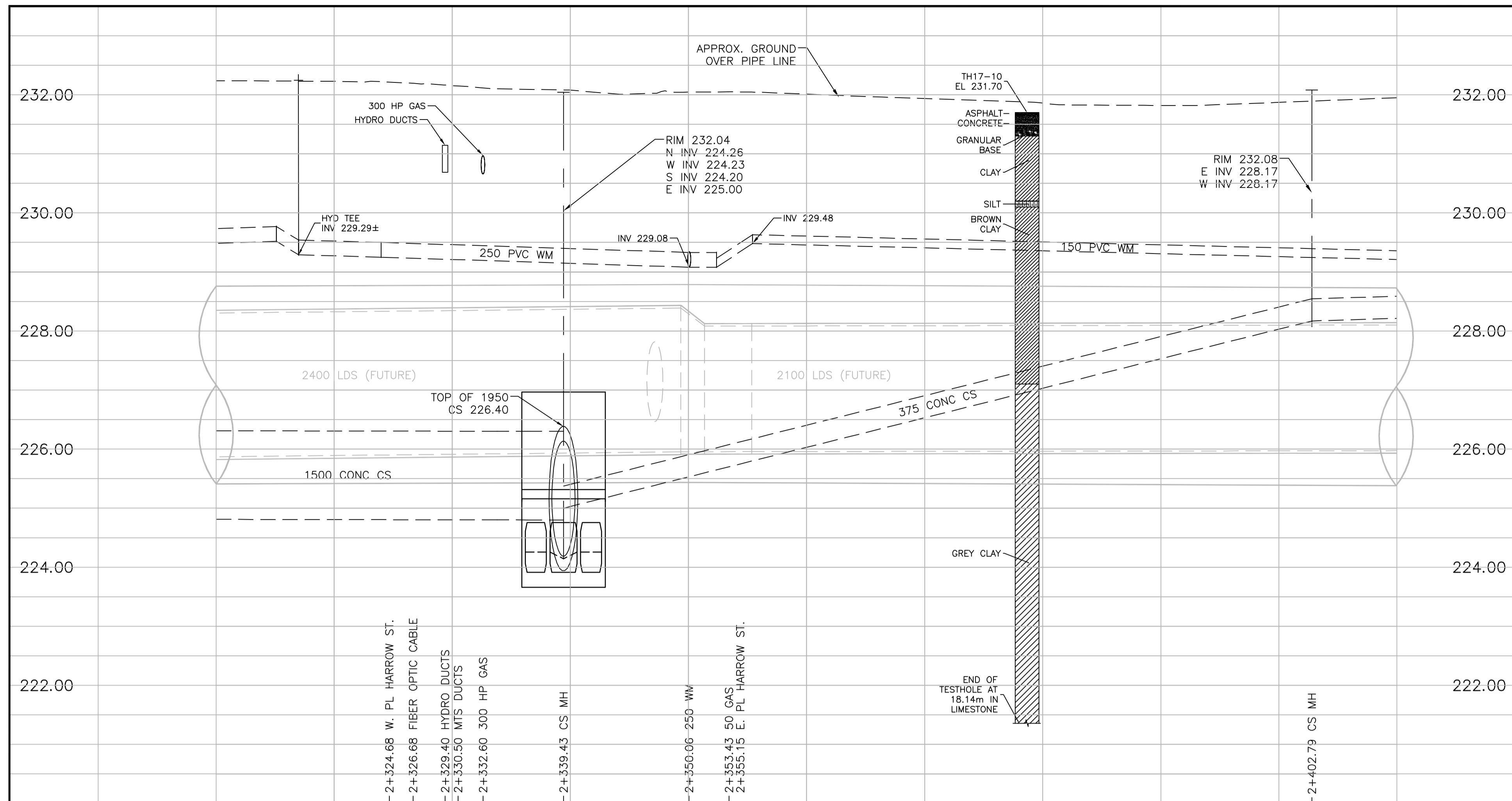
HARROW STREET COMBINED SEWER MODIFICATIONS
COCKBURN AND CALROSSIE COMBINED
SEWER RELIEF WORKS – CONTRACT 5A

BID OPPORTUNITY 725-2018



DRAWING INDEX

SHEET NUMBER	CONSULTANT DRAWING NUMBER	CITY DRAWING NUMBER	DRAWING TITLE
1	D-010	LD-8589	COVER
2	C-260	LD-8590	TAYLOR AVENUE – HARROW STREET INTERSECTION
3	C-261	LD-8591	HARROW STREET – TAYLOR AVENUE INTERSECTION
4	S-505	LD-8592	STRUCTURAL – MODIFICATION OF EXISTING 1950 SEWER SHEET 1 OF 2
5	S-506	LD-8593	STRUCTURAL – MODIFICATION OF EXISTING 1950 SEWER SHEET 2 OF 2



2+320 2+340 2+360 2+380 2+400

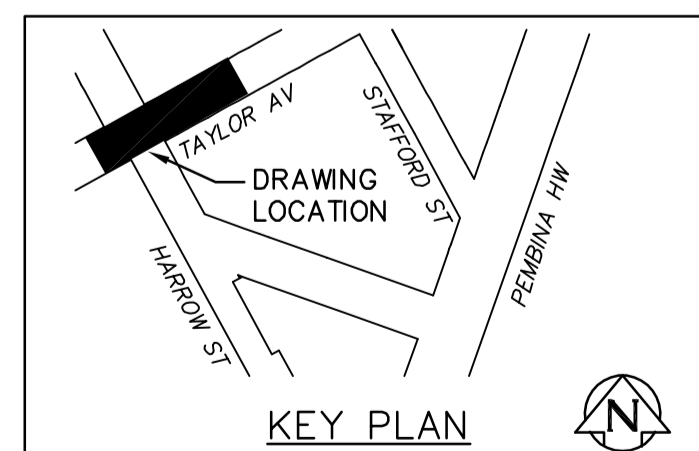
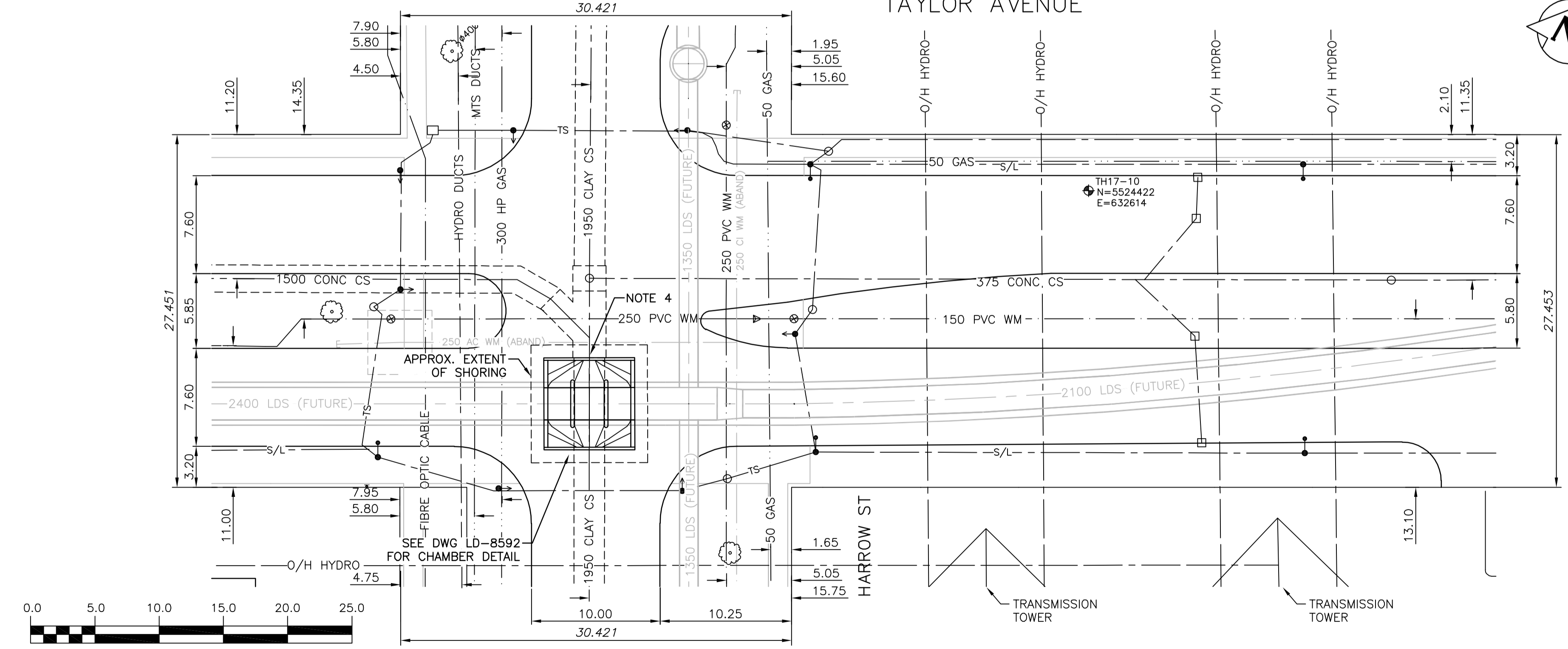
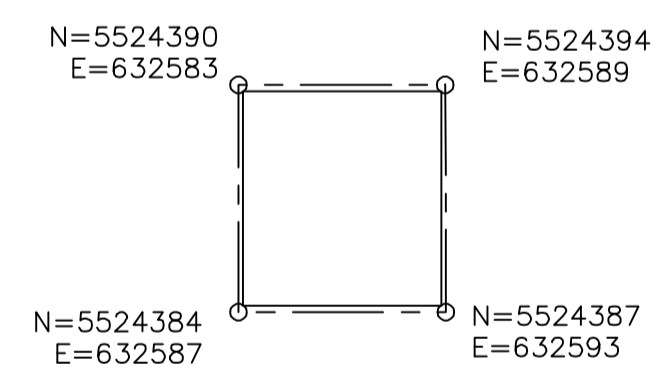
TAYLOR AVENUE

WARNING
 IF POWER EQUIPMENT OR EXPLOSIVES ARE TO BE USED FOR EXCAVATION ON THIS PROJECT THE CONTRACTOR MUST:
 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

PROPERTY LIMITS DELINEATION
 DELINEATION OF PROPERTY LIMITS AS SHOWN ON THIS DRAWING DOES NOT REPRESENT A "LEGAL SURVEY". CH2M HILL MAKES NO REPRESENTATION OR WARRANTY AS TO THE ACCURACY OF PROPERTY LIMITS DELINEATED ON THIS DRAWING, NOR ON THE DIMENSIONAL ACCURACY OF DRAWING FEATURES RELATIVE TO THOSE PROPERTY LIMITS.

- CONSTRUCTION NOTES:**
- SEWER AND WATER SERVICES SHOWN ON DRAWING ARE APPROXIMATE ONLY.
 - LOCATION OF ALL SEWER AND WATER LINES TO BE CONFIRMED IN FIELD.
 - TRAFFIC MANAGEMENT PLAN TO BE IMPLEMENTED AS PER SPECIFICATIONS.
 - HYDRO EXCAVATE CONCRETE WYE SECTION TO DETERMINE SOUTH EXTENT PRIOR TO CONSTRUCTION.

CHAMBER COORDINATES
 (TO OUTSIDE FACE OF CONC)



File name: C:\pwworkdir\ch2mhill\wbgs\jcoritez\1\0440452\

150 WM	WATER MAIN	150 WM	HYDRO	150 WM	WATER MAIN	150 WM
+	HYDRANT	+	M.T.S.	+	HYDRANT, VALVE	+
⊗	VALVE	⊗	CONCRETE	⊗	LAND DRAINAGE SEWER	⊗
⊗	LAND DRAINAGE SEWER	⊗	ASPHALT	⊗	WASTE WATER SEWER	⊗
⊗	WASTE WATER SEWER	⊗	SIDEWALK	⊗	CENTRELINE	⊗
○	MANHOLE	○	PLANNING	○	NORTH/WEST GUTTER	○
□	CATCH BASIN	□	PROPERTY LINE	○	SOUTH/EAST GUTTER	○
▽	CURB INLET	▽	SURVEY BAR	◇, ○	N/W, S/E R'S	◇, ○
∩	BEND	∩	GAS			
∩	REDUCER	∩	CURB STOP			
J	TEE	J	TEE			
EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PLAN	PROPOSED	EXISTING
				LEGEND-PROFILE		

LOCATION APPROVED UNDERGROUND STRUCTURES
 SUPV. U/G STRUCTURES COMMITTEE DATE
 NOTE:
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NO.	REVISIONS	DATE	BY
1	RE-ISSUED FOR TENDER	08/2018	JBC
0	ISSUED FOR TENDER	08/2018	JBC

KGS GROUP CONSULTING ENGINEERS

DESIGNED BY: SDG CHECKED BY: MD
 DRAWN BY: JBC APPROVED BY: RH

HOR. SCALE: 1:250
 VERTICAL: 1:50

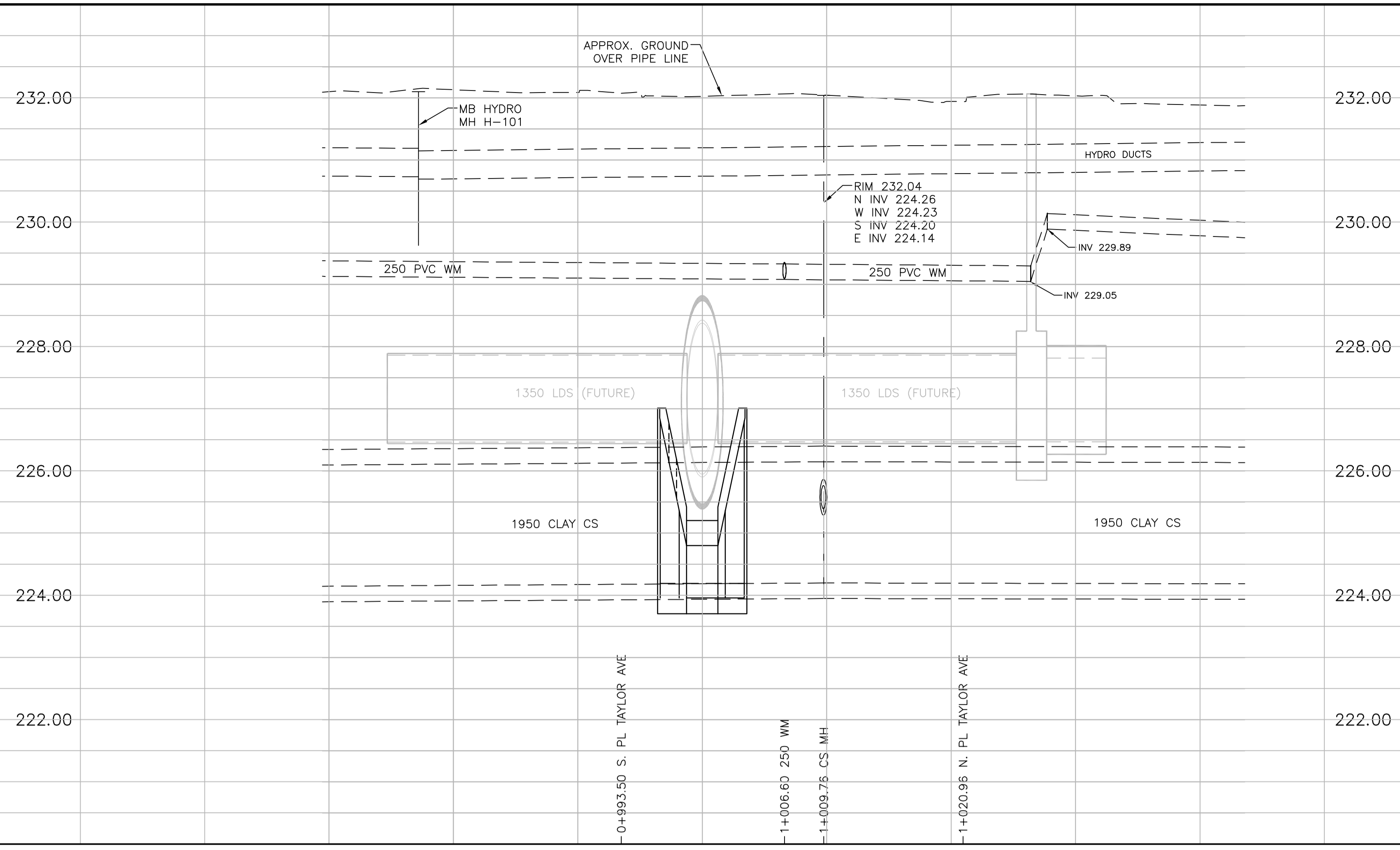
RELEASED FOR CONSTRUCTION: SC
 DATE: 08/07/2018

ENGINEER'S SEAL
 ORIGINAL SIGNED BY M.R. DRAPER DATED 8/3/2018
 CONSULTANT DRAWING NO. C-260

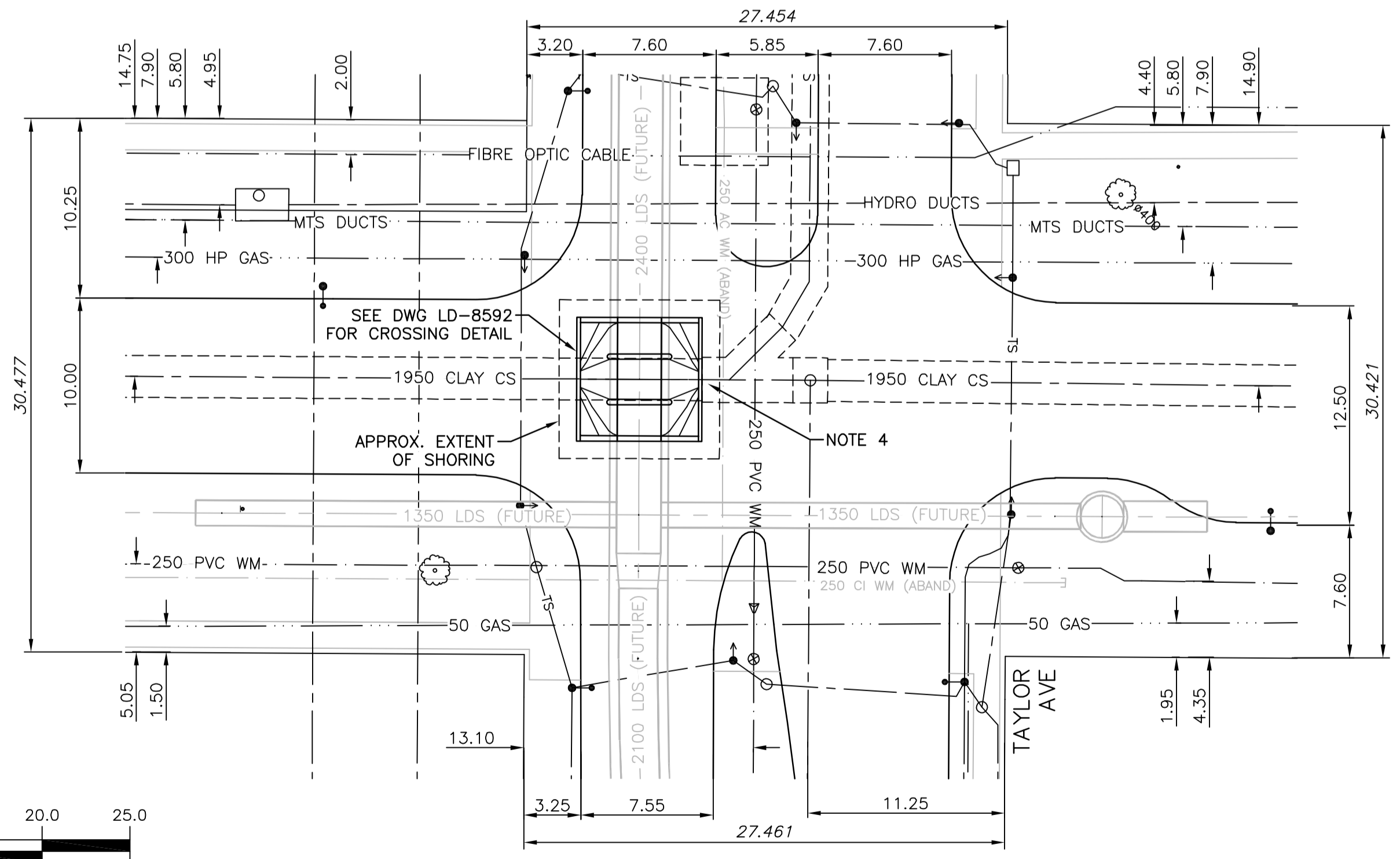
THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT

PROJECT TITLE: COCKBURN AND CALROSSIE COMBINED SEWER RELIEF WORKS - CONTRACT 5A
 TAYLOR AVENUE HARROW ST INTERSECTION

SHEET OF 2 OF 5
 COMPUTER FILE NAME: C-260.dwg
 CITY DRAWING NUMBER: LD-8590



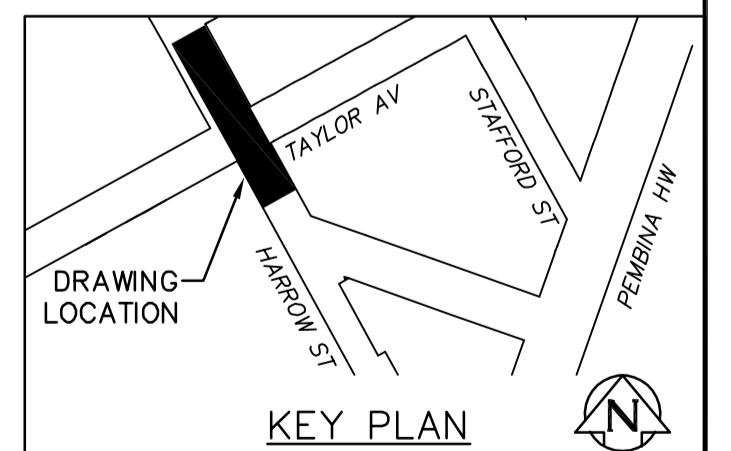
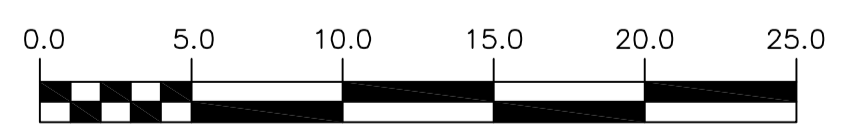
HARROW STREET



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 - HYDRO EXCAVATE CONCRETE WYE SECTION TO DETERMINE SOUTH EXTENT PRIOR TO CONSTRUCTION.



APEGM
 Certificate of Authorization
 CH2M HILL Canada Ltd.
 No. 1441

150 WM	WATER MAIN	150 WM	HYDRO	150 WM	WATER MAIN	150 WM
+	HYDRANT	+	M.T.S.	+	HYDRANT, VALVE	+
⊗	VALVE	⊗	CONCRETE	⊗	LAND DRAINAGE SEWER	⊗
⊗	LAND DRAINAGE SEWER	⊗	ASPHALT	⊗	WASTE WATER SEWER	⊗
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○	MANHOLE	○	PLANNING	○	NORTH/WEST GUTTER	○
□	CATCH BASIN	□	PROPERTY LINE	○	SOUTH/EAST GUTTER	○
▽	CURB INLET	▽	SURVEY BAR	◇, ○	N/W, S/E P'S	◇, ○
∩	BEND	∩	GAS			
∩	REDUCER	∩	CURB STOP			
J	TEE	J	TEE			
EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PLAN	PROPOSED	EXISTING
				LEGEND-PROFILE		

LOCATION APPROVED UNDERGROUND STRUCTURES
 SUPV. U/G STRUCTURES COMMITTEE DATE
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B.M. ELEV.			
NO.	REVISIONS	DATE	BY
1	RE-ISSUED FOR TENDER	08/2018	JBC
0	ISSUED FOR TENDER	08/2018	JBC

KGS GROUP CONSULTING ENGINEERS

DESIGNED BY: SDG
 DRAWN BY: JBC
 CHECKED BY: MD
 APPROVED BY: RH
 HOR. SCALE: 1:250
 VERTICAL: 1:50
 RELEASED FOR CONSTRUCTION: SC
 DATE: 08/07/2018

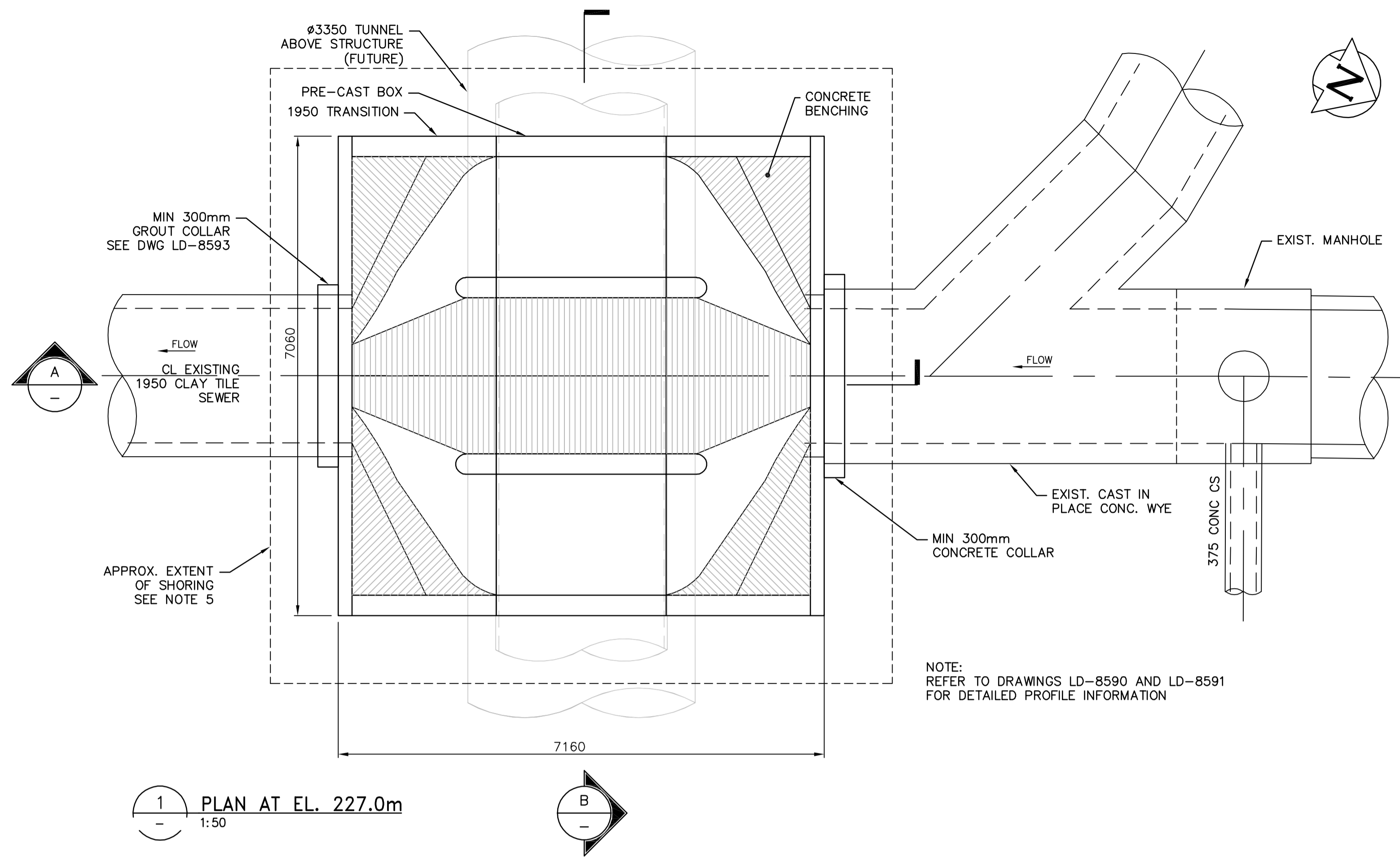
ENGINEER'S SEAL
 ORIGINAL SIGNED BY M.R. DRAPER DATED 8/3/2018
 CONSULTANT DRAWING NO. C-261

THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT

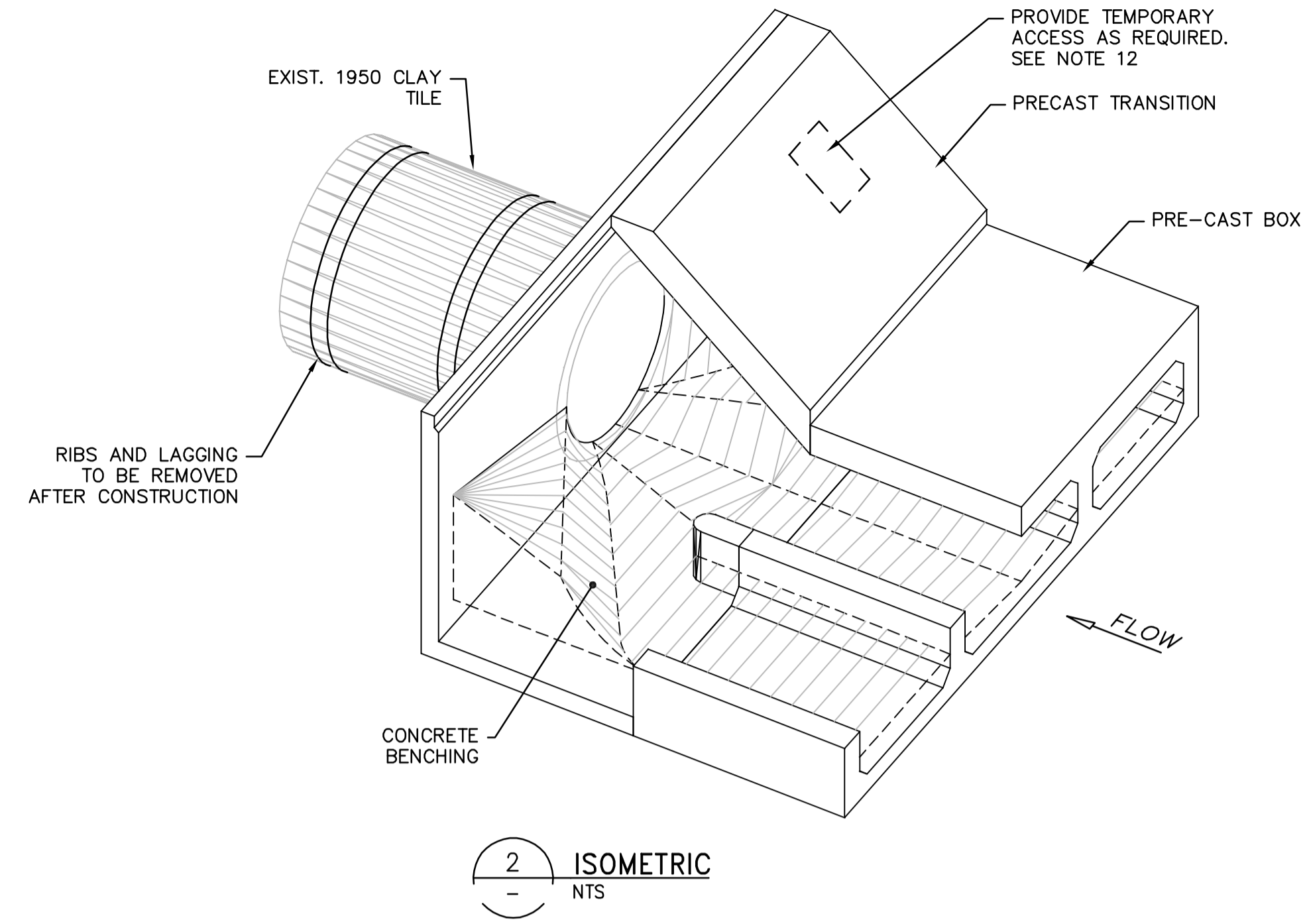
PROJECT TITLE: COCKBURN AND CALROSSIE COMBINED SEWER RELIEF WORKS - CONTRACT 5A
 HARROW STREET TAYLOR AVENUE INTERSECTION

SHEET OF 3 OF 5
 COMPUTER FILE NAME: C-261.dwg
 CITY DRAWING NUMBER: LD-8591

File name: C:\pw_workdir\ch2mhill_wbg\jcoritez\1d0440452\



1 PLAN AT EL. 227.0m
1:50



2 ISOMETRIC
NTS

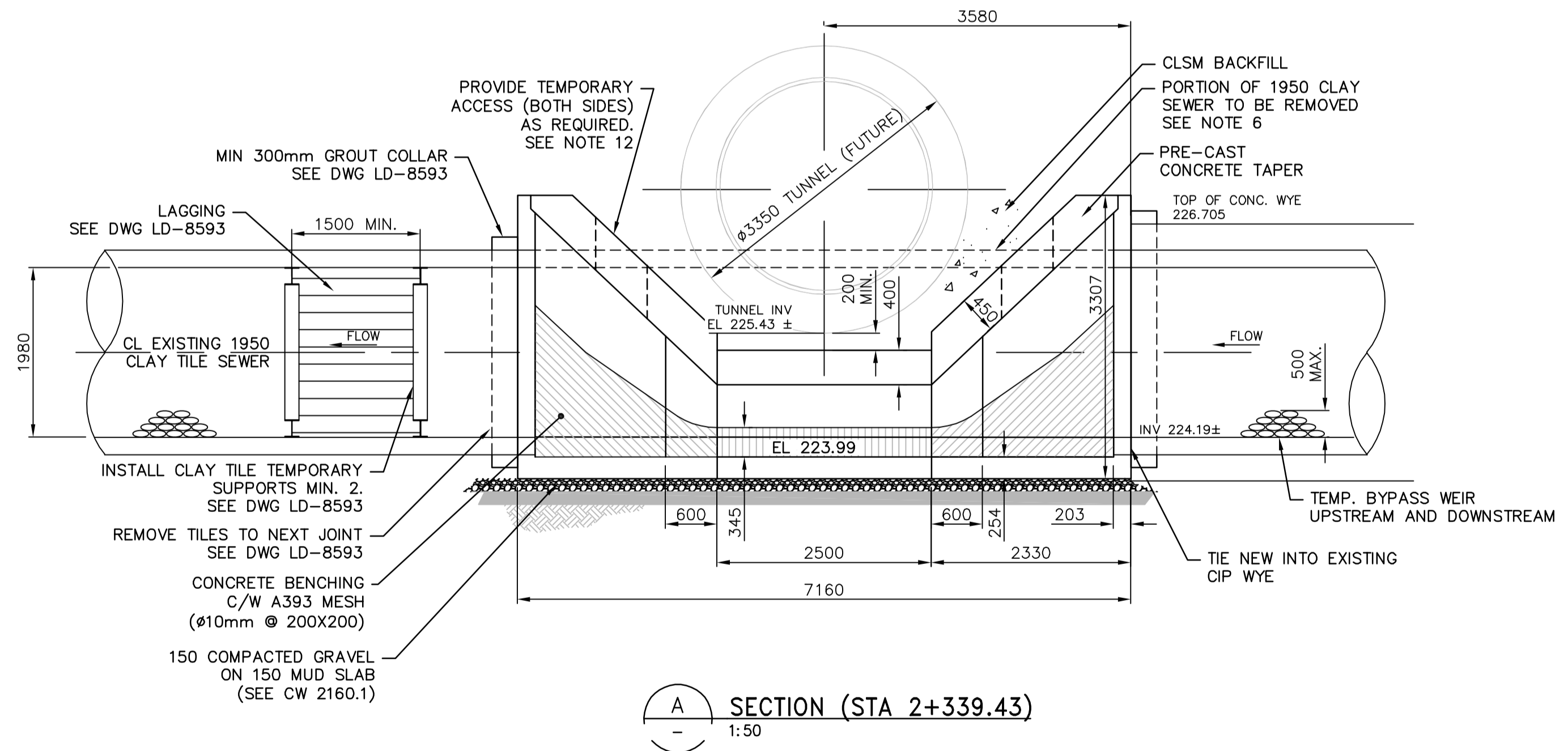
NOTE: REFER TO DRAWINGS LD-8590 AND LD-8591 FOR DETAILED PROFILE INFORMATION

CONSTRUCTION NOTES:

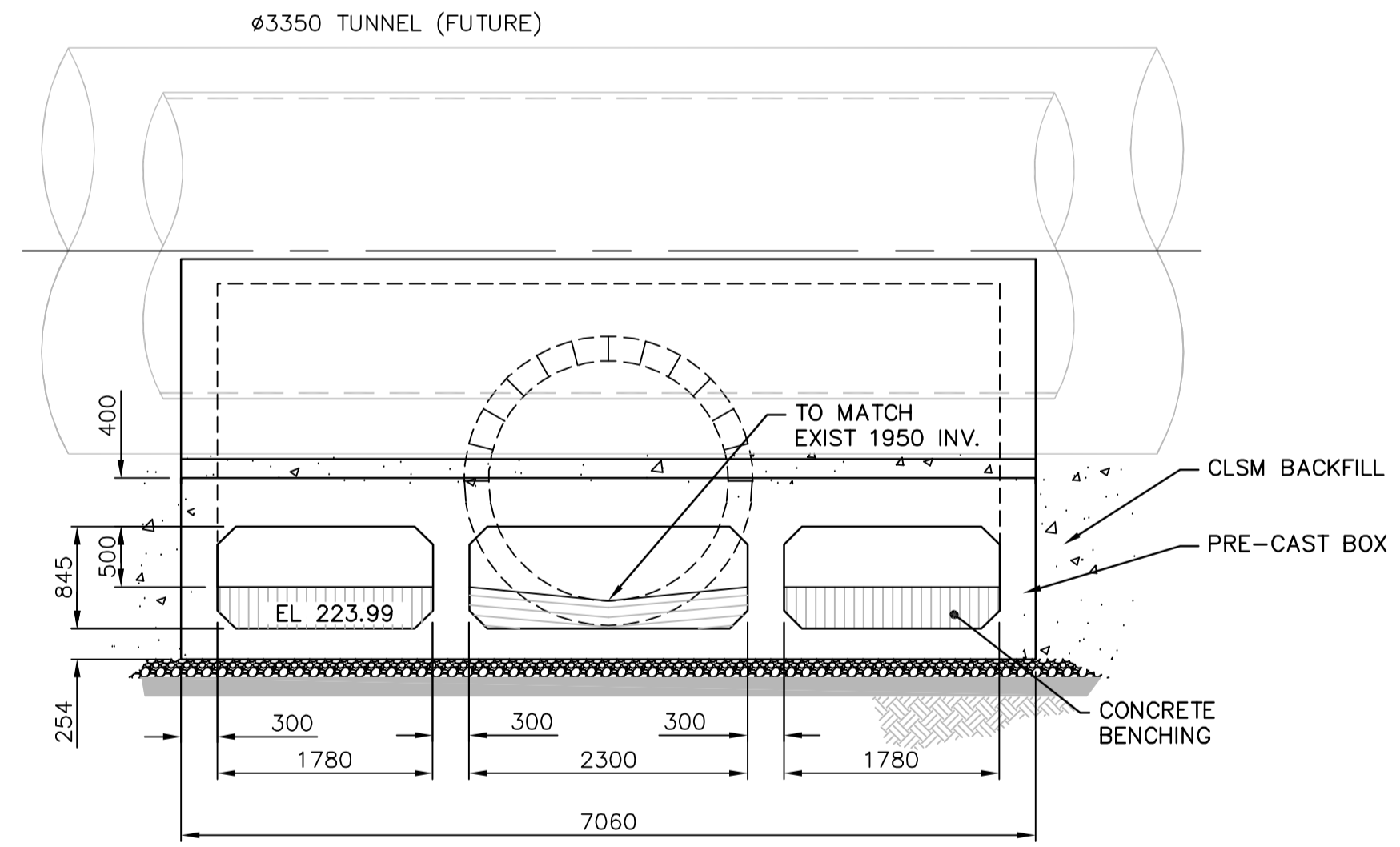
- SEWER AND WATER SERVICES SHOWN ON DRAWING ARE APPROXIMATE ONLY.
- LOCATION OF ALL SEWER AND WATER LINES TO BE CONFIRMED IN FIELD.
- DRY WEATHER CONSTRUCTION ONLY.
- TRAFFIC MANAGEMENT PLAN TO BE IMPLEMENTED AS PER SPECIFICATIONS.
- CONTRACTOR TO DESIGN TEMPORARY SHORING WORKS, SEE TRAFFIC RESTRICTIONS WITHIN THE DETAIL SPECIFICATIONS FOR CONSTRAINTS.
- CONTRACTOR TO TEMPORARILY SUPPORT CLAY TILES DURING INSTALLATION.
- CONTRACTOR TO PROVIDE TEMPORARY BYPASS PUMPING.
- PRE-CAST CONCRETE STRUCTURES IN ACCORDANCE WITH B7.
- PRE-CAST UNITS TO BE SEALED WATER TIGHT IN ACCORDANCE WITH PRE-CAST MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR TO ENSURE STRUCTURE HAS BEEN DESIGNED FOR TEMPORARY LOADS FROM TBM AND LONG TERM PERMANENT LOADINGS. CONTRACTOR TO PROVIDE SHOP DRAWINGS SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN MANITOBA.
- MINIMUM FINAL CROSS SECTION FLOW AREA OF 3.0m² WITH FINAL BENCHING IN PLACE.
- DOWNSTREAM MANHOLE LOCATED 72m SOUTH OF INTERSECTION.

RECOMMENDED CONSTRUCTION SEQUENCE

- INSTALL TEMPORARY BYPASS PUMPING FOR SANITARY FLOWS.
- SUPPORT EXISTING TILE SEWER AT EXTENT OF EXCAVATION.
- EXPOSE EXISTING CLAY TILE SEWER AND CONFIRM LOCATION AND DIMENSIONS.
- DEWATER EXCAVATION TO A MIN. 300mm BELOW SUBGRADE.
- EXCAVATE AND REMOVE EXISTING TILE SEWER WITHIN WORKING LIMITS.
- PREPARE SUBGRADE.
- INSTALL PRECAST UNITS AND CAST COLLAR.
- INSTALL BENCHING AND GROUT GAPS WITHIN THE TILES AT THE UP AND DOWNSTREAM LOCATIONS.
- REMOVE TEMPORARY BYPASS PUMPS.
- BACKFILL WITH CLSM TO UNDERSIDE OF ROAD SUBGRADE.
- REINSTATE TAYLOR AVENUE.



A SECTION (STA 2+339.43)
1:50



B SECTION
1:50

LOADING SCENARIOS

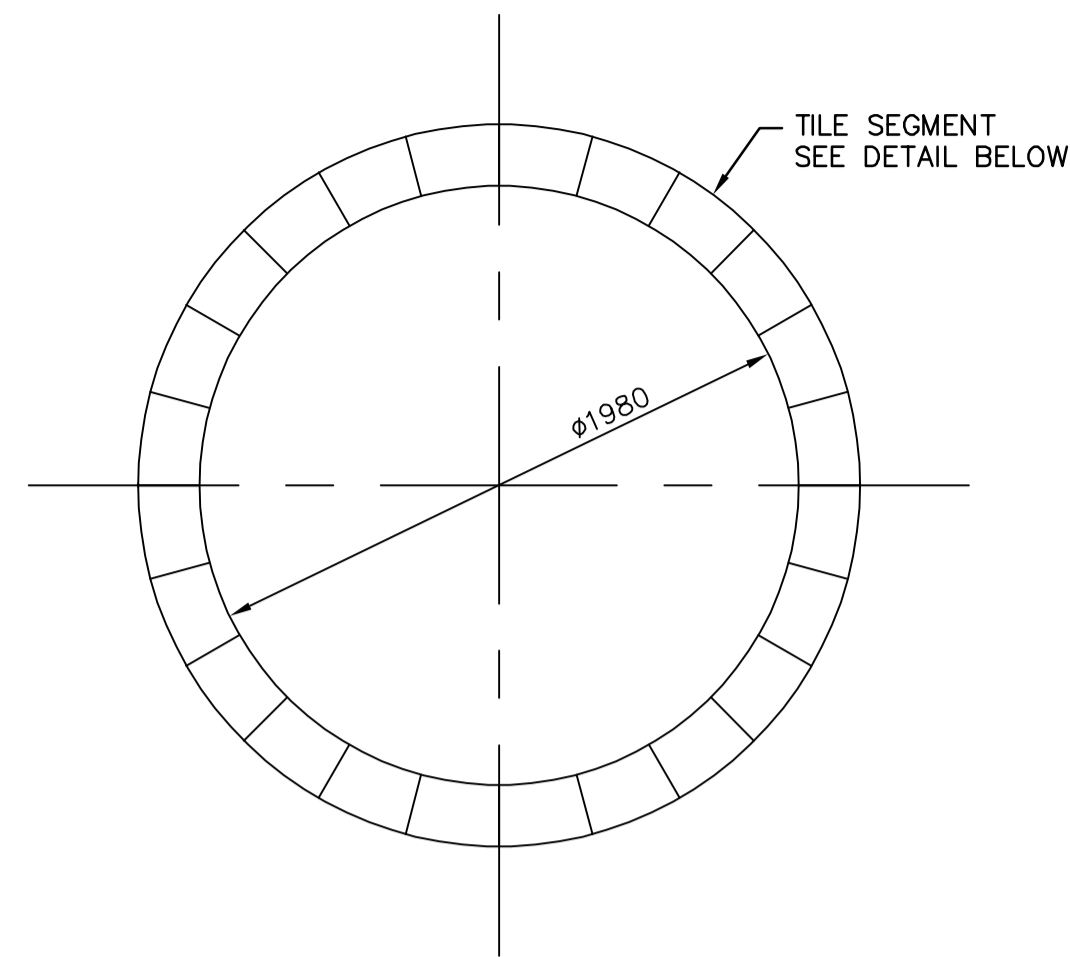
- DEAD LOADS: CLSM BACKFILL. LIVE LOADS: TRAFFIC.
- DEAD LOADS: CLSM BACKFILL. LIVE LOADS: TBM* AND TRAFFIC.
- DEAD LOADS: CLSM BACKFILL + PIPE WEIGHT - PIPE VOID. LIVE LOADS: TRAFFIC.
- DEAD LOADS: CLSM BACKFILL + PIPE WEIGHT + FULL PIPE WATER. LIVE LOADS: TRAFFIC.

ALL SCENARIOS SUBJECT TO UPLIFT AND SANITARY SEWER FLOWS
*TBM ASSUMED LOAD 50000 Kg, REFER TO E1.4 FOR ADDITIONAL INFORMATION.

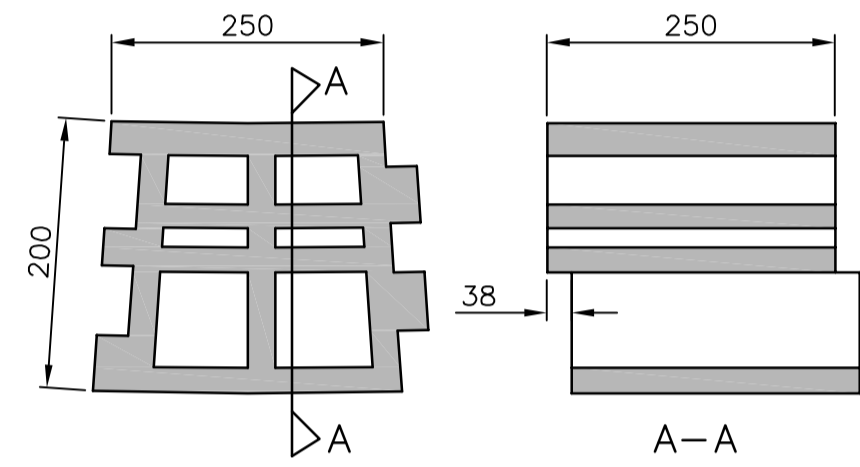
APEGN
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CH2M HILL Canada Ltd.
No. 1441

B.M. ELEV.		KGS GROUP CONSULTING ENGINEERS	ch2m	ENGINEER'S SEAL	Winnipeg THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT	SHEET OF 4 OF 5
		DESIGNED BY MD	CHECKED BY ES	ORIGINAL SIGNED BY M.R. DRAPER DATED 8/3/2018	PROJECT TITLE COCKBURN AND CALROSSIE COMBINED SEWER RELIEF WORKS - CONTRACT 5A	COMPUTER FILE NAME S-505.dwg
		DRAWN BY JBC	APPROVED BY RH		STRUCTURAL MODIFICATION OF EXISTING 1950 SEWER	CITY DRAWING NUMBER LD-8592
1	RE-ISSUED FOR TENDER	08/2018	JBC	HOR. SCALE: AS NOTED	RELEASED FOR CONSTRUCTION: SC	
0	ISSUED FOR TENDER	08/2018	JBC	VERTICAL: -	DATE 08/07/2018	
NO. REVISIONS	DATE	BY	DATE	DATE	DATE	
					CONSULTANT DRAWING NO. S-505	

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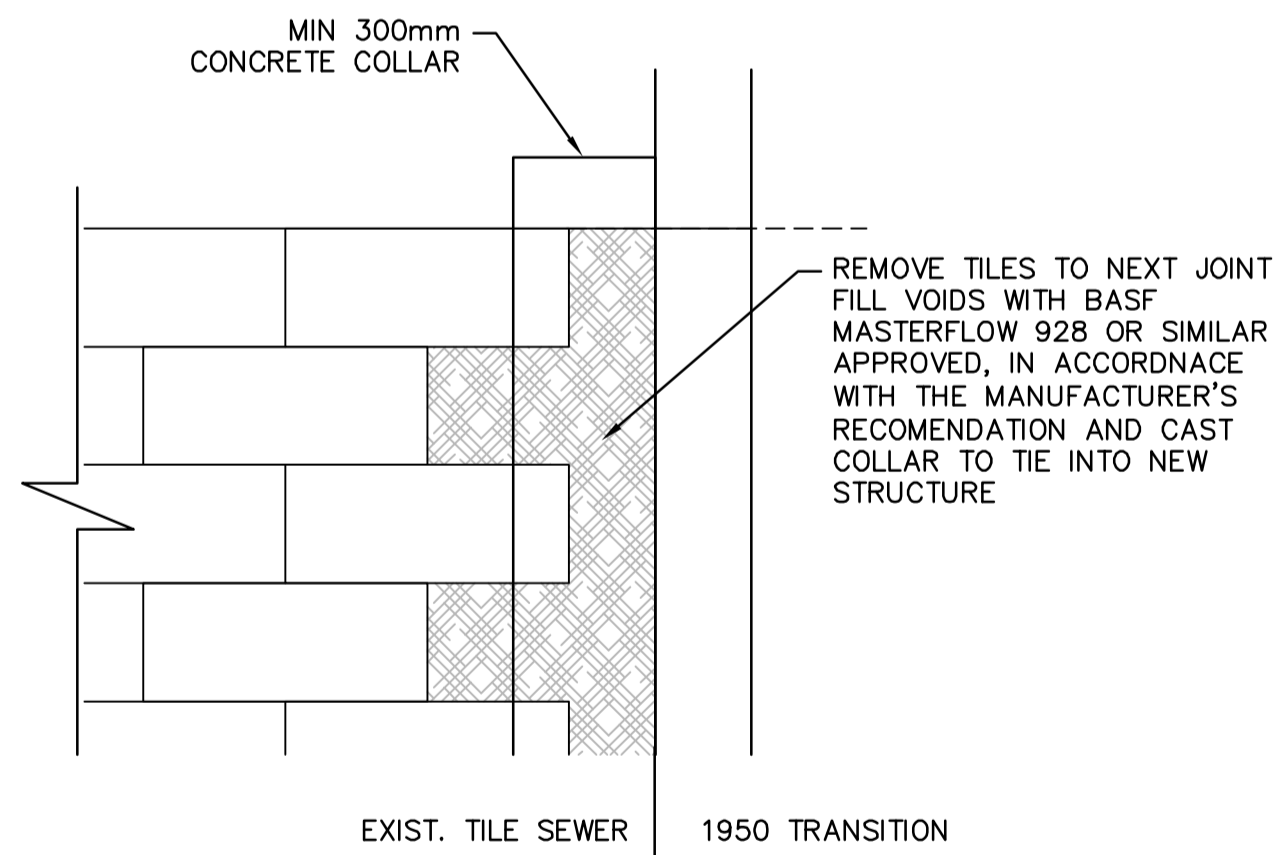
CROSS SECTION OF SEGMENTAL TILE SEWER 1950 ID



TILE SEGMENT

NOTE: DIMENSIONS TO BE CONFIRMED IN FIELD

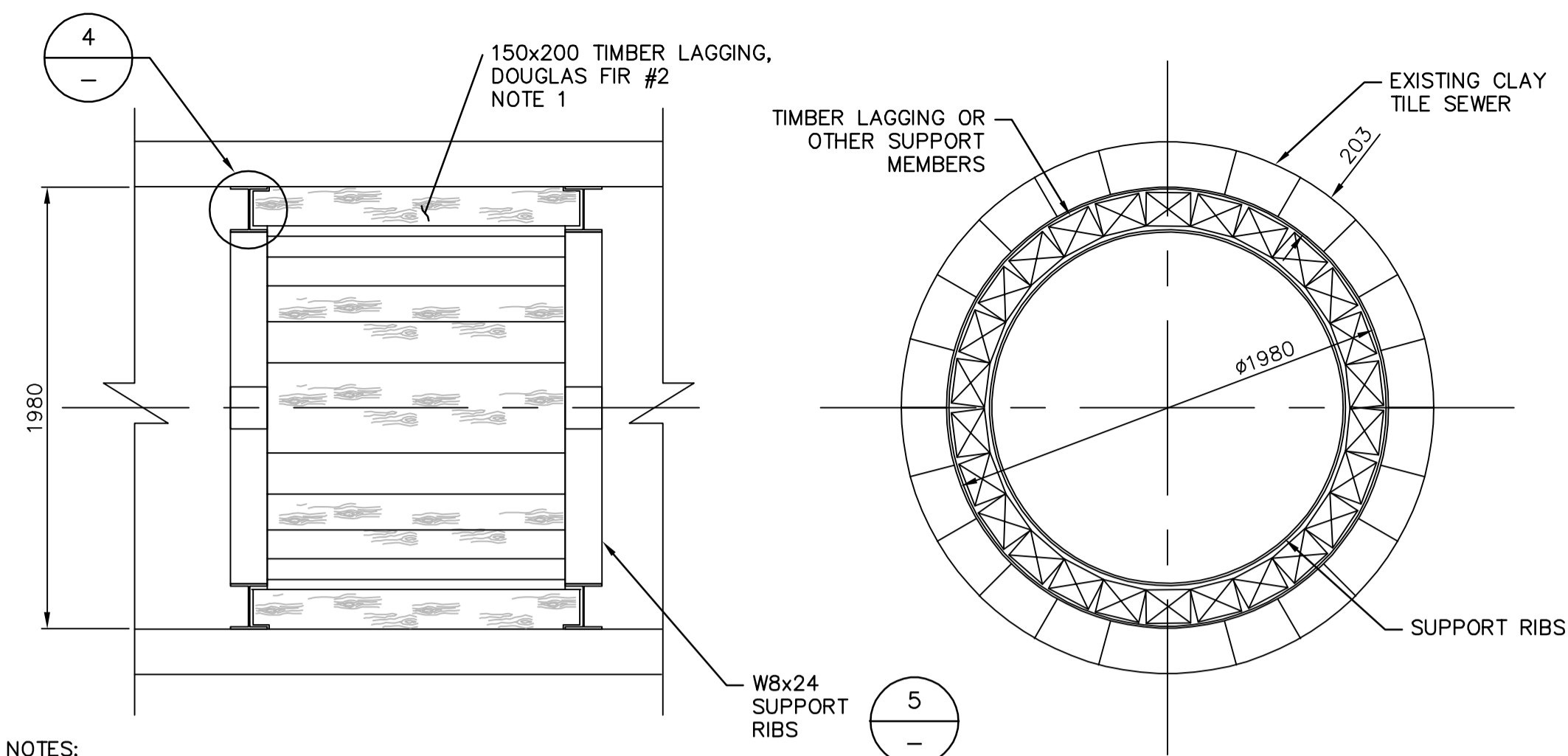
1 TILE SEGMENT DETAIL
NTS



6 DETAIL
NTS



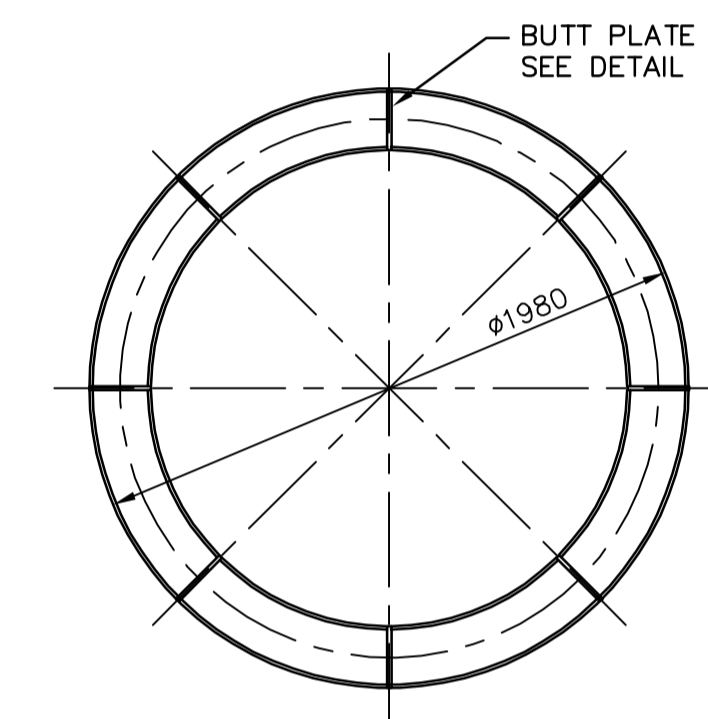
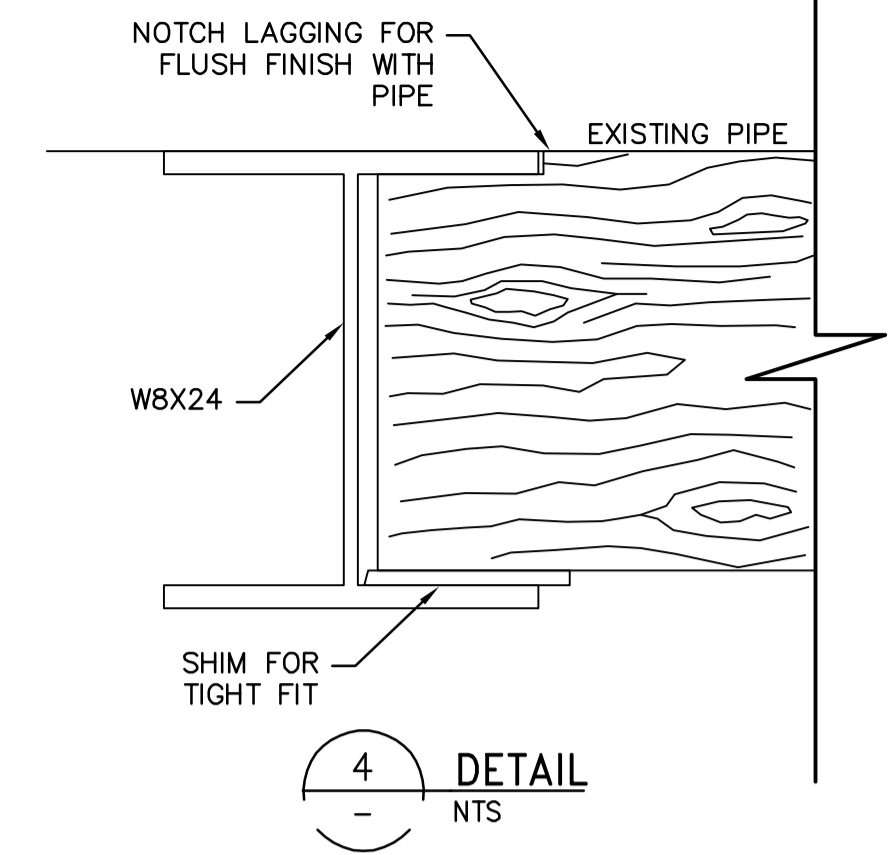
2 EXISTING CCTV INSPECTION
NTS



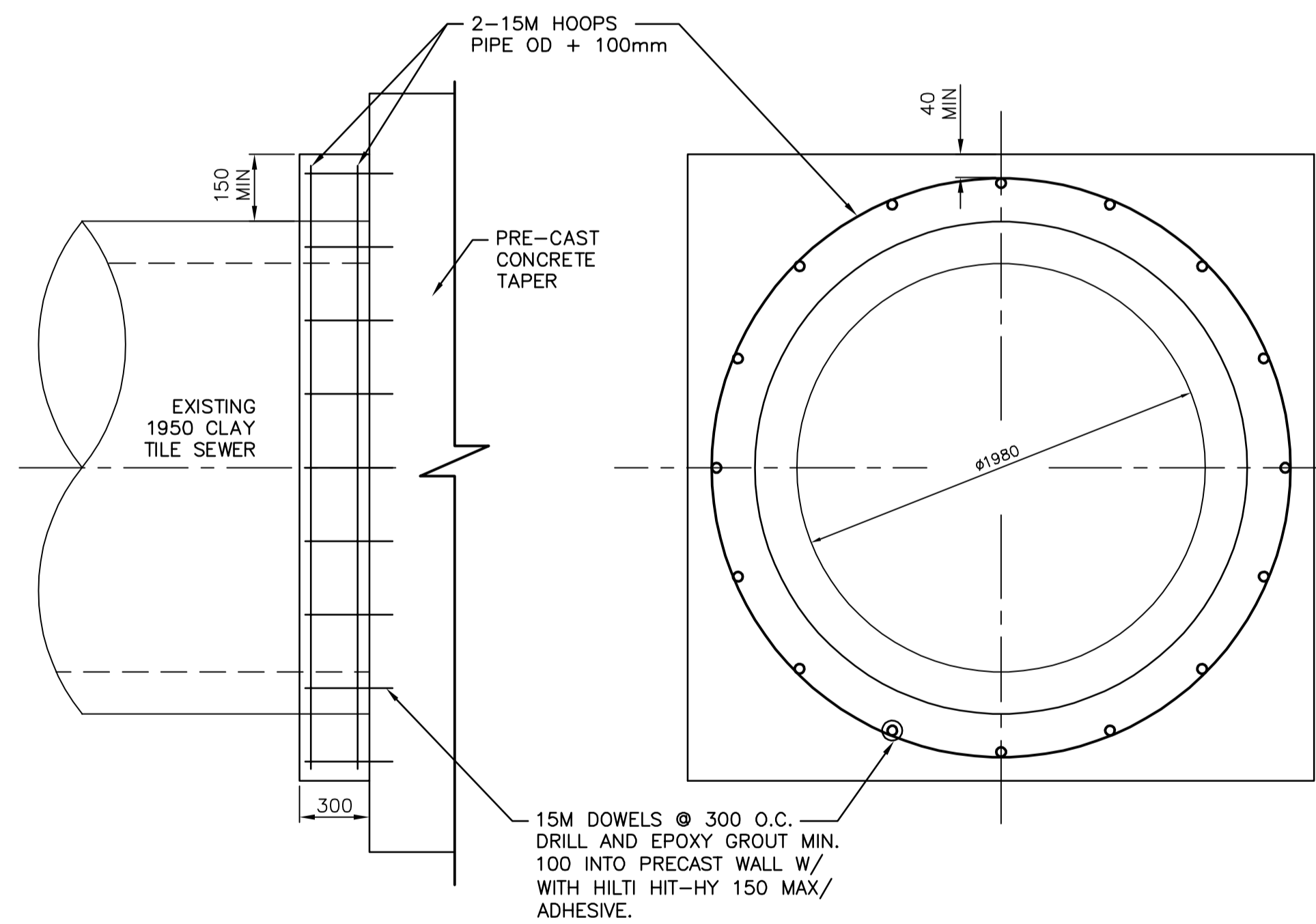
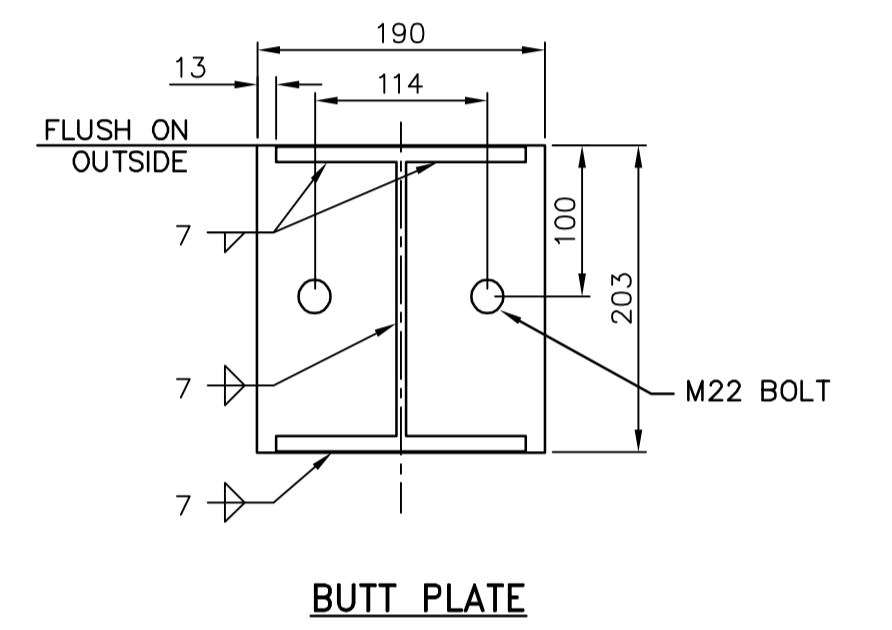
NOTES:

- ENSURE LAGGING FITS TIGHT AGAINST WALL OF EXISTING SEWER. PROVIDE SHIMS AS REQUIRED TO ACCOUNT FOR IRREGULARITIES IN THE EXISTING PIPE OR THE TIMBER LAGGING.

3 CLAY TILE SUPPORT DETAIL
1:50



5 8 PIECE RING OF W8x24
NTS



7 TYPICAL COLLAR DETAIL
NTS

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CH2M HILL Canada Ltd.
No. 1441

B.M. ELEV.		KGS GROUP CONSULTING ENGINEERS	ch2m	ENGINEER'S SEAL	 THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT	SHEET OF 5 OF 5
		DESIGNED BY MD	CHECKED BY ES	ORIGINAL SIGNED BY M.R. DRAPER DATED 8/3/2018		PROJECT TITLE COCKBURN AND CALROSSIE COMBINED SEWER RELIEF WORKS - CONTRACT 5A
		DRAWN BY JBC	APPROVED BY RH	CONSULTANT DRAWING NO. S-506	STRUCTURAL MODIFICATION OF EXISTING 1950 SEWER SHEET 2 OF 2	CITY DRAWING NUMBER LD-8593
1	RE-ISSUED FOR TENDER	08/2018	JBC			
0	ISSUED FOR TENDER	08/2018	JBC			
NO.	REVISIONS	DATE	BY	DATE	08/07/2018	