

2 PIPE INSULATION DETAIL

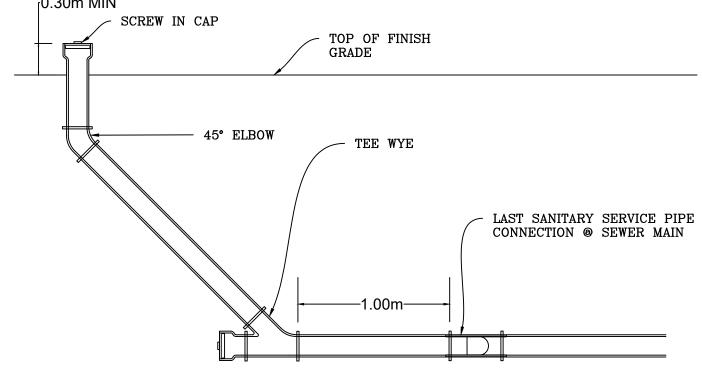
1. INCREMENTS OF THICKNESS SHALL BE 50MM

2. INSULATION TO BE STYROFOAM SM HI-40 OR EQUIVALENT.

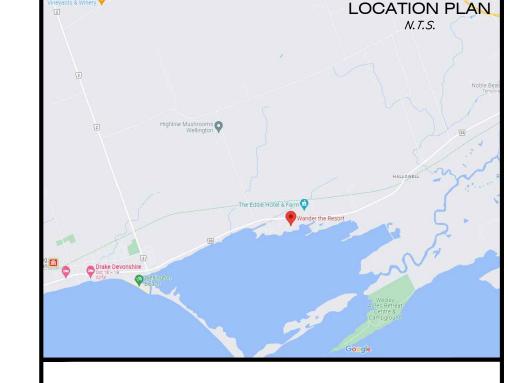
3. TO BE USED WHEN GROUND COVER IS LESS THAN 1.2m FOR STORM SEWER, 1.5m FOR SANITARY SEWER AND 1.7m FOR WATERMAIN.

PIPE INSULATION TABLE

GROUND COVER	INSULATION THICKNESS (mm)		
500 to 1500mm	100		
1500mm and over	50		



3 TYPICAL CLEAN OUT DETAIL



GROUNDWORK

EOTECHNICAL • CIVIL • STORMWATER • ONSITE WASTEWATER

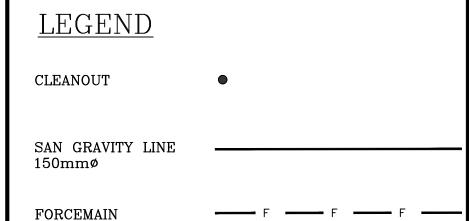
UNIT 640 - 654 NORRIS COURT

KINGSTON ONTARIO

OFFICE (613) 634-1789

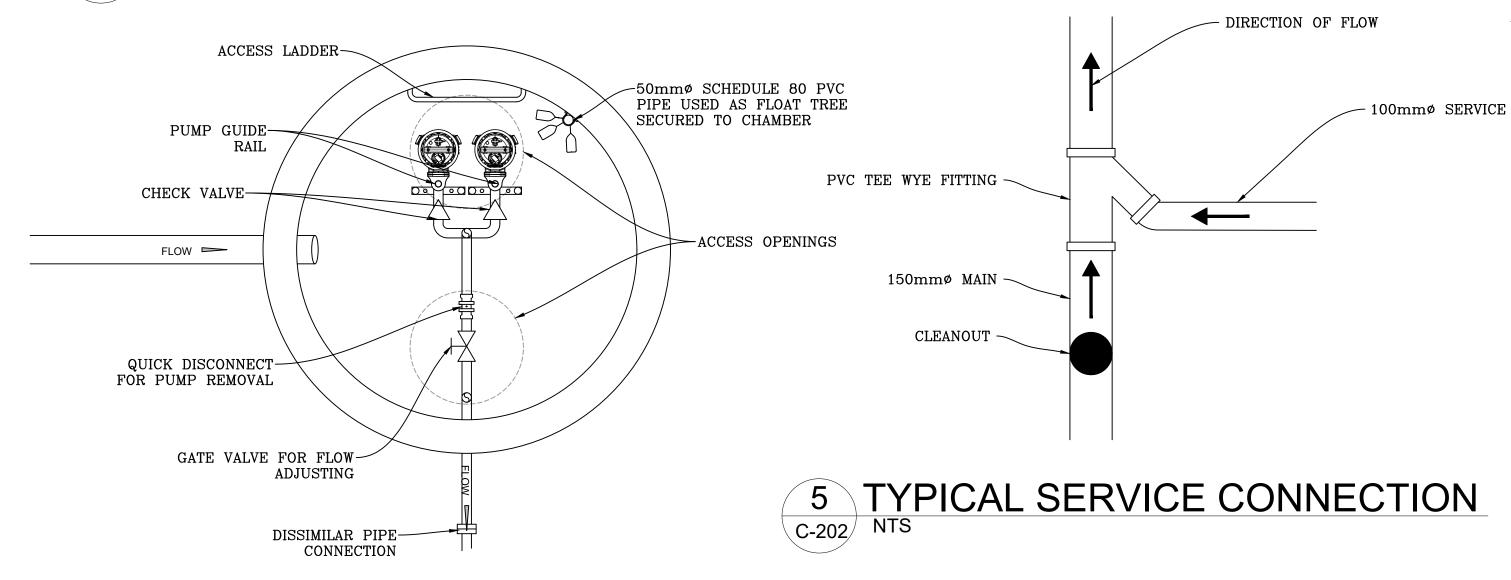
www.groundengineer.ca

ENGINEERING

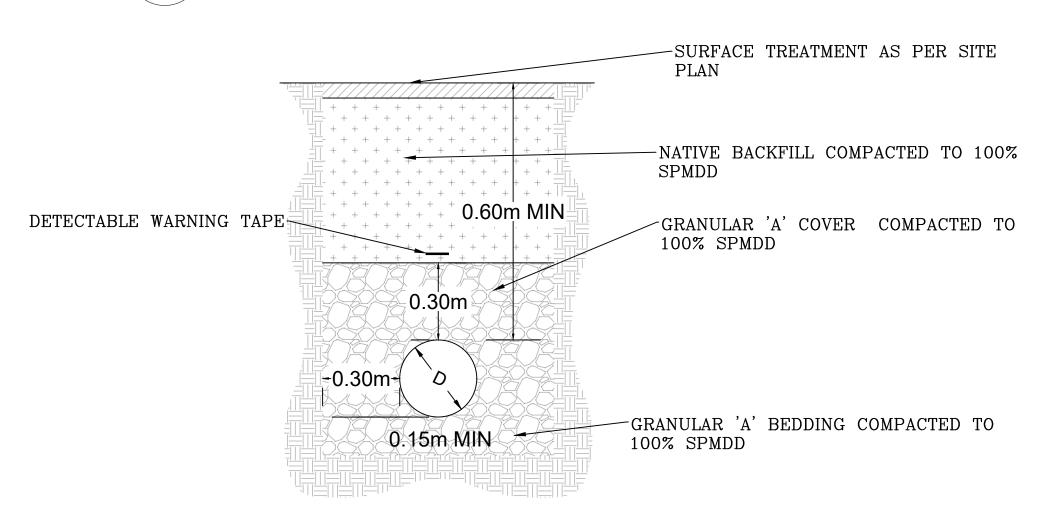


Т					
	REVIS	BIONS			
	No.	Desci	Date		
	1	ISSUED FO	OCT 12, 2023		
	2	ISSUED FOR C	OCT 13, 2023		
	3	ISSUED FOR FIN	FEB 26, 2024		
	4	PC 1 - CHANGED 1	FEB 29, 2024		
EL:					
	BEN	OFESSION			
	No.	DESCRIPTION	ELEVATION	A STATE OF THE STA	
)	##.	XXX	XXX.XX	LICENSED W	H. BURGER S
,				1.0	Musche)

DUPLEX PUMP CHAMBER DETAIL



4 TYPICAL DUPLEX PUMP DETAIL



6 TYPICAL SANITARY TRENCH DETAIL C-202 NTS

- THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, SIZE MATERIAL AND ELEVATIONS OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME ALL RESPONSIBILITY FOR EXISTING UTILITIES WHETHER OR NOT SHOWN ON THE DRAWINGS. IF THERE ARE ANY DISCREPANCIES THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY. GAS, HYDRO, CABLE, TELEPHONE, OR ANY OTHER UTILITY THAT MAY EXIST ON SITE MUST BE LOCATED BY ITS OWN UTILITIES AND VERIFIED.
- 2. ALL UNDERGROUND SERVICES, MATERIALS AND INSTALLATIONS TO BE IN ACCORDANCE WITH ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE STATED (OPSS).
- SEWER AND WATER WORKS WITHIN PROPERTY BOUNDARY GOVERNED BY ONTARIO
- 4. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED. ANY GRASSED AREAS DISTURBED ARE TO BE
- REINSTATED WITH MINIMUM 100MM TOPSOIL AND SEED. 5. THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT FOR CONSTRUCTION
- 6. CONTRACTOR TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS FROM THE COUNTY, MUNICIPALITY AND/OR CONSERVATION AUTHORITY PRIOR TO COMMENCING CONSTRUCTION.
- 7. ALL SEWER TRENCHING AND BEDDING SHALL CONFORM TO OPSD 802.010 AND 802.013 UNLESS NOTED OTHERWISE.
- 8. BEDDING SHALL BE A MINIMUM 150MM OF GRANULAR "A", COMPACTED TO MINIMUM 98% STANDARD PROCTOR DRY DENSITY. CLEAR STONE BEDDING SHALL NOT BE
- SUB-BEDDING, IF REQUIRED SHALL BE AS PER THE DIRECTION OF GEOTECHNICAL **ENGINEER**
- 10. BACKFILL TO AT LEAST 300MM ABOVE TOP OF PIPE WITH GRANULAR "A".
- 11. TO MINIMIZE DIFFERENTIAL FROST HEAVING, TRENCH BACKFILL (FROM PAVEMENT SUBGRADE TO 2 METRES BELOW FINISHED GRADE) SHALL MATCH EXISTING SOIL CONDITIONS.
- 12. SERVICES ARE TO BE RUN TO ALL SITES AS PER SITE SERVICING DETAIL ON SHEET C-202 ALONG SANITARY MAINS.

ENVIRONMENTAL

- 13. EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND MONITORED AND MAINTAINED BY THE CONTRACTOR UNTIL COMPLETION. THE TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE REMOVED ONCE THE SITE HAS BEEN STABILIZED AND SITE WORKS COMPLETED.
- 14. REGARDLESS OF SITE SPECIFIC ITEMS DETAILED ON THE PLANS, THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES TO SUIT THE PROPOSED WORK METHODS TO CONTROL SEDIMENT FROM RUNNING OFF THE SITE OR INTO WATER BEARING FEATURES PRIOR TO ANY DISTURBANCE. FOLLOWING CONSTRUCTION, DISTURBED AREAS, AS WELL AS PROPOSED GRASSED AND VEGETATED SURFACES SHALL BE REINSTATED.
- 15. IN THE EVENT THAT HUMAN REMAINS ARE ENCOUNTERED DURING CONSTRUCTION, THE MINISTRY OF CITIZENSHIP, CULTURE AND RECREATION SHALL BE NOTIFIED IMMEDIATELY AND THE REGISTRAR OR DEPUTY REGISTRAR OF THE CEMETARIES REGULATION UNIT OF THE MINISTRY OF CONSUMER AND COMMERCIAL RELATIONS (416) 362-8392, SHALL BE NOTIFIED IMMEDIATELY.
- 16. IN THE EVENT THAT BURIED ARCHEOLOGICAL REMAINS ARE FOUND DURING CONSTRUCTION ACTIVITIES, THE MINISTRY OF CITIZENSHIP, CULTURE AND RECREATION SHALL BE NOTIFIED IMMEDIATELY.
- 17. WHILE UNDERTAKING CLEARING, DEMOLITION, EXCAVATION OR CONSTRUCTION THE OWNER AND THEIR CONTRACTORS SHALL BE VIGILANT FOR THE POTENTIAL PRESENCE OF UNDERGROUND FUEL TANKS, CONTAMINATED SOIL OR GROUNDWATER, BURIED WASTE OR ABANDONED WATER WELLS. IF ANY OF THE ABOVE ARE ENCOUNTERED OR SUSPECTED, THE OWNER SHALL ENSURE THAT:
- WASTES HAVE BEEN DISCOVERED OR ARE SUSPECTED. 17.B. ANY SOIL OR GROUNDWATER CONTAMINATION ENCOUNTERED IS REMEDIATED
- TO APPLICABLE STANDARDS AS DEFINED WITHIN O.REG OR AS REVISED; 17.C. ANY WASTES GENERATED BY SITE CLEAN-UPS ARE MANAGED IN ACCORDANCE
- 17.A. THE LOCAL ENVIRONMENT DEPARTMENT IS ADVISED THAT CONTAMINANTS OR

- WITH APPLICABLE LAWS AND STANDARDS; ANY ABANDONED FUEL TANKS ENCOUNTERED ARE DECOMMISSIONED IN
- ACCORDANCE WITH APPLICABLE LAWS AND STANDARDS; 17.E. ANY UNUSED WATER WELLS (DRILLED OR DUG) ARE PROPERLY ABANDONED IN
- ACCORDANCE WITH ONTARIO REGULATIONS 903 WELLS OR AS ADVISED; IF IT APPEARS LIKELY THAT CONTAMINATION EXTENDS BEYOND THE
- BOUNDARIES OF THE SUBJECT PROPERTY, THE OWNER NOTIFIES THE LOCAL OFFICE OF THE MINISTRY OF ENVIRONMENT AND THE LOCAL AUTHORITIES ENVIRONMENTAL DEPARTMENT;
- 17.G. CONSTRUCTION WASTES ARE NOT TO BE BURIED WITHIN THE PROPERTY THAT IS THE SUBJECT OF THIS AGREEMENT, AND
- 17.H. THE OWNER AND THEIR CONTRACTORS REPORT ALL SPILLS TO THE MINISTRY OF THE ENVIRONMENT'S SPILLS ACTION CENTRE (1-800-268-6060) AND TO THE LOCAL AUTHORITY FORTHWITH.

- 18. CONSTRUCT ALL SEWER AND APPURTENANCES TO ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS.
- 19. SEWER TRENCHING AND BEDDING SHALL CONFORM TO OPSD 802.010 AND 802.013 UNLESS OTHERWISE NOTED.
- 20. SEWERS AND CONNECTIONS 100MM DIAMETER AND SMALLER TO BE PVC DR35 OR APPROVED EQUIVALENT. SEWERS AND CONNECTIONS OF 1500MM DIAMETER TO BE PVC DR35 OR APPROVED EQUIVALENT.
- 21. INSULATE ALL SEWERS/SERVICES THAT HAVE LESS THAN 1.5M OF COVER WITH THERMAL INSULATION AS PER DETAIL.
- 22. SANITARY CLEANOUT TO BE 100MM MIN. DIAMETER PVC SDR 28 WITH THREADED END CAP. TRANSITION FROM 100MM TO 150MM DIAMETER PRIOR TO TEE FITTING AT SEWER MAIN.
- 23. SANITARY SEWERS TO BE TESTED AS PER OPSS.
- 24. ALL TANKS SHALL BE RESISTANT TO GROUND WATER INFILTRATION. WATERPROOFING IS TO BE PROVIDED AS REQUIRED TO ENSURE NO GROUNDWATER INFILTRATION.
- 25. ANTI BUOYANCY MEASURES SHALL BE USED FOR ALL TANKS WHERE REQUIRED.
- 26. TANKS TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS AND
- 27. PUMP CHAMBER (PC1) TO HAVE A MINIMUM WORKING VOLUME OF 900L AND TO BE
- 28. SUBMERSIBLE DUPLEX SEWAGE PUMPS TO BE LIBERTY PUMPS LE50 SERIES MODEL
- LE51A, $\frac{1}{2}$ HP, 115V, 2" DISCHARGE OR EQUIVALENT WITH TDH 4.5m. 29. PUMPS TO BE EQUIPPED WITH AUDIBLE AND VISUAL HIGH WATER LEVEL ALARM.
- 30. CONTROL PANEL TO BE SJE RHOMBUS IFS SERIES SINGLE PHASE DUPLEX DEMAND DOSE CONTROL PANEL ENCASED IN WEATHERPROOF ENCLOSURE OR APPROVED EQUIVALENT.
- 31. CONTROL PANEL TO BE INSTALLED ON 100mm X 100mm X 1.5m PRESSURE TREATED WOOD POST ADJACENT TO PUMP CHAMBER OR ON WALL OF BUILDING FOR EASE OF MAINTENANCE. IF MOUNTED IN MECHANICAL ROOM, SEAL ALL DUCTS ENTERING BUILDING WITH EYS FITTING TO PREVENT GAS TRANSFER.
- 32. CONTRACTOR IS RESPONSIBLE FOR COMMISSIONING OF PUMPS.
- 33. ALL SERVICES FROM CABINS TO BE 100mmØ PVC DR35.
- 34. ALL CONNECTIONS TO 150mmØ SERWER MAIN TO BE WITH TEE WYE CONNECTION
- 35. ELECTRICAL TRENCH BEDDING MATERIAL TO BE MASONRY SAND OR APPROVED NATIVE SAND. BEDDING MATERIAL TO BE COMPACTED TO 100% SPMDD.
- 36. ALL ELECTRICAL WORK MUST BE COMPLETED IN ACCORDANCE WITH ELECTRICAL CODE & BE PREFORMED BY A LICENSED ELECTRICIAN IN GOOD STANDING WITH THE