



Water Treatment Pond Repair
Plan

May 6th, 2026

Miller Environmental Corporation
1803 Hekla Avenue
Winnipeg, MB
R2R 0K3

Miller Environmental Water Treatment Pond Repair Plan

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1. Overview

In 2024, a water treatment pond (WTP1) was constructed in the south-central portion of Miller's hazardous waste facility in St Jean Baptiste. The purpose of the pond is for the collection and treatment of wastewater from the site. The earthworks portion of the pond was completed in October of 2024 and the HDPE liner was completed on November 5th, 2024. On May 16th, 2025, it was observed by Miller field staff that the north slope of the pond had failed. In the subsequent weeks, sections of the east, west, and south slopes suffered failures also. In June 2025, Miller hired WSP Inc. to perform a slope failure back-analysis to determine a root cause and provide recommendations for repair options.

2. Summary of Repair Requirements

Reconstruct Slopes to 5H:1V

The recommended repair option involves flattening the existing 3H:1V slope to a 5H:1V slope, which yields a FOS of 1.35 when the pond is completely empty. To accomplish this, the slope locations in which the failures have occurred will need to be excavated to a point beyond the failure plane (slip surface) and then rebuilt at a slope of 5H:1V. The slope locations that have not failed will need to be extended from 3H:1V to 5H:1V.

Slope surfaces where clay will be placed should be benched such that the placement of new clay soils will knit the existing and new fill materials together. Minimum compaction value for the newly placed clay is to be 95% Standard Proctor Maximum Dry Density (SPMDD). All clay is to be of high-plasticity and approved by the onsite engineer.

3. Scope of work

The construction will involve excavating the failed portions of the pond slopes, rebuilding the failed slope sections to a 5H:1V ratio, and extending all intact 3H:1V slopes to 5H:1V. Associated equipment currently within the cell such as the aeration system, HDPE liner, and drainage piping are to be removed and replaced once the new slopes have been completed. The piping will be inspected and reused if possible. New 60 Mil HDPE liner will be installed in the pond, and the old liner will be repurposed for other temporary tasks at Miller's facility not related to long term containment.

Borrow Pit for Clay Supply

Extra material needed to extend the slopes will be mined from a 160 x 75 m borrow pit located south-west of the pond. Soil samples from test pits (TP-3 & TP-4 in **Figure 1** below) were tested by WSP's lab to confirm the presence of high plasticity clay in the area. The excavated overburden material will be used as cover for the existing repository cell or will remain within the borrow pit itself. The borrow pit will be constructed such that the floor is not more than 4 m below prairie elevation and the interior side slopes are at a slope of 5H:1V. A 1 m high perimeter berm will also be placed around the borrow pit to prevent runoff from entering the excavation and will act as a safety barrier. Open excavation signage will be placed around the borrow pit to inform workers in the area.

The borrow pit will be maintained with the intention of the excavation being utilized as a potential engineered repository space in the future. The conceptual layout of the borrow pit is shown in **Figure 1** below.

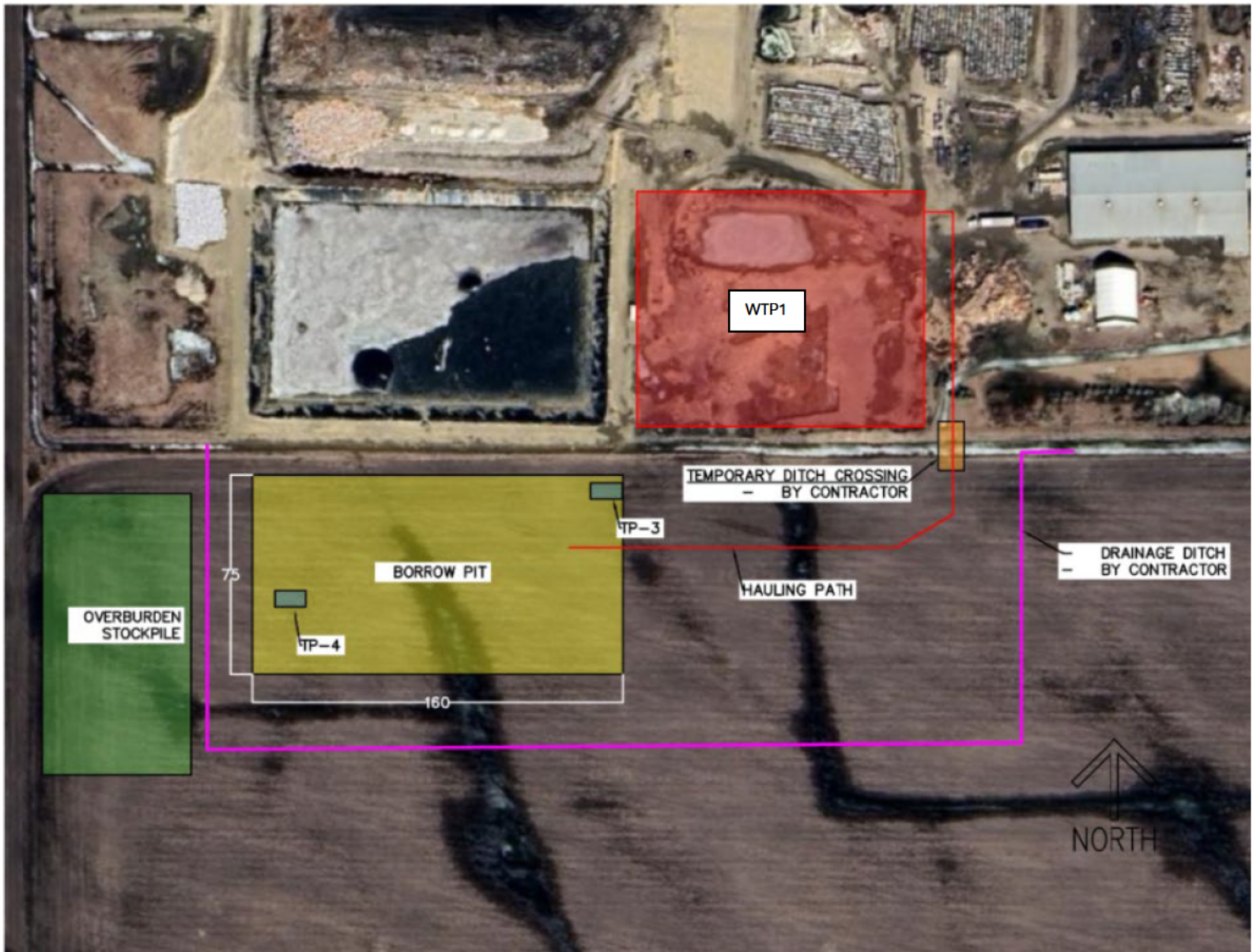
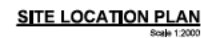


Figure 1: Borrow Pit Map

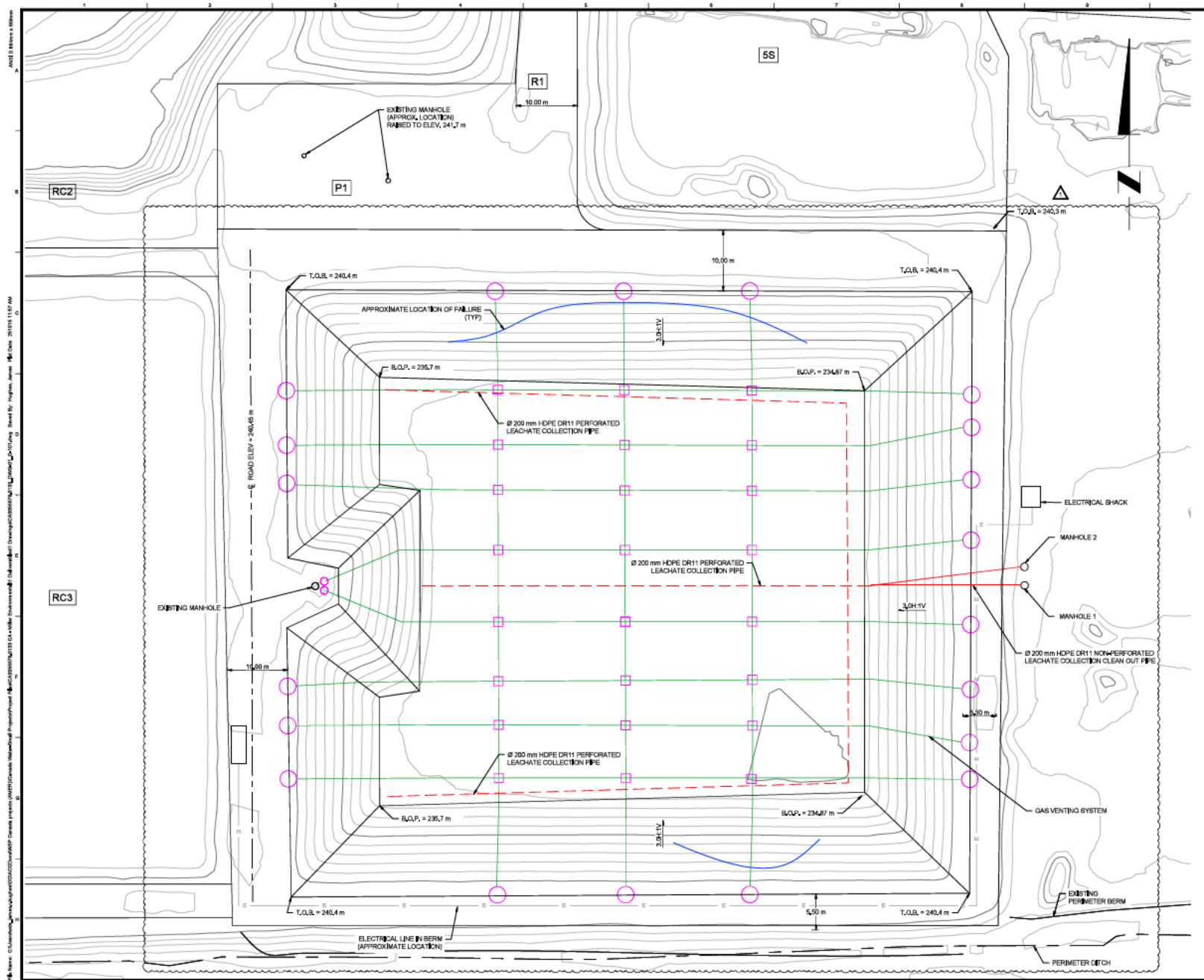
APPENDIX A: WSP DESIGN DRAWING

WATER TREATMENT POND 1 (WTP1) DESIGN ST JEAN BAPTISTE, MANITOBA

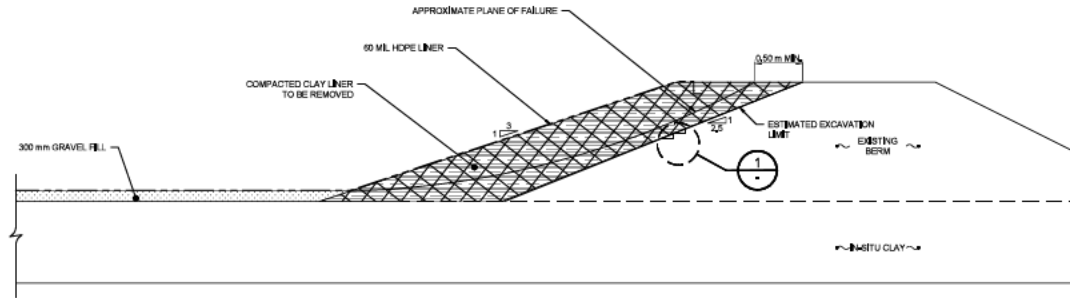


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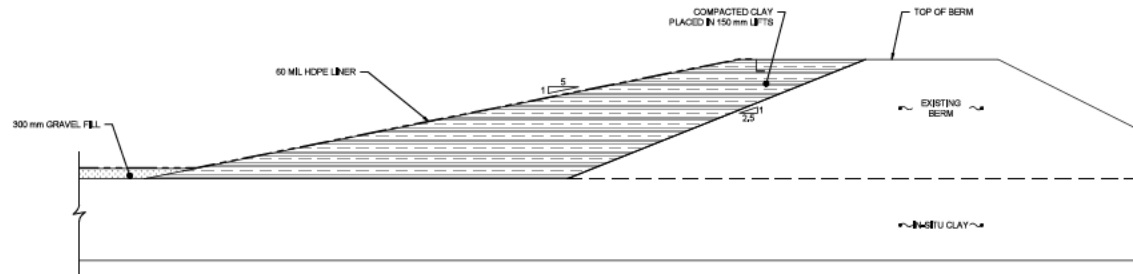
PROJECT NUMBER	DRAWING NUMBER	ISSUE/REVISION
CA0055579.0133	C-001	1



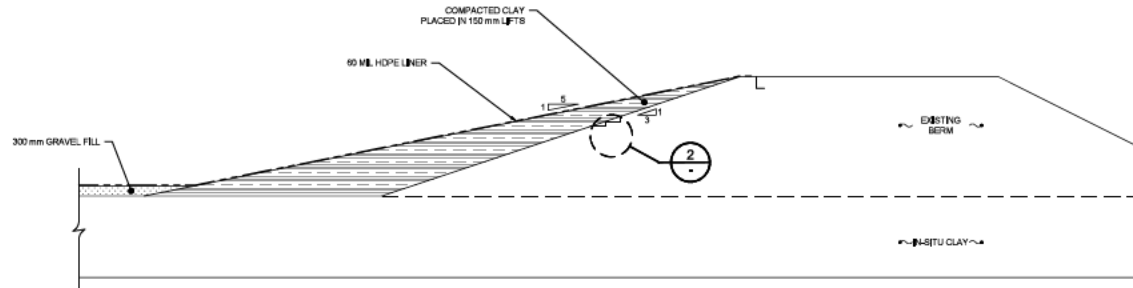
CLIENT MILLER ENVIRONMENTAL CORPORATION		PROJECT NUMBER CA0055579,0133	
PROJECT NAME WATER TREATMENT POND 1 (WTP1) DESIGN ST JEAN BAPTISTE, MANITOBA		DRAWING NUMBER C-002	
SHEET TITLE EXISTING SITE PLAN		REVISION 1	



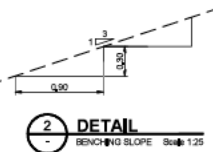
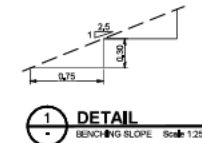
BERM CROSS SECTION FOR EXCAVATION OF FAILED SLOPE
TYPICAL SECTION FOR REPAIR NTS



BERM CROSS FOR RE-BUILDING OF FAILED SLOPES
TYPICAL SECTION FOR REPAIR NTS



BERM CROSS SECTION FOR ADDITION ONTO EXISTING SLOPES
TYPICAL SECTION FOR EXTENSION NTS



LEGEND

- SAND
- CLAY FILL (COMPACTED)
- EXCAVATION AREA

SCALE



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PROFESSIONAL AUTHENTICATION

REV	DATE	BY	CHKD	DESCRIPTION
1	26	10	16	
0	20	00	00	ISSUED FOR CONSTRUCTION
REV	YY	MM	DD	ISSUE/REVISION DESCRIPTION

		CLIENT MILLER ENVIRONMENTAL CORPORATION	
		PROJECT NAME WATER TREATMENT POND 1 (WTP1) DESIGN ST JEAN BAPTISTE, MANITOBA	
PROJECT NUMBER CA0055578.0133		DESIGN NUMBER C-005	
SHEET TITLE TYPICAL SECTIONS		REVISIONS 0	

SPECIFICATIONS

PROTECTION:

1. CONTRACTOR SHALL PROTECT ANY UNDERGROUND UTILITIES AND EXISTING LEACHATE LINES AT ALL TIMES. IF TEMPORARILY REMOVED, IT SHALL BE RESTORED ON COMPLETION OF CONSTRUCTION.
2. PRIOR TO ANY EXCAVATION, CONTRACTOR IS RESPONSIBLE TO CONFIRM, MARK AND OBTAIN NECESSARY PERMITS FROM UTILITY OWNERS AND REGULATORS.
3. CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES ON SITE. IF TEMPORARILY REMOVED, IT SHALL BE STORED, PROTECTED AND RESTORED ON COMPLETION OF CONSTRUCTION.
4. ANY DAMAGES TO THE EXISTING STRUCTURES OR MONITORING INSTRUMENTS, WILL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.

GENERAL EXCAVATION:

1. EXCAVATION PROTOCOLS ESTABLISHED BY MILLER ENVIRONMENTAL CORPORATION SHALL BE FOLLOWED ON ANY EARTHWORKS ON SITE, PARTICULARLY NEAR THE EXISTING PIPELINES.
2. THE WORK SHALL BE COMPLETED IN A SEQUENCE AS DECIDED AND DEEMED SAFE BY THE CONTRACTOR.
3. ALL ORGANIC MATERIAL AND TOPSOIL SHALL BE STRIPPED FROM CONSTRUCTION AREAS BEFORE EXCAVATION AND STOCKPILED AS IDENTIFIED HEREIN FOR RE-USE AS APPROPRIATE.
4. EXCAVATED MATERIAL WILL BE EVALUATED FOR REUSE SUITABILITY BY WSP. MATERIALS SELECTED TO BE RE-USED FOR BACKFILL SHALL BE STOCKPILED IN A TEMPORARY WORKSPACE AS AGREED BY WSP AND MILLER ENVIRONMENTAL CORPORATION.
5. MATERIALS DEEMED TO BE UNSUITABLE SHALL BE HAULED OFF SITE, AND DISPOSED BY THE CONTRACTOR.
6. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL EXCAVATIONS ARE PROTECTED FROM DISTURBANCE (I.E. WATER, FROST OR TRAFFIC) AT ALL TIMES.
7. WSP WILL BE PRESENT ON SITE ON A FULL TIME BASIS TO CONFIRM THE EXTENT AND DEPTH OF EXCAVATION AND TO MONITOR THE CONSTRUCTION OF THE SLOPE STABILIZATION ON BEHALF OF MILLER ENVIRONMENTAL CORPORATION.
8. THE EXTENTS OF THE EXCAVATION AND FILL REPLACEMENT SHALL BE PROPERLY SURVEYED BY THE GENERAL CONTRACTOR AND INSTALLED TO MEET THE DESIGN REQUIREMENTS.
9. THE FAILED AND/OR DISTURBED SOIL SHALL BE REMOVED TO A MINIMUM DISTANCE OF 0.5 M BEYOND THE IDENTIFIED FAILURE ZONE AND INTO THE SOLID, UNDISTURBED SLOPE. THE LOCATION OF THE FAILURE ZONE AND CONFIRMATION OF SUITABLE SUBGRADE CONDITIONS WILL BE DETERMINED THROUGH ON-SITE OBSERVATIONS MADE BY WSP AT THE TIME OF CONSTRUCTION. MATERIAL REMOVED BEYOND THE SPECIFIED EXTENT WILL BE AT THE CONTRACTOR'S EXPENSE.
10. THE BASE OF THE EXCAVATION SHALL BE GRADED TO PERMIT DRAINAGE FROM THE TOE OF THE FINISHED SLOPE AS DISCUSSED BELOW.
11. ALL EXCAVATION FACES SHALL HAVE SHORT TERM SLOPES NOT STEEPER THAN 2:1 H:V (HORIZONTAL:VERTICAL), UNLESS OTHERWISE INDICATED ON THE DESIGN DRAWINGS. FLATTER SLOPES MAY BE REQUIRED DEPENDING ON THE CONDITIONS OF THE SLOPE ENCOUNTERED DURING CONSTRUCTION.
12. EXCAVATED BACKSLOPE SHALL BE BENCHED ACCORDING TO THE DRAWING, AND ANY MODIFICATION WILL REQUIRE APPROVAL BY WSP.
13. THE BASE OF THE EXCAVATION SHALL BE SLOPED AT AN APPROXIMATE 1.0% GRADE TO PROMOTE DRAINAGE FROM THE EXCAVATION TO THE FACE OF THE SLOPE.

CLAY BACKFILL:

1. PROPOSED CLAY BACKFILL SHALL CONSIST OF NATIVE HIGH PLASTIC CLAY AND SHALL BE EVALUATED AND APPROVED BY WSP PRIOR TO UTILIZATION.
2. GEOTECHNICAL EVALUATION OF CLAY BACKFILL CONSISTS OF VISUAL ASSESSMENT AND REVIEW OF LABORATORY TESTING RESULTS (I.E. GRAIN SIZE DISTRIBUTION, PROCTOR DENSITY, ATTERBERG LIMITS, ETC.).
3. APPROVED CLAY BACKFILL SHALL BE TESTED FOR PROCTOR DENSITY A MINIMUM OF 1 WEEK IN ADVANCE OF PLACEMENT TO REDUCE POTENTIAL FOR CONSTRUCTION DELAYS.
4. CLAY BACKFILL SHALL BE MOISTURE CONDITIONED TO WITHIN 2 PERCENT OF ITS OPTIMUM MOISTURE CONTENT (OMC). IT MAY BE POSSIBLE FOR SOME OF THE EXISTING SOILS TO MEET THESE REQUIREMENTS AND BE RE-USED, THIS WOULD NEED TO BE CONFIRMED DURING CONSTRUCTION BY THE GEOTECHNICAL ENGINEER.
5. CLAY FILL MATERIAL SHALL BE PLACED IN LIFTS NO GREATER THAN 150 mm IN THICKNESS, AND COMPACTED TO ACHIEVE A MINIMUM OF STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMCD).
6. FILL PLACEMENT SHOULD BE DONE IN CONTINUOUS HORIZONTAL LAYERS, GRADED TO PROMOTE DRAINAGE.
7. THE FINAL SURFACE GRADE SHALL MATCH WITH THE SURROUNDING GRADES.

GENERAL:

1. THE CONFIGURATION OF THE GAS VENTING SYSTEM, THE VENT OF MULTIFLOW MULTIFLOW FITTINGS, HOPE DR11 NON-PERFORATED LEACHATE COLLECTION CLEAN-OUT PIPE, AND THE HOPE DR11 PERFORATED LEACHATE COLLECTION CLEAN-OUT PIPE SHALL BE ADJUSTED TO SUIT THE REVISED DESIGN. THESE COMPONENTS MUST CONFORM TO THE SPECIFICATIONS AND INSTALLATION STANDARDS THAT WERE APPLIED DURING THEIR INITIAL CONSTRUCTION AS DESIGNED BY OTHERS. THE APPROXIMATE VISUAL CONFIGURATIONS OF THESE ITEMS, AS SHOWN IN THIS DRAWING SET, WERE PROVIDED BY MILLER ENVIRONMENTAL CORPORATION AND WERE NOT DESIGNED BY WSP.

SCALE

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PROFESSIONAL AUTHENTICATION

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wsp

CLIENT MILLER ENVIRONMENTAL CORPORATION	
PROJECT NAME WATER TREATMENT POND 1 (WTP1) DESIGN ST JEAN BAPTISTE, MANITOBA	PROJECT NUMBER CA0055578.0133
SHEET TITLE SPECIFICATIONS	DRAWING NUMBER C-006
	REVISION NUMBER 1