

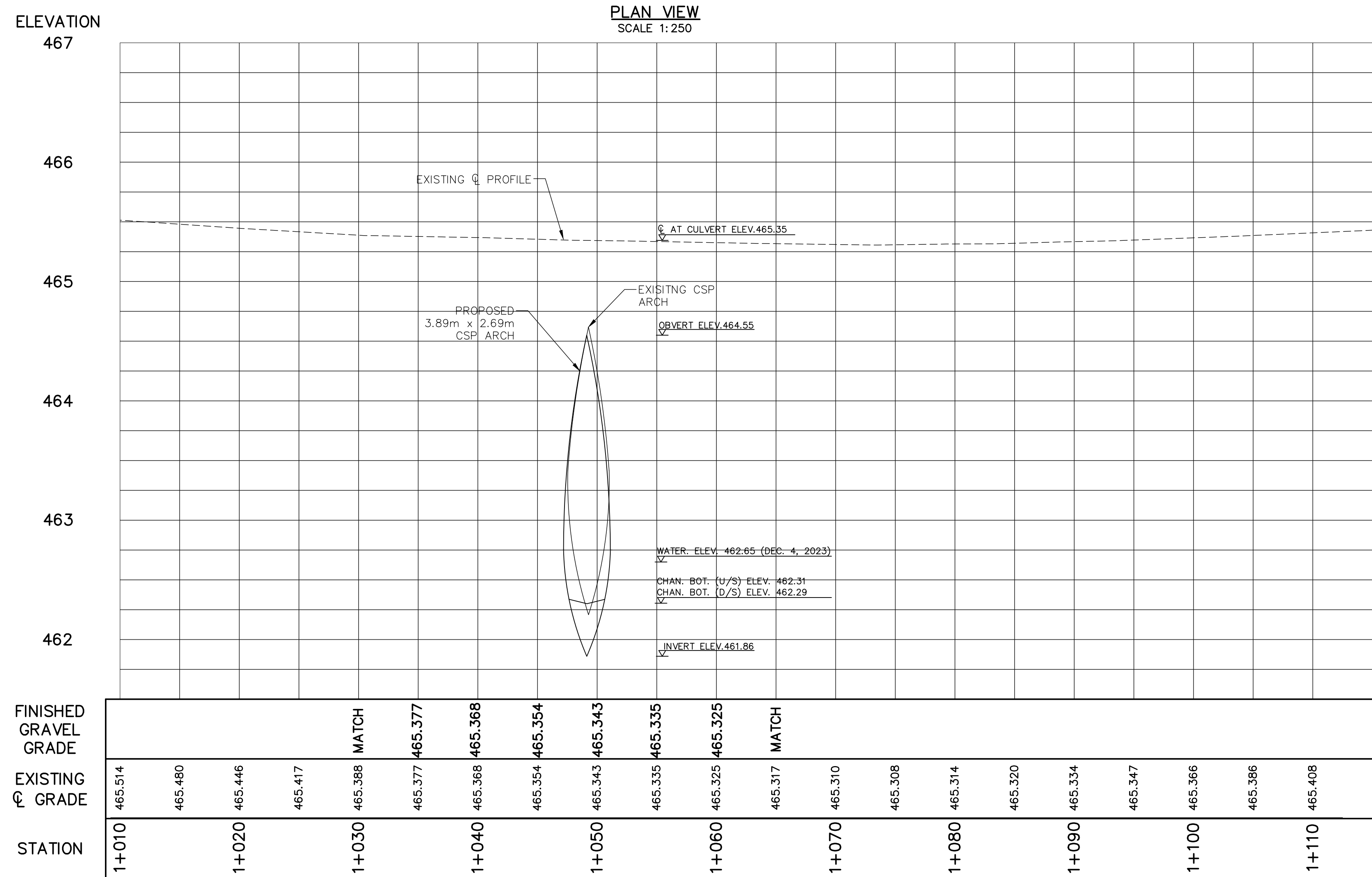
BMROSS Project No. BR1515 and BR1516
Contract No. RFT 2024-006

[illegible]

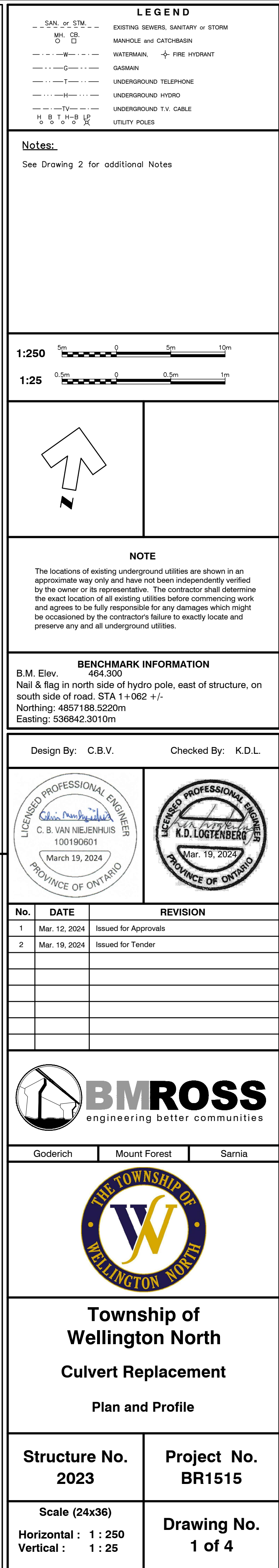
Map showing the proposed structure location and a detour route. The structure is located near the intersection of 6th Line and 4th Line. The detour route is indicated by a dashed line and an arrow, showing a path around the structure. The map includes labels for roads (e.g., 6th Line, 4th Line, 2nd Line, 1st Line, 3rd Line, 5th Line, 7th Line, 8th Line, 9th Line, 10th Line, 11th Line, 12th Line, 13th Line, 14th Line, 15th Line, 16th Line, 17th Line, 18th Line, 19th Line, 20th Line, 21st Line, 22nd Line, 23rd Line, 24th Line, 25th Line, 26th Line, 27th Line, 28th Line, 29th Line, 30th Line, 31st Line, 32nd Line, 33rd Line, 34th Line, 35th Line, 36th Line, 37th Line, 38th Line, 39th Line, 40th Line, 41st Line, 42nd Line, 43rd Line, 44th Line, 45th Line, 46th Line, 47th Line, 48th Line, 49th Line, 50th Line, 51st Line, 52nd Line, 53rd Line, 54th Line, 55th Line, 56th Line, 57th Line, 58th Line, 59th Line, 60th Line, 61st Line, 62nd Line, 63rd Line, 64th Line, 65th Line, 66th Line, 67th Line, 68th Line, 69th Line, 70th Line, 71st Line, 72nd Line, 73rd Line, 74th Line, 75th Line, 76th Line, 77th Line, 78th Line, 79th Line, 80th Line, 81st Line, 82nd Line, 83rd Line, 84th Line, 85th Line, 86th Line, 87th Line, 88th Line, 89th Line, 90th Line, 91st Line, 92nd Line, 93rd Line, 94th Line, 95th Line, 96th Line, 97th Line, 98th Line, 99th Line, 100th Line) and towns (e.g., Township of Wellington North, Township of Centre Wellington, Township of East Garafraxa, Township of Grand Valley, Township of Peel). A scale bar indicates 0 to 2 Km. A north arrow is also present.

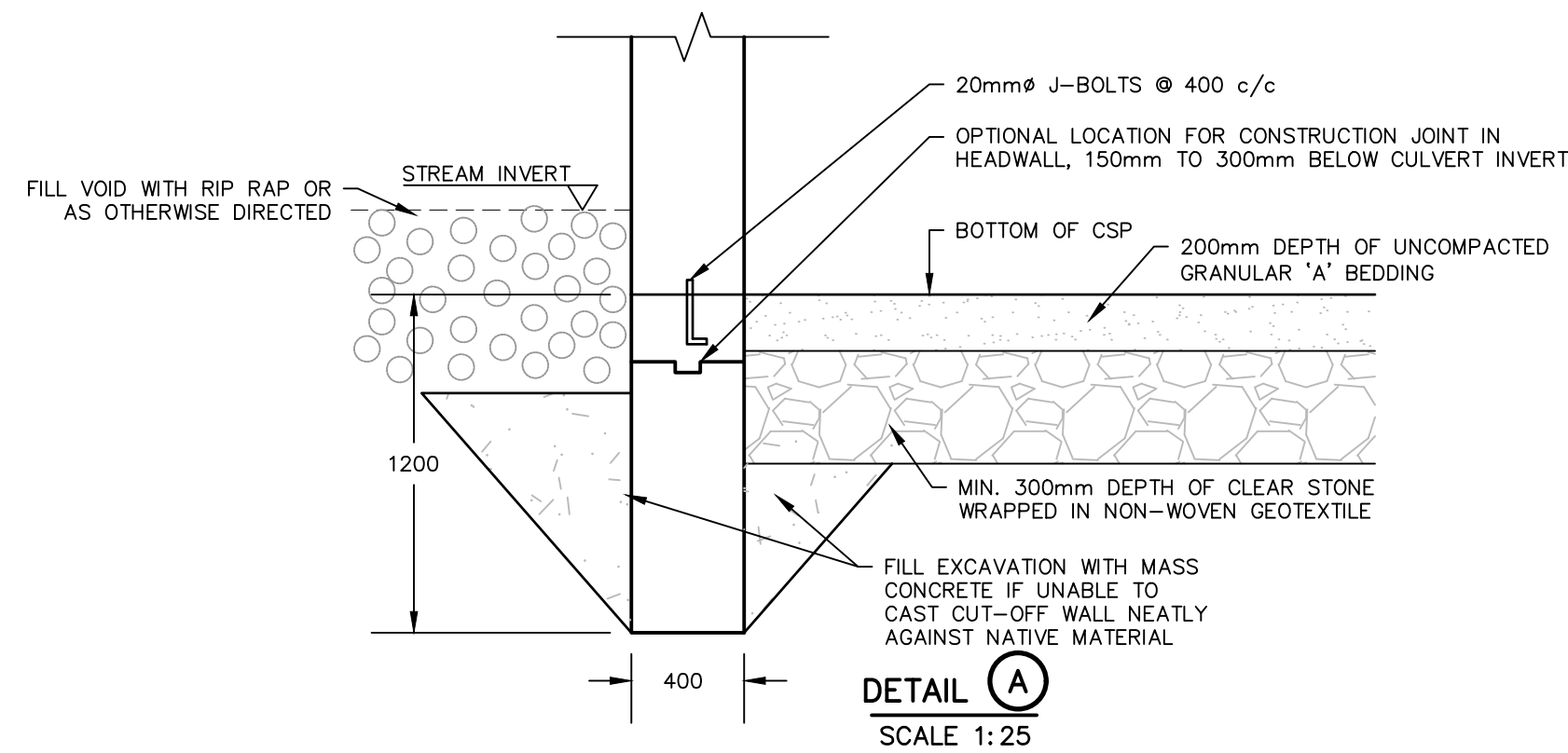
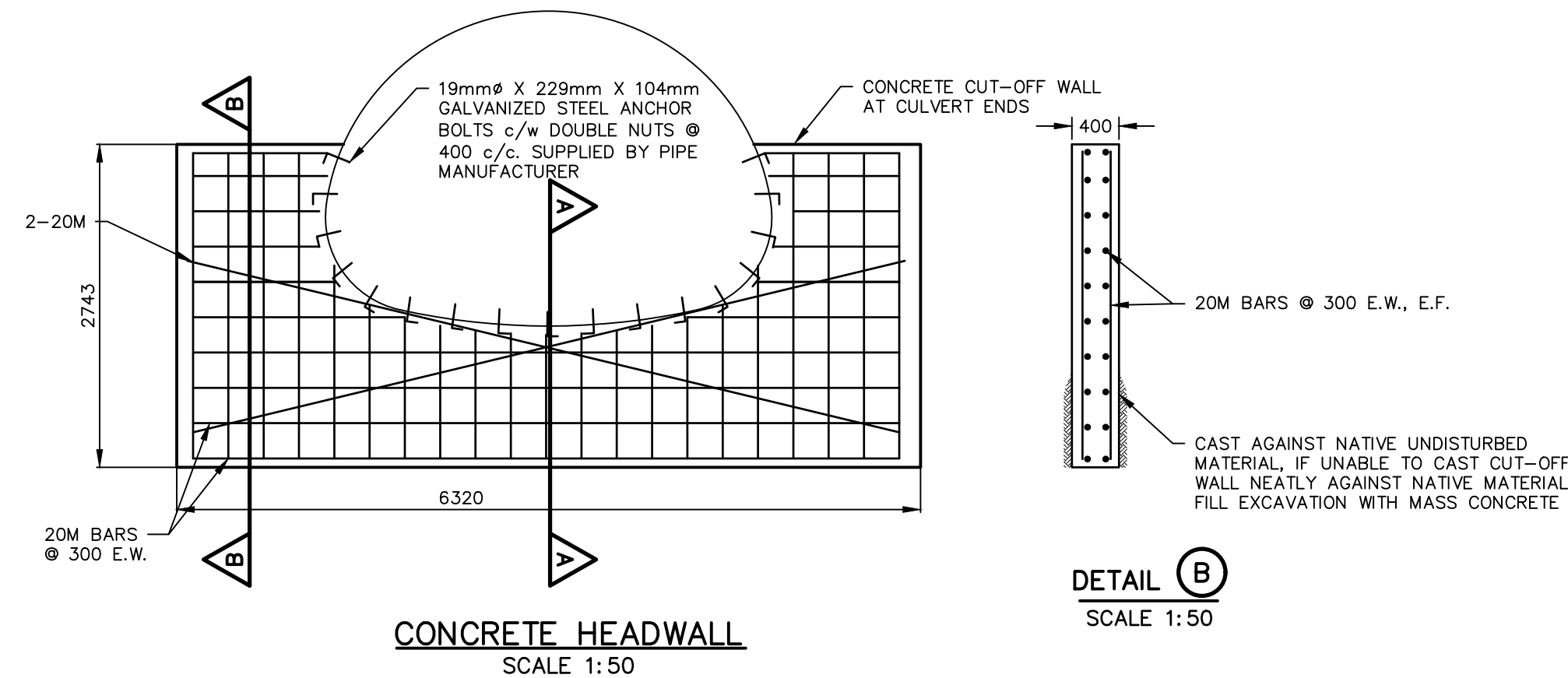
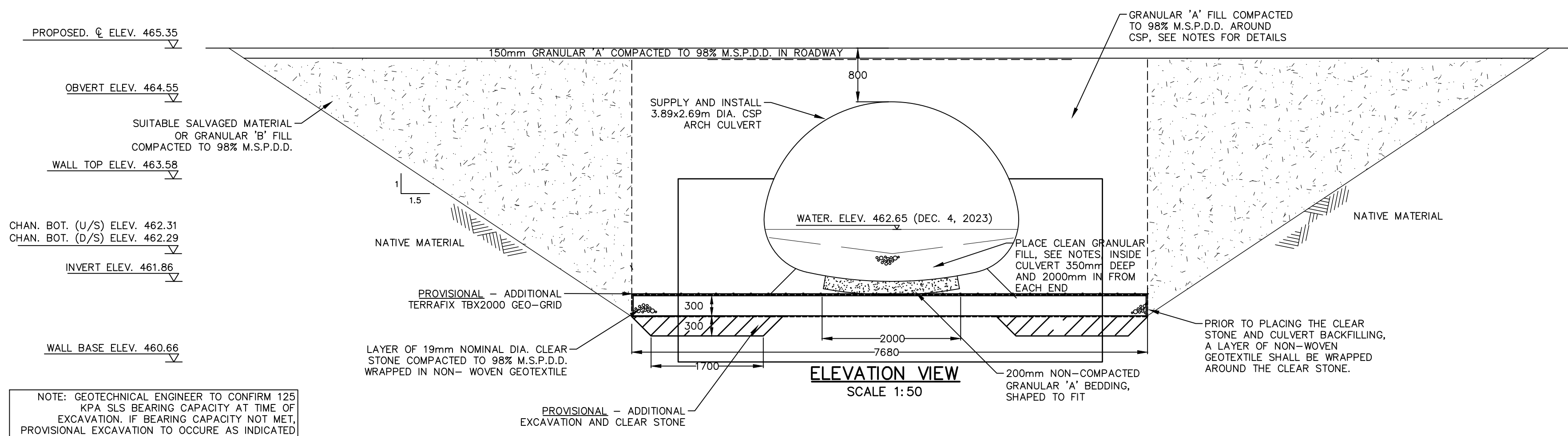
Issued for Tender
Mar. 19, 2024





1. TEMPORARY STREAM DIVERSION SHALL BE PROVIDED DURING CONSTRUCTION WITH NON-ERODIBLE BERMS AT EACH END OF THE CONSTRUCTION AREA, AND A PUMP, DIVERSION PIPE OR DIVERSION CHANNEL OF A SIZE APPROVED BY THE CONSERVATION AUTHORITY, AS ILLUSTRATED ON THE DRAWING AND OPSD 221.010 MOD., AND 221.030 MOD. PIPE SHALL BE 900mm DIA. OR GREATER. NO HYDROLOGY CALCULATIONS HAVE BEEN COMPLETED, TO MINIMIZE THE POTENTIAL FOR FLOODING THE WORK AREA, THE CONSTRUCTOR MAY CHOOSE TO INSTALL A LARGER PIPE, MULTIPLE DIVERSION PIPES OR A CHANNEL.
2. ALL FISH AND AQUATIC LIFE (E.G. AMPHIBIANS) ARE TO BE REMOVED FROM THE CONSTRUCTION AREA AFTER THE BERMS ARE INSTALLED AND BEFORE THE START OF THE CULVERT. IF THE CULVERT IS STARTED, SALVAGED FISH AND AQUATIC LIFE SHALL BE NET COLLECTED OR TRAPPED AND RELEASED UNHARMED DOWNSTREAM OF THE CONSTRUCTION AREA, TO CONFORM WITH THE MNRF PERMIT TO COLLECT FISH THIS PROCESS SHALL BE COMPLETED BY A QUALIFIED BIOMONITOR REPRESENTATIVE.
3. DE-WATERING A STREAM CROSSING SHALL BE DONE IN A CONTROLLED MANNER TO AVOID DISCHARGING TURBID WATER INTO THE STREAM. PUMPED WATER FROM THE CONSTRUCTION AREA SHALL BE DISCHARGED TO A SILT BAG OR SUITABLE SILT CONTAINMENT AREA LOCATED AT LEAST 15m FROM THE STREAM OR TO A GRAVELLED AREA 30m AWAY FROM THE STREAM. THE SILT MATERIAL SHALL BE CLEANED UP AND REMOVED FROM SITE AT THE COMPLETION OF THE PROJECT.
4. ALL CONCRETE AND STEEL COMPONENTS FROM THE EXISTING STRUCTURE SHALL BE REMOVED AS OUTLINED IN THE SPECIAL PROVISIONS.
5. ALL IN-STREAM WORK SHALL TAKE PLACE BETWEEN JUNE 1st AND MARCH 15th AND MEET THE OTHER REQUIREMENTS OUTLINED IN THE APPROVAL FROM THE CONSERVATION AUTHORITY AND ANY OTHER GOVERNING BODY.
6. SEDIMENT AND EROSION CONTROL MEASURES, SUCH AS INSTALLATION OF SILT FENCING OR STRAW-BALE CHECK DAMS PLACED DOWNSTREAM OF ANY SILT MATERIALS STOCK PILED AND EXPOSED TOPSOIL, SHALL BE PLACED AND MAINTAINED DURING CONSTRUCTION AND UNTIL A SUITABLE CATCH OF GRASS IS ESTABLISHED.
7. DISTURBED AREAS NOT COVERED WITH RIPRAP OR A GRAVEL SURFACE SHALL BE COVERED WITH TOPSOIL AND RESTORED WITH SEED.
8. REFUELING OF EQUIPMENT SHALL BE PERFORMED IN AN ENVIRONMENTALLY RESPONSIBLE MANNER, WHERE PRACTICAL REFUELING SHALL BE DONE MORE THAN 30M FROM THE STREAM, ANY SIGNIFICANT SPILLS SHALL BE REPORTED TO THE MINISTRY OF ENVIRONMENT SPILLS ACTION CENTRE.
9. THE CONSTRUCTOR SHALL HAVE CONTINGENCY PLANS IN PLACE TO MINIMIZE THE AMOUNT OF SILT RELEASED SHOULD A MAJOR STORM EVENT TAKE PLACE DURING THE CONSTRUCTION PERIOD.
10. THE LOCATION OF DE-WATERING AND SEDIMENT CONTROL MEASURES ARE SHOWN IN AN APPROXIMATE WAY, THE EXACT LOCATION OF COMPONENTS IN THE FIELD MAY VARY FROM THE LOCATION SHOWN ON THE DRAWING, THE CONTRACTOR IS TO SUBMIT A LAYOUT DIAGRAM SHOWING BERM LOCATIONS, DIVERSION PIPING SIZE/MATERIAL, LOCATION OF MATERIAL STOCK PILES REQUIRED ONSITE AND SEDIMENT CONTAINMENT LOCATION.
11. WHERE TEMPORARY BERMS AND DEWATERING COMPONENTS ARE GOING TO BE PLACED ON PRIVATE PROPERTY, THE CONSTRUCTOR SHALL CONFIRM DETAILS WITH ADJACENT PROPERTY OWNERS PRIOR TO PLACEMENT, AND RESTORE ALL DISTURBED AREAS.
12. PROVISIONAL - PLANTINGS SHALL BE PLACED AT EACH END OF THE CULVERT AT LOCATIONS DETERMINED BY THE CONTRACT ADMINISTRATOR.



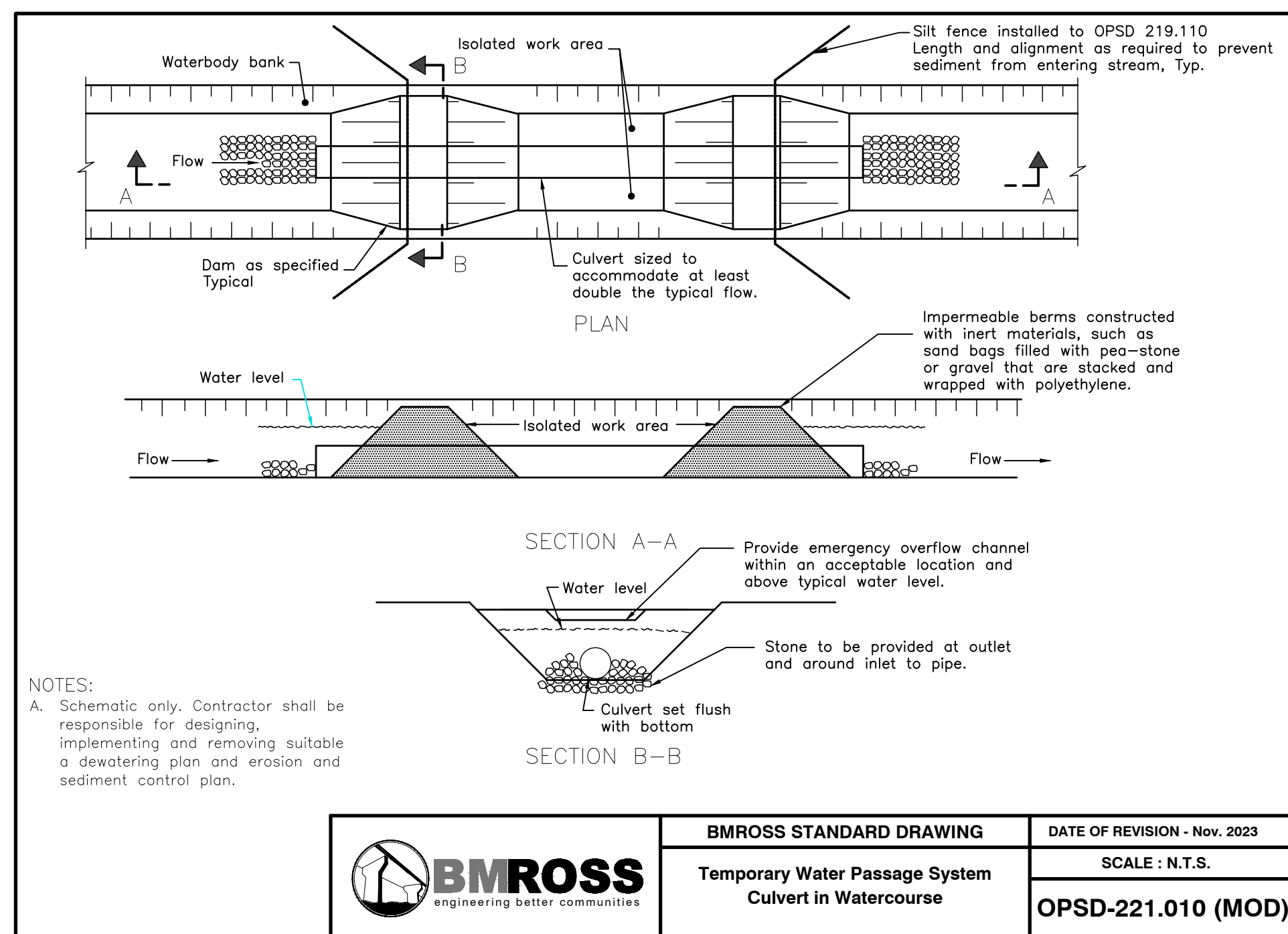
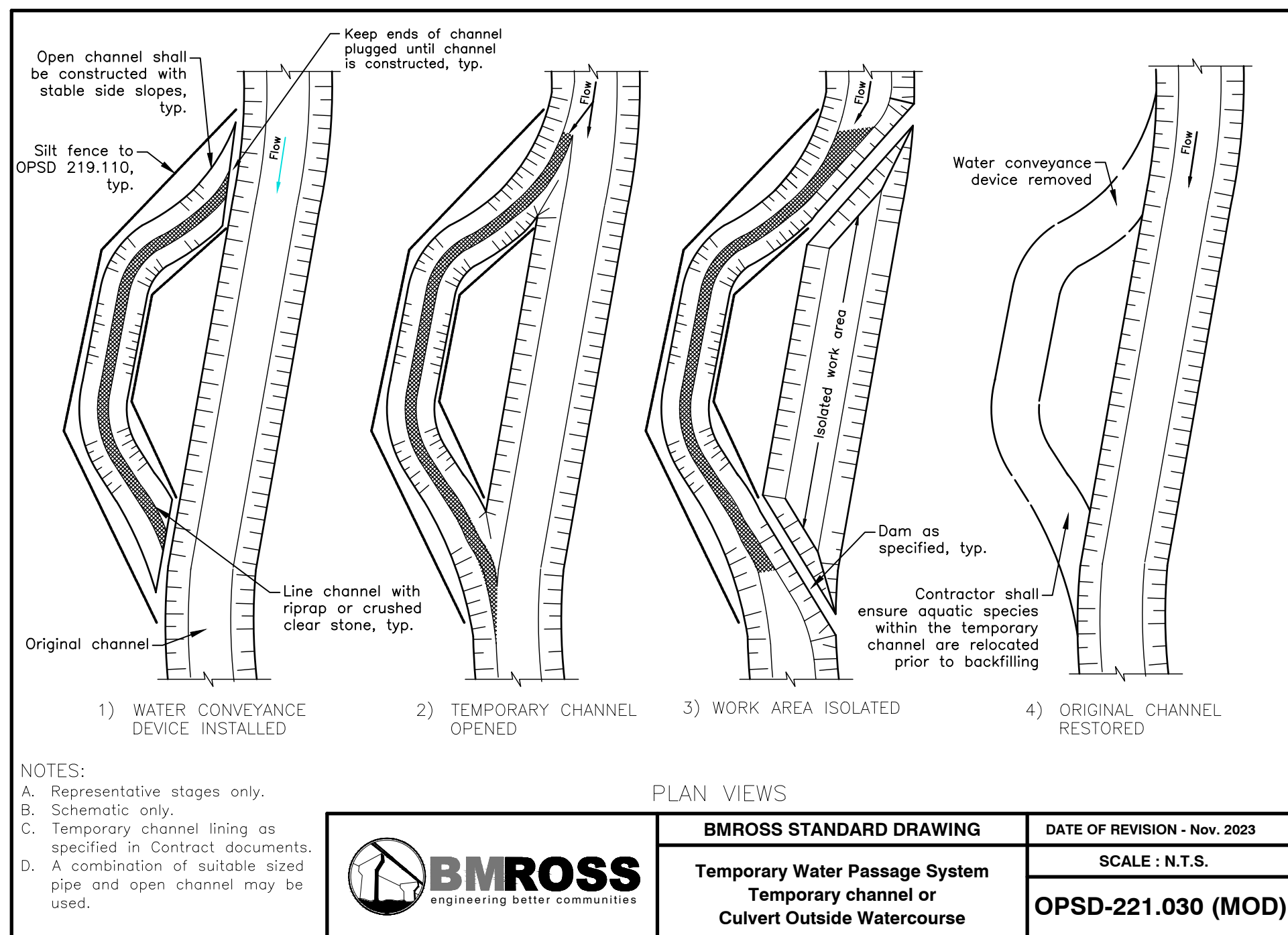
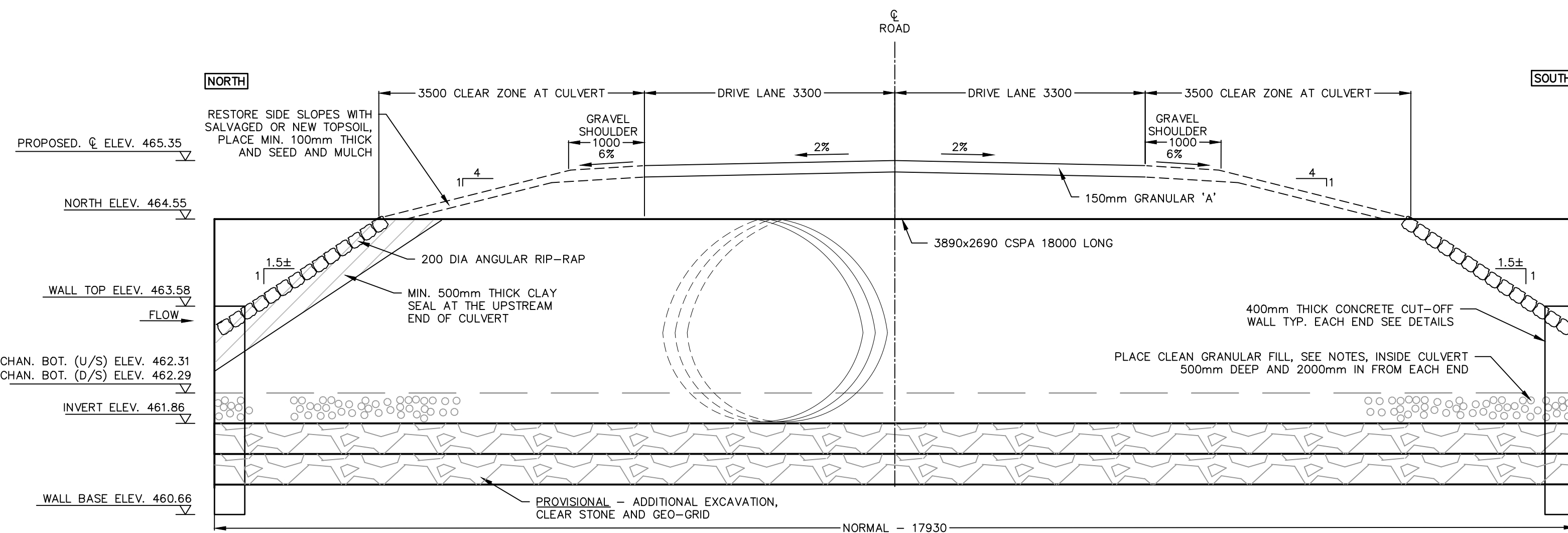


BACKFILL PROCEDURE: FOR STRUCTURAL BACKFILL:

- The soil bearing capacity will be reviewed by a Geotechnica Engineer at the bottom of the culvert excavation at the time of construction. Assumed soil bearing capacity is 120 kPa at SLS.
- The granular backfill material in the Engineered backfill zone shall be placed uniformly on both sides of the pipe simultaneously, in layers of 200mm in depth (before compaction) and compacted to a minimum of 98% Standard Proctor Dry Density (ASTM D698). The difference in levels of the backfill on the two sides at any transverse section shall not exceed 40mm.
- Heavy vibratory compaction equipment shall not be allowed within 1000mm of the structure wall or close enough to cause distortion.
- At no time shall the backfill material be dumped next to the structure wall so as to change the shape or alignment of the structure.
- The structure shall be checked periodically during the backfilling procedure to ensure that the shape is consistent with the manufacturer's tolerances. Place and compact the backfill over the top of the structure (Above 3/4 of the rise) using light equipment perpendicular to the longitudinal axis of the structure.
- No equipment shall be allowed over the structure that would exceed the design live load.

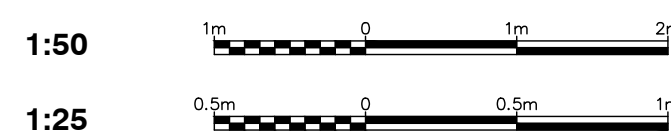
PIPE SUPPLIER:

- The pipe supplier shall provide notice if any detail, dimension, or note on the drawing conflicts with their preferred methods.
- The pipe supplier shall provide notice if any changes are required to allow their product to meet Bridge Code Requirements.

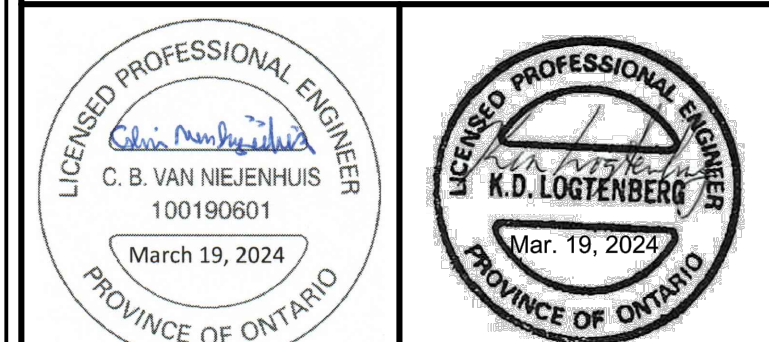


NOTES:

- Placement and backfill of culvert to be in accordance with Division 9 of the Ontario Provincial Standard Specifications and pipe manufacturer's instructions. Structural backfill to be granular 'A' compacted to 98% MSPDD.
- Riprap shall be RTAC class 1 (nominal 200mm diameter).
- Concrete: CSA A23.1 Exposure Class C-1 (35MPa).
- Structure design to conform with Canadian Highway Bridge Design Code CSA-S6-19 with design for a minimum of 650mm of fill and maximum of 1200mm of fill.
- Culvert to be 3890 span by 2690 rise galvanized CSP pipe arch; wall thickness 3.5mm; corrugation 125mm x 25mm with square ends and satisfying CSA Standard G401.
- E.F. - denotes each face
T&B - denotes top and bottom
I.F. - denotes inside face
O.F. - denotes outside face
 ϕ 300 - denotes spaced at 300 centers
- Seed mix shall be either roadside mix as specified by the MTO of a seed mix that is accepted by the Contractor as an accepted alternative.
- Suitable granular and fill material salvage from the existing road shall be salvaged and re-used for fill along the shoulder widening.
- Compaction testing will be coordinated by Contract Administrator and paid for by the Owner.
- Granular fill placed inside the culvert shall be either clean granular 'B' material with a minimal amount of sand and fine material, and a high percentage of larger stones, up to 200mm dia. or clear stone mixed with a layer of 200mm dia. rip rap on top. Alternative material would have to be approved by the Conservation Authority.
- Non-woven geotextile shall be Terrafix 270R or accepted equivalent.
- Bar Lap Information
15M Bar - 520mm
20M Bar - 690mm
- Reinforcing steel to be Grade 400, pre-bent at suppliers plant.
- Chamfer all exposed corners 25mm.
- Cover to reinforcing steel 70mm \pm 20mm except where noted otherwise.
- Cross section elements and roadside designed as per Transportation Association of Canada (TAC) Geometric Design guide for Canadian Roads.
- The contractor shall conduct environmental analysis of 4 soil samples and provide the results to the contract administrator. Contractor to provide completed OPSS 180 forms.



Design By: C.B.V. Checked By: K.D.L.



No.	DATE	REVISION
1	Mar. 12, 2024	Issued for Approvals
2	Mar. 19, 2024	Issued for Tender



Goderich Mount Forest Sarnia



Township of Wellington North
Replacement of Culvert
No. 2023
Details

Contract No.
RFT 2024-006

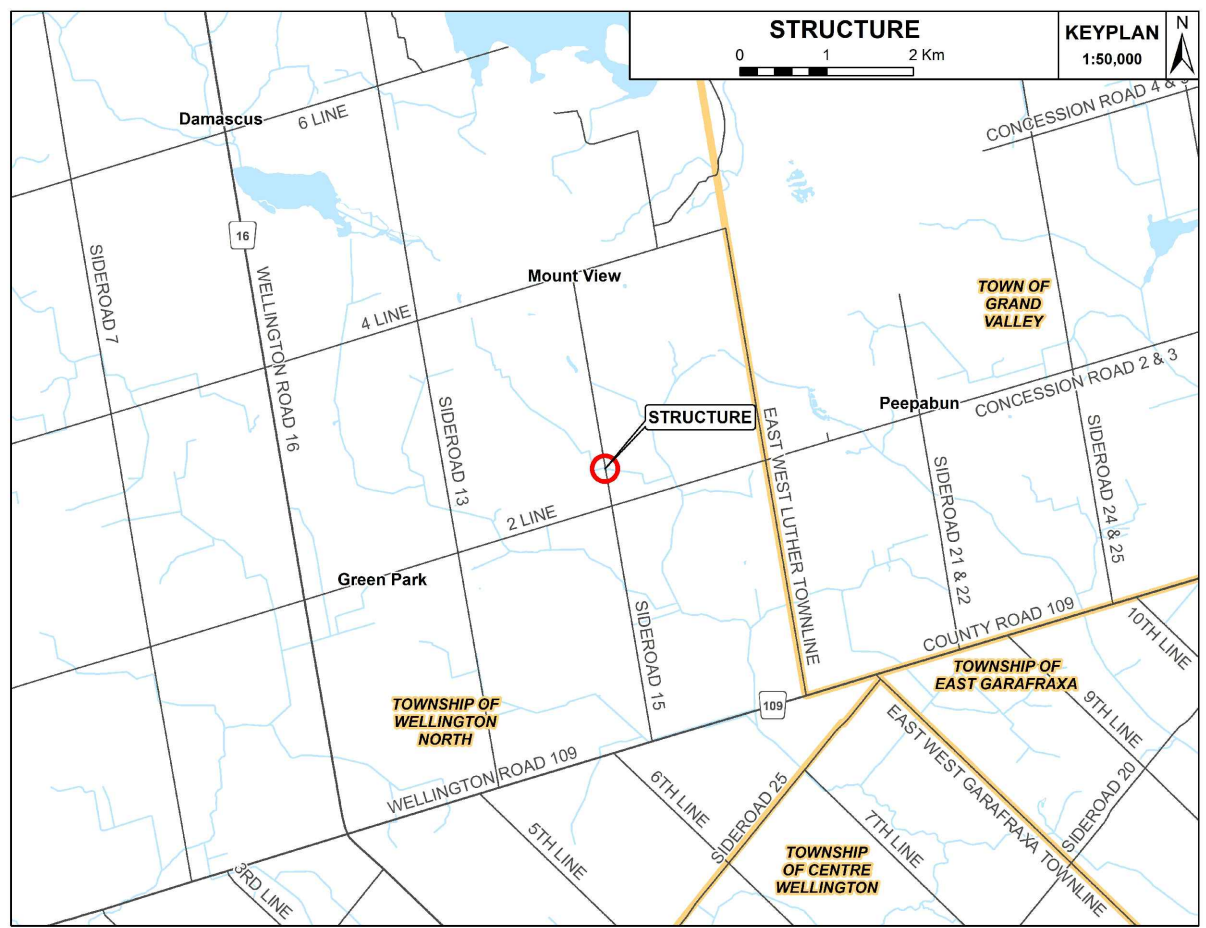
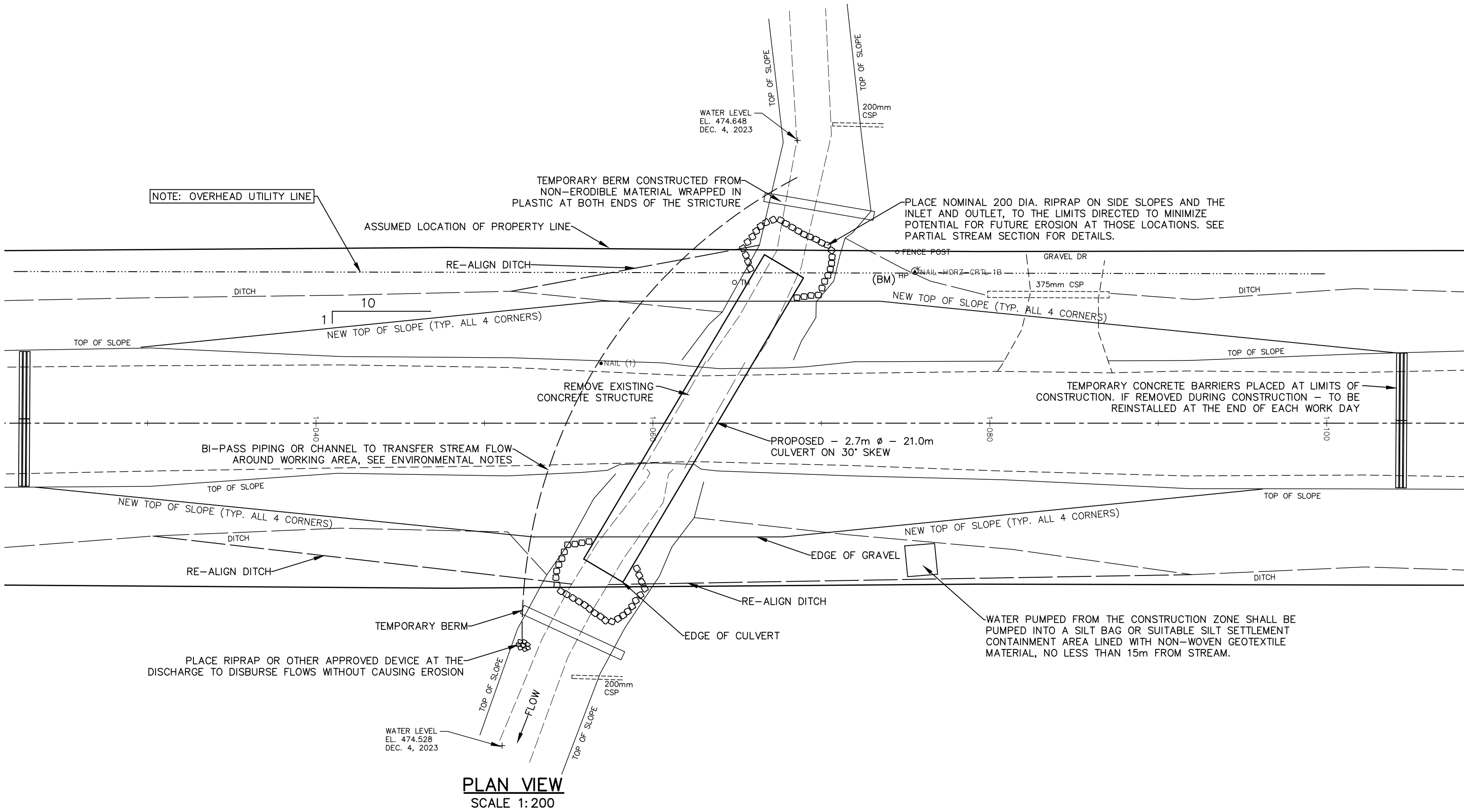
Project No.
BR1515

Scale (24x36)
As Shown

Drawing No.
2 of 4

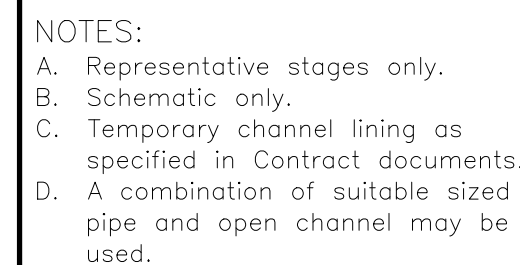
ENVIRONMENTAL PROTECTION NOTES:

1. TEMPORARY STREAM DIVERSION SHALL BE PROVIDED DURING CONSTRUCTION WITH NON-ERODIBLE BERMS AT EACH END OF THE CONSTRUCTION AREA, AND A PUMP, DIVERSION PIPE OR DIVERSION CHANNEL OF A SIZE APPROVED BY THE CONSERVATION AUTHORITY, AS ILLUSTRATED ON THE DRAWING AND OPSD 221.010 MOD., OPSD 221.020 MOD. AND 221.030 MOD. PIPE SHALL BE 900mm DIA. OR GREATER. NO HYDROLOGY CALCULATIONS HAVE BEEN COMPLETED. TO MINIMIZE THE POTENTIAL FOR FLOODING THE WORK AREA, THE CONSTRUCTOR MAY CHOOSE TO INSTALL A LARGER PIPE, MULTIPLE DIVERSION PIPES OR A CHANNEL.
2. ALL FISH AND AQUATIC LIFE (E.G. AMPHIBIANS) ARE TO BE REMOVED FROM THE CONSTRUCTION AREA AFTER THE BERMS ARE INSTALLED AND BEFORE REMOVAL OF THE CULVERT IS STARTED. SALVAGED FISH AND AQUATIC LIFE SHALL BE NET COLLECTED OR TRAPPED AND RELEASED UNHARMED DOWNSTREAM OF THE CONSTRUCTION AREA, TO CONFORM WITH THE MNRF PERMIT TO COLLECT FISH THIS PROCESS SHALL BE COMPLETED BY A QUALIFIED BMROSS REPRESENTATIVE.
3. DE-WATERING A STREAM CROSSING SHALL BE DONE IN A CONTROLLED MANNER TO AVOID DISCHARGING TURBID WATER INTO THE STREAM. PUMPED WATER FROM THE CONSTRUCTION AREA SHALL BE DISCHARGED TO A SILT BAG OR SUITABLE SILT CONTAINMENT AREA LOCATED AT LEAST 15m FROM THE STREAM OR A GRASSSED AREA 30m AWAY FROM THE STREAM. THE SILT MATERIAL SHALL BE CLEANED UP AND REMOVED FROM SITE AT THE COMPLETION OF THE PROJECT.
4. ALL CONCRETE AND STEEL COMPONENTS FROM THE EXISTING STRUCTURE SHALL BE REMOVED AS OUTLINED IN THE SPECIAL PROVISIONS.
5. ALL IN-STREAM WORK SHALL TAKE PLACE BETWEEN JUNE 1st AND MARCH 1st AND MEET THE OTHER REQUIREMENTS OUTLINED IN THE APPROVAL FROM THE CONSERVATION AUTHORITY AND ANY OTHER GOVERNING BODY.
6. SEDIMENT AND EROSION CONTROL MEASURES, SUCH AS INSTALLATION OF SILT FENCING OR STRAW-BALE CHECK DAMS PLACED DOWNSLOPE OF ANY SILT MATERIALS STOCK PILED AND EXPOSED TOPSOIL, SHALL BE PLACED AND MAINTAINED DURING CONSTRUCTION AND UNTIL A SUITABLE CATCH OF GRASS IS ESTABLISHED.
7. DISTURBED AREAS NOT COVERED WITH RIPRAP OR A GRAVEL SURFACE SHALL BE COVERED WITH TOPSOIL AND RESTORED WITH SEED.
8. REFUELING OF EQUIPMENT SHALL BE PERFORMED IN AN ENVIRONMENTALLY RESPONSIBLE MANNER. WHERE PRACTICAL REFUELING SHALL BE DONE MORE THAN 30M FROM THE STREAM. ANY SIGNIFICANT SPILLS SHALL BE REPORTED TO THE MINISTRY OF ENVIRONMENT SPILLS ACTION CENTRE.
9. THE CONSTRUCTOR SHALL HAVE CONTINGENCY PLANS IN PLACE TO MINIMIZE THE AMOUNT OF SILT RELEASED SHOULD A MAJOR STORM EVENT TAKE PLACE DURING THE CONSTRUCTION PERIOD.
10. THE LOCATION OF DE-WATERING AND SEDIMENT CONTROL MEASURES ARE SHOWN IN AN APPROXIMATE WAY. THE EXACT LOCATION OF COMPONENTS IN THE FIELD MAY VARY FROM THE LOCATION SHOWN ON THE DRAWING. THE CONTRACTOR IS TO SUBMIT A LAYOUT DIAGRAM SHOWING BERM LOCATIONS, DIVERSION PIPING SIZE/MATERIAL, LOCATION OF MATERIAL STOCK PILES REQUIRED ONSITE AND SEDIMENT CONTAINMENT LOCATION.
11. WHERE TEMPORARY BERMS AND DEWATERING COMPONENTS ARE GOING TO BE PLACED ON PRIVATE PROPERTY, THE CONSTRUCTOR SHALL CONFIRM DETAILS WITH ADJACENT PROPERTY OWNERS PRIOR TO PLACEMENT, AND RESTORE ALL DISTURBED AREAS.
12. PROVISIONAL - PLANTINGS SHALL BE PLACED AT EACH END OF THE CULVERT AT LOCATIONS DETERMINED BY THE CONTRACT ADMINISTRATOR.



1. The granular backfill material in the Engineered backfill zone shall be placed uniformly on both sides of the pipe simultaneously, in layers of 200mm in depth (before compaction) and compacted to a minimum of 98% Standard Proctor Dry Density (ASTM D698). The difference in levels of the backfill on the two sides at any transverse section shall not exceed 400mm.
2. Heavy vibratory compaction equipment shall not be allowed within 1000mm of the structure wall or close enough to cause distortion.
3. At no time shall the backfill material be dumped next to the structure wall so as to change the shape or alignment of the structure.
4. The structure shall be checked periodically during the backfilling procedure to ensure that the shape is consistent with the manufacturer's tolerance. The backfill shall be placed on the backfill over the top of the structure (Above 3/4 of the rise) using light equipment perpendicular to the longitudinal axis of the structure.
5. No equipment shall be allowed over the structure that would exceed the design live load.

1. The pipe supplier shall provide notice if any detail, dimension, or note on the drawing conflicts with their preferred methods.
2. The pipe supplier shall provide notice if any changes are required to allow their product to meet Bridge Code Requirements.



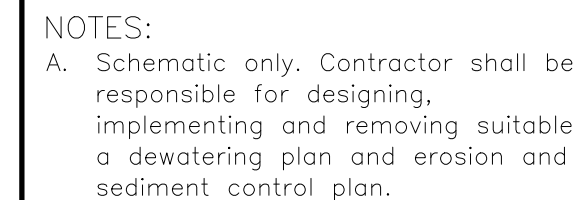
BMROSS STANDARD DRAWING

Temporary Water Passage System
Temporary channel or
Culvert Outside Watercourse

DATE OF REVISION - Nov. 2023

SCALE : N.T.S.

OPSD-221.030 (MOD)



BMROSS STANDARD DRAWING

Temporary Water Passage System
Culvert in Watercourse

DATE OF REVISION - Nov. 2023

SCALE : N.T.S.

OPSD-221.010 (MOD)

1. Placement and backfill of culvert to be in accordance with Division 9 of the Ontario Provincial Standard Specifications and pipe manufacturer's instructions. Subgrade backfill to be granular "A" compacted to 98% MSPPD.
2. Riprap shall be RTAC class 1 (nominal 200mm diameter).
3. Culvert to be 2700 diameter aluminum GSP, wall thickness 3.5mm; corrosion 125 x 25mm with square ends and satisfying CSA Standard A401.
4. Seed mix shall be either roadside mix as specified by the MTO of a seed mix that is accepted by the Contractor as an accepted alternative.
5. Suitable granular and fill material salvage from the existing road shall be salvaged and re-used for fill along the shoulder widening.
6. Compaction testing shall be arranged by the Contract Administrator.
7. Granular fill placed inside the culvert shall be either clean granular "B" material with a minimal amount of sand and fine material and a high percentage of voids, up to 200mm dia, or clear stone mixed with a layer of 150-200mm dia. rip rap on top. Alternative material would have to be approved by the Conservation Authority.
8. Non-woven geotextile shall be Terrafix 270R or accepted equivalent.
9. Cross section elements and roadside designed as per Transportation Association of Canada (TAC) Geometric Design guide for Canadian Roads.
10. Fasteners shall be grade A325, hot dip galvanized.
11. The contractor shall conduct environmental analysis of 4 soil samples and provide the results to the contract administrator. Contractor to provide complete OPSS 180 forms.



No.	DATE	REVISION
1	Feb. 26, 2024	Issued for Approvals
2	Mar. 19, 2024	Issued for Tender



Goderich	Mount Forest	Sarnia
----------	--------------	--------



Details

Project No.
BR1516

Drawing No.
4 of 4