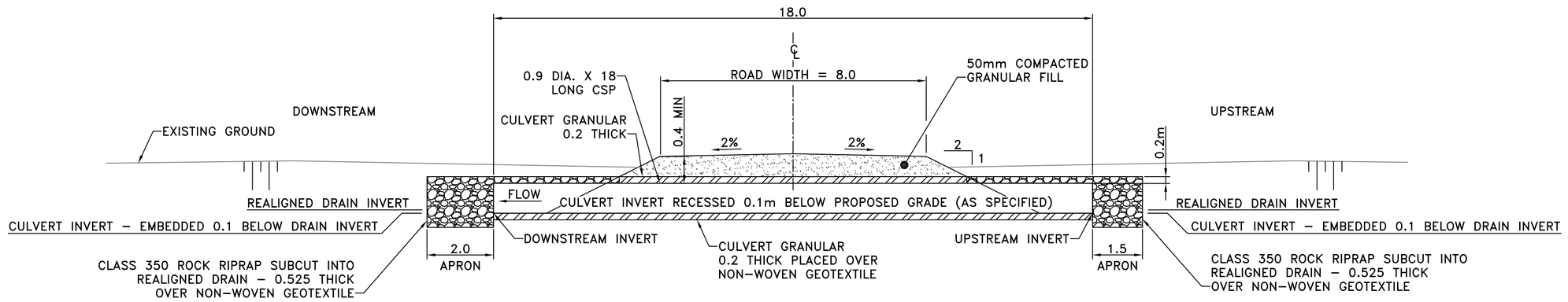
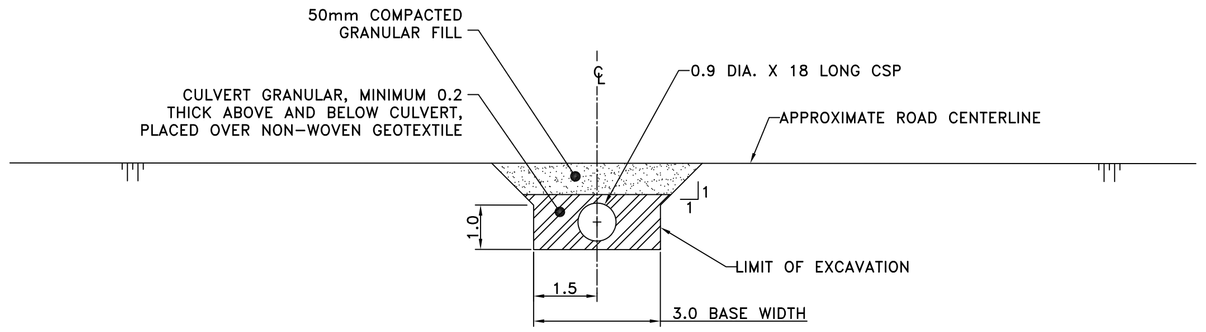
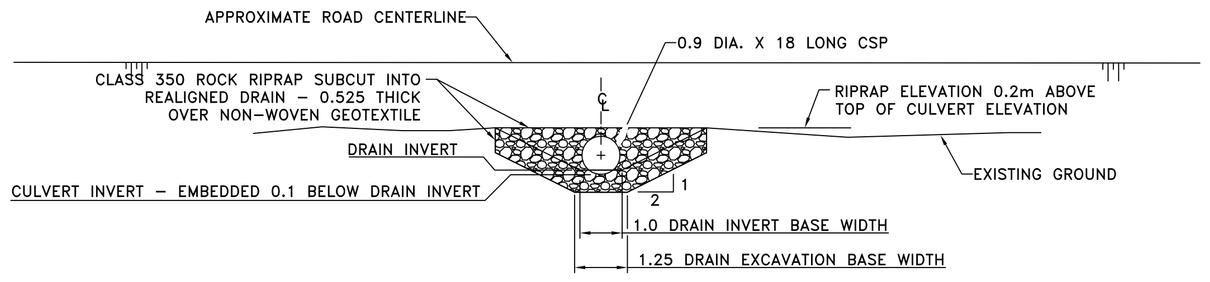


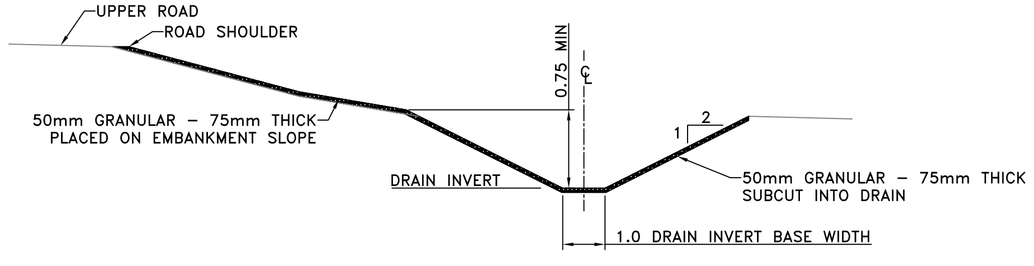
PROFILE THROUGH CULVERT CROSSING
TYPICAL UNLESS NOTED/SHOWN OTHERWISE
SCALE: N.T.S.



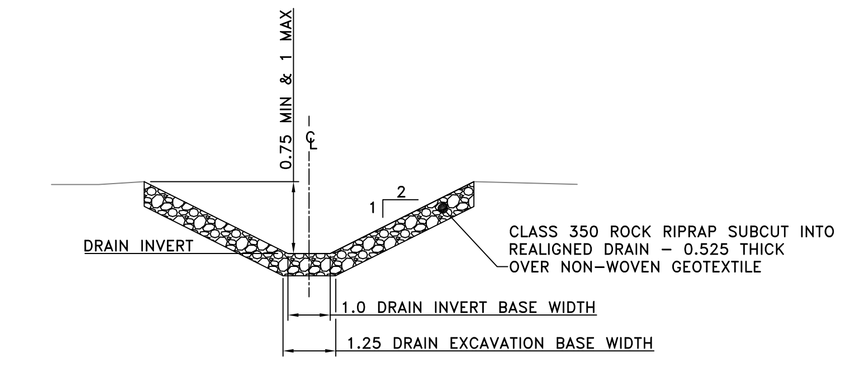
SECTION THROUGH CULVERT
SCALE: N.T.S.



SECTION UPSTREAM/DOWNSTREAM OF CULVERT CROSSING
SCALE: N.T.S.



REALIGNED DRAIN SECTION – TYPICAL DETAIL
SCALE: N.T.S.



REALIGNED DRAIN SECTION – ROCK RIPRAP DETAIL
SCALE: N.T.S.

NOTES:

CULVERT SUPPLY
1) ALL CULVERTS SHALL BE 2mm THICK WALL ALUMINIZED STEEL TYPE 2 CORRUGATED STEEL PIPE WITH 68mm BY 13mm CORRUGATED PROFILE.
2) THE CULVERT ENDS SHALL BE RE–CORRUGATED WITH 68mm BY 13mm ANNULAR PROFILE FOR A MINIMUM LENGTH OF 0.3m TO ACCEPT STANDARD COUPLERS.
3) CULVERT SECTION LENGTHS TO HAVE MINIMUM 6m LENGTH AND A MAXIMUM 8m LENGTH
4) ANNULAR CORRUGATED COUPLERS WITH 68mm BY 13mm ANNULAR PROFILE SHALL BE USED FOR ALL CULVERT COUPLERS. ALL COUPLERS SHALL BE 2mm THICK WALL ALUMINIZED STEEL WITH MINIMUM LENGTH OF 0.6m. THE COUPLER FASTENERS SHALL CONSIST OF A ROLLED OR FORMED ANGLE, WELDED TO THE COUPLER. COUPLERS SHALL HAVE AT LEAST FIVE 12mm DIA. GALVANIZED BOLTS C/W NUTS PER COUPLER.

CULVERT FOUNDATION
1) THE CULVERT FOUNDATION MEANS THE NATURAL SOIL, UNDERLYING THE EXCAVATION, UPON WHICH THE CULVERT BEDDING OR THE CULVERT IS TO BE PLACED.
2) THE CULVERT FOUNDATION SHALL BE PREPARED AND COMPACTED TO THE STAKED GRADELINE AND FOR A WIDTH SUFFICIENT TO PERMIT COMPACTION OF THE BEDDING UNDER THE CULVERT HAUNCHES. BED EXCAVATION TO HAVE A MINIMUM WIDTH OF 1.0 m FROM OUTSIDE EDGE OF CULVERT.
3) UNSUITABLE MATERIAL FROM BELOW THE STAKED GRADELINE SHALL BE REMOVED TO AN APPROVED DEPTH AND REPLACED WITH SUITABLE BEDDING AND SUITABLE GEOTEXTILE IF REQUIRED, TO PROVIDE UNIFORM CONTINUOUS SUPPORT.

CULVERT PLACEMENT
1) CULVERTS SHALL BE PLACED AT THE LOCATION, GRADE AND ALIGNMENT AS INDICATED ON THE PLAN AND THE CULVERT TABLE.
2) CULVERT SECTIONS SHALL BE PLACED SO THAT THE COUPLER CORRUGATIONS SHALL PROPERLY ENGAGE PIPE CORRUGATIONS WITH THE MINIMUM GAP BETWEEN SECTION ENDS. COUPLER BOLTS SHALL BE FULLY TIGHTENED.

CULVERT GRANULAR – BEDDING
1) THE CULVERT BEDDING MEANS A LAYER OF SELECTED MATERIAL, GENERALLY CULVERT GRAVEL, CONSTRUCTED ON THE CULVERT FOUNDATION SO AS TO UNIFORMLY SUPPORT THE CULVERT.
2) CULVERT GRAVEL SHALL BE WELL GRADED AND SHALL CONSIST OF SOUND, DURABLE PARTICLES OF GRAVEL, STONE, SAND AND FINES, FREE FROM SOD, ROOTS AND ORGANIC MATERIAL. THE SHALE CONTENT SHALL NOT EXCEED 25% BY WEIGHT OF THE PARTICLES RETAINED ON A 4.75 mm SIEVE. THE CULVERT GRAVEL SHALL GENERALLY MEET THE FOLLOWING GRADATION REQUIREMENTS:
PASSING 37.5 mm – 100%
PASSING 4.75 m 25 – 80%
PASSING 425 um 15 – 40%
PASSING 75 um 6 – 18%
3) CULVERT GRAVEL FOR BEDDING SHALL BE SPREAD UNIFORMLY ON NON–WOVEN GEOTEXTILE, ALONG THE FULL LENGTH OF THE CULVERT FOUNDATION. THE BEDDING SHALL BE PLACED SO THAT AFTER COMPACTING, A DEPTH OF AT LEAST 200 mm OF GRAVEL REMAINS UNDER THE FULL LENGTH OF THE CULVERT.
4) AFTER THE CULVERT HAS BEEN INSTALLED AND ASSEMBLED ON THE LOOSE BEDDING, THE BEDDING ON BOTH SIDES OF THE CULVERT SHALL BE COMPACTED. CULVERT BEDDING SHALL BE COMPACTED AT OPTIMUM MOISTURE CONTENT TO A MINIMUM OF 95% AASHTO STANDARD DRY DENSITY.

CULVERT GRANULAR – BACKFILLING – BELOW SPRINGLINE
1) FILL MATERIAL UNDER HAUNCHES SHALL BE UNIFORMLY PLACED IN 150 mm LIFTS ON BOTH SIDES OF THE CULVERT AND MAY BE ALTERNATELY COMPACTED. THE MATERIAL UNDER THE HAUNCHES MUST BE IN FIRM CONTACT WITH THE ENTIRE BOTTOM SURFACE OF THE STRUCTURE. BACKFILL AND COMPACTION UNDER HAUNCHES IS A MANUAL JOB, CONSISTING OF SHOVEL PLACEMENT, TIMBER RAMMER OR HAND HELD PACKERS.
2) COMPACTION TO SPRINGLINE – AFTER THE HAUNCH AREA HAS BEEN BACKFILLED AND COMPACTED, ADDITIONAL BEDDING MATERIAL SHALL BE PLACED ADJACENT TO THE CULVERT HAUNCHES IN UNIFORM LIFTS ON BOTH SIDES OF THE CULVERT NOT EXCEEDING 150 mm. EACH LIFT SHALL BE COMPACTED WITH A PLATE TYPE MECHANICAL COMPACTOR. BEDDING MATERIAL SHALL BE PLACED IN THIS MANNER UP TO THE LEVEL OF THE SPRINGLINE. MATERIAL PLACED ABOVE THE SPRINGLINE SHALL BE PLACED AS DESCRIBED IN BACKFILL.

CULVERT GRANULAR – BACKFILLING – ABOVE SPRINGLINE
1) BACKFILL WILL MEAN CULVERT GRAVEL OR SELECTED MATERIAL USED FOR FILL ADJACENT TO AND OVER AN ASSEMBLED CULVERT. THE LEVEL OF BACKFILL ON BOTH SIDES OF THE CULVERT SHALL BE MAINTAINED APPROXIMATELY EQUAL AT ALL TIMES TO PREVENT DISTURBING OR DAMAGING THE CULVERT.
2) CULVERTS SHALL BE BACKFILLED IN UNIFORM LIFTS ON BOTH SIDES OF THE CULVERT NOT EXCEEDING 150 mm AND EACH LIFT SHALL BE COMPACTED TO A MINIMUM OF 95% AASHTO STANDARD DRY DENSITY.
3) BACKFILL SHALL BE PLACED AND COMPACTED IN UNIFORM LIFTS UNTIL THE EMBANKMENT HAS BEEN CONSTRUCTED TO A SUFFICIENT HEIGHT ABOVE THE TOP OF THE CULVERT SO THAT NORMAL GRADING EQUIPMENT CAN OPERATE WITHOUT DISTORTING THE CULVERT.

CHANNEL EXCAVATION
1) THE DRAIN MAY REQUIRE EXCAVATION UPSTREAM AND DOWNSTREAM TO PROVIDE A SMOOTH TRANSITION TO THE EXISTING CHANNEL.
2) THE LIMITS OF THE CHANNEL TRANSITION SHALL BE AS INDICATED ON THE PLAN OR AS DIRECTED BY ENGINEERING REPRESENTATIVE

RIPRAP
1) THE CLASS 350 RIPRAP WILL BE WELL–GRADED, ROUNDED, CLEAN FIELD STONE OR QUARRIED CRUSHED ROCK WITH THE FOLLOWING GRADATION: 100% < 350 mm, 50% > 200 mm AND 80% > 100 mm.
2) RIPRAP TO BE PLACED OVER NON–WOVEN GEOTEXTILE

DRAIN GRANULAR
1) THE 50 mm GRANULAR FOR LINING THE DRAIN AND FACING THE ROAD EMBANKMENT SLOPE WILL BE WELL–GRADED, CRUSHED ROCK WITH THE FOLLOWING GRADATION: 100% < 50 mm, 50% > 25 mm AND 80% > 10 mm.

GOVERNMENT OF CANADA / GOUVERNEMENT DU CANADA
FISHERIES AND OCEANS / PÊCHES ET OCÉANS

SMALL CRAFT HARBOURS
CENTRAL AND ARCTIC REGION

NOTES:
1. DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS OTHERWISE STATED
2. TYPICAL TIDAL RANGE – EL. 0.0M TO 7.4M

REVISIONS:		DATE:
0	ISSUED FOR TENDER	MARCH 2019

SCALE: AS SHOWN
CLASS:

PROJECT:
DRAINAGE IMPROVEMENTS & SHORE PROTECTION

DESCRIPTION:
TYPICAL SECTIONS & CULVERT INSTALLATION DETAILS

DRAWN: SCH
APPROVED: SCH
DATE: FEBRUARY 2019
DATE: FEBRUARY 2019

LOCATION:
PANGNIRTUNG, NUNAVUT

DRAWING NO.: C–4 OF 5
LOCATOR CODE: 5986