

Administration and Inspection Activities for Excavating and Backfilling - Structures

(As Specified in OPSS 902 and ~~NSSP FOUN0003~~ SSP 902S01)

902.01 SCOPE

This CAIS covers the construction administration and inspection requirements for excavating and backfilling for structures, ~~including dewatering~~ as specified in OPSS 902, November 2019, and ~~FOUN003, January 2020~~ SSP 902S01, TBD.

902.02 REFERENCES

This CAIS refers to the following standards, specifications, or publications:

Ontario Provincial Standard Specifications, Construction:

OPSS 206 Grading
OPSS 501 Compacting
OPSS 902 Excavation and Backfilling - Structures

MTO ~~Non-Standard~~ Special Provisions:

~~NSSP FOUN0003~~ SSP 902S01 Amendment to OPSS 902, ~~November 2019~~ Requirements for Dewatering Structure Excavations in Complex Water/Soil Conditions

Construction Administration and Inspection Specifications (CAIS):

~~CAIS 206~~ Grading
CAIS 501 Compacting
CAIS 510 Removal
CAIS 517 Dewatering and Temporary Flow Passage Systems
CAIS 539 Temporary Protection Systems
CAIS 1004 Aggregates - Miscellaneous
CAIS 1010 Aggregates - Base, Subbase, Select Subgrade, And Backfill Material
CAIS 1205 Clay Seal
CAIS 1860 Geotextiles

MTO Forms:

PH-CC-701 Request to Proceed
PH-CC-702 Notice to Proceed

902.03 DEFINITIONS

For the purpose of this CAIS, the definitions shall be as specified in OPSS 902.

902.04 DESIGN AND SUBMISSION REQUIREMENTS

902.04.01 Design Requirements

902.04.01.01 Dewatering

Inspection Activities:

1	-	When required, Check that the dewatering design is undertaken by the Contractor corresponding to the degree of complexity of the dewatering system.	100%
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Administrative Activities:

1	M	Check if dewatering is a requirement.	-
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As specified in CAIS 517.

902.04.02 Submission Requirements

902.04.02.01 Preconstruction Survey

Administrative Activities:

1	M	Receive and Check the condition surveys of property and structures submitted by the Contractor.	-
2	M	Review any Working Drawings related to sequence of excavation, dewatering and backfilling.	-

902.05 MATERIALS

902.05.01 Granular

As specified in CAIS 1004 and CAIS 1010.

902.05.02 Native Backfill

Inspection Activities:

1	-	Check the imported and native material used.	50%
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Administrative Activities:

1	-	Determine if the imported and native material can be used.	-
2	M	Notify the Contractor if the material can be used.	-

902.05.01 Clay Seal

As specified in CAIS 1205.

902.05.01 Geotextile

As specified in CAIS 1860.

902.06 EQUIPMENT

902.06.01 Compaction Equipment

As specified in CAIS 501.

902.07 PRODUCTION

902.07.01 Removals

As specified in CAIS 510.

902.07.02 Removal of Ice and Snow

Inspection Activities:

1	-	Check the removals of all ice and snow.	100%
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902.07.03 Protection Systems

As specified in CAIS 539.

Inspection Activities:

1	FES	Check the Protection Systems installation when the Contractor determines its usage is necessary.	50%
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902.07.04 Dewatering Structure Excavation

~~Inspection Activities:~~

1	-	Check that the Contractor and their Dewatering Specialist Subcontractor conducts dewatering, temporary flow diversion and temporary flow passage in accordance with their Design Submissions as specified in OPSS 902.	50%
2	FES	Check complex dewatering systems.	50%
3	-	Check that the dewatering, temporary flow diversion and temporary flow passage prevents disturbance to the founding material.	50%
4	-	Check that the dewatering of groundwater and the surface water control enables construction in the dry.	50%

5	-	Check that advanced unwatering is conducted as required to prevent soil sloughing, basal heave and boiling.	50%
6	-	Check that unwatering is not causing the erosion of the soil at the outlet and other environmental concerns (example: muddy water discharge).	50%
7	-	Check that the Contractor has the standby equipment (including: pumps, hoses, sediment bags) on-site as specified in OPSS 902.	50%

As specified in CAIS 517.

902.07.05 Excavation

902.07.05.01 General

Inspection activities:

1	-	Check that the deterioration of the foundation soil or rock is prevented as a result of surface water and/or build up of hydrostatic pressures.	50%
2	-	Check that the erosion and sediment control schemes (and coffer dams if required) are in place and functioning prior to structure excavation such that the watercourse is isolated from the Work area.	50%
3	-	Determine if additional erosion control measures or additional locations may be required.	50%
4	-	Confirm that any other relevant environmental constraints have been addressed.	50%

902.07.05.02 Excavation for Foundations

Inspection Activities:

1	-	Check the excavation for footings, working slabs, and granular pads.	50%
2	M FES	Check founding soil to verify composition and confirm capacity.	50%
3	M FES	Check that loosened material, soft material, boulders, and other deleterious material at the foundation base are removed and replaced with suitable compacted material or mass concrete.	50%
4	-	Check that any adjacent utility/structure is not affected or undermined by the footing excavation.	50%
5	-	Check that the founding soil is protected and preserved.	50%
6	-	Record the depth, length, width, type of material used, and how it was placed, when the Contractor uses a working slab.	50%
7	-	Check that any stockpiling of excavated material is done in an area that is isolated from any watercourses such that entry of sediment to watercourses is prevented.	50%

8	-	In the case of concrete culverts of the open footing type, Check the excavation.	50%
9	-	When the Contractor proposes to excavate between footings below the level of the stream bed or top of the footings, determine if acceptable by MTO designer, and Notify in writing to the Contractor of the decision.	50%
10	-	Check the elevation of the bottom of the footing, working slab, or granular pad is not changed.	50%
11	-	Check that over-excavated areas are restored to their original conditions.	50%
12	-	Check if the material to be used as backfill for over-excavated areas is acceptable and Notify the Contractor of decision.	50%
13	-	Check the fill material used for over-excavation in rock.	50%
14	-	Check if additional excavation is required and Notify the Contractor of decision.	50%

902.07.05.03 Excavation for Backfill and Frost Tapers

Inspection Activities:

1	-	Check the excavation for backfill and frost tapers.	50%
2	-	Determine and Notify the Contractor if the proposed backfill material for over-excavated areas, is approved to be used.	50%
3	-	Check that over-excavated areas are restored, and approved material is used.	50%

902.07.06 Backfilling

902.07.06.01 General

Inspection Activities:

1	M	Check that frozen materials are not incorporated into the work.	50%
2	M	Check that footings are protected against frost action.	50%
3	M	Check backfill on top of footings, abutment, wingwall, retaining wall, or concrete culvert. Check the concrete has reached 70% of its design strength before placing the backfill.	50%
4	-	Check backfilling around culverts, arches, rigid frames, and piers.	50%
5	-	When rock fill is placed around a structure, Check that the rock fill placed prevents damage to the structure.	50%
6	-	Check that fill is placed before traffic or construction equipment passes over the culvert.	50%

902.07.06.02 Compaction

Inspection Activities:

1	M	Check that backfill is placed according to OPSS 206 and compacted according to OPSS 501.	50%
2	-	Check the vibratory type compaction equipment is used.	50%

902.07.07 Clay Seal

Inspection Activities:

1	-	When used by the Contractor, Check the clay seals.	50%
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902.07.08 Inspection for ~~Dewatering~~, Excavation and Backfilling

Administrative Activities:

1	M	Receive and Check the Request to Proceed from the Contractor prior to the commencement of dewatering of the excavation for the structure and upon completion of the excavation for the foundation backfill and frost tapers and prior to the commencement of backfilling of excavation.	-
2	M	Issue a Notice to Proceed after the completion of the excavation for the foundation for the next operation to proceed.	-
3	M	Receive and Check the Request to Proceed from the Contractor upon completion of the excavation for backfill and frost tapers and prior to the commencement of backfilling of excavation.	-
4 2	M	Issue a Notice to Proceed prior to the commencement of backfilling of excavation for the next operation to proceed.	-

902.08 QUALITY ASSURANCE - Not Used**902.09 MEASUREMENT FOR PAYMENT**

Administrative Activities:

1	-	Measurement for payment shall be as specified.	-
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902.10 BASIS OF PAYMENT

Administrative Activities:

1	-	Basis of payment shall be as specified.	-
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WARRANT: Always with OPSS 902, Construction Specification for Excavating and Backfilling - Structures.