

SECTION 310

USE OF QUARRIES AND STOCKPILES FOR PRODUCTION OF MATERIALS SUPPLIED BY CONTRACTOR

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This specification covers the Department's requirements for the use of quarries for the production of materials to be supplied by the Contractor. Selected granular base courses, paving aggregates, winter sand, concrete aggregates, chip seal aggregate, armour stone, rip rap stone, select bedding for storm sewers, and such other materials that may be specified to be supplied by the Contractor, together with Rock Fill In Place and Other Material Fill In Place where the contract item states "Supply Rock Fill In Place", or "Supply

Other Material Fill In Place". Also included in this specification are the requirements for the stockpiling of aggregates, winter sand, and selected granular base courses.

However, this specification will not apply, but Section 207 will apply for the use of quarries for the production of borrow, where the required borrow material is specified in the contract item as "Excavation Hauled 1 km or Under Solid Rock", "Excavation Hauled 1 km or Under Rock Borrow", "Excavation Hauled 1 km or Under Other Material", or "Excavation Hauled 1 km or Under Other Material Borrow".

310.02 QUARRY INFORMATION

The Department will make available to the Contractor all information obtained by the Department as to sources of supply. Such information represents only the opinion of the Department as to the location, character or quantity of the material encountered and is available only for the convenience of the Contractor.

The Department assumes no responsibility whatever in respect to the sufficiency or accuracy of the information and there is no guarantee, either expressed or implied, that the conditions indicated are representative of those existing throughout the work or that unanticipated developments may not occur. It shall be the Contractor's responsibility to locate sources and to furnish and haul the aggregate and/or selected granular base course.

310.03 QUARRY SAMPLING

The Department will make its testing facilities available to the Contractor for the purposes of testing the suitability of quarries for the production of the required materials.

Preliminary approval of the quality and nature of the material submitted in samples will not constitute general acceptance of all the material in the source of supply.

310.03.01 Additional Quarry Sample Requirements for Selected Granular Base Courses, Winter Sand, and all Aggregates

The Contractor shall submit representative samples of all materials proposed for use as selected granular base courses, winter sand, paving aggregates, concrete aggregates, and chip seal aggregates. The Contractor shall deliver the samples to the Department's Materials Engineering Division in St. John's for approval of quality and nature prior to use in the work. Each sample shall contain not less than 25 kilograms of material.

Unless otherwise specified by the Owner's Representative, initial samples for quality testing may be of the materials in their natural state. The Contractor shall, at their own

expense, sufficiently expose the proposed source of aggregates either by opening the face, by excavating test pits, or by core drilling so that representative samples of the material can be obtained. Subsequent and progress samples for quality testing shall be of the processed materials.

310.04 PERMITS AND AUTHORIZATIONS FROM OUTSIDE BODIES

310.04.01 Municipal or Local Government

The Contractor is responsible for ensuring their quarry operations are carried out in conformity with all land-use or zoning regulations that may apply.

310.04.02 Department of Industry, Energy and Technology

Contractors are advised, that to obtain samples via excavation of test pits or by core drilling on Crown land requires an exploration licence.

Contractors are advised, that should the Contractor wish to carry out their quarry operations on lands for which rights to quarry materials are vested in the crown, then the Department of Industry, Energy and Technology requires that approval be obtained before quarry operations may begin. It is the responsibility of the Contractor to obtain a quarry permit, subordinate quarry permit, or quarry lease from the Department of Industry, Energy and Technology. The Contractor will be required to adhere to all conditions of the quarry permit, subordinate quarry permit, or quarry lease.

310.04.03 Department of Environment and Climate Change

Contractors wishing to set up an aggregate washing operation at any site must first obtain environmental approval before proceeding.

Contractors must apply in writing to the Department of the Environment and Climate Change. The following information must be supplied with the application:

1. Location of the proposed site.
2. Expected dates of operation of the washing plant including:
 - proposed starting date
 - total days in operation
 - hours in operation per day
 - proposed completion date
3. Rate at which water is to be used (l/s).
4. Number and dimensions of settling ponds and the method of lining of the ponds.

310.05 CONTRACTOR'S NOTICE OF INTENT TO PRODUCE AGGREGATES, WINTER SAND, AND SELECTED GRANULAR BASE COURSES

Prior to the production of: aggregates, winter sand, and selected granular base courses, written notice of intent shall be provided to the Manager of Materials Engineering and to the appropriate Regional Engineer. Such notice of intent shall contain the scheduled starting date, quarry location and processing equipment to be used and shall be received by the above-mentioned Department personnel at least 7 days prior to any production.

310.06 STRIPPING OF QUARRIES

Prior to excavating quarry materials, the area to be worked shall be cleared, grubbed and stripped of all unsuitable surface materials.

The topsoil shall be removed separately from the underlying materials and stockpiled. The Contractor shall ensure that the quality of the topsoil is not contaminated by mixing with other materials removed during the grubbing or stripping operations. Notwithstanding the above, the operation of the quarry is subject to all terms and conditions of the quarry permit, subordinate quarry permit, or quarry lease.

A sufficient area shall be opened ahead of the quarry operation to prevent contamination by deleterious materials.

310.06.01 Additional Requirements for Stripping Quarries Intended for Aggregate, Winter Sand, and Selected Granular Base Course Production

Where the quarry is intended for use in the production of aggregates, winter sand or selected granular base course, then the quarry shall also be stripped of all weathered zones. Notwithstanding the above, the operation of the quarry is subject to all terms and conditions of the quarry permit, subordinate quarry permit, or quarry lease.

310.07 WORKING OF QUARRIESUITABLE FOR AGGREGATE OR SELECTED GRANULAR BASE COURSE PRODUCTION

The Contractor will not be permitted to work natural sand or gravel deposits in an indiscriminate manner that results in otherwise usable natural gravels being rendered unfit for future use in aggregate, winter sand or selected granular base course production.

In such quarries, the Contractor will be required to use equipment that will excavate a vertical face extending from the floor of the pit to the surface of the deposit. The undermining of high faces will not be permitted. The use of scrapers, bulldozers, draglines and other types of equipment, which remove the deposit in more or less horizontal layers is prohibited, except for unique circumstances where it is demonstrated

to the satisfaction of the Owner's Representative that an acceptable and consistent product can be obtained by this method. Notwithstanding the above, the operation of the quarry is subject to all terms and conditions of the quarry permit, subordinate quarry permit, or quarry lease.

310.08 PHYSICAL AND OTHER REQUIREMENTS

310.08.01 Physical and Other Requirements for Aggregates, Winter Sand and Selected Granular Base Courses

Paving aggregates, concrete aggregates, chip seal aggregate, winter sand and selected granular base courses shall conform to the appropriate physical and gradation requirements for that required type of material, as expounded in Section 330, Section 904, Section 340, Section 317 and Section 315, respectively.

Chip seal aggregate shall be screened and washed over a 6.35 millimetre screen. If the chip seal aggregate is to be stockpiled then screening and washing shall be performed before stockpiling.

310.08.02 Physical and Other Requirements for Armour Stone and Rip Rap Stone

Armour stone and rip rap stone shall conform to the requirements given in Section 615 and Section 610, respectively.

310.08.03 Physical and Other Requirements for Material to be used as "RockFill in Place"

Material to be used as "Rockfill in Place" shall only consist of quarry material that before it was excavated consisted entirely of Solid Rock as defined in Section 205.

The rockfill shall be thoroughly fragmented and well graded with fragments of greatest dimension generally not exceeding 350 millimetres and having minimal fine particles. Rockfill should be comprised of coarse grained gravel (as defined by ASTM D2487), cobble and boulder sized rock fragments. The rock fragments shall consist of hard, sound, durable material that is not susceptible to frost and free draining.

The presence of oversized fragments, up to 500 millimetres in a given dimension, will be permitted provided the composition does not exceed 5% by volume of the rockfill material being supplied. Gradation testing will only be performed on material being supplied by the Contractor where, in the opinion of the Owner's Representative, material gradations/composition are suspected of not being compliant with this specification.

Gradation Requirements

Property	Test Method	Requirement
Maximum Particle Size	ASTM C136	350mm*

*Oversized particles up to 500mm in dimension up to 5% composition may be accepted subject to the conditions outlined in this specification. All stones larger than 350 millimetres in size, shall be kept at least 300 millimetres below top of subgrade limits.

The rockfill material shall not contain flat or elongated pieces or any deleterious material including frozen lumps, weeds, sods, roots, logs, stumps or any other objectionable matter. The Contractor shall avoid rock sources that are comprised of shale, siltstone or laminated schist

Rockfill shall conform to the following physical properties:

Physical Properties

Property	Test Method	Requirement
LA Abrasion	ASTM C131	40% Max.
Fractured Faces (min 2 freshly fractured faces)	ASTM D5821	95% Min.
Absorption	ASTM C127	2% Max.

Material that is proposed to be used as rockfill material shall be subject to testing by the Owner's Representative to determine its suitability for the portions of the work in which it is proposed that it be placed. Only rockfill material approved by the Owner's Representative shall be placed in the work.

310.08.04 Physical and Other Requirements for Material to be used as "Other Material Fill in Place"

Material to be used as "Other Material Fill in Place" shall only consist of well graded other material that is approved for use by the Owner's Representative.

Other material containing stones larger than 150 millimetres will not be acceptable for use as "Other Material Fill in Place" unless the Contractor places the larger stones in accordance with the requirements of Section 204.

For the top 500 millimetres of fill immediately below the top of subgrade, the material for use as "Other Material Fill in Place" shall have no more than 12% passing the 75 µm sieve, unless otherwise specified.

The other material shall not contain frozen lumps, weeds, sods, roots, logs, stumps or any other objectionable matter.

Material that is proposed to be used as other material fill shall be subject to test by the Owner's Representative to determine its suitability for the portions of the work in which it is proposed that it be placed. Only Other Material Fill material approved by the Owner's Representative shall be placed in the work.

310.09 AGGREGATES AND SELECTED GRANULAR BASE COURSE SAMPLING AND APPROVAL

A field laboratory conforming to the requirements of Section 111 shall be set up on the site of the project and be ready for use, before any crushing of material may take place. The laboratory shall also be set up and be ready for use prior to any placing of selected granular base course.

All aggregates and selected granular base courses shall be subject to sampling and testing by the Owner's Representative at all times. The Owner's Representative shall be provided ample opportunity to sample any material at any time. Any material of a quality or nature not suitable for its intended use will be rejected.

Only materials approved by the Owner's Representative shall be incorporated in the work.

310.09.01 Selected Granular Base Course and Chip Seal Aggregate Sampling and Approval

Where selected granular base course or chip seal aggregate are taken from the crusher and placed in stockpiles, acceptance or rejection shall be decided on the basis of test results of samples taken from the stockpile as it is being constructed.

However, the Department reserves the right to terminate acceptance of material in stockpile at any time during the stockpiling operation regardless of test results. If acceptance of material in the stockpile is terminated, then material stockpiled previously and accepted for incorporation into the work will not be rejected.

310.09.02 Paving Aggregates Sampling and Approval

The Department will undertake preliminary testing at any time to assist the Contractor in locating and producing suitable aggregates. The tests will be carried out solely for the benefit and guidance of the Contractor and will not necessarily constitute acceptance of the aggregate.

The Contractor shall take great care in the crushing of aggregates to ensure the production of consistent and uniform material.

310.10 STOCKPILING OF AGGREGATES, WINTER SAND AND SELECTED GRANULAR BASE COURSES

Paving aggregate, chip seal aggregate, concrete aggregate, winter sand, and selected granular base course aggregate shall be handled, transported and stockpiled at all times in such a manner and with such equipment that will avoid segregation and/or contamination by any deleterious material. The Contractor will provide and ensure legal access for the Department or its agents to this stockpile area.

Materials shall be stockpiled on a flat, well draining area of sufficient size to accept the entire quantity to be produced. The area shall be free from all foreign material and be of adequate bearing capacity.

Materials shall be stockpiled in layers not exceeding 1 metre in depth. Each layer shall be completed over the entire area of the stockpile before beginning the next layer. The back layer of the stockpile shall be spread by a dozer, with a blade of suitable design, in such a manner that the materials are thoroughly mixed to a uniform consistency. Special attention should be given, that each metre layer is interlocking to the adjoining one. Materials delivered to the stockpile in trucks shall be uniformly spot-dumped and levelled, complying to the method as specified above. Coning stockpiles or spilling material over the edges of the stockpiles will not be permitted under any circumstances.

It is the express responsibility of the Contractor to ensure that stockpiles, when constructed, contain material of acceptable quality that is uniformly distributed throughout. Aggregates that have become mixed with foreign matter of any description, segregated by any means, or have become mixed with each other, shall not be used and shall be removed from the stockpile immediately. Aggregates separated during processing, aggregates secured from different sources, and aggregates from the same source but of different gradations, shall be placed in individual stockpiles.

Individual stockpiles shall be either far enough apart or separated by substantial dividers to prevent cross contamination of materials.

Where stockpiles are constructed for use by others, the storage area shall be situated on solid ground with a suitable access road provided. Storage and access area must withstand working with heavy equipment and trucks. Such storage area and access road shall be subject to the approval of the Owner's Representative.

310.11 ENVIRONMENTAL REQUIREMENT OF QUARRIES

310.11.01 Siting

Quarries shall be hidden from view from the highway as much as possible. A buffer strip of 200 metres shall be maintained between the highway right of way and the quarry.

The Contractor shall ensure that the quarry is not subject to flooding. The bottom of the quarry shall be drained to the nearest watercourse or culvert.

All access roads to the quarry shall be bridged or culverted where watercourses are crossed. Notwithstanding the above, the operation of the quarry is subject to all terms and conditions of the quarry permit, subordinate quarry permit, or quarry lease.

310.11.02 Operation Requirements

Any topsoil or organic matter shall be removed from the underlying materials and stockpiled separately during the grubbing or stripping operations. The Contractor shall ensure that no sedimentation of watercourses occurs due to erosion of the quarry or as a result of washing operations.

Any discharge of water, including washing water, shall be done in accordance with the requirements of Section 180. Sediment-laden water shall be discharged to a vegetated area or to a sedimentation basin for removal of excess silt, before being disposed of into a watercourse or water body.

Hydrocarbon storage shall be in accordance with Division 8.

310.11.03 Abandonment and Rehabilitation

Upon completion of operations, all equipment and unnatural features must be removed and the quarry must be restored to the satisfaction of the Owner's Representative and the Department of Industry, Energy and Technology. Depending on the location, this restoration will include any or all of the following:

- Quarries shall be trimmed to smooth and stable grades with side slopes conforming to the requirements set forth in the quarry permit issued by the Department of Industry, Energy and Technology.
- Spreading over the side slopes of any topsoil or organic matter conserved during the stripping operation.
- Re-vegetation of newly opened quarries and extensions of existing quarries within one year

- Scaling down of quarry faces to remove all rocks and fragments liable to slide or roll down.
- Trenching or otherwise blocking off the entrance to the quarry to prevent vehicular access. Entrance trenches or barriers shall be graded and trimmed to slighty proportions.
- Waste material shall be disposed of in accordance with Division 8.
- Draining and filling in of any settling ponds or depressions that may become a hazard.

310.12 MEASUREMENT FOR PAYMENT

310.12.01 Measurement for Payment for Paving Aggregates and Concrete Aggregates

For paving aggregates or concrete aggregates, no separate measurement for payment is normally made, since the paving aggregates or the concrete aggregates are usually paid for as part of the asphaltic mix or as part of the concrete, respectively.

However, should the contract item state; the supply of stockpiled paving aggregate, or the supply of stockpiled concrete aggregate then the material shall be measured for payment.

310.12.02 Measurement for Payment for Chip Seal Aggregate

For chip seal aggregate, measurement for payment may be by the amount of chip seal aggregate placed on the road, the area of treated road surface, or the amount of chip seal aggregate stockpiled in accordance with the provisions of Section 340.

310.12.03 Measurement for Payment for Selected Granular Base Courses

Measurement for payment for selected granular base courses may be by the actual amount of selected granular base course placed in the work, the nominal amount of selected granular base course placed in the work, or the amount of selected granular base course stockpiled in accordance with the provisions of Section 315.

310.12.04 Measurement for Payment for Winter Sand

Winter sand shall be measured for payment in accordance with the provisions of Section 317.

310.12.05 Measurement for Payment for Armour Stone and Rip Rap Stone

Armour stone and stone used in rip rap shall be measured for payment in accordance with the provisions of Section 615 and Section 610, respectively.

310.12.06 Measurement for Payment for "Supply Rock Fill in Place", and "Supply Other Material Fill in Place"

Measurement for payment for "Supply Rock Fill in Place" and "Supply Other Material Fill in Place" shall be in accordance with the provisions of Section 204.

310.12.07 Stockpiled Materials Weight Measurement for Payment

Where on the contract unit price table it states that aggregate or selected granular base course materials are to be stockpiled and the unit of measurement is stated in tonnes, then such materials shall be weighed on scales before being placed in stockpiles. The weighing of materials shall be in accordance with the requirements of Section 501. Only loads certified by the Department personnel as being placed in the stockpile shall be included in the measurement for payment. The weight shall be computed in tonnes, rounded to one decimal place.

310.12.08 Stockpiled Materials Volume Measurement for Payment

Where the contract unit price table states that aggregate or selected granular base course materials are to be stockpiled and the unit of measurement is stated in cubic metres, then such stockpiles shall be cross sectioned and the volume computed in cubic metres rounded to the nearest whole number.

The quantity to be measured shall be the number of cubic metres of stockpiled material as shown on the cross section sheets between the graded base of the stockpile as cross sectioned before stockpiling begins and the cross sections made over the properly completed stockpile. The volume of this stockpile being computed by the average end area method of computation or as wedges or pyramids, as the case may be when terminating at grade points.

310.13 BASIS OF PAYMENT

310.13.01 Basis of Payment for Stockpiled Materials

Where a contract item in the Unit Price Table specifies that a material be stockpiled, payment shall be at the contract price per tonne or per cubic metre, as the case may be, for the appropriate type of stockpiled material. Such payment shall be full compensation for all labour, materials equipment-use and any other expenses to; provide a quarry, obtain all required permits and approval, provide and transport quarry samples to the Department's Materials Engineering Division in St. John's, clear, grub and strip the quarry, process quarry material to the required gradation and physical requirements, provide and maintain a field laboratory, provide scales if required, provide a site for the stockpile, provide an access road to stockpile, transport and place the material in the stockpile,

clean up the quarry, pay any royalties for the material, and provide such other restoration to the quarry as may be required.

In the particular case of stockpiling chip seal aggregate the basis of payment shall also include washing the chip seal aggregate before it is placed in the stockpile.

310.13.02 Basis of Payment for Aggregates and Selected Granular Base Courses

Where paving aggregates, chip seal aggregates, concrete aggregates, selected granular base courses and select bedding for storm sewers is placed in the work, then payment will be in accordance with the provisions of the appropriate specification for the item.

310.13.03 Basis of Payment for Armour Stone and Rip Rap Stone

The basis of payment for armour stone and rip rap stone will be in accordance with the provisions of Section 615 and Section 610, respectively.

310.13.04 Basis of Payment for "Supply Rock Fill in Place" and "Supply Other Material Fill in Place"

The basis of payment for "Supply Rock Fill in Place" and "Supply Other Material Fill in Place" shall be in accordance with the provisions of Section 204.