


NGU Report 2011.047
Norway's coastal aggregates.
Export in 2010 and potential deposits.

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| Report no.: 2011.047 | | ISSN 0800-3416 | Grading: Open | |
| Title: Norway's coastal aggregates. Export in 2010 and potential. | | | | |
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| County: South-Norway – Nordland & Finnmark | | Municipality: | | |
| Map-sheet name (M=1:250.000) | | Map-sheet no. and -name (M=1:50.000) | | |
| Deposit name and grid-reference: | | Number of pages: 30 | Price (NOK): 140,- | |
| | | Map enclosures: | | |
| Fieldwork carried out: | Date of report: 23.06.2011 | Project no.: 2680.20 | Person responsible:  | |
| Summary: <p>The Geological Survey of Norway has compiled an inventory of hard rock aggregate deposits in coastal Norway. This report contains a catalogue of Norwegian coastal quarries presently in production and exporting, as well as of potential production areas along the coast of South-Central Norway and Finnmark. In 2010, 17.5 million tonnes of aggregates were exported to Europe, and about 1.3 million tonnes were used by the offshore oil and gas industry on the continental shelf.</p> | | | | |
| Keywords: | | | | |
| Coastal aggregates | | Export | | Los Angeles |
| PSV | | Density | | Bedrock |

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| Link to updated maps from all counties: http://www.ngu.no/kart/grus_pukk/ | |

INTRODUCTION

The production of hard-rock aggregates in Norway amounted to about 54 million tonnes in 2010. In addition, 13 million tonnes of sand/gravel were produced.

A total of 17.4 million tonnes of hard-rock aggregates and 0.1 million tonnes of sand and gravel were exported, with an export value of 880 million NOK (or 95 mill EUR), from 23 hard-rock aggregate and 4 sand- and gravel producers (statistics compiled by NGU and the producers; see pages 5-7). Export of hard rock aggregate represents about 32 % of the total hard-rock production. Aggregates are used in the following ways: roads (58 %), concrete (16 %) and other use (26%). The majority of the quarrying companies are relatively small, catering essentially to local needs. There are, however, a number of major players including Norsk Stein A/S, Oster Pukk og Grus A/S, NorStone, Kolo-Veidekke AS, NCC Roads AS, Halsvik Aggregates A/S, Bremanger Quarry AS and Visnes Kalk A/S. These companies each have an annual production in the order of 1- 5.7 million tonnes. The largest individual aggregate quarry (gneiss) owned by Norsk Stein A/S had a production of approx. 5.7 million tonnes in 2010. Aggregates for use offshore, mostly in Norwegian sectors of the North Sea, amounted to 1.3 million tonnes in 2010 from producers. The exported sand and gravel came from six quarries in Rogaland and in Møre and Romsdal counties.

Norway is probably northern Europe's principal **hard-rock** country, being composed almost entirely of Precambrian and Palaeozoic igneous and metamorphic crystalline bedrock. Norway has a long, indented and rugged coastline where a considerable variety of rocks, suitable for aggregate production, are well exposed. Deep-water anchorage, low tidal range and a well-developed infrastructure allow for planning of harbour facilities for medium to large - size bulk carriers. Norway has an attractive investment and taxation climate, and overseas investment is encouraged. National and local authorities are aware of the potential for the development of large coastal quarries (super-quarries) designed for the production and export of rock aggregates. The Geological Survey of Norway (NGU) is undertaking a number of investigations of potential coastal sites for such quarries, in order that local government planners will be able to classify such sites for future development. In Bremanger municipality, Bremanger Quarry AS started export production to the Netherlands in 2001. A new sandstone quarry, Norwegian Sandstone Export AS, started export production in Flora municipality in 2007.

NGU, in cooperation with county and local authorities and industry, is planning to assess the potential for new coastal rock units for which environmental, topographic and transport criteria would favour quarrying.

This report and the Database for *sand, gravel and hard-rock aggregates* are accessible on the Internet, including digital maps on individual quarries:

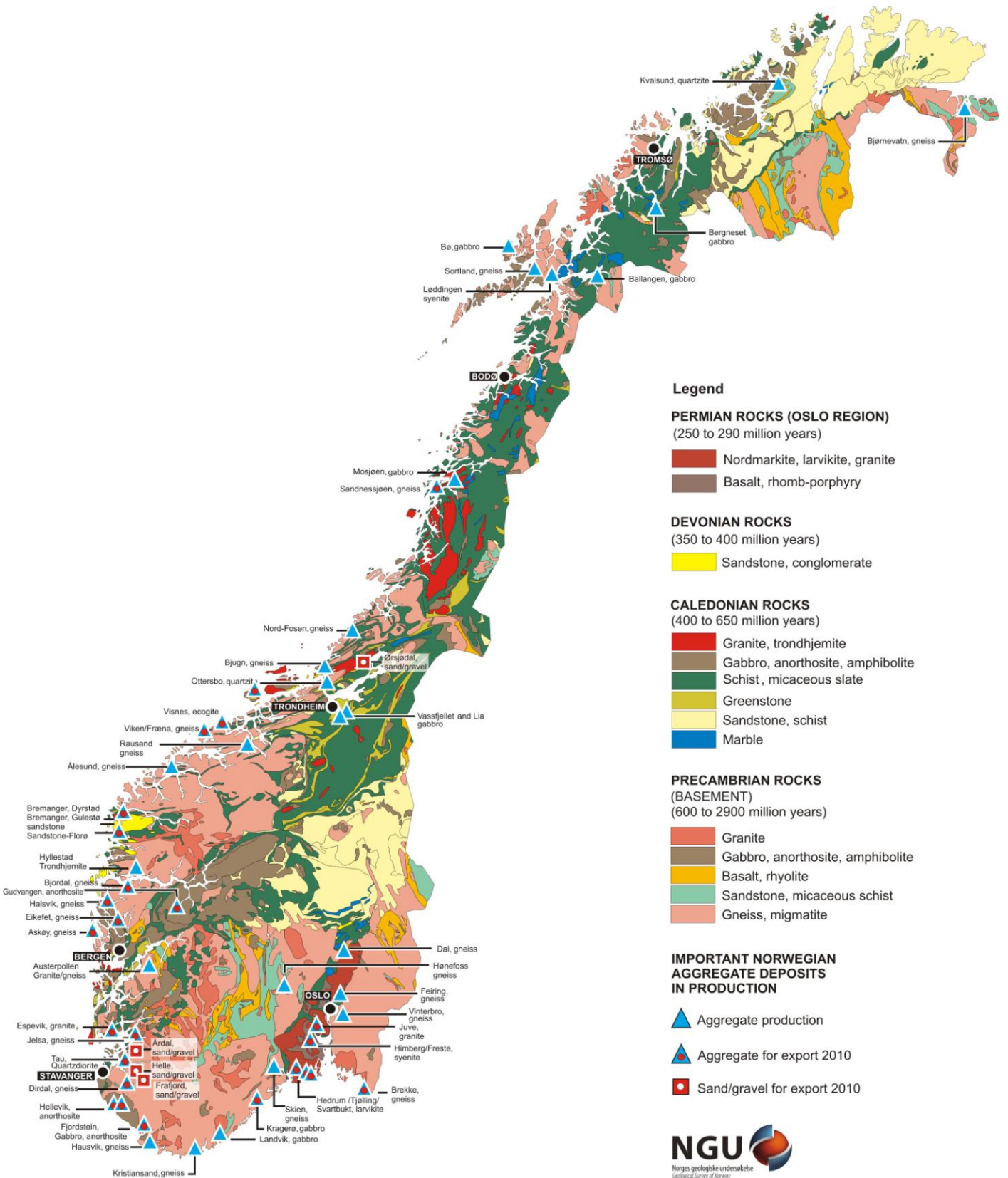
<http://www.ngu.no/grusogpukk> , http://www.ngu.no/kart/grus_pukk/ or <http://www.ngu.no>

Trondheim, 22th June 2011



Peer-Richard Neeb
Teamleader
Aggregates

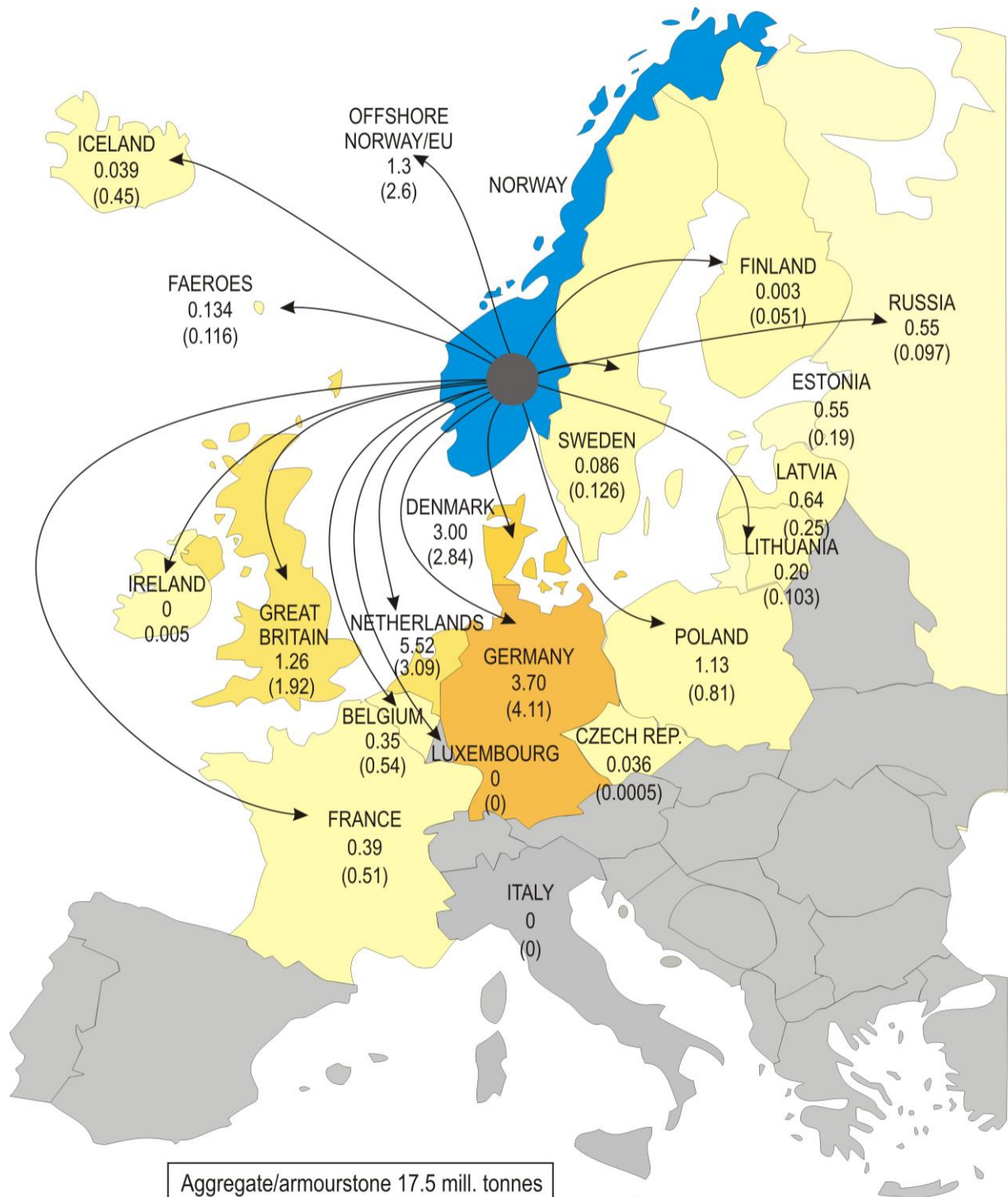
BEDROCK MAP OF NORWAY WITH IMPORTANT AGGREGATE DEPOSITS



NORWEGIAN AGGREGATE EXPORTED IN 2010

Total production export 17.6 mill. tonnes aggregate, armourstone, sand and gravel, plus 1.3 mill. tonnes aggregate for offshore use.

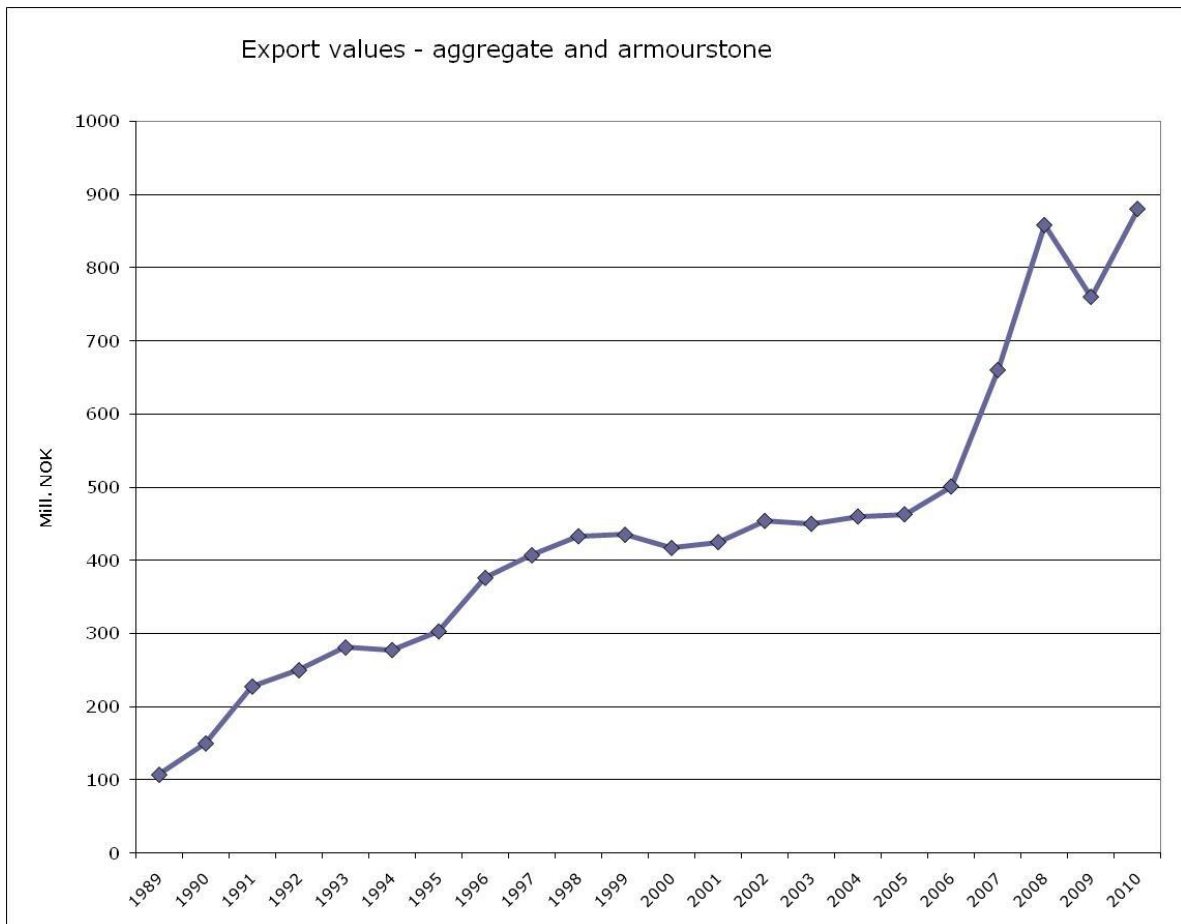
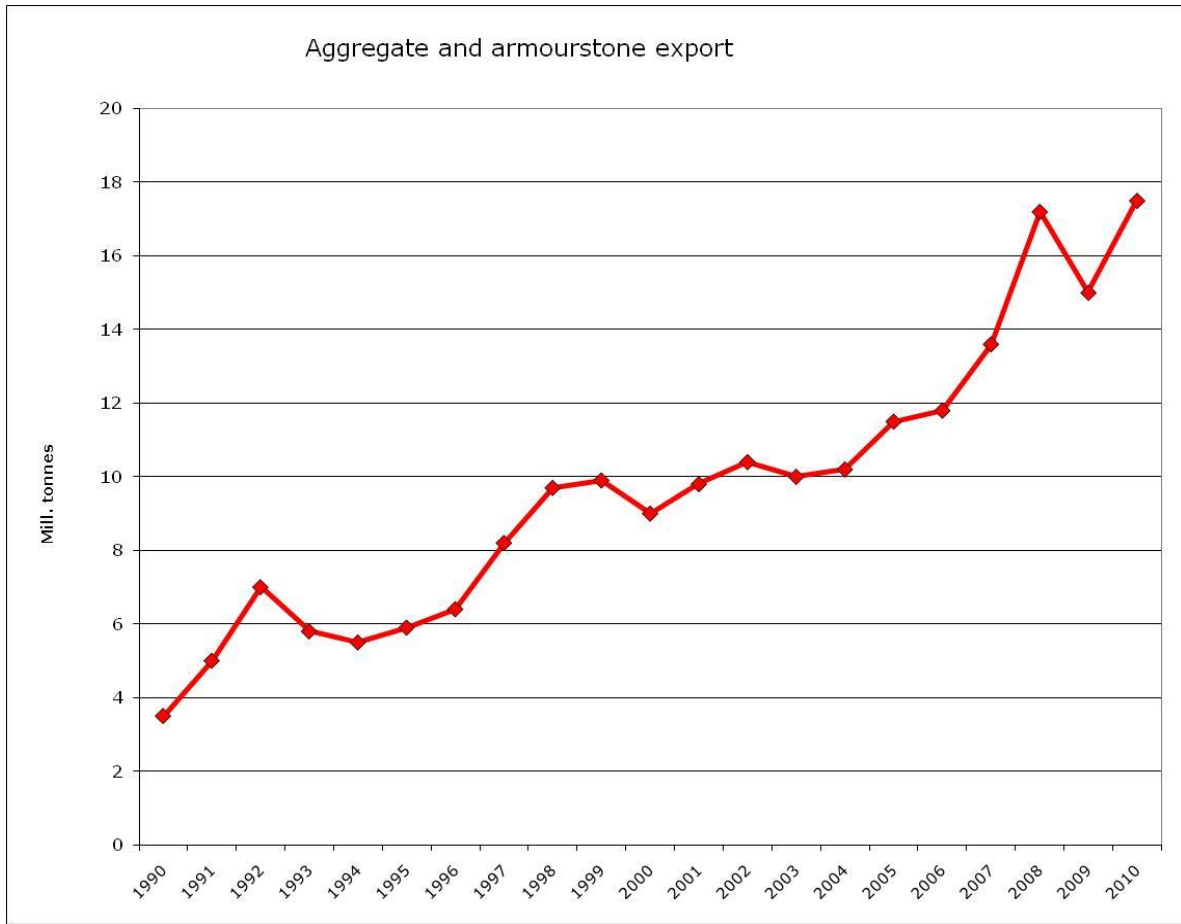
Export production values for 2009 in parentheses .



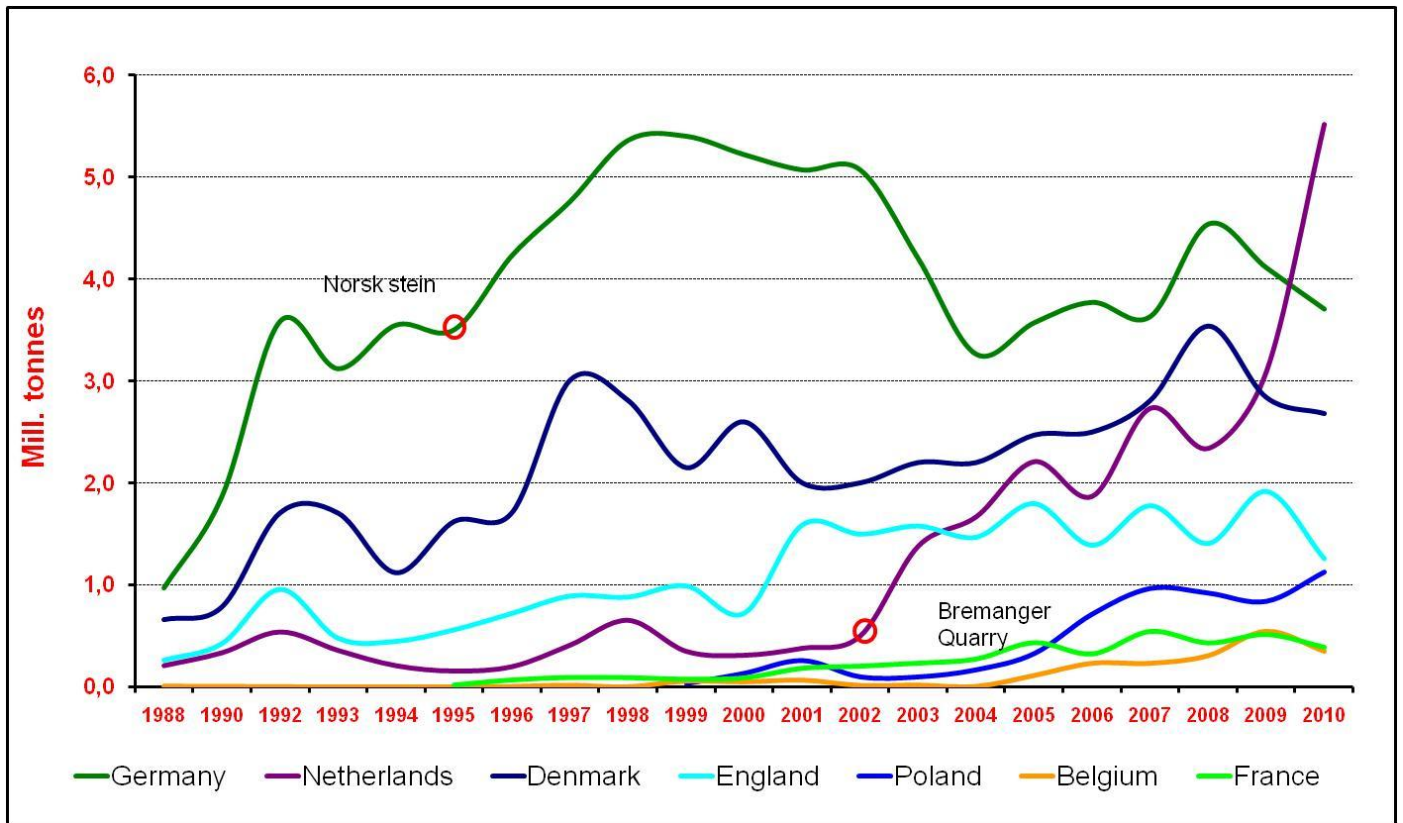
Aggregate/armourstone 17.5 mill. tonnes
 Sand/gravel 0.12 mill. tonnes
 Export value 880 mill. NOK/110 mill. EUR
 Offshore-aggregate 1.3 mill. tonnes



AGGREGATE EXPORT 1989-2010



Norwegian export of hard rock aggregate 1988 – 2010 to 7 countries in Europe



HARD ROCK AGGREGATES AND ARMOURSTONE: NORWEGIAN QUARRIES AND POTENTIAL AREAS ALONG THE COAST OF SOUTH-CENTRAL NORWAY AND FINNMARK. SITE NUMBER REFERENCED ON ENCLOSED MAPS

Østfold County

| Site number Municipality | Production location | Export today | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|--|--------------|----------------|-----------------|-------------|-----------------|--------------------|-------|---------|-------|
| | | | | | | | Los Angeles | PSV | Density | |
| 0101-514 Halden | Brekke Iddefjorden BG-Stone AS Tingvej 11, 1. sal, 8800 Viborg, Danmark | x | Jan Pedersen | +45 40 15 02 80 | | Granite Grey | 36 | 53 | 2.64 | |
| 0101-506 Halden | NorStone as, Svingen | | Terje Holt | 69 19 53 61 | 69 19 50 74 | Gneiss/grey | 15 | 51-54 | 2.79 | |

Vestfold County

| Site number Municipality | Production location | Export today | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|---|--------------|-------------------------------|-------------------------|-------------|---------------------------------|--------------------|----------|--------------------|-------------------------|
| | | | | | | | Los Angeles | PSV | Density | |
| 0709-511 Larvik | NCC Roads AS avd Hedrum- og Tjølling | x | Ole Steinholt | 33 13 69 60 91618603 | 33 13 69 79 | Syenite/Larvikite Grey-black | 30.9 | 48 | 2.72 – 2.73 | Hedrum |
| 0709-501 Larvik | Pukkverk, Landhjem 3270 Larvik | | | | | | 31.2 | 48 | 2.71 | Tjølling |
| 0709.502 | Lundhs AS, Tvedalen Box 2051, 3255 Larvik | | Thor Anders Lundh Håkestad | 33121164 | 33182334 | Larvikite | 22 | 48 | 2.74 | Waste-Natural stone |
| 0709-xxx Larvik | Norsk Stein AS, avd. Larvik,Løkka 21, 3271 Larvik Svartbukt/Larvik Helgeroa | x | Stig Axel Olsen | 94172320 | | Syenite/Larvikite Grey-black | 24.5 | 48 | 2.74 | Armourstone |
| 0718-503 Ramnes | Martin Haraldstad AS 3175 Ramnes | x | Steinar Frellumstad | 33 39 65 54 | 33 39 51 95 | Syenite – Grey Syenite | 19.0 – 23.2 12 | 50 43 | 2.62 – 2.74 2.7 | Avd. Himberg, Freste |
| 0713-508 Sande | Sando Kalk og Pukk-servise AS | | NGU | | | Carbonate White | 19.4 | 57 | 2.78 | Closed |
| 0711-506 Svelvik | Juve pukkverk A/S, 3060 Svelvik | x | Guri Olsen | 33 77 20 15 | | Granite Red | 23.7 – 27.4 | | 2.50 – 2.60 | |

| | | | | | | | | | | |
|------------------------|--|---|----------------|----------|--|-----------------|----|----|------|--|
| 0706-501 Sandefjord | ÅSMUND Berg, KOLO Veidekke AS, 3233 Sandefjord | x | Gunnar Topstad | 33470171 | | Larvikite- Grey | 33 | 45 | 2.71 | |
|------------------------|--|---|----------------|----------|--|-----------------|----|----|------|--|

Telemark County

| Site number Municipality | Production location | Export today | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|---|--------------|-------------------------|-------------|-------------|-----------------|--------------------|---------|-------------|-----------------------|
| | | | | | | | Los Angeles | PSV | Density | |
| 0806-501 Skien | NCC Skien pukkverk AS, Voldsfjorden Havnevn. 22 3739 Skien | | Kolbjørn Bach Hansen | 35 90 04 44 | 35 90 04 41 | Gneiss | 21 - 23 | 50 - 51 | 2.65 | Export before 2005 |
| 0815-509 Kragere | NCC ROADS Avd. Valberg 3770 Kragere | x | Frode Jørgensen | 35 98 99 40 | 35 98 99 41 | Gabbro Black | 15 - 20 | 51 | 2.90 - 3.11 | |

Aust-Agder County

| Site number Municipality | Production location | Export today | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|---|--------------|----------------|-------------------------|-------------|-----------------|--------------------|---------|-------------|-------|
| | | | | | | | Los Angeles | PSV | Density | |
| 0901-506 Risør | Lemminkainen Norge A/S Ravneberget 4990 Søndeled | | Eigil Runsag | 37 15 39 50 90505342 | 37 15 62 73 | Gabbro | 14-16 | 48-52 | 2.99 - 3.05 | |
| 0904-516 Grimstad | Landvik pukkverk Postboks 481 4801 Arendal | | Bjørn Berg | 37097300 | | Gabbro | 14 - 15 | 45 - 49 | 2.92 - 3.03 | |
| 0906-502 Arendal | Klodeborg pukkverk Postb. 1701, Myrene 4801 Arendal | | Bjørn Berg | 37097300 | | Gneiss | 23 - 25 | 52 | 2.78 - 2.90 | |

Vest-Agder County

| Site number Municipality | Production location | Export today | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|---|--------------|------------------|-------------|-------------|-----------------|--------------------|-----|-------------|-------|
| | | | | | | | Los Angeles | PSV | Density | |
| 1001-508 Kristiansand | Ringknuten pukkverk A/S Postboks 1121 Lundsiden 4602 Kristiansand S | | Karsten Reme | 38 17 91 00 | 38 09 72 08 | Gneiss | 25 | 52 | 2.60 - 2.70 | |
| 1032-501 Lyngdal | Hausvik Pukkverk Rock trading AS, PB 1029 4884 Grimstad | x | Torhild Sundtoft | 90077880 | | Gneiss/granite | 21 - 24 | 50 | 2.73 - 2.80 | |

Rogaland County

| Site number Municipality | Production location | Export today | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------------|---|--------------|-------------------------------|------------------------------|-------------|----------------------------|--------------------|---------------|--------------|-------|
| | | | | | | | Los Angeles | PSV | Density | |
| 1101-501 1101-502 Eigersund | K.S. Norwegian Edelsplit 4375 Hegrestad | x | Anders Hovland | 51 46 11 80 / 51 49 68 77 | 51 49 66 54 | Anorthosite White | 11.9 - 17 | 51 - 55 42 | 2.69 – 2.77 | |
| 1101-503 Eigersund | Ramsland pukk A.S, Hellvik 4387 Bjerkreim | | Paul Ramsland local marked | 51 45 01 88 51 49 68 77 | 51 45 01 11 | Anorthosite White | 12.3 | 54 | 2.78 | |
| 1129-06/09/10 Forsand | NCC ROADS AS avd Helle | x | Arne Maudal | 51703555 | | Sand/gravel | | | | |
| 1111-501 Sokndal | Rekefjord Stone AS 4380 Hauge i Dalane | x | Solveig Rek Olsen | 51476050 91165456 | | Anorthosite/ Norite | 14-33 23-35 | 46-53 55 | 2.75 3.16 | |
| 1134-501 Suldal | Norsk Stein AS Berakvam 4234 Jelsa | x | Odd Hodtvedt | 52 79 29 00 | 52 79 29 01 | Gneiss | 15.4 – 20 | 52 - 58 | 2.76 – 2.79 | |
| 1122-501 Gjesdal | NorStone a.s NorStone Dirdal 4335 Dirdal | x | Daniel Øvstebø | 51 67 61 00 | 51 67 61 01 | Gneiss | 24.3 | 48 | 2.76 – 3.0 | |
| 1122 – 8 Gjesdal | NorStone a.s NorStone Fraffjord 4335 Dirdal | x | Daniel Øvstebø | 51 67 61 00 | 51 67 61 01 | Sand/gravel | | | | |
| 1130-501 Strand | NorStone a.s NorStoneTau 4120 Tau | x | Daniel Øvstebø | 51 67 61 00 | 51 67 61 01 | Mylonite Quartz diorite | 10.5 – 10.8 | 52 – 57 | 2.76 – 2.80 | |
| 1146-506 Tysvær | Amrock J.V. A/S Espevik,5560 Hinderåvåg, Tysvær | x | Tore Jonny Wollertsen | 52 75 42 30 | 52 77 89 33 | Granite | 12.1 - 27 | 50 - 58 | 2.63 – 2.93 | |
| 1154-502 Vindafjord | Knapphus knuseverk Toraneset Øvre Vats 5576 | | Svein Ove Tyssebotn | 53 76 39 16 | | Granite | | | 2.71 | |
| 1133-018 Hjelmeland | NorStone Årdal 4137 Årdal i Ryfylke | x | Daniel Øvstebø | 51 67 61 00 | 51 67 61 01 | Sand/gravel | | | | |

Rogaland County - Potential deposit of aggregate

| Site number Municipality | Production location | Potential | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|--------------------------------|-----------|----------------|-----------|------------|-----------------|--------------------|-----|---------|-------|
| | | | | | | | Los Angeles | PSV | Density | |
| 1103-503 | Ådnanesnuten Strand kommune | Possible | | | | Augen gneiss | | | 2.66 | |

| | | | | | | | | | | |
|----------|---|----------|---------------------|-------------------------|-------------|-------------|---------------------|----------------|--------------------|-----------------------------|
| 1141-501 | Sørevågen Finnøy kommune | Possible | | | | Gneiss | | | 2.75 | |
| 1145-501 | Sønmland Bokn kommune | Possible | | | | Gneiss | | | 2.64 | |
| 1146-503 | Ramsvika Tysvær kommune | Possible | | | | Gneiss | | | 2.67 | |
| 1134-503 | Ersdal Suldal kmmune | Possible | | | | Gneiss | | | 2.73 | |
| 1154-505 | Rafoss Invest AS, Vindafjord Rock Company AS,Raunes Vindafjord komm. | Possible | | 53 76 12 00 NGU | 53 76 05 20 | Gneiss | 21.4 – 40.3 | 51 – 54 | 2.62 – 2.71 | |
| 1111-504 | Sokndal-Jøssingfjord Noran A/S | Possible | | | | Anorthosite | | | | |
| 1111-503 | Hauge i Dalane, Sokndal Titania a/s | Possible | Knut Petter Netland | 51 47 80 00 90911242 | 51 47 80 10 | Anorthosite | 24.1 | 48 | 2.88 | Waste from ilmenite mine |
| 1101-504 | Lædre, Eigersund | Possible | | | | Anorthosite | 10.07 – 13.4 | 52 - 56 | 2.78 | |

Hordaland County

| Site number Municipality | Production location | Export today | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|---|--------------|---------------------|-------------------------|-------------|-----------------|--------------------|----------------|--------------------|---------------------------|
| | | | | | | | Los Angeles | PSV | Density | |
| 1247-501 | NorStone a.s NorStone Askøy 5328 Herdla | x | Daniel Øvstebø | 51 67 61 00 | 51 67 61 01 | Mylonite | 14.1 | | 2.60 | |
| 1263-501 Lindås | Eikefet pukkverk Oster pukk og sand A/S Ø. Muralm. 1, 5012 Bergen | x | Magne Aunebakk | 55 36 30 00 | 55 36 30 10 | Granite-gneiss | 15 - 18 | 53-54 | 2.65 – 2.70 | |
| 1224-xxx Kvinnherad | Johs Hjelmeland AS Austrepollen 5164 Dimmelsvik | | Johannes Hjelmeland | 53 48 30 70 41683070 | 56 55 60 57 | Granite-gneiss | 21 | 50 - 52 | 2.71 | Waste from road tunnel |

Hordaland County - Potential deposit of aggregate

| Site number Municipality | Production location | Potential | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|--|-----------|----------------|--------------|-------------|-----------------|--------------------|-----|-------------|-------|
| | | | | | | | Los Angeles | PSV | Density | |
| 1222-504 | Svartasmoget, SIM, 5410 Sagvåg Fitjar kommune | Possible | Terje Gilje | 53 45 78 50 | 53 45 78 60 | Granite | | | 2.76 | |
| 1222-xxx | Gabbro Stone, Rauholmen box 344, 546224 Varnersberg, Sverige | Possible | Arvid Andersen | 467086640955 | | Gabbro | | | | |

| Site number Municipality | Production location | Potential | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|---|-----------|----------------|-------------|--------------------------|-----------------|--------------------|----------------|-------------|-------|
| | | | | | | | Los Angeles | PSV | Density | |
| 1222-xxx | Landasåtane, 5419 Fitjar Fitjar kommune | Possible | Fitjar kommune | 53 49 71 01 | 53 49 73 97 | Amphibolite | | | | |
| 1245-502 | Sund Granitt AS, Nova Maritime Service A/S Postboks 3703, 5845 Bergen, Lundaneset, Sund kommune | Possible | Jan Johnsen | 55 12 35 50 | novajohn@start.no | Gneiss-granite | 10.6 – 15.2 | 50 - 56 | 2.64 | |
| 1266-505 | Eikemo Steinbrot Masfjorden | Possible | Tore Svendsen | 56 36 51 00 | 56 36 51 05 | Gneiss | 25.9 – 31.1 | 52 - 55 | 2.65 | |
| 1263-504 | Hodna, 5110 Isdalsstø Lindås kommune | Possible | | 56 35 05 55 | 56 35 28 00 | Gabbro | | | | |
| 1246-505 | Vindenes, Aktivest, Postboks 244, 5353 Straume, Fjell kommune | Possible | Harald Smedal | 56 32 0055 | 56 32 01 60 | Gneiss | | | 2.74 | |
| 1241-xxx | Matland, 5640 Eikelandsosen Fusa kommune | Possible | Fusa kommune | 56 56 11 00 | 56 58 13 38 | Gneiss | | | | |
| 1223-501 | Steinåsen, 5685 Uggdal Tysnes kommune | Possible | | 53 42 22 22 | 53 43 21 81 | Quartz diorite | | | 3.03 | |
| 1216-xxx | Ålfjorden, 5520 Sveio, Sveio komm. | Possible | Sveio kommune | 53 74 01 00 | 52 74 00 96 | Gneiss-granite | | | | |
| 1216-xxx | Mjuk, 5520 Sveio Sveio kommune | Possible | Sveio kommune | 53 74 01 00 | 52 74 00 96 | Gneiss-granite | | | | |

Sogn og Fjordane County

| Site number Municipality | Production location | Export today | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|--|--------------|--------------------------------------|----------------------------|-------------|----------------------|--------------------|----------------|--------------------|----------------|
| | | | | | | | Los Angeles | PSV | Density | |
| 1411-504 Gulen | Halsvik Aggregates A/S, Sløvåg, 5960 Dalsøyra | x | Torbjørn Wergeland/Mike Hudson | 46 84 44 47 57 78 14 40 | 57 78 38 76 | Gneiss | 20 – 24 | 49 - 57 | 2.67 - 2.71 | Micro Deval: 9 |
| 1421-539 Aurland | Gudvangen stein AS, Nordic Mining Munkedamsveien 45 0250 OSLO | x | Ottar Nakken | 22947720 92891780 | | Anorthosite White | 13 - 15 | 58 - 60 | 2.88 – 3.04 | Mico Deval: 12 |

| Site number Municipality | Production location | Export today | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|--|--------------|---|----------------------------|-------------|---|--------------------|----------------|--------------------|---|
| | | | | | | | Los Angeles | PSV | Density | |
| 1424-501 Årdal | Årdalitt A/S Offerdal, 6146 Åheim | | Henning Hansen | 70 02 43 22 | | Trondhjemite | 26 | 47 | 2.63 | |
| 1413-504 Hyllestad | Hyllestad Pukk KOLO Veidekke, Postboks 8043, Spjelkavik, 6022 Ålesund | x | Hallvard Søvik | 90148192 | | Trondhjemite/- quartz diorite white granite | 17 | 49 - 51 | 2.62 | Micro Deval: 3 |
| 1433-504 Naustal | Fjordblokk A/S Engebø, Nausdal | Closed 99 | | NGU | | Eclogite | 9.5 – 12.6 | 51 – 53 | 3.31 - 3.38 | |
| 1420-501 Sogndal | Sogndal Pukkverk Fredheim Maskin og Betong A/S , 6856 Sogndal | | Arvid Fredheim | 57 67 84 46 90 51 33 66 | 57 67 88 14 | Anorthosite | 18 | 49 | 2.91-2.93 | Micro Deval: 5.2 |
| 1401-514 Flora | Havrøy Pukkverk Flora | Closed | | | | Anorthosite | | | | |
| 1416-046 Høyanger | Bjorsand AS 5962 Bjordal | x | Pewil Firkowski | 57 71 02 80 46247577 | 57 71 02 81 | Sand/gravel/gneiss | | | | |
| 1438-515 Bremanger | Bremanger Quarry A.S, Dyrstad 6723 Svelgen | x | Michiel Peters /Rune Mo Postboks 93 6721 Svelgen | 57 79 66 00 | 57 79 66 09 | Sandstone Green | 12 -19 | 60-62 | 2.69 | Micro Deval: 17 |
| 1401-508 Flora | Seljestokken, Norwegian Sandstone Export AS. 6724 Svelgen | x | Ronny Sørås | 577 477 30 | 577 477 31 | Sandstone Green | 12-14 | 59-61 | 2.72- 2.76 | New company NGU sample 06.08 Micro Deval: 12 |

Sogn og Fjordane County - Potential deposit of aggregate

| Site number Municipality | Production location | Potential | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-------------------------------|--|-----------|--|-------------|-------------|----------------------------|--------------------|----------------|--------------------|---|
| | | | | | | | Los Angeles | PSV | Density | |
| 1438-514 Bremanger | Gulestø, Bremanger Quarry A.S, Dyrstad 6721 Svelgen | Possible | Michiel Peters/Rune Mo Postboks 93 6721 Svelgen | 57 79 66 00 | 57 79 66 09 | Sandstone Green | 13 | 57 – 58 | 2.74 | Production of armourstone 2012/2013 |
| 1438-504 and 510 Bremanger | Gotraneset - Skipperdalen | Possible | NGU | | | Trondhjemite Grey/white | 14.7 – 17.2 | 50 - 58 | 2.68 – 2.71 | |

| Site number Municipality | Production location | Potential | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|-----------------------|-----------|----------------|-----------|------------|--------------------|--------------------|-----|---------|---------------|
| | | | | | | | Los Angeles | PSV | Density | |
| 1401-506 Flora | Beidvik, Durmålhornet | Possible | NGU | | | Sandstone Green | 11.8 | 56 | 2.74 | |
| 1429-506, Fjaler | Lutelandet | Possible | NGU | | | Gneiss | 17-21 | | 2.75 | New ind. area |

Møre og Romsdal County

| Site number Municipality | Production location | Export today | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|--|--------------|--------------------------------|----------------------------|-------------|-----------------|--------------------|---------|-------------|----------|
| | | | | | | | Los Angeles | PSV | Density | |
| 1554-xxx | Gunnar Holth Kristiansund AS – Averøy Bruhagen industripark, 6530 Averøy | x | Oddvar Soma | 71516040 99581789 | 71516041 | Gneiss | | | | Offshore |
| 1516-505 Ulstein | Kvalnes pukkverk Ulstein Betongindustri A/S 6072 Haddal | | | 70 01 60 04 | | Gneiss/granite | | | 2.67 – 2.70 | |
| 1504-501 Ålesund | Kolo -Veidekke AS Knuseverket As, Ålesund 6019 Ålesund | | Magne Mørkedal | 70 17 54 00 94 73 63 76 | 70 17 54 10 | Gneiss | | | 2.65 – 2.72 | |
| 1504-502 Ålesund | Ufo pukkverk Kolo- Veidekke AS 6022 Spjelkavik | | Magne Mørkedal | 70 17 54 00 94 73 63 76 | | Gneiss | | | 2.69 – 2.71 | |
| 1523-501 Ørskog | Skjøholt pukkverk 6240 Sjøholt | | Karl Vaksvik Vaksvik Maskin | 70 27 30 52 | 70 27 31 02 | Dioritic gneiss | | | 2.77 – 2.85 | |
| 1543-522 Nesset | Kolo-Veidekke A.S Raudsand 6462 Raudsand | | Magne Mørkedal | 71 23 31 00 | 71 23 31 02 | Gneiss/granite | | | 2.60 – 2.66 | |
| 1551-508 Eide | Visnes Eklogitt A.S 6493 Lyngstad | x | Karl Johan Eide | 71 29 56 05 | 71 29 55 70 | Eclogite | 21.9 –23.2 | 59 – 61 | 3.15 – 3.20 | |
| 1548-512 Fræna | Viken Pukkverk A/S 1548 Fræna | x | Gunder Viken/ Kjell Hvattum | 71 26 93 78 | 71 26 93 76 | Gneiss | 19-20 | 52 | 2.9-3.1 | |

Møre og Romsdal County - Potential deposit of aggregate

| Site number Municipality | Production location | Potential | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|---------------------|-----------|----------------|-----------|------------|-----------------|--------------------|-----|---------|-------|
| | | | | | | | Los Angeles | PSV | Density | |

| Site number Municipality | Production location | Potential | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|------------------------------|---|-----------|----------------|-------------|------------|---------------------------|--------------------|-----|---------|-------|
| | | | | | | | Los Angeles | PSV | Density | |
| 1523-502 Ørskog kommune | Viset pukkverk A.S Jønningshagen 40, 4316 Sandnes | Possible | Alf Follo | 51 62 43 18 | | Gabbro black | 11.9 | 52 | 3.13 | |
| 1547-502 | Hollingen Aukra kommune | Possible | | | | Gneiss/granite | | | 2.63 | |
| 1543-501 Neset kommune | Breidvik | Possible | | | | Gabbro | | | 3.20 | |
| 1560-503 Tingvoll | Hammaren | Possible | | | | Gabbro | | | 3.15 | |
| 1566-501 Tingvoll kommune | Durmålhaugen pukkverk A.S Jønningshagen 40, 4316 Sandnes | Possible | Alf Follo | 51 62 43 18 | | Gneiss/granite | 26 | 52 | 2.69 | |
| 1560-501 Surnadal | Settem | Possible | | | | Amphibolite/- tonalite | | | 2.85 | |

Sør-Trøndelag/ Nord-Trøndelag Counties

| Site number Municipality | Production location | Export today | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|--|----------------|----------------|----------------------------|-------------|-----------------|--------------------|---------|-------------|--|
| | | | | | | | Los Angeles | PSV | Density | |
| 1621-501 Ørland | Kolo Veidekke A.S Ottersbo pukkverk 7140 Opphaug | x | Ketil Oksvold | 73 82 35 00 72 52 27 80 | 72 52 10 80 | Mylonite | 10.3 | 48 - 52 | 2.75 – 2.77 | Some export |
| 1627-505 Bjugn | Bjugn Pukkverk, Valsneset NCC Roads AS Trondheim | | | | | Gneiss | 12.3 | | 2.77 – 2.81 | |
| 1633-501 Osen | Nord-Fosen pukkverk 7740 Steinsdalen | Offshore stone | Jon E Høvik | 72 57 78 90 72 57 78 62 | 72 57 78 68 | Granodiorite | 27.4 – 47.5 | 52 - 53 | 2.67 – 2.69 | |
| 1724.001.04 Rissa/Verran | Ørsjødalen Norwegian Aggregates AS Sluppenveien 12E, 7037 Trondheim | (x) | Asbjørn Fossum | 73824100 | | Sand/gravel | | | | Sand/gravel production Some export |

Sør-Trøndelag County - Potential deposit of aggregate

| Site number Municipality | Production location | Potential | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|---------------------------------------|-----------|---------------------------|-------------|-------------|----------------------------|--------------------|--------|-------------|-------|
| | | | | | | | Los Angeles | PSV | Density | |
| 1617-515 | Korskammen Hitra kommune | Possible | | | | Granodiorite Grey/white | | | 2.70 – 2.75 | |
| 1630-506 | Raudhammaren Åfjord kommune | Possible | NGU | | | Granite/ amphibolite | | | | |
| 1633-502 | Langstrandheia Osen kommune | Possible | NGU | | | Granite-gneiss | 37.9 – 70.7 | 54 -61 | 2.62 – 2.78 | |
| 1612-506/507 | Gjøbergsheia/ Kammen Hemne kommune | Possible | NGU | | | Gneiss | 23.3 | 52 | 2.68 | |
| | | | | | | | 27.2 | 46 | 2.61 | |
| 1613-505 | Stokkafjellet Snillfjord kommune | Possible | NGU Snillfjord kommune | 72 45 55 55 | 72 45 55 97 | Gneiss | 19.6 | 53 | 2.64 | |

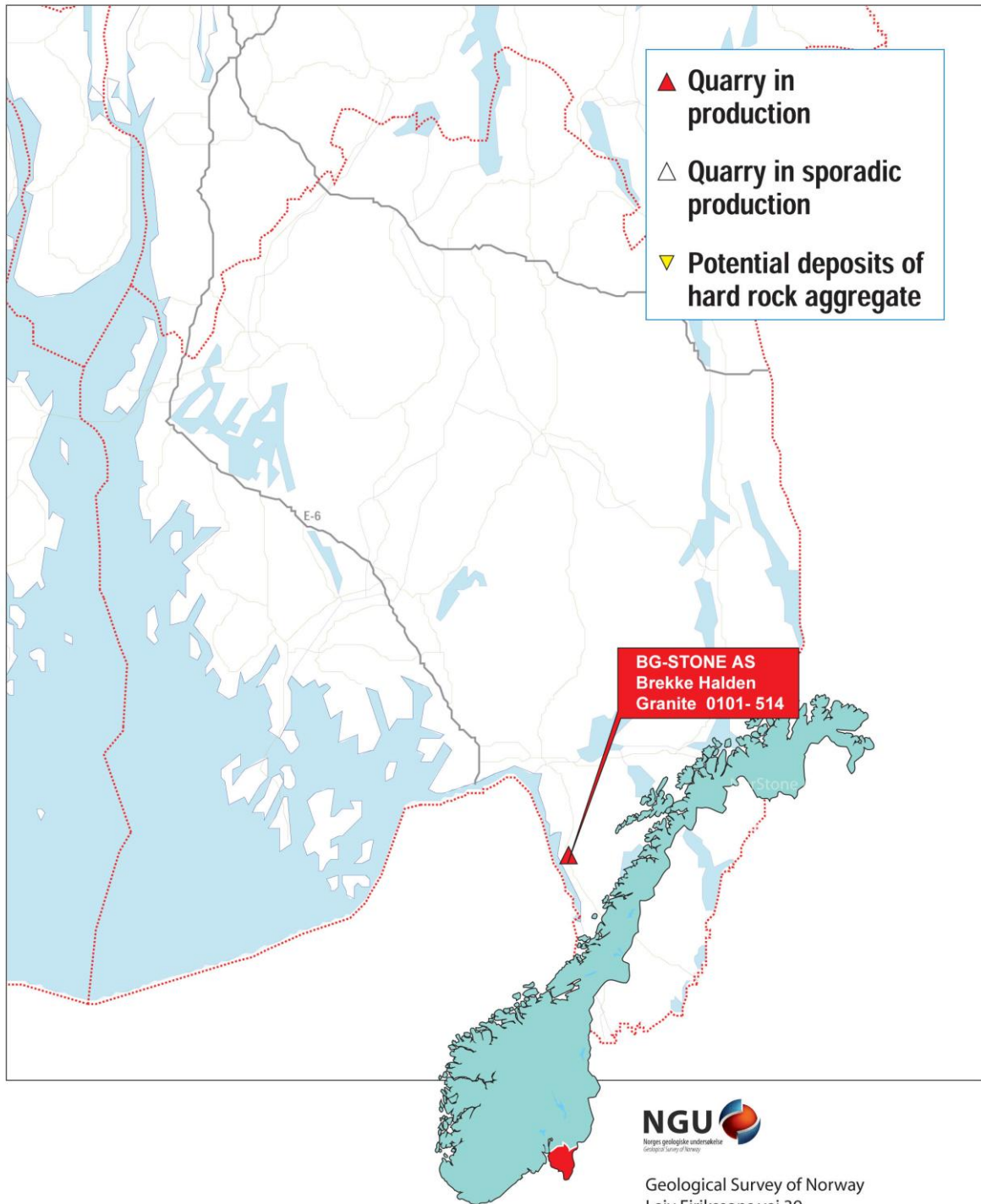
Nordland County

| Site number Municipality | Production location | Export today | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|--|--------------|-----------------|-----------|------------|-------------------------------------|--------------------|--------------|---------|---------------------------------------|
| | | | | | | | Los Angeles | PSV | Density | |
| 1854-510 Ballangen | Ballangen Aggregates AS . Boks 86 8546 Ballangen | | | | | Noritt Pyroxenite Black-green | 25 - 29 9 - 10 | 60 55 -60 | 3.0 | Closed Bankruptcy November 2008 |
| 1820-5xx | Aqua rock AS, 8800 Sandnessjøen | x | Bjørn Inge Aune | 99011001 | | No information | | | | New producer Offshore/export |
| 1867-514 Bø | Kobbvågen Knuseverk AS Haugen 8475 Straumsjøen | | Ronny Bergersen | 97179726 | | Gabbro/black | 25 | | 2.8 | New producer Offshore |

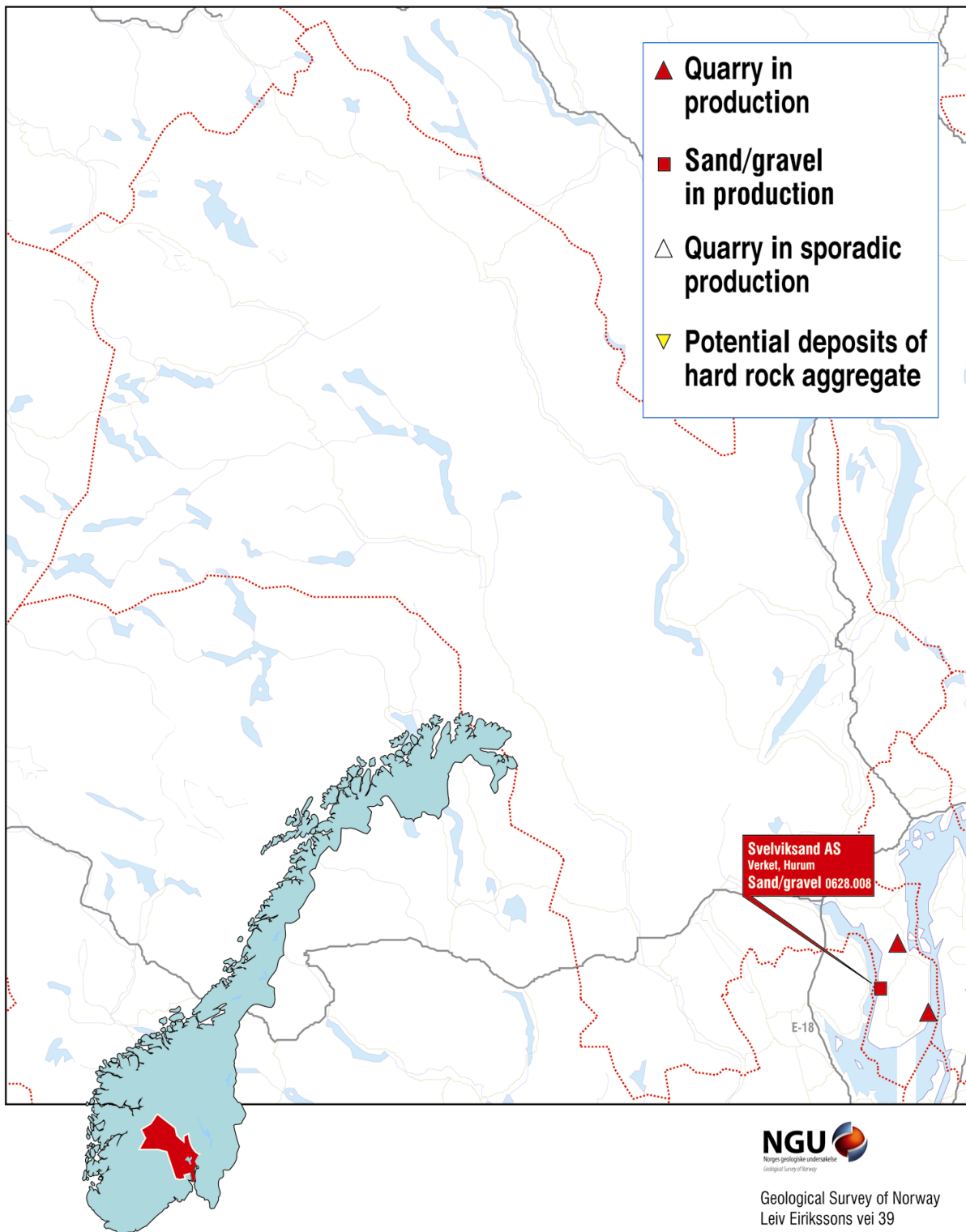
Finnmark County

| Site number Municipality | Production location | Export today | Contact person | Telephone | Fax-number | Bedrock/ colour | Quality parameters | | | Other |
|-----------------------------|--|----------------|------------------------------------|-------------------------|-------------|-----------------|--------------------|---------|-----------|-------------------------|
| | | | | | | | Los Angeles | PSV | Density | |
| 2017-501 Kvalsund | Repparfjord-Kvalsund Kvalsund Aggregates AS | Offshore stone | Trorbjørn Wergeland Mike hudson | 44844447 57 78 38 40 | 57 78 38 76 | Quartzite/grey | 15 | 58 | 2.68 | Offshore/export |
| 2030-501 Sør - Varanger | Bjørnevatn Tschudi Aggregates A/S | | Audun Celius | 78 97 03 00 95277290 | | Gneiss Grey | 12 – 18 | 54 – 56 | 2.75-3.02 | Waste from iron mine |

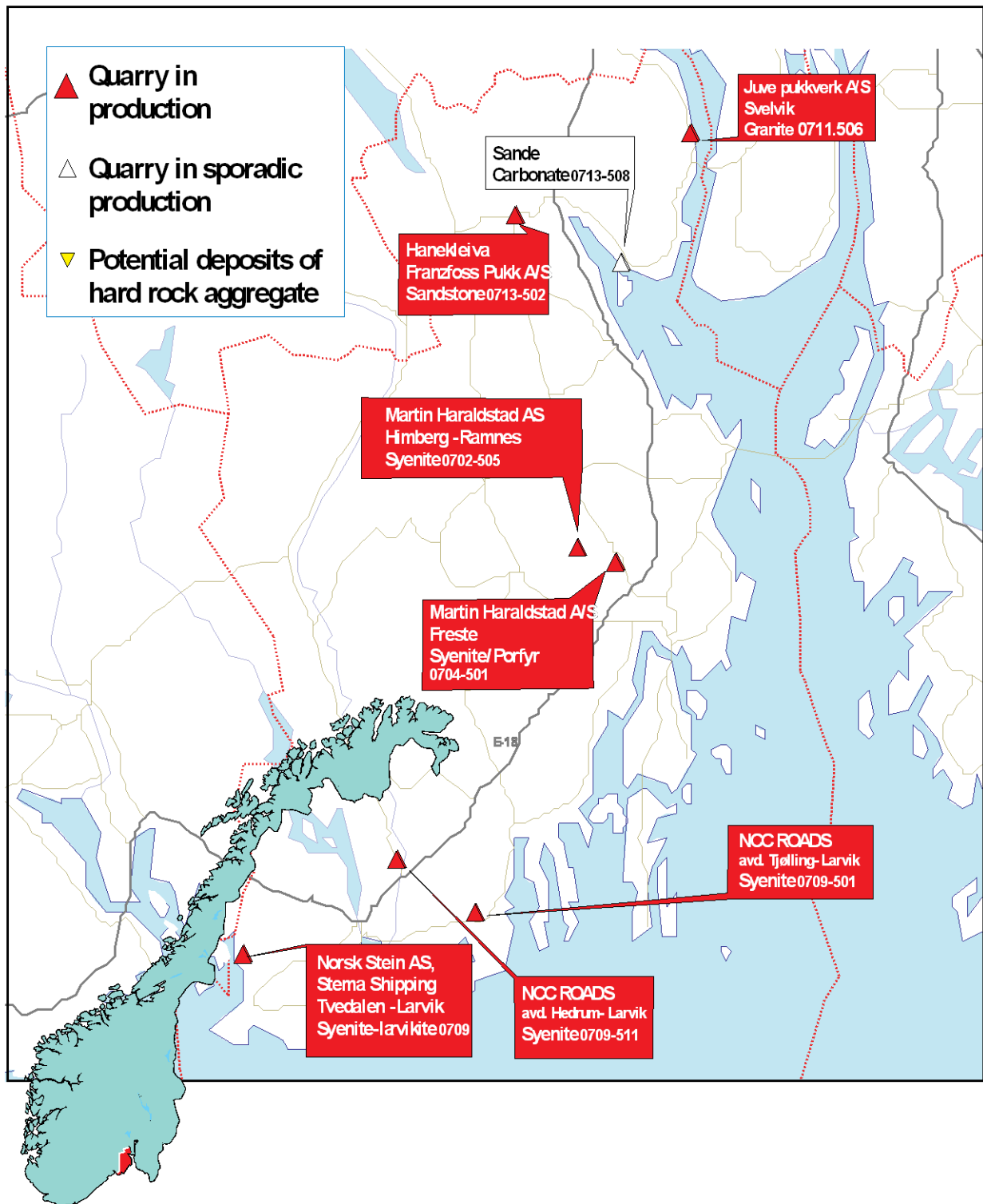
QUARRIES AND POTENTIAL DEPOSITS OF HARD ROCK AGGREGATE IN ØSTFOLD COUNTY



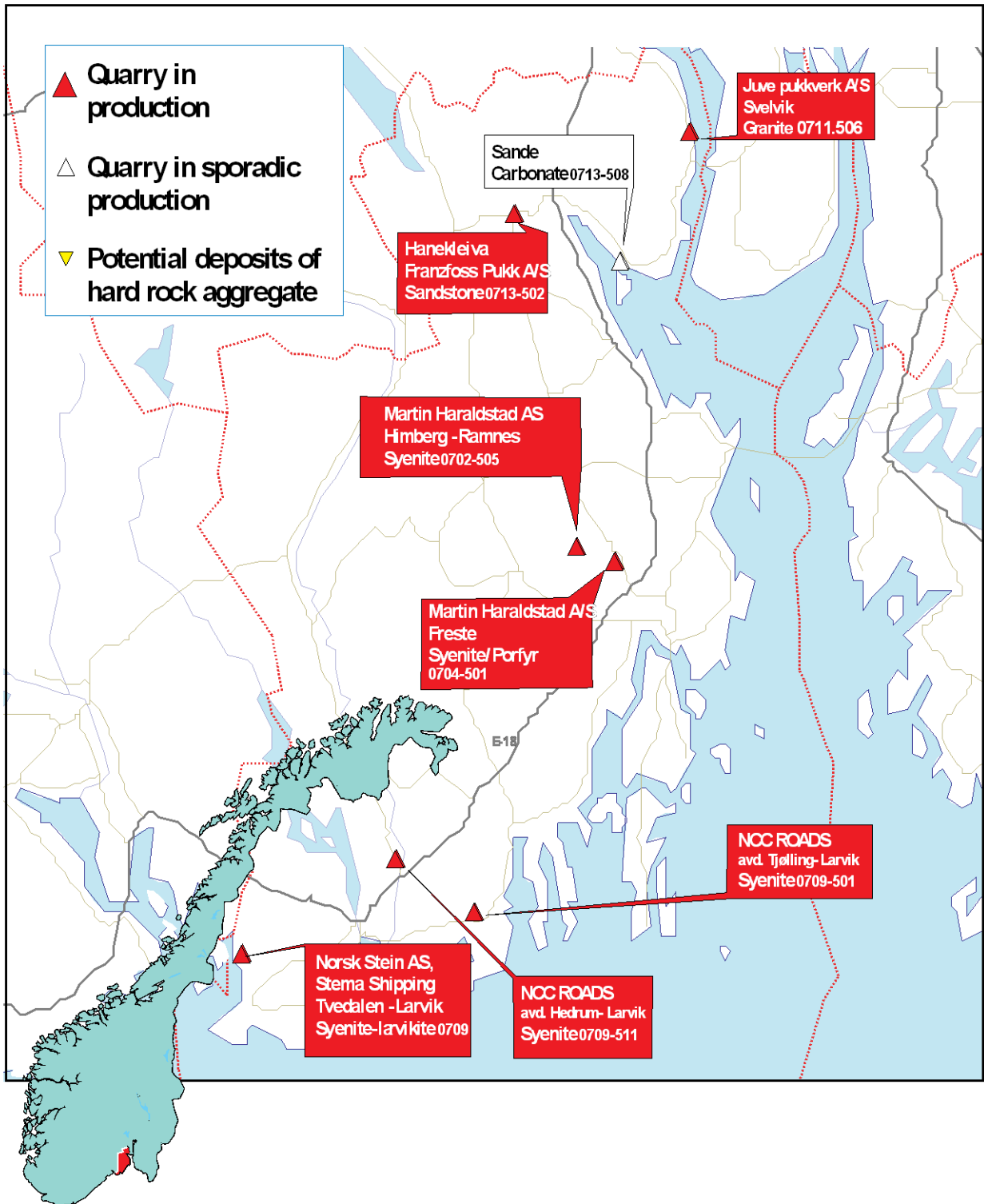
QUARRIES AND POTENTIAL DEPOSITS OF HARD ROCK AGGREGATE IN BUSKERUD COUNTY



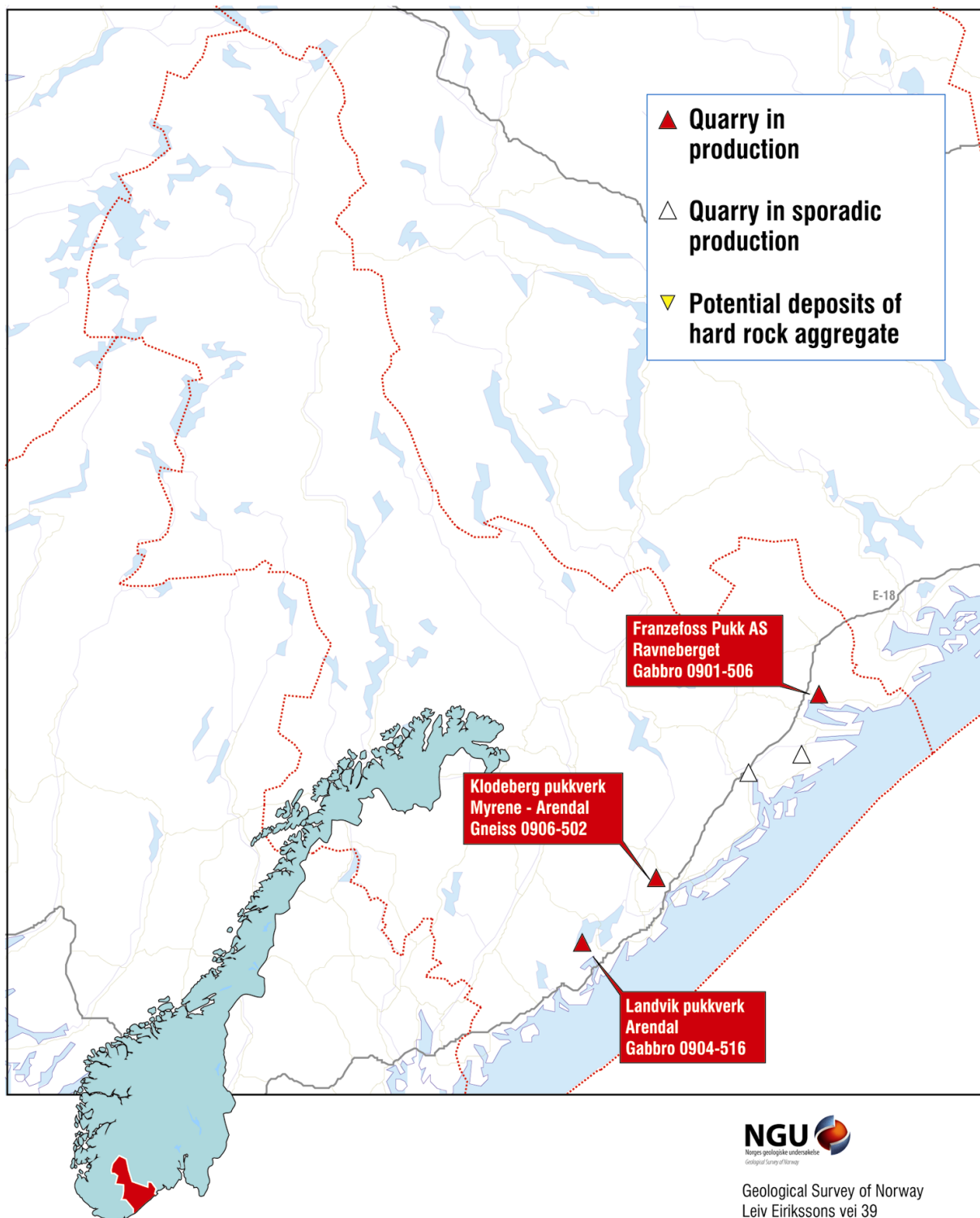
QUARRIES AND POTENTIAL DEPOSITS OF HARD ROCK AGGREGATE IN VESTFOLD COUNTY



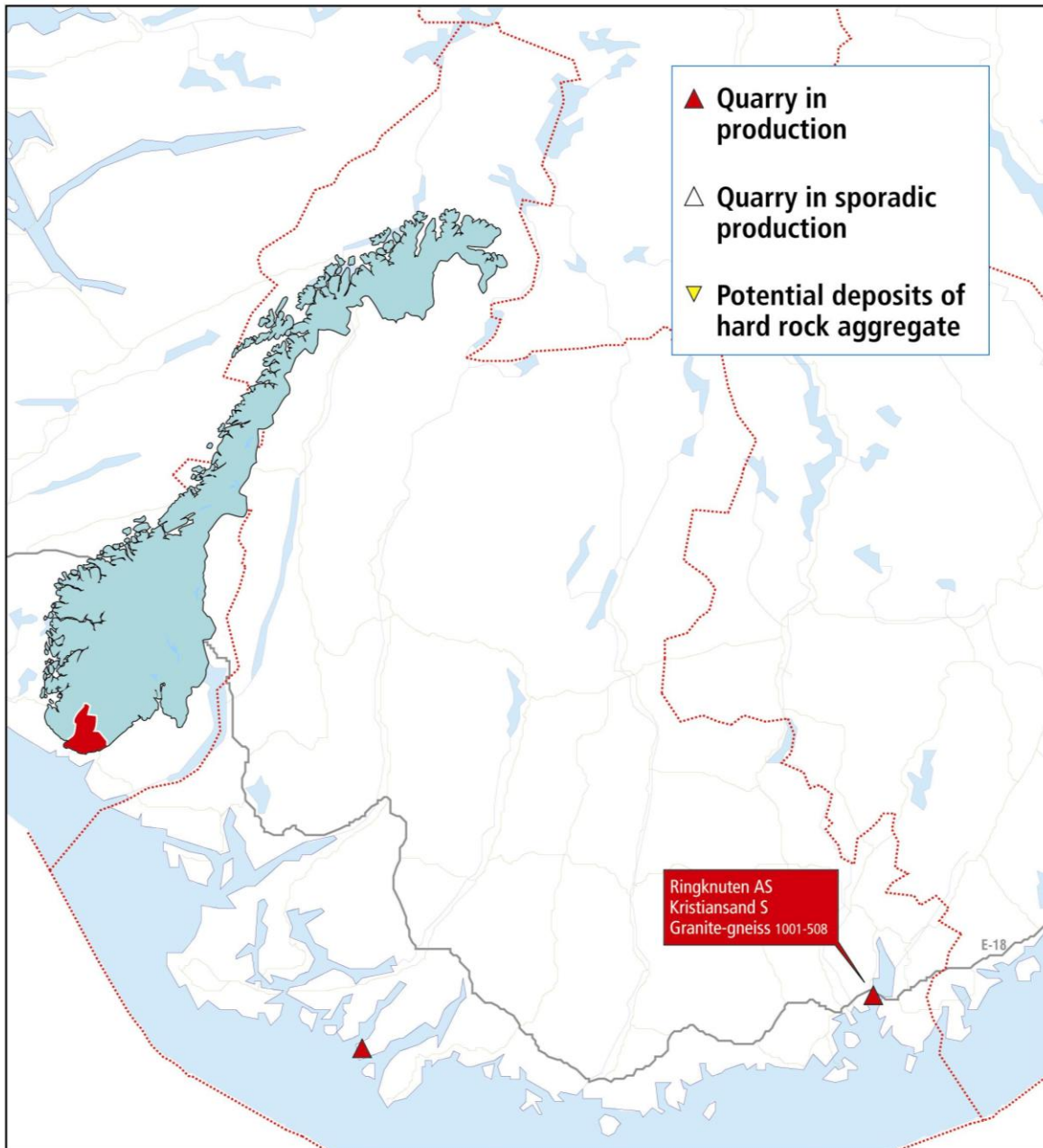
QUARRIES AND POTENTIAL DEPOSITS OF HARD ROCK AGGREGATE IN VESTFOLD COUNTY



QUARRIES AND POTENTIAL DEPOSITS OF HARD ROCK AGGREGATE IN AUST-AGDER COUNTY

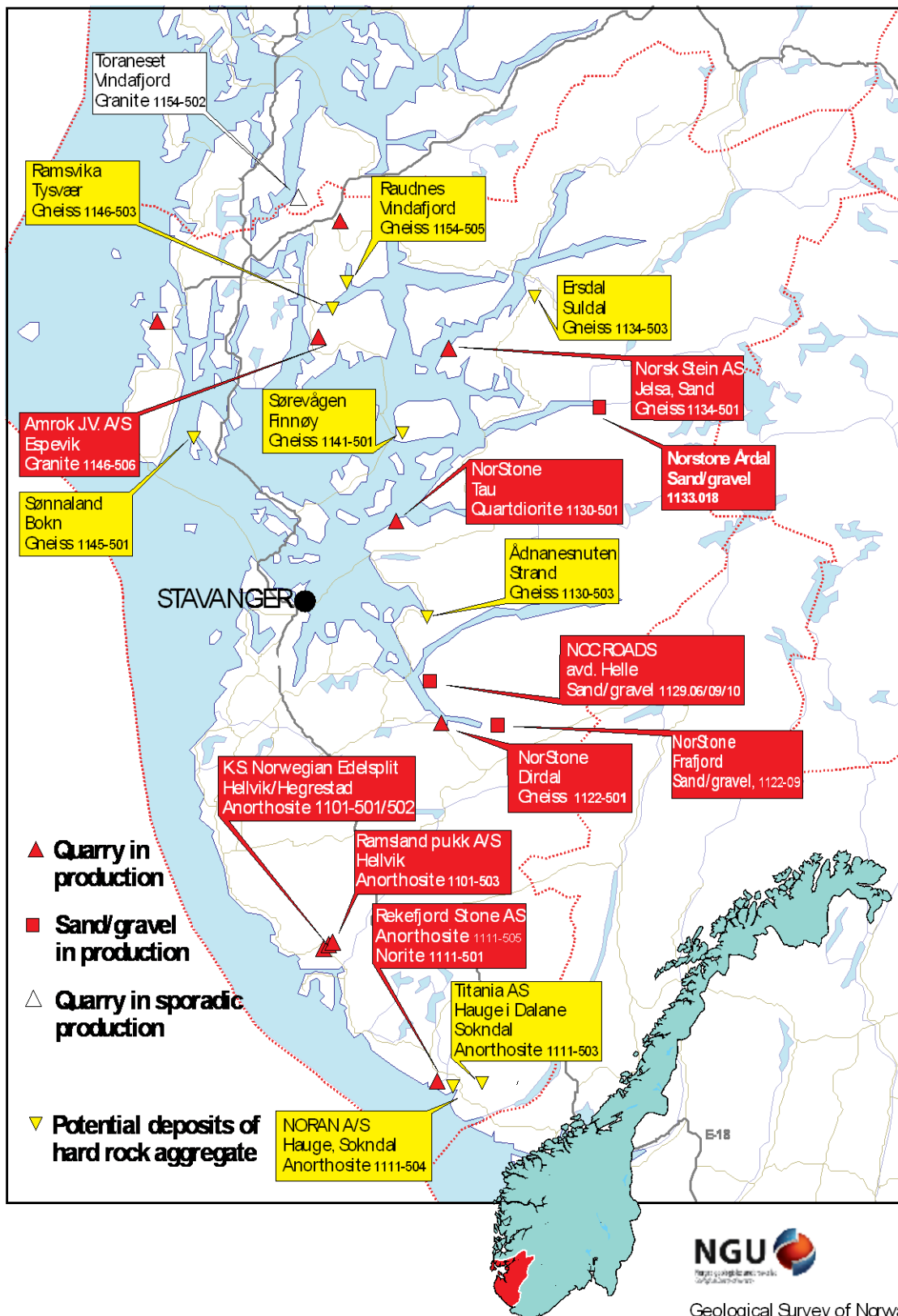


QUARRIES AND POTENTIAL DEPOSITS OF HARD ROCK AGGREGATE IN VEST-AGDER COUNTY



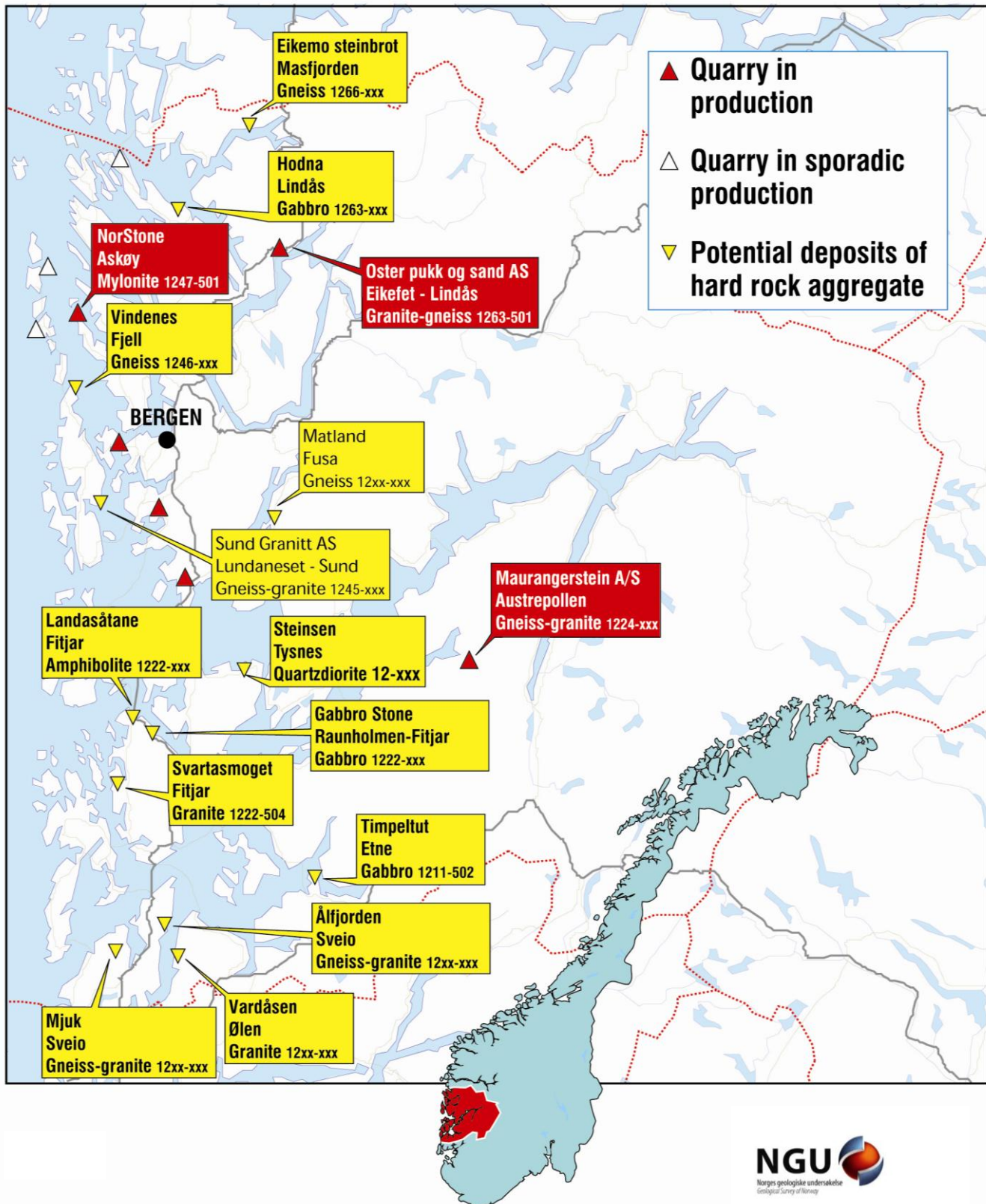
Geological Survey of Norway
Leiv Eirikssons vei 39
N-7491 Trondheim, Norway
Tel.: 47 73 90 40 00
Telefax: 47 73 92 16 20

QUARRIES AND POTENTIAL DEPOSITS OF HARD ROCK AGGREGATE IN ROGALAND COUNTY



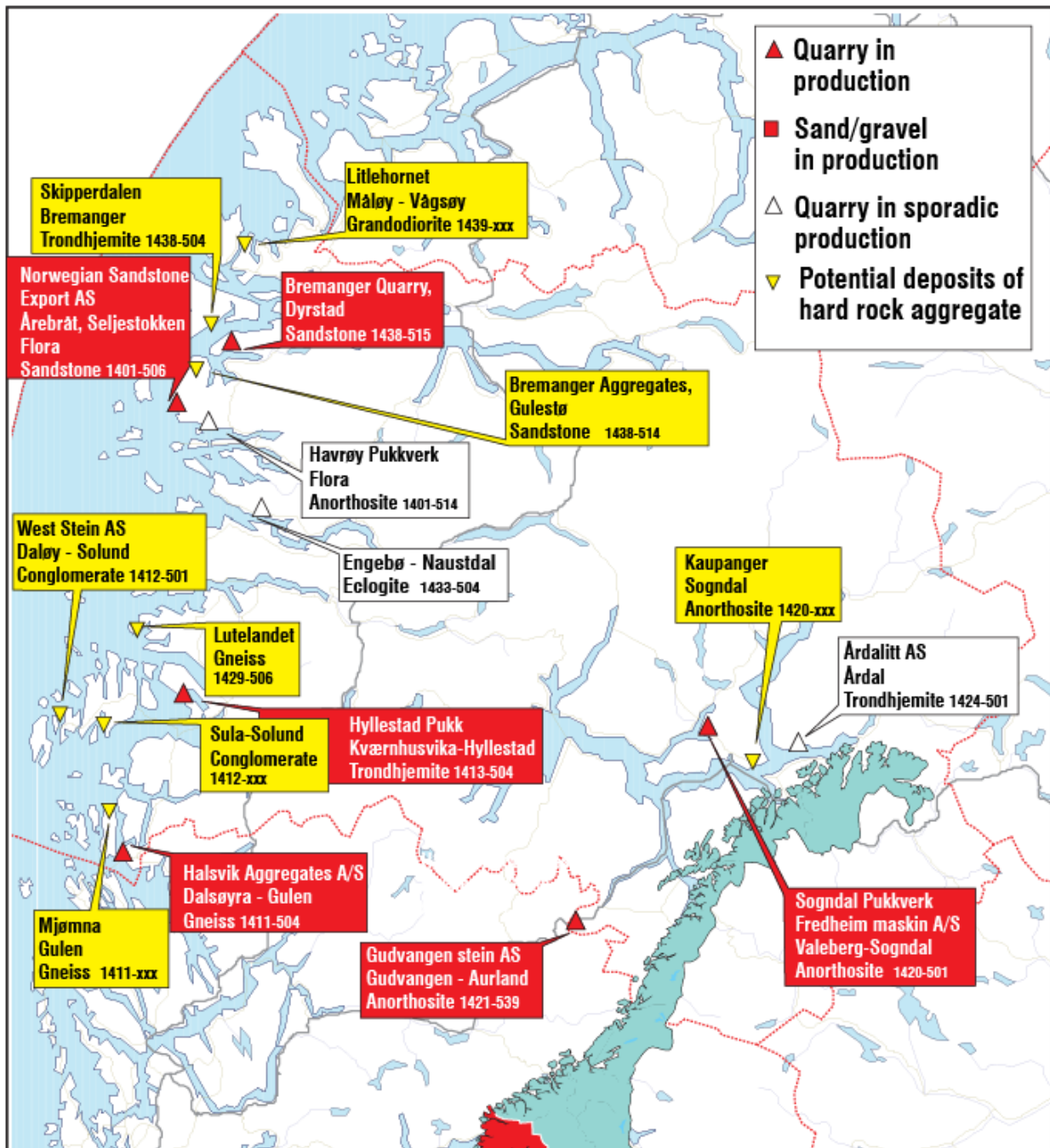
Geological Survey of Norway
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QUARRIES AND POTENTIAL DEPOSITS OF HARD ROCK AGGREGATE IN HORDALAND COUNTY



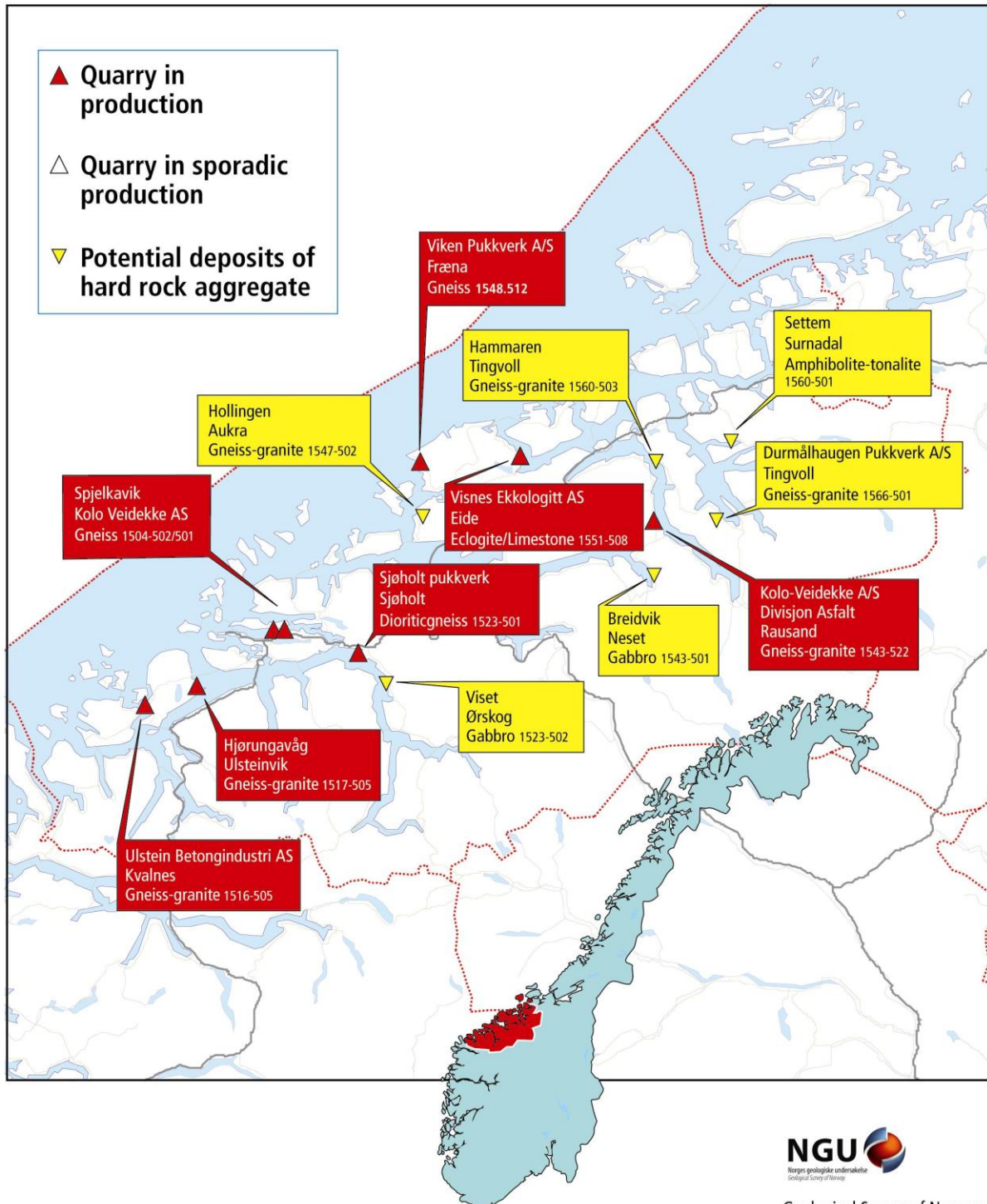
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QUARRIES AND POTENTIAL DEPOSITS OF HARD ROCK AGGREGATE IN SOGN OG FJORDANE COUNTY



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QUARRIES AND POTENTIAL DEPOSITS OF HARD ROCK AGGREGATE IN MØRE OG ROMSDAL COUNTY



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QUARRIES AND POTENTIAL DEPOSITS OF HARD ROCK AGGREGATE IN SØR-TRØNDELAG COUNTY

