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no.721

PRELIMINARY MATERIALS MAP, MONTEREY QUADRANGLE,  
MASSACHUSETTS

BY

✓ G. WILLIAM HOLMES  
U. S. GEOLOGICAL SURVEY:

Reports-open file series, no. 721: 1964.

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U.S. GEOLOGICAL SURVEY  
Washington, D. C.

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64-82 1. Preliminary materials map, Monterey quadrangle, Massachusetts, by G. William Holmes. 1 map, scale 1:24,000, plus description of material from 9 gravel pits. Massachusetts Dept. of Public Works, 100 Nashua St., Boston, Mass.; U. S. Bureau of Public Roads, 31 St. James Ave., Boston, Mass.; Room 1, 270 Dartmouth St., Boston, Mass. Copies from which reproductions can be made at private expense are available in the last-named office.

2. Heavy metals in stream sediment, southeastern Maine, by G. H. Van Sickle, W. H. Dennen, and E. V. Post. 1 map, scale 1:250,000. Room 1, 270 Dartmouth St., Boston, Mass.; Office of the State Geologist, Dept. of Economic Development, State House, Augusta, Maine. Copies from which reproductions can be made at private expense are available in the Office of the State Geologist.

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## Field and geologic observations:

Station number 1

Location: County Parkshire Town Montearey Pit x Active

Road location Near Intersect. Gould Coordinates 42°11' N

40 miles 73°15' W

Geologic unit or occurrence in contact stratified drift in core

Textural description pebbly sand Eng. Soil Type SH

Dimensions of deposit: Areal extent 1100' x 2000' Estimated thickness 100'

Dimensions of pit: Areal extent 150' x 200' Exposed thickness 60'

Lithologic composition (approximate %) \_\_\_\_\_

Grain size: Maximum 1 1/2" Mean 1/10" Est. % of sand 85 Est. % fines 1

Rounding subangular Grading well Sorting poor

Soil development weak forest soil Color unoxidized: lt. gray, or. yellow brown

Oxidation or staining variable to ca 40' Leaching \_\_\_\_\_

Secondary deposition \_\_\_\_\_ Reactive matter \_\_\_\_\_

## Section:

Rock type	Remarks	Percent
Quartzite	some dark green	67
Sandstone	1 of arkose	2
Limestone, marble		7
Gneiss		5
Schists	predominantly chlorite	11
Fine quartz		5
Miscellaneous		3

U.S. Geological Survey  
GLEN POLE MAP  
This map is preliminary and has not been edited or reviewed for conformity with Geological Survey standards or nomenclature.

**General Description:** Small lenses of pebble- to boulder gravel unevenly distributed throughout section. Mostly well stratified coarse- to medium- grain sand, mostly unoxidized. Best exposures in eastern part of pit, but generally poorly exposed because of slumping. Pebble counts based notes will be skewed accumulation of various gravel lenses. High percentage of quartzite along traverse persistent. Intermittent use by town of Montearey.

QUADRANGLE

STATE

G. W. H. H. H.

DATE

PROJECT

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## Field and megascopic observations:

Station number 2  
☒ Active  
☐ Inactive  
 Location: County Berkshire Town Porteray Pit         
 Read location Gould & Curtis Roads Coordinates 42°11' N  
73°15' W  
 Geologic unit or occurrence ice contact stratified drift in kare  
 Textural description coarse to medium sand Eng. Soil Type SM  
 Dimensions of deposit: Areal extent 1100' x 2000' Estimated thickness 100'  
 Dimensions of pit: Areal extent 250' x 150' Exposed thickness 50'  
 Lithologic composition (approximate %)         
 Grain size: Maximum 2" Mean 0.1" Est. % of sand 95 Est. % fines 1  
 Rounding subangular Cgrading well Sorting medium  
 Soil development weak forest soil Color yellow-brown  
 Oxidation or staining to 2-3' Leaching         
 Secondary deposition        Reactive matter       

## Section:

Rock type	Percent
Quartzite	76
Sandstone	2
Limestone	2
Gneiss	1/2
Schist	7
Free quartz	6
Miscellaneous	5

**General Description:** Mostly clean, stratified, evenly bedded, with some gently dipping cross bedding. Ripple and current bedding in middle section of highest exposure. Rare pebble layers (and possibly lenses) and rare large boulders. Quant. made from spoil pile in fair agreement with pit 1.

QUADRANGLE  
 CONTERAY  
 MASSACHUSETTS  
 STATE  
 G. W. HOLMES  
 GEOLOGIST  
 DATE  
 APR 17, 1963  
 PROJECT

## Field and megascopic observations:

Station number 3Location: County BerkshireTown MontereyPit XActive  
Inactive  
42°11' N  
73°15' WRoad location Gould & Curtis

Coordinates

Geologic unit or occurrence ice contact stratified drift in kameTextural description sandFog. Soil Type SNDimensions of deposit: Areal extent 1100' x 2000' Estimated thickness 100'

Dimensions of pit: Areal extent \_\_\_\_\_ Exposed thickness \_\_\_\_\_

Lithologic composition (approximate %) \_\_\_\_\_

Grain size: Maximum \_\_\_\_\_ Mean \_\_\_\_\_ Est. % of sand \_\_\_\_\_ Est. % fines \_\_\_\_\_

Rounding \_\_\_\_\_ Grading \_\_\_\_\_ Sorting \_\_\_\_\_

Soil development \_\_\_\_\_ Color \_\_\_\_\_

Oxidation or staining \_\_\_\_\_ Leaching \_\_\_\_\_

Secondary deposition \_\_\_\_\_ Reactive matter \_\_\_\_\_

Section:

Rock type	

General Description: Town dump; no reliable exposures. Spoil similar to others in same kame group. Western end may be exploited with some difficulty.

QUADRANGLE

STATE

GEOLOGIST

DATE

PROJECT

Monterey

Introduction to

G. W. Johnson

April 17, 1961

Geol. and Geophys.

## Field and megascopic observations:

Station number 4

Location: County Yarkshire Town Monterey Pit X Active  
Inactive  
 42°11' N  
 Road location Boali & Curtis Roads Coordinates 73°15' W

Geologic unit or occurrence ice contact stratified drift in kareTextural description cobble sand Eng. Soil Type SWDimensions of deposit: Areal extent 1100' x 2000' Estimated thickness 150'Dimensions of pit: Areal extent 160 x 275' Exposed thickness 35'

Lithologic composition (approximate %)

Grain size: Maximum 1' Mean 0.1" Est. % of sand 80 Est. % fines 1-3Rounding subangular Cradling well Sorting mediumSoil development weak forest soil Color yellowish brownOxidation or staining 2.3'-4' Leaching

Secondary deposition Reactive matter

## Section:

Rock type	Percent
Quartzite	60
Sandstone	5
Limestone	13
Gneiss	11
Schist	2
Miscellaneous	9

General Description: Very old, nearly exhausted pit at north end of kare group poorly exposed. No good section. Pebble count of debris at foot of exposure. Somewhat more pebbles and cobbles than other pits in this kare.

Monterey

QUADRANGLE

Massachusetts

STATE

G. W. Holmes

GEOLOGIST

April 28, 1963

DATE

Massachusetts

PROJECT

## Field and macroscopic observations:

Station number 5

Location: County Berkshire Town Otis Pit X Active  
Inactive  
42011' N  
73009' W

Road location Route 23 & Town Hill Rd. CoordinatesGeologic unit or occurrence outwash in Valley trainTextural description cobble gravel Reg. Soil Type GWDimensions of deposit: Areal extent 1,000' x 750' Estimated thickness 15'Dimensions of pit: Areal extent 30' x 40' Exposed thickness 6'Lithologic composition (approximate %) see belowGrain size: Maximum 4.5' Mean 1" Est. % of sand 65% Est. % fines 1±Rounding subangular Grading well Sorting poorSoil development A = 6" B = 4' ± Color A-dark brown; B-yellow brownOxidation or staining ext. to 6' LeachingSecondary deposition  Reactive matter 

## Section:

Rock type	Percent
quartzite	49
Sandstone	0
Limestone	0
Gneiss	38
Schist	8
Miscellaneous	5

**General Description:** Poor exposure, but one of very few in this area. Poorly stratified poorly sorted, possibly torrentially deposited, bouldery outwash slightly uneven surface. Depth or thickness probably no more than about 10' near head of outwash. Extreme range of sizes from large boulders to fine-grained sand. Not a pit but an old house excavation.

QUADRANGLE

Monterey

Massachusetts

STATE

GEOLOGIST

G. W. Holmes

DATE

4/17/63

PROJECT

Mason materials

## Field and macroscopic observations:

Station number 6Location: County BerkshireTown TyringhamPit XActive  
Inactive  
42°13' N  
73°11' WRoad location main road and side road CoordinatesGeologic unit or occurrence ice contact stratified drift in caveTextural description sandEng. Soil Type SPDimensions of deposit: Areal extent 1400' x 700' Estimated thickness 40'Dimensions of pit: Areal extent 65' x 40' Exposed thickness 40'Lithologic composition (approximate %) 1/3 pebbles: quartzite, schist, gneissGrain size: Maximum 5" Pass 1/20" Est. % of sand 98 Est. % fines 1Rounding subrounded Grading poor Sorting wellSoil development well defined forest soil Color lt. gray brown A/yellow Br BOxidation or staining 4' yellow brown Leaching

Secondary deposition Reactive matter

## Section:

Rock type	

General Description: Exposure of clean sand back of farm. Very few pebbles apparently all from surface. Used directly for cement and beach sand.

Montgomery  
QUADRANGLEMassachusetts  
STATEG. W. Holmes  
GEOLOGISTApril 17, 1963  
DATEMass materials  
PROJECT



**Estimated Engineering Characteristics of Major Deposits  
of Unexploited Construction Materials**

Geologist G. William Holmes Date April 1963 Project Mass. Materials

Location: Quadrangle Monterey State Mass. Town Tyringham

Identifying symbol A Lat 42°13' N. Long 73°11' W.

Road coordinates West of Main Road 2 miles south of Tyringham center

Accessibility On unimproved dirt road

Geologic unit Ice-contact stratified drift: kame

Topography Small rounded hill

Water supply Near Hop Brook

Estimated texture Sand and gravel

Dimensions: Areal extent 400 x 1200' Estimated thickness 30'

Present land use Pasture

Local abundance of similar materials Small sand pit to the east, but construction materials source in this quadrangle.

General description: Evenly bedded sand and gravel in small kame.

Several other small kames nearby probably of the same or similar composition.

Evaluation: Suitability, and potential utilization.

Modest supply of clean sand and gravel, easily accessible and, owing to lack of forest or buildings, readily available. Relatively valuable owing to scarcity and uneven distribution of construction materials in this area.

**Estimated Engineering Characteristics of Major Deposits  
of Unexploited Construction Materials**

Geologist G. William Holmes Date April 1963 Project Mass. Materials

Location: Quadrangle Monterey State Mass. Town Monterey/Otis

Identifying symbol B Lat 42°11' N. Long 73°10' W.

Road coordinates On Tyringham Road 1 mile northwest of West Otis

Accessibility Paralleled to road

Geologic unit Ice-contact stratified drift: kame

Topography Gently rolling pitted low hill.

Water supply Adjacent to brook

Estimated texture Gravel of mixed sizes

Dimensions: Areal extent 500 x 2000' Estimated thickness 20'

Present land use Farm

Local abundance of similar materials Small kame to the south and two small  
ickers, but construction materials are generally scarce in the area.

**General description:**

Thinly bedded, well-sorted gravel.

**Evaluation: Suitability, and potential utilization.**

Direct supply of clean gravel and sand, favorably located. Farm and  
farm buildings are a hindrance, but relatively valuable owing to  
scarcity of materials in this area.

Estimated Engineering Characteristics of Major Deposits  
of Unexploited Construction Materials

Geologist G. William Holmes Date April 1963 Project Mass. Materials  
Location: Quadrangle Monterey State Mass. Town Monterey/Otis  
Identifying symbol G Lat 42°11' N. Long 73°10' W.  
Road coordinates On Tyringham Road about 0.8 mile northwest of West Otis  
South part is on the road but north end is bordered  
Accessibility by brook and map.  
Geologic unit Pre-contact stratified drift: Mass  
Topography Very uneven, steep-sided cluster of small hills  
Water supply Adjacent to small brook  
Estimated texture Gravel of mixed sizes  
Dimensions: Areal extent 700 x 1,000' Estimated thickness 30-50'  
Present land use Forest  
Local abundance of similar materials Small patches and bands nearby, but  
generally scarce in the area.  
General description:  
Unevenly bedded, well-sorted gravel of mixed sizes.

Evaluation: Suitability, and potential utilization.

Moderately large source of clean gravel and sand, accessible, well-located, and not presently used for buildings or other structures. Relatively valuable because of scarcity of construction materials in this quadrangle.