



WATER-RIGHT DOCKET

Shenandoah National Park

Docket No: 19

MOUNT MARSHALL SYSTEM

Land History

00-00-0000: fixed property record

FIXED PROPERTY RECORD

U.S. DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT, WASHINGTON, D.C.

Location: Browntown Valley Parking Overlook - North District

One Spring
Collection Trenches and Boxes
100 Gallon Concrete Spring Box
300 Linear Feet of Pipe
One Stone Masonry Drinking Fountain

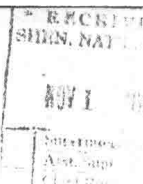
Gravity System

Constructed by CCC in 1939

1 2 3	DATE	REFERENCE			QUANTITY			COST		
		Journal Voucher	Other	Dist.	No. of Units	Accumulated	Total	Direct Costs	Indirect Costs	Accumulated Costs
1	8/27/59	17-10		Spring	1					660.00
2										
3										
4										
5										
G.L. Acct.		General Classification			Sub-Classification			Region	State	Park or Office
100.0		Utility			Water System			One	Va.	SNP

Other Supporting Information

Shenandoah National Park
MT. MARSHALL AREA
Preliminary Report #2



Contract #14-10-0137-0185

By letter from Acting Superintendent J. B. House, dated December 11, 1964, the Virginia Division of Mineral Resources was requested to investigate the Mt. Marshall Area to locate "...a natural water source that would flow by gravity to the parking overlook...". The water requirement for planned facilities in the Area was estimated to be seven gallons per minute. In the Preliminary Report prepared by the Virginia Division of Mineral Resources on June 4, 1965, six springs were recommended for a weir-reading program to last for twelve months. Such a program was established, with the first readings made by Shenandoah National Park personnel on June 22, 1965. By September 1965 five of these springs had ceased to flow, and "additional investigations" of the Area were requested in the current contract. By verbal communication with Park officials these "additional investigations" were to be for the recommendation of Test-Hole drilling sites.

Geology and Hydrology

The Area is underlain by the Catoctin, Swift Run, and Pedlar formations that, in outcrop, are inclined 5 to 15 degrees to the southeast. Favorable primary permeability and porosity occur only in the Swift Run Formation, which is approximately 20 feet thick in this portion of the Park. The availability of ground water from the Catoctin and Pedlar formations is limited to water-filled fractures below the local water table: the occurrence of such rock

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openings is unpredictable as to size, depth, and location in most areas, and localities underlain by these formations are generally not favorable for ground-water supplies greater than five gallons per minute. Drainage, both surface and subsurface, is quite limited in the vicinity of Browntown Overlook because of its topographic location. However, normal run-off and evaporation are probably retarded by the relatively large amount of talus material covering the soil and weathered bedrock.

Test-Hole recommendations

A drilling site has been selected at the north end of Browntown Overlook where the zone of soil and weathered rock is 20 to 30 feet thick. The hole will penetrate approximately 600 feet of the Catoclin Formation, 25 feet of the Swift Run Formation, and terminate 50 feet in the Pedlar Granite. The anticipated depth of this Test Hole is 700 feet, but as subsurface rock inclinations often vary from the measured dip of rocks exposed at the surface the depth may vary 50 feet plus or minus from the recommended depth unless a more shallow water-filled fracture is fortuitously penetrated.

Virginia Division of Mineral Resources
Charlottesville, Virginia
October 29, 1965

Shenandoah National Park
MT. MARSHALL AREA
Preliminary Report #1

RECEIVED
SHEN. NATL. PARK
JUN 7 1965
Superintendent
Asst. Supr.

Contract #14-10-0137-0169

Mt. Marshall is the last of the Park areas to be studied under the current contract, but as electric power is not available it was requested that our investigations be primarily for the location of perennial springs. These springs should be within a one-mile radius of the proposed comfort station at Browntown Valley Overlook, and if possible higher in elevation than the Overlook (el. 2890 feet) in order to develop a gravity-feed water supply.

Field investigations were conducted in May 1965, and six springs were located within a one and one-half mile radius of the overlook. Of these, five may be suitable for development, but only one is higher in elevation than the proposed comfort-station site. The sixth spring is the farthest away, and decreased in estimated flow from 10 to less than 1 gallon per minute between May 4 and May 21, 1965. In the following table the six springs are listed as numbered on the attached map, and as no previous flow records are available the flow-rates given are estimates made only during the month of May 1965:

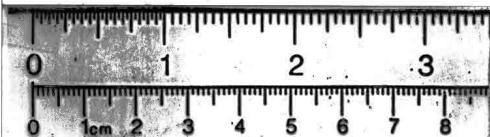
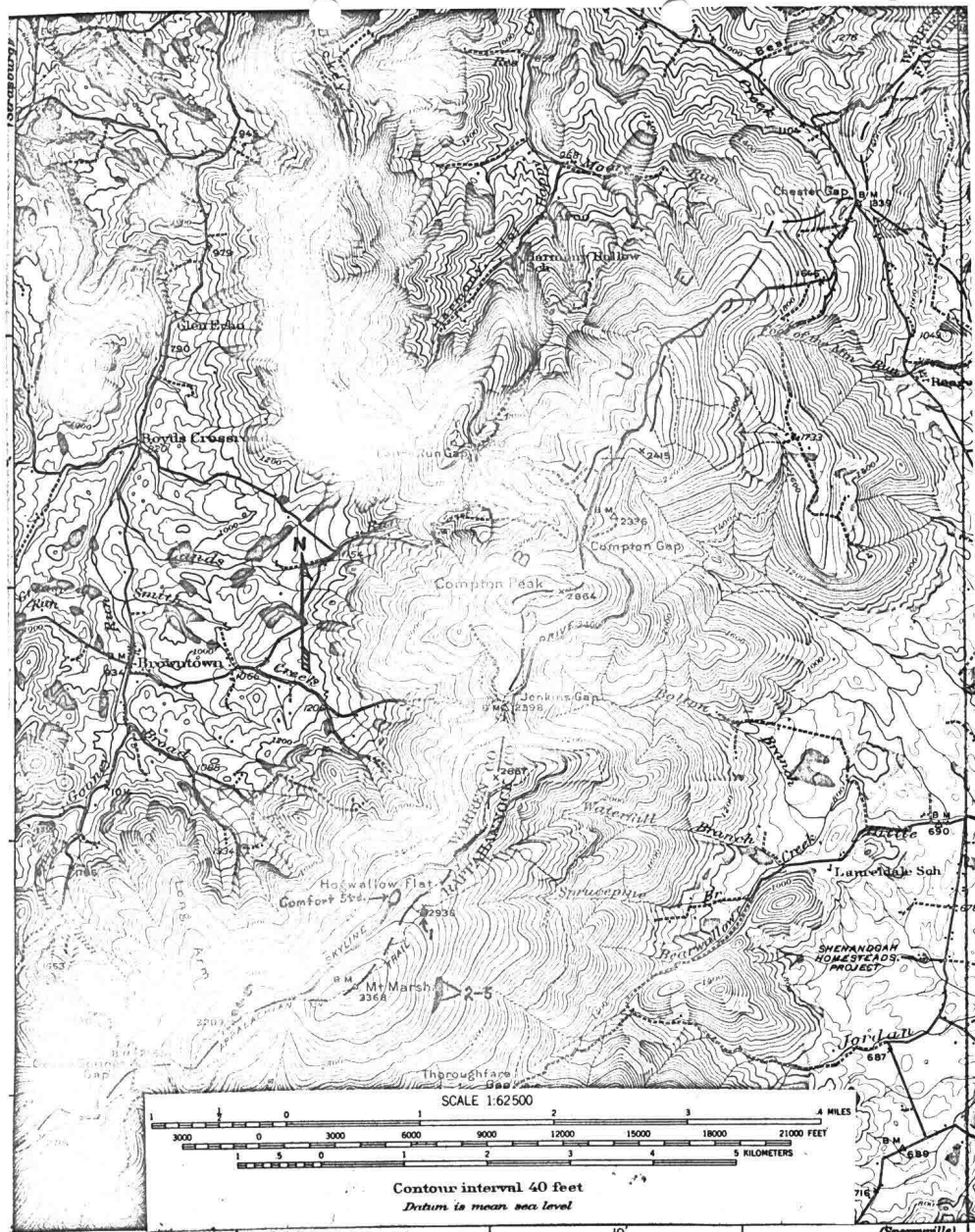
Spring No.	Location (from Overlook)	Elevation (+ Sea level)	Flow (gpm)
1	1150' east	2940'	3-6
2	3500' southeast	2840'	2-5
3	3700' southeast	2840'	3-6
4	4000' southeast	2820'	4-7
5	4100' southeast	2785'	5-8
6	7500' southwest	3160'	10-1

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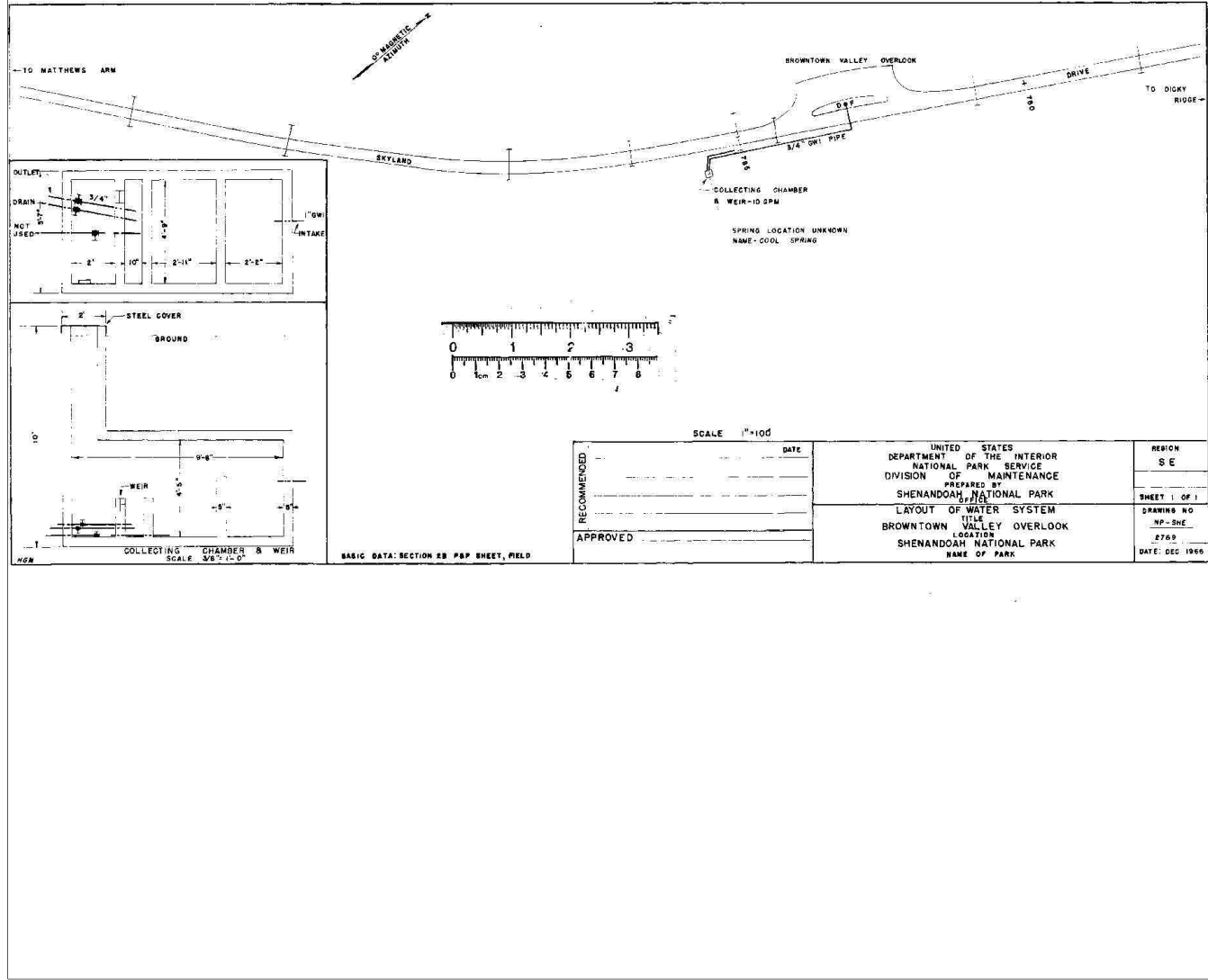
This Area is entirely underlain by the Catoctin Formation that is comprised by a series of lava flows that dip 5° to 15° to the southeast. Erosion and tilting of these flows has resulted in a number of truncated "benches" that are covered in places by a considerable amount of talus material. Surface water from precipitation percolates downward through this very permeable overburden to the top of the impermeable bedrock. Where egress of water from this near-surface reservoir is from a limited number of openings, and the rate of flow is such that the reservoir level is not lowered below the elevation of the openings, perennial springs occur. Such is probably the case for springs 1-5, although the flows may decrease somewhat by the end of each dry (summer) season due to lack of recharge. It is also possible that proper cleaning and development of these springs will result in greater rates of flow than given in the above table.

It is suggested that a storage tank be constructed and the water from spring #1 be piped to it by gravity flow. The flows from springs 2-5 may be piped by gravity feed to a nearby central point from which the water may be pushed to the storage tank by means of a hydraulic ram. It may be advisable, if the comfort station is not intended for use this year, to clean and install temporary flow pipes in the five springs and maintain regular monthly flow readings during the next 10 or 12 months to determine how many of the five springs should be developed.

Virginia Division of Mineral Resources
Charlottesville, Virginia
June 4, 1965



Maps and Miscellaneous Information



Docket Information

Number of Documents in Docket 7

Documents Dated from 6/4/1965 to 12/15/1966

Docket Compiled: 6/17/2011