FEASIBILITY STUDY

FOR

BRANSON CANYON DEVELOPMENT

TANEY COUNTY, MISSOURI

FILED
MAY 11 2004
Missouri Public Service Commission

UTILITY PROVIDER:

EMERALD POINTE UTILITY COMPANY

111 EAST MAIN

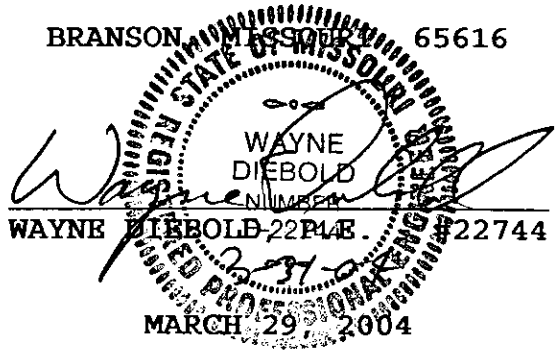
BRANSON, MISSOURI 65616

ROZELL ENGINEERING COMPANY

ENGINEERING SECTION, INC., PC

2404 STATE HWY 248, SUITE 4

BRANSON, MISSOURI 65616



WAYNE DIEBOLD, P.E. #22744

MARCH 29, 2004

WO# 14179FS

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I. INTRODUCTION:

The purpose of this feasibility report is to present to the Public Service Commission the results a study conducted to determine the feasibility of adding the subject area to Emerald Pointe Utility Company's certificated area.

The new service area shown on Exhibit A will be known as Branson Canyon Development and will consist of 281 cabin units along with a clubhouse and other amenities. As can be seen by the map, this development lies adjacent to the existing Emerald Point Development which is currently served by the Emerald Pointe Utility Company. A metes and bounds description of the new service area is included in the appendices of this report as Exhibit B.

II. EXISTING UTILITY SERVICES:

Emerald Pointe Utility Company is a Public Service Commission regulated utility that provides water and sewer service to the Emerald Point Development located just to the west of the proposed service area. Water mains and low pressure sewer mains are currently being constructed in Phases 7 and 8 of this development which can be used to provide service to the Branson Canyon project.

Eight inch diameter water mains will be extended from Phases 7 and 8 in two locations so that an adequate amount of water can be provided to the new service area. The existing water supply system operated by Emerald Pointe Utility Company should have adequate capacity to serve the initial development in the new service area. The utility company is currently investigating the need for additional storage capacity and possibly the construction of a new well to serve the future needs of the system. A time line for constructing these improvements has not been set as the growth in the area will dictate when they are needed.

The low pressure sewer mains as well as one main lift station located in the Emerald Point Development have been sized to accept the sewage to be generated by the Branson Canyon Development. All of the cabins, as well as the clubhouse, will be served by individual grinder pump stations. This is the same method of sewage collection that is being utilized to serve all of the residential lots located in the Emerald Point Development. The grinder pump stations will be required to be Environment One stations with semi-positive displacement pumps so as to match all of the installations already on the system. This will make servicing the pump stations much easier for the utility company since everything will be standardized and spare pumps will be available in the event of a failure. The utility

company is currently developing plans to construct a new sewage treatment facility that will have sufficient capacity to serve not only the existing development but the future needs of the system as well.

III. TOPOGRAPHY:

The terrain within the study area consists of ground that has a moderate slope on the west side ranging from 930 feet to 1000 feet in elevation to ground along the east side that is relatively steep with elevations ranging from 930 feet to 1100 feet in elevation. There is very little soil depth in this area which will result in most of the utilities being installed in solid rock. This will increase the construction cost of installing the utilities however this is not an unusual situation for this part of Missouri.

IV. POPULATION DISTRIBUTION AND GROWTH:

The developer of the Branson Canyon Development is estimating that the total build out of this project will occur within six to eight years of the initial start date. This site is readily accessible from M.S.H.D. No. "P" and is located just north of Table Rock Lake. The developer feels that these items, as well as the rustic nature of the development, will be major assets in the sale of the cabins being proposed for this project.

V. WATER SUPPLY AND SEWAGE TREATMENT:

Water and sewer service will be supplied to the service area by Emerald Pointe Utility Company. The existing water supply system consists of a deep well and a 176,000 gallon standpipe. The water system operates under PWS ID No. 5031148. The existing sewage treatment facility serving this area consists of an extended aeration sewage treatment plant with a capacity of 77,900 gallons per day. This facility operates under NPDES Permit No. MO-0116394. As stated previously, the utility company has been investigating the possibility of increasing the storage capacity of the water system and adding another well and is currently developing plans to construct a new sewage treatment facility.

VI. BASIS OF DESIGN:

The water system will be designed to provide safe potable water to the entire Branson Canyon Development property. Since the Emerald Pointe Utility Company water system is capable of providing fire flows, all of the main lines installed in the new service area will be eight inches in diameter and fire hydrants will be installed at approximately 600 foot intervals. Smaller diameter lines may

be utilized in some areas to serve isolated sections where only three or four cabins are located. An average daily water usage rate of 300 gallons per cabin will be used to calculate peak flows for the water main extensions.

The low pressure sewer system will be designed to transport the sewage from the new service area to the Emerald Pointe Utility Company sewer system. As previously stated, the existing low pressure sewer mains in the Emerald Point Development have been sized to accept the sewage to be generated by the Branson Canyon Development. The low pressure sewer mains serving this area will range in size from 1-1/4" to 6" in diameter depending on the accumulated number of units being served. Each cabin, as well as the clubhouse, will be served by a 1 H.P. semi-positive displacement grinder pump and a 1-1/4" diameter service line. An average daily water usage rate of 300 gallons per cabin will be used to calculate peak flows for the sewer system.

VII. MATERIALS AND CONSTRUCTION PROCEDURES:

The materials specified for construction of the water distribution system and sewage collection system, as well as related appurtenances, will comply with the requirements of Missouri Department of Natural Resources, Missouri Division of Health, American Water Works Association, American Standards Association, Federal Government and the National Sanitation Foundation. An economical and safe working factor of safety will be included in the design of the pipes, which will be composed of materials with a wall thickness capable of withstanding an internal pressure of 150 psi. All of the water and sewer mains will be constructed using polyvinylchloride plastic pipe. The water services will be installed using CTS service tubing while the low pressure services will be constructed using either SCH 40 PVC or polyethylene pipe. Individual direct reading water meters will be set for each cabin at the point of termination of each service line within a meter box complete with removable cast iron cover.

"Dead End" lines on the water mains will be kept to a minimum by looping the water mains together wherever possible. Should a dead end line exist, a fire hydrant or flush hydrant will be installed to allow flushing of the line. All water mains will have a minimum bury depth of 42 inches while all low pressure sewer mains will have a minimum bury depth of 36 inches. Clean-out and flushing connections will be installed on the main low pressure sewer lines at the end of each line, at any intersections between two lines, at any horizontal directional changes in the lines of 22.5 degrees or greater and at intervals along straight portions of lines every 1000 feet.

Air release valves will be placed at all high points in the low pressure mains. The individual pumping stations that are located at elevations that are greater than the main that they are feeding into will not require separate air release valves as the Environment One units come equipped with an integral anti-siphoning, air relief valve.

All water mains and sewer mains will be bedded with a minimum of 6" of 3/4" diameter crushed limestone with the bedding material extending upwards around the pipe a width of at least 6" and above the pipe a minimum depth of at least 12". In traffic areas, the bedding material will extend from the pipe upwards to the finished ground elevation. In non-traffic areas, the backfill material in the trench placed above the bedding material shall be approved by the Engineer and shall be compacted to 90 percent of maximum density obtained at the optimum moisture content.

VIII. DISTRIBUTION AND COLLECTION SYSTEM:

The water distribution lines and sewage collection lines will be sized and located within the new service area to serve only the proposed Branson Canyon Development. There are no plans, at this time, to extend services outside of the new service area. The developer of the Branson Canyon Development will be responsible for the construction of all of the water and sewer mains to serve this project. The developer will also be responsible for installing all of the water service lines, meters and meter boxes, sewer services, and grinder pump stations. The developer will grant to Emerald Pointe Utility Company all necessary easements required to operate and maintain the system.

IX. ANALYSIS OF DESIGN:

The preliminary design of the system used to generate this report will furnish each individual connection, encompassed by the new service area, with an individual supply of water of at least three gallons per minute during peak flows and will allow for a minimum sewage pumping rate from each unit of nine gallons per minute. All of the water and sewer mains located within the new service area will be sized to carry the peak flow required to serve the Branson Canyon Development.

X. PRELIMINARY COST ESTIMATE:

The Engineer's Preliminary Cost Estimate is itemized in this section of the report. This cost estimate has been formulated by employing current material and labor prices for those products which will comply with standard specifications as previously described herein.

BRANSON CANYON DEVELOPMENT

PRELIMINARY COST ESTIMATE

WATER DISTRIBUTION SYSTEM:

16,303 lf of 8" dia. water main @ $ 25.00/ft	$ 407,575.00
14,100 lf of 1" dia. water service @ $ 10.00/ft	$ 141,000.00
282 water meters and meter boxes @ $ 200 each	$ 56,400.00
TOTAL CONSTRUCTION COST FOR WATER DISTRIBUTION SYSTEM:	$ 604,975.00

SEWAGE COLLECTION SYSTEM:

14,972 lf of 1-1/4" to 6" dia. low pressure sewer mains @ average cost of $ 20.00/ft	$ 299,440.00
19,740 lf of 1-1/4" dia. low pressure sewer service lines @ $ 10.00/ft	$ 197,400.00
282 grinder pump installations @ $ 3,500 each	$ 987,000.00
TOTAL CONSTRUCTION COST FOR SEWAGE COLLECTION SYSTEM:	$ 1,483,840.00
TOTAL CONSTRUCTION COST FOR WATER DISTRIBUTION SYSTEM AND SEWAGE COLLECTION SYSTEM:	$ 2,088,815.00

The estimated costs presented above are for the total build out of the Branson Canyon Development. As stated previously, the developer anticipates the total build out of this development to take six to eight years. While most of the water and sewer mains will be constructed in the first five years of the development, the installation of water meters and grinder pump stations will occur only as units are completed which will extend to the end of the total build out period. The advantage of this to the developer is that the costs associated with the meters and the grinder pump stations are suspended until such time that a unit is ready to be sold. In the case of the grinder pump stations, this amounts to a significant savings in upfront costs to the developer. Additional costs to the developer in the form of hookup or capacity fees to offset costs to the utility company to provide adequate water supply and sewage treatment capacity have not been included in this report. It is assumed that these fees will be set by the Public Service Commission as part of their regulative authority over the utility company.

XI. FINANCING:

The financing of the construction costs for the water and sewer systems to serve the Branson Canyon Development will be acquired by a conventional loan from a local lending institution with the cost of construction being the responsibility of the developer of this project. Emerald Pointe Utility Company will not incur any expense relating to the installation of the water and sewer lines serving this project. The utility company will, however, take over ownership of the main lines, meters, and grinder pump stations once they are completed and approved for use and from that day forward will maintain and operate them as part of the overall utility system.

XII. ESTIMATED OPERATING COST:

Operating costs for the new study area have not been estimated at this time. Since Emerald Pointe Utility Company already operates and maintains a similar system in this area, it is proposed to use the utilities existing operation and maintenance costs as a guideline for the new system.

XIII. INCOME:

Income for the new study area has not been estimated at this time. Since Emerald Pointe Utility Company already operates a similar system in this area and has an existing tariff that it charges for single family residential homes, it is assumed that the same rate will be applied to the units in this development. Any changes in the rate structure charged by the utility company will occur as a result of regularly scheduled audits by the Public Service Commission.

XIV. RECOMMENDATIONS:

The water distribution and sewage collection system covered in this report should be economically feasible for the developer as well as the utility company. The developer will save upfront costs since there will be no investment in constructing a well or water storage facility as well as a sewage treatment facility and the utility company will benefit by spreading operating costs over a larger customer base.

A P P E N D I C E S

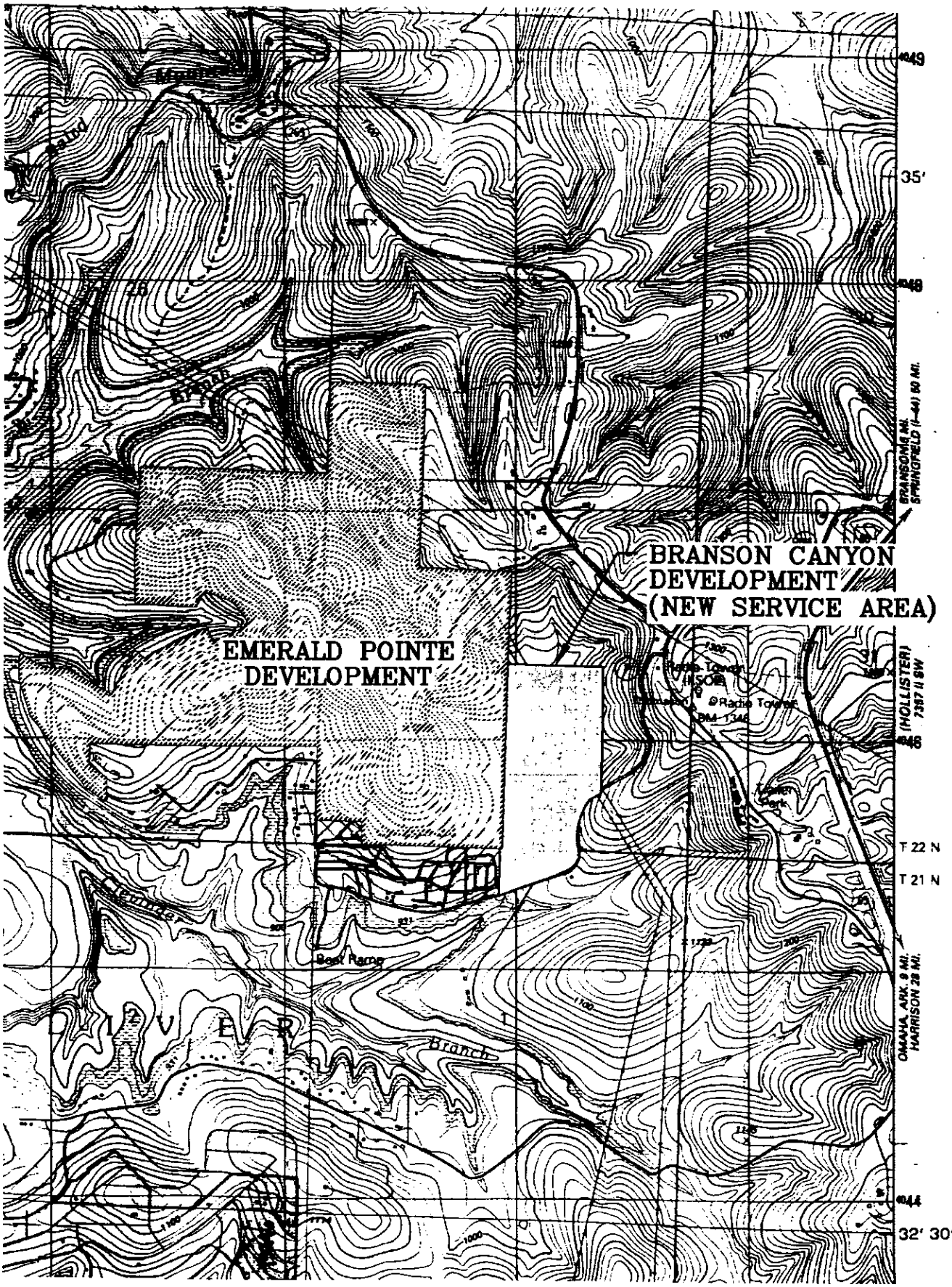


TABLE ROCK QUADRANGLE

SCALE: 1" = 2000'

ROZELL ENGINEERING CO.
ENGINEERING SECTION INC., P.C.

2404 STATE HWY 248 SUITE 4
BRANSON, MISSOURI 65616
(417) 334-4141 FAX 334-4181

EXHIBIT "A"
BRANSON CANYON DEVELOPMENT
TANEY COUNTY, MISSOURI

EXHIBIT B

METES AND BOUNDS DESCRIPTION BRANSON CAYON DEVELOPMENT

A tract of land situated in the a part of the NW¼ of the NE¼ of Section 1, Township 21 North, Range 22 West, and part of the W½ of the SE¼ of Section 36, Township 22 North, Range 22 West, Taney County, Missouri, Being more particularly described as follows:

Beginning at an existing aluminum monument marking the Southwest corner of the W½ of the SE¼ of Section 36; Thence North 01°38'25" East, a distance of 2670.34 feet, to an existing stone marking the Northwest corner of the W½ of the SE¼ of Section 36; Thence South 86°59'15" East, a distance of 1329.13 feet, to a existing ½" iron pin marking the Northeast corner of the NW¼ of the SE¼ of Section 36; Thence South 01°49'05" West, a distance of 1321.57 feet, to an existing stone marking the Northeast corner of the SW¼ of the SE¼ of Section 36; Thence South 01°48'16" West, along the East line of the SW¼ of the SE¼ of Section 36, a distance of 425.69 feet to a point on the Northerly right-of-way line M.S.H.D. Route "P"; Along the Northerly and Westerly right-of-way line of M.S.H.D. Route "P" as follows: Thence South 59°33'29" West, a distance of 34.06 feet; Thence Southwesterly along a 12.8072 degree curve to the left, 321.43 feet (said curve having a radius of 447.37 feet); Thence South 18°23'28" West, a distance of 228.00 feet; Thence Southerly along a 9.3468 degree curve to the left, 273.55 feet (said curve having a radius of 613.00 feet); Thence South 07°10'37" East, a distance of 142.74 feet, to a point on the South line of the SW¼ of the SE¼ of Section 36; Thence continuing South 07°10'37" East, a distance of 24.26 feet; Thence Southerly along a 27.4038 degree curve to the right, 284.63 feet (said curve having a radius of 209.08 feet); Thence South 70°49'19" West, a distance of 570.30 feet; Thence South 56°26'26" West, a distance of 80.52 feet; Thence South 70°49'19" West, a distance of 275.37 feet to a point on the Table Rock Lake Government Fee Taking Line; Thence North 24°43'55" West, leaving the North right-of-way line of the road and along the Government Fee Taking Line, a distance of 113.01 feet, to a point on the West line of the NW¼ of the NE¼ of Section 1; Thence North 00°56'31" East, along the West line of the NW¼ of the NE¼ of Section 1, a distance of 504.17 feet, to the Point of Beginning;

Except:

A tract of land situated in the SW¼ of the SE¼ of Section 36, Township 22 North, Range 22 West, Taney County, Missouri, Being more particularly described as follows:

Commencing at an existing ½" iron pin marking the Southeast corner of the SW¼ of the SE¼ of Section 36; Thence North 87°58'35" West, along the South line of the SW¼ of the SE¼, a distance of 279.66 feet to a point on the Westerly right-of-way of M.S.H.D. Route "P"; Thence continuing North 87°58'35" West, a distance of 435.00 feet, to the Point of Beginning; Thence continuing North 87°58'35" West, a distance of 300.00 feet; Thence North 01°28'33" West, a distance of 150.00 feet; Thence South 87°58'35" East, a distance of 300.00 feet; Thence South 01°28'33" East, a distance of 150.00 feet, to the Point of Beginning; Containing 1.03 acres of land, more or less, Subject to all easements and restrictions of record.

Leaving a balance of 85.56 acres of land, more or less, Subject to all easements and restrictions of record.

PROPOSED UTILITY AND ROAD LAYOUT
FOR
BRANSON CANYON DEVELOPMENT
TANEY COUNTY, MISSOURI



EMERALD POINT PHASE 7

EMERALD POINT PHASE 8

LADYBIRD CIRCLE

HIGHWAY P

ESTIMATED QUANTITIES:
ROAD FOOTAGE = 16,755 LF
WATER (W) FOOTAGE = 16,303 LF
LOW PRESSURE SEWER (LPS) FOOTAGE = 14,972
NUMBER OF PARKING STALLS = 591
NUMBER OF CABINS = 281

GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.

W.O.# 14179

ROZELL ENGINEERING CO. ENGINEERING SECTION INC., P.C.	2404 STATE HWY. 248 SUITE 4 BRANSON, MISSOURI 65616 (417) 334-4141 FAX 334-4181	DATE / REVISION	DWN. BY: TM CKD. BY: EH APP'D. BY: WD DATE: 03-18-04	EXHIBIT "C" BRANSON CANYON DEVELOPMENT	TANEY COUNTY, MISSOURI	SHEET NO. 1 OF 1