LAKE PROFESSIONAL ENGINEERING SERVICES, INC.

CONSULTING ENGINEERS
P.O. Box 27
Camdenton, Mo. 65020

JAMES O. JACKSON, P. E. 573-480-0508 - BOWDEN CAMPBELL, P.E. 573-480-7100
573-873-3898 660-438-9856

January 24, 2000

Mr. Keith Forck, P.E.
Missouri Department of Natural Resources
Jefferson City Regional Office
P.O. Box 176
Jefferson City, MO 65102

Re: Application for a Sewer Line Extension Construction Permit at Big Island West

Dear Mr. Forck:

Attach is a check for $200.00 made out to the Missouri Department of Natural Resources, an application for a sewer line extension, calculations, engineers report, plans, and specifications. This sewer line extension will serve 39 lots.

If you have any further question please feel free to contact me. Thank you for your time and effort on this matter.

Sincerely,

James O. Jackson, P.E.

Enclosures

CK 1132
1/31/00 200 00

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
WATER POLLUTION CONTROL PROGRAM
P.O. BOX 176
JEFFERSON CITY, MO 65102

APPLICATION FOR CONSTRUCTION PERMIT - SEWER EXTENSION

P 4155 26-3390

DO NOT ATTEMPT TO COMPLETE THIS FORM BEFORE READING THE ACCOMPANYING INSTRUCTIONS
NOTE: A CONSTRUCTION PERMIT FEE MUST ACCOMPANY THIS APPLICATION

FOR DEPARTMENT USE ONLY
Application No.
MO-
Date Received

1.1 NAME OF PROJECT

BIG ISLAND WEST SUBDIVISION

1.2 LOCATION OF PROJECT

NW¼, NW¼, SW¼ S6, T38N, 17W, CAMDEN CO

2.1 OWNER'S NAME

BIG ISLAND HOME OWNERS ASSOC. ROACH, MO.

Address	City	State	Zip Code
HCR 67, BOX 680	ROACH	Mo.	65787

2.2 CONTINUING AUTHORITY NAME

BIG ISLAND HOME OWNERS ASSOC

Address	City	State	Zip Code
HCR 67 BOX 680	ROACH,	Mo.	65787

3.1 BRIEF DESCRIPTION INSTALL 2,798' OF 2" PVC PRESSURE S/L, 1,815' OF 3" S/L, 3 AIR RELIEF VALVES. CLEAN OUT AT BOTH ENDS. CONNECT TO EXISTING RECIRCULATION TANK. INSTALL 1500 GAL SEPTIC TANKS/2 HOUSES, WITH PUMP IN EACH TANK.

3.2 DESIGN INFORMATION

A. Population or number of lots to be served by this extension: 39 LOTS, PE = 144.3

B. Estimated flow to be contributed by this extension: 14,430 GAL/DAY

C. Industrial Wastes; Type Flow NONE

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ENGINEER'S REPORT

PRESSURE SEWER LINE EXTENSION

FOR

BIG ISLAND WEST SUBDIVISION

1. **Nature and use of area to be served:**

The proposed collection line will serve the lots being developed on the West side of Big Island. The sand filter and collection for the East side of Big Island have been constructed and an operating permit has been applied for.

2. **Population:**

The population equivalent (PE) for this system is 144.3 with a BOD loading of 24.53 lbs./day. The estimated total flow is 14,430 gal/day. The PE is based upon 39 lots being developed.

3. **Wastes and other domestic sewage:**

All the wastewater discharged to this collection system will be domestic.

4. **Existing sewage disposal facilities:**

The treatment facilities for Big Island Homeowner's Association is in the process of being approved by the Missouri Department of Natural Resources.

5. **Nature of soil:**

Since the sewage is being pumped to an existing treatment plant, no geology report has been requested.

6. **Size and proximity of site:**

The capacity of the proposed collection system is determined by the needs of the project. The sewage generated by this project will be treated by an existing treatment facility.

7. **Proximity of water supply structures:**

There is an existing state approved well and water system being used by this project.

8. **Analysis of data:**

It is recommended that the sewage from this new addition to the subdivision be treated by the existing treatment facilities.

9. **Recommendations:**

Pump the sewage generated by the 39 lots to the existing treatment plant.

10. **Sewer system:**

The proposed system is designed to provide sewer collection for the 39 lots. The existing sewage treatment system will receive and treat the sewage.

11. **Sewage treatment:**

The quality of effluent from the existing treatment system will conform to the 20 mg/l BOD and 20 mg/l suspended solids limits required by the Missouri Water Quality Standards. The system used is a sand filter followed by chlorination prior to discharge to the Lake of the Ozarks.

12. **Financing:**

The project will be financed entirely by private capital.

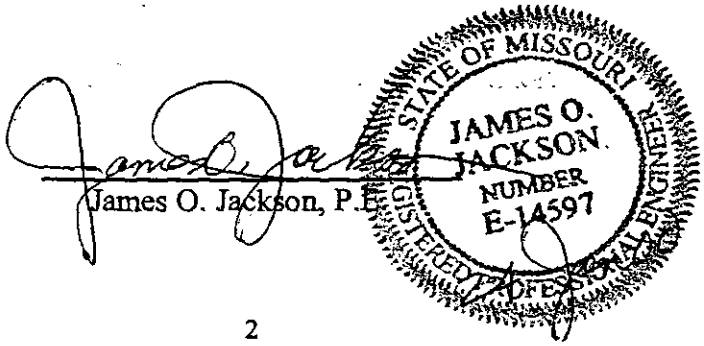
13. **Sludge holding:**

There is no sludge holding required by the sand filter. The septage from the septic tanks will be pumped as required.

14. **Ownership and operation:**

Big Island Homeowners Association owns the sewage treatment system. There is no municipality, public sewer district, or sewer company regulated by the Public Service Commission available in this area to assume ownership for the treatment plant. The owners of the 39 lots in Big Island West will be members of the Big Island Homeowners Association.

Respectfully Submitted



James O. Jackson, P.E.

LAKE Professional Engineering Services, Inc.

Bowden Campbell, EIT
HCR 30 Box 59
Warsaw, MO 65355
Phone: 573-480-7100

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Camdenton, MO 65020
Phone: 573-480-0508 • 573-873-3839

PROJECT BIG ISLAND WEST
CAL. FOR SEPTIC
PROJECT NO. 0018201
CALCULATION BY JOJ
DATE 24 JAN 00

STATE OF MISSOURI
JAMES O. JACKSON
NUMBER E-14597
REGISTERED ENGINEER

GIVEN: 39 LOTS

ASSUME ALL 3 B/R's

FIND PE 3.7 X 39 = 144.3

FLOW = 144.3 X 100 GAL/PER/DAY = 14,430

FLOW/MIN = $\frac{14430}{1440}$ = 10.02 GAL/MIN

ASSUME LOWEST SEPTIC TANK = 670'

MAX. ELEVATION ON LINE = AT 721' = 808.9'
ON SOUTH LINE

DIFF IN ELEVATION = 808.9 - 670 = 138.9'

ASSUME PUMP ON SOUTH LINE - LOT 39.

1240' OF 2" LINE AT 15 GPM HEAD LOSS = 0.33/100
365' OF 3" LINE AT 15 GPM HEAD LOSS = 0.05/100

HEAD LOSS = $\frac{1240}{100}$ X 0.33 + $\frac{365}{100}$ X 0.05 = 4.09 + 0.18 = 4.27'

TOTAL HEAD = 138.9 + 4.3 = 143.2'

SIZE PUMP FOR 143.2' HEAD.

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