NPD Systems - Site

General

The area of property which the Commission was required to own was determined by the requirements of the Atomic Energy Control Board, which state in part, that the Commission must be able to control access to all property within a 1200 yd. radius from the Reactor.

The property consists of about 558 acres located as shown on Fig. 1.

Some of the factors which influenced the selection of this particular site for NPD are as follows:-

1. Nearness to load.
2. Nearness to existing transmission facilities.
3. Adequate water supply.
4. Suitable living accommodations.
5. Suitable personnel.
6. Elevation of ground versus water supply.
7. Availability of construction materials.
8. Cost of site preparation.
9. Structural support.
10. Availability and cost of land.
11. Exclusion area requirements.
12. Population density.
13. Municipal considerations.
14. Inter-Provincial considerations.
15. International considerations.
16. Radiation waste disposal.

17. Radioactive gas dispersion.

18. Tornadoes, storms and hurricanes.

19. Earthquakes.

20. Floods.

Exclusion Area

The degree of safety inherent in the basic Reactor design, the type of containment provided and the "Exclusion Area" together protect the general public. As was set forth in the Atomic Energy Control Board requirements, the Commission must be able to control access to all property within a 1200 yd. radius from the Reactor and further, must be able to exclude all unauthorized personnel from all property within a 250 yd. radius from the Reactor. All property then, within a 1200 yd. radius from the Reactor forms the Exclusion Area, however, the degree of control becomes more restrictive at a radius of 250 yds. See Fig. 1 & 2. For this reason an Outer Fence surrounds the Station on the land side. An Inner Fence was also constructed, roughly parallel to the Outer Fence but closer to the Station, for normal Hydro security.

Road and Rail Access

The main Access Road to the NPD site was built to fairly high standards because of heavy vehicles that were expected to use this road, both during construction and later, during operation.

The nearest rail access is the CPR Moore Lake Station, which is about 4-1/2 miles distant and may be reached via the village of Rolphton.

Sub-Surface Drainage

Because of the many springs and natural underground drainage routes in the area of the NPD Powerhouse a Sub-Surface Drainage System was installed which has a maximum capacity of 8 CFS. There are actually two separate drains: One from the North-East portion of the building, which leads to the Ottawa River via a 15" corrugated pipe and one from the South, West and North-West portions of the building which leads to the Ottawa River via a 21" corrugated pipe. See Fig. 3.

The piping in the immediate area of the Powerhouse is essentially an interceptor system of perforated piping.

Manholes are provided as vents, inspection ports and clean-outs.

An area drain leads to Manhole #3 from the road ditch opposite the North-East corner of the building.

Roof drains are tied into the system at several points.

Because of the clarity of water and fairly constant flow in the 21" pipe that passes under the Furnace Room Access Area it was decided to use this water to supply the Make-up Water System. A small sump was built in the Access Area floor and connected to the 21" pipe. A dam or weir was installed in the 21" pipe, downstream of the connection to the sump, to ensure an adequate water level at the Make-up Water pump suction.

Site Monitors

To collect data on amount and rate of radioactive fall-out and ambient radiation levels, the Environmental Research Branch of Atomic Energy of Canada Ltd., maintain four Site Monitors in the area around NPD. (See Fig. 2). The radiation monitors at these sites relay their information via Bell Telephone cables to recorders at NPD while the fall-out collectors are attended by CRNL personnel.

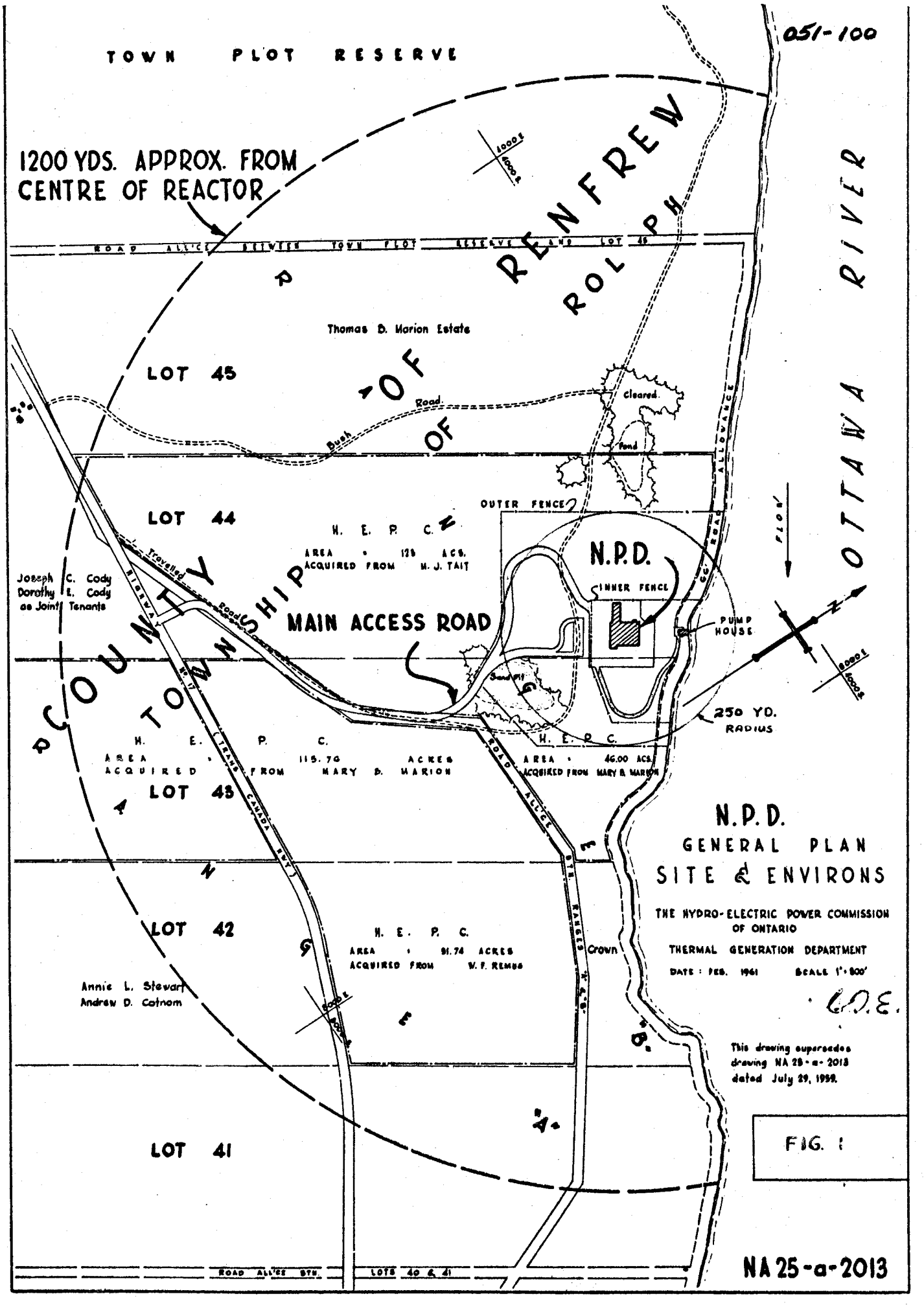
General

Plant roads are snow-ploughed and snow is cleared, on request, by Hydro personnel and equipment from Des Joachims G.S.

Plant roads are sanded by NPD Service Maintenance personnel, who may be called out in the early morning or on week-ends at the discretion of the Shift Supervisor.

Normal maintenance of the grounds is carried out by NPD Service Maintenance personnel.

R. Whitney



N.P.D.
GENERAL PLAN
SITE & ENVIRONS

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

THERMAL GENERATION DEPARTMENT

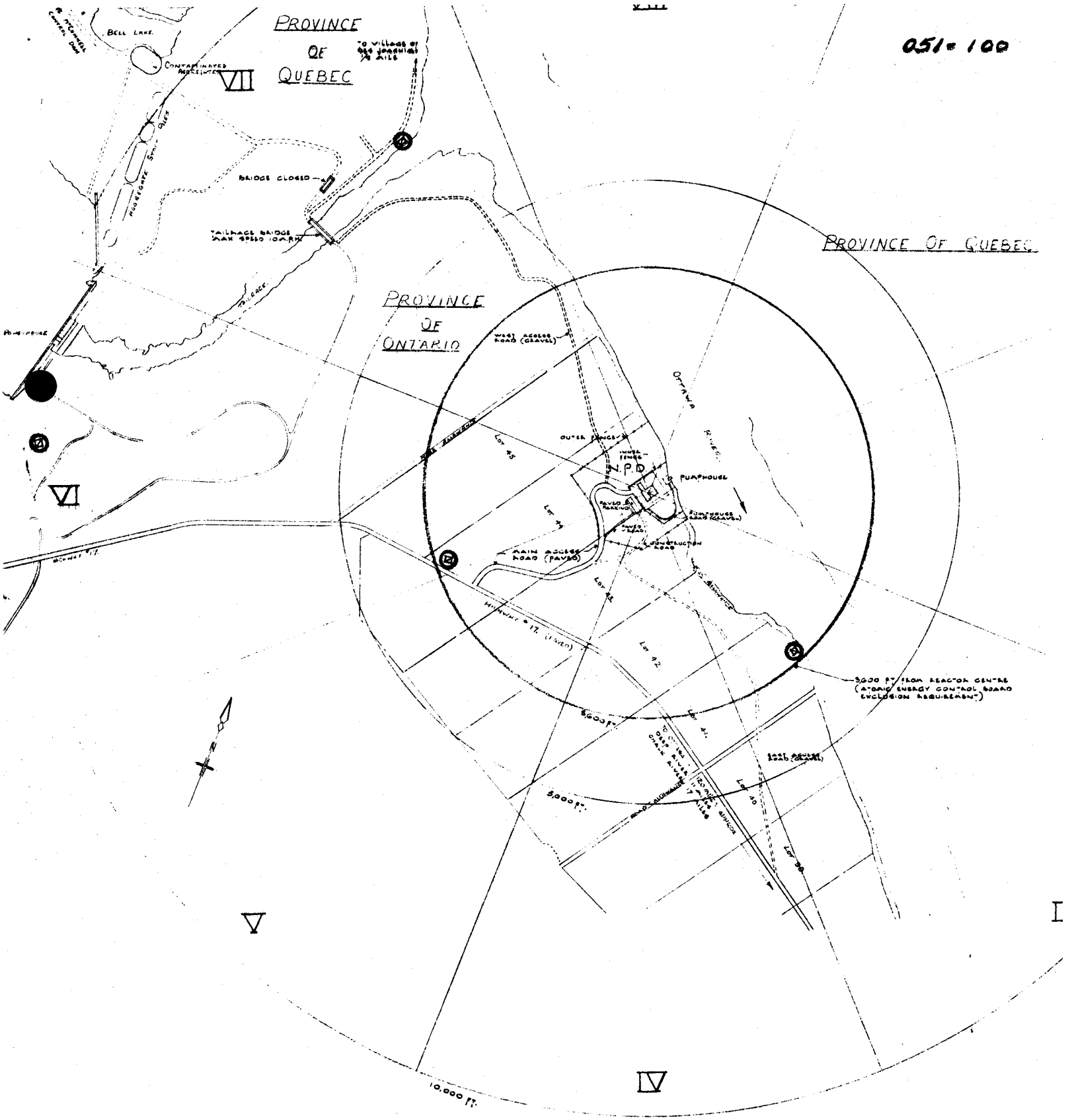
DATE : FEB. 1961 SCALE 1" = 800'

H.O.E.

This drawing supersedes drawing NA 25-a-2013 dated July 29, 1958.

FIG. 1

NA 25-a-2013



051-100

STATION ACCESS ROAD TO BE PAVED ON COMPLETION OF CONSTRUCTION

HERC ROADS CONSTRUCTED FOR DES TOURAINE G.S.

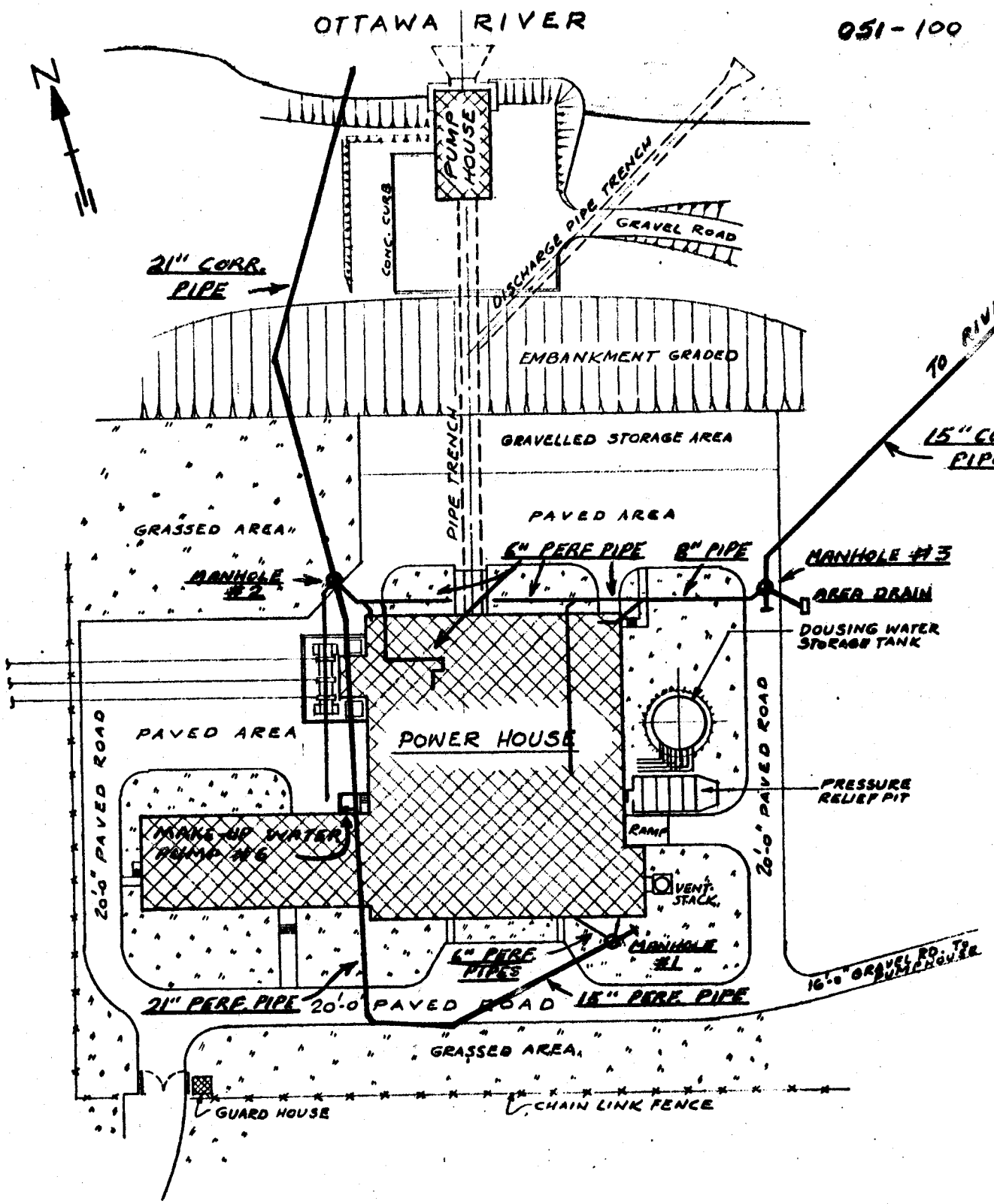
UNPAVED ROADS.

DISTANCE FROM MOOR LAKE SUBSTATION TO N.P.D. SITE - LIGHT LOADS. 4⅝ MILES APPROX.
" " " " " " " - HEAVIER LOADS. 6½ MILES APPROX.

DISTANCE FROM GRAVEL AREA TO N.P.D. SITE. 3½ MILES APPROX.

⊙ Site Monitors

FIG. 2



SITE PLAN - SHOWING SUB-SURFACE DRAINS

FIG. 3

NPD G.S. - Systems

Site

Questions

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1. List five of the twenty or more factors taken into consideration when the site for Canada's first Power Reactor was chosen.
2. What is meant by exclusion area?
3. What is the purpose of the Sub-Surface Drainage System?
4. Why are Access Roads built and maintained to a relatively high standard when there is only occasional vehicle traffic?
5. At certain strategic locations surrounding NPD there are "Site Monitors" which monitor low level ambient gamma radiation and collect fall-out for periodic analysis. Who is responsible for the operation of these sites?