APPROVED INTERIM REMEDIATION PLAN

1.0 Introduction

This Approved Interim Remediation Plan (Approved Plan) for Site #734048 has been prepared for the New York State Department of Environmental Conservation (the "Department") to detail the procedures to be followed in implementing the proposed plan, covering in detail the excavation protocols and procedures, the transportation, storage and treatment of VOC contaminated soils and the design and construction of a storage/treatment area and the measures to collect and treat VOC-contaminated groundwater ("the Approved Interim Remediation Plan").

The Approved Plan is comprised of two distinct phases.

Phase 1 will consist of excavation of VOC-contaminated soils in the impacted area followed by transport and storage of such soils in the containment/treatment structure located in the southwestern corner of the site; and the installation and operation of a soil gas extraction system or other appropriate treatment technology to remediate such soils.

Phase 2 will consist of the collection and treatment of groundwater remaining below the building foundation to remove contaminants prior to discharge, as necessary.

Phase 1 and 2 are described below in Sections 2.0 through 5.0 of the Approved Plan.

2.0 Excavation Plan

Excavation will proceed with track-mounted backhoes located in the area to be excavated as shown on the attached Site Layout plan. If stockpiling of VOC contaminated soil is necessary, they will be located on the identified contaminated area. Such soil will be placed on, and covered with polyethylene sheeting until they are to be loaded and transported to the containment/treatment system. The excavated soil will be loaded onto 15 cubic yard dump trucks which will then

proceed to the contained haul road. They will travel on the contained haul road up to the containment structure. The excavation contractor will have supervisory personnel monitoring the flow of traffic. No vehicles will leave the work area except as in accordance with the provisions of the Approved Plan.

Upon reaching the containment structure, excavated soils will be unloaded into the structure and spread with wide-track bulldozers and/or track-mounted backhoes.

Excavation will proceed to the depth of the lowered groundwater table (approximately 15 to 17 feet). At this point, localized dewatering using slit trenches and collector sumps will be utilized to drain out the excess groundwater prior to excavation. This will act to minimize spillage and treat the maximum amount of contaminated groundwater as is practicable. Excavation will proceed until levels of VOC contamination in the unexcavated soil comply with the criteria established in the Approved Plan as described in Section 2.1. The area will then be backfilled to construction grade as necessary and permanent underdrains will be installed. Prior to the installation of the underdrains, plans providing details of the groundwater collection system will be submitted to the Department for review and approval.

Upon completion of excavation, the haul road will be removed and VOC contaminated soil (as described in Section 2.1) above the liner, if any, will be placed in the containment structure. The structure will then be covered with an impermeable polyethylene liner and secured along the perimeter.

2.1 Excavation Criteria

Soil will be excavated from the impacted area to a minimum depth of 13 feet which is the requirement for the installation of the foundation. Additional vertical excavation will be completed until sampling and analysis of soil samples collected from the base of excavation utilizing portable field gas chromatograph

soil analyzed does not exceed 5 ppm and no single volatile organic parameter exceeds 1 ppm ("uncontaminated soil"). Analyses by GC will include the parameters at the site which have been identified in the greatest concentrations in the soil. These include trans-1,2-dichloroethene, cis-1,2-dichloroethene, benzene, trichloroethene, toluene, tetrachloroethene, m&p xylenes and o-xylenes.

The approximate area of excavation is shown on the attached site layout plan. The actual area of excavation will be determined utilizing the criteria described in the above paragraph. Based on available analytical results, excavation in most of the impacted area will not be necessary beyond ± 18-20 feet below grade. However, in some areas, excavation may be as deep as ± 23 feet below grade. The actual depth will depend on the field GC results.

2.2 Dewatering

Dunn anticipates that it will be necessary to further dewater the proposed excavation area if excavation is necessary below ± 15-20 feet below grade. The natural water table has been lowered to that depth during the Pilot Study. This has been achieved by the installation of a sheetpile and/or a slurry wall around the impacted area and continuous withdrawal and treatment of groundwater. Additional sheetpiling and/or slurry wall will be installed if determined appropriate. Excavation below this depth may require localized dewatering via a trenching and/or well point system. In the event that groundwater is encountered and collected during the excavation, the water will be pumped and treated through the existing water treatment system and discharged using the system approved by the Department during the vacuum extraction pilot test (see letter dated January 16, 1990 from the Department to Dunn Geoscience Corporation).

2.3 Health/Safety

Excavation will proceed in accordance with the requirements outlined in the Field Health and Safety Plan prepared by Dunn Geoscience Corporation included in this Plan. This plan consists of the Field Health and Safety Plan approved by the Department for the Pilot Study and an addendum prepared by Dunn to address the site activities to be undertaken.

In accordance with Section 5.2 of the attached addendum to the site Field Health and Safety Plan, monitoring of air emissions and perimeter monitoring will be conducted to control fugitive emissions.

As outlined in the Department's approval of modifications to the Pilot Study dated October 4, 1989, appropriate control measures (e.g., ground cover, temporary work stoppage) will be implemented to ensure that air emissions are minimized and any potential threat to workers or the public are minimized or eliminated.

3.0 Transportation of Excavated Soil

If the analyzed VOC concentrations exceed the established criteria described in Section 2.1, the contaminated soil will be transferred into dump trucks and transported to the containment/treatment structure. The roadway is designed and will be constructed and lined such that any spillage can be contained and collected.

To ensure that there is no risk of contaminating the area outside the excavation or treatment areas, the procedures and steps described in Section 2.1 for loading and unloading contaminated soil will be followed. Additionally, a contained roadway corridor has been designed by O'Brien & Gere Technical Services which will protect underlying uncontaminated soil as described in Section 3.1.

Movement of trucks will be limited to only between the area of excavation and the containment/treatment structure. These two areas will be connected by a roadway wide enough for the safe and efficient passage of two trucks side by side simultaneously (± 25-30 feet) as shown on the attached Site Layout plan. Additionally, measures will be taken to prevent soils from spilling or leaking from the trucks traveling to and from the structure.

Any uncontaminated soil will be excavated as needed to construct the building foundation and to establish the grades necessary for development of the shopping center and will be taken to an off-site area of common ownership. Current plans call for the use of uncontaminated soil in which VOCs have been detected to be limited to use as fill material in an area of common ownership and covered with an asphalt or other impermeable cover.

3.1 Roadway Design

A two-lane roadway corridor will be constructed between the excavation area and the containment/treatment structure. At each end of the roadway there will be a single lane loop to allow trucks to safely enter the loading and unloading zones and maneuver through the roadway corridor. The road itself would consist of the following layers in ascending order as shown on the attached access road drawing.

- Compacted native soils
- Geotextile fabric
- ± 12 inches of crushed stone
- ± 2 inches of sand
- 30 mil HDPE liner
- ± 9 inches of suitable native soil
- Geotextile fabric
- ± 3 inches run-o-crushed stone

The design provides for a 2 foot berm on either side of the road to prevent materials from leaving the contained roadway. This berm will prevent any uncontrolled migration of contaminated soils in the event of a spill. Moreover, the roadway has been sloped so that any such spilled soils (or water) will be controlled. The HDPE liner will extend beneath the entire road and up and over the sides of the side berms. The liner will also extend a sufficient number of feet in each direction beyond the roadway edge to prevent potential contamination of adjacent soil in the event of spillage. In addition to protecting underlying soils from becoming contaminated, the liner will contain any spills which may occur, preventing both vertical and lateral migration.

In the event that significant spillage of contaminated soils occurs on the roadway, suitable equipment will be used to easily remove such soils from the roadway. Such soils will then be transported and placed in the containment/treatment structure.

Upon completion of excavation activities, all soils contaminated with VOCs located on the roadway above the liner will be removed and placed in the containment/treatment structure.

This procedure will ensure that there is no spreading of contamination and that there is no contamination in contact with previously uncontaminated areas.

Trucks transporting the soil from the excavation area will be covered to prevent dispersal of the soil and to minimize air emissions while en route to the containment/treatment structure. Truck movements will be limited to the roadway and areas of loading and unloading.

Prior to leaving the work area (i.e., excavation area, contained roadway and containment/treatment structure), all equipment will be decontaminated in accordance with the procedures established by the Department in its October 4, 1989 letter approving modifications to the Pilot Study. Specifically, equipment leaving the work area must first pass through the decontamination area. Attached is a drawing of a typical decontamination pad. This structure is designed to contain any potentially contaminated water from the decontamination process. Such water will flow through the drain/sump where it will then be pumped to the NYSDEC approved water treatment system prior to discharge.

Decontamination procedures will consist of removal of significant accumulations of soil prior to entering the decontamination pad area. The equipment will then be washed with a high pressure water spray to remove residual soil. Particular attention will be paid to areas such as tracks,] blades and buckets where materials tend to accumulate. Once the equipment has been sufficiently decontaminated, it will exit the opposite (clean) side of the decontamination area.

4.0 Containment/Treatment Structure

Contaminated soil excavated from the impacted area will be transported using previously described methods to a containment/treatment structure as described by O'Brien & Gere Technical Services. A plan view and cross sectional drawings of the structure are attached. The structure will be located on the Carousel Center Site and is expected to be located in the southwest corner of the site as shown on the attached Site Layout Plan. It will be designed as described below or as otherwise determined appropriate and in cooperation with the Department.

4.1 Design

The structure will consist of large, earthen berms (approximately 20 feet in height) which will be consolidated and compacted to maximize their structural integrity and impermeability. The structure will be a double-lined facility utilizing 60 mil HDPE liners separated by a leak detection layer as shown on the Site Layout Plan and the attached detailed drawings. The structure will be roughly triangular in shape with sides of approximately 600 feet by 350 feet by 700 feet. The floor of the structure will slope to a continuous drainage pipe/trench. The essential elements of the structure, in ascending order, are as follows:

- Graded and compacted native soil
- Secondary 60 mil HDPE liner
- Sand, gravel (6± inches) or drainage net leak detection layer
- Primary 60 mil HDPE liner
- ± 3 inches of sand drainage layer
- Geotextile fabric
- ± 9 inches of #2 crushed stone
- Filter fabric

Contaminated soil will be placed above the filter fabric and eventually covered with a 20 mil HDPE liner or compacted clay. The liner will be anchored utilizing tires or other appropriate methods or materials. The top of the facility will be sloped toward the side berm. A 4 inch perforated pipe will be placed along the toe of this top slope to collect surface drainage and control erosion. Water from this surface drainage pipe will be routed away from the structure and the work area.

The use of the earthen berm as containment structure sidewalls, together with a flexible impervious liner, is an ideal compliment to current site conditions. The berms act to spread the load of sidewall over a larger area (decreasing the likelihood of settlement), and the flexible impermeable liner will accommodate shifts or settling of the subgrade. The design (wide earthen beams, together with a solid working surface topped with an impervious flexible liner) will accommodate potential subgrade movement and will simultaneously meet the requirements of an effective containment/treatment structure.

4.2 Water Collection

Soil placed in the structure will be allowed to drain off any excess moisture through an underdrain or water collection system. Furthermore, the structure is designed to accommodate a soil gas extraction system which will minimize and/or eliminate the possibility of vapor releases. When the structure is filled, present plans are to install and operate a soil gas extraction system to remove VOC contaminants from the soils in the structure.

The upper layer of 2 inch crushed stone and the sand drainage layer overlying the primary 60 mil HDPE liner will facilitate drainage of soils placed in the structure toward the drainage collection pipe. Water which collects in the drainage pipe will flow by gravity to the facility sump. The sump will house a pump of appropriate size and specifications to sufficiently evacuate water from the sump. Water which collects in the sump will be pumped to the NYSDEC approved water treatment system prior to discharge.

The drainage layer between the primary and secondary 60 mil HDPE liners will serve as a leak detection layer. In the unlikely event that water passes through the primary liner, it would then flow by gravity to the drainage trench. This drainage layer is isolated within the trench by the primary and secondary liners, as well. Any water accumulating in the trench will flow by gravity to an isolated portion of the sump which will be fitted with a perforated concrete vault specifically for leak detection. A 3 inch access pipe will penetrate the concrete vault for monitoring, if necessary.

In the event that VOC contaminants are detected in the leak detection sump, additional samples will be collected. If additional sampling determines that VOC contaminated water has actually entered the leak detection system, monitoring wells downgradient of the structure will be installed, as required by the Department, in the uppermost water-bearing unit, as appropriate.

5.0 Phase 2

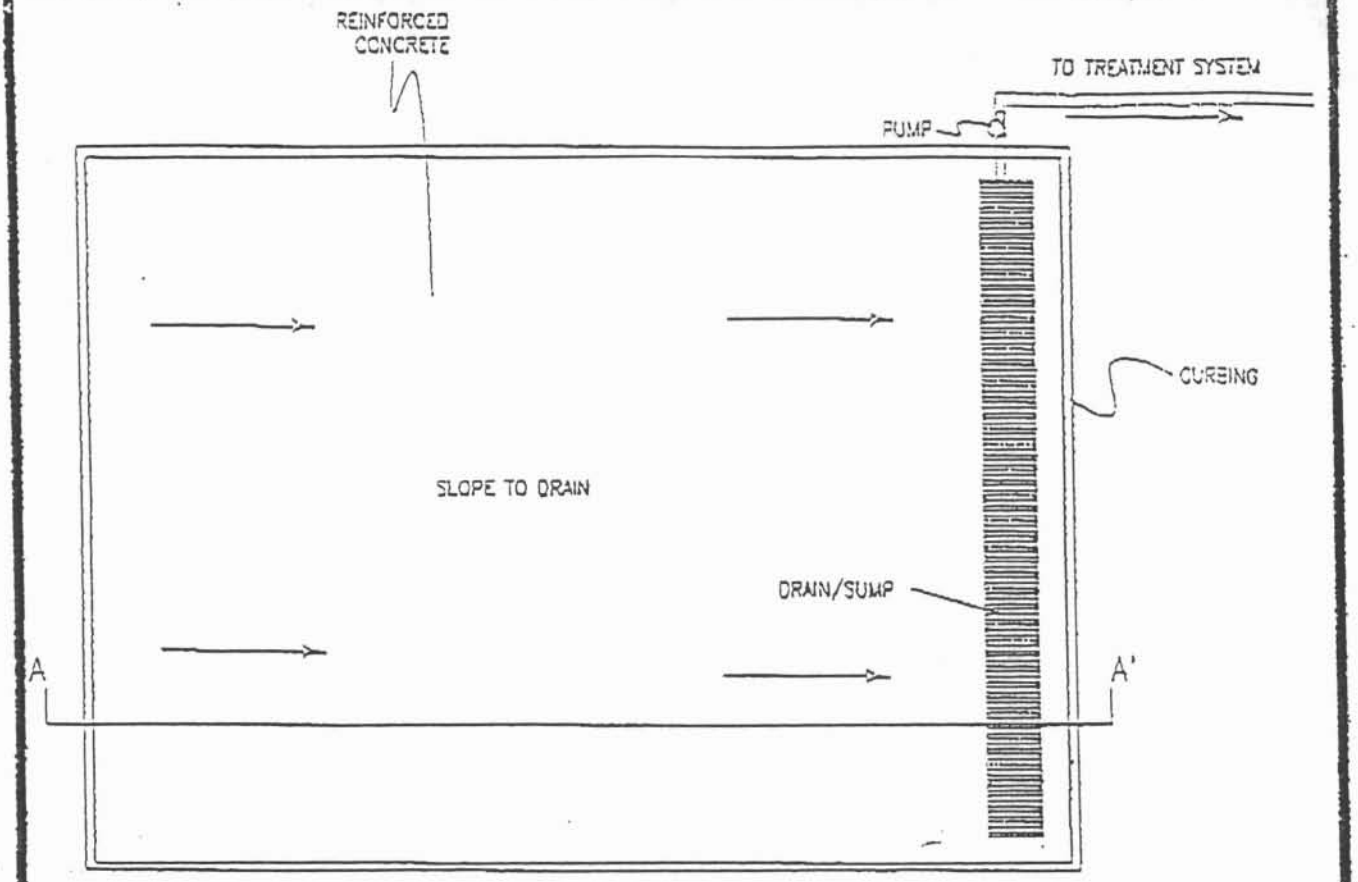
Once the excavated soils are isolated and contained, a detailed study will be undertaken to evaluate available treatment technologies and to select a preferred treatment technology to be implemented. Upon selection of a permanent remedy, this study will be submitted to the Department for its review and approval. A soil gas extraction system or other appropriate remediation technology will be incorporated into this Interim Remedial Plan. Any uncontaminated soil (as described in Section 2.1) in the structure will be handled in accordance with the procedures detailed in Section 3.0.

Prior to construction of the building foundation, plans providing details of the groundwater collection and treatment system to be incorporated into the foundation design will be submitted to the Department for its review and approval. Conceptual details are included in the Supplemental Feasibility Study prepared by Dunn Geoscience Corporation dated February, 1990 at Sections 2.0-Foundation Construction and 4.0-Groundwater Controls and Treatment.

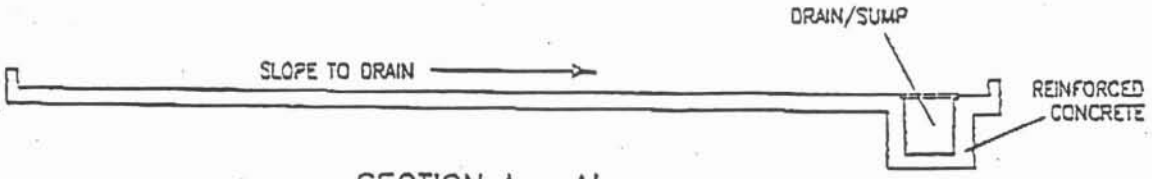
PROJECTED SEQUENCE/TIMELINE

Activity	Projected Completion Date
Fill/Grade Subbase Area	3/6/90
Construct Berms	3/6/90
Install Haul Road	3/5/90
Install Decontamination Pads	3/5/90
Install Containment Structure Drain Troughs	3/5/90
Prepare Subbase for Liner	3/19/90
Install Liners in Structure	3/20/90
Install Drains in Structure	3/22/90
Localized Dewatering	3/25/90
Excavation	3/28/90
Install/Operate Soil Gas Extraction	-----

NOTE: This projected sequence/timeline has been prepared for this document. Actual sequence and timing of construction may be different than shown.



DECONTAMINATION PAD
(PLAN VIEW)



SECTION A – A'

TYPICAL DECONTAMINATION PAD