SCANNING

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PROJECT

☐ 10.1 Alton	☐ 10.17 Charleston	☐ 10.33 Taylorville	☐ 10.49 Brooklyn ESL
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☐ 10.3 Cape Girardeau	☐ 10.19 Harris	☐ 10.35 Springfield First & Wash	☐ 10.51 Galesburg
☐ 10.4 Columbia	☐ 10.20 Hoopeston	☐ 10.36 Springfield MacArthur	☐ 10.52 Galva
☐ 10.5 Excelsior Springs	☐ 10.21 Jerseyville	☐ 10.37 Pekin	☐ 10.53 Granite City A
☐ 10.6 Huntsville	☐ 10.22 Macomb	☐ 10.38 Peoria Persimmon St.	☐ 10.54 Granite City B
☐ 10.7 Jefferson City	☐ 10.23 Marion	☐ 10.39 MGP "NFR's"	☐ 10.55 Greenville
☐ 10.8 Keokuk	☐ 10.24 Mattoon	☐ 10.40 Lynch ESL	☐ 10.56 Hillsboro
☐ 10.9 NA	☐ 10.25 Mt. Carmel	☐ 10.41 Belleville	☐ 10.57 Jacksonville
☐ 10.10 Louisiana	☐ 10.26 Murphysboro	☐ 10.42 Cairo	☐ 10.58 Kewanee
☐ 10.11 Mexico	☐ 10.27 Paxton	☐ 10.43 Carlinville	☐ 10.59 LaSalle
☐ 10.12 Moberly	☐ 10.28 Quincy	☐ 10.44 Centralia	☐ 10.60 Litchfield
☐ 10.13 Ryder Town	☐ 10.29 Shelbyville	☐ 10.45 Champaign	☐ 10.61 Monmouth
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DOCUMENT TYPE **DETAILS (if none provided, number similar documents sequentially)**

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☐ PHOTO

☐ AIR

☐ FIG

☐ INV

☐ REM

☐ WASTE

☐ LOOSE

Project Completion Report
Interim Remedial Measures
Source Removal
Former Manufactured Gas Plant
Champaign, Illinois

July 1998

Prepared for:

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Decatur, Illinois

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Project 18745

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1 INTRODUCTION

Philip Services Corporation (Philip) has prepared this project completion report for use by Illinois Power Company (IP) in meeting the requirements of the October 1, 1997 "Interim Remedial Measures Work Plan, Source Removal, Champaign Former Manufactured Gas Plant, Champaign, Illinois" (Work Plan). The Work Plan was approved by the Illinois Environmental Protection Agency (IEPA).

1.1 Purpose and Scope of Report

The purpose of this report is to document the key elements of the interim remedial measures (IRMs) performed between October 10, 1997 and May 14, 1998 at the former manufactured gas plant (MGP) site in Champaign, Illinois. This report includes discussions of significant events, observations, analytical data, and variations from plans or procedures that were described in the Work Plan.

1.2 Contents and Format of Report

The text of this report addresses pertinent sections of the Work Plan. Plans, procedures, and site conditions that did not vary significantly from the Work Plan are addressed in generalized discussions only. More detail is provided if significant variations occurred. A discussion of the excavation results and structural details is also included.

Appendices to the report include a chronology of field activities, photo documentation, test pit and exploratory trench logs, a summary of air monitoring data, and analytical results.

2 PROJECT SUMMARY

The project was safely and successfully completed in general accordance with the Work Plan. Variations from the Work Plan are discussed in Section 3 of this report.

The primary objective of this IRM was source removal from the below-ground gas holder (GH-1), tar wells and a tar separator, and an area of purifier waste. Fluid tar and tar-impacted materials from the below-ground structures were to be treated on-site to render the material non-hazardous and shipped off-site for disposal. Purifier waste, which was non-hazardous, would be blended with the source material in GH-1. Concrete, wood, metal, and other materials not accepted at the disposal facility would be segregated and stored in a covered roll-off box for disposal at an IP-approved landfill. These objectives were accomplished, although there were deviations from the Work Plan.

The three suspected tar wells (TW1, TW2, and TW3) northwest of GH-1 were located and excavated. All three tar wells were significantly larger than suspected based on historical maps of the site. Another possible tar well, TW4, northeast of GH-1, was actually a concrete foundation pad, probably for an oil tank. However, the entire area northeast of GH-1 was excavated to insure that no below-ground structures were missed. The tar separator located south of GH-1 was excavated along with an adjacent valve box located to the east containing contaminated materials. Figure 1 shows the presumed locations of GH-1, the tar wells, tar separator, purifier waste excavation area, and exploratory trenches as proposed in the Work Plan. Figure 2 shows the actual locations of the structures, purifier waste excavation area, and the final locations and dimensions of exploratory trenches.

Were purifier pads in place & if so were they left?

to what depth.

Source material was rendered non-hazardous by blending the material on site either within the gas holder or in two mixing boxes. The non-hazardous "special waste" was shipped off site for disposal at Illinova Resource Recovery's Baldwin

Thermal Treatment Facility (BTT) in Baldwin, Illinois. Approximately 8,442 tons of blended materials were transported to BTT in 339 truckloads. Table 1 is a summary of waste disposal at BTT, including manifest date and number, tons per shipment, and cumulative total. Concrete debris and steel from GH-1, the tar wells, tar separator, purifier pads, and miscellaneous excavated foundations were segregated, the concrete was broken up with a hammer hoe, and either disposed of as construction debris or utilized as backfill at the base of GH-1.

this is what I need

What was actually taken out relative to concrete & foundations

Exploratory test trenches CHTP-201 and CHTP-202 were excavated in accordance with the Work Plan, although both trench locations were moved further east. Additional exploratory trenches (Figure 2) were excavated northeast of GH-1 (CHTP-203) and in the northeastern portion of the site (CHTP-204). The materials excavated from exploratory trenches CHTP-202 and CHTP-203 were heavily impacted with tar. These impacted materials were placed into GH-1 for blending and the excavations were backfilled with clean soil. Geologic field observations for the exploratory trenches are provided in Appendix C.

Other objectives outlined in the Work Plan that were accomplished as part of the IRM included capping the abandoned storm sewer traversing the site at the west and east termini, and removal for off-site disposal of approximately 105 clean empty drums, two dozen wooden pallets, miscellaneous surface debris, hoses, fencing, trees, and brush.

The duration of the project extended approximately twenty-two weeks beyond the projected schedule. The site was shut down for three weeks from December 20, 1997 through January 11, 1998. The major delay in completing the project was caused by a hiatus on shipments of stockpiled special waste to BTT. Delays were also caused by weather conditions (4 days), restrictions on the number of trucks sent per day to BTT, and the need to utilize mixing boxes instead of GH-1 for blending activities for 3 ½ weeks (November 5 through December 1, 1997).

A chronological summary of field activities is included in Appendix A, and photo documentation of the IRM is contained in Appendix B.

2.1 Purifier Waste Excavation

Approximately 375 cubic yards (CY) of soil containing purifier waste was excavated southwest of GH-1 and west of the Booster House (Figure 2) on October 23, 1997. Depth of the excavation was 3 feet below ground surface (BGS). The excavated soil and purifier waste, which was non-hazardous, was stockpiled east of GH-1. The stockpiled material was later placed directly into GH-1 along with clay, coal, and quicklime for blending with tar. The purifier waste excavation was backfilled on October 24 and 27, 1997.

← surveyed ? photos ?

2.2 GH-1 Excavation and Blending

Approximately 509 CY of hazardous fluid tar was excavated from GH-1 from 7 to 16.5 feet BGS (Table 2). Another 100 CY of concrete and steel from the cover of GH-1 were separated during the excavation process, stockpiled, broken up with a hammer hoe, and sent off site for disposal. In addition, 85,000 gallons of tar-impacted water and rainwater were pumped from GH-1 prior to and during excavation. Water was pumped from GH-1 into storage tanks from October 23 to November 4, 1997. Excavation and blending of tar took place from November 5 to December 12, 1997. Backfilling took place on February 3 and 4, 1998.

The tar in GH-1, from 7 feet BGS at Lift 1 to 16.5 feet BGS at Lift 14, required on-site treatment to render the material non-hazardous for TCLP benzene (less than 500 ppb) prior to disposal. TCLP benzene analytical results for the blended material were below BTT's acceptance criteria (Table

3) and RCRA characteristic hazardous waste levels. The blended material from GH-1 was stockpiled for subsequent shipment to BTT.

Table 4 summarizes the blends used and the analytical results for each stockpile. Laboratory analytical results are also included in Appendix E. Details of the excavation and blending can be found in the next section, "Variations from the Work Plan", and in the chronology in Appendix A.

2.3 Tar Wells and Separator Excavation and Blending

Approximately 512 CY of fluid tar and tar-impacted soils were excavated from tar wells TW1, TW2 and TW3, the tar separator and adjacent valve box, and at CHTP-203 (Table 2). Test pit CHTP-203, northeast of GH-1, was in the area of a suspected fourth tar well, which was actually a concrete foundation. The outer walls of TW1 and TW2 were excavated and the floors left intact. Both the walls and floors of TW3, the tar separator, and the valve box were left intact. All three tar wells and the tar separator contained fluid tar with minor amounts of debris such as bricks and concrete. A large volume of tar-impacted soil, along with concrete and steel associated with former building foundations and walls, was removed during the process of locating and excavating the tar wells.

The excavation and backfilling of TW1, TW2, TW3, and CHTP-203 were completed between December 15 and 18, 1997. The tar separator and valve box were excavated on December 18, 1997 and backfilled on January 12, 1998. With the exception of concrete and steel debris, the tar and other materials from the above areas were excavated and placed into GH-1 for treatment. The concrete and steel debris were separated during the excavation process and stockpiled prior to off-site disposal.

The tar and tar-impacted soils placed into GH-1 from the tar wells, tar separator/valve box, and CHTP-203 required treatment to render the material non-hazardous for TCLP benzene. Blending of the material within GH-1 and stockpiling for later shipment to BTT took place from January 14 through 30, 1998. Table 4 summarizes the blends used and the analytical results for each stockpile.

3 VARIATIONS FROM WORK PLAN

The following sections describe significant variations from the Work Plan and the reasons for these variations. The applicable sections of the Work Plan are referenced.

3.1 Treatability Procedures (Section 3.2 of the Work Plan)

Blending ratios provided in the Work Plan were considered starting points to be reassessed upon evaluation of excavated materials during performance of the IRM. The actual blending ratios used for source materials from GH-1 were significantly higher than those proposed in the Work Plan. The actual blending ratios used during the IRM for source materials from the tar wells, tar separator/valve box, and other excavations were consistent with those proposed in the Work Plan (Table 4).

The source material within GH-1 consisted of fluid tar overlain by water. Although most of the water was pumped off the top of the tar, several thousand gallons of water remained mixed with the upper layer of tar. In order to begin solidifying the tar/water mixture remaining within GH-1, corncob crumbles, purifier waste, and clay were added and blended with the fluid tar and water. The approximate blend ratio by weight was one part source material, seven parts clay (including purifier waste and corncob crumbles), and three parts coal. Quicklime was added to the source material in GH-1 at approximately 17 percent by weight.

Materials transported from off site for blending with source materials from GH-1 included 3,392 tons of clay, 1,361 tons of coal, 24.5 tons of corncob crumbles, and approximately 80 tons of quicklime.

The source material from the tar wells, tar separator/valve box, CHTP-202, and CHTP-203 consisted of tar and tar-impacted soils. Although a large amount of clay was added to the tar wells and tar separator to solidify the fluid tar, an equally large amount of impacted soil (fill and native clay till) was excavated from CHTP-202 and CHTP-203 and added to the blend, decreasing the amount of clay and coal that had to be transported from off site for blending. The approximate blend ratio by weight was one part source material, three parts clay, and one part coal. Quicklime was added to these source materials at approximately 11 percent by weight.

Materials transported from off site for blending with source materials from excavations other than GH-1 included approximately 1,479 tons of clay, 453 tons of coal, and 53 tons of quicklime.

3.2 Project Support Facilities (Section 4.1)

In addition to using the office trailer as a field office and auxiliary trailer for equipment and supply storage, the Booster House located in the center of the site was utilized. All air monitoring equipment and supplies were stored and maintained in the Booster House for the duration of the project. Following removal of the office trailer and auxiliary trailer from the site on February 17, 1998, the Booster House was used as the field office and for storage of all equipment and supplies.

As originally proposed in the Work Plan, a windscreen was installed along the north, south, and west fences. However, the windscreen was also extended along the entire eastern fence to provide an additional aesthetic and protective barrier between the surrounding residential area and the construction site.

Although no provision had been made in the Work Plan for site security, a security guard service was employed to patrol the site during the excavation phase of the IRM. A guard was posted at the site from 8 p.m. until 4 a.m. every night from October 20, 1997 through February 6, 1998, a period of 16 weeks.

3.3 Stockpiles (Section 4.2)

All blended stockpiles were placed on the eastern half of the site in accordance with the Work Plan. Concrete and metal debris was stockpiled at two locations: west of GH-1 and west of the Booster House near the west fence. The debris stockpiles were covered until the material was reduced in size with a hammer hoe, at which time the debris was placed in steel truck trailers and transported off site. Clean concrete used for backfilling GH-1 was staged along the south fence, southeast of the Booster House.

Clean clay and purifier waste stockpiles were staged and covered northeast of GH-1. Clean coal for blending was staged, uncovered, at the southwest corner of the site. Rock for maintaining the gravel drive around the Booster House, sand for filling sand bags, and sand for backfilling excavations was staged along the west fence, immediately south of the entrance gate.

According to the Work Plan, quicklime was to be stored on site in a tanker truck. Although the first load of quicklime was stored in a tanker truck, the subsequent four loads of quicklime were stored in a plastic covered roll-off container to allow the efficient removal of quicklime using the excavator buckets. Storage of quicklime in the roll-off container was initiated following the decision to move blending activities from GH-1 to mixing boxes.

3.4 Water Treatment System and Wastewater Storage (Section 4.3)

Significant changes were made to the original water treatment system. Most of these modifications are addressed in detail in the discussion of Section 7 of the Work Plan, "Wastewater Disposal". In addition to the oil/water separator, a secondary pretreatment system was incorporated to treat most of the wastewater prior to discharge to the sanitary sewer system.

In addition to the three 21,000 gallon steel "Baker Tanks" (frac tanks) proposed in the Work Plan, five additional frac tanks were brought to the site. The eight frac tanks were staged as follows: two tanks along the west side of the Booster House, four tanks along the east side of the Booster House, and two tanks south of the Booster House along the south fence.

3.5 Excavation Plans (Section 5.1)

The excavation plans were not altered significantly from the Work Plan, although additional exploratory trenches/excavations were incorporated during the IRM. The sequence of excavation at the site was the purifier waste area first, followed by CHTP-201, CHTP-202, GH-1, TW3, CHTP-203, TW1 and TW2, tar separator/valve box, and CHTP-204. In addition, two excavations were made along the east and west boundaries of the site to locate and cap the abandoned east-west storm sewer that traversed the site. Detailed information on the purifier waste, GH-1, tar wells, and tar separator/valve box excavations are provided in the following sections. Exploratory excavations are discussed in this section with detailed geologic field observations provided in Appendix C.

Excavation CHTP-201, located approximately 60 feet west and 19 feet south of the northeast corner of the site (Figure 2), was completed on October 27, 1997, to a depth of 15 feet BGS. This excavation was used to observe geotechnical properties of the native soil necessary for evaluation of potential future remedial actions. The excavated materials were placed back into the excavation in the same order they were removed.

Excavation CHTP-202, located in the north-central portion of the site and completed on October 27, 1997, intercepted miscellaneous subsurface concrete and brick foundations, piping and fill. The purpose of this test pit was to excavate an area of near-surface hardened tar observed during the Phase II investigation. The fill material, containing solidified tar, coal, and cinders, was excavated to a depth of 5 feet BGS. Groundwater impacted with fuel oil seeped into the excavation beginning at 4.5 feet BGS. Approximately 50 CY of tar-impacted fill was excavated and placed adjacent to the purifier waste stockpile for later addition to the blend.

Excavation CHTP-203, located northeast of GH-1 and completed on December 16 and 17, 1997, did not locate suspected tar well TW4. The 16-foot diameter concrete pad was not the lid to a tar well. The concrete foundation was greater than 4 feet thick and was probably an oil tank foundation. Attempts to break up or remove the foundation were unsuccessful. However, the excavation in this area was expanded to insure that no tar well existed in this portion of the site. During excavation activities, significant amounts of fill and native clay till visibly impacted with tar were intercepted. Excavation continued until the soil along the sides and base of the excavation were no longer visibly impacted with tar. Approximately 190 CY of tar-impacted materials were removed to a depth of 7 feet BGS and placed into GH-1 for blending.

photo

During the excavation of CHTP-203, a big honkin' 22-inch diameter iron pipe containing fluid tar was discovered. The pipe was a free-standing elbow; it was not connected to any other piping when found. It was removed and placed into GH-1 with other tar and contaminated fill from the excavation. The pipe was later cleaned and sent to an approved landfill for disposal.

I would not expect the foundation of an above grade holder to be constructed from brick?

Also observed in CHTP-203 was part of a curving brick wall that may have been part of the above-ground gas holder GH-2 foundation. ?

Excavation CHTP-204, located at the northeast corner of the site to the south of CHTP-201, was completed on April 30, 1998. The purpose of this excavation was to locate and assess an underground structure associated with a former University of Illinois "gas experiment station." A 6-foot diameter, 4-foot deep circular structure with poured concrete aggregate walls and floor was located. No tar impact was identified in the fill (cinders, coal, clay, and soil) within the structure. All excavated materials were returned to the excavation.

Two other excavations, both about 5 feet deep, were advanced along the east and west fences to expose and plug an abandoned 8-inch diameter clay tile stormwater sewer that ran across the center of the site. The termini were plugged by Philip and inspected by the City of Champaign.

3.6 Purifier Waste (Section 5.2)

The primary departure from the Work Plan was the excavation of 375 CY of purifier waste instead of the estimated 480 CY. The area, which was excavated until visually clean of purifier waste, was not as extensive as estimated. Near-surface oil-impacted soil was also observed in this area. All excavated materials, including the clean soil and gravel overlying the puri-

fier waste to a depth of one foot, were stockpiled for blending with the contents of GH-1.

3.7 Tar Wells and Separator (Section 5.3)

Three tar wells (TW1, TW2 and TW3) identified in the Work Plan were located. A possible fourth tar well, TW4, was found to be a possible oil tank foundation and is discussed in greater detail in Section 3.6. The tar separator was located, along with an adjacent valve box not identified in the Work Plan. The major deviations from the Work Plan concerning these structures were related to their size and suspected contents. The size of the tar wells could not be ascertained from the historical drawings, and since they had not been located prior to the IRM, the contents were unknown. All of these structures contained primarily fluid tar; only minor amounts of cleaner fill material above or adjacent to the structures were excavated with the tar, so all of the excavated material was treated as hazardous. The Work Plan had stated that non-hazardous material from these structures could be used as a partial substitute for clean soil during blending of source material from GH-1. However, all source material from these structures was blended in GH-1 with additional clay, coal and quicklime to render the material non-hazardous. Each of these structures is discussed below.

Tar wells TW1 and TW2 had inner and outer diameters (I.D. and O.D.) of 10 and 10.7 feet, respectively. The tops of the tar wells were approximately 2 feet BGS, and the bases were 10 feet BGS. The walls were one brick wide with 0.5 inch of mortar inside, and the floors were also constructed of brick lined with mortar. The walls sloped inward at the top to a 30-inch diameter opening. TW1 was covered with a brick and concrete lid (8 inches thick) supported by rails. Above the lid was a concrete foundation 12 inches thick with metal rebar.

Tar well TW3 had an I.D. of 18 feet, O.D. of 19.3 feet, and base of 10 feet BGS. The walls of TW3 were 2 bricks wide with 0.5 to 0.75 inches of mortar inside. The base was 6 inches of concrete that sloped slightly downwards towards the center. Figure 3 provides side and overhead profiles of all the tar wells.

All three tar wells were filled with fluid tar, which was stabilized within the tar wells by adding clay until the material could be moved to GH-1 for blending. The walls of TW1 and TW2 were over-excavated and the floors left intact. The walls and floor of TW3 were also left intact. The approximate excavated volumes of TW1, TW2, and TW3, including adjacent fill material, were 76, 76, and 99 CY, respectively. Concrete and metal debris was stockpiled separately for off-site disposal.

The tar separator (Figure 4) was about 10 feet wide with separate chamber depths ranging from 6 to 10.5 feet BGS. The walls and base were concrete with interior wooden baffles. The upper 2 feet contained clean fill material, with the remainder of the structure filled with fluid tar. The valve box (Figure 4) located to the east of the tar separator was about 9 feet wide on each side, with brick walls extending to 5 feet BGS, and no floor other than native clay till. The valve box contained two 10-inch I.D. iron pipes with 5-foot invert depths that ran east-west at the north and south ends. The valve box was covered with a concrete lid and contained clay and brick fill, with heavy tar impact occurring from 3 feet BGS to the native till base at 5 feet BGS.

The walls and floor of the tar separator and the walls of the valve box were left intact. Following solidification of the fluid tar with clay within the tar separator, the contents were placed in GH-1 for blending. The material within the valve box required no solidification; it was moved directly to

GH-1 for blending. Approximately 71 cubic yards of material was excavated from the tar separator and valve box (Table 2).

3.8 GH-1 (Section 5.4)

The primary departure from the Work Plan was the blending of some GH-1 materials in two mixing boxes instead of within GH-1. The large amount of fluid tar within GH-1, along with non-pumpable tar-impacted water, resulted in the addition of more blending materials (purifier waste, corncob crumbles, clean clay and coal) than originally planned. A large percentage of the amendments added to the fluid tar and water were to stabilize and solidify it for material handling purposes. The large volume of blending materials added to GH-1 to solidify the fluid tar resulted in insufficient space within the holder to continue blending. Consequently, partially solidified tar from GH-1 was moved by the excavators to the mixing boxes to allow for the addition of more blending materials. Materials solidified and rendered non-hazardous in the mixing boxes were then moved directly to the blended stockpile area using a front-end loader. Once the level of material in GH-1 was lowered sufficiently, blending was resumed in GH-1.

Quicklime was initially added directly to the source material in GH-1 by pumping from a tanker truck. After the first load of quicklime was expended, all subsequent loads were unloaded from the tanker into a roll-off box and the quicklime was added by the excavators directly to the material being blended in the mixing boxes, and later in GH-1.

The dimensions of GH-1 as provided in Figure 2 of the Work Plan were verified with field measurements. As shown in the Work Plan, GH-1 had an O.D. of 49 feet, and a center depth of 13 feet sloping to an outside depth of 16.5 feet. A square concrete pier in the center of the floor sup-

ported the mesh-reinforced, six-inch thick concrete lid. Additional structural information provided by field observation and measurements included:

- An octagonal concrete pad (24 inches thick) at the center of the base of GH-1 supported an inner ring of baffles.

- The inner baffle wall, 3 bricks (12 inches) wide, extended from the outside edge of the central octagonal pad at the base of GH-1 to the concrete lid, forming an inner chamber.

- The walls of GH-1 were four bricks (17 inches) wide at the top and 5 bricks wide beginning at approximately 12 feet BGS.

- The floor of GH-1 was four bricks wide at the outer edge near the walls.

- Both the walls and floor of GH-1 had mortar (rendering) on the inside.

indicates that structure was still relatively water tight.

The contents of GH-1 consisted of lightly impacted water from 0.5 to 3 feet BGS, heavily impacted water from 3 to 7 feet BGS, and fluid tar from 7 feet BGS to the base. Actual amounts of material excavated from GH-1 were similar to the Work Plan estimates; approximately 509 cubic yards of tar and 100 yards concrete, brick, and steel debris from the structures were contained within GH-1. The central concrete pier and lid and the steel supports were demolished and stockpiled for off-site disposal. The brick inner baffles were destroyed during blending and were disposed with the blended material. No metal "liner", or walls from the above-ground portion of the gas holder structure were found inside GH-1.

3.9 Wastewater Disposal (Section 7)

A lower than expected volume of wastewater was processed through the on-site water pretreatment system. Less water was pumped from GH-1

than proposed in the Work Plan because the tar and water layers were less distinct than expected. Pumping was terminated sooner than planned as increasing amounts of tar were removed with the water. Approximately 85,000 gallons of wastewater were processed through the primary pretreatment system, which consisted of an oil/water separator, followed by a sediment tank with baffles. The first 55,000 gallons of light- to moderately-impacted water was pumped directly through the primary pretreatment system into four frac tanks. The final 30,000 gallons of water, which was heavily impacted with tar, was pumped directly into two frac tanks to allow the tar fraction to settle out. After 12 weeks, the water from the two frac tanks was pumped through the primary pretreatment system and into two clean frac tanks. The 5,000 gallons of residual coal-tar oil and sludge remaining in the bottom of the two settling tanks was placed in GH-1 for solidification and blending with soil. The two settling tanks that had contained the highly-impacted water and sludge were decontaminated and transported off-site.

The primary pretreatment system was effective until colder temperatures occurred in December and January, at which time large propane heaters were utilized to prevent freezing of pumps and water lines.

The greatest departure from the Work Plan concerning wastewater was the need to set up a secondary pretreatment system prior to disposal of wastewater to the Urbana & Champaign Sanitary District (UCSD) sewer. The UCSD discharge requirements for benzene, toluene, ethylbenzene and xylenes (BTEX) (50, 100, 100, and 100 ppb, respectively) were exceeded in 78,000 gallons of wastewater, requiring additional pretreatment prior to discharge to the sewer. Approximately 7,000 gallons of wastewater met the discharge requirements and were permitted by the UCSD for direct discharge.

The secondary pretreatment system consisted of the following (in order of water treatment): 5 micron bag filter, later switched to 1 micron; 500 pounds of filter sand; organophilic clay and anthracite coal blend in a 55-gallon closed-top drum; and two carbon filtration drums containing mesh reactivated carbon. Following treatment, the water was discharged to the sanitary sewer at the UCSD required rate of 10 gallons per minute or less. Collection and laboratory analysis of treated water samples for BTEX was conducted in accordance with UCSD permit requirements. All documentation concerning the treatment and discharge of wastewater, including analytical results, was submitted to the UCSD and is available in Philip files. All wastewater was sampled as required, and met the UCSD requirements following either primary or primary and secondary pretreatment prior to discharge.

The low discharge rate required by the UCSD increased the time to discharge the wastewater by several weeks. During this period, increased labor was required to monitor and operate the system and collect the required samples of treated wastewater for analysis. Several 16- and 24-hour days were required to complete the wastewater disposal by the end of the project. However, because of the delay in shipping blended material off site to BTT, the wastewater discharge did not increase the overall duration of the project.

The six frac tanks remaining on site were decontaminated and cleaned by Allwaste Environmental Services using a high-pressure washer, after which the tanks were transported off-site. The 2,500 gallons of rinsate water generated during tank cleaning were temporarily stored in five polyethylene tanks until transported off-site for treatment and disposal as non-hazardous aqueous waste by Heritage Remediation of Indianapolis.

3.10 Special Waste Disposal (Section 9.1)

Large volumes of concrete debris and steel from GH-1, the tar wells and tar separator, were stockpiled or placed in roll-off boxes. Approximately 105 clean empty drums were crushed, and two dozen wooden pallets, miscellaneous pipes, hoses, and fencing were placed in roll-offs for off-site disposal as special waste. Synthetic rubber stockpile liners and plastic sheeting used to cover the stockpiles were also loaded into roll-off boxes. Concrete impacted with tar from the tar wells, tar separator, and GH-1 was broken up with a hammer hoe and stockpiled for off-site disposal. A total of 13 roll-off boxes of special waste and 15 truckloads of construction debris were transported to Allied Waste's Brickyard Landfill in Indiana by Illini Recycling, a transportation division of Allied Waste.

3.11 Backfilling (Section 10)

Backfilling was conducted and completed according to the Work Plan. All clean concrete from building foundations, purifier pads and excavations was placed at the bottom of GH-1.

Backfilling of excavations and structures was completed as follows:

- the purifier waste excavation on October 24 and 27, 1997, with two feet of sand followed by one foot of gravel;
- excavation CHTP-202 on October 29, 1997, with clay;
- excavation CHTP-203 on December 17, 1997, with sand and clay;
- tar wells TW1, TW2, and TW3 on December 17 and 18, 1997, with sand and a top layer of clay;

- tar separator and valve box on January 12, 1998, with sand and clay; and,

- GH-1 on February 3 and 4, 1998, with concrete demolition debris followed by sand and 8 to 10 inches of clay.

Approximately 2,620 tons of pit-run (unscreened sand with gravel and rock), 214 tons of clay, and 143 tons of rock and gravel were used in backfilling the excavations. An additional 651 tons of rock was used throughout the project to maintain and expand the circular truck drive around the Booster House.

3.12 Site Restoration (Section 11)

Following site cleanup, site restoration was completed from May 11 to 15, 1998. Site restoration was conducted in accordance with the Work Plan. Approximately 780 CY of topsoil was spread over the site, final graded, seeded, and covered with straw to restore the site to grass cover. Periodically during the IRM and after the project was completed, a front-end loader and street sweeper were utilized to remove soil from Fifth Street. This soil was carried onto the street by truck traffic from the drive area of the site and was considered uncontaminated.

Check photos re Test Pits & depths.

LEGEND

- EXISTING STRUCTURES
- PREVIOUS STRUCTURES
- PROPERTY BOUNDARY
- EXPLORATORY TRENCH AND NUMBER
- SOURCE REMOVAL LOCATION
- NATURAL GAS LINE

FIFTH ST.

TAR WELLS

TW-1

TW-2

TW-3

FORMER MANUFACTURED GAS PLANT

GAS HOLDER GH-1

depth 7'

CHTP-203

190 c.y.

CONRAIL

depth 5'

CHTP-201

CHTP-202

(50 c.y)

CHTP-204

VALVE BOX

TAR SEPARATOR

HILL ST.

WEST GATE

BOOSTER HOUSE

depth

SIXTH ST. RIGHT OF WAY

BARRIERS

NORTH-SOUTH STORM SEWER

ALLEY

N

0 80

FEET

PHILIP ENVIRONMENTAL

TITLE:

SOURCE REMOVAL AND EXPLORATORY TRENCH LOCATIONS

DWN:	DES.:
TMM	SJC
CHKD:	APPD:
DATE: 10/2/98	REV.: 0

PROJECT NO.: 18745

MGP SOURCE REMOVAL
CHAMPAIGN, ILLINOIS

FIGURE 2

COL 18745A-002

LEGEND

EXISTING STRUCTURES

PREVIOUS STRUCTURES

PROPERTY BOUNDARY

NATURAL GAS LINE

[0] AMBIENT AIR MONITORING STATIONS

FIFTH ST.

HILL ST.

WEST GATE

NORTH-SOUTH STORM SEWER

FORMER MANUFACTURED GAS PLANT

GAS HOLDER GH-1

TAR SEPARATOR

BOOSTER HOUSE

STOCKPILE

CONRAIL

SIXTH ST. RIGHT OF WAY

BARRIERS

ALLEY

[1] [2] [3] [4] [5] [6]

N

0 80

FEET

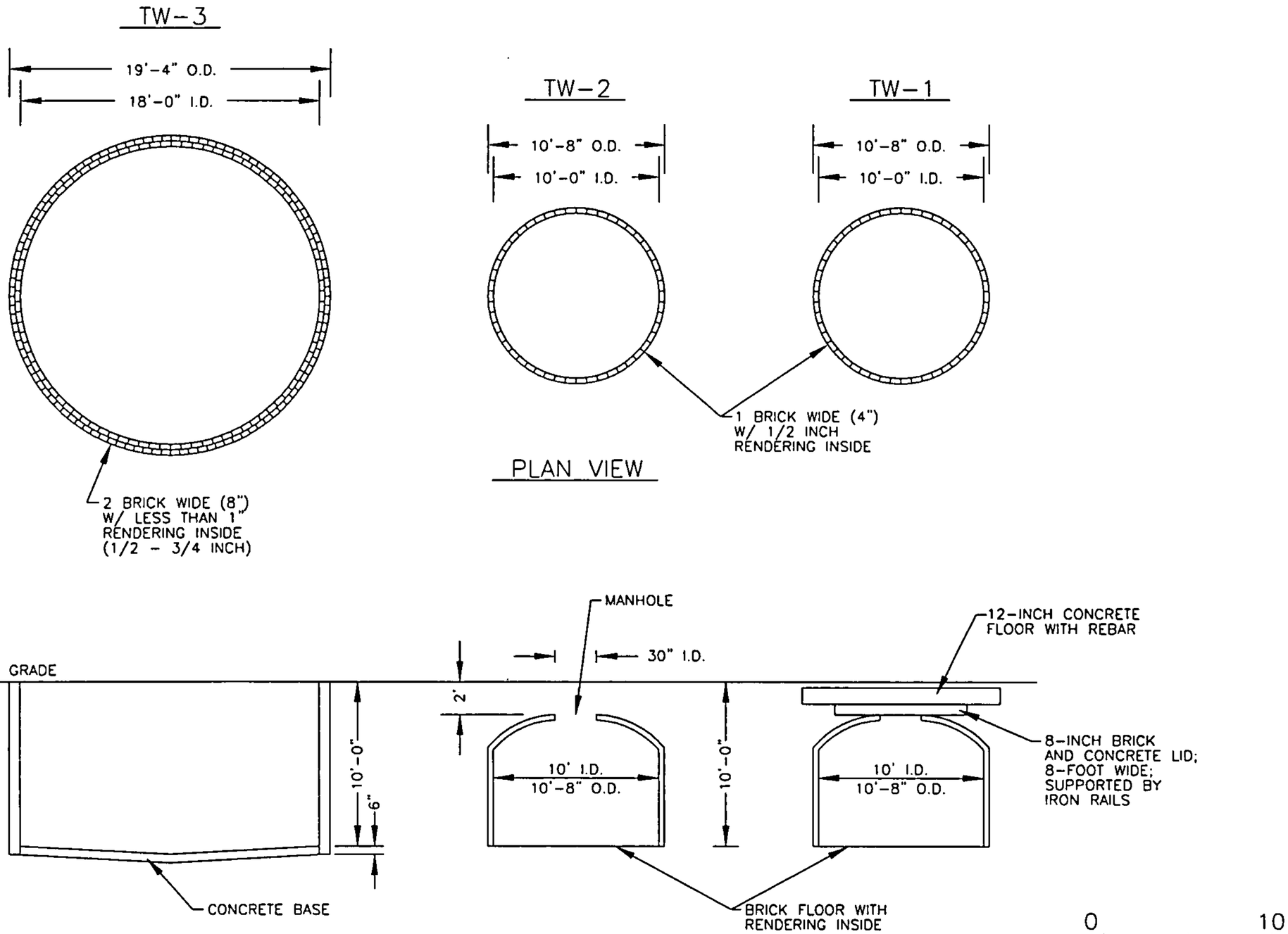
PHILIP ENVIRONMENTAL

TITLE:

AIR MONITORING STATIONS

DWN:	DES.:	PROJECT NO.: 18745
TMM	LG	MGP SOURCE REMOVAL CHAMPAIGN, ILLINOIS
CHKD:	APPD:	
DATE: 10/2/98	REV.: 0	FIGURE 2

COL 18745A-004



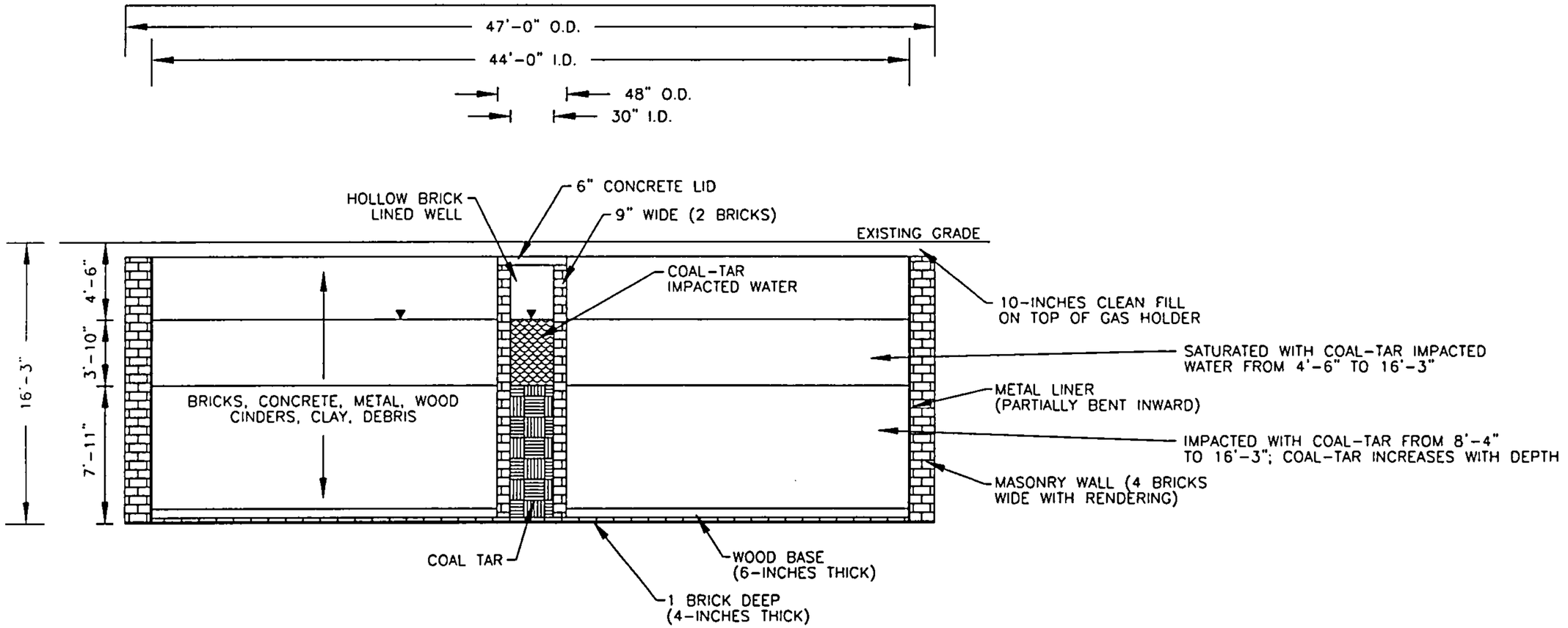
PHILIP SERVICES CORP

TITLE:

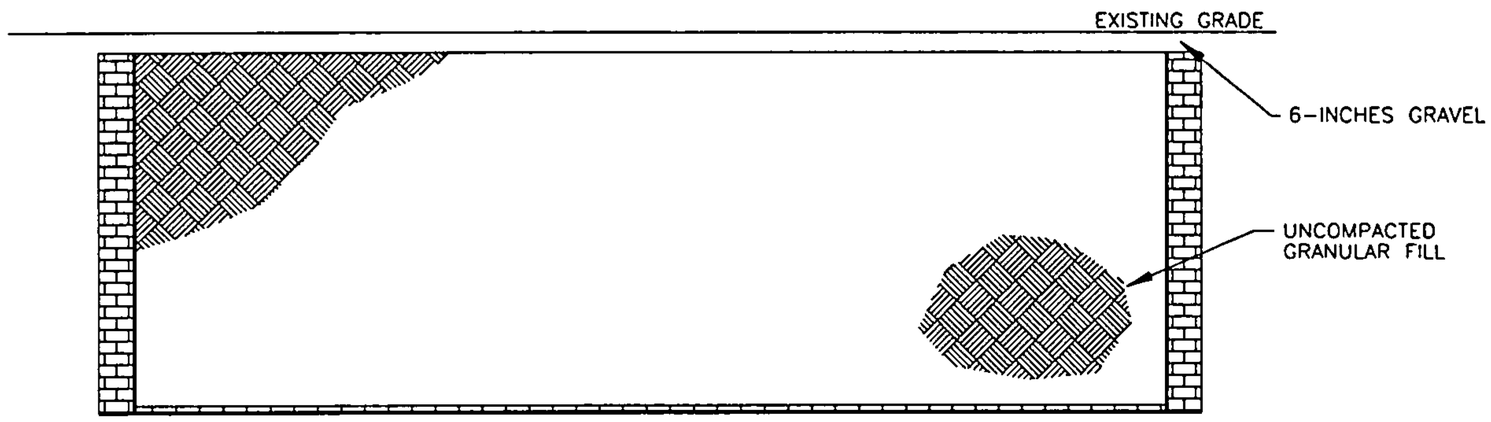
TAR WELLS TW-1, TW-2, TW-3
EXCAVATION

DWN:	DES.:	PROJECT NO.: 18745
TMM	SJC	MGP SOURGE REMOVAL CHAMPAIGN, ILLINOIS
CHKD:	APPD:	
JW	DW	
DATE:	REV.:	FIGURE 3
10/2/98	0	

COL 18745B-003



EXCAVATION PROFILE THRU GH-1



0 10
FEET

BACKFILL PROFILE THRU GH-1

PSC PHILIP SERVICES CORP

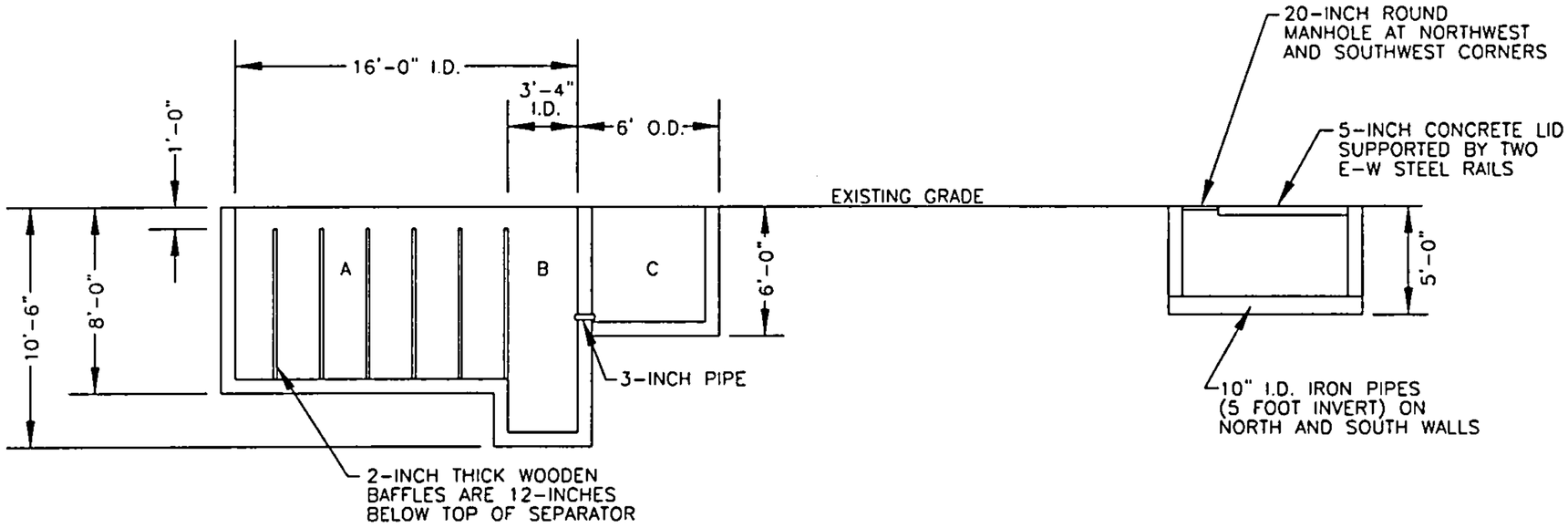
TITLE:
TAR SEPARATOR AND VALVE BOX OVERHEAD VIEW
EXCAVATION

DWN:	DES.:
TMM	SJC
CHKD:	APPD:
JW	DW
DATE:	REV.:
3/17/98	0

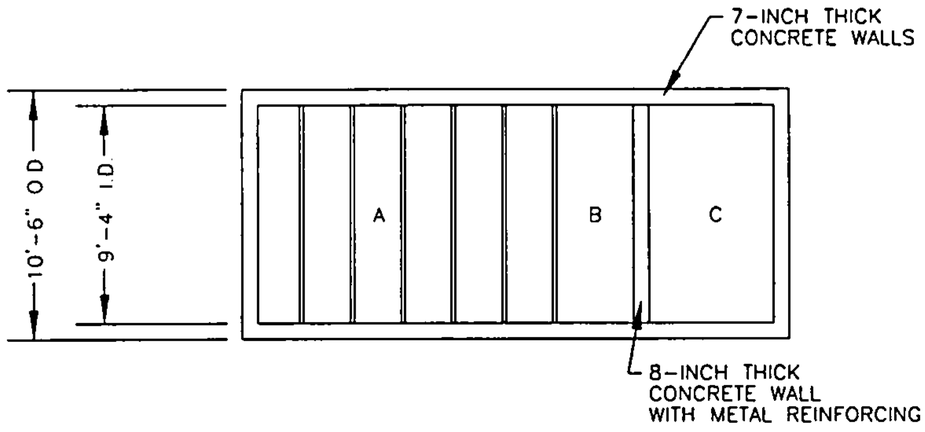
PROJECT NO.: 18745
MGP SOURGE REMOVAL
CHAMPAIGN, ILLINOIS

FIGURE 4

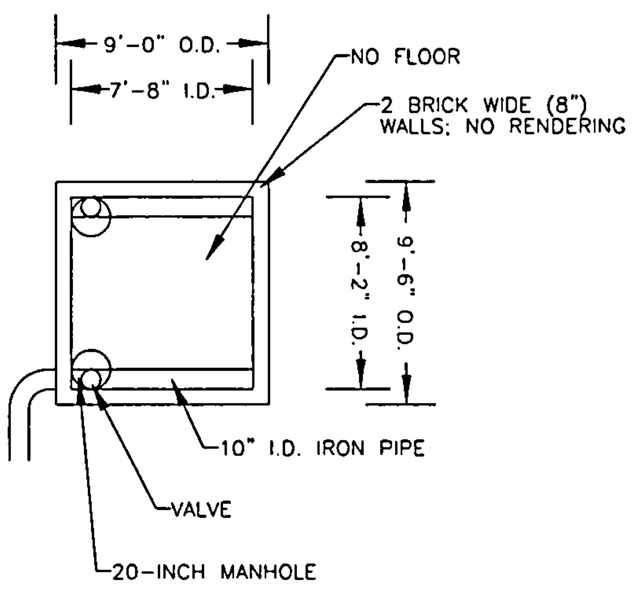
COL 18745B-002



EXCAVATION PROFILE



TAR SEPARATOR (OVERHEAD VIEW)



VALVE BOX (OVERHEAD VIEW)

0 10
FEET

PHILIP SERVICES CORP

TITLE:
TAR SEPARATOR AND VALVE BOX EXCAVATION

DWN:	DES.:
TMM	SJC
CHKD:	APPD:
JW	DW
DATE:	REV.:
10/2/98	0

PROJECT NO.: 18745
MGP SOURGE REMOVAL
CHAMPAIGN, ILLINOIS

FIGURE 4

COL 18745B-002