



GPU Nuclear Corporation

Post Office Box 388
Route 9 South
Forked River, New Jersey 08731-0388
609 971-4000
Writer's Direct Dial Number:

April 2, 1984

Mr. Dennis M. Crutchfield, Chief
Operating Reactor Branch #5
Division of Licensing
Docket No. 50-219
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Crutchfield:

Subject: Oyster Creek Nuclear Generating Station (OCNGS)
Full Term Operating License (FTOL) Conversion
Environmental Review

Enclosed are the responses to the questions contained in your letter of March 7, 1984. A number of the responses provide projected dates by which GPUN presently anticipates completing certain activities. The dates presented represent only our present projection based upon the information available and are not meant to be construed as final commitment dates for completing the various activities. Should you or your staff have any additional questions or require any additional information, please do not hesitate to contact me or Mr. Douglas R. Moore of our Environmental Licensing staff at (609) 971-4630.

Would you please advise Mr. Moore of the date selected by your staff to conduct the site visit of the OCNGS so that arrangements may be made to have representatives of our Corporate Environmental Controls Department available to assist with the tour and to answer any questions that may arise.

Very truly yours,

P. B. Friedler
Vice President/Director
Oyster Creek

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290.1 QUESTION

Have there been studies conducted, since the plant went online, on terrestrial ecology or on waterfowl? If yes, provide copies of the report.

RESPONSE

Yes, a copy of the following report is provided:

Terrestrial Environmental Program, Forked River Nuclear Station
Annual Report, March 1978 - February 1979. 251pp. Terrestrial
Environmental Specialists, Inc. Phoenix, NY

290.2 QUESTION

Environmental Report, Appendix C, Table A12-1 lists chemicals used to control vegetation. Update this table with list of chemicals presently used for control of vegetation onsite and in R-O-W. Also indicate method of application and specify whether application is controlled by federal regulation.

RESPONSE

Table 1 lists the chemicals currently in use in the Jersey Central Power & Light and GPU Nuclear vegetation management programs for Oyster Creek Nuclear Generating Station.

The concentration of the chemicals applied are quite low and are always applied selectively. The types of chemicals in use, methods of application and concentration used are such that residual persistence is relatively short and these chemicals neither bio-accumulate nor create a hazard to the environment.

290.3 QUESTION

If there have been times when icing and fogging from the intake or discharge canals have caused traffic problems on Route 9 provide the following information: number of times this problem has occurred, the average length of time that fog or ice was a problem, the number of accidents that occurred while fog or ice was present on Route 9, and any action taken to mitigate this problem, if it is one.

RESPONSE

GPUN has not received nor are we aware of any complaints of traffic problems on U.S. Route 9 as a result of icing and/or fogging from the intake or discharge canals.

290.4 QUESTION

Provide a copy of the following reference: W. R. Clark, R. Rogers and L. J. Wolgast, The Effects of Salt Drift on Land Dwelling Vertebrates, Mineo, p. 86, Jersey Central Power and Light, 1971.

RESPONSE

A copy of the requested document is attached.

290.5 QUESTION

The FES, page 11-50, item 2, states that a Mrs. Anita Linck claims there have been problems with livestock and honey bees in the vicinity of Oyster Creek. Have any problems of this type been reported to you since publication of the FES in 1974? Is yes, provide complete details.

RESPONSE

GPUN has not received nor are we aware of any complaints of problems of the type reported by Mrs. Anita Linck since the publication of the FES in 1974.

290.6 QUESTION

Refer to attachment of letter dated March 21, 1983, to D. M. Crutchfield from P. B. Fiedler. Item 3e response states that Oyster Creek was dredged in 1978-79. When is the next scheduled dredging? Item 3e further states that Forked River was to be dredged in 1983-84. Has this work been completed? If not, give percent completion. Also include on an aerial photograph or map the location of the area where spoil from both the 1978-79 and 1983-84 dredging was and/or is to be deposited, the total acres over which the spoil will be deposited and detailed plans to revegetate the areas. Provide copies of any environmental review done in conjunction with the dredging.

RESPONSE

Sounding data collected by GPU Nuclear indicate that Oyster Creek will not require dredging for 8-12 years.

The contract for the Forked River dredging project will be awarded in March or April of 1984. Since our permit prohibits us from dredging between May 1 and November 30, it is anticipated that only a small portion of the dredging can be accomplished during the spring of 1984. The majority of the dredging activity will probably take place in December of 1984 and January of 1985.

A map showing the location of the spoil disposal site for the 1984-85 Forked River dredging project is attached (Figure 2-A, & 2-B). The same 22 acre site was used for the 1978-79 Oyster Creek dredging project.

The construction of the dredge spoil disposal basin will require the development of a soil erosion and sediment control plan which must be certified by the Ocean County Soil Conservation District. That plan will include the details of all proposed nonstructural methods of soil stabilization such as revegetation.

Environmental reviews of the dredging project will be performed by the U.S. Army Corps of Engineers (ACOE) and the New Jersey Department of Environmental Protection (NJDEP), the regulatory agencies requiring permits for the dredging project. The ACOE permit application number is NAPOP-R-830241; the docket number for the NJDEP Waterfront Development Permit/Water Quality Certification is 83-0492.

290.7 QUESTION (Para 1)

Refer to same attachment as in question 290.6. Item K1, p. xii. Mention is made of "material storage areas" that do not need revegetation. Is the material stored on these areas required for station operation or result from station operation? If the answer is yes for both types of material, will these areas be needed for the duration of the plant's operational life? Also indicate their location on an aerial photograph or map. If the answer is no, how long will these areas be required for storage and what are the plans for restoration of these areas?

RESPONSE

Material storage areas (Level D Storage Area) will be needed presumably throughout the station's life for outdoor storage of materials required for station operation (or repair) and also for storage of RCRA material prior to shipping.

Location is indicated on attached Figure No. 1. If taken out of service at a later date, and not otherwise used, it will be seeded with grasses and natural successional development will be encouraged.

QUESTION (Para 2)

On an aerial photograph or map indicate the location of the 12 acres that "has since been disturbed and requires revegetation? Also include the program and the schedule of restoration.

RESPONSE

The following is a list with photograph reference of areas, which require revegetation. The area size and date of revegetation is provided. (Refer to Figure No. 1)

| Location | Size (Acres) | Program | Revegetation Date |
|------------------------------|-----------------|--|----------------------|
| Sandblaster Area (F2) | 0.3 | Lime. Fertilize, seed with grasses and legume. | 1984 |
| South of So Parking Lot (F9) | 1.7 | Grade, place top soil (local), lime fertilize, seed as above. | 1985 |
| South of Helistop (F10) | 0.1 | Same as F2 | 1985 |
| East bank, trestle area (F7) | 0.5 | Same as F9 | 1984-5 |
| Emergency Office Bldg (F8) | 0.8 | Aggregate and base soil | 1984-5 |
| North of No Parking Lot (R4) | 8.6 | Regrade as necessary to handle increased runoff due to cons- truction, lime, fer- tilize & seed as F2. | 1983-4 |

QUESTION (Para 3)

Item K1, p. states that updates of the status of revegetation is provided in three letters to NRC. These letters discuss specific locations where revegetation has or is scheduled to take place. Indicate on an aerial photograph or map the location of each of these areas. Also indicate the present status of each of these areas.

RESPONSE

The following areas are those described in the three referenced letters:

| <u>Area Description *</u> | <u>Status</u> |
|---|--|
| 1. (R1) Dredge Spoil slope north of firepond | Revegetation completed June 15, 1983 |
| 2. (R5) Barge unloading facility | Revegetation and slope stabilization completed December 10, 1982. |
| 3. (F5, F6) Oyster Creek banks between So Access Rd & Discharge Canal | To be revegetated 1984-1985; permits pending. |
| 4. (R2) West of Energy Spectrum & North of Sediment Basin #2 | Revegetation completed. |
| 5. (R8) Proposed natural draft cooling tower site | Revegetation completed. |

6. (F11) Backfill Stockpile Border near treeline was haybaled in 1982; Stockpile to be used as fill to backfill Forked River excavation site; pile site to be revegetated following removal of pile.

* Alphanumeric designations refer to Figure 1 locations.

QUESTION (Para 4)

The areas discussed in the above-mentioned letters do not appear to include all the denuded areas discussed in ER Amendment 2, question E4, pp. E4-1 to E4-6 and Figure E4-1. Provide the present status of all denuded areas discussed in question E4 if not already provided in answers to previous questions. Identify each area on an aerial photograph or map.

RESPONSE

| <u>Question E4</u> | <u>Fig E4-1</u> | <u>Pres.Fig 1</u> | <u>Status</u> |
|------------------------------------|---|------------------------------------|---|
| Main Disposal Area | Area #9 | R7, D3 | R7 naturally revegetated; D3 2 attempts failed - site too dry to establish new growth. |
| Disposal Area #1 | Island Area | R6, D2 | R6 bank revegetated; D2 to be revegetated 1986. |
| Unnumbered Disposal Area | Same | R5 | Revegetated and slopes stabilized. |
| West of Rt 9 | Oyster Creek Station | F1 F2, 3 F4 R3, R3a D1 | Revegetated. To be revegetated, 1984 To be revegetated, 1986 Revegetated Dirt road and Transmission Line R-O-W for Atlantic City Electric Co. |
| South Branch of Forked River Canal | Wilbert Area | D4 | Private Property - no plans to revegetate |
| East of Rt 9 | Pearl JC Area Pearl (East of County road and bridge) Club area Area 6 | D5 D6 - - - | Same as D4 Natural revegetation in progress Revegetated or developed Same as D4 Developed and/or naturally revegetated |

QUESTION

- (a) Provide a comparison of all cooling system design specifications (relative to terrestrial and aquatic resources and water quality impacts) as they now exist with those that were:
- 1) evaluated in the 1974 FES; and
 - 2) analyzed in the 316(a) and (b) demonstrations submitted for OCNGS.

RESPONSE

The cooling system design specifications that relate to terrestrial and aquatic environmental impacts, as analyzed in the 1978 316(a) and (b) demonstrations, were identical to those evaluated in the 1974 FES with the exception of the rerouting of the screen-wash flume. Organisms and debris washed off the traveling screens were originally passed into the condenser discharge via the screen-wash flume. In order to reduce the stress associated with impingement followed by temperature shock, the flume was rerouted so that impinged organisms would be passed into the ambient temperature dilution pump discharge flow. This modification was completed during the summer of 1977.

Since the submission of the 316(a) and (b) demonstrations in 1978, all six traveling screens have been replaced with Ristroph type screens. During the present outage, the screen-wash pump associated piping are being replaced and a new fish handling system is being installed. The details of these modifications are described in the response to questions 291.1.(b).

QUESTION

- (b) Provide, also, the design (diagrammatic) and operational characteristics of the new intake traveling screen-fish handling system.

RESPONSETraveling Water Screens

The six (6) loops of traveling water screens serve to screen out debris and marine life. This function is performed by a loop of screen panels propelled over a pair of head sprockets. The loop is anchored by foot sprockets which rotate freely on the fixed footshaft. The head sprockets are keyed in pairs to the head shaft and driven by an outboard driven sprocket. A conceptual sketch of a traveling screen is presented in Figure 3.

The screen panels are end mounted between two strands of carrier chain. The fit between adjacent panels is sufficient to provide a seal. In the boot, guiding and edge sealing are accomplished by the fit between the end plates of the screen panels and the side face of the boot track bars. The bottom edge of each screen panel is fitted with a fish bucket capable of holding 3-4 inches of water.

Each traveling water screen is powered by a 460 volt, 1 horsepower motor. Each screen is controlled by a 4-position FAST-SLOW-OFF-REVERSE control switch.

A cathodic protection system is installed on each traveling screen to increase corrosion protection.

The High Pressure and Low Pressure Screenwash systems are comprised of two independent pump and piping systems designed to automatically remove debris and marine organisms from the traveling water screens as they are rotated from their submerged positions.

Low Pressure Screenwash System

The Low Pressure Screenwash system has two (2) 100% capacity pumps of the vertical wet pit turbine type powered by 460 volt, 40 horsepower motors. These pumps draw suction from the intake structure downstream of the traveling water screens and discharge to a common header. The main discharge flow passes through a duplex strainer before branching out to the individual screen spray headers at each screen. The in-line strainer prevents any debris from entering the spray headers and plugging the nozzles. Pressure indication at the pump discharge and screen spray headers and differential pressure indication at the strainer are provided. This is to ensure that spray pressure is maintained, the pumps are running at rated capacity and to indicate if the strainer is plugged and requires cleaning.

At each of the six (6) traveling water screens there are two (2) spray headers, one internal header and one external header. The external spray which operates at a lower pressure (10-15 psig), and flow rate (25-35 gpm), provides a moist environment for the marine organisms at the start of the reflex of the screens and aids in beginning the flow mechanics of sliding off the mesh. The internal header which operates at a higher pressure (20-30 psig) and flow rate (141-185 gpm) provides the continuing hydromechanic action of floatation and flowing of the marine organisms and easily loosened debris. These marine organisms are flushed into the fish trough which will return them to the environment. A flap seal prevents the organisms from bypassing the fish trough.

High Pressure Screenwash System

The High Pressure Screenwash system has two (2) 100% capacity pumps of the vertical wet pit turbine type powered by 460 volt 150 horsepower motors. These pumps draw suction from the intake structure downstream of the traveling water screens and discharge to a common header. The main discharge flow passes through a duplex strainer before branching out to the individual screen spray headers at each screen. The in-line strainer prevents any debris from entering the spray headers and plugging the nozzles. Pressure indication at the pump discharge and differential pressure indication at the strainer are provided. This is to ensure that the pumps are running at rated capacity and to indicate if the strainer is plugged and requires cleaning.

At each of the six (6) traveling water screens, the High Pressure Screenwash Header is located at a lower elevation than the low pressure spray. As the screen descends past the fish trough, the dense, lodged debris is loosened by the high pressure spray (70-90 psig) and is cascaded into the debris trough. A flap seal ensures the debris cannot bypass the trough.

Fish Trough and Fish Sampling Pool

The fish trough and fish sampling pool consists of a new trough arrangement and a new fish sampling pool with building enclosure and accessories.

The new trough consists of a fish trough and a debris trough which converge with the fish and debris trough from the traveling water screens. The new fish and debris troughs join into a common trough which returns to the existing screen wash discharge trench. A sluice gate in the new common trough allows the diversion of the screen wash discharge to the new fish sampling pool for sampling of marine organisms.

The fish sampling pool, located on the northeast corner of the intake structure, is a concrete basin equipped with an overflow and drain. It is enclosed by pre-fabricated metal building provided with heating and lighting. The pool is divided by a manually movable screen. There is a metal walkway spanning the pool with ladder to the pool floor. Conceptual sketches of the fish trough and sampling pool are presented in Figures 4-A through 4-J.

All fish trough and fish sampling pool surfaces are smooth to avoid abrasion. The fish troughs are constructed with glass fiber reinforced polyester material. A design objective was to minimize the projection into the flow stream which might cause eddies or impact surfaces. The maximum water velocity with the troughs full is 10 feet per second. The fish sampling pool is isolated from the normal discharge flow.

System Operational Summary

The traveling water screens are located at the inlet of the intake structure and serve to prevent debris and marine life from entering the circulating water and service water systems' water supply. Should the traveling screens become clogged with debris or organisms to the extent that flow across the screens is impeded, a high differential pressure signal activates the High Pressure and Low Pressure Screenwash systems. When the discharge pressure of the high pressure screenwash header reaches 85 psig, the traveling water screens automatically begin rotating forward at their slow speed of 2.5 feet per minute (FPM). Should the pressure differential across the screens continue to rise, the screens can be manually switched to fast forward, 10 FPM. The screens also can be rotated in reverse for maintenance purposes.

The traveling water screens can also operate on a pre-set cycle timer. On a signal from the timer, the High Pressure and Low Pressure Screenwash systems activate and the screens operate as described above.

Shutdown of the traveling water screens and the screenwash systems occurs on low differential pressure across the center of the traveling water screens; electrical failure of both high pressure screenwash pumps; or if the cycle timer completes the preset cycle. Since each case described above results in the shutdown of the high pressure screenwash pumps, the subsequent pressure decay in the high pressure spray header trips the traveling water screens.

Under normal operating conditions, as the screen flexes across the head sprocket, the external low pressure spray, which is at approximately 10-15 psig, moistens and loosens the marine life and loosely held debris. The marine life and loose debris is washed into the fish trough by the internal low pressure spray headers operating at about 20-30 psig. A flap seal prevents bypassing the fish trough. The screen rotates past the fish trough and is washed by the high pressure spray at about 70-90 psig which will remove any densely lodged debris. The washdown cascades into a debris trough which also has a flap seal to ensure all materials are carried off in the trough.

The fish and debris troughs merge to form a single discharge trough to carry away both the fish and the debris. This flow can be diverted to the new fish sampling pool by use of a manually operated gate. The collected discharge sample is then examined to determine the species composition, abundance and survival rates of the fin and shellfish impinged on the traveling water screens.

291.2 QUESTION

- (a) Provide a bibliographic listing of all journal and professional conference proceedings, publications and abstracts (by licensee and licensee's consultants) that have resulted from aquatic studies and monitoring of the OCNGS site vicinity.

RESPONSE

See Attached Table 2

291.2 QUESTION

- (b) Provide a bibliographic listing of all technical papers that have been prepared by state and federal agencies and private organizations on the aquatic resources associated with the OCNGS site vicinity.

RESPONSE

See Attached Table 3

TABLE 1 VEGETATION MANAGEMENT PROGRAM
CHEMICALS APPROVED FOR USE AT OYSTER CREEK
NUCLEAR GENERATING STATION

| <u>Name</u> | <u>Form</u> | <u>Application Method</u> |
|--------------------------|-----------------------------|---|
| | <u>Substation/R-O-W Use</u> | |
| Ammate X-NI | Water-soluble Crystal | Hydraulic and/or low pressure backpack |
| Amizol, Amitrol T | Wettable Powder | Hydraulic and/or low pressure backpack |
| Roundup | Liquid | Hydraulic and/or low pressure backpack |
| * Tordon 101, Amdon 101 | Liquid | Hydraulic and/or low pressure backpack |
| * Tordon 10K | Pellets | Manual-Spot Treatment |
| Krenite | Liquid | Hydraulic and/or low pressure backpack |
| Banvel-520 | Liquid | Hydraulic and/or low pressure backpack |
| Garlon 3A | Liquid | Hydraulic and/or low pressure backpack |
| Oust | Liquid | Hydraulic and/or low pressure backpack |
| | <u>General Site Use</u> | |
| Karmex Wettable Powder | | Hydraulic and/or low pressure backpack |
| * Tordon 101 | Liquid | Hydraulic and/or low pressure backpack |
| Oust Dispersible Granule | | Hydraulic and/or low pressure backpack |
| Amitrol T | Liquid | Hydraulic and/or low pressure backpack |
| Roundup | Liquid | Hydraulic and/or low pressure backpack |

NOTES: All Chemicals are subject to the N. J. Pesticide Control Act
 * Restricted Use Pesticides
 No R-O-W use since 1978 east of Garden State Parkway; none planned
 for future.

TABLE 2

BIBLIOGRAPHIC LISTING OF ALL JOURNAL AND PROFESSIONAL CONFERENCE PROCEEDINGS, PUBLICATIONS, AND ABSTRACTS BY LICENSEE AND LICENSEE'S CONSULTANTS

- Browne, M. E. 1979. Preliminary engineering and environmental evaluation of fine-mesh profile wire as powerplant intake screening. Passive Intake Screen Workshop, Johnson Division VOP Inc., New Brighton, Minnesota, p. 17-38.
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- Kennish, M. J. 1975. Growth increment analysis of Mercenaria mercenaria from artificially-heated coastal marine waters: a practical monitoring method. (XII Annual Chronobiology Conference), abstracts with programs, 12:38.

TABLE 2 continued

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TABLE 2 continued

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TABLE 2 continued

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TABLE 3

BIBLIOGRAPHIC LISTING OF ALL TECHNICAL PAPERS THAT HAVE BEEN PREPARED BY STATE AND FEDERAL AGENCIES AND PRIVATE ORGANIZATIONS ON THE AQUATIC RESOURCES ASSOCIATED WITH THE OYSTER CREEK NUCLEAR GENERATING STATION SITE VICINITY

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1 INCH = 2000 FEET (APPROX.)

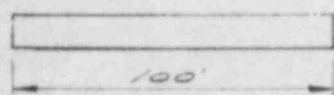
CANAL DREDGING - DISTURBED AREAS

FIGURE 1

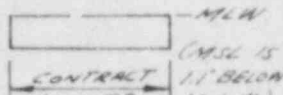
Figure 2-A

NOTES

1. APPROXIMATELY 60000 CUBIC YARDS OF MATERIAL TO BE DREDGED HYDRAULICALLY TO ELEVATION -5.0' M.L.W. AND PUMPED TO APPLICANT'S UPLAND PROPERTY.
2. REFER TO SHEET 2 OF 2 SHEETS FOR SPOIL AREA DETAIL.



ACCESS CHANNEL
TYPICAL



LAGOON
TYPICAL

SECTIONS



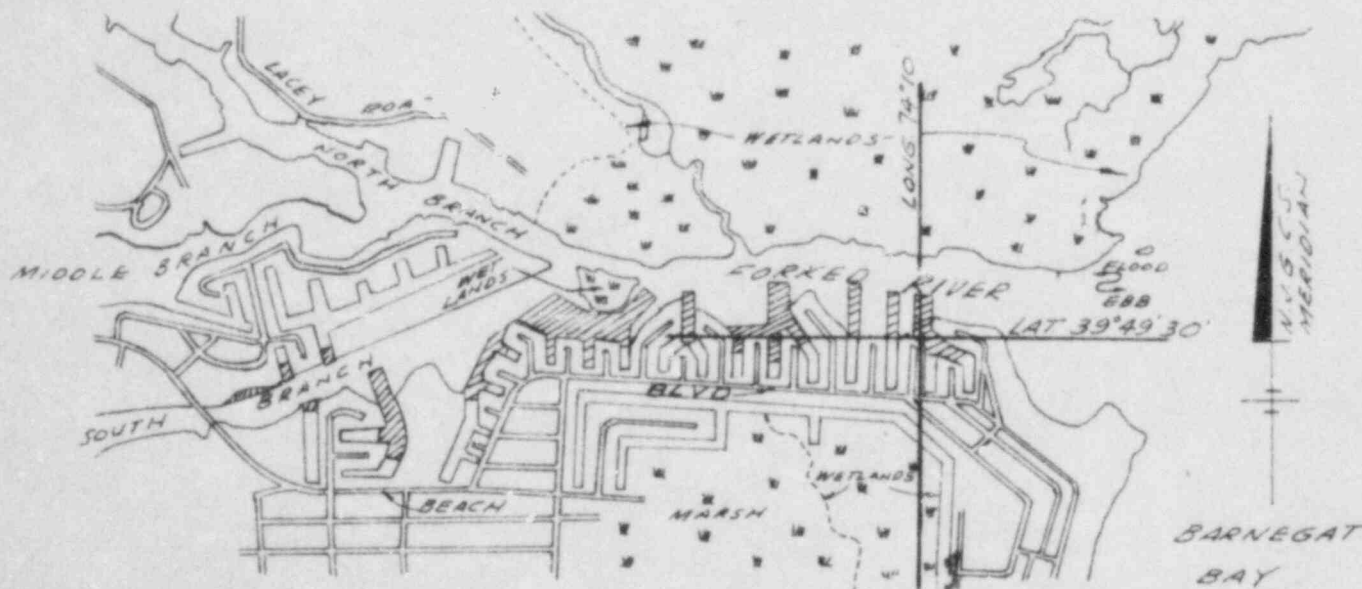
SCALE IN FEET

■ - DENOTES AREA TO BE DREDGED

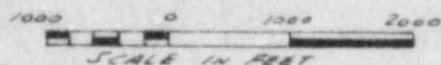


FROM USGS QUAD SHEET (FORKED RIVER)

WILLIAM T. MURRAY P.L.S., P.E.
N.Y. LIC. #11666 ASBURY PARK, N.J.



PLAN



SCALE IN FEET

PURPOSE: PERFORM MAINTENANCE DREDGING TO RESTORE ACCESS TO MAIN CHANNEL AND NAVIGABILITY IN SHALLOW PORTIONS OF LAGOONS.

DATUM: N.G.V.D. OF 1929, M.S.L.
ADJACENT PROPERTY OWNERS: SEE ATTACHED LIST.

PROPOSED MAINTENANCE
DREDGING

IN FORKED RIVER
AT LACEY TOWNSHIP
COUNTY OF OCEAN STATE OF N.J.
APPLICATION BY G.P.U. NUCLEAR CORPORATION

SHEET 1 OF 2 SHTS JAN 21, 1983

REV. NOV. 18, 1983
REV. DEC. 15, 1983

Figure 2-B

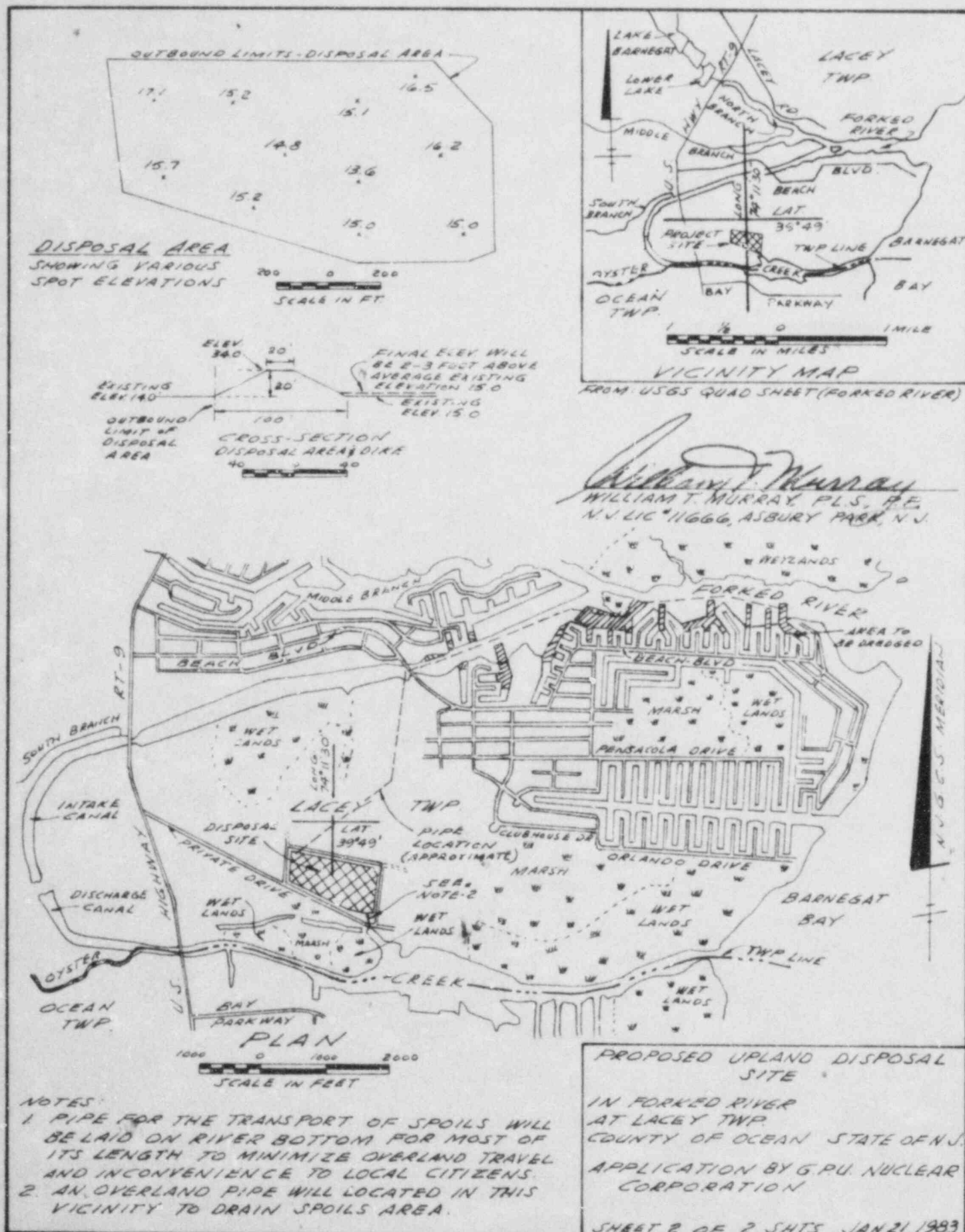


Figure 3

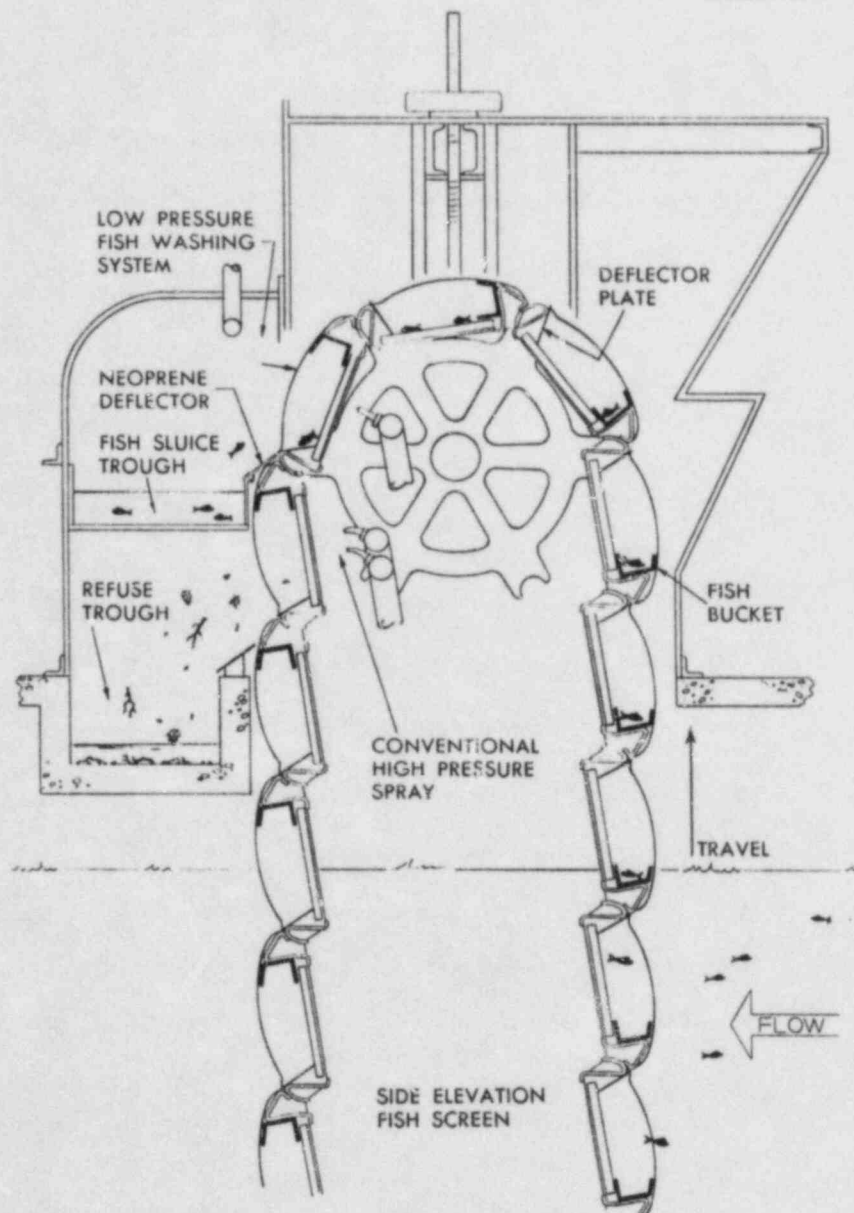
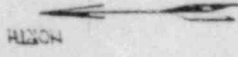


Figure 4-A

BURNS AND ROE, INC.

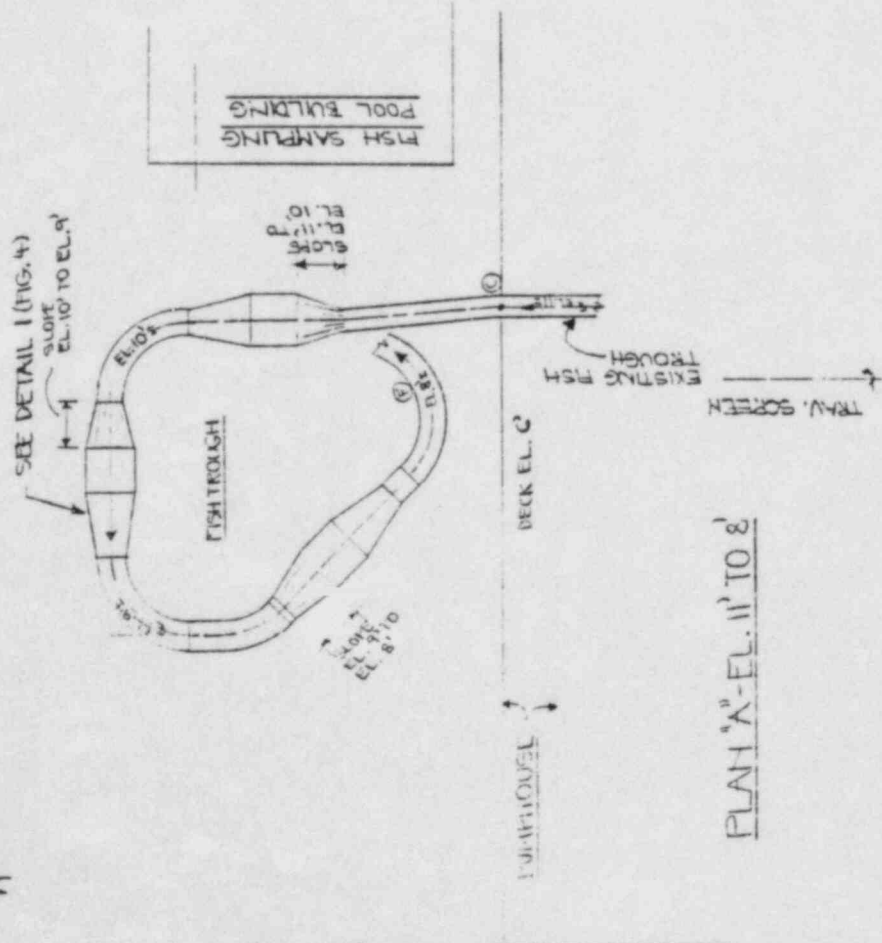
W.O. No. 3411-01 Date May 20/62 Book No. 10 of 10
 Drawing No. 10 Calc. No. 10
 By E. J. Burns Checked E. J. Burns Approved E. J. Burns
 Title FISH TROUGH AND SAMPLING POOL



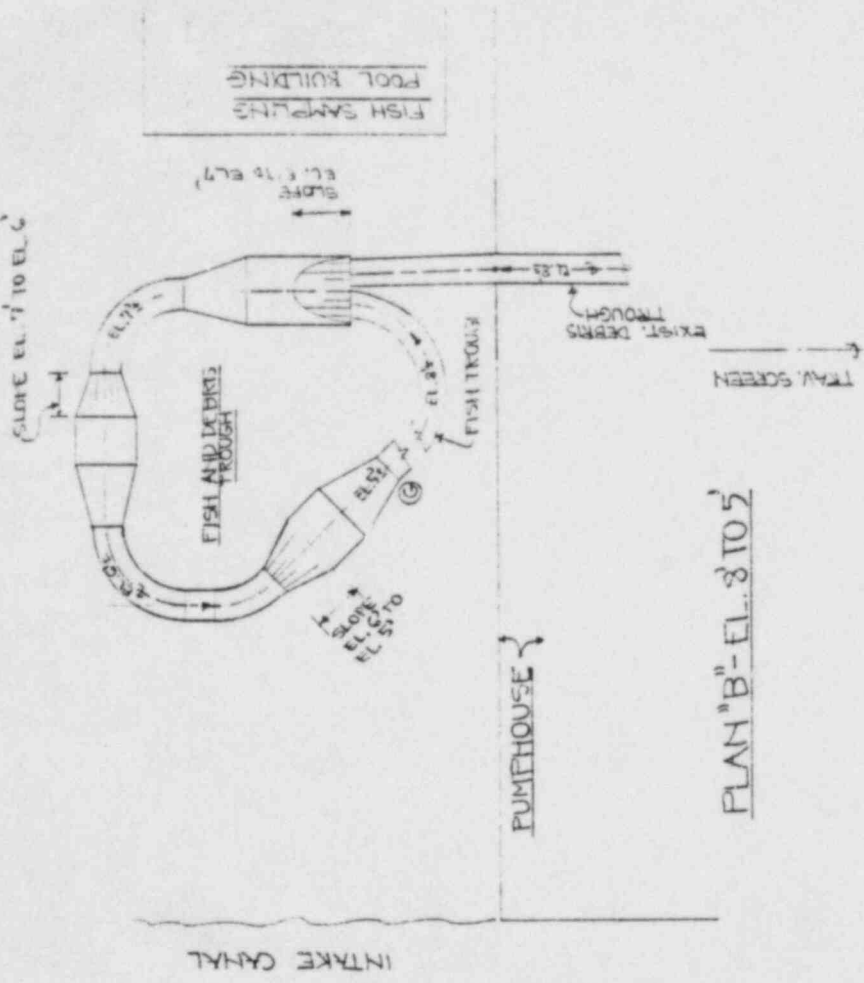
NOTE: THIS IS A THREE LEVEL TROUGH SYSTEM AS SHOWN IN PLANS A,B,C

SCALE 1/4" = 10'

NOTE: SUPPORTING STRUCTURE ACCESS TO THE INSIDE OF FISH TROUGH AND MAINTENANCE PLATFORMS ARE NOT SHOWN



PLAN "A"-EL. 11' TO 8'



PLAN "B"-EL. 8' TO 5'

BURNS AND ROE, INC.

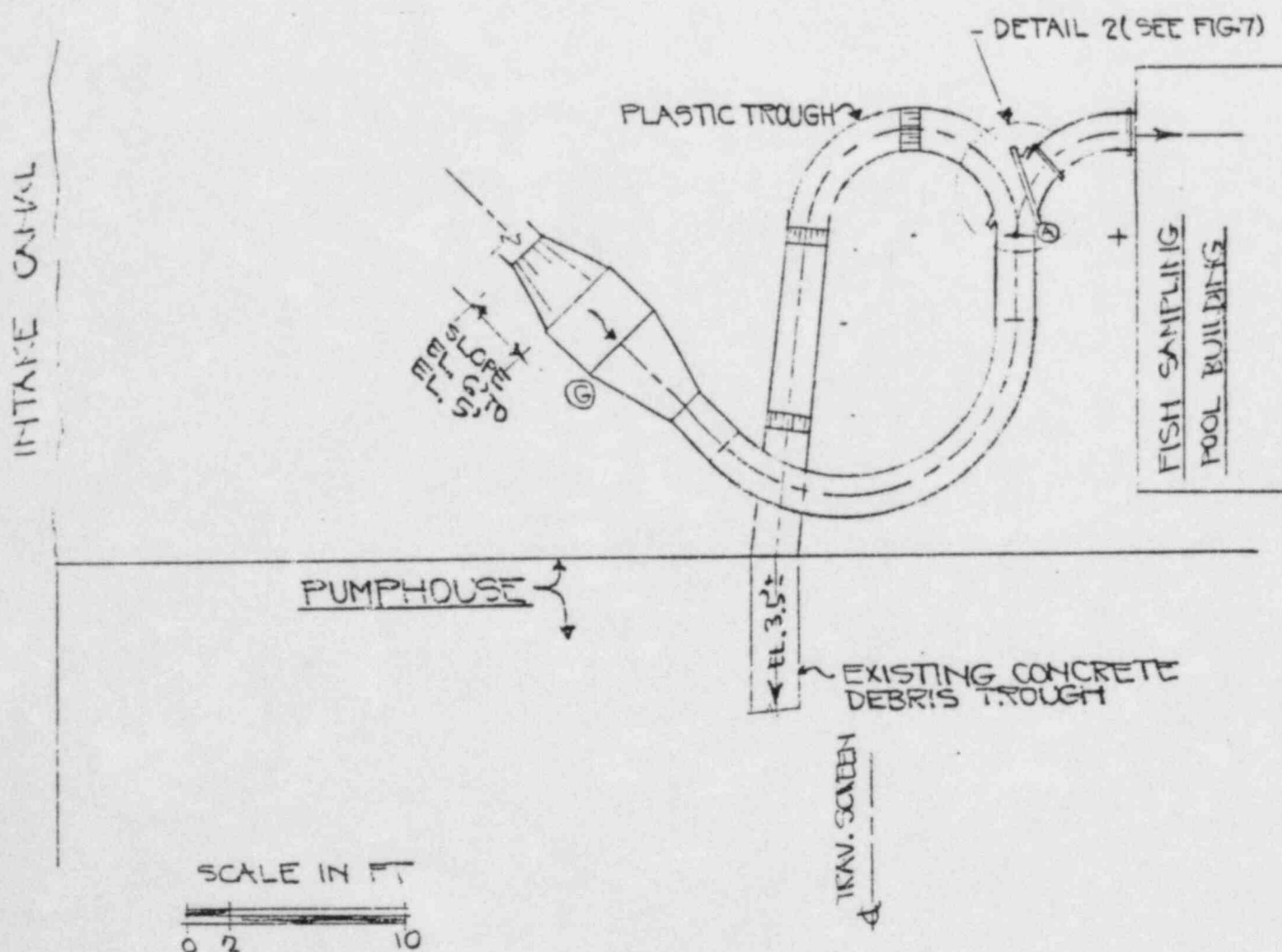
Headquarters Office—Oradell, N.J.

W.O. No. 3730-01 Date SEPT 30/82 Book No. _____ Page No. _____
 Drawing No. _____ Calc. No. _____ Sheet 21 Cont. on Sheet _____
 By FB Checked PL 10/29/82 Approved _____
 Title OYSTER CREEK; FISH TROUGH & SAMPLING POOL



PLAN "C"-EL. 5' TO 3.5'

EXISTING 36" ϕ PIPE



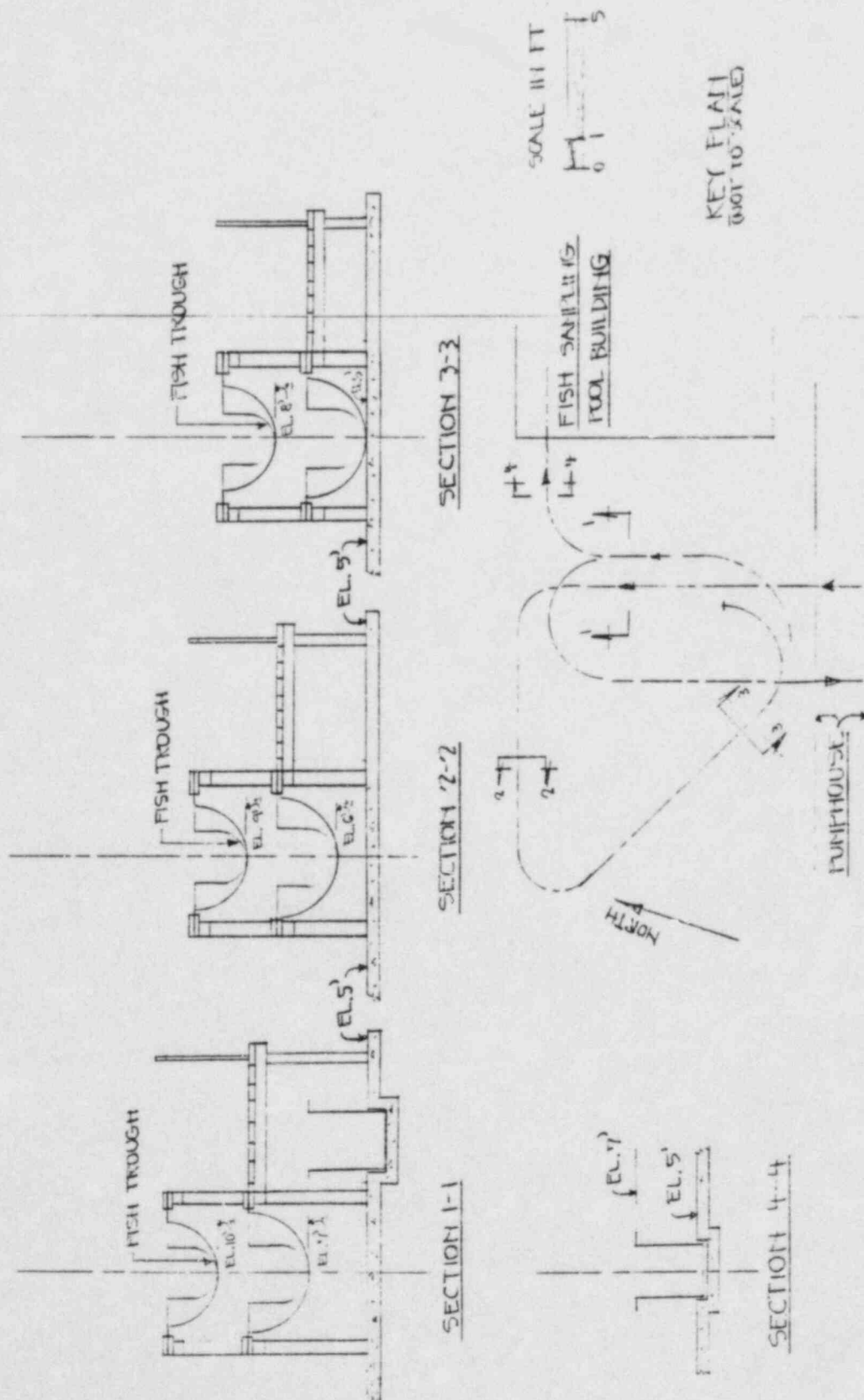
NOTE: SUPPORTING STRUCTURE
IS NOT SHOWN

REV. 2 (OCT 24/82)

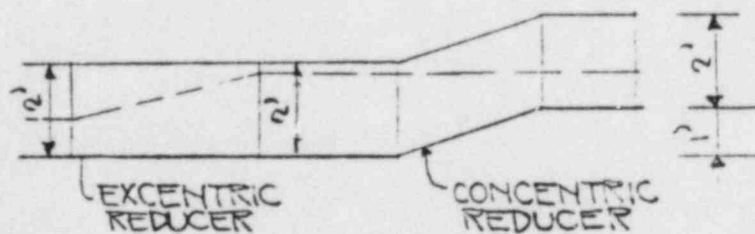
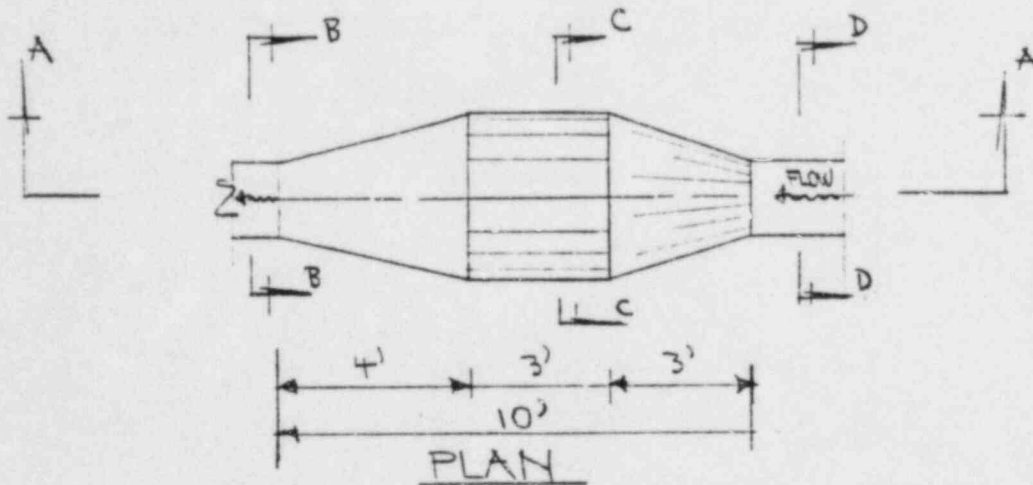
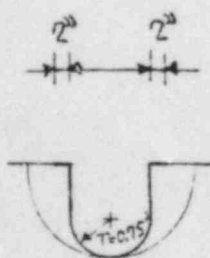
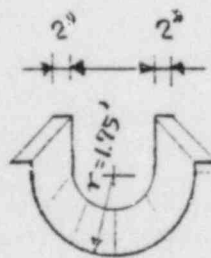
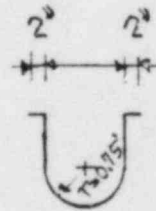
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W.O. No. 2730-01 Date SEPT 29, 62 Book No. _____ Page No. _____
 Drawing No. _____ Calc. No. _____ Sheet 22 Cont. on Sheet _____
 By FB Checked PL 10/23/62 App. Jved _____
 Title CLUSTER CREEK FISH TROUGH & SAMPLING POOL

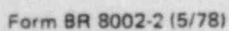


W.O. No. 5720-01 Date SEPT 20/82 Book No. _____ Page No. _____
 Drawing No. _____ Calc. No. _____ Sheet 13 Cont. on Sheet _____
 By P. BAKER Checked P.L. 10/28/82 Approved _____
 Title OYSTER CREEK FISH TROUGHE SAMPLING POOL

FISH TROUGH "DROP" SEGMENT - DETAIL 1MATERIAL: PLASTICNOTE: ALL ANGLED JOINTS SHALL BE ROUNDEDELEVATION A-ASECTION B-BSECTION C-CSECTION D-D

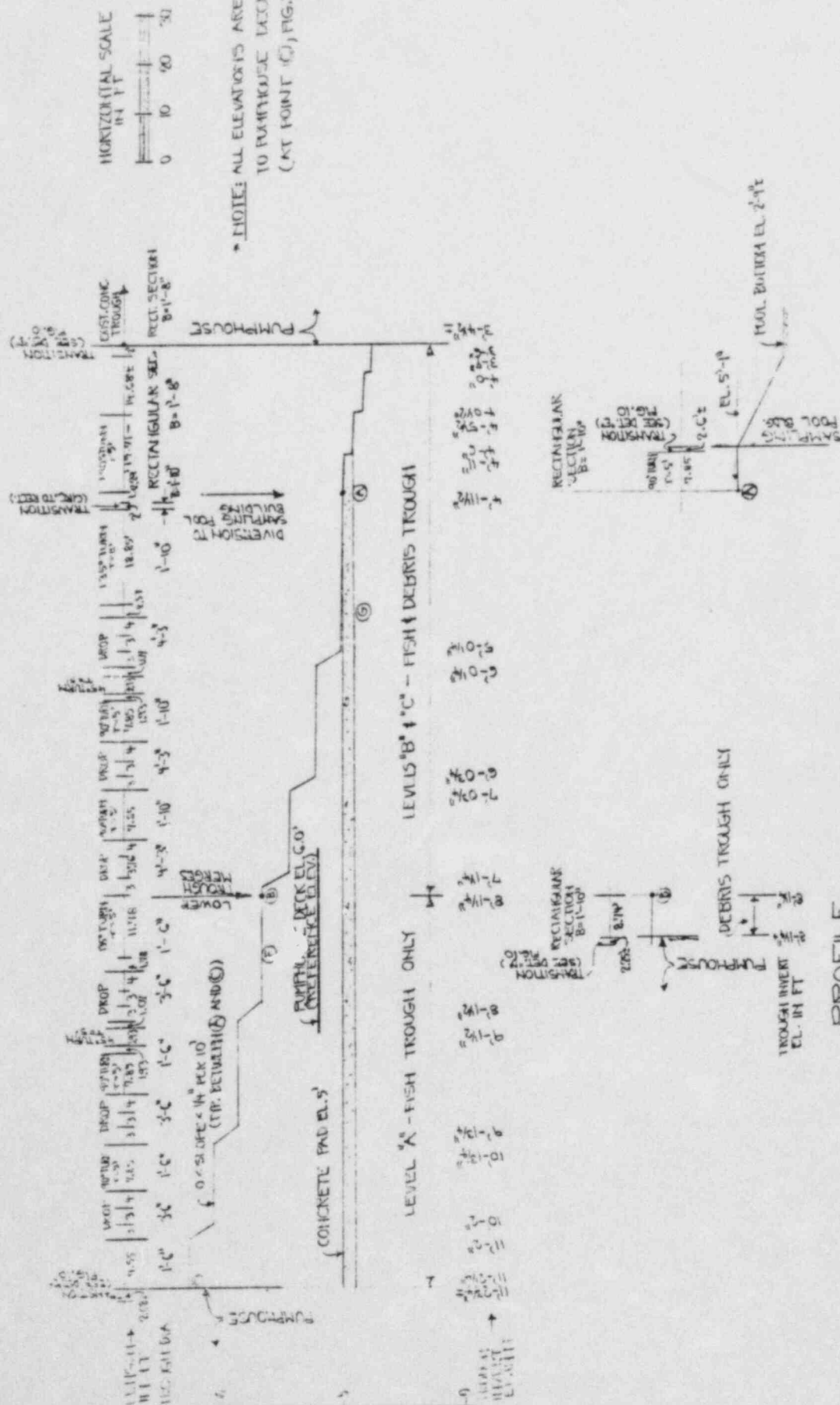
SCALE IN FT





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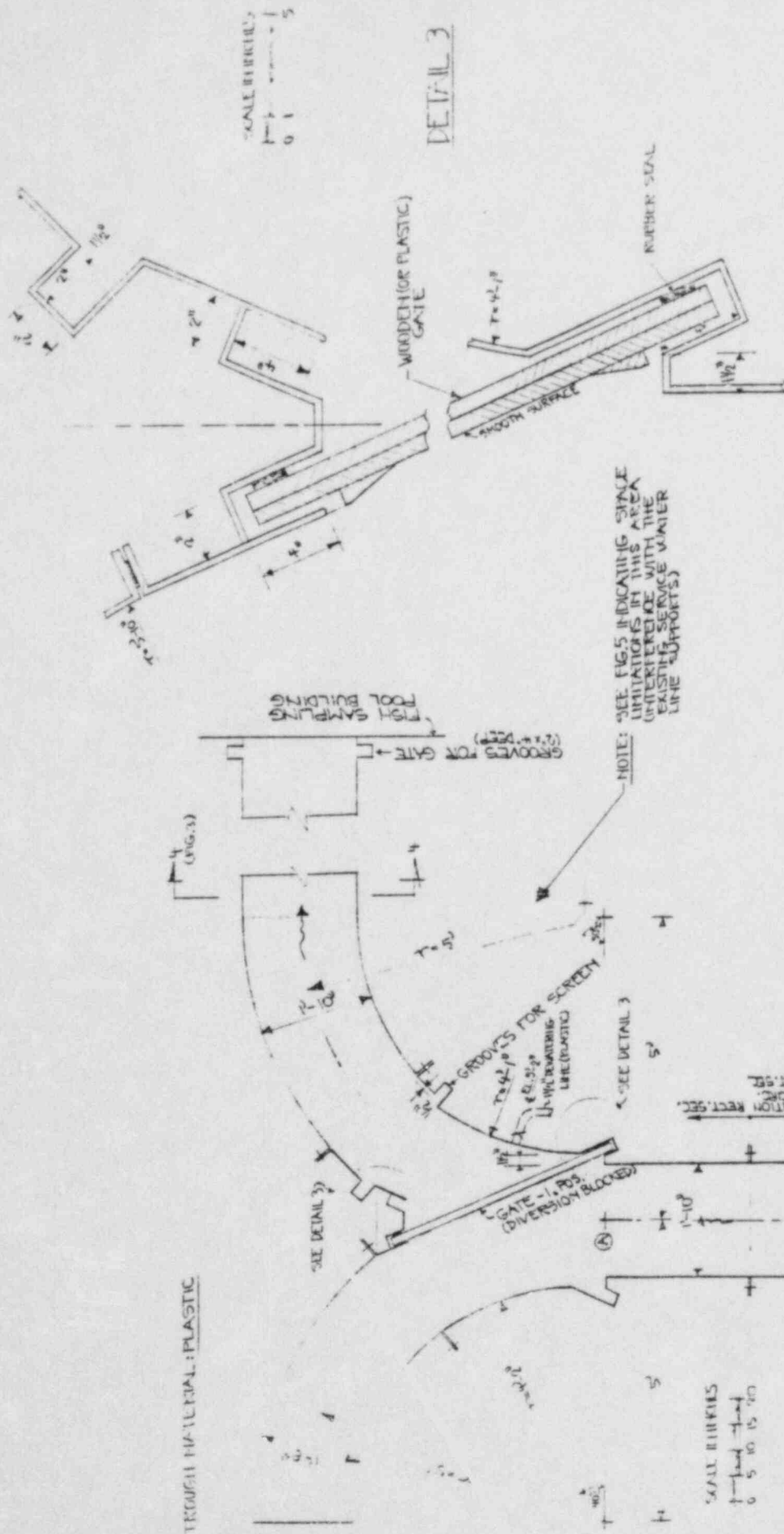


(28/27, 27/28)

Figure 4-6

BURNS AND ROE, INC.

W.O. No. 31721-111 Date 11/1/50 Book No. 111 Page No. 1 of 1
 Drawing No. 111 Calc. No. 111 Approved PL
 By PL Checked PL Title DETAIL 2 - DIVERSION TO FISH SAMPLING POOL BLK 2

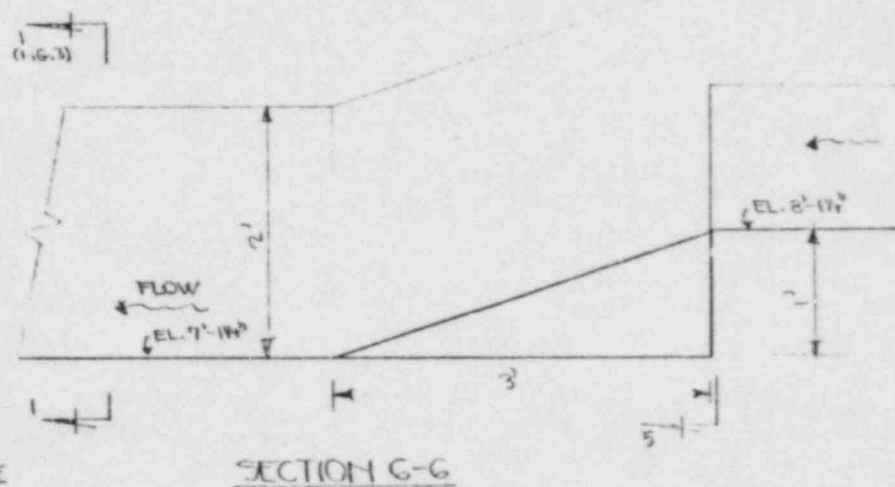
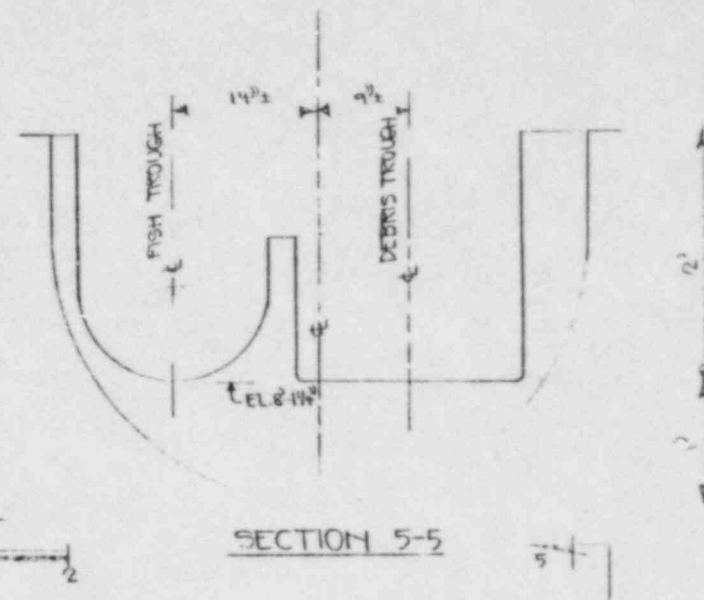
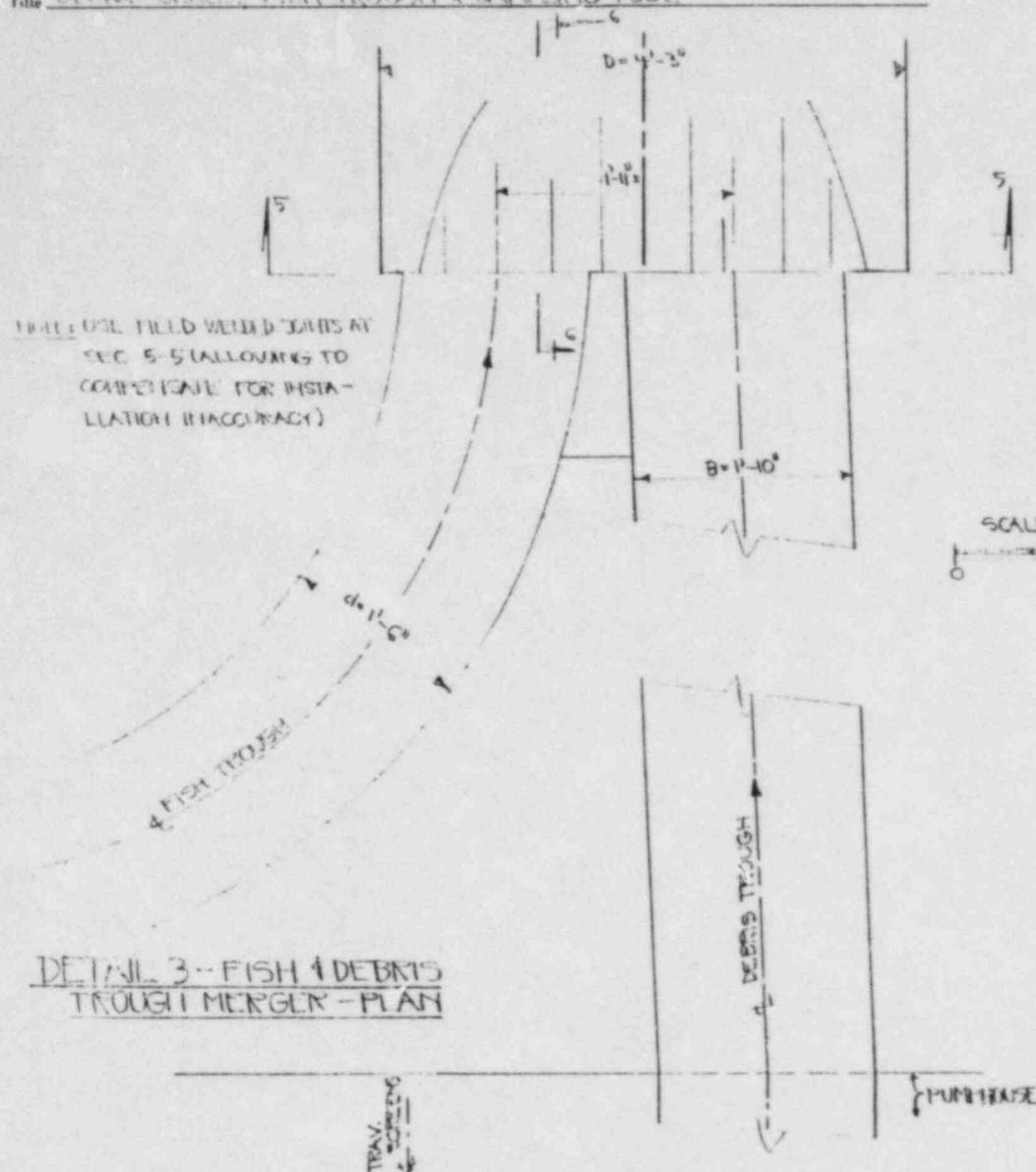


DETAIL 2 - DIVERSION TO FISH SAMPLING POOL BLK 2

REV. 1 (OCT '60) (27)

BURNS AND ROE, INC.

W.D. No. 1020-01 Date 10/11/54 Book No. Page No.
 Drawing No. Calc. No. Sheet 6 of 6
 By Checked PL 10/25/54 Approved
 Title CHERRY CREEK FISH TROUGH & SWIMMING POOL



REV. 1 (OCT 26/52)

Figure 4-I

BURNS AND ROE, INC.

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Drawing No _____ Calc No _____ Sheet _____ of _____
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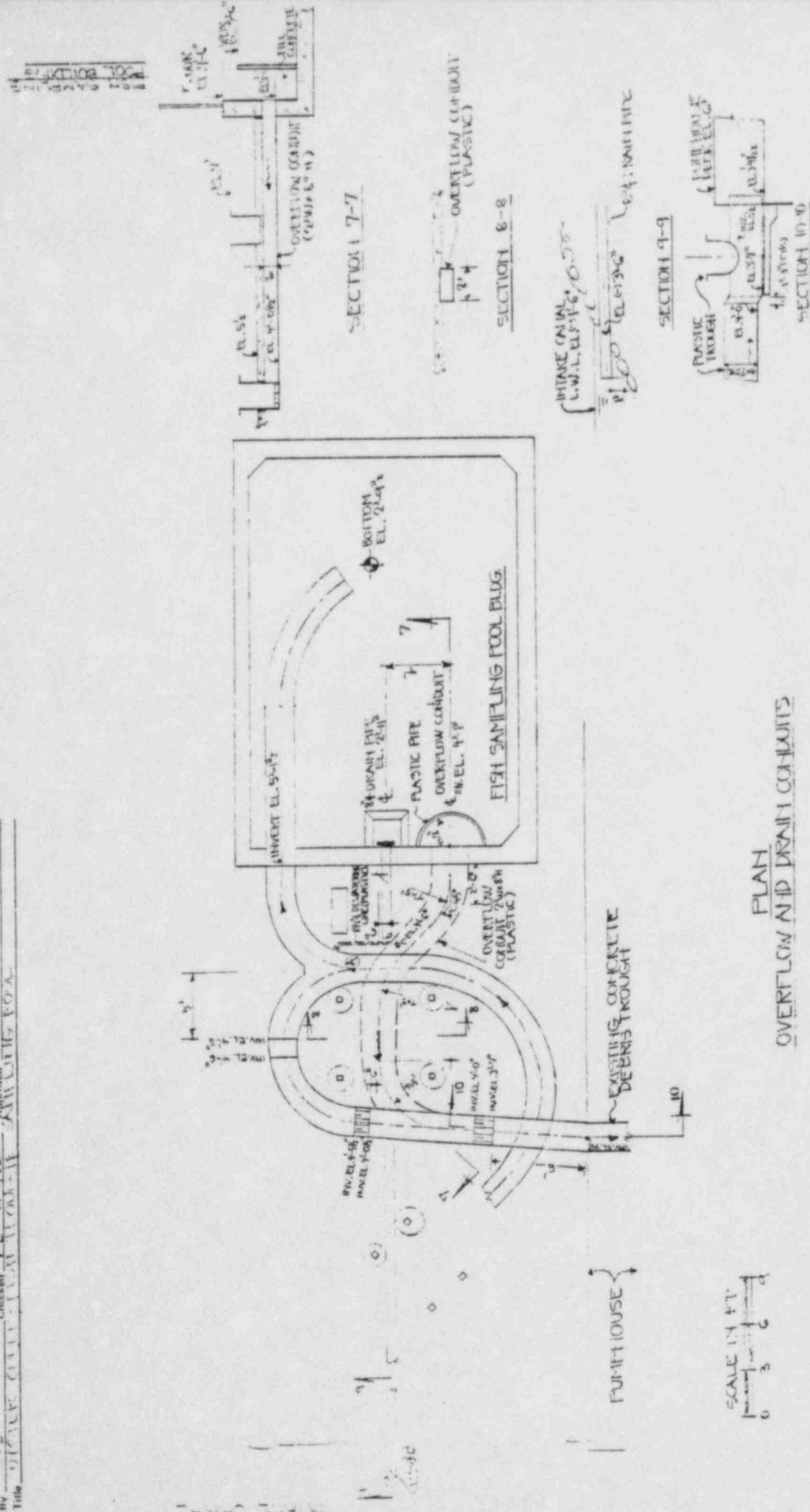
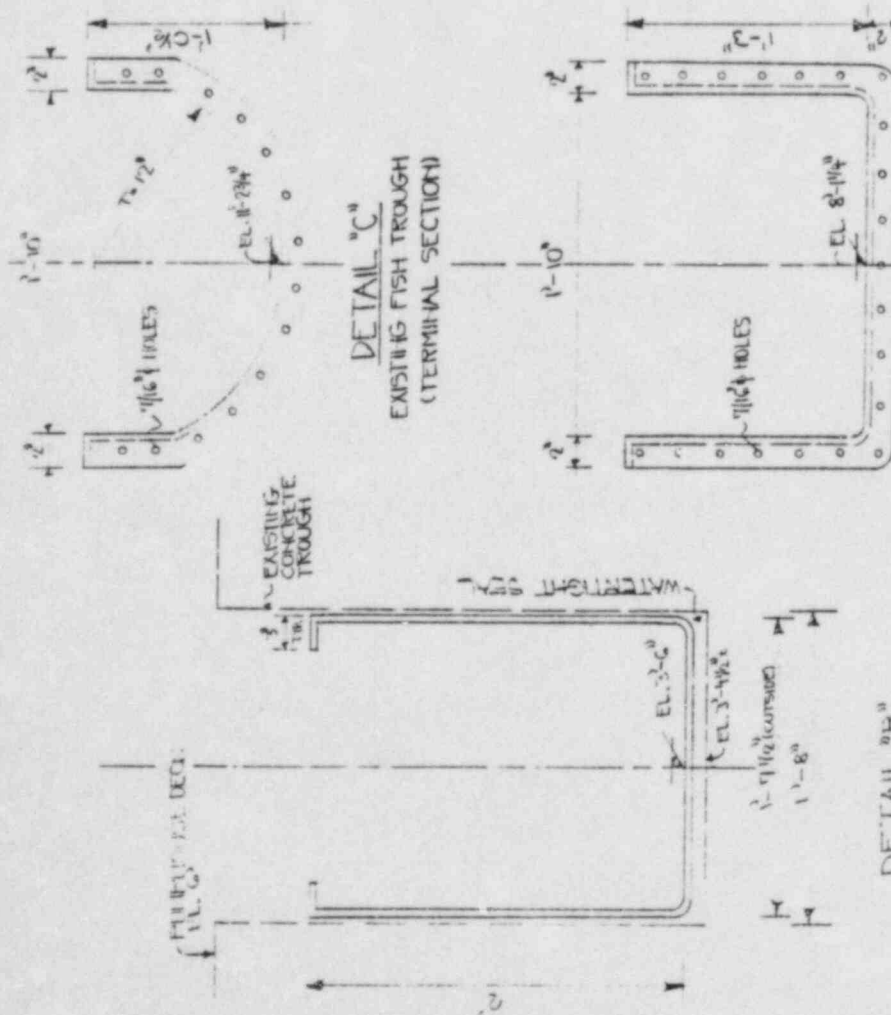

$$\frac{(x, y, x, y)}{1 + (x, y)}$$

Figure 4-J

BURNS AND ROE, INC.

| | | | | |
|--|------------------|-----------------|----------------|----------------------|
| W.O. No. _____ | Date _____ | Calc. No. _____ | Book No. _____ | Page No. _____ |
| Drawing No. _____ | Checked by _____ | 1978 | Approved _____ | Sheet _____ of _____ |
| Title: <u>EXISTING CONCRETE TROUGH</u> | | | | |



DETAIL 'B'
DOWNSTREAM SECTION OF
TRANSITION TO EXISTING
CONCRETE TROUGH

SCALE 1/4" = 1'-0"

DETAIL 'E'
DOWNSTREAM SECTION OF
TRANSITION TO FUTURE FISH
SHELTER POOL BUILDING TROUGH

NOTE: THE EXISTING TROUGH DIMENSIONS ARE APPROXIMATE. ALL FIELD INFORMATION, INCLUDING VERTICAL DIMENSIONS, SHALL BE OBTAINED BY THE DESIGNER. THE EXISTING TROUGH DIMENSIONS, TO THE EXTENT OF THE FIELD TROUGH, SHALL BE OBTAINED BY THE DESIGNER. THE EXISTING TROUGH DIMENSIONS, TO THE EXTENT OF THE FIELD TROUGH, SHALL BE OBTAINED BY THE DESIGNER.