STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
KNOXVILLE ENVIRONMENTAL FIELD OFFICE
2700 MIDDLEBROOK PIKE, SUITE 220
KNOXVILLE, TENNESSEE 37921-5602
(615) 594-6035 FAX (615) 594-6105

September 22, 1995

Mr. Paris Crippen, Vice President
I-75 Stone Company, Inc.
P. O. Box 645
Powell, TN 37849-0645

RE: NPDES Permit Issuance and Plans Approval
I-75 Stone Company, Inc.
Diggs Gap Quarry
NPDES Permit No. TN0063355
Knox County

Dear Mr. Crippen:

In accordance with the provisions of *The Tennessee Water Quality Control Act* (Tennessee Code Annotated, Sections 69-3-101 et seq.) and Regulations of the Tennessee Division of Water Pollution Control the enclosed permit is hereby issued. The continuance and/or reissuance of this Permit is contingent upon your meeting the conditions and requirements as stated therein.

Please be advised that you have the right to appeal any of the provisions established in this permit in accordance with Tennessee Code Annotated, Section 69-3-105(i), and the General Regulations of the Tennessee Water Quality Control Board. If you elect to appeal, you should file a Petition within thirty (30) days from receipt of this Permit. Such Petition must be prepared on 8 1/2- inch by 11-inch paper, addressed to Paul E. Davis, Director, and filed in duplicate at the following address:

Paul E. Davis, Director
Division of Water Pollution Control
6th Floor L & C Tower Annex
Department of Environment and Conservation
Nashville, TN 37243-1534

In such Petition your must state your contention in numbered paragraphs, describing how the action of the Division is inappropriate.

Enclosed is one copy of the supporting plans stamped "**APPROVED**". This copy of your approved plans must be kept on site during the hours of operation. If changes in the mining plan or procedure which affects wastewater treatment or runoff control, are necessary, they must be approved in writing by this Division prior to the initiation of those changes. Failure of your company's strict adherence to these plans could jeopardize the continuation of your permit.

If you have any questions concerning this correspondence, please do not hesitate to contact Gary Mullins at (615)594-6035.

Sincerely,

Carl E. Tenut, Manager
Mining Section
Division of Water Pollution Control

CET:GWM:ABW

Enclosures

cc: BTR
NPDES Permit File

STATE OF TENNESSEE

NPDES PERMIT

NPDES Permit No. TN0063355
(Renewal & Modification)

Authorization to discharge under the
National Pollutant Discharge Elimination System

Issued By

Tennessee Department of Environment and Conservation
Division of Water Pollution Control - Mining Section
2700 Middlebrook Pike, Suite 220
Knoxville, Tennessee 37921

Under authority of the Tennessee Water Quality Control Act of 1977 (T.C.A. 69-3-101 et seq.) and the delegation of authority from the United States Environmental Protection Agency under the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251, et seq.)

Discharger: **I-75 Stone Company, Inc.**
Diggs Gap Quarry

is authorized to discharge treated wastewater and stormwater:

from a facility located in **Knox County**, at latitude **36° 05' 57"**, longitude **84° 01' 23"**,
consisting of **66** acres

to receiving waters named: **Williams Branch - 001, 002, 003, 005**
Foster Branch - 004

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on: **September 22, 1995**

This permit shall expire on: **September 21, 2000**

Issuance date: **September 22, 1995**

Paul E. Davis, Director
Division of Water Pollution Control

CN-0759

Part I

A. WASTEWATER LIMITATIONS AND MONITORING REQUIREMENTS (Limestone Quarry and Processing Facility with An Asphalt Plant)

1. During the period beginning with the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge treated wastewater and from all point sources associated with the mining and related facilities indicated on the approved area maps. Point source discharges include mine dewatering activities, and discharges from treatment structures.

   Such wastewater and shall be limited and monitored by the permittee as specified below until the site has been closed and stabilized according to plans approved by the Division. Additionally, conditions stipulated in Part III B., Termination of Monitoring, shall be met.

WASTEWATER LIMITATIONS

Wastewater Characteristics	Discharge Limitations Daily Maximum	Monitoring Requirements Measurement Frequency	Monitoring Requirements Sample Type
Total Suspended Solids	40.0 mg/l	Two per Month	Grab
Settleable Solids	0.5 ml/l	Two per Month	Grab
Oil and Grease[1]	None Visible	Daily	Observe
Flow (GPM)	----------	Two per Month	Est.
pH	6.0 to 9.0 Standard Units at all times	Two per Month	Grab

[1] After application of the best available technology economically achievable, there shall be no discharge of process wastewater pollutants to navigable waters. (*40 CFR Part 443.23*)

ALTERNATE LIMITATIONS FOR PRECIPITATION EVENTS

Discharges occurring from wastewater treatment structures as a result of a precipitation event equal to or greater than ten year-twenty four hour (10yr/24hr) may meet the following alternate limitations. The structures shall be constructed and maintained to control the event and adequate documentation of the event (photographs, rainfall data, etc.) shall be furnished.

Wastewater Characteristic	Discharge Limitation	Monitoring Requirements Measurement Frequency	Monitoring Requirements Sample Type
pH	6.0 to 9.0 Standard Units at all times	Two per Month	Grab

2. The operator shall have the burden of proof that the discharge or increase in discharge was caused by the applicable precipitation event. This can be in the form of precipitation data, weir flow measurements, dated photographs, or equivalent proof of record. This information shall be submitted with the Discharge Monitoring Reports (DMR's) at the end of the monthly monitoring period.

3. The first time each month the precipitation exemption is utilized, before either of the scheduled sampling days described herein, one sampling shall be taken within twelve (12) hours following the precipitation event and prior to cessation of discharge. One additional sampling, taken 24 to 36 hours following that precipitation event, will be required. Data from the precipitation event shall be submitted in lieu of data from the next scheduled sampling day of that month. Failure to submit the sampling information with the monthly Discharge Monitoring Reports (DMR's) will void use of the exemption for that period.

4. Batch or Pump Discharges

   Batch or pump discharge(s) of any treated mine wastewater from approved treatment structures shall comply with effluent standards set forth herein and shall be directed to a splashpad or the pond's spillway constructed of non-erosive material. Batch or pump discharge(s) shall be sampled according to the following monitoring schedule:

   a. A minimum of two (2) samples shall be collected. One sample shall be collected within one (1) hour from the beginning of the discharge and the second sample shall be taken within one (1) hour prior to cessation of the discharge.

   b. Each batch or pump discharge lasting more than four (4) hours shall be sampled once in addition to the schedule established in 4(a) above. The additional sample shall be taken midway of the total time of discharge.

   c. Duration of the discharge shall be noted on the Discharge Monitoring Report.

   d. Discharges lasting more than twenty-four hours shall be considered as a separate discharge monitoring cycle. Monitoring procedures stipulated above shall be reinstated.

   Data from the sampled discharge shall be submitted with the Discharge Monitoring Report (DMR) along with any other discharge data collected for the monitoring period. This data may be submitted in lieu of data from the next scheduled sampling day of the month. Pumpage of water from sediment control structures is a prohibited bypass if the sampling procedures as stated herein (Part I) are not followed.

5. Gravity Discharges from Sediment Control Structures and/or Treatment Facilities

   Representative samples shall be taken according to the following established sampling frequencies unless otherwise approved by the Division subsequent to a specific written request by the permittee:

Twice a month samples shall be taken once during the first half and once during the second half of the month unless a discharge occurs prior to the sampling period.

6. There shall be no distinctly visible floating scum, oil, or other matter contained in the wastewater either in the discharge or within the treatment structure. The wastewater discharge must not cause an objectionable color contrast in the receiving stream.

7. The wastewater discharge shall result in no other materials in concentrations sufficient to be hazardous or otherwise detrimental to humans, livestock, wildlife, plant life, or fish and aquatic life in the receiving stream.

8. Sludge or any other material removed by any treatment works shall be disposed of in a manner which prevents its entrance into or pollution of any surface or subsurface waters. Additionally, the disposal of such sludge or other material shall be in compliance with the *Tennessee Solid Waste Disposal Act, TCA 68-31-101, et seq.* and the *Tennessee Hazardous Waste Management Act, TCA 68-46-101, et seq.*

B. STORMWATER REPORTING LEVELS AND MONITORING REQUIREMENTS

Stormwater discharges associated with access and haul roads shall be monitored by the permittee as specified below until the site has been closed and stabilized according to plans approved by the Division. Additionally, conditions stipulated in Part III B., Termination of Monitoring, shall be met.

NOTE: ***Part I B. entitled, "Stormwater Reporting Levels and Monitoring Requirements", is not applicable if all stormwater discharges associated with access and haul roads are routed to and adequately treated by approved wastewater treatment structures. Sufficient documentation (i.e. narrative, drainage maps, etc.) of such treatment shall be provided to the Division before this exemption is valid.***

STORMWATER DISCHARGES

Parameter	Reporting Level	Monitoring Requirements	
		Monitoring Frequency	Sample Type
pH	4.0 to 9.0 Standard Units	Annually	Grab
Total Suspended Solids	200 mg/l	Annually	Grab
Oil and Grease	15 mg/l	Annually	Grab

NOTE: The permittee shall monitor at least once a year the stormwater outfalls identified for monitoring in the stormwater pollution prevention plan. Any change or modification in the number of parameters monitored or in measurement frequency will be dependent on the nature and effect of the discharge and its impact on the receiving waters.

The addendum entitled *"ADDENDUM TO EXISTING NPDES WASTEWATER PERMITS FOR STORMWATER DISCHARGES FOR THE MINING INDUSTRY"* has been incorporated into and made part of this permit.

1. Stormwater Discharges Associated with Access and Haul Roads

   a. Samples shall be collected from discharges resulting from a storm event that is greater than 0.1 inch in magnitude and that occurs at least seventy-two (72) hours after any previous storm event of 0.1 inch or greater.

   b. Grab samples shall be collected as soon as practicable during a storm event discharge.

   c. Sample test results for Total Suspended Solids and Oil and Grease shall be recorded in milligrams per liter (mg/1). Test results for pH shall be expressed in Standard Units (S.U.).

   d. In addition to the information contained in Part I, Section E (3), the monitoring report form shall include:

      1) The exact location from which the sample was taken, i.e., culvert, sump, etc.

      2) The duration (in hours), starting and ending times, and magnitude (in inches) of the storm event sampled.

2. Stormwater Pollution Prevention Plan

   The permittee shall develop, document, and maintain a stormwater pollution prevention plan, which shall contain at a minimum the following items. The plan shall be signed by one who meets signatory requirements of Part I, Section D (1) of this permit.

   a. A site map indicating an outline of the drainage area of each stormwater outfall or discharge point; and existing structural control measures designed to reduce pollutants in stormwater runoff.

   b. The plan shall contain a narrative indicating the appropriateness of traditional stormwater control measures and/or Best Management Practices (BMP's) as described in Part II, Section A (8) of this permit.

   c. The plan shall identify areas which, due to topography, mining activities, or other factors, have a high potential for erosion and the contribution of suspended solids, and identify measures to limit such erosion.

   d. Designated person(s) named in the plan shall inspect access and haul roads at least once a year to check the accuracy of the plan, maps, and evaluate whether Best Management Practices (BMP's) and/or other structural controls to prevent or minimize erosion and the contribution of suspended solids are adequate and properly implemented or whether additional control measures are needed.

e. The permittee shall maintain a record which summarizes the results of the inspection and a certification that the facility is in compliance with the stormwater pollution prevention plan (including implementation of Best Management Practices-BMP's) and identify any incident(s) of non-compliance.

f. The plan shall be revised and updated by the permittee at least annually.

g. The plan shall be developed and available for review within 180 days after permit coverage becomes effective. Mining facilities should implement Best Management Practices (BMP's) and/or other structural controls as soon as possible but not later than one year after permit coverage. Where required, structural controls should be installed as soon as possible according to the scope of the project. A schedule for such construction shall be included in the stormwater pollution prevention plan.

h. The plan shall be maintained by the permittee on the site or at a nearby office. Copies of the plan shall be submitted (postmarked) to the Division within ten (10) working days of a request.

i. The stormwater pollution prevention plan shall be modified as required by the Director of the Division of Water Pollution Control.

j. A stormwater monitoring plan for access and haul roads shall conform to the requirements of Part I, Section A (1) of this permit. All outfalls that convey stormwater associated with access roads and haulroads shall be identified. All outfalls shall be monitored, except where the permittee expects two or more outfalls to convey substantially similar stormwater effluent. In this case, the discharger may monitor at a reduced number of outfalls. The permittee shall incorporate into the monitoring plan justification for the outfall sampling locations chosen.

k. For each outfall monitored, the surface area and type of cover, for example, gravel, asphalt, dirt, crushed rock, pavement, etc., shall be identified.

l. The stormwater pollution prevention plan, copies of the inspection results and summaries, and all other records and monitoring reports associated with stormwater discharges from access and haul roads shall be retained for a minimum of three (3) years as required

C. SEDIMENT CONTROL STRUCTURES AND/OR TREATMENT FACILITIES CONSTRUCTION SCHEDULE

1. Full compliance and operational levels shall be attained from the effective date of this permit for all parameters.

2. All pollution control equipment required to meet the conditions of this permit shall be installed, be in operational condition, and shall be "started-up" prior to discharge.

3. Prior to receiving drainage from disturbance of the permitted mine area, wastewater treatment structures and/or treatment facilities shall be constructed according to

approved plans and certified after construction by a Tennessee Registered Professional Engineer or an authorized responsible representative of the company. Such certifications shall be submitted to and approved by the Division.

D. REPORTING

1. Monitoring Results

a. Wastewater Discharges

Monitoring results for wastewater discharges shall be recorded monthly and submitted to the Division postmarked no later than fifteen (15) days after the close of the monthly monitoring period. Discharge Monitoring Reports (DMR's) shall be submitted for each outfall number listed on the permit. If a treatment structure listed on the permit has not been constructed, this shall be noted on the Discharge Monitoring Report (DMR) as "not constructed."

The first Discharge Monitoring Report (DMR) for wastewater discharges is due:

b. Stormwater Discharges

1) Monitoring results for stormwater discharges shall be submitted annually and no later than fifteen (15) days after completion of the quarterly reporting period in which the sample was taken.

2) For the purpose of this permit, a "quarter" is defined as any of the following three month periods: January 1 through March 31; April 1 through June 30; July 1 through September 30; and October 1 through December 31.

Wastewater and stormwater discharges shall be reported on Discharge Monitoring Report (DMR) forms supplied by the Division of Water Pollution Control. The top two (2) copies of each report are to be submitted to the Division of Water Pollution Control, Mining Section. The remaining copy should be retained for the permittee's file.

Discharge Monitoring Reports (DMR's) shall be signed and certified by a principal corporate officer of at least the level of vice-president, a general partner or proprietor, or his duly authorized representative. Such authorization shall be submitted in writing, signed by the permittee, and shall explain the duties and responsibilities of the authorized representative.

Discharge Monitoring Reports (DMR's) and any communication regarding compliance with the conditions of this permit shall be sent to:

Tennessee Department of Environment and Conservation
Division of Water Pollution Control
2700 Middlebrook Pike, Suite 220
Knoxville, TN 37921
ATTENTION: Mining Compliance

3. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified herein, the results of such monitoring shall be included in the calculation and reporting of the values required on the Discharge Monitoring Report (DMR). Such increased frequency shall also be indicated.

4. Falsifying Reports

Knowingly making any false statement on any report required by this permit may result in the imposition of criminal penalties as provided for in Section 309 of *The Federal Clean Water Act of 1977*, as amended, and in Section 69-3-115(C) of *The Tennessee Water Quality Control Act*, as amended.

E. MONITORING PROCEDURES

1. Representative Sampling

Samples and measurements taken in compliance with the monitoring requirements specified above shall be representative of the volume and nature of the monitored discharge and shall be taken at the following location(s): nearest accessible point after final treatment but prior to actual discharge(s) to or mixing with the receiving waters.

2. Test Procedures

a. Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304(h) of *The Federal Clean Water Act of 1977*, as amended, under which such procedures may be required.

b. Unless otherwise noted in the permit, all pollutant parameters shall be determined according to methods prescribed in Title 40, CFR, Part 136, as amended, promulgated pursuant to Section 304 (h) of The Federal Clean Water Act, as amended.

3. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. The exact place, date, and time of sampling;

b. The dates the analyses were performed;

c. The person(s) who performed the analyses;

d. The analytical techniques or methods used; and

e. The results of all required analyses.

4. Records Retention

All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed and calibration and maintenance of instrumentation, shall be retained for a minimum of three (3) years, or longer, if requested by the Division of Water Pollution Control, and be readily available to the Division's representative for review.

PART II

A. GENERAL PROVISIONS

1. Duty to Reapply

Permittee is not authorized to discharge after the expiration date of this permit. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information and forms as are required to the Director no later than 180 days prior to the expiration date.

2. Right of Entry

The permittee shall allow the Director, the Regional Administrator of the U.S. Environmental Protection Agency, or their authorized representatives, upon the presentation of credentials to:

a. Enter upon the permittee's premises where an effluent source is located or where records are required to be kept under the terms and conditions of this permit, and copy these records;

b. Inspect any monitoring equipment or method or any collection, treatment, pollution management, or discharge facilities required under this permit and;

c. Sample any discharge of pollutants.

3. Availability of Reports

Except for data determined to be confidential under Section 308 of *The Federal Clean Water Act of 1977*, as amended, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the Division of Water Pollution Control, Mining Section. As required by the Federal Act, effluent data shall not be considered confidential.

4. Proper Operation and Maintenance

a. The permittee shall at all times properly operate and maintain all facilities and systems (and related appurtenances) for collection and treatment installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory and process controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

b. Dilution water shall not be added to comply with effluent requirements.

5. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal right, nor any infringement of federal, state, or local laws or regulations.

6. Severability

The provisions of this permit are severable. If any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, then the application of such provision to other circumstances and to the remainder of this permit shall not be affected thereby.

7. Other Information

If the permittee becomes aware that he failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in a report to the Director, then he shall promptly submit such facts or information.

8. Best Management Practices (BMP's)

The permittee shall utilize Best Management Practices (BMP's) to prevent or minimize erosion and the contribution of suspended solids and sediment to surface waters and/or adjacent properties. Such practice(s) shall be implemented to reduce the impacts caused by disturbances created by the installation of culverts, the construction of haulroads, access roads, spoil storage and stockpile areas, and other related activities. Best Management Practices (BMP's) include, but are not limited to, rapid grading, mulching, and revegetation of disturbed areas, straw bales, sediment traps and swells, vegetative buffer zones, erosion control structures, and rock check dams. Best Management Practices (BMP's) are to be utilized as supplemental or auxiliary erosion control measures, not as substitutes for monitoring requirements of point source discharges.

Additional information regarding acceptable practices may be found in the **TENNESSEE EROSION and SEDIMENT CONTROL HANDBOOK, July 1992,** which is available from the Division.

B. CHANGES AFFECTING THE PERMIT

1. Planned Changes

The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or

b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to requirements under 40 CFR 122.42 (a) (1)

2. Permit Modification, Revocation, or Termination

a. This permit may be modified, revoked and reissued, or terminated for cause as described in 40 CFR 122.62 and 122.64, Federal Register, Volume 49, No. 188 (Wednesday, September 26, 1984).

b. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

c. If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established for any toxic pollutant under Section 307(a) of *The* Federal *Clean Water Act of 1977*, as amended, the Director shall modify or revoke and reissue the permit to conform to the prohibition or to the effluent standard, providing that the effluent standard is more stringent than the limitation in the permit on the toxic pollutant. The permittee shall comply with these effluent standards or prohibitions within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified or revoked and reissued to incorporate the requirement.

3. Change of Ownership

This permit may be transferred to another person by the permittee if:

a. The permittee notifies the Director of the proposed transfer at least thirty (30) days in advance of the proposed transfer date;

b. The notice includes a written agreement between the existing and new permittee containing a specified date for transfer of the permit and liability between them;

c. The Director, within thirty (30) days, does not notify the current permittee and the new permittee of his intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit; and

d. All changes of ownership include the submittal of the Division's form entitled "Agreement and Application for Transfer of N.P.D.E.S. Permit."

4. Change of Mailing Address

The permittee shall promptly provide to the Director written notice of any change of mailing address. In the absence of such notice the original address of the permittee will be assumed to be correct.

C. NON–COMPLIANCE

1. Effect of Non–Compliance

All discharges shall be consistent with the terms and conditions of this permit. Any permit non–compliance constitutes a violation of applicable state and federal laws and is grounds for enforcement action, permit termination, permit modification, or denial of permit reissuance.

2. Reporting of Non–compliance

a. 24-Hour Reporting

In the case of any non–compliance which could cause a threat to the public drinking water supplies, or any other discharge which could constitute a threat to human health or the environment, a required notice of non–compliance shall be provided to the Division of Water Pollution Control, Mining Section, within twenty-four (24) hours from the time the permittee becomes aware of the circumstances.

Telephone No. (615) 594-6035 Fax No. (615) 594-6105

Additionally, written submission shall be provided within five (5) days of the time the permittee becomes aware of the circumstances unless this requirement is waived by the Director on a case-by-case basis. The permittee shall provide the Director with the following information:

(1) A description of the discharge and cause of non–compliance;

(2) The period of non–compliance, including exact dates and times, or, if not corrected, the anticipated time non–compliance is expected to continue; and

(3) The steps being taken to monitor, reduce, eliminate, and prevent recurrence of the non–complying discharge.

This written notice shall not be considered as excusing or justifying the failure to comply with the effluent limitations. This non–compliance shall also be reported on the Discharge Monitoring Report (DMR). The details may be incorporated by reference to the written five (5) day notification.

b. Scheduled Reporting

For instances of non–compliance which are not reported under subparagraph 2(a) above, the permittee shall report the non–compliance on the Discharge Monitoring Report (DMR). The report shall contain all information concerning the steps taken, or planned, to monitor, reduce, eliminate, and prevent recurrence of the violation and the anticipated time the violation is expected to continue.

3. Bypassing

a. "Bypass" means the intentional diversion of wastes from any portion of a treatment facility. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which could cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass is prohibited and the Director may take enforcement action against a permittee for bypass, unless the following three (3) conditions are met:

(1) Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There are no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and

(3) The permittee submits notice of an unanticipated bypass to the Division of Water Pollution Control, Mining Section, within twenty-four (24) hours of becoming aware of the bypass (if this information is provided orally, a written submission shall be provided within five (5) days). When the need for the

bypass is foreseeable, prior notification shall be submitted for approval to the Director, if possible, at least ten (10) days before the date of the bypass.

c. The Director may prohibit bypass in consideration of the adverse effect of the proposed bypass or if the proposed bypass does not meet the conditions set forth in subparagraphs 3(b).

d. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of subparagraph b. above.

4. Upset

a. "Upset" means an exceptional incident in which there is unintentional and temporary non–compliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include non–compliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. *Conditions necessary for the demonstration of an upset.* An upset shall constitute an affirmative defense to an action brought for non–compliance with such technology–based permit effluent limitations if the permittee demonstrates, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;

(2) At the time the permitted facility was being operated in a prudent and workman-like manner and in compliance with proper operation and maintenance procedures;

(3) The permittee submitted information required under "Reporting of Non–Compliance" within twenty-four (24) hours of becoming aware of the upset (if this information is provided orally, a written submission shall be provided within five (5) days); and

(4) The permittee complied with any remedial measures required under "Adverse Impact."

c. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

5. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to the waters of Tennessee resulting from non–compliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the non–complying discharge. In an enforcement action it shall not be a defense for the permittee that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. LIABILITIES

1. Civil and Criminal Liability

   Except as provided in permit conditions for "Bypassing", nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Notwithstanding this permit, the permittee shall remain liable for any damages sustained by the state of Tennessee including, but not limited to, fish kills and losses of aquatic life and/or wildlife, as a result of the discharge of wastewater to any surface or subsurface waters. Additionally, notwithstanding this permit, it shall be the responsibility of the permittee to conduct its wastewater treatment and/or discharge activities in a manner such that public or private nuisances or health hazards will not be created.

2. Liability Under State Law

   Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or *The Clean Water Act of 1977*, as amended.

PART III

A. GENERAL REQUIREMENTS

1. Prior to the creation of any disturbed area or point source discharge within the projected area of operation, and prior to changes, corrections, modifications, or adjustments in the location of any point source discharge, an Engineering Plan shall be submitted to and approved by the Division of Water Pollution Control, Mining Section.

2. No active mining activity shall be conducted within the projected area of operation unless the detailed Engineering Plan for the specific, limited area of operation or disturbance has been approved in advance. The Engineering Plan shall include those documents, maps, drawings, and other materials as required by the Division.

B. TERMINATION OF MONITORING

Monitoring of a discharge may be terminated when all of the following have been satisfactorily completed:

1. Sufficient data has been accumulated to show to the satisfaction of the Director of the Division of Water Pollution Control that the untreated discharge from an area where mining is completed shall meet limitations established by the Division as stated herein [Part I, A(1), Page 1]. Other factors such as watershed or background characteristics may be taken into consideration if sufficient data and documentation are provided to the Division by the permittee.

2 The permittee or his duly authorized representative submits proof of bond release and a letter to the Division of Water Pollution Control requesting permit termination.

3. The site has been closed and stabilized according to approved plans and to the satisfaction of the Division.

4. After a thirty day (30) public notice, there is no adverse public comment to uphold termination.

C. EXAMPLES OF DISCHARGES COVERED BY THIS PERMIT

Examples of discharges which are covered by *The Federal Clean Water Act of 1977*, as amended, and this permit include, but are not limited to, the following:

1. Pumped or gravity drainage from the permitted area, including but not limited to the mine, overburden storage, and stockpile areas.

2. Discharges from sediment control structures and/or treatment facilities.

D. DURATION AND REISSUANCE OF PERMITS

The Commissioner shall review the permit and other available information to insure:

1. That the permittee is in compliance with or has substantially complied with all terms, conditions, requirements, and schedules of compliance of the expired permit;

2. That the Commissioner has up-to-date information on the permittee's production levels, permittee's waste treatment practices, nature, contents, and frequency of permittee's discharge, either pursuant to monitoring records and reports submitted to the Commissioner by the permittee; and,

3. That the discharge is consistent with applicable effluent standards and limitations, water quality standards, and other legally applicable requirements including any additions to, or revisions or modifications of such effluent standards and limitations, water quality standards, or other legally applicable requirements during the term of the permit.

E. TOXIC POLLUTANTS

The permittee shall notify the Division of Water Pollution Control as soon as it knows or has reason to believe:

1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant (listed in 40 CFR, Part 122, Appendix

D, Table II and III) which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

a. One hundred micrograms per liter (100 ug/l);

b. Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

c. Five (5) times the maximum concentration value reported for that pollutant in the permit application; in accordance with 122.21(g)(7); or

d. The level established by the Director in accordance with 122.44(f).

2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

a. Five hundred micrograms per liter (500 ug/l);

b. One milligram per liter (1 mg/l) for antimony;

c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 122.21(g)(7); or

d. The level established by the Director in accordance with 122.44(f).

3. They have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application under 122.21(g)(9).

F. DEFINITIONS

1. *"Access Road/Haul Road"* is any road constructed, maintained, or used by the operator of a mining facility primarily for the purpose of transporting raw materials, equipment, manufactured products, waste material, or by-products, and is located within the affected area.

2. "*Batch discharge*" for the purpose of this permit means the controlled release through a pipe (valve) of a known quantity and quality of treated wastewater that has been pumped to a treatment structure after such water has been chemically treated to meet permit limits.

3. *"Beneficiation"* is all or any part of the process involved in treating a mineral or raw material so as to improve properties and/or remove impurities. Processing may include any or all of the following activities: sizing, screening, crushing, separation, and washing.

4. *"Best Management Practices (BMP's)"* means a practice or a combination or series of practices designed to prevent or minimize the amount of pollution generated by non point sources, such as haulroads, access roads, spoil storage and stockpile areas, site preparation, installation of culverts, and other related activities.

5. *"Bypass"* means the intentional diversion of wastes from any portion of a treatment facility.

6. "*Calendar Day"* is defined as any 24-hour period.

7. *"Clean Water Act" or "Act"* means *The Federal Clean Water Act* (formerly referred to as *The Federal Water Pollution Control Act* or *The Federal Water Pollution Control Act* Amendments of 1972), as amended.

8. *"Commissioner"* means the Commissioner of the Tennessee Department of Environment and Conservation.

9. *"Daily Maximum Concentration"* is a limitation on the average concentrations in milligrams per liter, of the discharge during any calendar day.

   (a) When a proportional-to-flow composite sampling device is used, the daily concentration is the concentration of that 24 hour composite.

   (b) When other sampling means are used, the daily concentration is the arithmetic mean of the concentrations of equal volume samples collected during any calendar day or sampling period.

10. *"Director"* means the Director of the Division of Water Pollution Control or his authorized representative.

11. *"Division"* means the Division of Water Pollution Control.

12. *"Grab Sample"* means an individual sample of at least 100 milliliters collected at a randomly-selected time over a period not exceeding fifteen (15) minutes.

13. *"Mine"* shall mean an area of land, surface or underground, actively mined for the production of a natural resource. Such areas shall also include any adjacent land, the uses of which is incidental to any such activities; all lands affected by the construction of new roads or the improvement or use of existing roads, except maintained public

roads, to gain access to the site of such activities and for haulage; excavations, workings, impoundments, dams, dumps, stockpiles, overburden piles, holes or depressions, repair areas, storage areas, and other areas upon which are sited structures, or other property or materials on the surface, resulting from or incident to such activities.

14. *"Mine Dewatering"* is any water that is impounded or that collects in the mine or quarry and is pumped, drained, or otherwise removed from the mine through the efforts of the mine operator. The term also includes wet pit overflows caused solely by direct rainfall and groundwater seepage and surface runoff entering the mine area.

15. "*Monthly Average Concentration"* is a limitation on the discharge concentration in milligrams per liter, as the arithmetic mean of all daily concentrations determined in a one-month period.

16. *"National Pollutant Discharge Elimination System (NPDES)"* means the Federal Environmental Protection Agency's (EPA) national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing water quality permits. The term includes an "approved state program."

17. *"Process Generated Wastewater"* is any wastewater used in the slurry transport of mined material, air emissions control, or processing exclusive of mining. The term also includes any other water which becomes commingled with such wastewater in a pit, pond, lagoon, mine, or other facility used for treatment of such wastewater.

18. *"Regional Administrator"* means the Administrator for the Environmental Protection Agency or his authorized representative.

19. *"Sediment Control Structure"* means a designed device, constructed or manufactured, used in a soil and water conservation or management system to retain, regulate, or control the flow of water. Structures are used for the following soil and water conservation purposes: Example: Sediment Storage. *SCS Engineering Field Manual-USDA-SCS.*

20. *"Stormwater Application Rule"* is the EPA Regulation promulgated on November 16, 1990, and amended March 21, 1991, November 5, 1991, and April 2, 1992, requiring that application be made for NPDES permit for stormwater discharges associated with industrial activity.

21. *"Stormwater Pollution Prevention Plan"* is the plan developed, documented, and maintained by the permittee or responsible mine operator to minimize erosion and the contribution of suspended solids from stormwater discharges associated with access roads and haulroads.

22. *"Stormwater discharges associated with industrial activity"* means the discharge from any conveyance which is used for collecting and conveying stormwater and which is directly related to manufacturing, processing, or raw materials storage areas at industrial plants. The term includes stormwater discharges from immediate access roads and haulroads.

23. *"Tennessee Water Quality Control Act of 1977,"* as amended, TCA 69-3-101 et seq., is the act that sets forth the guidelines and procedures for the abatement and prevention of pollution to the waters of the state. The act enables the state of Tennessee to qualify for full participation in the NPDES permit program.

24. The term *"10 year, 24 hour precipitation event"* means the maximum 24-hour precipitation event with a probable recurrence interval of once in ten (10) years as defined by the National Weather Service and Technical Paper No. 40, "Rainfall Frequency Atlas of the U.S.," May 1961, and subsequent amendments or equivalent regional or rainfall probability information developed therefrom.

25. *"Upset"* means an exceptional incident in which there is unintentional and temporary non–compliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include non–compliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

LIMEPER.DOC
07/26/95

RATIONALE
LIMESTONE QUARRIES AND PROCESSING FACILITIES
WITH ASPHALT PLANT

I-75 STONE COMPANY, INC.
MAIN SITE
NPDES PERMIT NO. TN0063355
POWELL, KNOX COUNTY, TENNESSEE
AUGUST 8, 1995

Permit Writer: Christopher T. Hobgood

I. DISCHARGER

I-75 Stone Company, Inc.
P. O. Box 645
Powell, TN 37849

Contact: Stan Hackworth

Facility Address: I-75 at Raccoon Valley Road
Powell, Tennessee

Nature of Business: Limestone Mining and Processing

SIC Code: 1422

Industrial Classification: Secondary, Crushed and Broken Stone Facilities

Discharger Rating: Minor

II. PERMIT STATUS

NPDES Permit No. TN0063355 issued July 26, 1990

NPDES Permit No. TN0063355 expired July 25, 1995

Application for Renewal/Modification received June 1, 1995

III. FACILITY DISCHARGES AND RECEIVING WATERS

This facility discharges treated wastewater and stormwater from Outfalls No. 001, 002, 003, and 005 into Williams Branch in Powell, Tennessee. The classified uses for this stream are fish and aquatic life, recreation, irrigation, and livestock watering and wildlife. See *Rules of the Tennessee Department of Environment and Conservation, Chapter 1200-4-4-.01(9) Clinch River Basin.*

This facility discharges treated wastewater and stormwater from Outfall No. 004 into Foster Branch in Powell, Tennessee. The classified uses for this stream are fish and aquatic life, recreation, irrigation, and livestock watering and wildlife. See *Rules of the Tennessee Department of Environment and Conservation, Chapter 1200-4-4-.01(9) Clinch River Basin.*

IV. APPLICABLE EFFLUENT LIMITATIONS GUIDELINES

A. Total Suspended Solids (TSS)

The United States Environmental Protection Agency (EPA) has adopted effluent limitations guidelines for point source discharges at facilities engaged in mineral mining and processing. These guidelines were adopted in pursuance of the *Federal Water Pollution Control Act Amendments of 1972, Public Law 92-500.* Permits for discharges will contain limitations and standards in accordance with these guidelines, when such are in effect.

Federal effluent guidelines for TSS were promulgated on July 12, 1977, for the crushed and broken stone industry. However, Federal court action resulted in remanding guidelines for TSS to the EPA for reconsideration. Effluent limitations guidelines for this parameter are therefore based upon applicable State regulations contained in *Rule 1200-4-5-.03(2)* of the Tennessee Department of Environment and Conservation.

Effluent data from crushed and broken stone facilities with sedimentation ponds or equivalent technology have been evaluated. This treatability information indicates that the limitations for TSS contained in Rule *1200-4-5-.03(2)* of the

Tennessee Department of Environment and Conservation are achievable by facilities in this industry if proper operation and maintenance are performed. In the Division's Best Professional Judgment (BPJ), the following effluent limitations for TSS provide the Best Conventional Technology (BCT) treatment for this industry:

Monthly Average Concentration ---------- N/A
Daily Maximum Concentration ---------- 40.0 mg/l

B. Settleable Solids

Federal effluent limitations guidelines for Settleable Solids have not been promulgated. Effluent limitations for this wastewater characteristic are based on *Rule 1200-4-5-.03(2)* of the Tennessee Department of Environment and Conservation. The Division believes that the limitation provided in this Rule is an appropriate measure in determining the effectiveness of sediment control and treatment structures.

Effluent data from crushed and broken stone facilities with sedimentation ponds or equivalent technology have been evaluated. This treatability information indicates that the limitations for Settleable Solids contained in Rule *1200-4-5-.03(2)* of the Tennessee Department of Environment and Conservation are achievable by facilities in this industry if proper operation and maintenance are performed. In the Division's Best Professional Judgment (BPJ), the following effluent limitations for Settleable Solids provide the Best Conventional Technology (BCT) treatment for this industry:

Monthly Average Concentration ---------- N/A
Daily Maximum Concentration ---------- 0.5 ml/l

C. pH

Federally promulgated effluent limitations guidelines for pH are in effect for the crushed and broken stone industry (See *40 CFR 436.22 Subpart B*). The Division has determined that the Federal standards for pH adequately protect the classified uses of the receiving stream. The following limits are established for pH and are applicable at all times:

pH 6.0 - 9.0 Standard Units at all times

D. Oil and Grease

A monitoring requirement for Oil and Grease will be established for discharges associated with asphalt concrete plants. Federal effluent limitations guidelines have been promulgated for asphalt concrete plants. According to these guidelines, there shall be no discharge of process wastewater pollutants to navigable waters. This limitation is based on the application of the Best

Available Technology Economically Achievable (BATEA). The Federal guidelines are contained in *40 CFR 443*.

Federal effluent guidelines limit discharges of process wastewater pollutants. These guidelines, however, do not specifically cover discharges consisting of surface runoff from asphalt concrete plants. Monitoring for Oil and Grease is required when surface runoff from asphalt concrete facilities drains or commingles with wastewater from the mine and enters the mine wastewater treatment system.

In the Division's Best Professional Judgment (BPJ), the following limitations are established for Oil and Grease:

> There shall be no visible floating scum, oil, or other matter contained in the wastewater either in the discharge or within the treatment structure. The wastewater discharge must result in no other materials in concentrations sufficient to be hazardous or otherwise detrimental to humans, wildlife, plant life, or fish and aquatic life in the receiving stream. The wastewater discharge must not cause an objectionable color contrast in the receiving stream.

This permit is subject to modification if fundamentally different factors are found to exist that could affect the present monitoring requirements and limitations for Oil and Grease. These factors could include a change in site conditions or the type or quality of discharge.

1. Federal effluent limitations guidelines have been promulgated for asphalt emulsion plants. The numeric limitations for these facilities are based on Federal effluent guidelines contained in *40 CFR 443.13*. In this permit, the effluent limitations estalished for discharges from these facilities are expressed in concentration limits (mg/l). These limits are equivalent to the mass limitations contained in *40 CFR 443.13 (Best Available Technology - BAT)*. The following numeric concentration limits are established for discharges associated with asphalt emulsion facilities:

Parameter	Monthly Average Concentration	Daily Maximum Concentration
Total Suspended Solids	15.0 mg/l	22.0 mg/l
Oil and Grease	10.0 mg/l	15.0 mg/l
pH	6.0 to 9.0 Standard Units at all times	

2. If treatment systems or structures associated with drainage from asphalt concrete plants include mechanical devices to separate and filter Oil and Grease residue and waste material, the discharge will be

subject to the State effluent limitations guidelines contained in *Rule 1200-4-5-.03(2)* of the Tennessee Department of Environment and Conservation. The following numeric limitations for Oil and Grease are established:

Parameter	Monthly Average Concentration	Daily Maximum Concentration
Oil and Grease	----------	30.0 mg/l

V. PREVIOUS PERMIT LIMITS AND MONITORING REQUIREMENTS

The previous permit limits and monitoring requirements for existing Outfalls No. 001 and 002 are listed below:

Effluent Characteristic	Monthly Avg. Conc.	Daily Max. Conc.	Reporting Frequency
Flow (MGD)	-----	-----	2/month
TSS	-----	40.0 mg/l	2/month
Settleable Solids	-----	0.5 ml/l	2/month
pH	6.0 - 9.0 standard units at all times		2/month

VI. STORMWATER DISCHARGES ASSOCIATED WITH ACCESS ROADS AND HAUL ROADS

The Federal Clean Water Act of 1987 and EPA regulations issued on November 16, 1990, and amended March 21, 1991, November 5, 1991, and April 2, 1992, require that application be made for an NPDES permit for stormwater discharges associated with industrial activity. These regulations include facility access roads and haul roads within the definition of industrial activity. See *40 CFR 122.26*.

On October 30, 1992, the Division of Water Pollution Control modified existing NPDES permits issued to mining and processing facilities by establishing reporting levels and monitoring requirements for stormwater discharges associated with access roads and haul roads. This modification was implemented by the issuance of an addendum (supplement) to both existing and new permittees. The addendum entitled, *.ADDENDUM TO EXISTING NPDES WASTEWATER PERMITS FOR STORMWATER DISCHARGES FOR THE MINING INDUSTRY.* has been incorporated into and made part of this permit.

The reporting levels and monitoring requirements for stormwater discharges associated with access roads and haul roads are based on *Rules of the Tennessee Department of Environment and Conservation, Chapter 1200-4-10-.04*.

These reporting levels and monitoring requirements include:*

Parameter	Reporting Level	Monitoring Requirements	
		Measurement Frequency	Sample Type
Total Suspended Solids	200 mg/l	Annually	Grab
Oil & Grease	15 mg/l	Annually	Grab
pH	4.0 to 9.0 Standard Units	Annually	Grab

The permittee must also develop, document, and maintain a stormwater pollution prevention plan* for access roads and haul roads. The plan shall identify and describe the methods for controlling, treating, and monitoring stormwater discharges associated with access roads and haul roads. The requirements for a stormwater pollution prevention plan are based on EPA regulations found in *40 CFR 122.26* and *122.44* and *Rules of the Tennessee Department of Environment and Conservation, Chapter 1200-4-10-.04*.

**NOTE:* These requirements are not applicable if all stormwater discharges associated with access and haul roads are routed to and adequately treated by approved wastewater treatment structures. Sufficient documentation (i.e. narrative, drainage maps, etc.) of such treatment shall be provided to the Division before this exemption is valid.

VII. PRECIPITATION EVENT EXEMPTION

The precipitation event exemption provision at *40 CFR 436.32(b)* is in effect for the crushed and broken stone industry. To qualify for the exemption, wastewater treatment structures must be designed, constructed, and maintained to contain or treat the volume of wastewater which would result from a 10–year 24–hour precipitation event. The operator must also provide adequate documentation (photographs, rainfall data, etc.) of the precipitation event. The exemption applies to the effluent limitations guidelines for both Total Suspended Solids and Settleable Solids. The guidelines for pH remain in effect at all times.

The precipitation event exemption is not applicable to discharges from treatment structures that include drainage associated with asphalt manufacturing facilities. The precipitation event exemption is not applicable to asphalt manufacturing facilities. See *40 CFR 443*.

VIII. MONITORING REQUIREMENTS

EPA regulations require that monitoring and sampling frequencies be sufficient to yield data that are representative of the monitored activity including, if appropriate,

continuous monitoring. See *40 CFR 122.48.* A measurement schedule of twice per month for TSS, Settleable Solids, Flow, and pH will be established for discharges at this facility.

Monitoring for Oil and Grease is based on a visibility standard. This standard includes daily observation of the wastewater treatment structure[s] and of the discharge (when discharges occur). Daily observation provides a quick, easy and inexpensive method to determine the presence of Oil and Grease residue and waste material in the wastewater treatment system.

Discharges resulting from pumpage activities shall be sampled a minimum of two (2) times. One sample shall be collected within one (1) hour from the beginning of the discharge and the second sample shall be taken within one (1) hour prior to cessation of the discharge. Each pump discharge lasting more than (4) hours shall be sampled one additional time. The additional sample shall be taken midway of the total time of discharge. See *40 CFR 122.21.*

If a pump discharge continues for more than twenty four (24) hours, a new sampling cycle shall be initiated. The new pump discharge cycle shall be sampled according to the monitoring frequency described in Part I, Section A of this permit. The monitoring frequencies for continuous pumped or batch discharges are discussed and described in the EPA publication entitled, *.Handbook for Monitoring Industrial Wastewater,. A*ugust, 1973.

IX. REPORTING REQUIREMENTS

A. Wastewater Discharges

Discharge Monitoring Reports (DMR's) for wastewater discharges shall be recorded monthly and submitted monthly. The Discharge Monitoring Reports (DMR's) must be submitted to the Division postmarked no later than fifteen (15) days after the close of the monthly monitoring period.

Discharge Monitoring Reports (DMR's) shall be submitted for each outfall number listed on the permit. If a treatment structure listed on the permit has not been constructed, this shall be noted on the Discharge Monitoring Report (DMR) as .not constructed..

B. Stormwater Discharges

Monitoring results for stormwater discharges associated with access roads and haul roads shall be recorded on Discharge Monitoring Report (DMR) forms.

Monitoring results shall be submitted annually and no later than fifteen (15) days after completion of the quarterly reporting period in which the sample was taken. For the purpose of this permit, a .quarter. is defined as any of the

following three month periods: January 1 through March 31; April 1 through June 30; July 1 through September 30; and October 1 through December 31.

X. PERMIT DURATION

The proposed limitations meet the requirements of *Section 301(b)(2)(A), (C), (D), (E), and (F)* of *The Federal Clean Water Act of 1987.* This permit will be issued for a five (5) year term.

JPJ:GWM:CTH C:\WINWORD\NPDES\SNG\I75STONE\I75RAT.DOC

Company Name I-75 Stone

Site I.D. Diggs Gap Quarry

NPDES # TN0063355

Mining/SMCRA # —

NPDES PERMIT CHECKLIST

FINAL REVIEW

I. PERMIT COMPLETENESS

✓ A. Route Slip

✓ B. NPDES Permit (permit letter, permit cover pgae, permit body)

✓ C. Approval Letter

✓ D. Draft Permit (draft letter, draft cover page, draft body)

✓ E. Public Notice

✓ F. Rationale Sheet

✓ G. Checklist

✓ H. Complete Application

✓ I. Maps

II. Comments: Renewal & Modification

Baxter L Wilson III
Signature

September 21, 1995
Date

ABW:pg / NPDES #39

Revised 2/10/93

PUBLIC NOTICE
State of Tennessee
Department of Environment and Conservation
Division of Water Pollution Control
Mining Section
2700 Middlebrook Pike, Suite 220
Knoxville, Tennessee 37921
(615) 594-6035

Public Notice No. M95-7

August 14, 1995

The Tennessee Division of Water Pollution Control proposes to issue, reissue, deny or terminate National Pollutant Discharge Elimination System (NPDES) permits as listed below. These permits authorize and regulate discharges of treated wastewater and stormwater from mining and processing facilities, including access roads and haul roads located within the affected areas.

ISSUANCE/REISSUANCE - COAL

1. **HOOD COAL CORPORATION,** P. O. Box 97, Jamestown, TN 38556. Area No. 12, NPDES Permit No. TN007118, SMCRA Permit No. 2952. This proposed surface coal mine, located at latitude 36°19'53", longitude 84°59'39", discharges treated wastewater and stormwater into unnamed tributaries of Lints Cove, and Gwinn Cove in Fentress County.

2. **KEW MINING COMPANY NUMBER TWO**, 640 Back Valley Road, Oliver Springs, TN 37840. Low Gap Mine No. 1, NPDES Permit No. TN0063274, SMCRA Permit No. 2849. Renewal. This existing underground coal mine, located at latitude 36°33'39", longitude 84°23'13", discharges treated wastewater and stormwater into One Hundred Acre Hollow in Morgan County.

3. **PREMIUM COAL COMPANY, INC.,** P. O. Box 480, Lake City, TN 37769. Tipple and Prep Plant, NPDES Permit No. TN0051918, SMCRA Permit No. 2866. Renewal. This existing coal tipple and preparation plant, located at latitude 36°11'15", longitude 84°12'00", discharges treated wastewater and stormwater into Slatestone Creek in Anderson County

4. **ROBERT CLEAR COAL CORPORATION,** P. O. Box 352, LaFollette, TN 37766. Area No. 4, NPDES Permit No. TN0071196, SMCRA Permit No. 2954. This proposed surface and auger coal mine, located at latitude 36°31'43", longitude 83°51'27", discharges treated wastewater and stormwater into Tackett Creek and Spruce Lick Branch in Claiborne County.

5. **WEST COAL CORPORATION**, P. O. Box 4788, Oneida, TN 37841. Newtown Tipple, NPDES Permit No. TN0045730, SMCRA Permit No. 2504. Renewal. This existing coal tipple, located at latitude 36°24'18", longitude 84°26'51", discharges treated wastewater and stormwater into Paint Rock Creek in Scott County.

ISSUANCE/REISSUANCE - NON-COAL

1. **I-75 STONE COMPANY, INC.,** P. O. Box 645, Powell, TN 37849. I-75 Stone Quarry, NPDES Permit No. TN0063355. Renewal and Modification. This existing limestone quarry and processing facility, located at latitude 36°05'57", longitude 84°01'23", discharges treated wastewater and stormwater into Williams Branch and Foster Branch in Knox County. The modification includes the addition of Sediment Treatment Structures, designed conveyance structures and an asphalt plant.

2. **MONTEREY LIMESTONE COMPANY, INC.** P. O. Box 331, Livingston, TN 38570. Monterey Quarry, NPDES Permit No. TN0063487. This existing limestone quarry and processing facility, located at latitude 36°10'05", longitude 85°17'43", discharges treated wastewater and stormwater into an unnamed tributary of Sinking Cane Hollow in Putnam County.

3. **OLD HICKORY CLAY COMPANY,** P. O. Box 66, Hickory, KY 42066. McClain Mine No. 2, NPDES Permit No. TN0041581, Mining Permit No. OM-41581-2-95. Renewal. This existing ball clay mine, located at latitude 36°10'54", longitude 88°42'41", discharges treated wastewater and stormwater into an unnamed tributary of Spring Creek in Weakley County.

4. **OLD HICKORY CLAY COMPANY,** P. O. Box 66, Hickory, KY 42066. Parks Mine No. 3, NPDES Permit No. TN0045829, Mining Permit No. OM-45829-3-95. Renewal. This existing ball clay mine, located at latitude 36°12'37", longitude 88°40'35", discharges treated wastewater and stormwater into an unnamed tributary of Cotton Creek in Weakley County.

5. **OLD HICKORY CLAY COMPANY,** P. O. Box 66, Hickory, KY 42066. Cottage Grove Mine No. 4, NPDES Permit No. TN0045837, Mining Permit No. OM-45837-4-95. Renewal. This existing ball clay mine, located at latitude 36°24'36", longitude 88°27'40", discharges treated wastewater and stormwater into an unnamed tributary of Walnut Fork Creek in Henry County.

6. **OLD HICKORY CLAY COMPANY,** P. O. Box 66, Hickory, KY 42066. Dunn Mine No. 5, NPDES Permit No. TN0045845, Mining Permit No. OM-45845-5-95.

Renewal. This existing ball clay mine, located at latitude 36°13'12", longitude 88°38'29", discharges treated wastewater and stormwater into an unnamed tributary of Middle Fork of the Obion River in Weakley County.

7. **TRI-COUNTY STONE COMPANY, INC.,** Route 2, Box 319A, Morrison, TN 37357. Area No. 1, NPDES Permit No. TN0063711. This existing limestone quarry and processing facility, located at latitude 35°27'48", longitude 85°50'08", discharges treated wastewater and stormwater into Cedar Hollow in Grundy County.

8. **UNITED CLAYS, INC.,** P. O. Box 111, Gleason, TN 38229. NPDES Permit No. TN0045535, Mining Permit No. 91-N-11. Renewal. This existing ball clay mine, located at latitude 36°07'49", longitude 88°37'55", discharges treated wastewater and stormwater into Spring Creek in Weakley County.

9. **UNITED CLAYS, INC.,** P. O. Box 111, Gleason, TN 38229. Mine No. 7, NPDES Permit No. TN0045501, Mining Permit No. 91-N-11. Renewal. This existing ball clay mine, located at latitude 35°52'23", longitude 88°27'19", discharges treated wastewater and stormwater into Cane Creek in Carroll County.

TERMINATION - COAL

KOPPER - GLO FUELS, INC., Route 1, Box 203, Clairfield, TN 37715. Deep Mine No. 3, NPDES Permit No. TN0046001, SMCRA Permit No. 2926 (Increment No. 1). This NPDES permit, authorizing the discharge of treated wastewater and stormwater, at latitude 36°32'14", longitude 86° 56'52" is proposed for termination. This reclaimed underground coal mine has been granted Phase III bond release by the Federal Office of Surface Mining (OSM). All sediment control and treatment structures have been removed. The site meets the Division's requirements for permit termination.

These applicants for NPDES permits discharge to surface waters which are classified for either domestic water supply, industrial water supply, fish and aquatic life, recreation, irrigation, and/or livestock watering and wildlife. The proposed permits are written to protect the classified uses of the receiving waters and contain limitations on the amounts of pollutants to be discharged and/or other conditions. The proposed permits are drafted in accordance with applicable provisions of the Tennessee Water Quality Control Act, the Federal Clean Water Act, and appropriate regulations. The permit conditions are tentative and open to comment from the public.

Persons wishing to comment upon or object to the proposed action (permit issuance, modification, denial, or termination) or to the proposed permit conditions are invited to submit comments in writing to the Division at the above address, Attention: Gary W.

Mullins. The comments must be received by September 18, 1995. The applicant's name and permit number should be included in the first page of comments.

Interested persons may also request in writing that the Division hold a public hearing on any application. The request must be filed within the comment period and must indicate the interest of the party filing it and the reasons why a hearing is warranted. When there is significant public interest in having a hearing, the Division will hold a public hearing, pursuant to Division Rule 1200-4-1-.05(3)(g).

After consideration of comments submitted during the comment period, the hearing record, if any, and the requirements of the federal and state acts and appropriate regulations, the Division will make determinations regarding final permit action. Permit applications, draft permits, supporting rationales, and comments relating to proposed issuance or approval are available for review and/or copying at the above address between the hours of 8:00 a.m. and 4:30 p.m., weekdays, except holidays. There is a nominal charge for copying, except single copies of permit applications, draft permits, and supporting rationales.

Please bring this notice to the attention of persons whom you know will be interested.

6/14/95

Comments on plan submittal for I-75 Stone.

1) Ab or Jay Crippen must sign application as "appropriate responsible official" - not Stan Hackworth.

2) No original signature package was submitted

3) All maps must be stamped by a TN RPE.

4) Title page lacks (a) mine name, (b) county, (c) owner's name

5) Site investigation shows that the pit area (as shown on the maps) is inaccurate. The maps must be updated to show the present areal coverage of the pit & the direction of future mining.

done

6) Public & private water sources ~~are~~ in the watershed are not shown on the map(s).

7) Surrounding property lines are either not shown or not identified properly in the legend.

8) Post mining drainage patterns are not shown.

9) BMP's (silt fence, ditches, check dams, etc.) used to control haul & access road drainages need to be identified to Foster Branch and maintenance schedules listed.

None given

10) ~~Control of haul~~ Control of drainage from the pit

not done

haulroad to Williams Branch needs to be addressed. If BMP's — need description and maintenance schedule.

✓ 11) The off-site spoil storage area (17 acres) needs a more detailed description of the drainage and permanent closure actions. BMP's to control drainage must be described along with a schedule for their maintenance.

not done

✓ 12) No provisions are made to prevent outside material from collecting in the overbank channel which will handle Williams Branch peak flows. At a minimum, spillage from the conveyor belt (which crosses here), drainage from the pit and pit perimeter roads, and spillage from the primary crusher must all be addressed.

not done

✓ 13) The "in pond" pH of the existing basins is not given.

✓ 14) NOTES TO ENGINEERING & PERMITTING:

Engr. (a) Please planimeter & confirm acreage.

Engr. (b) engineering certification needed on overbank channel construction

Perm. (c) Oil & grease standards needed (at least) on basins 002, 003, and 005.

MRR 3/15

URBAN ENGINEERING, INC.

11852 KINGSTON PIKE • FARRAGUT, TENNESSEE 37922 • 615/966-1924

March 10, 1995

MAR 13 1995

Mr. Michael Robbins
Tennessee Department of Conservation
2700 Middlebrook Pike, Suite 220
Knoxville, TN 37921

RE: I-75 Stone Company, Inc.
NPDES Permit No. TN 0063355
Knox County, TN

Dear Sir:

We have been retained by I-75 Crushed Stone to assist them in permitting their facility at Diggs Gap Road near I-75/Racoon Valley Road, Knox County, Tennessee.

We are working toward a solution for the major problems identified to date, and should be ready for a conference with your staff and the owner about the end of this month. If everyone is in agreement with our recommendation at that time, we should be able to prepare and submit the report and application during the month of April.

Please let me know if you have questions or special instructions at this time.

Yours truly,

URBAN ENGINEERING, INC.

Larry Bulliner

cc: Mr. Stan Hackworth

FAXED

I-75 STONE Co., Inc.

P.O. BOX 645 • RACCOON VALLEY ROAD AT I-75 • POWELL, TENNESSEE 37849 • 615/947-9787

FEB 0 2 1995

January 31, 1995

Mr. Bruce Ragon
Surface Mining Section
Division of Water Pollution Control

File BA 2/2

RE: NPDES Renewal
NPDES Permit No. TN0063355
Knox County

Dear Mr. Ragon:

Our office has retained Urban Engineering, Inc. to assist in modifications to aid in obtaining our renewal of the NPDES permit. Our company is requesting a sixty (60) day extension on the NPDES permit. This extension will allow us to analyze rainfall at this critical time in the year and make modifications to the existing site conditions to help minimize discharge events.

Sincerely,

Stan Hackworth

Stan Hackworth

ORIGINAL

PERMIT APPLICATION

JUL 0 6 1995

ORIGINAL
FILE COPY

NPDES PERMIT APPLICATION

for

I-75 STONE COMPANY, INC.
P. O. Box 645
Powell, Tennessee 37849

at

Diggs Gap Quarry
Knox County, Tennessee

APPROVED
May, 1995
TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL MINING SECTION
FOR THE DIRECTOR:
BY: Baxter Wilson DATE: 9/22/95

Prepared by:

Urban Engineering, Inc.
11852 Kingston Pike
Knoxville, Tennessee 37922
(615) 966-1924

TABLE OF CONTENTS

INTRODUCTION

This application has been prepared for I-75 Stone Company, Inc., Powell, Tennessee (Knox County). The operation has been in existence at this location for many years. This application is to renew the current Permit (No. TN 0063355) considering operations expected for the next five years. The current Permit expires on July 25, 1995.

The quarry site is located at I-75 at Racoon Valley Road with the entrance drive actually fronting on Diggs Gap Road. This site appears on the Powell Quad (137-SE) at approximate location 36°05'57" (longitude) and 84°01'23" (latitude) with the total area covering about 59 acres. Williams Branch traverses through this site receiving the project runoff before flowing southeast approximately one mile to Bullrun Creek.

An additional seven acre spoil area located in the northeast quadrant of the I-75 - Racoon Valley interchange is part of the permitted area and is being managed with BMP's.

The operator shall inspect all erosion control measures periodically and after each runoff-producing rainfall event. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately.

State of Tennessee
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL
MINING SECTION
2700 Middlebrook Pike, Suite 220
Knoxville, Tennessee 37921
(615) 594-6035

APPLICATION FOR PERMIT
WASTEWATER TREATMENT AND MANAGEMENT SYSTEMS

I. Applicant

In accordance with the provisions of Tennessee Code Annotated, Section 69-3-108 and Regulations promulgated therefrom, application is hereby made to conduct mining and related primary operations by:

A. Name I-75 STONE, INC
Company, Corporation, Individual, etc.

B. Mailing Address

P. O. Box or Street P.O. Box 645

City Powell State Tenn Zip Code 37849

C. Company Official Mr. Jay Cripper or Mr. Ab Cripper

D. Telephone No. 615 (Area Code) 947-9788

E. Type of Ownership: ( ) Individual ( ) Partnership
(X) Corporation ( ) Other (Specify) _____

F. Resource to be extracted and/or processed Limestone, Asphalt, Concrete

G. Type of Operation: ( ) Contour Mine ( ) Area Mine
( ) Underground Mine ( ) Auger Mine ( ) Mountaintop Removal
(X) Loading Facility (X) Processing/Preparation Plant
(X) Quarry ( ) Other (Specify) _____

II. Location of Facility for which permit is requested:

A. County Knox

B. USGS Topographic Map Powell (Quad 137-SE)
Name Series

C. Latitude N 36° 05' 57" Longitude W 84° 01' 23"

D. Area or Site Number Main Site

E. SMCRA or State Surface Mining Permit No. n/a

F. Previous/Current Water Quality or NPDES Permit Numbers
NPDES Permit No. TN 0063355

G. Person to be contacted at facility:

Name Stan Hackworth Title Engineering

Address P.O. Box 615, Powell, Tenn 37849

Telephone No. 615 (Area Code) 947-9788

III. Desired length of permit:

( ) 1 year ( ) 2 years ( ) 3 years ( ) 4 years (X) 5 years

IV. Drainage or Discharges

Number:	001 ↓	002 ↓	003 ↓
Receiving Stream	Williams Branch	Williams Branch	Williams Branch

DISCHARGE OR DRAINAGE WILL (BE):

( ) pumped	( ) pumped	( ) pumped
(X) flow by gravity	(X) flow by gravity	(X) flow by gravity
( ) seep into ground	( ) seep into ground	( ) seep into ground
(X) convergent	(X) convergent	(X) convergent
( ) sheet flow	( ) sheet flow	( ) sheet flow
(X) intermittent	(X) intermittent	(X) intermittent
( ) continuous	( ) continuous	( ) continuous
Dependent upon:	Dependent upon:	Dependent upon:
(X) rainfall	(X) rainfall	(X) rainfall
( ) production rates	( ) production rates	( ) production rates
( ) groundwater flow	( ) groundwater flow	( ) groundwater flow
Affected by Previous Mining:	Affected by Previous Mining:	Affected by Previous Mining:
(X) yes	(X) yes	(X) yes
( ) no	( ) no	( ) no

(add additional sheets as necessary)

Application for Permit
Page 2A

D. Area or Site Number _____

E. SMCRA or State Surface Mining Permit No. _____

F. Previous/Current Water Quality or NPDES Permit Numbers

_____

G. Person to be contacted at facility:

Name _____ Title _____

Address _____

Telephone No. _____ _____
Area Code

SEE PREVIOUS PAGE

III. Desired length of permit:

( ) 1 year (X) 2 years ( ) 3 years ( ) 4 years ( ) 5 years

IV. Drainage or Discharges

Number:	004	005	
Receiving Stream	FOSTER BRANCH	WILLIAMS BRANCH	

DISCHARGE OR DRAINAGE WILL (BE):

( ) pumped	( ) pumped	( ) pumped
(X) flow by gravity	(X) flow by gravity	( ) flow by gravity
( ) seep into ground	( ) seep into ground	( ) seep into ground
(X) convergent	(X) convergent	( ) convergent
( ) sheet flow	( ) sheet flow	( ) sheet flow
(X) intermittent	(X) intermittent	( ) intermittent
( ) continuous	( ) continuous	( ) continuous
Dependent upon:	Dependent upon:	Dependent upon:
(X) rainfall	(X) rainfall	( ) rainfall
( ) production rates	( ) production rates	( ) production rates
( ) groundwater flow	( ) groundwater flow	( ) groundwater flow
Affected by Previous Mining:	Affected by Previous Mining:	Affected by Previous Mining:
( ) yes	(X) yes	( ) yes
(X) no	( ) no	( ) no

(add additional sheets as necessary)

V. Number of acres within proposed permit area 66 AC

Operation is (check all items that apply):

(X) previously permitted TN 0063355 (Permit Number)
(X) existing facility ( ) virgin cut
(X) proposed facility ( ) reopened or 2nd cut

VI. Is the facility designed as a close-loop system?

( ) yes (X) no Name of nearest stream Williams Branch

Is there a possibility of overflow or discharge due to power failures, equipment failures, heavy rains, etc.? _____

Yes. Emergency spillways are designed to pass the 25yr-24hr event.

What measures are taken to prevent overflow? Flows greater than the emergency spillway capacity will not damage structures.

VII. List the principle components of any extracted resource handling and processing systems located at the facility.

Mobile equipment, hoppers, conveyors, crushers, screens, scales, mixers.

VIII Describe the wastewater treatment system(s) to be utilized (sediment ponds, pH adjustment, etc.) _____

The site will be controlled by the use of treatment structures.

IX. Describe the Best Management Practices (BMP's) that will be utilized.

Hay bales & silt fences will be used to control erosion until vegetation is established. Hay bales & rock check dams will be used on haul roads & access roads.

X. Sludge Disposal (including dredged sediments):

Frequency of disposal Twice per year.

Volume disposed Approximately 100 cubic yards.

Characteristics of sludge (include contaminants and moisture content) 70% moisture, limestone fines, sands, clays, & silts.

Approved ultimate disposal site On-site disposal.

XI. Please attach the following to your application:

A. An Engineering Plan developed in accordance with the requirements for preparation of the appropriate Supplementary Information Documents.

B. Any additional information which will help describe the proposed operation.

C. If facility or operation is closed-loop (circuit), a schematic drawing or diagram depicting flow of water, including pumpage rates (GPM), etc. must be attached.

I certify that I am familiar with the information contained in the application and that to the best of my knowledge and belief such information is true, complete, and accurate.

Signature of Applicant

5-22-95
Date Application Signed

PARIS CRIPPEN
Printed Name of Person Signing

Urban Engineering Inc
Larry Bellew
Engineer Preparing Plans

VICE PRES
Title

(Must be signed by a Partner, Proprietor, or Executive Officer of at least Vice-President status. If a municipality, county, state, Federal, or other public facility, must be signed by either a principal executive officer or ranking elected official.)

GWH:pg NPDES #35
Revised 4/23/91

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved. OMB No. 2040-0086. Approval expires 5-31-92.

FORM 1 GENERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F D

LABEL ITEMS

I. EPA I.D. NUMBER

II. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge to waters of the U.S.**? (FORM 2A)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	X		
Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)		X	
Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge to waters of the U.S.**? (FORM 2B)		X	
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a discharge to **waters of the U.S.**? (FORM 2D)	X		
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

SKIP: I-75 STONE COMPANY INC.

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*: HACKWORTH STAN

B. PHONE *(area code & no.)*: 615 947 9788

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX: P.O. BOX 645

B. CITY OR TOWN: POWELL

C. STATE: TN

D. ZIP CODE: 37849

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: I-75 AT RACOON VALLEY RD

B. COUNTY NAME: KNOX

C. CITY OR TOWN: POWELL

D. STATE: TN

E. ZIP CODE: 37849

F. COUNTY CODE *(if known)*:

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST: 4122 (specify) LIMESTONE QUARRY

B. SECOND: (specify)

C. THIRD: (specify)

D. FOURTH: (specify)

VIII. OPERATOR INFORMATION

A. NAME: I-75 STONE COMPANY INC

B. Is the name listed in Item VIII-A also the owner? [X] YES [ ] NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)
F = FEDERAL, S = STATE, P = PRIVATE, M = PUBLIC (other than federal or state), O = OTHER (specify)
P (specify)

D. PHONE (area code & no.): 615 947 9788

E. STREET OR P.O. BOX: P.O. BOX 645

F. CITY OR TOWN: POWELL

G. STATE: TN

H. ZIP CODE: 37849

IX. INDIAN LAND

Is the facility located on Indian lands? [ ] YES [X] NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water): N TN0063355

D. PSD (Air Emissions from Proposed Sources): 9 P

B. UIC (Underground Injection of Fluids):

E. OTHER (specify): 9 (specify)

C. RCRA (Hazardous Wastes): R

E. OTHER (specify): 9 (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

This operation is a limestone quarry facility. The limestone product is washed, crushed, and screened at this site. Portions of the product are used in an onsite asphalt plant and a ready mix concrete plant. These products are sold commercially.

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print): Vice Pres

B. SIGNATURE: [signature]

C. DATE SIGNED: 5-22-95

COMMENTS FOR OFFICIAL USE ONLY

Form Approved
OMB No. 2040-0086
Approval expires 5-31-92

ease print or type in the unshaded areas only.

EPA I.D. NUMBER (copy from Item 1 of Form 1)

FORM 2C NPDES

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE 1. DEG.	B. LATITUDE 2. MIN.	B. LATITUDE 3. SEC.	C. LONGITUDE 1. DEG.	C. LONGITUDE 2. MIN.	C. LONGITUDE 3. SEC.	D. RECEIVING WATER (name)
001							Williams Branch
002							" "
				See Attached Reports			

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined *(e.g., for certain mining activities)*, provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW a. OPERATION (list)	2. OPERATION(S) CONTRIBUTING FLOW b. AVERAGE FLOW (include units)	3. TREATMENT a. DESCRIPTION	3. TREATMENT b. LIST CODES FROM TABLE 2C-1	
		See Attached Reports			

OFFICIAL USE ONLY *(effluent guidelines sub-categories)*

CONTINUED FROM THE FRONT

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

☐ YES *(complete the following table)* ☐ NO *(go to Section III)*

1. OUTFALL NUMBER *(list)*	2. OPERATION(s) CONTRIBUTING FLOW *(list)*	3. FREQUENCY		4. FLOW				
		a. DAYS PER WEEK *(specify average)*	b. MONTHS PER YEAR *(specify average)*	a. FLOW RATE *(in mgd)*		b. TOTAL VOLUME *(specify with units)*		c. DURATION *(in days)*
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	

II. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☐ YES *(complete Item III-B)* ☐ NO *(to to Section IV)*

B. Are the limitations in the applicable effluent guideline expressed in terms of production *(or other measure of operation)*?

☐ YES *(complete Item III-C)* ☐ NO *(go to Section IV)*

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION			2. AFFECTED OUTFALLS *(list outfall numbers)*
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. *(specify)*	

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ YES *(complete the following table)* ☐ NO *(go to Item IV-B)*

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. NO.	b. SOURCE OF DISCHARGE		a. REQUIRED	b. PROJECTED

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs *(or other environmental projects which may affect your discharges)* you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction. ☐ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

101

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*

CONTINUED FROM PAGE 2

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding – Complete one set of tables for each outfall – Annotate the outfall number in the space provided. NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

[ ] YES *(list all such pollutants below)* [ ] NO *(go to Item VI-B)*

CONTINUED FROM THE FRONT

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ YES *(identify the test(s) and describe their purposes below)* ☐ NO *(go to Section VIII)*

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☐ YES *(list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)* ☐ NO *(go to Section IX)*

A. NAME	B. ADDRESS	C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED (list)

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE (type or print)	B. PHONE NO. (area code & no.)
Paris Cripden Vice Pres	615 • 947 • 9788
C. SIGNATURE X Paris Cripden	D. DATE SIGNED 5•22•95

EPA Form 3510-2C (8-90) PAGE 4 OF 4

(10D)

Facility Name/Location (if different) [illegible]

DISCHARGE MONITORING REPORT (DMR)

Form Approved
No. 2[illegible]04
Approval expires 6-30

ADDRESS P. O. Box 645
Powell, TN 37849

FACILITY Limestone Quarry & Plant
LOCATION Knox County

PERMIT NUMBER	DISCHARGE NUMBER
TN0063355	001

No Discharge

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	95	03	01	TO	95	03	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read Instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Total Suspended Solids	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT						40.0	mg/l	0	2/mo	Grab
Settleable Solids	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT						0.5	ml/l	0	2/mo	Grab
Flow (gpm)	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT			GPM					0	2/mo	Est.
pH	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT				6.0		9.0	standard units	0	2/mo	Grab
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

Paris A. Crippen

TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. *(Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)*

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE 615 | NUMBER 947-9787

DATE: YEAR 95 | MO 03 | DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

PER... ME... S (Incl...
(Facility Name/Location if different)
NAME 4-S Stone Company, Inc.
ADDRESS P. O. Box 645
Powell, TN 37849
FACILITY Limestone Quarry & Plant
LOCATION Knox County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)
(2-16) (17-19)

TN0063355 — PERMIT NUMBER
002 — DISCHARGE NUMBER

Form Approved
OMB No. 2040-0004
Approval expires 6-30-88

SEE ATTACHED For Alum Prep Line

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	95	02	01	TO	95	03	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		QUANTITY OR LOADING (54-61) AVERAGE (3 Card Only) (46-53)	MAXIMUM	UNITS	QUALITY OR CONCENTRATION (4 Card Only) (38-45) MINIMUM	AVERAGE (46-53)	MAXIMUM (54-61)	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Total Suspended Solids	SAMPLE MEASUREMENT					108					
	PERMIT REQUIREMENT						40.0	mg/l	0	2/mo	Grab
Settleable Solids	SAMPLE MEASUREMENT					4.1					
	PERMIT REQUIREMENT						0.5	ml/l	0	2/mo	Grab
Flow (gpm)	SAMPLE MEASUREMENT					1.25					
	PERMIT REQUIREMENT	-	-	GPM					0	2/mo	Est.
pH	SAMPLE MEASUREMENT					7.13					
	PERMIT REQUIREMENT				6.0		9.0	standard units	0	2/mo	Grab
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

Paris A. Crippen

TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. *(Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)*

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE 615 NUMBER 947-9787

DATE: YEAR 95 MO 03 DAY

MENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

NAME L-S Stone Co.
ADDRESS Diggs Gap Rd.
Heiskell, Tn 37754
FACILITY Limestone Crushing Plant
LOCATION Same As Above

(2-16) (17-19)
PERMIT NUMBER
01
DISCHARGE NUMBER

OMB No. 2040
Approval expir

MONITORING PERIOD

FROM YEAR	MO	DAY	TO YEAR	MO	DAY
(20-21)	(22-23)	(24-25)	(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this fo

PARAMETER (32-37)		QUANTITY OR LOADING (46-53) AVERAGE	QUANTITY OR LOADING (54-61) MAXIMUM	UNITS	QUALITY OR CONCENTRATION (38-45) MINIMUM	QUALITY OR CONCENTRATION (46-53) AVERAGE	QUALITY OR CONCENTRATION (54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	S
Ph Units	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT				6.0		9.0				
Settleable solids	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					.5		MI/L			
Flow	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
Total Suspended Solids	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT						40	Mg/L			
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
Paris Crippen
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE 615 NUMBER 947-9787
DATE: YEAR MO

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

EPA Form 3320-1 (Rev. 10-79) PREVIOUS EDITION TO BE USED (REPLACES EPA FORM T-40 WHICH MAY NOT BE USED)

002
T.D.H.E. KNXV. TN.
11/19/91 17:03

NAME /5 Stone Co.
ADDRESS Diggs Gap Rd.
Heiskell, Tn 37754
FACILITY Limestone Crushing Plant
LOCATION Same As Above

(2-16) PERMIT NUMBER

(17-19) 02 DISCHARGE NUMBER

OMB No. 2040
Approval expir

MONITORING PERIOD

FROM YEAR (20-21)	MO (22-23)	DAY (24-25)	TO YEAR (26-27)	MO (28-29)	DAY (30-31)

NOTE: Read instructions before completing this fo

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	S
Ph Units	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT				6.0		9.0				
Settleable solids	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					.5		MI/L			
Flow	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
Total Suspended Solids	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT						40	Mg/L			
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

Paris Crippen

TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE 615, NUMBER 947-9787

DATE: YEAR, MO

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

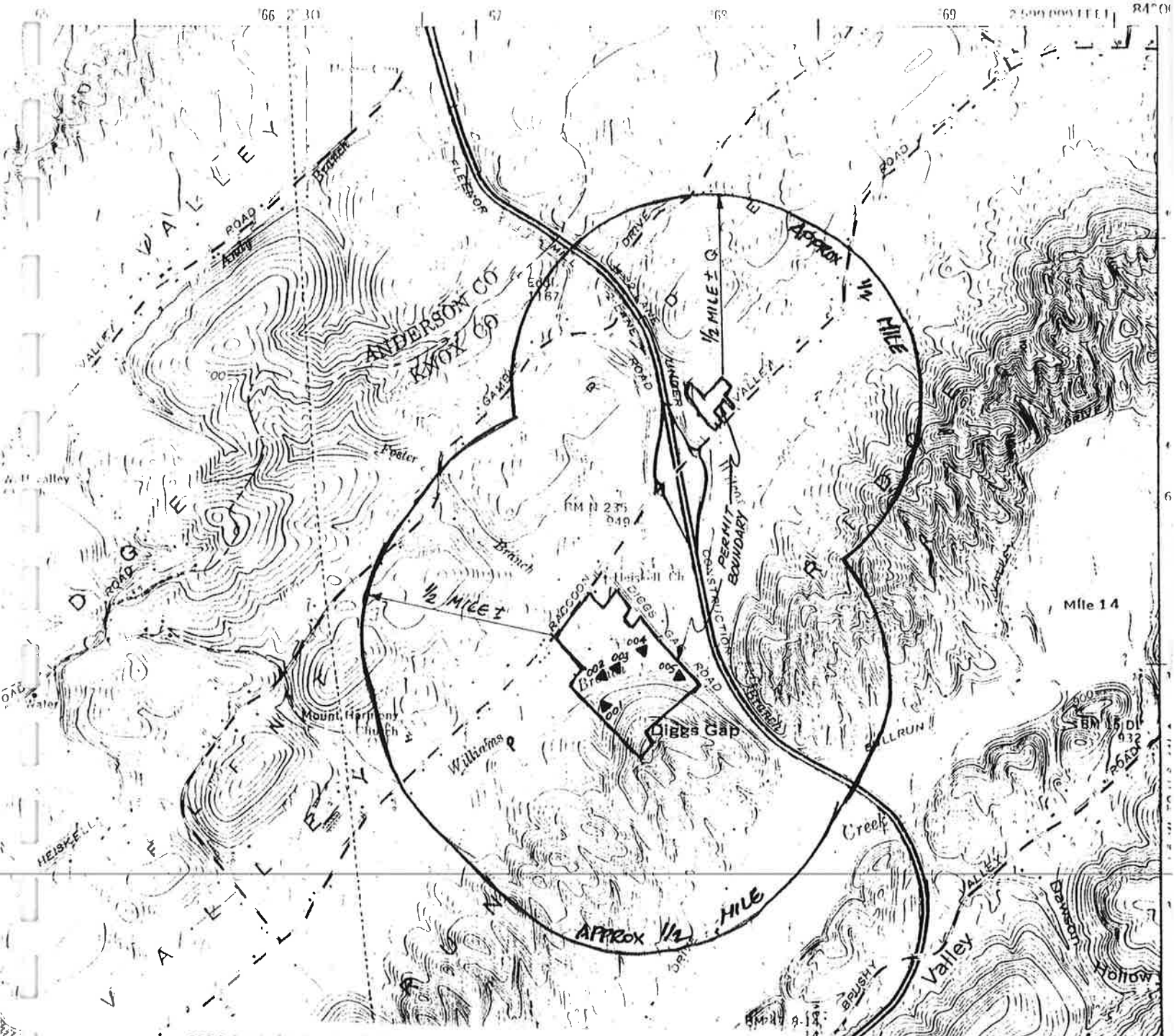
EPA Form 3320-1 (Rev. 10-79) PREVIOUS EDITION TO BE USED (REPLACES EPA FORM T-4D WHICH MAY NOT BE USED)

002

T.D.H.E. KNXV. TN.

11/19/91 17:03

POWELL QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 137-SE



HALLSDALE POWELL UTILITY DISTRICT, 3745 CUNNINGHAM ROAD, HALLS CROSS ROADS, TENNESSEE, SERVES THE AREA WITHIN 1/2 MILE OF THE PERMIT BOUNDARY WITH UTILITY WATER. THERE ARE NO WELLS KNOWN TO THE ENGINEER OR THE APPLICANT WITHIN THIS AREA.

SAMPLING POINT NO.	NORTH LATITUDE	WEST LONGITUDE
001	36°05'55"	84°01'29"
002	36°05'59"	84°01'29"
003	36°06'00"	84°01'27"
004	36°06'03"	84°01'22"
005	36°05'59"	84°01'17"

10E

NARRATIVE DISCUSSIONS

A. OPERATION PLAN

The site includes about 59 acres of land southeast of Racoon Valley Road, southwest of Diggs Gap Road and I-75, northwest of Bullrun Creek and northeast of Heiskall Road. The site is split by Williams Branch running in a northeast direction and draining about 500 acres at the point where it enters the project boundary. The quarry lies south of Williams Branch on the steep northwest slope of Bullrun Ridge. The screening, storage, asphalt plant and concrete mixing plant all lie north of Williams Branch on the relatively flat slopes. A smaller area is drained by Foster Branch which enters the project from the northwest and joins Williams Branch near the eastern limits of the property.

Brush and vegetation is cleared and grubbed by dozers. Topsoil is removed by pans and dozers and stored at designated areas in a manner to minimize erosion and sedimentation. Blasting operations are conducted by I-75 Stone, inc., to remove the limestone which is then mechanically stockpiled and hauled to the crushing, screening, and storage operations northwest of Williams Branch. Selected product is also used in the asphalt plant and the ready mix concrete plant operations.

B. DRAINAGE PLAN

The pit area of approximately 15 acres lying south of Williams Branch drains to a low point in the bottom of the pit where it ponds with no outlet. Periodically, after settlement of silt has occurred, this area is pumped to Detention Pond No. 1, where the principal spillway then discharges directly into Williams Branch. This, in effect, is a two stage settling basin, which has been in satisfactory use for some time. Results of recent sampling indicate that this system is very effective in controlling runoff from the pit basin.

Detention Ponds No. 2, 3, 4, and 5 drain areas of 5, 3.5, 11, and 3 areas respectively. All these areas originate on the north side of Williams Branch and drain portions of the processing operations area including crushing, washing, stockpiling, asphalt and concrete plant production. Each of these ponds intercepts the primary runoff, then discharges through the respective spillway systems into Williams Branch (or in the case of Pond No. 4, to Foster Branch).

As previously stated, Williams Branch flows through from the west

cutting the Permit Area approximately in half. A 72" x 44" CMP arch will be added to the existing 36" CMP under the haul road near the southwest Permit Boundary. These two culverts will then discharge to a small pond which will in effect become a silt trap. The silt trap will discharge the 10 year peak flow of Williams Branch (230 cfs) eastward through the processing area via an existing 36" cmp plus a proposed rip rap lined overbank channel of 5 ft wide and 2.6 ft deep. The geometry and layout of the overbank channel will effect separation of the offsite or by pass flow of Williams Branch from the local contributions entering Williams Branch from the various onsite detention ponds.

C. SPECIAL TECHNIQUE PLAN

No special technique plan is necessary for mining, water treatment, or reclamation at this site at this time.

D. MONITORING PLAN PROPOSAL

To accurately monitor effluent discharge quality, a sampling schedule will be implemented requiring twice monthly procedures. On the first half of the month and on the second half of the month the discharge from DMP's No. 1, 2, 3, 4, and 5 require sampling for the following parameters:

Total Suspended Solids
Settleable Solids
PH
Oil and Grease at Pond No. 2, 3, and 5 only

Quarterly reports of sampling records will be submitted to TDEC Mining Section. The reports will include:

1. Exact location, date, and time of sampling.
2. Dates analyses performed.
3. Person and company who performed the sampling and analyses.
4. Analytical techniques or methods used.
5. Results of all required analyses.
6. Chemical treatment used if applicable.

The 7 acre area east of I-75 will be checked once per week or after any significant rainfall event, with cleanup and adjustment as needed using B & P's.

E. Reclamation Plan

The site ultimate stabilization will be to continue to direct disturbed

areas to the quarry pit for containment. The outer slopes will be stabilized using erosion control material such as rip rap size stone where appropriate and receding areas to provide erosion control. prior to complete closure of the quarry, mining of additional limestone and sandstone will cease. Sales will continue until all stockpiled material have been sold and removed from site. The processing facility and supporting structures will be removed and all earthen areas will be planted according to the attached planting schedule outlined below. The post mining drainage patterns will be similar to the present patterns (runoff will not go to new watersheds). After closing, a survey will be conducted to determine onsite conditions and an emergency 100 year spillway will be designed and constructed to control overflow discharge.

a) Mixture One: February-April	Seed per Acre
1. Sericea Lespedeza	35 pounds
2. Ky-31 Tall Fescue	35
3. Korean Lespedeza	10
4. Ladino Clover	2
5. Wheat or Rye	30

b) Mixture Two: May-July

1. Sericea Lespedeza	35 pounds
2. Ky-31 Tall Fescue	35
3. Weeping Lovegrass	5
4. Millett	15

c) Mixture Three: August-october

1. Sericea Lespedeza	45 pounds
2. Ky-31 Tall Fescue	25
3. Weeping Lovegrass	5
4. Ladino Clover	2
5. Wheat or Rye	30

d) Mixture Four: November-January

1. Sericea Lespedeza	35 pounds
2. Ky-31 Tall Fescue	40
3. Wheat or Rye	45

BY : L.W.B
DATE : 5·10·95
PROJECT : I-75 STONE
POWELL, TN

CALCULATE WILLIAMS CREEK DISCHARGE

DRAINAGE AREA 'A' 500 AC (SEE QUAD SHT)

RATIONAL FORMULA

$Q_{10} = CIA$

$Q_{10} = 0.2 \times 2.2 \times 500 = 220$ cfs

C = 0.2 WOODED

I = 10 YR STORM, t_c = 60 min

A = 500 AC.

CHECK U.S. GEOLOGICAL SURVEY EQUATIONS

$Q_{10} = 276 (A/640)^{0.727}$

$Q_{10} = 276 (500/640)^{0.727} = 230$ cfs

CHECK SCS METHOD

CN (AMC II) CN60 ASSUME GROUP 'B'

$I_a = 1.333$

P = 4.8" / 24 HRS = RAINFALL

I_a/P = 1.333 / 4.8 = 0.28

AREA = 500/640 SQ MI

q_u = 300 CSM/in

Runoff = 1.5 IN

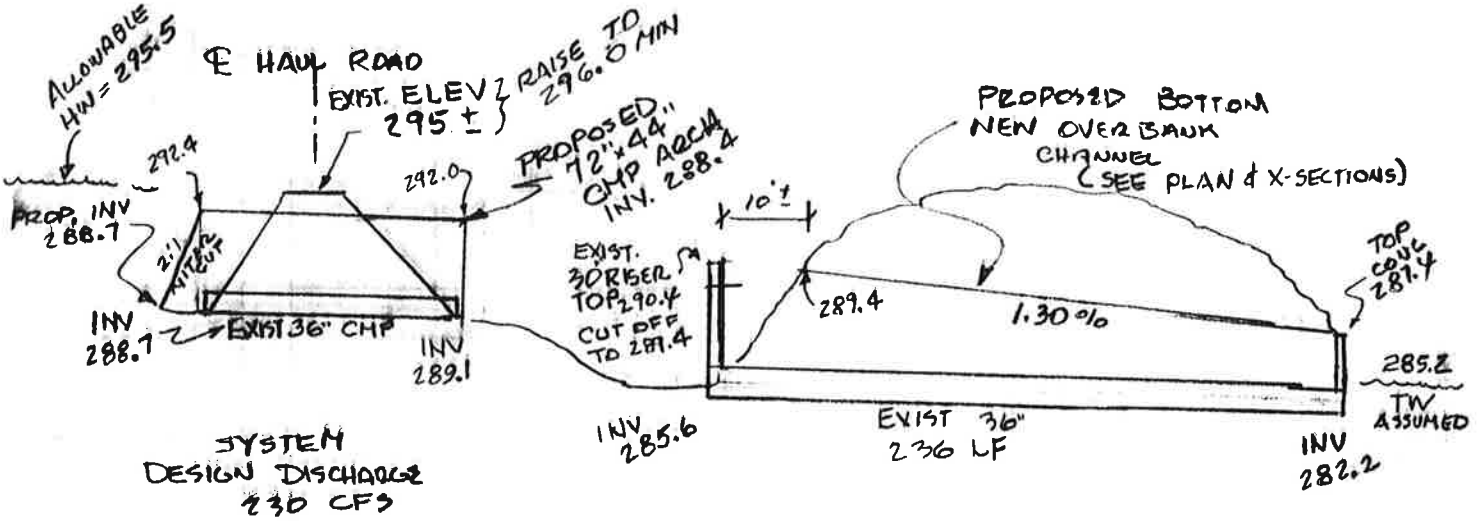
* SWAMP ADJUSTMENT FACTOR = 0.7

$Q_{10} = 300 \times 500/640 \times 1.5 \times 0.7 = 245$ CFS

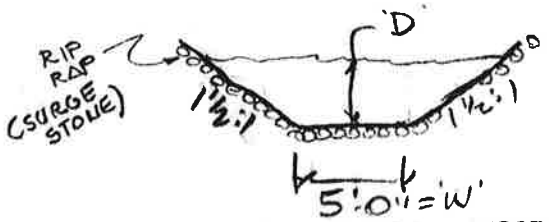
* TO ALLOW FOR MISC. SINKHOLES & PONDING FROM UNDERSIZED STRUCTURES UPSTREAM.

FOR DESIGN USE 230 CFS

POWELL QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 137-SE



SKETCH
NTS



DITCH TYPICAL SECTION

① BY INSPECTION THE 36" CMP ℄ 72"x44" CMP ARCH UNDER HAUL ROAD WILL FLOW FULL WITH OUTLET CONTROL AT DESIGN DISCHARGE.

② FROM DESIGN CHARTS:

$H_{36"}$ = 3.5' @ Q = 60 CFS

$H_{72"x44"}$ = 3.5' @ Q = 175 CFS

235 CFS O.K.

∴ TW ELEV = 295.5 - 3.5 = 292.0

℄ ALLOWABLE SURFACE OVER RISER = 292.0

③ CHECK CAPACITY 30" RISER WITH

H = 292.0 - 290.4 = 1.6'

Q ≈ 36 CFS

LOWER EXIST TOP TO 289.4

H = 292.0 - 289.4 = 2.6'

Q = 46 CFS

④ CHECK CAPACITY 36" CMP, 236 FT LONG

END SUBMERGED TO 285.2

FROM NOMOGRAPH Q ≈ 80 CFS

@ H = 292 - 285.2 = 6.8 FT

∴ RISER CONTROLS @ 46 CFS

⑤ CHECK 'D' DEPTH IN CHANNEL

@ DISCHARGE = 230 - 46 = 184 CFS

℄ HW ELEV = 292.0

'D' @ INLET = 292.0 - 289.4 = 2.6'

ASSUME n = 0.03

FROM CHARTS @ Q = 184 CFS, S = 1.3 %

THIS WITH 2:1 SIDES

D ≈ 2.5 FT

⑥ CHECK Q @ D = 2.6 FT (MANNING)

$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$

n = 0.03

A = (2.6 x 1.5 x 2.6) + (2.6 x 5) = 23.1 SF

R = (23.1) ÷ (5 + 4.68 + 4.68) = 1.61

S = 0.013 '/'

$Q = \frac{1.49}{0.03} \times 23.1 \times 1.61^{0.67} \times 0.013^{1/2} = 180$ CFS

∴ ADD SECOND 30" CMP RISER TO 36" WITH NEW DISCHARGE 36" = 80 CFS AND REQD DITCH Q = 230 - 80 = 150 CFS WITH D < 2.6'

O.K.

BY: LWB

DATE: 5/15/95

PROJECT: I-15 STONE

BY : LWB
DATE : 5.10.95
PROJECT: I-75 STONE
POWELL, TN.

DRAINAGE AREA TAB

AREA NO.	AREA (ACRES)	LENGTH TRAVEL (FT)	HEIGHT TRAVEL (FT)	TIME CONC. (MIN)
4	11	1100	55	12
5	3	800	40	9
1	1	400	30	<5
2	5	500	50	<5
3	3.5	500	50	<5

BY : LWB
DATE: 5.10.95
PROJECT: I-75 STONE
POWELL, TN.

10 YR 24 HOUR STORM EVENT

AREA NO	AREA (ACRES) 'A'	TIME OF CONC. (MIN) 't_c'	INTENSITY IN/HR 'I'	RUNOFF CO-EFF 'C'	PEAK DISCHARGE CFS 'Q'
4	11	12	4.8	0.3	15.8
5	3	9	5.6	0.3	5.0
1	1	5	6.2	0.3	1.9
2	5	5	6.2	0.3	9.3
3	3.5	5	6.2	0.3	6.5

BY : LWB
DATE: 5.10.95
PROJECT: I-75 STONE
POWELL, TN.

25 YR 24 HOUR STORM EVENT

AREA NO	AREA (ACRES) 'A'	TIME OF CONC. (MIN) 't_c'	INTENSITY IN/HR 'i'	RUNOFF CO-EFF 'C'	PEAK DISCHARGE CFS 'Q'
4	11	12	6.0	0.3	19.8
5	3	9	6.4	0.3	5.8
1	1	5	7.2	0.3	2.2
2	5	5	7.2	0.3	10.8
3	3.5	5	7.2	0.3	7.6

By: LWB
Date: 5.10.95
Project: I-75 Stone
Powell, Tn.

Pond No 1

Volume Required

Peak Discharge = 1.9 CFS @ t_c = 5 min

1.9 FT^3/sec × 5 min × 60 sec/min = 570 FT^3

Sediment Load Allowance For Disturbed Area 0.5 AC

0.5 AC × 43560 FT^2/AC × 0.1 = 2178 FT^3

Total Vol Reqd = 2748 FT^3

Size Discharge System

Q = 1.9 CFS (Principle Spillway) & 2.2 CFS (Emergency Spillway)

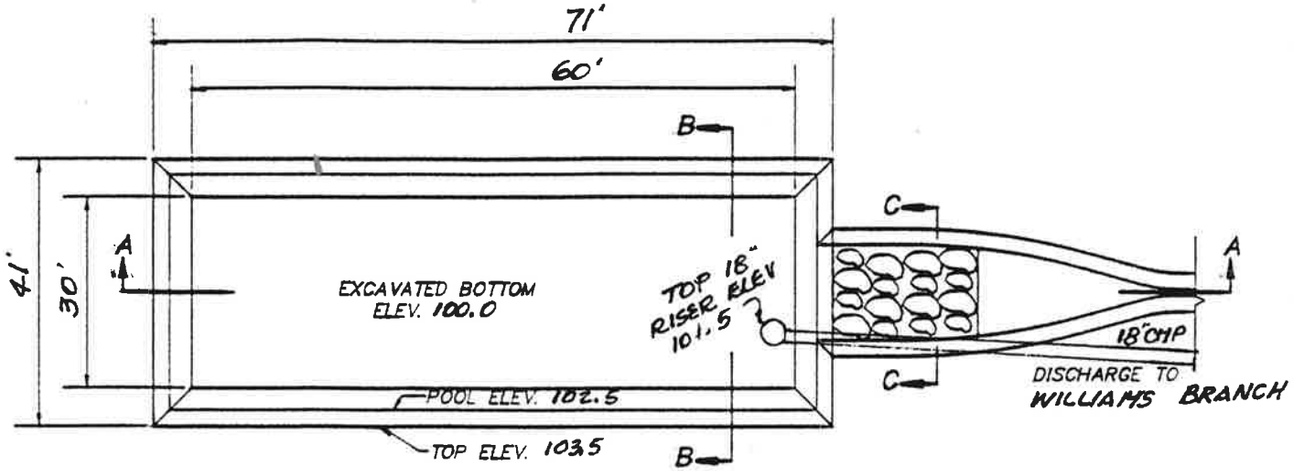
Use 18" CMP Riser w/H = 1.0' & 18" CMP for Principle Spillway, Q = 8 CFS

Use Rip Rap Spillway 2 Ft wide & one Ft deep

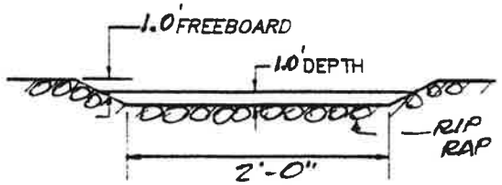
Volume To Be Provided

2.5 × 1.5 = 3.75

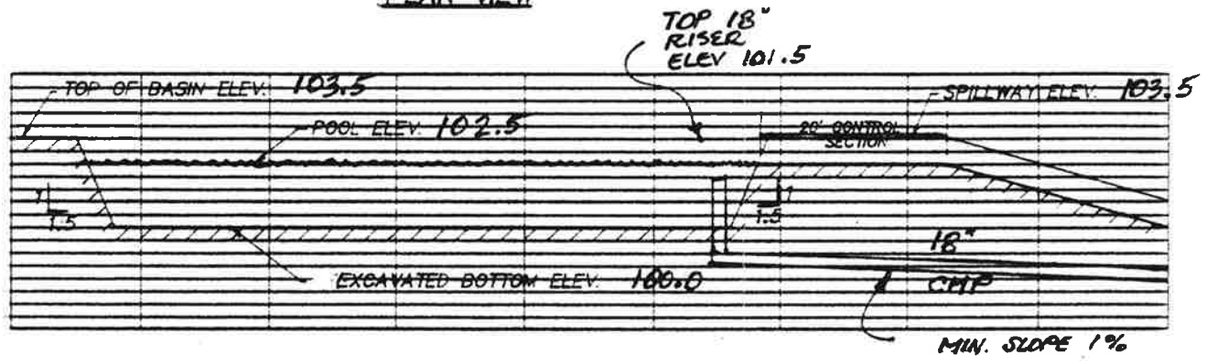
63.75' × 33.75' × 2.5' = 5380 ft^3



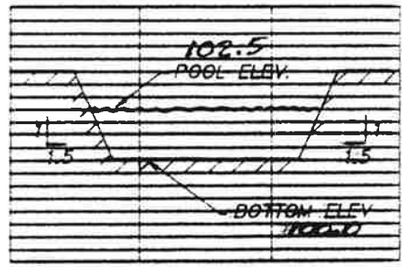
PLAN VIEW



SECTION C–C



SECTION A–A



SECTION B–B

Notes:

1. Vary plan configuration but with same surface area.
2. Locate spillway as needed to align with suitable receiving point.
3. Elevations based on assumed B.M. for this pond only.
4. Pump discharge from pit area to this pond when needed at < 750 gpm

PLAN FOR DETENTION BASIN No. 1

SCALE: NTS | APPROVED BY: | DRAWN BY: GR

DATE: 5-10-95

I-75 STONE CO.

POWELL, TENNESSEE

Page No. 21

By: LWB
Date: 5.10.95
Project: I-75 Stone
Powell, TN.

Pond No 2

Volume Required

Peak Discharge = 9.3 cfs @ t_c = 5 min

9.3 FT³/sec × 5 min × 60 sec/min = 2790 FT³

Sediment Load Allowance For Disturbed Area 2.5 AC

2.5 AC × 43560 FT²/AC × 0.1 FT = 10890 FT³

Total Vol Reqd = 13680 FT³

Size Discharge System

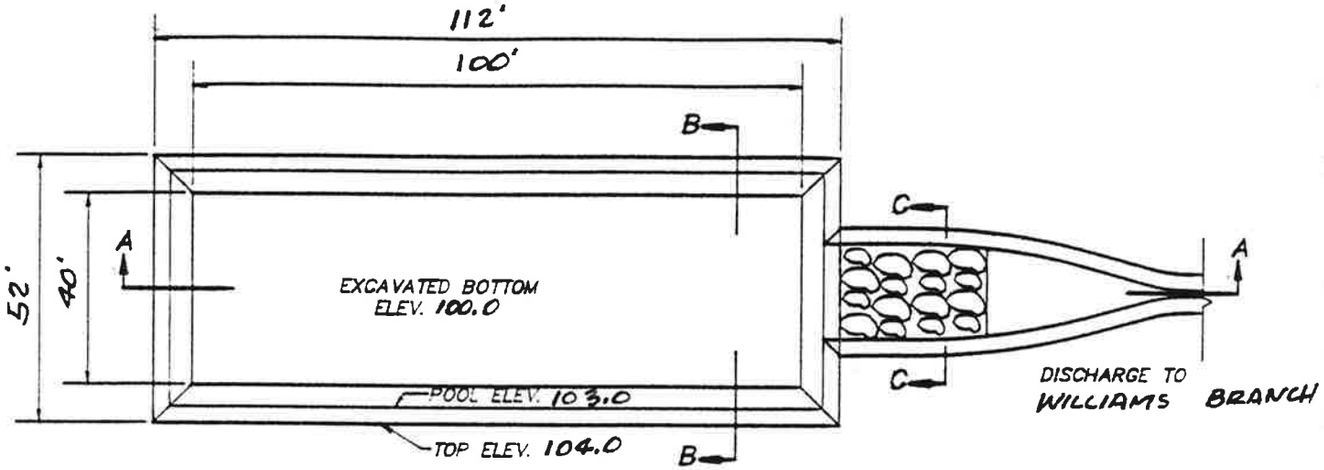
Provide one spillway to handle 10.8 CFS

Use Rip Rap spillway 5 FT wide & one FT deep Q = 12 CFS

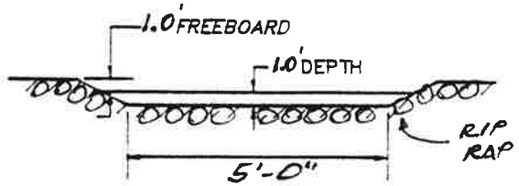
Volume To Be Provided

3.0' × 1.5' = 4.5'

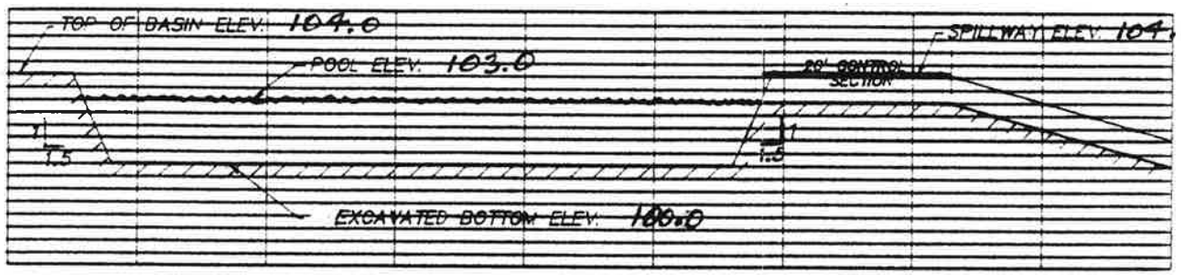
104.5' × 44.5' × 3.0 = 13950 Ft³



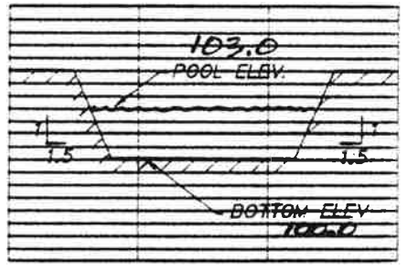
PLAN VIEW



SECTION C–C



SECTION A–A



SECTION B–B

Notes:

1. Vary plan configuration but with same surface area.
2. Locate spillway as needed to align with suitable receiving point.
3. Elevations based on assumed B.M. for this pond only.

PLAN FOR DETENTION BASIN No. 2		
SCALE: NTS DATE: 5-10-95	APPROVED BY:	DRAWN BY: GWR
I-75 STONE CO. POWELL, TENNESSEE		Page No. 23

By: LWB
Date: 5-10-95
Project: I-75 Stone
Powell, Tn.

Pond No 3

Volume Required

Peak Discharge = 6.5 cfs @ t_c = 5 min
6.5 cfs × 5 min × 60 sec/min = 1950 ft³

Sediment Load Allowance For Disturbed Area
3 Ac × 43560 ft³/Ac × 0.05 = 6534 ft³

Total Vol Req'd, Say 8484 ft³

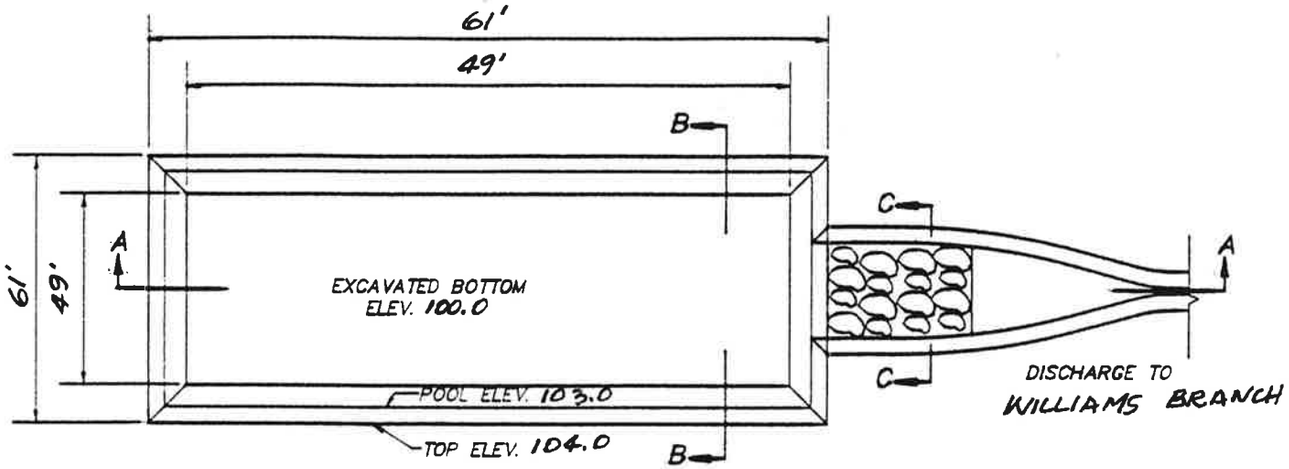
Size Discharge System

Provide one spillway to handle 7.6 cfs
Use rip rap spillway 3 ft wide & one ft deep

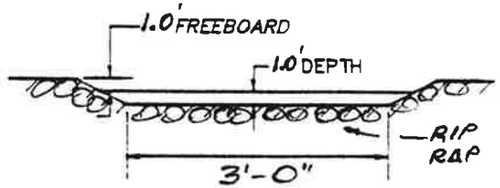
Volume To Be Provided

3.0' × 1.5 = 4.5'

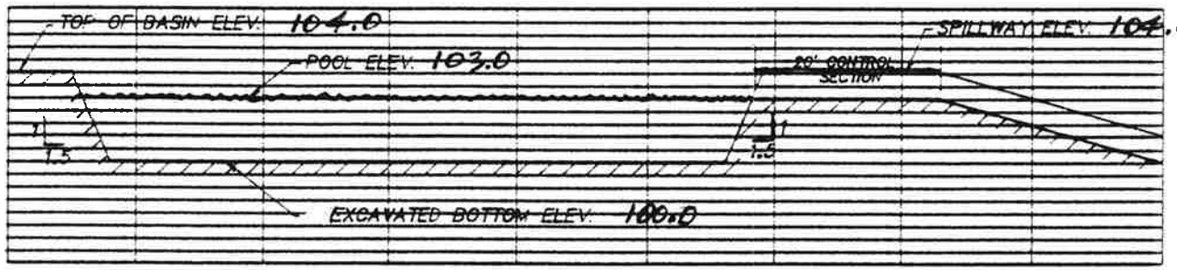
52.5' × 52.5' × 3 = 8587 ft³



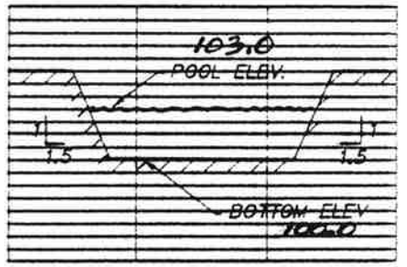
PLAN VIEW



SECTION C–C



SECTION A–A



SECTION B–B

Notes:

1. Very plan configuration but with same surface area.
2. Locate spillway as needed to align with suitable receiving point.
3. Elevations based on assumed B.M. for this pond only.

PLAN FOR DETENTION BASIN No. 3

SCALE: NTS	APPROVED BY:	DRAWN BY: GR
DATE: 5-10-96		

I-75 STONE CO.

POWELL, TENNESSEE

Page No. 25

By: LWB
Date: 5.10.95
Project: I-75 Stone
Powell, TN.

Pond No. 4

Volume Required

Peak Discharge = 15.8 CFS @ t_c = 12 min

$15.8 \frac{FT^3}{SEC} \times 12 \text{ MIN} \times 60 \frac{SEC}{MIN} = 11376 FT^3 = 11,376 FT^3$

Sediment Load Allowance For Disturbed Area of 5AC

$5 AC \times 43560 FT^2/AC \times 0.05 = 10890 = 10,890 FT^3$

Total Vol Reqd = 22,266 FT^3

Size Discharge System

Q_{in} = 15.8 CFS (Principle Spillway) & 19.8 CFS (Emergency Spillway)

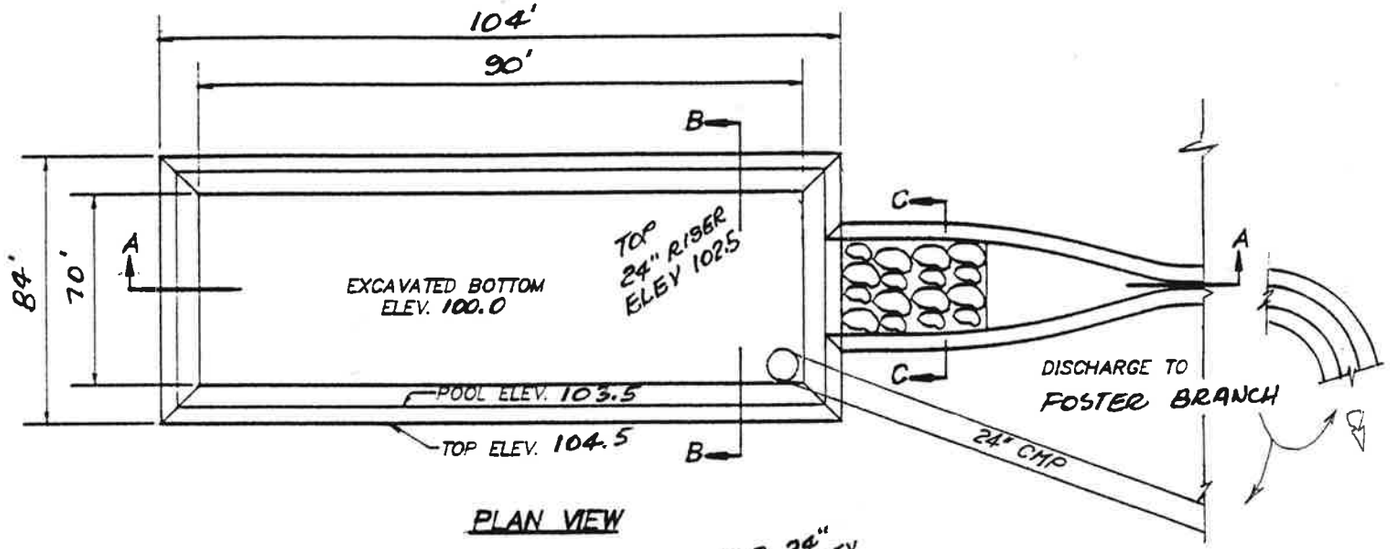
Use 24" CMP Riser w/ H = 1.0' & 24" CMP Pipe For Principle Spill, Q = 17 CFS

Use Rip Rap Emergency Spillway 8 Wide x 1 Ft Deep, Q = 20 CFS

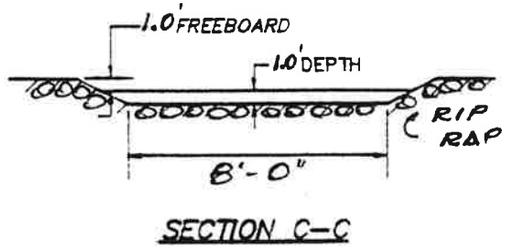
Volume To Be Provided

1.5 x 3.5 = 5.25

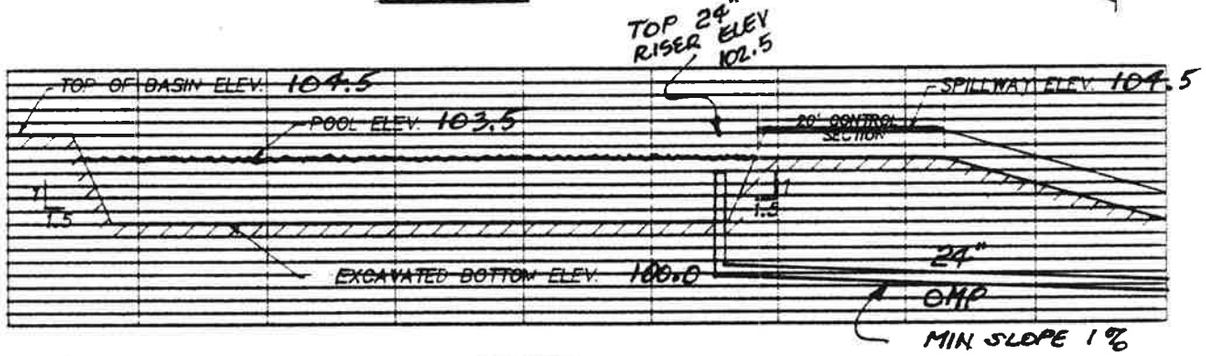
75.25' x 95.25' x 3.5' = 25,000 Ft^3



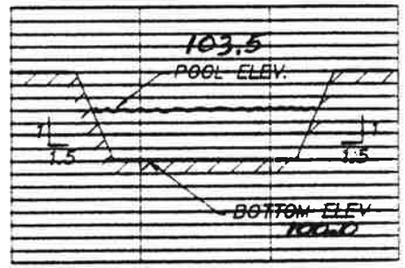
PLAN VIEW



SECTION C–C



SECTION A–A



SECTION B–B

Notes:

1. Vary plan configuration but with same surface area.
2. Locate spillway as needed to align with suitable receiving point.
3. Elevations based on assumed B.M. for this pond only.

PLAN FOR DETENTION BASIN NO. 4

SCALE: NTS	APPROVED BY:	DRAWN BY: GR
DATE: 5-10-95		

I-75 STONE CO.

POWELL, TENNESSEE

Page No. 27

By : LWB
Date : 5·10·95
Project : I-75 Stone
Powell, TN.

Pond No 5

Volume Required

Peak Discharge = 5 cfs @ t_c = 9 min

$5.0 \frac{FT^3}{Sec} \times 9 \text{ min} \times 60 \frac{Sec}{min} = 2700 FT^3$

Sediment Load Allowance For Disturbed Area of 2 ac

2.5 Ac × 43560 FT^3/Ac × 0.05 = 5400 FT^3

Total Vol Reqd = 8100 FT^3

Size Discharge System

Q = 5.0 cfs for principle spillway & 5.8 cfs for emergency spillway

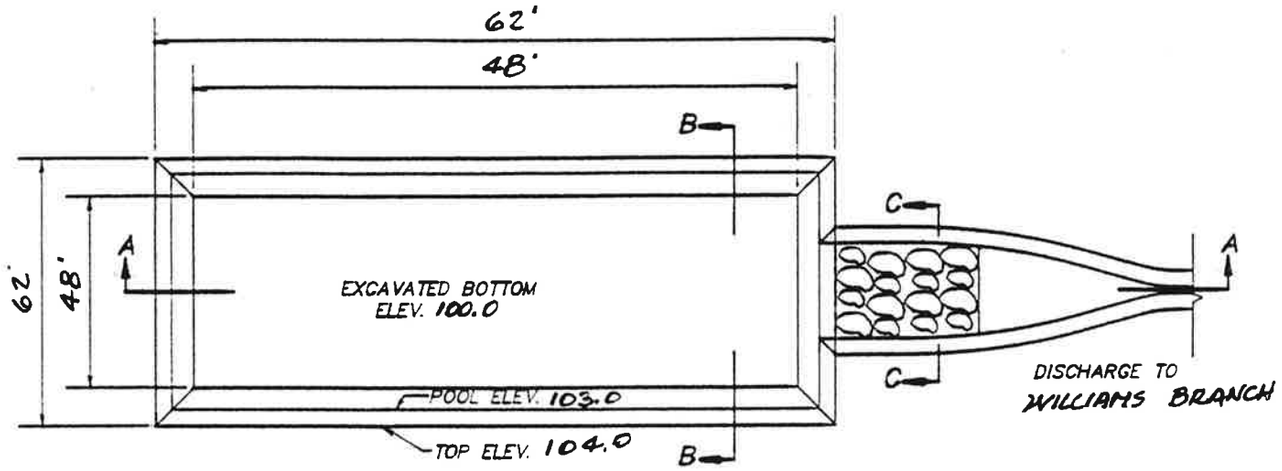
OMIT → Use 15" CMP riser w/H = 1.0 & 15" CMP for principle spillway, Q = 6.7 cfs

USE ONLY → Use Rip Rap Emergency Spillway 5 FT wide & 1 ft deep, Q = 12 cfs

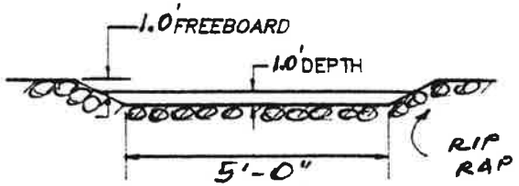
Volume To Be Provided

3.0 × 1.5 = 4.5

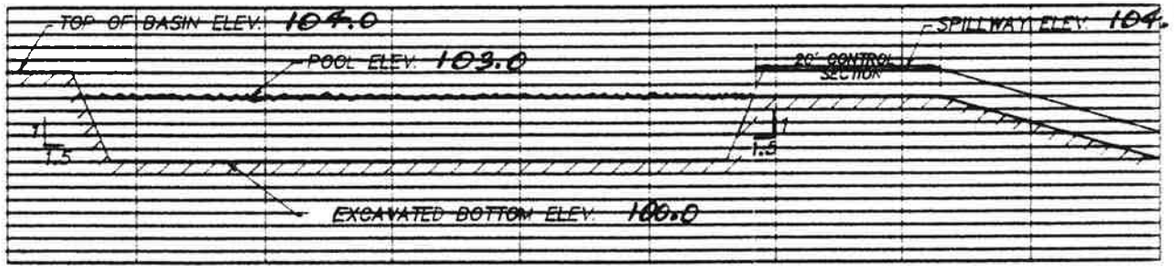
52.5' × 52.5' × 3.0' ≈ 8200 FT^3



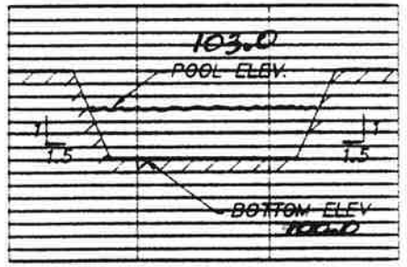
PLAN VIEW



SECTION C–C



SECTION A–A



SECTION B–B

Notes:

1. Vary plan configuration but with same surface area.
2. Locate spillway as needed to align with suitable receiving point.
3. Elevations based on assumed B.M. for this pond only.

PLAN FOR DETENTION BASIN No. 5		
SCALE: NTS	APPROVED BY:	DRAWN BY: GR
DATE: 5-10-95		
I-75 STONE CO.		Page No. 29
POWELL, TENNESSEE		

Division of Water Pollution Control, Mining Section, Knoxville Field Office

The following is a list of **minimum**, technical requirements for an NPDES permit application package:

Revised 07 October, 1994

- ☑ All treatment structures should be sized for the amount of runoff expected from a 10-year/24-hour storm event.
- ☑ Treatment structures must be provided with an emergency spillway that can safely pass the runoff expected from a 25-year/24-hour storm event.
- ☑ Runoff calculations are required for all treatment structures. These calculations should include 0.10 acre-ft per disturbed acre for sediment storage.
- ☑ Runoff calculations are required using a nationally recognized engineering method such as the Rational Method, TR-55-SCS Method, etc.
- ☑ Stoke's Law should be used to calculate the settling velocity based on particle size depth of the pond, and surface area.
- ☑ All ditches and culverts must include designs and calculations to safely pass the runoff expected from a 10-year/24-hour storm event.
- ☑ A flow schematic diagram must be provided.
- ☑ Title block of all maps should contain the following: map title, company name, county, permit acreage, name of consultant, legend, symbols used, and the date and seal of a **Tennessee Registered Professional Engineer.**
- ☑ Provide drawings for all treatment structures.
- ☑ Provide as-built drawings and calculations for **existing** water treatment structures.
- ☑ Indicate overburden storage areas, stockpiles, haul roads, and any other facilities on a map of appropriate scale to indicate how runoff will meet the requirements of **THE TENNESSEE WATER QUALITY CONTROL ACT**.
- ☑ All treatment structures and drainage areas must be depicted on a drainage control map.
- ☑ All technical data/calculations must be prepared and certified by a **Tennessee Registered Professional Engineer.**
- ☑ Denote Discharge Monitoring Points (**DMP's**) with a triangle and label 001, 002, etc. on all maps.

ADDRESS ATTACHMENT FOR PERMIT APPLICATION

This must be filled out to complete your permit application.

NPDES PERMIT NO.: TN0063355 (Previous) AREA NAME/NUMBER: Main-Diggs Gap

CORPORATE HEADQUARTERS: (Where the permit will go.)

CONTACT PERSON: Mr Stan Hackworth Phone # 615-947-9788

COMPANY NAME: I-75 Stone Company, Inc

STREET AND/OR P.O. BOX #: P.O. Box 645

CITY: Powell STATE: TN ZIP CODE: 37849

PERMIT BILLING ADDRESS: (Where the invoices will go.)

CONTACT PERSON: Phone #

FACILITY NAME:

STREET AND/OR P.O BOX #:

CITY: STATE: ZIP CODE:

FACILITY LOCATION: (Where the inspectors will go.)

FACILITY NAME: NPDES #TN00

STREET ADDRESS:

P.O. BOX #: COUNTY: Phone #

CITY: STATE: ZIP CODE:

DMR MAILING ADDRESS: (Where the pre-printed Discharge Monitoring Reports will go.)

CONTACT PERSON: Phone #

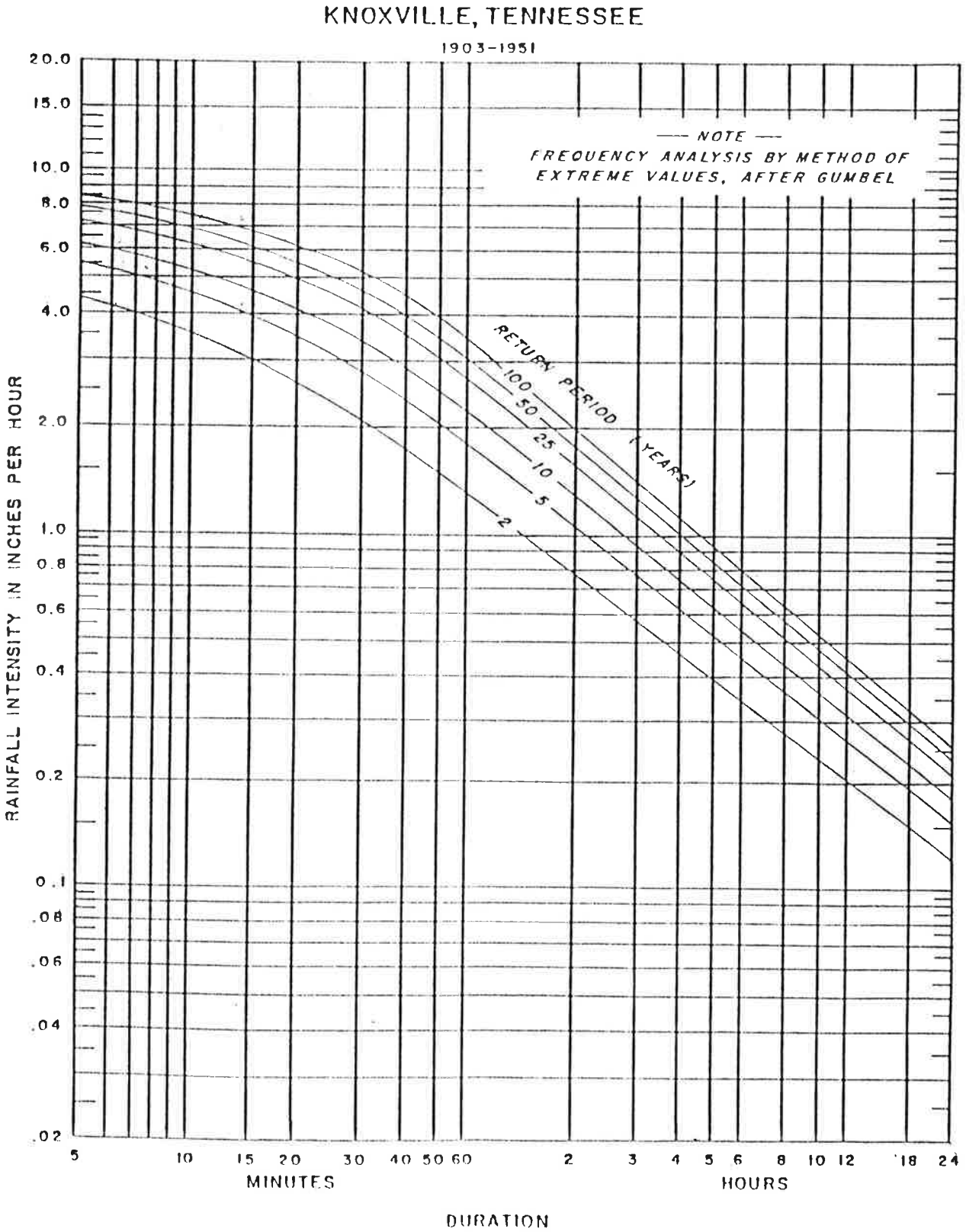
FACILITY NAME:

STREET AND/OR P.O. BOX #:

CITY: STATE: ZIP CODE:

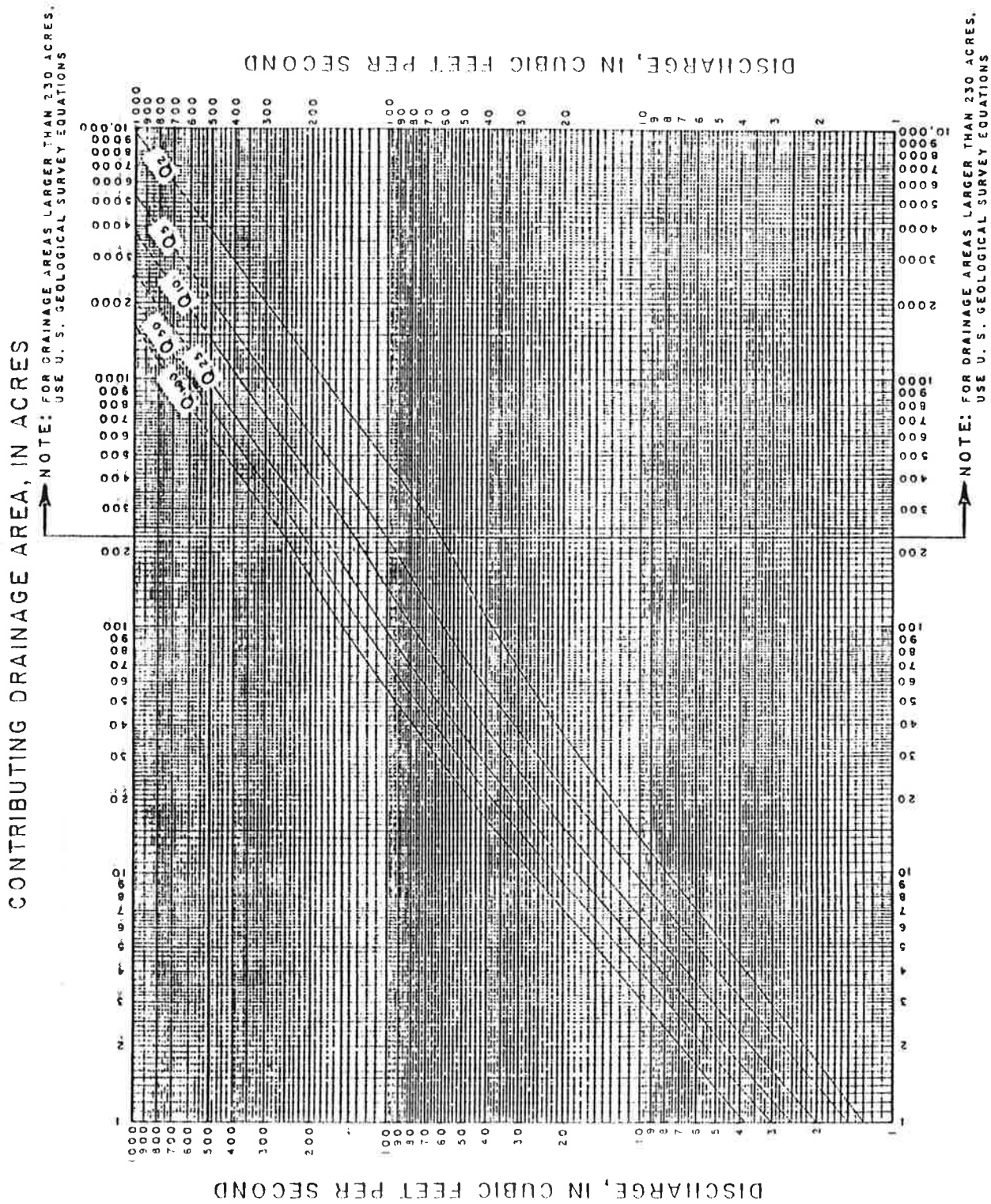
FIGURE 2-7

RAINFALL INTENSITY-DURATION-FREQUENCY CURVES



NOTE: Tc = 5 MINUTES IS A MINIMUM VALUE TO USE IN ALL CASES

FIGURE 2-14



Hydrologic Area 1

HYDROLOGIC AREA 1

BASIC EQUATIONS FOR DRAINAGE AREAS LESS THAN 230 ACRES

$$Q_{25} = 33.6A - 31.1(A)^{1.01}$$

$$Q_2 = Q_{25}\left|\overline{1 - .5(A)^{.052}}\right|$$

$$Q_5 = Q_{25}\left|\overline{1 - .4(A)^{.014}}\right|$$

$$Q_{10} = Q_{25}\left|\overline{1 - .2(A)^{.034}}\right|$$

$$Q_{50} = Q_{25}\left|\overline{1 + .2(A)^{.015}}\right|$$

$$Q_{100} = Q_{25}\left|\overline{1 + .5/(A)^{.019}}\right|$$

Table 2-3

U.S. GEOLOGICAL SURVEY EQUATIONS FOR DRAINAGE AREAS LARGER THAN 230 ACRES

$$Q_2 = 127(A/640)^{.752}$$

$$Q_5 = 211(A/640)^{.735}$$

$$Q_{10} = 276(A/640)^{.727}$$

$$Q_{25} = 366(A/640)^{.719}$$

$$Q_{50} = 442(A/640)^{.714}$$

$$Q_{100} = 524(A/640)^{.709}$$

Table 2-4

LAND USE AND SLOPE FACTORS (LF) FOR DRAINAGE AREAS LESS THAN 100 ACRES

SLOPE	LAND USE			
	100% CULTIVATED	* MIXED COVER	PASTURE	WOODS, DEEP FOREST
STEEP OVER 2%	$\left\|\overline{3 - .6(A)^{.26}}\right\|$	$\left\|\overline{3 - (A)^{.15}}\right\|$	$\left\|\overline{2 - .8(A)^{.05}}\right\|$	$\left\|\overline{2 - 1.4/(A)^{.07}}\right\|$
FLAT 0.2%	$\left\|\overline{2 - .4(A)^{.20}}\right\|$	$\left\|\overline{2 - .8(A)^{.05}}\right\|$	$\left\|\overline{2 - 1.2/(A)^{.04}}\right\|$	$\left\|\overline{2 - 1.6/(A)^{.10}}\right\|$
VERY FLAT	$\left\|\overline{2 - 1.5/(A)^{.09}}\right\|$	$\left\|\overline{2 - 1.6/(A)^{.10}}\right\|$	$\left\|\overline{2 - 1.8/(A)^{.13}}\right\|$	$\left\|\overline{2 - 1.9/(A)^{.14}}\right\|$

* MIXED COVER CONSISTS OF APPROXIMATELY EQUAL AREAS OF CULTIVATED LAND AND PASTURE LAND.

Table 2-5

NOTE: ACCURACY OF BASIC DATA DOES NOT JUSTIFY CARRYING MORE THAN TWO SIGNIFICANT FIGURES.

All computations and notes regarding the development of hydraulic design data, computations and notes leading to decisions on the type of inlet and the size and type of structure required will be kept on the typical forms provided in the appendix to Hydraulic Design Series No. 5, Hydraulic Circular No. 13 and/or in other well organized, accurate format. These computations will be kept in your project file.

2-200.05 DRAINAGE TABLES AND CHARTS

TABLE 2-2

VALUES OF RUNOFF COEFFICIENTS (C) FOR USE IN THE RATIONAL FORMULA	Runoff coefficient (C)
Rural Areas	
Concrete or sheet asphalt pavement	0.8 - 0.9
Asphalt macadem pavement	0.6 - 0.8
Gravel roadways or shoulders	0.4 - 0.6
Bare earth	0.2 - 0.9
Steep grassed areas (2:1)	0.5 - 0.7
Turf meadows	0.1 - 0.4
Forested areas	0.1 - 0.3
Cultivated fields	0.2 - 0.4
Urban Areas	
Flat residential, with about 30 percent of area impervious	0.40
Flat residential, with about 60 percent of area impervious	0.55
Moderately steep residential, with about 50 percent of area impervious	0.65
Moderately steep built up area, with about 70 percent of area impervious	0.80
Flat commercial, with about 90 percent of area impervious	0.80

For flat slopes or permeable soil, use the lower values. For steep slopes or impermeable soil, use the higher values.

TABLE 1

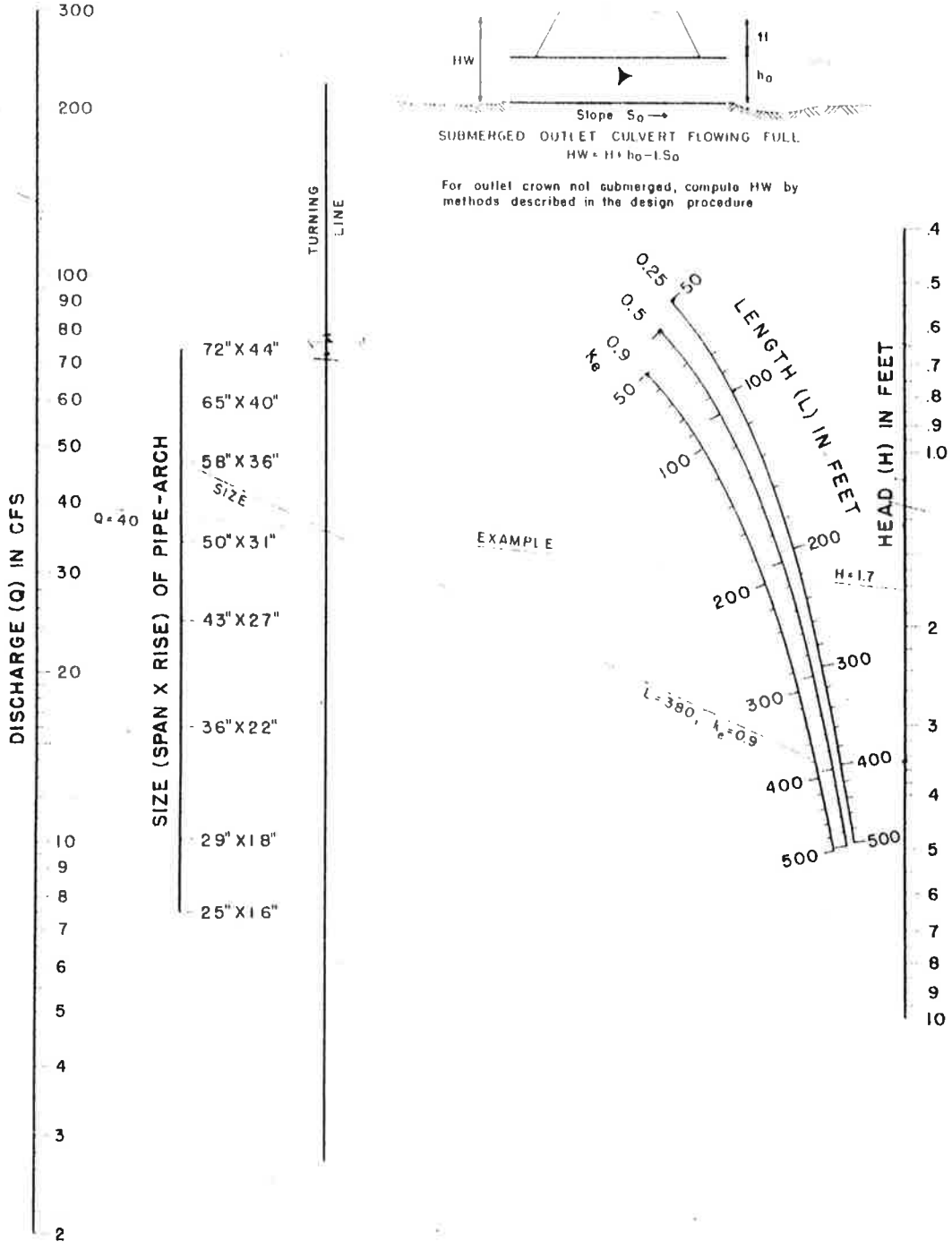
Discharge for Corrugated Metal Pipe Riser
(Weir flow and Orifice flow conditions)

Riser Diameter (inches) D_r	Head in Feet - H_x							
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
8	1.2	1.6	2.0	2.3	2.6	2.8	3.0	3.3
10	2.0	2.8	3.4	3.9	4.4	4.8	5.2	5.6
12	3.0	4.2	5.2	6.0	6.7	7.4	8.0	8.5
15	3.8	6.7	8.2	9.5	10.6	11.6	12.6	13.4
18	4.5	10.1	12.3	14.3	16.0	17.5	18.9	20.2
21	5.3	13.8	17.0	19.6	21.9	24.0	25.9	27.7
24	6.0	17.1	22.5	26.1	29.2	32.0	34.5	36.8
30	7.5	21.4	35.2	40.8	45.4	49.9	53.8	57.5
36	9.0	25.7	35.2	40.8	45.4	49.9	53.8	57.5

Head is the difference in elevation between the riser crest and the water surface elevation.

NOTE: Based on Manning Equation (n = 0.025)

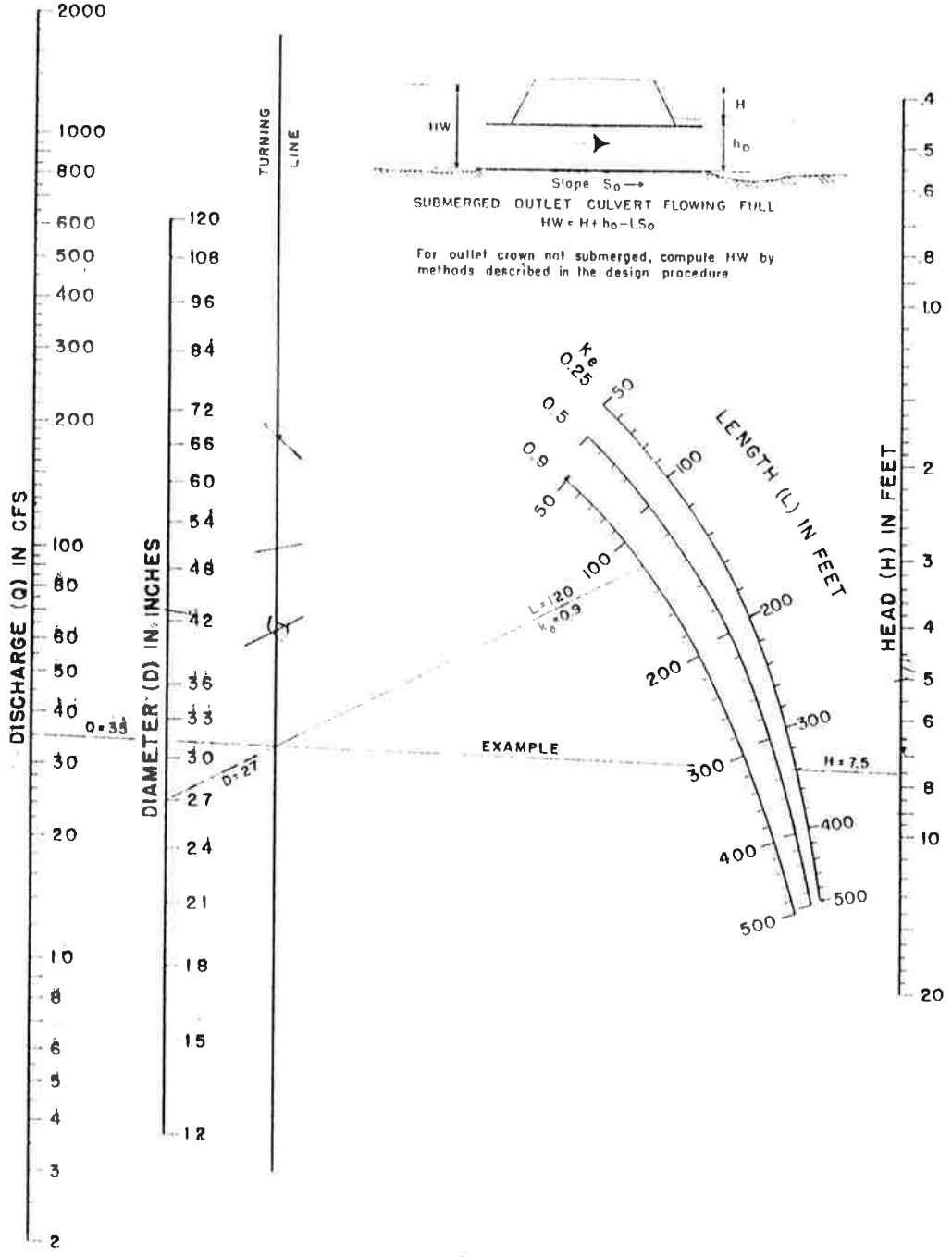
CHART 12



HEAD FOR STANDARD C. M. PIPE-ARCH CULVERTS FLOWING FULL n=0.024

BUREAU OF PUBLIC ROADS JAN 1963

CHART 11

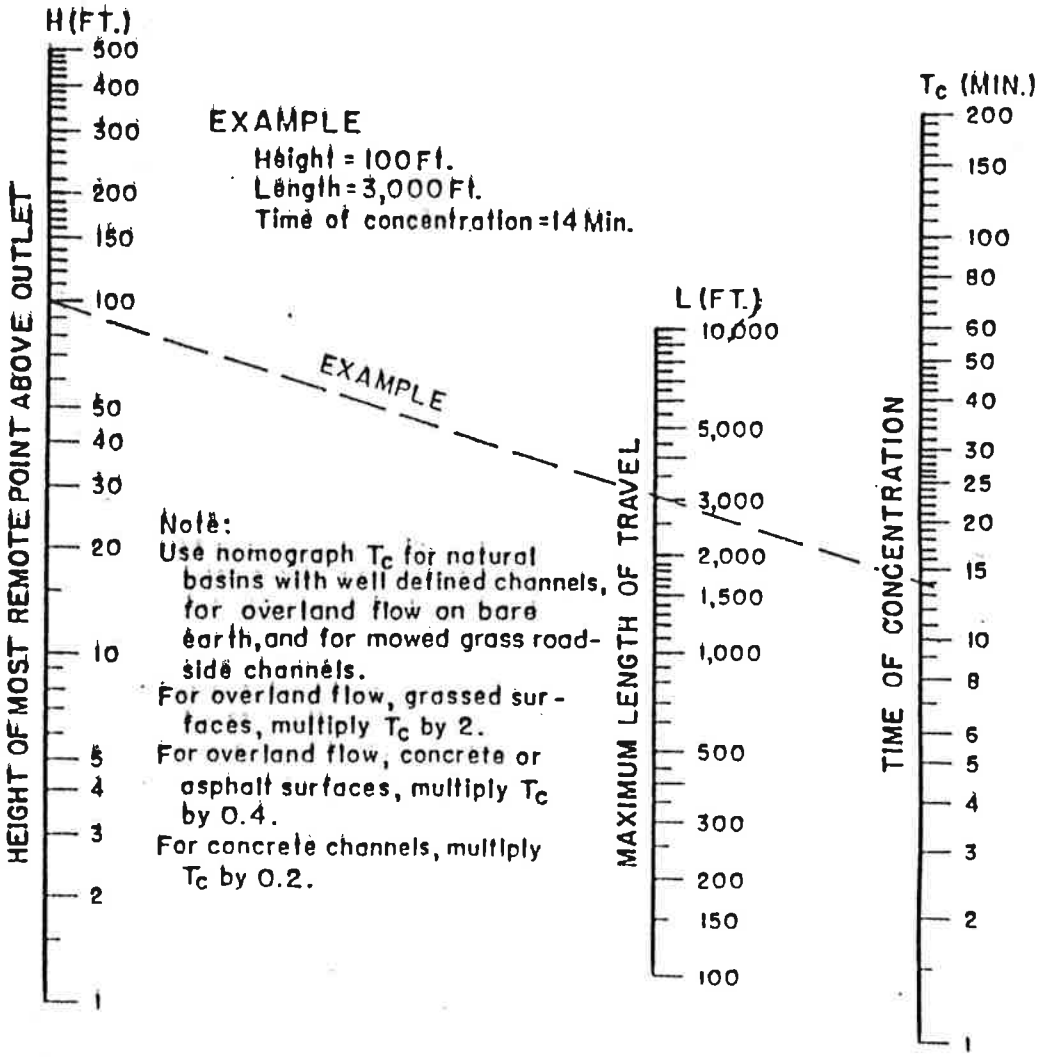


BUREAU OF PUBLIC ROADS JAN. 1963

HEAD FOR STANDARD C. M. PIPE CULVERTS FLOWING FULL n = 0.024

FIGURE 2-11

TIME OF CONCENTRATION (TC)
of small drainage areas

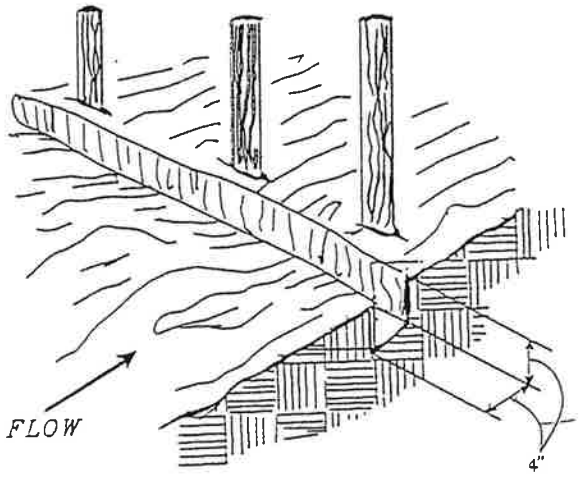


Based on study by P. Z. Kirpich,
Civil Engineering, Vol. 10, No. 6, June 1940, p. 362

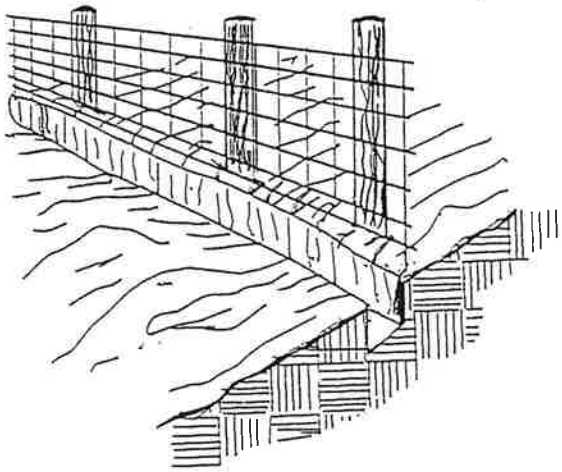
CHANNEL CHART
2:1 b = 5 FT.

CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)

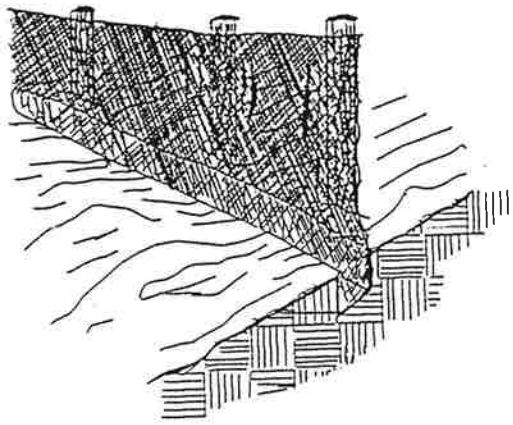
1. SET POSTS AND EXCAVATE A 4"X4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.



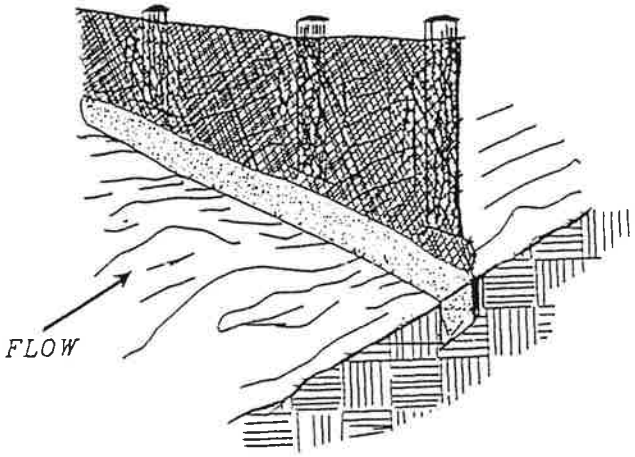
2. STAPLE WIRE FENCING TO THE POSTS.



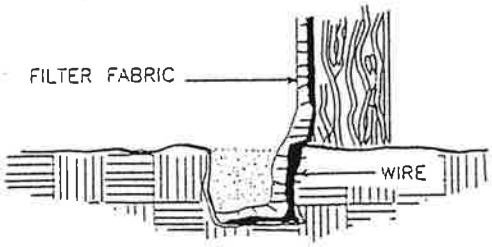
3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.



4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



EXTENSION OF FABRIC AND WIRE INTO THE TRENCH.

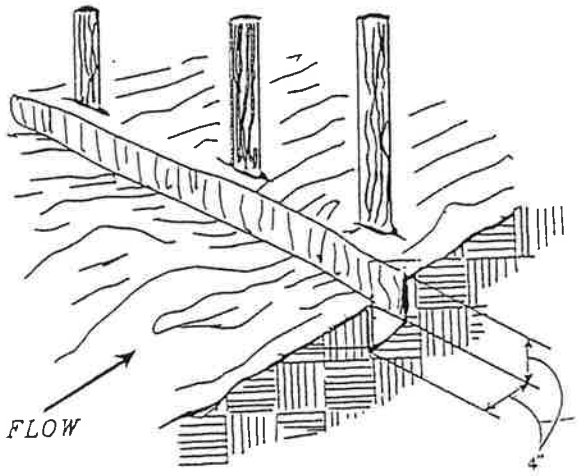


Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

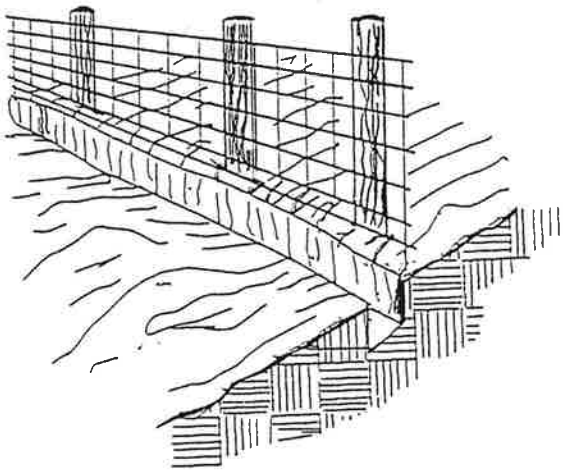
Plate 3.05-1

CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)

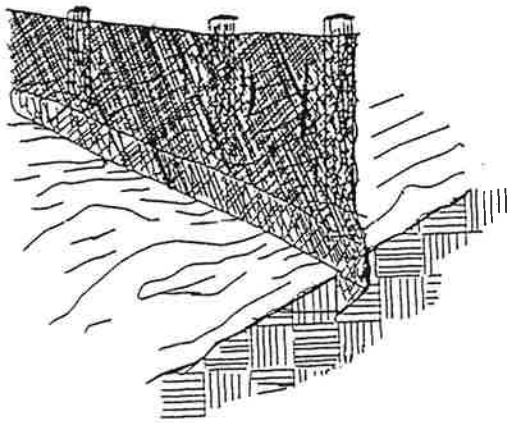
1. SET POSTS AND EXCAVATE A 4"X4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.



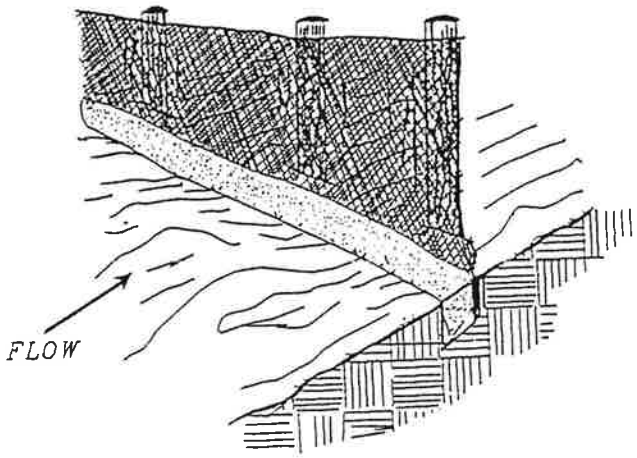
2. STAPLE WIRE FENCING TO THE POSTS.



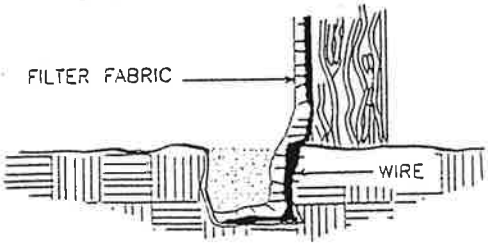
3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.



4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



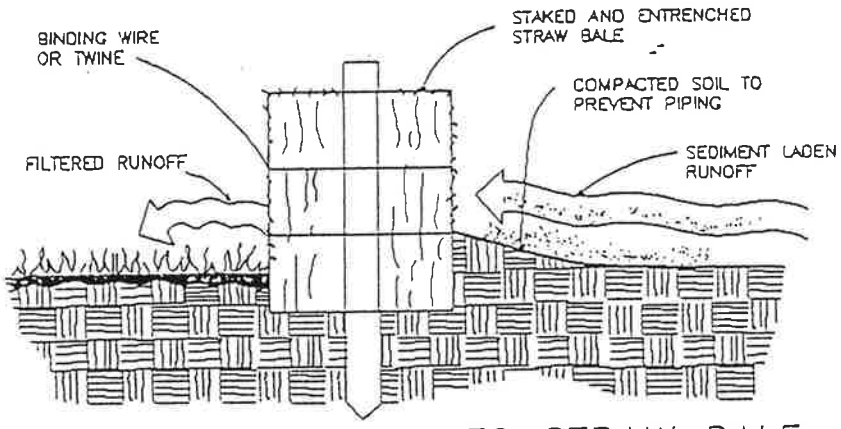
EXTENSION OF FABRIC AND WIRE INTO THE TRENCH.



Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

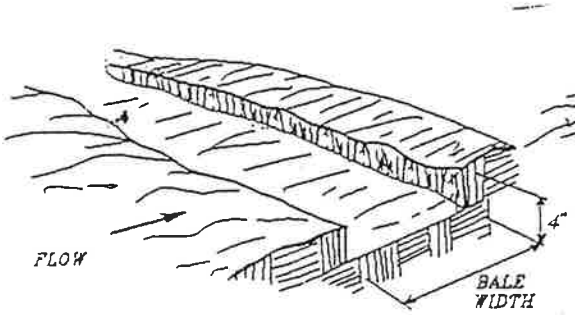
Plate 3.05-1

STRAW BALE BARRIER

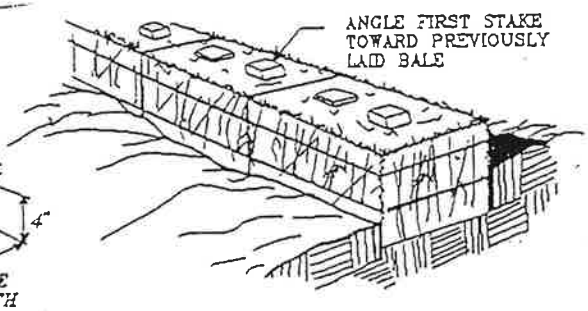


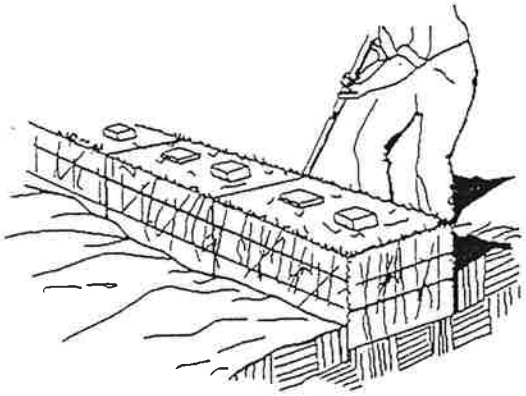
PROPERLY INSTALLED STRAW BALE (CROSS SECTION)

1. EXCAVATE THE TRENCH.

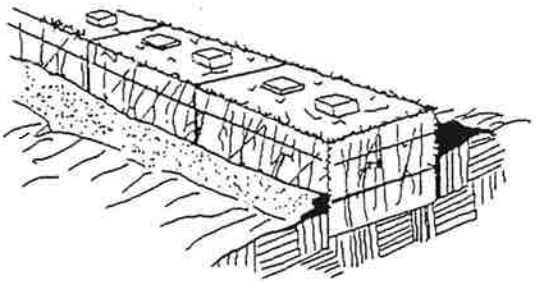


2. PLACE AND STAKE STRAW BALES.





3. WEDGE LOOSE STRAW BETWEEN BALES.



4. BACKFILL AND COMPACT THE EXCAVATED SOIL.

CONSTRUCTION OF STRAW BALE BARRIER

Source: Va. DSWC

Plate 3.04-1