WITHERS & RAVENEL

ENGINEERS · PLANNERS · SURVEYORS

CENTRAL CAROLINA TIRE
PHASE III SCRAP TIRE MONOFILL LANDFILL

CONSTRUCTION PERMIT APPLICATION

HARNETT COUNTY, NORTH CAROLINA

Fac/Perm/Co ID # 43-04 Date 4/4/12 Doc ID#

Prepared For:

Central Carolina Tire
1616 McKoy Town Road
Cameron, North Carolina 28326

Fac/Perm/Co ID # 43-04 Date 4/4/12 Doc ID#

Received
MAR 2005
Solid Waste Section

By:

Withers & Ravenel, Inc.
111 MacKenan Drive
Cary, North Carolina 27511

APPROVED
DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION
DATE 4/14/05 BY DJB
43-04
PHASE III-CELL
PERMIT TO CONSTRU
RCO CENTRAL FIL

October 22, 2004
(Revised March 15, 2005)

W&R Project No. 202334.01

NCDENR

North Carolina Department of Environment and Natural Resources

Dexter R. Matthews, Director | Division of Waste Management | Michael F. Easley, Governor
William G. Ross Jr., Secretary

April 14, 2005

Mr. Thomas Womble, President
Central Carolina Holdings LLC
d/b/a Central Carolina Tire Disposal
1616 McKoy Town Road
Cameron, North Carolina 28326

Re: Permit No. 43-04
Central Carolina Tire Monofill
Amendment #5: PERMIT TO CONSTRUCT PHASE III - CELL 3A

Dear Mr. Womble:

The enclosed renewed Permit to Construct for the referenced facility is approved in accordance with G.S. 130A-294, subject to the Conditions of Permit. This permit is for the construction of Phase III - Cell 3A consistent with the approved plans in the CENTRAL CAROLINA TIRE PHASE III SCRAP TIRE MONOFILL LANDFILL application document dated 22 October 2004, revised version dated 15 March 2005 by Withers & Ravenel. This Permit to Construct is for Cell 3A only and related infrastructure for Cell 3A operation. Upon construction completion of Cell 3A; the project engineer shall provide a certification that Phase III/Cell 3A was construct in accordance with the approved plans in the referenced document and shall submit the certification prior to receiving a Permit to Operate.

On July 9, 1991, House Bill 1109 added a new section to the N.C. Solid Waste Management Act, 130A-309.09D, defining the responsibilities of owners and operators of privately-owned municipal solid waste management facilities. Specifically, owners/operators of such facilities shall operate the facility in a manner consistent with the State Solid Waste Management Plan and the solid waste management plans that have been adopted by those units of local government served by the facility and approved by the Department. The Solid Waste Section is currently developing rules to implement the provisions contained in HB 1109, including the applicability of these plans to the operation of a privately-owned facility. Following adoption of the forthcoming rules, modifications, if applicable, may be required to ensure that this facility operates in accordance with the rules.

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-508-8400 \ FAX: 919-733-4810 \ Internet http://wastenotnc.org
An Equal Opportunity / Affirmative Action Employer – Printed on Dual Purpose Recycled Paper

Please note Condition No. 2 in the Conditions of Permit section. Condition No. 2 concerns recordation of the permit. This condition states that this permit shall not be effective unless the certified copy is filed in the Register of Deeds Office, in the grantor index under the name of the owner of the land in the county in which the land is located. After recordation, the certified copy shall be returned to the Solid Waste Branch and shall have indicated on it the page and book number, date or recordation, and Register's seal.

If you have any questions contact Mr. Dennis Shackelford at (910) 486-1541 or Jim Barber at (919) 508-8495.

Sincerely

Jim Barber
Permitting Branch Supervisor
Solid Waste Section
Division of Waste Management

cc: Jim Coffey
John Crowder
Dennis Shackelford
Central File - Harnett - Permit file - 43-04
Withers & Ravenel: Vance Moore

NCDENR

North Carolina Department of Environment and Natural Resources

Dexter R. Matthews, Director **Division of Waste Management** **Michael F. Easley, Governor**
William G. Ross Jr., Secretary

PERMIT NUMBER: 43-04
DATE ISSUED: 03/16/92
DATE AMENDED #4(pto/cell 2): 07/30/02
DATE AMENDED #5(ptc/cell 3A):04/14/05

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT
1646 MAIL SERVICE CENTER; RALEIGH, N.C. 27699-1646

SOLID WASTE PERMIT

CENTRAL CAROLINA HOLDINGS, LLC (OWNER)
d/b/a CENTRAL CAROLINA TIRE DISPOSAL

is hereby issued a
PERMIT TO CONSTRUCT
PHASE III - CELL 3A
of a Tire Monofill - Landfill Facility

located on dead-end S.R. 1105, 1616 McKoy Town Road, Cameron, Harnett County, North Carolina in accordance with Article 9, Chapter 130A, of the General Statutes of North Carolina and all rules promulgated thereunder and subject to the conditions set forth in this permit. The facility is located and described by the legal description of the site in the deed recorded in **BOOK: 1434 AND PAGES: 0541 - .0542** and said site is further defined by **plat map recorded in Harnett County Courthouse as MAP NO. 2000-415.**

James C. Coffey

James C. Coffey
Section Chief
Solid Waste Section
Division of Waste Management

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-508-8400 \ FAX: 919-733-4810 \ Internet http://wastenotnc.org
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200012071

HARNETT COUNTY NC 08/18/2000
$6000.00

STATE OF NORTH CAROLINA Real Estate Excise Tax

Excise Tax $

HARNETT COUNTY NC
Book 1434
Pages 0541-0542
FILED 2 PAGE(S)
08/18/2000 9:59 AM
KIMBERLY S. HARGROVE
Register Of Deeds

Recording Time, Book and Page

Tax Lot No. _____ Parcel Identifier No.: out of 0995550035 01
Verified by _____ County on the _____ day of _____, 2000
by _____

Mail after recording to **Chicago Title Insurance Company, One Exchange Plaza, Suite 707, Raleigh, NC 27601, Attention: Deborah Hester**
This instrument was prepared by **Bain & McRae, Attorney, P.O. Box 99, Lillington, NC 27546**

Brief Description for the index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 9th day of August, 2000 by and between

GRANTOR	GRANTEE
Diane Thomas Womble and husband, **Thomas A. Womble** **1616 McKoy Town Road** **Cameron, NC 28326**	**Central Carolina Holdings LLC** **1616 McKoy Town Road** **Cameron, NC 28326**

HARNETT COUNTY TAX ID # out of 0995550035-01
8/17/00 BY [illegible]

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g., corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, in consideration for Three Million Dollars ($3,000,000) paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in Johnsonville Township, Harnett County, North Carolina and more particularly described as follows:

All of Tract 1, containing 255.46 acres, more or less, and designated Tract No. 1 on that certain plat of survey prepared by Bennett Surveys, Inc., dated June 19, 2000 and which appears of record at Map No. 2000-397, as revised by that certain plat of survey prepared by Bennett Surveys, Inc., dated June 29, 2000 in the office of the Harnett County Register of Deeds. Reference to said plats is hereby made for a greater certainty of description.

This is a portion of the 300-acre tract of land conveyed to Diane T. Womble and which appears of record in Deed Book 923, Page 651, Harnett County Registry.

The property hereinabove described was acquired by Grantor by instrument recorded in **Book 923, Page 651, Harnett County Registry.**

A map showing the above-described property is recorded at **Map No. 2000-415, Harnett County Registry.** 541

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

PI - 570420.1

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.

Title to the property hereinabove described is subject to the following exceptions:

Subject to roadway and utility easements appearing of record.

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

_____ (Corporate Name)

By: _____

_____ President

ATTEST:

_____

_____ Secretary (Corporate Seal)

Diane T. Womble _____ (SEAL)
Diane T. Womble

Thomas A. Womble _____ (SEAL)
Thomas A. Womble

_____ (SEAL)

HARNETT COUNTY, NORTH CAROLINA
FILED DATE 8-18-2000 TIME 9:59 AM (SEAL)
BOOK 1434 PAGE 541-542
REGISTER OF DEEDS
KIMBERLY S. HARGROVE

SEAL-STAMP NORTH CAROLINA, Harnett County.
I, a Notary Public of the County and State aforesaid, certify that Diane T. Womble and husband, Thomas A. Womble, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 7 day of August, 2000.

BETTY L. JOHNSON
NOTARY PUBLIC
HARNETT COUNTY, NC
My Commission Expires

My commission expires: 12/3/2003 _____
Notary Public

SEAL-STAMP NORTH CAROLINA, Harnett County.
I, a Notary Public of the County and State aforesaid, certify that _____ personally came before me this day and acknowledged that he/she is ___ Secretary of _____, a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ____ President, sealed with its corporate seal and attested by him/her as its ____ Secretary. Witness my hand and official stamp or seal, this _____ day of _____, 2000.

My commission expires: / / _____
Notary Public

The foregoing Certificate(s) of Betty L. Johnson Notary of Harnett County is/are certified to be correct. This instrument and this certificate are duly registered at the date and in the Book and Page shown on the first page hereof.

542

Kimberly S. Hargrove REGISTER OF DEEDS FOR Harnett COUNTY

By Elmira McLean (Deputy)/~~Assistant~~-Register of Deeds.

SOLID WASTE PERMIT

CONDITIONS OF PERMIT:

1. This permit will be subject to review every five years as per 15A NCAC 13B .0201(c), according to the issuance date of the most recent permit to operate, on or before 21 AUGUST 2006. This permit is for the continued operation of Phase 1 area and Phase II area, along with the construction of PHASE III - CELL 3A.

2. This permit shall not be effective unless the certified copy is filed in the Register of Deeds Office, in the grantor index under the name of the owner of the land in the county in which the land is located. After recordation, the certified copy shall be returned to the Solid Waste Branch and shall have indicated on it the page and book number, date of recordation, and Register's seal.

3. When this property is sold, leased, conveyed or transferred, the deed or other instrument of transfer shall contain in the description section in no smaller type than that used in the body of the deed or instrument a statement that the property has been used as a sanitary landfill.

4. This solid waste disposal site is permitted to receive scrap tires only. The service area for this facility shall be consistent with the franchise issued by the Harnett County Board of Commissioners dated 5 August 2002 for the following area: the State of North Carolina. The disposal capacity for existing PHASE II and proposed PHASE III - CELL 3A is approximately 653,760 cubic yards or approximately 261,504 tons (page 1-5, section 1.4.2.2 5 - Year Phases), consistent with the contours shown on Sheet No. 4 (Phase 3B Base Grades and Phase 3A Tire Fill Grades) and Sheet No. 9 (LANDFILL SECTIONS) in the construction application. This capacity is based calculations in the proposed construction plan, with a maximum variance in accordance with GS 130A-294(b1)(1).

5. This permit is not transferable.

6. All future necessary maintenance and closure activity shall be the responsibility of CENTRAL CAROLINA HOLDINGS, LLC the permittee. Necessary maintenance will be specified in the closure letter at the time of closure.

7. Out-of-state tire disposal is subject to the requirements of 15A NCAC 13B .0108(a)(1) and .1108(c).

CONSTRUCTION AND OPERATION PLANS

8. This permit is for operation, according to the plans dated 1 March 1996 and plan sheet 1 of 1 dated 13 March 2001, for Phase I & II and is subject to the following conditions:

a. Operation is approved for Phase I & II.
b. The facility can operate as shown of sheets C3.2, C3.3 and C3.4, of the approved plans dated 1 March 1996 and approved 20 March 1996.
c. A closure and post-closure plan must be submitted to the Solid Waste Section for approval at least 90 days prior to closure or partial closure.
d. Final cover for the landfill shall be approved in the closure plan and, and at a minimum, shall utilize the least permeable soils to minimize surface water infiltration and maintenance.

Also, this permit is for the construction of the PHASE III - CELL 3A landfill unit in accordance with Sheet No. 3 (PHASE 3A SITE GRADING AND EROSION & SEDIMENTATION CONTROL PLAN, dated 15 March 2005). Prior to placing waste in areas of PHASE III - CELL 3A, consistent with the above mentioned drawing, certification that PHASE III - CELL 3A has been constructed and graded in accordance with the approved plans will be required. Additional conditions and revisions of the approved plans shall be approved by the North Carolina Solid Waste Branch.

9. The following requirements shall be met prior to receiving scrap tires at the site in the completed PHASE III - CELL 3A area:

a. Site preparation shall be in accordance with the construction plan and the conditions specified herein and construction of the remaining undisturbed footprint of PHASE III - CELL 3A shall be certified by the Design Engineer to be constructed in accordance with the approved plans and certification submitted to the Solid Waste Section.
b. Site inspection shall be made by a representative of DENR.
c. All monitoring wells required for PHASE III - CELL 3A shall be installed and sampled prior to waste being accepted.
d. For each monitoring well installed, a well construction record shall be submitted along with the soil boring log for the well location.
e. Piezometer abandonedment records shall be submitted with the information required in condition 9(d).
f. A revised groundwater and surface water monitoring plan shall be submitted, in accordance with NCAC 13B .0600, for PHASE III - CELL 3A. With the revised monitoring plan, provide a site as-built drawing indicating all monitoring wells and surface water locations being samples. Also indicate the wells and piezometers that are being used for groundwater elevation monitoring only.

10. This facility shall conform to all operating procedures described in the approved plan, in accordance with Section .1108 of 15A NCAC 13B and as specified herein.

a. Tires shall be chopped or split, restricted to the smallest area feasible and compacted as densely as practical into cells.

b. Tires shall be covered twice per week with at least 6" of suitable cover or more frequently if necessary to prevent a public health nuisance or fire hazard. Areas which are inactive for 3 months or more shall be covered with a minimum of 12" of suitable cover. After six months of final termination of disposal activities or a major part thereof, a minimum of 24" of suitable compacted earth shall be provided.
c. Adequate erosion control measures shall be practiced to minimize on-site erosion and prevent off-site siltation.
d. Within six months after final termination of disposal operations at the site or a major part thereof or upon revocation of a permit, the area shall be stabilized with native grasses.
e. Temporary seeding will be utilized as necessary to stabilize the site.
f. Surface water shall be diverted from operational areas and not allowed to impound over waste. All slopes shall be graded to promote run-off and minimize erosion.
g. A minimum separation distance of 4 feet between sliced/shredded tires and the seasonal high ground water table shall be maintained in accordance with the approved plan for PHASE III - CELL 3A. Tires shall not be disposed of in water.
h. Burning of tires is prohibited.
i. Equipment shall be maintained on-site to control fires.
j. Fires that occur at the tire monofill shall be reported to the Division within 24 hours and a written notification shall be submitted within 15 days.
k. All pertinent tire monofill operating personnel shall receive training and supervision necessary to properly operate this monofill.
l. The site shall be adequately secured by means of gates, chains, berms, fences, and other security measures approved by the Division to prevent unauthorized entry. A trained operator shall be on duty at all times while the facility is open to ensure compliance with operational requirements.
m. Adequate measures must be taken to minimize dust problems, control noise, and to operate in such a manner as not to create a nuisance or a potential public health hazard.

11. A closure and post-closure plan shall be submitted for approval upon commencement of the final lift. The plan must include all steps and measures necessary to close and maintain the facility in accordance with all rules in effect at that time. Final cover for the tire monofill shall be approved in the closure plan and, at a minimum, shall utilize the least permeable soils to minimize surface water infiltration and maintenance. These soils should be stockpiled at an approved location for later application as final cover. This plan shall also include existing contours, proposed final contours, estimated date of closure, and maintenance requirements.

12. All sedimentation/erosion control activities will be conducted in accordance with the Sedimentation Control Act (15A NCAC 4). See attached letter dated 17 February 2005 (Attachment 1) for the approval from the Land Quality Section. Modifications as listed shall be incorporated into the plan.

MONITORING AND REPORTING REQUIREMENTS

13. Groundwater monitoring wells and monitoring requirements

a. Monitoring well design and construction shall conform to the specifications outlined in "North Carolina Water Quality Monitoring Guidance Document for Solid Waste Facilities.

b. For PHASE III - CELL 3A, the following groundwater monitoring wells will be installed and included in the monitoring plan:
   i. WRB-20 converted to MW-17;
   ii. MW-16 (to be located midway between WRB-1 and WRB-2)
   iii. MW-18 (to be located approximately 50'-70' northwest of WRB-7)
   iv. MW-10 (background)
   v. MW-11, MW-16, MW-17, MW-18
   vi. MW-12 (water level measurement only)
   vii. MW-13 (water level measurement only)
   viii. MW-21 (water level measurement only)
   ix. WRB-8S/8D (water level measurement only)

c. For each monitoring well constructed, a well completion record shall be submitted to DWM with the revised groundwater and surface water monitoring plans in accordance with NCAC 13B .0600 for PHASE III - CELL 3A.

d. Groundwater monitoring wells shall be constructed and sampled prior to the acceptance of tires at the facility.

e. Sampling equipment, parameters, and procedures shall conform to specifications outlined in "North Carolina Water Quality Monitoring Guidance Document for Solid Waste Facilities" or the current guidelines established by DWM at the time of sampling.

f. The permittee shall sample the monitoring wells and surface water locations semi-annually.

g. A readily accessible unobstructed path shall be initially cleared and maintained so that four-wheel drive vehicles may access the monitoring wells at all times.

h. If necessary, the monitoring plan shall be modified as required by the Solid Waste Section Hydrogeologist.

i. Monitoring for PHASE III - CELL 3A shall be in accordance with the Design Hydrogeologic Report dated 22 October 2004, revised 15 March 2005.

j. Wells and piezometers shall be abandoned in accordance with "Well Construction Standards" NCAC 2C, section .0113, **<u>except those wells/piezometers located within a landfill footprint shall be overdrilled and grouted to the proposed subgrade elevation</u>**. The following wells/piezmeters are to be abandoned:
   i. WRB-4S/4D
   ii. WRB-5
   iii. WRB-7
   iv. WRB-17
   v. WRB-19

14. Downstream surface water monitoring location, SW-1, shall be located as illustrated in the approved plan, as shown on Figure No. 6 in Design Hydrogeologic Report dated 22 October 2004. Sampling equipment, parameters, and procedures shall conform to specifications outlined in "North Carolina Water Quality Monitoring Guidance Document for Solid Waste Facilities." Sampling frequency shall be semi-annually, as stated in Condition 13(f) of this section.

15. The permittee shall maintain a record of all monitoring events and analytical data. The permittee shall submit analytical data for sampling events to the Division of Solid Waste Management. Data for all sampling events shall also be maintained on site.

16. The permittee shall maintain a record of the amount of scrap tires received at the facility, compiled on a monthly basis. Landfill scales shall be used to determine the amount of waste received.

MONITORING AND REPORTING REQUIREMENTS

17. On or before 1 August 2005 (or at an earlier date as requested by the Division of Solid Waste Management), and each year thereafter, the permittee shall report the amount of scrap tires (in tons) received at this facility and disposed of in the landfills to the Solid Waste Section on forms prescribed by the Section and to Harnett County. This report shall include the following information:

    a. The reporting period shall be for the previous year, beginning July 1 and ending June 30;
    b. The amount of waste received and landfilled in tons compiled on a monthly basis, according to Condition 16.

18. All records shall be maintained on-site and made available to the DWM upon request.

19. Section .1102(b)(2) requires an annual fee of $250.00 be paid to the Solid Waste Section; Division of Waste Management on or before July 1 of each year for a scrap tire disposal site. Please mail payment to:

    Mr. Ethan Brown
    1646 Mail Service Center
    Raleigh, N.C. 27699-1646.
    (919) 508-8496

LIST OF ATTACHMENTS AND DOCUMENTS

Attachments
PHASE I APPLICATION:

1. Soil Erosion and Sediment Control Plan Approval
2. Groundwater Monitoring System Evaluation
3. Local Government Approval
4. Property Owner Affidavit Acknowledging Legal Obligations
5. N.C. Natural Heritage Program Biological Assessment Evaluation
6. N.C. Department of Cultural Resources Archaeological Assessment Evaluation
7. County of Harnett Conditional Use Permit
8. (a)Photocopy of Deed: Book 942, pages 505 - 506
8. (b)Photocopy of Deed: Book 923, pages 651 - 652

PHASE II APPLICATION:

9. Land Use Permit(2 Pages) dated 6 December 1995.
10. Coordinates and Elevations for two site control points, letter dated 2 May 1995.
11. 401 Water Quality Certification, letter dated 25 March 1995.
12. ACTION I.D. #1995022781 and Nationwide Permit #26, letter dated 26 June 1995.
13. Letter dated 31 July 1995 from Solid Waste Section Hydrogeologist.
14. Letter dated 20 September 1996 from Richard R. Rust, addressing the construction of segment 1 of Phase II.

Documents
PHASE I APPLICATION:

1. Construction Plans: Sheets 1 - 10
2. Survey Map of Tract 1 and Tract 2
3. Aerial Photograph Showing Surrounding Features Within ¼ mile of the site
4. On-Site Operations Manual
5. Geotechnical Report
6. Archaeological Survey
7. Biological Assessment

PHASE II APPLICATION:

8. Hydrogeologic Investigation and Groundwater Monitoring Plan for Permit Modification, dated 18 July 1995, and accompanying plan sheet 1 of 1 dated 12 June 1995.

PHASE II APPLICATION CONT.:

9. Application letter for modification to Tire Monofill Permit 43-04 dated 28 November 1995.
10. Wetland survey map dated January 1995.
11. Central Carolina Tire Monofill Phase II drawings C0.1 thru C8.1.
12. Request and authorization to relocate the upgradient monitoring well, MW-1, with a new well, MW-9, by letter dated 2 April 2001 from Bobby Lutfy.
13. Permit Renewal submittal dated 27 March 2001, with calculations and as-built conditions as of year 2001.
14. Letters dated 29 August 2001, 9 November 2001, 20 March 2002, 26 July 2002 and phase drawing dated 26 July 2002 that address the areas excavated in Phase II that are prepared consistent with the approved plans and ready to receive tire shreds.

PHASE III APPLICATION:

1. Site Suitability application for PHASE III: Central Carolina Tire Phase III Scrap Tire Monofill Landfill - Site Application - prepared for Central Carolina Holdings, LLC; 1616 McKoy Town Road;Cameron, North Carolina 28326 dated 9 February 2004, received 23 February 2004. W&R project No. 202334.01.

2.. Application for CENTRAL CAROLINA TIRE PHASE III SCRAP TIRE MONOFILL LANDFILL for Permit 43-04 dated 22 October 2004, revised 15 March 2005, application for a Permit to Construct Phase III - Cell 3A.

WITHERS & RAVENEL

ENGINEERS | PLANNERS | SURVEYORS

MEMORANDUM

TO: Ellen Lorscheider

FROM: Brian Bellis, P.G. SB for BB

DATE: April 14, 2005

PROJECT: Central Carolina Tire Phase 3 Scrap Tire Monofill Landfill

SUBJECT: Phase 3A Water Monitoring items

As we discussed this morning, please find the following summary of the wells/piezometers to be monitored, installed and abandoned in association with Phase 3A landfill development:

2

Wells/Piezometers to be Abandoned:

WRB-4S/4D
WRB-5
WRB-7
WRB-17
WRB-19

Wells in proposed landfill footprints shall be overdrilled before grouting.

Piezometers to be Converted to Groundwater Monitoring Wells:

WRB-20 converted to MW-17

New Groundwater Monitoring Wells to be Installed:

MW-16 (to be located midway between WRB-1 and WRB-2)
MW-18 (to be located approximately 50-70 feet northwest of WRB-7)

1

Wells to be Monitored:

MW-10 (background)
MW-11
MW-16
MW-17
MW-18
MW-12 (water level only)
MW-13 (water level only)
MW-21 (water level only)
WRB-8S/8D (water level only)

FIG. SHEET

If you have any questions or require additional information, please give me a call.

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Land Resources
Land Quality Section

James D. Simons, PG, PE
Director and State Geologist

Michael F. Easley, Governor
William G. Ross Jr., Secretary

February 17, 2005

RECEIVED
FEB 22 2005
WITHERS & RAVENEL

LETTER OF APPROVAL WITH MODIFICATIONS

Thomas Womble
Central Carolina Holdings, LLC
1616 McKoy Town Road
Cameron, NC 28326

RE: Project Name: Central Carolina Tire-Ph 3 Tire Monofill Landfill Acres Approved: 63
Project ID: Harne-2005-022
County: Harnett 1616 McKoy Town Rd
River Basin: Cape Fear Stream Classification: Other
Submitted By: Withers & Ravenel
Date Received by LQS: 1/19/2005
Plan Type: New

Dear Thomas Womble:

This office has reviewed the subject erosion and sedimentation control plan. We find the plan to be acceptable with modifications and hereby issue this letter of Approval With Modifications. The Modifications Required for Approval are listed on the attached page. This plan approval shall expire three (3) years following the date of approval, if no land-disturbing activity has been undertaken, as is required by Title 15A NCAC 4B .0129.

Please be advised that Title 15A NCAC 4B .0118(a) requires that a copy of the approved erosion control plan be on file at the job site. Also, you should consider this letter to give the Notice required by G.S. 113A-61.1(a) of our right of periodic inspection to insure compliance with the approved plan.

North Carolina's Sedimentation Pollution Control Program is performance-oriented, requiring protection of existing natural resources and adjoining properties. If, following the commencement of this project, it is determined that the erosion and sedimentation control plan is inadequate to meet the requirements of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statute 113A-51 through 66), this office may require revisions to the plan and implementation of the revisions to insure compliance with the Act.

Acceptance and approval of this plan is conditioned upon your compliance with Federal and State water quality laws, regulations, and rules. In addition, local city or county ordinances or rules may also apply to this land-disturbing activity. This approval does not supersede any other permit or approval.

Please be aware that your project will be covered by the enclosed NPDES General Stormwater Permit NCGO1000 (Construction Activities). You should first become familiar with all of the requirements for compliance with the enclosed general permit.

Please note that this approval is based in part on the accuracy of the information provided in the Financial Responsibility Form, which you have provided. You are requested to file an amended form if there is any change in the information included on the form. In addition, it would be helpful if you notify this office of the proposed starting date for this project. Please notify us if you plan to have a preconstruction conference.

Your cooperation is appreciated.

Sincerely,

Steve Cook

Steve Cook, C.P.E.S.C
Land Quality Section

Enclosures: Certificate of Approval
Modifications Required for Approval
NPDES Permit

Cc: Withers & Ravenel
Linwood McDonald, Building Inspector
Paul Rawls, Division of Water Quality
Land Quality Section

MODIFICATIONS REQUIRED FOR APPROVAL

Project Name: Central Carolina Tire-Ph 3 Tire Monofill Landfill
Project ID: Harne-2005-022
County: Harnett

1. Diversion ditches should discharge into the Temporary Sediment Traps as far away as possible from the trap outlets to avoid short-circuiting the traps.

Prepared by Dwight W. Snow, Attorney at Law, P.O. Box 397, Dunn NC 28335

STATE OF NORTH CAROLINA

COUNTY OF HARNETT

FRANCHISE AGREEMENT
CENTRAL CAROLINA TIRE DISPOSAL

This Franchise Agreement ("Agreement") is made and entered into as of the 5TH day of August, 2002 by and between Harnett County, a body corporate and politic existing under the laws of the State of North Carolina ("County") and Central Carolina Holdings, LLC, a North Carolina limited liability company d/b/a Central Carolina Tire Disposal (collectively "CCTD").

WHEREAS, the Division of Solid Waste Management of the State of North Carolina Department of Environment, Health, and Natural Resources issued CCTD a Solid Waste Permit (#43-04) for the operation of a tire landfill facility on March 16, 1992 (as amended February 20, 1996, September 26, 1996 and August 21, 2001) and a Solid Waste Permit (#43-08) for the operation of a scrap tire collection and processing facility site on February 18, 1993 (as amended January 4, 1995, March 7, 1995, February 17, 2000, August 24, 2000 and August 21, 2001); and

WHEREAS, pursuant to such Permits CCTD has vested rights to operate a tire landfill facility and scrap tire collection and processing facility sited at the end of dead-end SR 1105 in Harnett County, North Carolina (the "Facility") and is currently operating such Facility; and

WHEREAS, CCTD is required to obtain a franchise to operate the Facility from the County and the County wishes to grant CCTD such franchise.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, County and CCTD, intending to be legally bound hereby, agree as follows:

1. Grant of Franchise. Pursuant to N.C.G.S. 130A-294, County hereby grants CCTD a non-exclusive franchise to operate the Facility at its current location, as the same may be expanded from time to time pursuant to permits issued by the State of North Carolina.

2. Term of Franchise. The franchise granted hereunder shall have an initial term of twenty (20) years.

3. Waste Stream. The waste stream that may be accepted by the Facility shall be comprised of waste or debris resulting from rubber vehicle tires. The annual tonnage accepted shall not exceed 300,000.

4.a. Facility Life. The useful life of the existing landfill and proposed expansion to this landfill, consisting of a total footprint of 240 acres, will have a remaining life of 60 years, based on assumed growth to the above annual tonnage from the service area specified below translating to annual landfill volume consumption of approximately 727,000 cubic yards per year.

4.b. Service Area. The population to be served by the Facility shall consist of commercial, industrial, corporate, and individual users of rubber tires primarily from North Carolina's 8,049,000 residents (2000 Census). However, the Facility shall be available to users from South Carolina, Virginia, West Virginia, Georgia, and Tennessee as well.

5. Compliance with Law. CCTD shall operate the Facility in accordance with all applicable laws and regulations including any Harnett County land use regulations ,and shall further comply in all material respects with any Permit issued by the State of North Carolina.

6. Assignability. The franchise granted hereunder shall not be assigned without the prior written authorization from the County.

IN WITNESS WHEREOF, County and CCTD have executed this Franchise Agreement as of the day and year first written.

CENTRAL CAROLINA HOLDINGS, LLC

By: Thomas Womble
Name: Thomas Womble
Title: Manager

BOARD OF COMMISSIONERS
FOR THE COUNTY OF HARNETT

By: Teddy J. Byrd
Name: Teddy J. Byrd
Title: Chairman

ATTEST:

Kay S. Blanchard
Kay S. Blanchard
Clerk to the Board of Commissioners

WITHERS & RAVENEL

ENGINEERS | PLANNERS | SURVEYORS

March 15, 2005

Received
MAR 2005
Solid Waste
Section

Mr. Jim Barber
Branch Head
NCDENR Division of Waste Management
Solid Waste Section
401 Oberlin Road, Suite 150
Raleigh, NC 27605

Dear Mr. Barber:

On behalf of Central Carolina Tire (CCT), Withers & Ravenel, Inc. is pleased to submit five (5) copies of a revised Construction Permit Application for the Central Carolina Tire Phase III Scrap Tire Monofill Landfill, dated March 2005, for your review.

As you can recall, Withers & Ravenel previously submitted a Construction Permit Application for the Central Carolina Tire Phase III Scrap Tire Monofill Landfill in October 2004. The herein submitted revised Application, dated March 2005, revises the facility filling/phasing plan (i.e., revised configuration for Phases 3A, 3B, 3C, and 3D). No changes to the previously submitted landfill base grades and final waste fill grades are proposed. Specifically, as compared to the October 2004 submitted Application, the revised March 2005 application revises the following items:

- Drawings
    - *Sheet No. 2:* Revised limits for Phases 3A, 3B, 3C, and 3D only. There are no modifications to the landfill base grades and ancillary features.
    - *Sheet Nos. 3 through 7*: Revised filling/phasing plan for Phases 3A, 3B, 3C, and 3D. There are no modifications to the landfill base grades and final overall waste fill grades.
    - *Sheet Nos. 8 and 9*: Final cover figures revised to include terrace grade contours.
- Report
    - Facility Plan (*Section 1*):
        - *Section 1.1.1 Legal Description.* An official copy of the parcel deed in included.
        - *Section 1.2 Waste Stream.* The waste projection estimate was revised to 50,000 tons per year (*Section 1.2.2*).

- *Section 1.3 Operation, Development, and Completion.* The discussion of the phases was revised to reflect the revised phase acreages.
- *Section 1.4 Landfill Capacity.* The operation life of the landfill was revised to reflect the revised annual waste projection (*Section 1.4.2*).
- *Section 1.4.2.1* and *Section 1.4.2.2* were added.
- *Table 1-1* and *Figure 1-1* were revised to reflect the revised phasing plan and revised annual waste projection.

- *Appendix C*: Stormwater calculations were revised to support the modified phasing plan.

The herein March 2005 submitted Application is intended to replace the October 2004 submitted Application in its entirety.

Central Carolina Tire and Withers & Ravenel appreciate your assistance and cooperation in this matter. If you have any questions or comments, or need any additional information during your review, please do hesitate to call.

Very truly yours,

WITHERS & RAVENEL, INC.

SB for VFM

Vance F. Moore, P.E.

cc: Thomas Womble, Central Carolina Tire

CERTIFICATION PAGE

I HEREBY CERTIFY THAT THIS APPLICATION FOR THE CENTRAL CAROLINA TIRE PAHSE III MONOFILL LANDFILL CONTAINED HEREIN WERE PREPARED BY ME OF UNDER MY DIRECT SUPERVISION UNLESS NOTED OTHERWISE BY A SIGNATURE AND SEAL FROM ANOTHER REGISTERED ENGINEER.

WITHERS & RAVENEL, INC.

SIGNED, SEALED, AND DATED THIS 15 DAY OF March 20 05

NORTH CAROLINA PROFESSIONAL SEAL 19796 ENGINEER VANCE FREDERICK MOORE

By: Vance F. Moore

Title: Engineer

WITHERS & RAVENEL

ENGINEERS · PLANNERS · SURVEYORS

CENTRAL CAROLINA TIRE
PHASE III SCRAP TIRE MONOFILL LANDFILL

CONSTRUCTION PERMIT APPLICATION

HARNETT COUNTY, NORTH CAROLINA

Prepared For:

Central Carolina Tire
1616 McKoy Town Road
Cameron, North Carolina 28326

By:

Withers & Ravenel, Inc.
111 MacKenan Drive
Cary, North Carolina 27511

October 22, 2004
(Revised March 15, 2005)

W&R Project No. 202334.01

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER VANCE FREDERICK MOORE

3-15-05

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Appendix A — **Drawings**

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Appendix C — **Engineering Calculations**

SECTION 1
FACILITY PLAN

1.1 Introduction

This Facility Plan, consisting of a Facility Report and Facility Drawings, has been prepared for the proposed Central Carolina Tire Monofill Landfill – Phase 3. This plan has been prepared to comply with the requirements set forth in the North Carolina Solid Waste Management Rules 15A NCAC 13B.0503 and .0504.

The Central Carolina Tire Facility is located in Harnett County, located in east-central North Carolina. The Central Carolina Tire facility is located approximately ten miles southeast of Cameron, North Carolina along NC 24/27. Specifically, the site is 8500 feet South of the intersection of NC Highway 24/27 and NC Highway 1105 (McKoy Town Road) on McKoy Town Road and approximately 1 mile northeast of Lake Surf.

The proposed 42.8-acre Phase 3 Tire Monofill Landfill will be located adjacent to and generally north of the existing Central Carolina Tire Phases I/II Monofill Landfill (NC DENR Solid Waste Management landfill permit # 43-04), and generally south of the existing Scrap Tire Collection and Processing Facility (NC DENR Solid Waste Management landfill permit # 43-08 TP).

The existing Scrap Tire Collection and Processing Facility (NC DENR Solid Waste Management landfill permit # 43-08 TP) is located north of the proposed Phase 3 monofill. The approximate 26-acre collection and processing site is permitted to store, prior to processing, not more than 23,076 tires. A minimum of 75% of tire-derived products must be disposed in Central Carolina Tire Disposal's tire monofill or shipped off-site on an annual basis. Permit # 43-08 TP currently allows for tire collection and processing operations at the site and is subject to review every three years, on or before August 21, 2006.

The existing Central Carolina Tire Monofill (permit # 43-04) is located south of the proposed Phase 3 monofill and began disposal operations in 1992 (Phase I). Central Carolina Tire obtained a modification to Permit # 43-04 in February 1996. This modification, referred to as Phase II, allowed Central Carolina Tire to expand and place tires in the remaining 30.2-acres of the 40.7-acre site described in the original permit application. Central Carolina Tire currently operates within the approved Phase II area. Permit # 43-04 currently allows for the ongoing filling operations in Phase II and is subject to review every five years, on or before August 21, 2006.

The existing topography at the proposed site varies in elevation from 300 feet M.S.L. in the southeastern area to 360 feet M.S.L. in the northwestern area. On-site surface drainage travels primarily in a southeast direction, and ultimately discharges into the Cape Fear. There is one perennial or intermittent stream located on-site or within 500 feet of the property boundaries. This stream is located approximately 800 feet to the east of the proposed site.

1.1.1 Legal Description – 15A NCAC 13B .0504(2)(h)(i)

The tire monofill landfill facility property is part of a larger parcel of land that has been previously zoned industrial by Harnett County. Land Use for waste disposal has been issued for the by Harnett County Central Planning. A copy of the boundary survey and deed for the complete parcel of land is in Attachment 1.1.

1.1.2 Person responsible for operation and Maintenance of Construction and Demolition (C&D) Landfill – 15A NCAC 13B .0504(2)(h)(ii)

Mr. Thomas Womble
Chief Operating Officer
Central Carolina Tire
1616 McKoy Town Rd
Cameron, North Carolina 28326
Phone (919)-499-2301

1.1.3 Projected Land Use – 15A NCAC 13B .0504(2)(h)(iii)

Upon completion of the tire monofill landfilling operations, the landfill will be closed in accordance with the appropriate North Carolina Solid Waste Management Rules. The facility will be gated and access will be restricted. No other use for the property is planned at this time.

1.2 Waste Stream – 15A NCAC 13B .0504(1)(g)

Only scrap tire waste will be disposed in the facility.

1.2.1 Population and Areas Served by Facility – 15A NCAC 13B .0504(1)(g)(ii)

The population to be served by the Facility shall consist of commercial, industrial, corporate, and individual users of rubber tires primarily from North Carolina's 8,049,000 residents (2000 census). However, the Facility shall be available to users from South Carolina, Virginia, West Virginia, Georgia, and Tennessee as well.

Disposal of out-of-state tires shall be subject to the requirements of 15A NCAC 13B .0108 (*OUT-OF-STATE WASTE IN SANITARY LANDFILLS*) and all other North Carolina Solid Waste Management Rules in effect at the time of the request.

1.2.2 Type, Quality, and Source of Waste – 15A NCAC 13B .0504(1)(g)(ii)

Based on waste projection estimates provided by Central Care Tire, it is estimated that approximately 50,000 tons per year of scrap tire waste will

be received at the facility under normal conditions. Only scrap tire waste debris will be disposed of in the facility.

1.2.3 Equipment Requirements – 15A NCAC 13B .0504(1)(g)(iii)

All equipment previously used at the existing Central Carolina Tire Monofill Landfill – Phase I/II is in good working condition and will continue to be used at the proposed Phase 3 facility. The equipment is owned by Central Carolina Tire and includes the following:

- 1 – CAT 826C Compactor
- 1 – Cat® D-7 bulldozer
- 1 – Terex pan/scraper
- 1 – Kobelco trackhoe

1.3 Operation, Development, and Completion – 15A NCAC 13B .0504(2)(h)(v)

The Phase 3 disposal unit constitutes an approximate 42.8 ACRE footprint. The Phase 3 is planned to be developed in 4 construction phases, Phases 3A (11.68 acres), 3B (8.34 acres), 3C (9.01 acres), and 3D (13.82 acres). Initial development for the facility shall be comprised of Phase 3A and the supporting infrastructure and appurtenances (access roads, ditches, temporary and permanent erosion control devices). Sheet No. 2 of the drawings provides base grading for the entire 42.8-acre Phase 3 area. Sheets Nos. 3 through 7 provides plans for the facility's development from initial Phase 3A construction through final grading in Phase 3D.

Excavated material resulting from the construction of the Phase 3 area may be stockpiled in within the Phase 3 footprint (future construction phases – 3B, 3C, or 3D, as appropriate)) or in other areas of the site for use as daily and intermediate cover in the operation of the landfill. Upon completion of the access road, sediment pond and Phase 3 phases, the operator of the Central Carolina Tire facility will begin scrap tire filling operations. Scrap tire debris will be brought to the fill area from the Tire Processing Facility located north of the landfill via the access road and deposited on the working face. The waste will be compacted with a steel-wheeled compactor making a minimum of four passes. not 3B

As shown on the site development figures (Sheet Nos. 3-7), an intermediate cover consisting of a minimum of 12 inches of suitable cover shall applied to areas that are inactive for 3 months or more. After six months of final termination of disposal activities or a major part thereof, a minimum of 24 inches of suitable compacted earth shall be provided overlying the disposed waste.

1.4 Landfill Capacity

1.4.1 Earthwork Calculations – 15A NCAC 13B .5-4(2)(h)(vi)

1.4.1.1 Total Airspace

Terramodel software was used to estimate the total airspace between the base (excavation) grades and the top of the proposed final cover grades. The total computed airspace is 4,177,606 cubic yards (CY).

1.4.1.2 Final Cover Soil Required

The final cover material volume required to construct the 2-foot thick cover system for the Phase 3 Tire Monofill Landfill (42.8 acre total surface area) is 138,263 CY.

1.4.1.3 Daily and Intermediate Cover Soil Required

It is anticipated that an 8:1 waste to cover ratio will be achieved. Daily and intermediate cover required is computed to be (4,177,606 – 138,263) CY / 9 = 448,816 CY.

1.4.1.4 Available Net Airspace for Scrap Tire Disposal

Net airspace for disposal of scrap tire debris is computed to be 4,177,606 CY – 138,263 CY – 448,816 CY = 3,590,528 CY.

A summary of the above quantities, inclusive of the estimations for each individual phase of landfill development, is presented in Table 1-1.

1.4.2 Tire Monofill Landfill Operation Life – 15A NCAC 13B .0504(2)(h)(iv)

Available airspace for scrap tire debris = 3,590,528 CY.

As presented on Table 1-1 at the end of the section, the expected life of the Central Carolina Tire Monofill Landfill – Phase 3 is expected to be 32.3 years. Figure 1-1 provides a graphical plot for the capacity by phase for the facility.

1.4.2.1 Phase II Remaining Capacity

As presented on Table 1-1, the remaining life of the Central Carolina Tire Phase II Monofill Landfill is estimated to be 1.2 years as of January 1, 2005 (i.e., currently approximately 1.0 year of remaining capacity).

1.4.2.2 5-Year Phase(s)

As presented on Table 1-1 and Figure 1-1, Phase 3A is estimated to provide 4.0 years of disposal capacity. Therefore, as of January 1, 2005, the combination of the remaining Phase II capacity (1.2 years) and Phase 3A capacity (4.0 years) provides approximately 5 years (5.2 years) of disposal capacity as of January 1, 2005.

Based on current projections, future 5-year capacity phases are anticipated as follows:

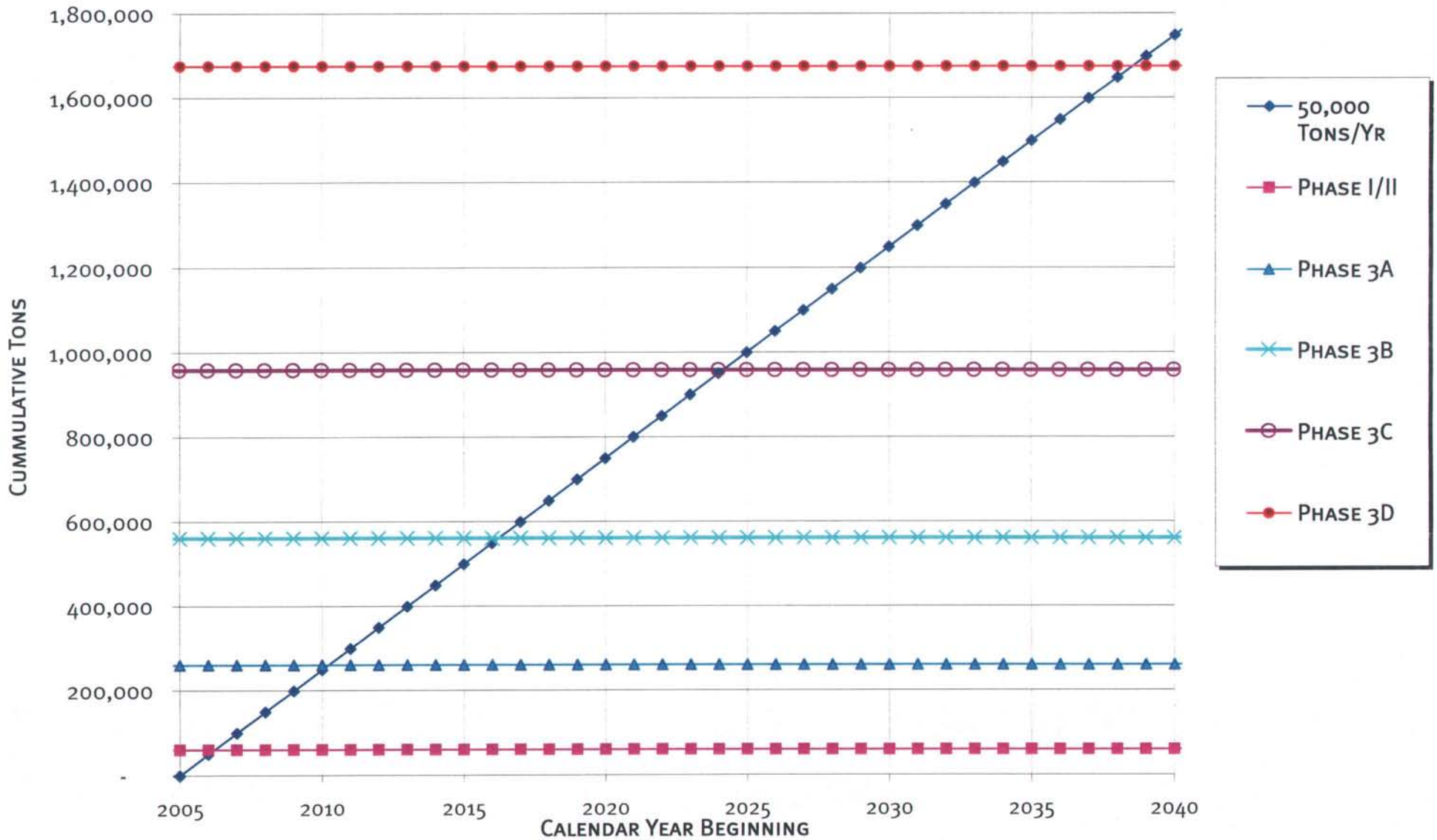
Phase	Capacity (CY)	Capacity (Tons)	Capacity (Years)
Phase II (remaining as of 1/1/05) + Phase 3A	653,760	261,504	5.2
Phase 3B to elevation 415'	624,188	249,675	5.0
Phase 3B to final + Phase 3C to elevation 395'	618,367	247,347	5.0
Phase 3C (elevation 395' to final) + Phase 3D (to elevation 359')	618,257	247,303	5.0
Phase 3D (elevation 359' to 393')	626,562	250,625	5.0
Phase 3D elevation 393' to 443.5'	623,845	249,538	5.0
Phase 3D elevation 443.5' to final	426,670	170,668	3.4

The above-estimated 5-year phases shall be reviewed, and adjusted as necessary based on actual waste volumes, as part of the required solid waste 5-year permit update.

TABLE 1-1
CAPACITY ANALYSIS
CENTRAL CAROLINA TIRE
SCRAP TIRE MONOFILL LANDFILL
HARNETT COUNTY, NORTH CAROLINA

Conceptual Layout Area	Landfill Waste Area (Acres)	Total Airspace (CY)	Soil - Construction		Soil - Operations				Airspace and Capacity				
			Subgrade Cut (CY)	Subgrade Fill (CY)	Final Cover Area (Acres)	Final Cover Soil Volume (CY)	Daily Cover (8:1) (CY)	Soil Surplus/ Deficit (CY)	Airspace For Waste + Daily Cover (CY)	Weight (Density) of Waste (Lbs/CY)	Waste Capacity (Tons)	Filling Rate (Tons/Year)	Years of Capacity (Years)
Phase II Remaining Capacity As of January 1, 2005	21.15	458,906	-	-	-	-	-		152,305	800	60,922	50,000	1.2
Phase 3A	11.68	516,426	168,882	9,369	4.64	14,972	55,717	88,824	501,455	800	200,582	50,000	4.0
Phase 3B	8.34	765,073	22,884	76,069	4.36	14,068	83,445	(150,699)	751,005	800	300,402	50,000	6.0
Phase 3C	9.01	1,019,648	37,359	13,009	8.57	27,653	110,222	(113,524)	991,996	800	396,798	50,000	7.9
Phase 3D	13.82	1,876,458	12,682	1,637	25.28	81,570	199,432	(269,958)	1,794,888	800	717,955	50,000	14.4
Total Phase 3 42.85-Acre LF Footprint	42.85	4,177,606	241,806	100,084	42.85	138,263	448,816	(445,357)	4,039,344	800	1,615,737	50,000	32.3

FIGURE 1-1
CAPACITY BY PHASE
CENTRAL CAROLINA TIRE
SCRAP TIRE MONOFILL LANDFILL



Net Balance of On-Site Soils

Terramodel software was used to estimate the earthwork cut and fill volumes associated with the construction of the access road and the Phase 3 tire monofill landfill base grades. The estimated cut and fill volumes (in-place) are:

Cut soil volume:	241,806 CY
Fill soil volume:	100,084 CY

The surplus soil will be cut soil minus full soil:

241,806 CY – 100,084 CY = 141,722 CY (Soil surplus)

The net soil balance will be the soil surplus minus the daily, intermediate, and final cover:

141,722 CY soil surplus – 448,816 CY daily and intermediate cover required – 138,263 final cover soil required = 445,357 CY soil deficit that will need to be obtained for on-site and/or off-site sources.

A summary of the above quantities is presented in Table 1-1.

1.5 Containment and Environmental Control System

The design concept of the new landfill facility is to maximize the disposal capacity of the site while providing containment of the disposed waste in order to protect the groundwater and other environmental features. The following narrative is a discussion of the compliance with design requirements in Rule 0.503(2).

1.5.1 Explosive Gases – 15A NCAC 13B .503(2)(a)

Waste received at the tire monofill landfill will be limited to scrap tire waste. Since the decomposition of scrap tire waste is relatively very slow and limited, the rate and total magnitude of the generation of explosive gases should be relatively very low.

1.5.2 Public Access – 15A NCAC 13B .0503(2)(b)

The Operations Plan describes the security measures that will be used to prevent unrestricted public access to the site.

1.5.3 Surface Water Requirements – 15A NCAC 13B .0503(2)(c)

In accordance with 15A NCAC 13B .0503(2)(c)(i), the tire monofill landfill shall not cause a discharge of pollutants into the waters of the state that is in violation of the requirements of the national Pollutant Discharge

Elimination System (NPDES), under Section 402 of the Clean Water Act, as amended.

In accordance with 15A NCAC 13B .0503(2)(c)(ii), the tire monofill landfill shall not cause a discharge of dredged material or fill material into the waters of the state that is in violation of the requirements under Section 404 of the Clean Water Act as amended.

In accordance with 15A NCAC 13B .0503(2)(c)(iii), the tire monofill landfill shall not cause non-point source pollution of waters of the state that violates assigned water quality standards.

A wetland delineation was recently performed by Central Carolina Tire's wetland consultant, the Brighman Company of Conway, South Carolina, for the entire tire monofill landfill site. Subsequent to submitting the Brighman Company's findings to the U.S. Army Corp of Engineers, the Brighman Company wetland delineation of the site was approved by the U.S. Army Corp of Engineers on March 2, 2004. A copy of the certified wetland delineation is in Attachment 1.2.

Approximately 1.96 acres of jurisdictional waters are anticipated to be disturbed for construction of the Phase 3 tire monofill landfill. Specifically, the jurisdictional waters disturbance shall be performed as part of the initial Phase 3A development for the facility. As part of Central Carolina Tire's landfill expansion permit document preparation, The Brighman Company of Conway, South Carolina has consulted with the U.S. Army Corps of Engineers and the NC Division of Water Quality (DWQ) concerning wetland permitting and proposed wetland impact issues at the site. Complete wetlands impact permitting including a U.S. Army Corp of Engineers issued Individual Permit, a Water Quality Section issued 401 Water Quality Certification, and an approved and executed mitigation plan will be prepared prior to initiating wetland filling activities.

The Central Carolina Tire disposal facility shall install erosion and sedimentation control devices in accordance with an approved Sediment and Erosion Control Plan. As part of this plan, Central Carolina Tire will construct perimeter ditches that will collect stormwater and channel it to the two sedimentation basins as shown on Sheet No. 2.

1.5.4 Groundwater Requirements – 15A NCAC 13B .05.3(2)(d)

In accordance with 15A NCAC 13B .0503(2)(d)(i), the facility shall be designed so that the bottom elevation of solid waste will be a minimum of four feet above the seasonal high water table. A detailed discussion of the seasonal high groundwater conditions can be found in the *Phase 3 Hydrogeological Report*, which was prepared by W&R, dated October

2004, and contained in its entirety in Appendix B. Based on waste fill heights presented in this Application, the maximum predicted foundation settlement for the Phase 3 facility is less than 12 inches (1.0 foot). Further discussion and engineering calculations for the predicted settlement can also be found in the *Phase 3 Hydrogeological Report* contained in Appendix B. Pre-settled base grades were designed to provide a minimum of 6 feet of vertical separation between the bottom of the landfilled waste and seasonal high groundwater elevations. Therefore, post-settled grades are predicted to provide a minimum of 5.0 feet of vertical separation between the bottom of the landfilled waste and seasonal high groundwater elevations. Sheet No. 9 provides cross-section views of the facility inclusive of the pre-settled base grades and the seasonal high groundwater elevations that demonstrates adequate separation. In addition, a drawing showing contours for the vertical separation between seasonal-high groundwater and base grades is included as Figure 1 in Appendix C.

1.5.4.1 Stabilized Water Table Elevations

A discussion of stabilized water table elevations can be found in the *Phase 3 Design Hydrogeologic Report* contained in Appendix B.

1.5.4.2 Estimated Seasonal High Water Table

A discussion of the estimated seasonal high water table can be found in the *Phase 3 Design Hydrogeologic Report* contained in Appendix B.

1.5.5 Open Burning – 15A NCAC 13B .0503(2)(e)

In accordance with 15A NCAC 13B .0503(2)(e), no open burning of solid waste will be allowed on site.

1.5.6 Buffer Requirements - 15A NCAC 13B .0503(2)(f)

In accordance with 15A NCAC 13B .0503(2)(f)(i), there is a minimum buffer of 50 feet between all property lines and disposal areas.

In accordance with 15A NCAC 13B .0503(2)(f)(ii), there is a minimum buffer of 500 feet between all private dwellings and wells and disposal areas.

In accordance with 15A NCAC 13B .0503(2)(f)(iii), there is a minimum buffer of 50 feet between streams and disposal areas.

1.5.7 Compliance with the Sedimentation Pollution Control Act of 1973 (15A NCAC 4) – 15A NCAC 13B .05.3(2)(g) and .0504(2)(h)(vii), (ix) and (x)

1.5.7.1 Temporary and Permanent Erosion Control Measures

Sedimentation and erosion control measures are shown on Sheet 2. Supporting sedimentation and erosion control engineering calculations are presented in Appendix C.

1.5.7.2 Seeding Specifications and Schedules

Temporary Seeding

Temporary seeding shall provide protection for areas that will be left undisturbed for longer than 30 days and no more than 1 year, during which time permanent stabilization should be initiated.

Grading shall be completed before preparing seedbeds and all necessary erosion control structures shall be installed such as kikes, waterways and basins. If soils become compacted during grading, loosen them to a depth of 6-8 inches, using a ripper, harrow or chisel plow.

Evenly apply seed using a cyclone seeder (broadcast), drill, cultipacker seeder, or hydroseeder. Small grains should be planted no more than 1 inch deep, and grasses and legumes no more than ½ inch. Broadcast seed must be covered by raking or chain dragging, and then lightly firmed with the roller or cultipacker.

The landfill site is located within the Sand Hills region of the Coastal Plain.

Temporary Seeding Recommendations for Late Winter and Early Spring:

Seeding Mixture Species	Rate (lb/acre)
Rye (Grain)	120
Annual Lespedeza (Kobe in Coastal Plain)	50

Omit annual lespedeza when duration of temporary cover is not to extend beyond June.

Seeding Dates

Coastal Plain: December 1 – April 15

Soil Amendments

Follow recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.

Mulch

Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting, or a much anchoring tool. A disk with blades set nearly straight can be used as a much anchoring tool.

Maintenance

Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

Temporary Seeding Recommendations for Summer:

Seeding Mixture Species	Rate (lb/acre)
German Millett	40

Seeding Dates

Coastal Plain: April 15 – August 15

Soil Amendments

Follow recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.

Mulch

Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

Maintenance

Refertilize if growth is not fully adequate. Reseed, fertilize and mulch immediately following erosion or other damage.

Temporary Seeding Recommendations for Fall:

Seeding Mixture Species	Rate (lb/acre)
Rye (Grain)	120

Seeding Dates

Coastal Plain: August 15 – December 30

Soil Amendments

Follow recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.

Mulch

Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

Maintenance

Repair and refertilize damaged areas immediately. Top dress with 50 lb/acre of nitrogen in March. If it is necessary to extend temporary cover beyond June 15, overseed with 50 lb/acre Kobe (Piedmont) lespedeza in late February or early March.

Permanent Seeding

(Seeding No. 1CP for well to poorly drained soils, low maintenance).

Areas to be stabilized with permanent vegetation must be seeded or planted within 30 working days or 120 calendar days after final grade is reached, unless temporary stabilization is applied.

Areas designated for permanent seeding shall be grassed as described below:

Seeding Mixture	Rate (lb/acre)
Tall fescue	80
Pensacola Bahiagrass	50
Sericea lespedeza	30
Kobe lespedeza	10

Seeding Notes

1. From September 1 – March 1, use unscarified sericea seed.
2. On poorly drained sites omit sericea and increase Kobe to 30 lb/acre.
3. Where a neat appearance is desired, omit sericea and increase Kobe to 40 lb/acre.

Nurse Plants

Between April 15 and August 15, add 10 lb/acre German millet or 15 lb/acre ground agricultural limestone (use the lower rate on the sandy soils) and 1,000 lb/acre 10-10-10 fertilizer.

Mulch

Apply 4,000 lb/acre grain straw or equivalent cover of another suitable mulch. Anchor straw by tacking with asphalt, netting or a mulch-anchoring tool. A disk with blades set nearly straight can be used as a mulch-anchoring tool.

Maintenance

If growth is less than full adequate, refertilize in the second year, according to soil tests or top dress with 500 lb/acre 10-10-10 fertilizer. Mow as much as needed when sericea is omitted from the mixture. Reseed, fertilize, and mulch damaged areas immediately.

Seeded Preparation (SP)

SP-1 Fill slopes 3:1 or steeper to be seeded with a hydraulic seeder (permanent seedings)

1) Leave the last 4-6 inches of fill loose and uncompacted, allowing rocks, roots, large clods and other debris to remain on the slope.
2) Roughen slop faces by making grooves 2-3 inches deep, perpendicular to the slope.
3) Spread lime evenly over slopes.

SP-2 Fill slopes 3:1 or steeper (temporary seedings)

1) Leave a loose, uncompacted surface. Remove large clods, rocks, and debris.
2) Spread lime and fertilizer evenly at the specified rates.
3) Incorporate amendments by roughening or grooving soil surface on the contour.

SP-3 High maintenance turf

1) Remove rocks and debris that could interfere with tillage and the production of a uniform seedbed.
2) Apply lime and fertilizer evenly. Incorporate to a depth of 2-4 inches with a farm disk or chisel plow.
3) Loosen the subgrade immediately prior to spreading topsoil by disking or scarifying to a depth of at least 2 inches.
4) Spread topsoil to a depth of 2-4 inches and cultipack.
5) Disk or harrow and rake to produce a uniform and well-pulverized surface.
6) Loosen surface just prior to applying seed.

SP-4 Gentle or flat slopes where topsoil is used.

1) Remove rocks and debris
2) Apply line and fertilizer, spread evenly and incorporate into a top 6' with a disk, chisel plow, or rotary tiller.

3) Break up large clods and rake into a loose, uniform seedbed.
4) Rake to loosen surface just prior to apply seed.

Seeding Methods (SM)

SM-1 Fill slopes steeper than 3:1 (permanent seeding)

Use hydraulic seeding equipment to apply seed and fertilizer, a wood fiber mulch at 90 lb/1,000 ft^2, and mulch tackifier.

SM-2 Gentle to flat slopes on temporary seedings.

1) Broadcast seed at the recommended rate with a cyclone seeder, drop spreader, or cultipacker seeder.
2) Rake seed into the soil and lightly pack to establish good contact.

Mulch (MU)

MU-1 Steep slopes (3:1 or greater)

In mid-summer, late fall or winter, apply 100 lb/1,000 ft^2 grain straw, anchor with 0.1 gal/yd^2 (11 gal/1,000 ft^2 asphalt). In spring or early fall use 10 lb/1,000 ft^2 wood fiber in a hydroseeder slurry.

MU-2 High-maintenance vegetation and temporary seedings

Apply 90 lb/1,000 ft^2 (4,000 lb/acre) grain straw and tack with 0.1 gal/yd^2 asphalt (11 gal/1,000 ft^2).

MU-3 Grass-lined channels

Install erosion control mat in the channel, line the entire channel up to the top of the bank and secure according to manufacturer's specifications. Install only when specified.

On channel shoulders, apply 100 lb/1,000 ft^2 grain straw and anchor with 0.1 gal/yd^2 (1gal/1,000 ft^2) asphalt.

Maintenance (MA)

MA-1 Refertilized in late winter or early spring the following year. Mow as desired.

MA-2 Fertilize with 40 lb/acre (1 lb/1,000 ft^2) nitrogen in winter and again the following fall.

MA-3 Inspect and repair mulch and lining. Refertilize in late winter of the following year with 150 lb/acre 10-10-10 (3.5 lb/1,000 ft^2) nitrogen in March. If cover is needed through the following summer, overseed with 50 lb/acre.

ATTACHMENT 1.1

COPY OF BOUNDARY SURVEY AND DEED

"Under Seperate Cover"

ATTACHMENT 1.2

COPY OF CERTIFIED WETLAND SURVEY

"Under Seperate Cover"

SECTION 2
OPERATION PLAN

2.0 Purpose

The purpose of this Operations Plan is to provide Central Carolina Tire Monofill Landfill Facility staff with a manual that will serve as a guide for safe and efficient operation of the new scrap tire debris disposal facility that is proposed for construction. The Operations Plan has been prepared in accordance with the North Carolina Solid Waste Rule 15A NCAC 13B .0505, Operational Requirements for Sanitary Landfills, and therefore addresses the following issues:

- Plan and Permit Requirements;
- Spreading and Compacting Requirements;
- Cover Requirements;
- Erosion Control Requirements;
- Drainage Control Requirements;
- Vegetation Requirements;
- Water Protection Requirements;
- Access and Security Requirements;
- Sign Requirements;
- Safety Requirements;
- Waste Acceptance and Disposal Requirements; and,
- Miscellaneous Requirements.

2.1 Construction Plans

In accordance with 15A NCAC 13B .0505(1)(a) and (b), construction plans shall be approved and followed and specified monitoring and reporting requirements shall be met.

Construction Plans are included in Appendix A.

2.2 Spreading and Compacting of Waste

2.2.1 Solid Waste Working Area

In accordance with 15A NCAC 13B .0505(2)(a), operators shall restrict solid waste within the tire monofill landfill to the smallest area feasible. The working face is defined as the area where waste is unloaded, inspected, spread, compacted, and ultimately covered with cover material. The working face shall be wide enough to prevent a backlog of vehicles waiting to unload and to allow adequate working space for landfill equipment. At a maximum, the width of the working face shall not exceed 100 feet.

2.2.2 Solid Waste Compaction

In accordance with 15A NCAC 13B .0505(2)(b), solid waste shall be compacted as densely as practical into cells. After solid waste is discharged from vehicles, it shall be inspected for unacceptable items and subsequently spread on the working face not steeper than four feet horizontal to one foot vertical in layers not to exceed two-foot thickness. All areas of each layer shall be compacted by at least four passes of a compactor in order to achieve a minimum waste density of approximately 800 lb/cubic yard.

2.3 Cover Material Requirements

2.3.1 Daily Cover

In accordance with 15A NCAC 13B .0505(3)(a), solid waste shall be covered twice per week with a compacted layer of at least six inches of suitable soil cover to control disease vectors, fires, odors, blowing litter, and scavenging. The daily cover must:

- be capable of covering solid waste after it is placed without change in its properties and without regard to weather;
- be capable of allowing loaded vehicles to successfully maneuver over it after placement;
- be noncombustible; and,
- not include rock fragments that are greater than six inches in diameter.

Central Carolina Tire will use only suitable soil as daily cover; alternative cover material will not be used.

2.3.2 Intermediate Cover

In accordance with 15A NCAC 13B .0505(3)(b), areas which will not have additional waste placed on them for 3 months or more, but where final termination of waste disposal has not occurred, shall be covered with a minimum of one foot of intermediate cover. The composition standards of the intermediate cover shall be the same as for daily cover in addition to being capable of supporting the germination of vegetative cover.

2.3.3 Final Cover

In accordance with 15A NCAC 13B .0505(3)(c), after six months of final termination of disposal operations at the site or a major part thereof, or upon revocation of a permit, the area shall be covered with at least two feet of suitable compacted earth.

2.4 Erosion Control Requirements

2.4.1 Control of Sediment

In accordance with 15A NCAC 13B .0505(4)(a), adequate erosion control measures shall be practiced to prevent silt from leaving the site. Sediment laden runoff shall be diverted to one of two sedimentation ponds as shown on Sheet No. 2 of the drawings.

2.4.2 On-site Erosion Control

In accordance with 15A NCAC 13B .0505(4)(b), adequate erosion control measures shall be practiced to prevent excessive on-site erosion.

Erosion control measures shall include:

A. Disturbing as little area as practical at any one time for landfilling operations.

B. Seeding/ Mulching of all disturbed areas commencing as soon as practically possible. Employing erosion netting or sod on steep slopes and other erosion prone areas.

C. Use of earthen berms, hay bales, silt fences, mat lining, riprap or equivalent devices down-gradient of disturbed areas, stockpiles, around drainage pipes inlets and outlets and at intervals along grassed waterways, until such time as permanent vegetation is established.

D. Placement of riprap at the outlets of storm water piping sedimentation pond discharge pipes.

2.5 Drainage Control Requirements

2.5.1 Surface Water Diverted from Operational Area

In accordance with 15A NCAC 13B .0505(5)(a), surface water shall be diverted from the operational area. Excessive surface water at the working face creates difficulties for maneuvering equipment and prevents the operator from achieving maximum compaction of the waste. To divert surface runoff away from the working face, temporary diversion berms shall be installed on the current lift, upgradient from the working face and in other locations as dictated by the direction of grade. The area between the temporary berm and the working face should be limited to one acre to prevent excessive ponding. The soil cover in the areas beyond the diversion berms shall be uniformly graded and compacted to prevent the formation of erosion channels. In the event that channels do form,

the cover shall be promptly repaired. During the formation of the initial lift of each disposal unit, additional measures shall be employed to divert surface water.

2.5.2 Surface Water Shall not be Impounded Over Waste

In accordance with 15A NCAC 13B .0505(5)(b) and (c), surface water shall not be impounded over or in waste. Completed areas shall be adequately sloped to allow surface water runoff in a controlled manner.

2.6 Vegetation Requirements

2.6.1 Vegetative Cover

In accordance with 15A NCAC 13B .0505(6)(a), within six months after final termination of disposal operations at the site or a major part thereof or upon revocation of a permit, the area shall be stabilized with native grasses.

In accordance with 15A NCAC 13B .0505(6)(b), temporary seeding will be used as necessary to stabilize the site.

2.6.2 Seeding

Riprap, haybales, or other acceptable temporary methods of erosion control may be required until permanent cover is established. Areas where final grade has been reached can be stabilized by mulching until a vegetative cover is established. Soil mulching can be achieved using wood chips, straw, hay, asphalt emulsion, jute matting, and synthetic fibers. Mulches allow for greater water retention; reduce the amount of runoff; retain seeds, fertilizer, and lime in place; and, improve soil moisture and temperature conditions.

2.6.2.1 Temporary Seeding

Temporary seeding shall be applied as follows:

LATE WINTER & EARLY SPRING

Seeding Mixture	Rate (lb/ acre)	Seeding Dates
Rye (Grain) Annual lespedeza (Kobe in Coastal Plain)	120 50	Dec. 1 - Apr. 15

Soil Amendments	Rate (lb/ acre)
Agricultural limestone	2000
Fertilizer (10-10-10)	750
Mulch	4000

SUMMER

Seeding Mixture	Rate (lb/ acre)	Seeding Dates
German millet	40	Apr. 15 - Aug. 15

Soil Amendments	Rate (lb/ acre)
Agricultural limestone	2000
Fertilizer (10-10-10)	750
Mulch	4000

FALL

Seeding Mixture	Rate (lb/ acre)	Seeding Dates
Rye (Grain)	120	Aug. 15 - Dec. 30

Soil Amendments	Rate (lb/ acre)
Agricultural limestone	2000
Fertilizer (10-10-10)	1000
Mulch	4000

2.6.2.2 Permanent Seeding

Permanent seeding shall be applied as follows:

Seeding Mixture	Rate (lb/ acre)	Seeding Dates
Tall fescue	80	Early Spring
Pensacola Bahiagrass	50	Feb. 15 - Mar. 20
Sericea lespedeza	30	Fall
Kobe lespedeza	10	Sept. 1 - Sept. 30

Soil Amendments	Rate (lb/ acre)
Agricultural limestone	3000-5000
Fertilizer (10-10-10)	1000
Mulch	4000

2.7 Water Protection Requirements

2.7.1 Waste Shall Not Be Disposed of in Water

In accordance with 15A NCAC 13B .0505(7)(a) and (b), the separation distance of four feet between waste and water table shall be maintained, and solid waste shall not be disposed of in water.

2.7.2 Leachate Collection

Leachate collection is not required at scrap tire disposal facilities.

2.8 Access and Security Requirements

2.8.1 Landfill Access and Security

In accordance with 15A NCAC 13B .0505(8)(a), the Central Carolina Tire monofill landfill must be adequately secured by means of gates, chains, berms, fences, and other security measures approved by the Division of Solid Waste Management, to prevent unauthorized entry.

All vehicles disposing of waste at the facility will enter and leave through the access control gate. All waste entering the landfill must be weighed at the scale where a full-time Scale Operator verifies compliance with operation requirements. Unauthorized vehicle access to the site is to be prevented by a locked gate when the landfill is closed.

2.8.2 Attendant

In accordance with 15A NCAC 13B .0505(8)(b), an attendant shall be on duty at the site at all times while it is open for public use to ensure compliance with operational requirements.

A full-time Scale Operator will be located in the scale house during operating hours. The Scale Operator will verify compliance with operation requirements.

2.8.3 Access Road

In accordance with 15A NCAC 13B .0505(8)(c), the access road to the site shall be of all-weather construction and maintained in good condition. Potholes, ruts, and debris on the road will receive immediate attention in order to avoid damage to vehicles. The access road will be regraded as necessary to maintain positive slope for adequate drainage.

2.8.4 Dust Control

In accordance with 15A NCAC 13B .0505(8)(d), dust control measures shall be implemented where necessary. Minimum dust control will include a water truck for wetting of dusty roads. Petroleum products shall not be used for dust control.

2.9 Signs Requirements

In accordance with 15A NCAC 13B .0505(9)(a), a sign providing information on dumping procedures, the hours during which the site is open for public use, the permit number and other pertinent information shall be posted at the site entrance.

In accordance with 15A NCAC 13B .0505(9)(b), signs shall be clearly posted stating that no hazardous, municipal, yard waste, or liquid waste can be received.

In accordance with 15A NCAC 13B .0505(9)(c), traffic signs or markers shall be provided as necessary to promote an orderly traffic pattern to and from the discharge area to maintain efficient operating conditions.

2.10 Safety Requirements

2.10.1 Open Burning

In accordance with 15A NCAC 13B .0505(10)(a), open burning of solid waste is prohibited.

2.10.2 Fires

In accordance with 15A NCAC 13B .0505(10)(b), equipment shall be provided to control accidental fires or arrangements shall be made with the local fire protection agency to immediately provide fire-fighting services when needed.

In accordance with 15A NCAC 13B .0505(10)(c), all fires that occur shall be reported to the Division of Solid Waste Management within 24 hours and a written notification shall be submitted within 15 days.

2.10.3 Waste Removal

In accordance with 15A NCAC 13B .0505(10)(d), the removal of solid waste from the landfill is prohibited unless the owner/ operator approves the removal and it is not performed on the working face.

2.10.4 Barrel and Drum Disposal

The facility intends to only dispose scrap tires in the monofill. Therefore, barrels and drums shall not be disposed of in the monofill.

2.11 Waste Acceptance and Disposal Requirements

2.11.1 Waste Definitions

Asbestos Waste - any waste material that is determined to contain asbestos.

Construction/ Demolition Waste - solid waste resulting solely from construction, remodeling, repairs or demolition of buildings, structures, or pavement but does not include inert, land-clearing or yard waste.

Hazardous Waste - any solid waste that is defined as hazardous in 15A NCAC 13A 261.3 and that is not excluded from the regulation as a hazardous waste from conditionally exempt small quantity generators as defined within 15A NCAC 13A 261.5.

Inert Debris - any solid waste which consists solely of material that is virtually inert, such as brick, concrete, rock, and uncontaminated soil.

Land Clearing Debris - solid waste which is generated solely from land clearing activities such as stumps, trees, limbs, brush, grass, and other naturally occurring vegetative material.

Liquid Waste - any waste material that is determined to contain free liquid by Method 9095 (Paint Filter Test).

Scrap Tires – any solid waste material that is determined to contain only shredded tires.

Treatment or Processing Waste - any waste that is residual solid from a wastewater treatment or pretreatment facility.

2.11.2 Acceptable Waste

In accordance with 15A NCAC 13B .0505(11)(a), the landfill shall only accept those solid wastes which it is permitted to receive. The landfill operator shall notify the Division of Solid Waste Management within 24 hours of attempted disposal of any waste the landfill is not permitted to receive, including waste from outside the area the landfill is permitted to serve.

In accordance with the North Carolina Solid Waste Management Rules and the facility's current operating permit, the Central Carolina Tire Monofill Landfill shall only dispose of scrap tires.

2.12 Miscellaneous Requirements

2.12.1 Vector Control

In accordance with 15A NCAC 13B .0505(12)(a), effective vector control measures shall be applied to control flies, rodents, and other insects or

vermin when necessary.

The materials that are to be disposed of in the tire monofill landfill facility will be non-petrucible and, therefore, unlikely to attract nuisance vectors. Therefore, it is not anticipated that additional vector control, other than daily cover will be required.

2.12.2 Controlling Wind Blown Material

In accordance with 15A NCAC 13B .0505(12)(b), appropriate methods such as fencing and diking shall be provided within the area to confine solid waste subject to be blown by the wind. At the conclusion of each day of operation, all windblown material resulting from the operation shall be collected and returned to the area by the owner or operator.

The material to be disposed of in the tire monofill landfill facility is unlikely to be of the size and weight to be windblown; therefore, it is not anticipated that means of controlling wind blown material will be required. However, should blowing litter become a problem, portable litter screens shall be placed downwind of the working face as needed. The screens shall be kept as close to the working face as possible without unduly interfering with landfill operations. The screens shall be moved promptly when required by change in wind direction or progress of the fill.

SECTION 3
WATER QUALITY MONITORING PLAN

3.0 Purpose

The purpose of this Water Quality Monitoring Plan is to address the requirements of 15A NCAC 13B Rule .0504(1)(f)(iv), Rule .0504(2)(a)(v), Rule .0601 and .0602 and to present a plan for groundwater and surface water monitoring for the Central Carolina Tire Monofill. The Water Quality Monitoring Plan includes information on the proposed groundwater monitoring network, surface water monitoring plan, and sampling and analysis requirements. The groundwater monitoring network was designed based on information obtained from recent and previous subsurface investigations. A detailed discussion of the geological and hydrogeological conditions at the site is presented in the *Site Plan Application* (W&R 2004) and the attached *Phase III Design Hydrogeologic Report* prepared by W&R and dated October 2004, and found in Appendix B.

3.1 Scope

The Water Quality Monitoring Plan includes the following elements in accordance with Rules .0504 and .0600 of the North Carolina Administrative Code:

- Design and installation of a groundwater monitoring system, based on site-specific information, to yield groundwater samples from the uppermost aquifer that represent the quality of the background groundwater that has not been affected by landfill activities or other man-made activities and to monitor for, if any, landfill releases of contaminants.

- Design of surface water monitoring system, based on site-specific information, to yield surface water samples from the drainages from the site, if necessary.

- Monitoring wells designed and constructed in accordance with the applicable North Carolina Well Construction Standards as found in 15A NCAC 2C.

- A Sampling and Analysis Plan that includes procedures and techniques for sample collection, sample preservation and shipment, analytical procedures, chain-of-custody procedures, and quality assurance and quality control.

3.2 Content

The Water Quality Monitoring Plan can be found in the *Phase III Design Hydrogeologic Report* prepared by W&R, dated October 2004, and found in Appendix B.

Drawing Under Seperate Cover

"Drawings Under Seperate Cover"

CENTRAL CAROLINA TIRE
PHASE III SCRAP TIRE MONOFILL LANDFILL

DESIGN HYDROGEOLOGIC REPORT

Harnett County, North Carolina

Prepared For:

Central Carolina Tire Holdings
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Project 202334.01

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EXECUTIVE SUMMARY

Central Carolina Tire (C.C.T.) is in the process of optimizing its facility resources by expanding available landfill capacity. The approximately 255-acre Central Carolina Tire tract is located in Harnett County, approximately ten miles southeast of Cameron along NC 24/27, on McKoy Town Road. The planned Phase III landfill area is bordered on the south by the existing approximately 41-acre Phase I/II landfill, to the north by the existing approximate 26-acre tire collection and processing facility, and to the east and west by unoccupied agricultural and forest land. This report presents the results of the design hydrogeological evaluation performed by Withers & Ravenel, Inc. (W&R) as part of the Permit To Construct Application for the planned horizontal expansion of the existing Phase I/II Tire Monofill Landfill. This report provides our hydrogeologic characterization and geotechnical evaluation of the site with respect to the groundwater monitoring and foundation preparation for the Phase III facility. The footprint of the planned Phase III Central Carolina Tire Monofill landfill is approximately 42 acres.

This investigation was performed to refine the understanding of hydrogeologic and geotechnical conditions previously presented in W&R's "Central Carolina Tire Phase III Scrap Tire Monofill Landfill Site Application," dated February 9, 2004. The field investigations included the advancement of soil borings and construction groundwater monitoring wells and piezometers at ten locations to augment our understanding of subsurface conditions and to collect soil samples for geotechnical testing. Additional water-level recovery tests were conducted to refine our estimate of the hydraulic conductivity of the aquifer material in the subsurface materials encountered. The results of field testing suggest that the average mean hydraulic conductivity of the surficial aquifer is approximately 0.43 foot/day. The mean hydraulic conductivity of the underlying silts and clays as determined under the W&R Site Application was 0.0004 feet/day.

Groundwater flow within the uppermost aquifer at the proposed landfill site is primarily toward the southeast, with localized flow toward the surface water drainage feature that bisects the southeastern portion of the site, and toward the northwest in the northwestern portion of the site. Interpreted groundwater flow directions are consistent with downward surface topography slopes and indicate movement of groundwater from upland areas toward local surface water drainage features. The fine-grained silt and clay deposits that underlie the surficial aquifer appear to be laterally extensive, and due to their low hydraulic conductivity, are expected to limit the movement of groundwater from the surficial aquifer to deeper aquifers. Additional water-table elevation data obtained from the ten piezometers and monitoring wells installed for the Design Hydrogeologic Report represent levels below the previously estimated seasonal high water-table conditions presented in our Site Application.

Based on the results of our hydrogeological evaluation activity, W&R believes that the proposed groundwater monitoring network is appropriate for this site. A description of the proposed groundwater monitoring program is included in this report.

With respect to geotechnical considerations for this site, foundation settlement and global stability were evaluated. The result of our settlement analysis demonstrates that post-settlement base grades for the landfill footprint exceed the 4-foot minimum vertical buffer requirement from the seasonal high groundwater level. The stability analyses indicate that at full waste heights, the static factor of safety for sliding stability exceeds 1.5, which is considered adequate for this facility.

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1.0 INTRODUCTION

1.1 Purpose

Withers & Ravenel, Inc. (W&R) was contracted by Central Carolina Tire (C.C.T.) to obtain a Permit to Construct for the planned Phase III Central Carolina Tire Monofill landfill facility. This report presents our understanding of subsurface conditions at the site and the proposed future water quality monitoring protocol for the Phase III facility in accordance with the North Carolina Solid Waste Management Rules contained in 15 NCAC 13b Sections .0500 Disposal Sites, and Sections .1100 Scrap Tire Management, and in general accordance with Section .1623 (b) Design Hydrological Report.

The purpose of the design hydrogeologic report is to determine that planned landfill expansion at the site meets requirements to accommodate a facility that can effectively contain scrap tire material. An additional objective of this report is to demonstrate that groundwater quality conditions in the vicinity of the landfill can be effectively monitored.

1.2 Project Information

The project consists of permitting and designing the Phase III Central Carolina Tire Monofill landfill facility for C.C.T. of Harnett County, North Carolina. C.C.T. contracted W&R to prepare the permit application. C.C.T. is currently placing waste in the existing Central Carolina Tire Phases I/II Monofill Landfill (N.C. DENR Solid Waste Management landfill permit # 43-04) located generally north of the planned expansion area.

1.3 Project Personnel

The following W&R personnel performed the services presented in this report:

Vance Moore, P.E.	Project Manager
Mark E. Landis, P.G., P.E.	Senior Geotechnical Engineer
Brian Bellis, P.G.	Senior Hydrogeologist
Stefan Bray, P.E.	Design Engineer
John Palmer	Staff Geologist

2.0 FIELD ACTIVITIES: BORINGS AND WELL CONSTRUCTION

2.1 Hydrogeologic Study From Site Application

W&R prepared the Site Application for the Central Carolina Phase III Scrap Tire Landfill, dated February 9, 2004. The Division Of Waste Management, Solid Waste Section of N.C. DENR approved the application on May 21, 2004. The Site Application included a site hydrogeologic study that described W&R's understanding of subsurface conditions based on published information and a limited number of borings and piezometers.

The area of investigation for the previous W&R Site Application was established as approximately 94 acres and 23 borings were advanced at 16 locations (WRB-1 through WRB-16) within the area to provide an understanding of the subsurface stratigraphy and groundwater flow conditions beneath the site. One shallow soil boring was advanced at each of these locations in order to characterize the stratigraphy and thickness of the unsaturated zone and underlying surficial aquifer. Deeper borings were advanced at seven of these locations (WRB-3D, WRB-4D, WRB-6D, WRB-8D, WRB-11D, WRB-12D, and WRB-16D) in order characterize the nature and extent of the fine-grained materials underlying the surficial aquifer across the site. The deep borings at these seven locations were assigned a "D" suffix (e.g. WRB-3D) while the paired shallow boring was denoted with "S" as a suffix (e.g. WRB-3S). Two-inch inner-diameter PVC piezometers were installed within each of the borings to facilitate the measurement of groundwater levels.

2.2 Design Hydrogeologic Report Investigation

The area investigated for the planned Phase III scrap tire monofill landfill is the northeastern approximately 42-acres of the 94 acre parcel investigated in the Site Application. Borings were advanced at 10 locations within the area to provide additional information on subsurface stratigraphic and groundwater flow conditions beneath the site. The locations of these borings are indicated on **Figure 1**. Borings WRB-17 through WRB-21 were located within the proposed footprint of the Phase III facility. Borings for monitoring wells MW-10 through MW-14 were located around and within 250 feet of the Phase III facility footprint. These five locations are intended to be included in the monitoring well network for the facility. Information from the borings was used to further refine the stratigraphy and thickness of the unsaturated zone and underlying surficial aquifer, and further characterize the nature and extent of the fine-grained materials underlying the surficial aquifer across the site. A piezometer was installed within each of the WRB boring locations to facilitate the measurement of groundwater levels. All existing piezometers within or adjacent to the planned Phase III monofill landfill footprint will be properly abandoned prior to initiating construction activities for the project.

Nine of the borings, piezometers and monitoring wells were installed by GeoTechnologies of Raleigh, N.C. using a BK-51 all-terrain mounted mechanical drilling rig and mud-rotary drilling techniques. Titan Atlantic of Raleigh, N.C. advanced the soil boring and constructed the piezometer at location WRB-19 using a CME 550 rig and mud-rotary drilling techniques. Soil samples were collected at five-foot intervals using a split-spoon sampler in accordance with standard penetration test procedures (ASTM D-1586). The W&R geologist that supervised the drilling process visually classified the soil samples in the field. Boring logs containing piezometer or monitoring well construction information are included in **Appendix A**. General soil boring information is summarized in **Table 1**. Five Shelby tube (undisturbed) soil samples from selected borings were submitted for geotechnical testing. Results of the laboratory tests are discussed further in Section 3.0.

After the last soil sample was collected from each boring with a WRB prefix, a piezometer was installed in the borehole. Each piezometer was constructed of two-inch

inner diameter PVC well casing with a section of 0.010-inch slot well screen attached to its lower end. A sand filter pack was installed in the annular space between the borehole and the well screen to a level approximately two feet above the top of the screen section. An approximately two-foot thick bentonite seal was then installed in the annular space above the sand pack, and the remainder of the annulus was backfilled with a cement/bentonite grout to the land surface. The monitoring wells at the locations having a MW prefix were installed in the same manner, except they were installed within an offset boring that was drilled to a depth approximately 10 feet below the water table. These wells were completed with protective steel surface covers. Following completion, each piezometer and monitoring wellwas developed by removing groundwater using a portable submersible pump. Top of PVC casing and nearby ground elevations, and piezometer and monitoring well locations were determined by a W&R survey team lead by a North Carolina Registered Land Surveyor. Groundwater monitoring well / piezometer construction details and groundwater level data are summarized in **Table 2**.

3.0 RESULTS OF LABORATORY TESTING

A laboratory testing program was used to identify the general geotechnical and hydrogeological properties of the predominant soil types in the area of investigation.

Five undisturbed (U/D) soil samples were tested to provide estimates of the porosity and hydraulic conductivity of in-situ soils. The laboratory tests included natural moisture content, grain-size distribution, Atterberg Limits (plasticity), specific gravity, unit weight, consolidation properties, and permeability tests. Laboratory test results for the samples, including Unified Soil Classification System classification, are summarized in **Table 3**, and are presented in full in **Appendix B**.

U/D samples submitted for laboratory hydraulic conductivity testing were selected to range from saturated surficial sand to clay-rich semi-permeable materials. Hydraulic conductivities were estimated based on the results of falling head rising tail-water permeability tests performed in the laboratory on the undisturbed samples that were not remolded or compacted. The laboratory hydraulic conductivity for the surficial sand sample was reported as 1.7 x 10-4 cm/sec (or 0.48 feet/day). The laboratory hydraulic conductivities for the clay-rich samples were reported to range from 1.6 x 10-5 cm/sec to 6.7 x 10-9 cm/sec (or 0.045 to 0.000019 feet/day).

4.0 FIELD OBSERVATIONS

The following discussion provides a description of field observations including information on the topographic setting and groundwater discharge features within and proximal to the study area.

4.1 Topographic Setting

Land surface elevations at the planned site range from approximately 330 feet msl at

the location where the center of a natural drainage feature crosses the southwestern boundary of the site, to approximately 371 feet msl near the northern extreme of the site in the northwestern portion. Surface drainage across the planned site follows the existing land surface contours. The main topographic features that currently control the direction of the majority of surface drainage are the northeast/ southeast trending topographically high ground located in the western portion of the site which appears to form a local watershed divide, and a southeastward sloping drainage feature which roughly bisects the southeastern portion of the site. The majority of the surface drainage within the study area is expected to move to the southeast down slope of the northwestern upland, and toward the southeast trending drainage feature. However, surface drainage to the northwest of the upland would be expected to be towards McCoy Road (SR 1105) and further to the northwest towards drainage features on the opposite side of the road. Topographic contours of the land surface, and the locations of all borings and piezometers used in both the Design Hydrogeological Report and included in the preceding Site Application (See **Figure 1**).

Land to the northwest and northeast of the planned landfill is primarily open pasture with localized wooded areas in the drainage features. The tire processing facility is located due north of the planned landfill and adjacent to the southeastern side of McCoy Road. The area to the east and south of the site is primarily undeveloped and wooded. Agricultural land borders the site to the southwest and a maintenance area for the existing landfill facility occupies land adjacent to the northwest edge of the site.

4.2 Groundwater Discharge Features

Throughout the Coastal Plain, the primary groundwater discharge areas for the surficial aquifer are the dendritic streams that dissect the terrain, and the associated wetlands occurring within their floodplains. Groundwater discharge may also occur through evapotranspiration in areas where the water table is located proximal to the land surface, or in other topographically low features such as ponds or lakes. Additionally, groundwater discharge may take the form of isolated springs or seeps that may occur in upland areas as a result of the presence of shallow clay or low permeability horizons that perch or trap infiltrating rainfall and divert movement of the water laterally to an area where the horizon intersects the land surface.

Seeps, springs, ponds or lakes were not observed within the limits of the planned landfill site during our field investigation. Surface water in the form of puddles and saturation of the near surface soil was observed within the drainage feature that occurs southeast of the site, approximately 1800 feet outside the limits of the planned landfill footprint. Groundwater discharge from the planned landfill as baseflow to this drainage feature, and through evapotranspiration likely occurs within this area.

5.0 OVERVIEW AND BACKGROUND

5.1 Overview of the Site

The postal address of the Phase III Central Carolina Tire Monofill landfill facility is listed

as being within the town of Cameron. The Central Carolina Tire facility is located approximately ten miles southeast of Cameron along NC 24/27. Specifically, the site is about 8500 feet South of the intersection of NC Highway 24/27 and NC Highway 1105 (McKoy Town Road) on McKoy Town Road and approximately 1 mile northeast of Lake Surf. The land immediately adjacent to the planned Phase III disposal area is bordered on the south by the existing landfill, to the northeast by the existing tire collection and processing facility, to the west by forests and farmland, and to the east by forested lands.

The existing topography of the planned monofill footprint area varies in elevation from 330 feet above mean sea level (msl) in the southeastern portion to 371 feet msl in the northwestern portion. On-site surface drainage travels primarily in a southeasterly direction, and ultimately discharges into the Cape Fear. There is one perennial stream located within 500 feet of the C.C.T. property boundaries. This stream is located approximately 2600 feet to the east of the planned Phase III landfill site.

The property on which the Phase III C.C.T. Monofill landfill facility is to be located is the approximately 255-acre tract that also currently includes the Phase I/II C.C.T. Monofill (N.C. DENR Permit No. 43-04) and the Central Carolina Tire Disposal – Scrap Tire Collection and Processing Site (N.C. DENR Permit No. 43-08). The entire approximate 255-acre tract is owned by Central Carolina Holdings, LLC.

The footprint of the planned Phase III C.C.T. Monofill landfill is approximately 42 acres. The location of the planned Phase III landfill, as well as the locations of the existing site facilities, are identified on **Figure 1**.

6.0 LOCAL AND REGIONAL GEOLOGY AND HYDROGEOLOGY

The following information on the local and regional geology and hydrogeology based on review of published information sources.

6.1 Local and Regional Geology

The planned landfill site is located within the Coastal Plain physiographic province. The Coastal Plain of North Carolina is approximately 90 to 150 miles wide from the Atlantic Ocean westward to its boundary with the Piedmont province. This boundary is generally known as the Fall Line and is recognized as zones of rapids in streams that indicate a change of stream gradient as the streams pass from crystalline basement rocks of the Piedmont onto Coastal Plain sediments. The Coastal Plain consists of two natural subdivisions: the Tidewater and the Inner Coastal Plain (Winner and Coble, 1989). Stuckey (1965) identified three subdivisions of the Inner Coastal Plain. The planned landfill site is located proximal to the Fall Line in the southwestern portion of the Inner Coastal Plain in the subdivision known as the Sand Hills.

The thickness of sediments and sedimentary rocks that comprise the Coastal Plain varies from zero at the Fall Line to greater than 10,000 feet at Cape Hatteras (Winner

and Coble, 1989). Based on the proximity of the planned site to the Fall Line and our knowledge of subsurface conditions in the general area, we expect the thickness of the Coastal Plain sediments or depth to crystalline bedrock to be between approximately 200 and 300 feet.

Land surface elevations in the vicinity generally range from approximately 250 feet msl at the base of primary stream valleys, to about 400 feet msl along inter-stream divides. The topography of the general area can be described as gently rolling or of moderate relief, which is the result of stream dissection of uplands. Land surface elevations within the planned landfill study area vary between approximately 330 feet msl to 371 feet msl.

In general, the sedimentary deposits of the Coastal Plain are characterized by: (1) mostly clastic sediments ranging from clay to gravel with lesser amounts of marine limestone, all overlying a foundation of crystalline basement rocks; (2) a generally eastward structural dip; (3) a general thickening of beds toward the east; and (4) the number of individual beds increasing in the eastward direction (Winner and Coble, 1989).

According to the Geologic Map of North Carolina (1985), the planned landfill site is located within the outcrop area of the Cretaceous Age Middendorf Formation, although an overlying veneer of Quaternary Age surficial sedimentary deposits is noted to occur throughout the area. The surficial sediments of the Coastal Plain consist of undifferentiated clays, sands and gravels resulting from fluvial, eolian, lacustrine, and marine depositional processes. In the Sand Hills subdivision, the surficial deposits are mainly of fluvial or lacustrine origin and range in thickness from a few feet to as much as 30 feet (Winner and Coble, 1989).

The Geologic Map of North Carolina (1985) describes the Middendorf Formation as consisting of laterally discontinuous beds of sand, sandstone and mudstone, that are gray to pale gray with an orange mottled cast, with clay balls, iron concretions and cross-bedding common. According to Winner and Coble (1989), the Middendorf Formation occurs primarily in the western portion of the Coastal Plain and "is composed of a heterogenous mix of fine to medium sand and silty clay beds, coarse channel sand, and thin laminated beds of sand and clay, all of non-marine origin. Cross-bedding, lenses, pinch-outs, and facies changes are common features in the Middendorf and are typical of sediments deposited in a deltaic environment. Other characteristic features of the Middendorf are its light color tones of white, tan, and red, and kaolinitic clay balls or clay fragments scattered throughout the sand beds in outcrops."

The Middendorf Formation is reported by Heron and Wheeler (1964) to unconformably overlie older Cretaceous Age sediments and sedimentary rocks. According to the Geologic Map of North Carolina (1985), the Middendorf Formation overlies sediments and sedimentary rocks of the Cape Fear Formation, which outcrops in primary stream valleys within Harnett County. The Geologic Map describes the Cape Fear Formation as consisting of sandstone and sandy mudstone, yellowish gray to bluish gray, and mottled red to yellowish orange. The sedimentary beds are reported to be indurated and laterally continuous, with blocky clay, graded bedding, faint cross bedding, feldspar

and mica common. In the western portion of the Inner Coastal Plain, the Cape Fear Formation is expected to be underlain by crystalline basement rock of Cambrian or Precambrian Age (Winner and Coble, 1989).

6.2 Local and Regional Hydrogeology

The aquifer system within the area of Harnett County planned for the landfill site is comprised of those Quaternary and Cretaceous sedimentary materials that are saturated with groundwater. Sandier zones of appreciable thickness and lateral extent constitute the water-bearing portions of the aquifer, while the silt or clay rich zones of appreciable thickness and lateral extent comprise the semi-confining beds that limit the vertical movement of groundwater within the aquifer system.

The surficial aquifer in the Coastal Plain generally consists of sandy Quaternary and or Cretaceous Age sedimentary deposits that occur near the land surface. This unit is of major importance to the hydrology of the area because it extends over a large part of the Coastal Plain and infiltration from rainfall provides the bulk of the recharge to the underlying aquifers. The aquifer transmits water laterally to streams and serves as a source bed holding the water that migrates downward to the underlying aquifers. The rate of recharge to the surficial aquifer depends on how rapidly rainfall can infiltrate into the sediments that comprise the aquifer. Surficial soils in the vicinity of the planned landfill site are noted as having good infiltration capacity (Winner and Coble, 1989). Soils classified by Winner and Coble (1989) as having good infiltration capacity are those classified as being well drained to very well drained sandy soil and sandy loam and having vertical saturated permeabilities between 2 and 20 inches per hour. Heath (1980) estimated that the recharge rate to the surficial aquifer may be as much as 20 inches of equivalent rainfall per year for thick sandy soils. Based on our experience in the area and base-flow recession analyses conducted in a similar Coastal Plain setting, W&R expects the groundwater recharge rate at the subject site to be between 10 and 15 inches per year. Winner and Coble (1985) estimate that the average percentage of sand in the surficial aquifer throughout the North Carolina Coastal Plain is about 79 percent, and that the average horizontal hydraulic conductivity of the aquifer is approximately 29 feet per day (1×10^{-2} cm/sec).

The surficial aquifer at the planned landfill site consists of the undifferentiated sandy Quaternary deposits and the underlying graded / cross-bedded sandy to clayey deposits of the Middendorf Formation discussed in Section 6.1. Based on inspection and classification of soil samples from 20 boring locations within or proximal to the planned landfill area, the sandy deposits of the surficial aquifer range in thickness between 10.5 and 39.5 feet and are underlain by primarily fine-grained material described in the boring logs as gray silt and/or clay. The fine-grained deposits underlying the surficial aquifer are estimated to be deposits of the Middendorf Formation. Sufficient information is available to conclude that these fine-grained deposits are laterally continuous across the site, are of low permeability, and likely impede the vertical movement of groundwater. Thus, W&R expects that the silts and clays form the base of the surficial aquifer and act as a confining or semi-confining unit for aquifers that may occur at greater depth. None of the borings advanced during the present or preceding field investigations the full vertical extent of the silts and clays.

Based on descriptions of soil samples from borings WRB-16D, WRB-17, WRB-19, and WRB-21 we expect that the thickness of these fine-grained materials is greater than 40 feet. However, we are not able to determine the total thickness or vertical extent of the gray silts and clays based on the available information.

Four hydrogeologic cross-sections were prepared from the boring log and piezometer construction information to illustrate the stratigraphy and groundwater-levels within the surficial aquifer at the site. The cross-sections shown in **Figures 2** through **5** depict subsurface profiles in directions parallel and perpendicular to the overall direction of groundwater flow within the surficial aquifer.

7.0 WATER TABLE INFORMATION

7.1 Water-Table Fluctuations Over Time

Water-table elevations for the planned Phase III landfill area are available from July 2003 through October 2004. Additional water-table elevation data became available with the drilling of 10 additional borings in August 2004 for this Design Hydrogeological Report. These data were used in evaluating the position of the seasonal high water table, and ranges of water-table fluctuation. Stabilized depth to groundwater readings and water-table elevations calculated from the readings obtained from July 2003 through October 2004 are presented in **Table 4**.

7.2 Estimated Seasonal High Water Table

W&R's conclusions regarding the position of the seasonal high water-table has not changed with the addition of supplementary water-table elevation data from the site. Discussion of our rational in establishing the seasonal high water-table position as presented in the N.C. DENR-approved Site Application for the Central Carolina Phase III Scrap Tire Monofill Landfill and dated February 9, 2004, is represented here for reference:

> *Review of the depth to groundwater measurements presented in Table 4-3 reveals that the highest water-table elevations, and therefore the shallowest depths to groundwater observed over the three-month water-level monitoring period occurred in August 2003. The shallowest depths to the water table measured on August 20, 2003 occurred in the vicinity of piezometers WRB-11S (2.04 feet below ground), and WRB-8S (2.12 feet below ground), both of which are located immediately adjacent to the surface water drainage feature that roughly bisects the southeastern portion of the planned landfill site. The greatest depths to the water table occur in the upland portions of the site near surface water drainage divides, such as that near WRB-13S where the depth to the water table consistently exceeded 18 feet, and near WRB-5 where the depth to the water table consistently exceeded 14 feet.*
>
> *In contrast, the greatest depths to the water table over the monitoring period occurred on September 24, 2003, when the depth to the water table increased*

an average of 2.2 feet. The range of water table elevation decrease (or depth to groundwater increase) from August 20, 2003 to September 24, 2003 was between 0.71 feet at piezometer WRB-12S, to 5.02 at piezometer WRB-15.

In order to evaluate how the August 2003 groundwater elevations might compare to seasonal high water-table conditions, W&R reviewed rainfall data obtained at a nearby location for the period beginning September 24, 2001 and ending September 24, 2003. The data included daily precipitation readings from the North Carolina State Climate Office weather station located at the water treatment plant in Carthage located approximately 12 miles to the east of the site. Review of cumulative rainfall totaled at the 24th of each month revealed that approximately 13.5 inches of precipitation had fallen during the month of August 2003. This amount was approximately 8.8 inches more than that measured in July 2003 (4.7 inches), and about 7.8 inches more than that in September 2003 (5.7 inches). Additionally, the total rainfall for the month of August 2003 was more than that recorded for any other month since September 2001, and was approximately 5.4 inches more than the second highest monthly total (September 2002, 8.1 inches). Given the sandy nature of the surficial aquifer we expect that water-table response to rain events or the lack thereof is relatively quick. This assumption is supported through correlation of the monthly rainfall data and water-table elevation data for the months of July, August and September 2003. Therefore, in consideration of the relatively high total rainfall amount for August 2003, we expect that the water table elevations measured at the site on August 20, 2003 are representative of seasonally high water table conditions for the purposes of this study.

Contours of the stabilized water-table elevations measured on August 20, 2003 were presented in Sheet 4-6 of the W&R Site Application. These conclusions are used in the proposed basegrades for the Phase III facility.

The data indicate a decreasing water-table elevation extending until the August 29, 2004 groundwater readings. None of the measured groundwater reading has exceeded the August 2003 readings to date. Therefore, it is our opinion that the water-table elevations measured at the site on August 20, 2003 remain representative of seasonally high water-table conditions.

According the cumulative groundwater measurement table, the highest overall groundwater readings since the August 20, 2003 readings were recorded on September 29, 2004. The September 29, 2004 groundwater readings correspond to significantly increased precipitation received throughout the month of August and September 2004. This is likely an effect of eight named tropical storms in August 2004 and five named tropical storms in September 2004 within the Atlantic Region (NCDC National Climatic Data Center). The October 2004 readings suggest a return to the downward trend in overall groundwater elevations similar to that observed July 2003 through August 2004. To illustrate the highest recorded groundwater elevations since publication of the W&R Site Application dated February 2004, a water-table elevation contour map was prepared for the September 29, 2004 groundwater readings (See **Figure 6**).

7.3 Water-Table Elevation Contour Map

W&R prepared a water-table elevation contour map that incorporates groundwater elevation data from the newer piezometers and monitoring wells to illustrate current water-table elevations and directions of groundwater flow in the surficial aquifer at the planned site (See **Figure 6**). The water-table elevations shown in Figure 6 were measured on September 29, 2004 in the piezometers and groundwater monitoring wells within or adjacent to the planned landfill footprint. The configuration of the water-table surface as implied by the contours is similar to that presented in Figure 4-6 of the Site Application, and generally similar to the overlying land surface topography, a relationship that is common in Inner Coastal Plain settings. The water-table elevation contours imply that the overall direction of groundwater flow within the surficial aquifer is generally toward the southeast on the southeastern side of the upland area near McCoy Road, and to the northwest on the northwest side of the upland area. The contours also suggest components of flow towards the surface water drainage feature that roughly bisects the southeastern portion of the site, and towards other similar features just beyond the planned Phase III landfill boundary. Groundwater elevations from the piezometers containing a "D" suffix (deep well pair members installed within the underlying silts and clays) were not included in water-table contouring process.

8.0 COMPONENTS OF GROUNDWATER FLOW

The following sections provide a discussion on the horizontal and vertical components of groundwater flow.

8.1 Horizontal Components Of The Hydraulic Gradient

In the Coastal Plain, the direction of groundwater flow within the surficial aquifer is directly related to the configuration of the land surface topography and the position of discharge features. Contours of the stabilized water-table elevations measured on September 29, 2004 are shown on **Figure 6**. Based on the positions of the water-table elevation contours the horizontal components of the hydraulic gradient ranges between 0.002 and 0.44. The horizontal gradient is generally greater in the vicinity of groundwater discharge features and is flatter in upland areas.

8.2 Vertical Groundwater Flow Direction

Recharge and discharge areas may be distinguished by the existence of a downward or upward vertical hydraulic gradient at a nested well site. Recharge conditions exist where the hydraulic head or groundwater elevation in a shallow well is greater than that in an adjacent deeper well. Groundwater discharge conditions exist where the groundwater elevation in a deep well is greater than that in an adjacent shallow well. Groundwater recharge typically occurs in interstream upland areas and groundwater discharge typically occurs in the vicinity of perennial surface water features.

The vertical hydraulic gradient is simply the difference in groundwater elevation between two adjacent wells screened at different depths divided by the vertical distance

between the saturated midpoint of each well screen and can be expressed as follows:

The vertical component of the hydraulic gradient was found to be consistently downward for all nested well pair data sets investigated under this Design Hydrogeologic Report. **Table 5** provides a summary of vertical hydraulic gradient data and determinations.

8.3 Hydraulic Conductivity

Estimates of the horizontal hydraulic conductivity of the surficial aquifer were made by conducting falling and rising head water-level recovery tests on five piezometers (WRB-17 through WRB-21) and five existing groundwater monitoring wells (MW-10 through MW-14) installed during the Design Hydrogeologic Report fieldwork as well as selected WRB locations installed during the Site Application fieldwork. The horizontal hydraulic conductivity of the underlying silts and clays was estimated by conducting falling head water-level recovery tests on three of the deep piezometers (WRB-3D, WRB-8D and WRB-16D) during the W&R Site Application fieldwork. The test data and hydraulic conductivity calculation worksheets are presented in **Appendix C**. The test results are summarized in **Table 6**.

The results of field testing suggest that the horizontal hydraulic conductivity of the surficial aquifer in the vicinity of the planned Phase III landfill site ranges between 0.005 and 8.79 feet/day. The geometric mean hydraulic conductivity value for the surficial aquifer as determined from the test results was approximately 0.43 foot/day (or about 1.5×10^{-4} cm/s). In contrast, the geometric mean hydraulic conductivity of the underlying silts and clays was (0.0004 feet/day or 1.3×10^{-7} cm/s). As previously described in Section 3.0, the laboratory-derived hydraulic conductivity for the surficial sand sample was reported as 1.7×10^{-4} cm/sec (or 0.48 feet/day) and the laboratory hydraulic conductivities for the clay-rich samples were reported to range from 1.6×10^{-5} cm/sec to 6.7×10^{-9} cm/sec (or 0.045 to 0.000019 feet/day). Therefore, the range of field-derived hydraulic conductivities of the surficial aquifer are consistent with the range of hydraulic conductivities determined through laboratory testing of the undisturbed samples.

8.4 Groundwater Flow Velocity

Based on the available information, the majority of groundwater storage and movement at the planned landfill site occurs within the surficial aquifer. The underlying silts and clays have significantly lower hydraulic conductivity, therefore the lateral and vertical movement within these deposits is limited accordingly. In order to approximate the rate or average linear velocity of groundwater flow at any point within the surficial aquifer, reasonable estimates of the hydraulic conductivity, the hydraulic gradient, and the effective porosity of the surficial aquifer must be available. These three variables can be used to determine the average linear groundwater flow velocity in accordance with the following formula:

$$V_x = \frac{K\ dh}{N_e\ dl}$$

Where:

V_x = Average linear groundwater flow velocity
K = Hydraulic conductivity
dh/dl = Horizontal hydraulic gradient
n_e = Effective porosity

In estimating the range of groundwater flow velocities associated with the surficial aquifer, we utilized the hydraulic conductivity estimates discussed in Section 8.3, the horizontal hydraulic gradient indicated on the water-table elevation contour map at each location where a water-level recovery test was conducted, and an average of the effective porosity. An estimated effective porosity of 18 % was used in the linear groundwater flow velocity calculations, based on the grain-size distribution analyses and the ternary diagram of Johnson (1967). This effective porosity value is slightly lower than that used in the Site Application (0.25) due to two additional ternary diagram determinations of 13 % and 16 %. Completed ternary diagrams are presented in **Appendix D**. Using the estimates described above, the groundwater flow velocities within the surficial aquifer to range between 0.002 and 0.76 feet/day with a geometric mean value of 0.065 feet/day. The groundwater flow velocity estimates are summarized in **Table 7**.

9.0 GROUNDWATER MONITORING PLAN

9.1 General

It is the intention of C.C.T. to establish a Groundwater Monitoring Program in the vicinity of the planned Phase III Monofill Landfill expansion project. W&R has prepared the following Groundwater Monitoring Plan using pertinent requirements of Section 15A NCAC 13B .1623.

This document outlines C.C.T.'s plan for completion of necessary groundwater monitoring well construction work according to 15A NCAC 2C .0108, Standards of Construction: Wells other than Water Supply and 15A NCAC 2C .0113, Abandonment of Wells. The purpose of the Groundwater Monitoring Plan is to provide a description of the existing and planned groundwater and surface water monitoring system(s), establish methods that will effectively monitor groundwater quality in the uppermost aquifer and surface water downgradient of the facility, and define a protocol which will govern sampling procedures, data analysis, and report preparation for the site. Based on our understanding of subsurface conditions gained by the results of field investigation activities documented herein, W&R believes that groundwater moving away from the site can be effectively monitored using a network of shallow groundwater monitoring wells.

9.2 Existing Groundwater Monitoring System

To facilitate the geotechnical and hydrogeological evaluation portions of this Design Hydrogeologic Report, five groundwater monitoring wells identified as MW-10, through MW-14 have been installed to date in accordance with 15A NCAC 2C .0108, Standards

of Construction: Wells other than Water Supply. Per N.C. DENR Solid Waste Section's recommendations, groundwater monitoring well MW-10 was installed between the active tire collection and processing facility and the northern extreme of the planned monofill landfill footprint. Groundwater monitoring well MW-11 was installed within the topographic low that extends along the northeast perimeter of the planned landfill. Groundwater monitoring wells MW-12 and MW-13 were installed along the northern and southern slopes (respectively) of the topographic low that begins in the approximate center of the planned landfill and subsequently drains to the southeast. Groundwater monitoring well MW-14 was installed within the topographic low that extends along the southwest perimeter of the planned landfill. Boring logs / well construction diagrams and well construction records for the existing groundwater monitoring wells MW-10, MW-11, MW-12, MW-13, and MW-14 are included in **Appendix A**.

9.3 Relevant Point of Compliance

The relevant point of compliance for the determination of groundwater monitoring well locations is considered to be within 250 feet of the waste boundary per 15A NCAC 13B .1631(a)(1)(A). All groundwater monitoring wells installed under this plan are or will be located within this 250-foot limit. Property boundary extends beyond 250 feet in all directions.

9.4 Planned Groundwater Monitoring System

C.C.T. intends to establish a total of six groundwater-monitoring wells in the vicinity of the planned Phase III Monofill landfill facility to accommodate future monitoring activities. These wells are to be designated as MW-10, MW-11, MW-12, MW-13, MW-14, and MW-15. To this end, C.C.T. proposes to utilize existing groundwater-monitoring wells MW-10 through MW-14, and construct one new groundwater-monitoring well designated as MW-15. Groundwater monitoring well MW-15 would be installed within the topographic low adjacent to the northeast perimeter of the planned landfill (See **Figure 6**). All groundwater-monitoring wells installed under this plan will be constructed in accordance with 15A NCAC 2C .0108.

Based on a review of the water-table elevation contour map presented with this report, MW-10 located at the northern extreme of the planned monofill landfill, will serve as the upgradient, natural background well for the facility. The remaining groundwater monitoring wells will serve as downgradient monitoring wells. Boring logs / well construction diagrams and well construction records for existing groundwater monitoring wells MW-10, MW-11, MW-12, MW-13, and MW-14 are included in **Appendix A**.

The downgradient groundwater monitoring-well locations were selected to be within the path of travel for potential contamination migration which might occur over time, based upon the water-table elevation contours and final, planned construction grades and natural topography. Planned well depths and screen intervals vary by individual well and were selected based on groundwater water table evaluations conducted by W&R under this Phase III Design Hydrological Report. The well depths and screened intervals were selected to intercept the water-table surface. Existing and planned groundwater monitoring well information has been summarized in **Table 8**, and the

locations are shown in **Figure 6**. A typical groundwater monitoring well schematic is provided as **Figure 7**.

9.5 Planned Surface Water Monitoring System

C.C.T. intends to establish one surface water monitoring point in the vicinity of the planned Phase III Monofill landfill facility to accommodate future surface water monitoring activities. This location, designated SW-1, will be located approximately 280 feet beyond the limits of waste disposal at the southeastern property boundary and within the primary drainage feature that roughly bisects the southeastern portion of the site (See **Figure 6**).

9.6 Sampling Frequency

Groundwater sampling and reporting will proceed according to the following schedule:

Sampling Period	Report Type	Report Due Date
July-December	Semi-Annual	January 31
January-June	Semi-Annual	July 31

9.7 Sampling Procedures

Groundwater sampling procedures at the site will generally consist of the following: (1) measurement of depth to groundwater and well depth; (2) purging; and, (3) sample withdrawal. Monitoring wells that are determined to have slow purge rates shall be purged early in the day when samples are to be collected. This will allow adequate time for recovery, so that sampling will, in all cases, occur within 24-hours of purging.

All equipment utilized in the field will be operated and calibrated in accordance with the manufacturer's instructions. Equipment failing to meet manufacturer's minimum specifications will be removed from service immediately and kept out of service until the problem is identified and/or resolved. All field equipment will be stored in a clean, controlled environment (as necessary) prior to use. Reusable equipment will be decontaminated as soon as reasonably possible after use in accordance with the procedures outlined in 9.6.5. To minimize the potential for cross-contamination, clean disposable latex gloves will be worn while handling equipment and samples and will be changed between each well and discarded in an appropriate manner. Supplies of clean, unused gloves and deionized water bottles for decontamination will be stored in clean sealable containers between uses and during transport in the field.

9.7.1 Static Groundwater Level and Total Depth Measurements

Static water level elevations will be measured prior to any purging or sampling activities. Static water level data will be used to monitor changes in site hydrogeologic conditions, to calculate the volume of water to be purged prior to sampling, and to provide information on the condition of the well (e.g., identification of siltation problems). The

following measurements will be recorded in a project-dedicated field logbook prior to sample collection:

- Height of protective casing above ground surface
- Height of water column within the well (to the nearest 0.01 foot)
- Elevation of the well, top of casing
- Total depth of well (on an annual basis only)

An electronic water level meter will be used to accurately measure water elevations to within 0.01 foot and the height of the water column will be calculated accordingly. Each well will have a permanent, easily identified reference point on the top of casing (TOC) from which all water level measurements will be taken. The reference point will be permanently marked and the elevation determined by a registered land surveyor to an accuracy of 0.01 foot. All measurements are to be made in reference to the TOC elevation. Water-level measurement equipment will be decontaminated between wells as described in 9.6.5.

9.7.2 Well Purging

Prior to sampling each well, three to five times the volume of standing water will be purged to remove any stagnant water, which may not be representative of ambient groundwater quality. Since all monitoring wells installed onsite are or will be 2-inches in diameter, standing water volume can be calculated by the following formula:

$$V = h * 0.163$$

Where: V = Volume of water in gallons

h = Height of the water column in feet

Therefore, the volume of a 10-foot water column in a 2-inch diameter PVC monitoring well equals 1.63-gallons. Wells, which can be purged to dryness, should be allowed to recover sufficiently to allow complete sampling of the required parameters, using the protocol outlined below. A five-gallon bucket marked with one-gallon increments will be used to contain purge water as a guide to determine the volume of water removed.

Well purging will begin in the existing, upgradient, natural background wells MW-10 and will proceed progressively to the six downgradient monitoring wells. Three methods of well purging will be discussed, portable peristaltic pump, submersible pump, and bailing.

9.7.2.1 Portable Peristaltic Pump

For those wells less than 25 feet in total depth, C.C.T. intends to use a portable peristaltic pump to conduct monitoring well purging. The pump is powered by a 12-volt battery. The peristaltic pump is a device designed to collect samples from a variety of liquid sources and as its name implies, functions through mechanical peristalsis. The depth range of the portable pump is 0 to approximately 25 feet. The only materials that come in contact with the sample are the interior surfaces of the purging/sampling tube

and the sample bottles. Dedicated or new polyethylene tubing and medical grade silicon tubing will be used at each well.

The purge/sample tube intake will be set at approximately the mid-point of the saturated screen interval, and, if possible, at least 2-feet above the bottom of the well.

If the peristaltic pump becomes inoperable or malfunctions and cannot be used for a given sampling event, the problem should be clearly recorded in the field logbook. The bailer method shall be used as an alternate purging and sampling method. Prior to the next sampling event, the portable peristaltic pump will be repaired, so that the alternate method is not used in two consecutive sampling events.

The need to containerize purge water will be based on the analytical results from the previous sampling event. Uncontaminated purge water will be discharged at least 20 feet downgradient of the well being sampled. Purge water, which contains contaminant levels that are greater than the maximum contaminant level (MCL) by a factor of 10 or more will be containerized and disposed of properly.

9.7.2.2 Submersible Pump

The electric submersible pump is a sampling technique that can be used in cases where ground water lifts greater than 25-feet are required. The pump intake will be set at the approximate mid-point of the saturated screen interval, if possible, at least 2-feet above the bottom of the well. The pump will be decontaminated between uses in accordance with 9.6.5 and new polyethylene discharge tubing will be used at each well location.

If submersible pump becomes inoperable or malfunctions and cannot be used for a given sampling event, the problem should be clearly recorded in the field logbook. The bailer method shall be used as an alternate purging and sampling method. Prior to the next sampling event, the submersible pump will be repaired, so that the alternate method is not used in two consecutive sampling events.

The need to containerize purge water will be based on the analytical results from the previous sampling event. Uncontaminated purge water will be discharged at least 20 feet downgradient of the well being sampled. Purge water, which contains contaminant levels that are greater than the MCL by a factor of 10 or more will be containerized and disposed of properly.

9.7.2.3 Bailer Method

As an alternative auxiliary means of well purging, disposable polyethylene bailers or Teflon bottom-loading bailers with a standard ball and socket joint bottoms may be used during the well purging process.

The need to containerize purge water will be based on the analytical results from the previous sampling event. Uncontaminated purge water will be discharged at least 20 feet downgradient of the well being sampled. Purge water, which contains contaminant

levels that are greater than the MCL by a factor of 10 or more will be containerized and disposed of properly.

9.7.3 Sample Withdrawal

Three methods of sample collection are discussed, portable peristaltic pump, submersible pump, and bailing.

9.7.3.1 Portable Peristaltic Pump

After the required volume of groundwater has been purged from the well and indicator parameters have stabilized, the sample will be withdrawn using the portable peristaltic pump. The sample will be collected when the pump is running, taking care that the discharge tubing does not touch the sample container. The pump should remain in operation until all samples have been collected. The only materials that contact the sample should be the interiors of the medical grade silicone tubing line and the polyethylene intake and discharge tubing. Care will be exercised not to overfill sample bottles containing preservatives to prevent the sample and preservative from spilling. Containers will be filled in the following sequence of decreasing stability or turbidity constraints: total metals, sulfates, chloride, nitrate, pH, and specific conductivity. The sample containers will then be placed directly into an ice-chilled cooler for shipment to the laboratory.

Water-level meters and other auxiliary equipment will be decontaminated using laboratory-grade, phosphate-free detergent and a double rinse as described in 9.6.5.

9.7.3.2 Submersible Pump

After the required volume of groundwater has been purged from the well and indicator parameters have stabilized, the sample will be withdrawn using the submersible pump. The sample will be collected when the pump is running, taking care that the discharge tubing does not touch the sample container. Care will be exercised not to overfill sample bottles containing preservatives to prevent the sample and preservative from spilling. Containers will be filled in the following sequence of decreasing stability or turbidity constraints: total metals, sulfates, chloride, nitrate, pH, and specific conductivity. The sample containers will then be placed directly into ice-chilled coolers for shipment to the laboratory.

Water-level meters and other auxiliary equipment will be decontaminated using laboratory-grade, phosphate-free detergent and a double rinse as described above in 9.6.5.

9.7.3.3 Bailer Method

After the required volume of groundwater has been purged from the well and indicator parameters have stabilized, the sample will be withdrawn using either a disposable polyethylene bailer or a Teflon bottom-loading bailer with a standard ball and socket joint bottom. The samples will then be decanted directly into the appropriately prepared

container, as supplied by the laboratory. Containers will be filled in the following sequence of decreasing stability or turbidity constraints: total metals, sulfates, chloride, nitrate, pH, and specific conductivity. During sample collection, the bailers will be lowered in a manner to ensure that agitation and aeration of the groundwater will be minimized.

Sufficient sample volume is to be collected to perform all required analyses and to provide for quality control samples. Sample bottles containing preservatives will not be overfilled. The laboratory performing the analyses shall be consulted prior to the sampling event to confirm volume requirements.

Any non-dedicated bailers will be decontaminated prior to use or reuse (See 9.6.5). Alternatively, one-time use disposable polyethylene bailers may be used for purging and sampling. Water-level meters and other auxiliary equipment will be decontaminated using laboratory-grade, phosphate-free detergent and a double rinse as described in Section 9.6.5.

9.7.4 Field Parameter Measurements

Field parameter measurements will be performed and recorded in a tabular format throughout the well purging process to determine water temperature (°C), pH, specific conductance (µmhos/cm), and turbidity (NTU) as indicators of groundwater quality stabilization. The well will be purged, and water stabilization will be achieved when three (3) consecutive sets of field measurements, taken at three to five minute intervals or after each purge volume is removed, do not fluctuate such that specific conductance and temperature variance is within ±10% of successive measurements, and, pH variance is within ±0.10 pH units over three consecutive measurements. Purging will continue until the turbidity of the water produced is no greater than 10 NTU's. The temperature, pH, specific conductance, and turbidity of the groundwater will be measured immediately prior to the collection of groundwater samples as a check of groundwater stability. These field measurements will be performed using properly calibrated field test meters, operated and maintained in accordance with the manufacturers instructions.

Field measurements collected during purging activities will be recorded in the field logbook or on well purging and sampling forms. These data, along with the completed chain-of-custody forms and analytical results will be submitted to N.C. DENR in the report for each sampling event. All field test meters will be calibrated prior to beginning well purging by following the manufacturer's calibration procedures.

9.7.5 Decontamination Procedures

When the bailer or submersible pump is not dedicated to a single well, proper cleaning and decontamination procedures will be followed for all equipment prior to use or reuse. Decontamination solutions will be prepared and transported to the field for cleaning the sampling equipment. The decontamination procedure for sampling equipment includes the following steps:

Clean equipment with dilute non-phosphate detergent and tap water using a brush, if necessary, to remove particulate matter and surface films.

1. Rinse with tap water.
2. Rinse with 10% nitric acid solution (omit step for submersible pump).
3. Rinse thoroughly with deionized water.
4. Rinse twice with isopropanol.
5. Rinse thoroughly with organic-free water and air dry.
6. If organic-free water is not available, allow equipment to air dry, do not rinse again with deionized or distilled water.
7. Wrap equipment with aluminum foil, if appropriate, to prevent contamination during storage or transportation.

Field decontamination of field parameter measurement equipment that contacts groundwater will be performed in the same manner, but without a nitric acid rinse.

Note: In order to avoid the need to decontaminate bailers, disposable polyethylene bailers may be used for well purging and sampling.

For submersible pumps, the following decontamination procedure is recommended:

(1) Prepare a laboratory-grade, non-phosphate detergent solution and potable water in a clean bucket, clean garbage can, or clean 55-gallon drum.
(2) Flush the pump with the detergent solution and discard the tubing. Replacement tubing and any required fittings should be obtained from the pump manufacturer, or suitable alternative source.
(3) Flush the pump with deionized water a minimum of 10 pump volumes.
(4) Place the pump on plastic sheeting.
(5) Wipe any pump-related equipment (e.g., electrical lines, cables, and discharge hose) that enters the well with a clean cloth/wipe and detergent solution and rinse or wipe with a clean cloth/wipe and deionized water.
(6) Air dry. Wrap equipment in a suitable material (e.g., clean plastic bag).

9.8 Sample Preservation and Shipment

Sample containers will be supplied by the contracted laboratory based on the analyses required. Sample containers of appropriate volume and composition will be received from the laboratory pre-labeled with the analysis to be performed, and, containing appropriate quantities of preservatives as necessary to ensure consistency with EPA analysis protocol. To ensure sample quality, preservation and shipment procedures will be carefully monitored. Generally, ice and chemical additives will be used as sample preservatives, as recommended by the EPA. If the analytical laboratory is located a considerable distance from the site, samples shall be shipped daily via a 24-hour delivery service to ensure that sample holding times are not exceeded. Otherwise, the samples will be transported by the sampler to the laboratory.

Shipment of samples will be coordinated with the laboratory. Proper storage and transport conditions must be maintained in order to preserve the integrity of the sample.

Once taken, samples will be immediately placed on ice and cooled to a temperature of 4°C. Samples are to be packed in coolers so as to inhibit breakage or accidental spills. Custody seals will be placed on the outside of the cooler, in a manner that will allow detection of tampering. The laboratory shall immediately notify the owner/operator of any samples that arrive with custody seals broken.

9.9 Analytical Parameters and Procedures

The samples collected from each well will be analyzed for those constituents recommended in 15A NCAC 13B .1623 for sanitary landfills (Appendix I volatile organic compounds and metals). Maximum contaminant levels (MCLs) will be referenced for those constituents having an MCL and the practical quantitation limit (PQL) will be referenced for those constituents that do not have an MCL, and the analytical results will be compared to the referenced values.

9.10 Chain of Custody

It is imperative that an accurate record of sample collection, transport, analysis, and disposal be maintained and documented. Therefore, chain-of-custody -procedures will be instituted and followed throughout the sampling program. It is necessary to document sample possession from the time of collection until disposal. The chain-of-custody procedure will include the following steps:

- The chain of custody record will originate at the laboratory with shipment of sample bottles and trip blanks;
- Samples shall be accompanied by a chain-of-custody record that notes the date and time of collection and the name(s) of sampling personnel;
- All samples shall be properly labeled to prevent misidentification of samples;
- Field notes shall be included to provide pertinent information about each sample;
- A sample analysis sheet shall accompany all samples to the laboratory;
- Sample custody seals shall be used to indicate any tampering of samples;
- All records pertaining to the shipment of a sample shall be retained (freight bills, post office receipts, and bills of lading).

The laboratory shall not accept samples for analysis without a correctly prepared chain-of-custody form. The laboratory shall be responsible for maintaining chain-of-custody of the sample(s) from time of receipt to disposal. Each individual who possesses the samples shall sign the chain-of-custody form.

9.11 Field and Laboratory Quality Assurance/Quality Control

The reliability and validity of the field and analytical laboratory data will be monitored as part of the quality assurance/quality control (QA/QC) program used in the laboratory. Sample blanks will be collected to check sampling protocol and to account for any changes that occur after sampling. A field blank will be collected in the vicinity of a well in which environmental and/or weather conditions are determined unstable, and/or, landfill operations are actively being conducted.

9.11.1 Field Blanks

Field blanks provide a means to determine if any air particulates have altered the samples being collected. Field blanks will be collected at locations where unstable environmental and/or weather conditions may occur at time of sampling. The sample will be collected using deionized water and proper sampling procedures. The field blank samples will be collected at a frequency of one sample per sampling event.

9.11.2 Equipment Rinsate Blanks

To evaluate the effectiveness of the decontamination procedures if Teflon bailers or other non-dedicated sampling equipment are used, an equipment rinsate blank will be collected. The sample will be collected by passing deionized water through the sampling equipment after decontamination has been completed. Equipment blanks will be collected at a minimum of one per day of groundwater sampling activities or as necessary. A rinsate blank will not be required if dedicated tubing or disposable bailers are used.

9.13 Data Reporting

Groundwater sampling and reporting will proceed according to the following schedule:

Sampling Period	Report Type	Report Due Date
July-December	Semi-Annual	January 31
January-June	Semi-Annual	July 31

In general, the reports shall include the determination of groundwater flow rate and direction, analytical results (with Chain-of-Custody Records and field purging records), and a discussion of whether or not the groundwater monitoring system continues to meet permit requirements.

The data collected by implementation of this plan shall be submitted to:
Mr. Larry Rose
North Carolina Department of Environment and Natural Resources
Division of Waste Management,
Solid Waste Section
P.O. Box 27687
Raleigh, NC 27611-7687

10.0 GEOTECHNICAL RECOMMENDATIONS

Based on our observations of the site, subsurface conditions encountered in the borings, and the geotechnical laboratory tests, W&R provides the geotechnical evaluations based on conceptual design drawings of the landfill. These recommendations should be modified as appropriate during the construction if subsurface conditions are different from those indicated in the limited number of borings.

10.1 Foundation Settlement

Foundation settlement was evaluated in the area anticipated to experience the maximum estimated deflection under the proposed waste embankment. The soil profile in the area evaluated is based upon subsurface information collected by W&R as part of the hydrogeological evaluation. The area anticipated to undergo the greatest amount of settlement is the area under the proposed maximum waste fill height. The area evaluated also represents the maximum height of structural fill to reach the design subgrade. Based on the area evaluated, the estimated settlement is considered to be a worst-case estimate with respect to settlement. Actual settlements in areas under lesser waste heights and fill thickness will likely settle less than the estimated maximum.

Some settlement is expected to occur within the embankment material for the perimeter road. Due to the lack of highly compressible soils underneath the road embankment, large long-term settlements are not expected to occur. Most of the settlement which occurs within the embankment and beneath the embankment should occur during embankment construction and prior to construction of the final road elevation. Due to the limited potential for settlement of the road embankment, settlement evaluation has been limited to the footprint of the lined facility.

No highly compressible soils (MH, CH, OH, or OL) of significant thickness, softness, or lateral extent were identified during the boring program for the proposed landfill footprint. Settlement is expected to take place due to the compression of in situ soils and backfill (where required) resulting from the waste loading. The magnitude of foundation settlement was estimated using Hough's method for evaluating elastic compression. Terzaghi's one-dimensional consolidation model was used as an independent check of results provided by Hough's method.

A consolidation test was performed on select in situ material representative of the fine-grained layer beneath the footprint. Results of the consolidation test are included in **Appendix F** and are included in the settlement calculations for reference. Settlement is estimated to be less than 12-inches across the proposed landfill footprint. Results of the settlement evaluation are also included in **Appendix F**.

In accordance with 15A NCAC 13B .0503(2)(d)(i), the facility shall be designed so that the bottom elevation of solid waste will be a minimum of four feet above the seasonal high water table. A detailed discussion of the seasonal high groundwater conditions is discussed in further detail in **Section 7.2** of this report. Based on the design waste fill heights, the maximum predicted foundation settlement for the Phase 3 facility is less than 12 inches (1.0 foot). Pre-settled base grades were designed to provide a minimum of 6 feet of vertical separation between the bottom of the landfilled waste and seasonal high groundwater elevations. Therefore, post-settled grades are predicted to provide a minimum of 5.0 feet of vertical separation between the bottom of the landfilled waste and seasonal high groundwater elevations.

10.2 Slope Stability Evaluations

This section presents the results of analyses for assessing the adequacy of the landfill design with respect to static slope stability. Material properties were selected based on laboratory tests, standard penetration resistance values, and correlations with boring information. Selected properties are believed to provide conservative results.

Subsurface profiles used in the analyses were generated using boring logs and drawings generated by W&R The subsurface profiles included contours estimating subsurface soil stratigraphy, potentiometric surface, natural ground surface, landfill bottom grades, embankments and roadways, and top of waste. Based on observed site conditions, a critical-section was selected for analyses through the center portion of the proposed landfill representing maximum fill heights. The locations of this section, is consistent with section B-B' as attached in Figures. This section is considered critical for a global stability failure mode as well as for failure within the landfill embankment, particularly resulting from potential instability associated with fill placed within the landfill footprint.

The computer program PCSTABL6 was used for the analyses, and the shareware program STED was used to print figures that display the 10 most critical surfaces for each analysis performed. Circular failure surfaces were defined in evaluating global stability. The Modified Bishop's method was used in calculating the F.S. for circular failure surfaces. In addition and as a check to the circular failure mode, a block failure analysis was performed for the same section using the Modified Janbu Method for calculating the F.S. In this approach, the base of the failure block was constrained to be within the bottom of waste.

The results of our analyses using the Modified Bishop's method for circular failure surfaces and the specified surface using Janbu method for the minimum F.S. are as follows:

Analysis Method	Factor of Safety
Bishop's Circular	1.59
Janbu Wedge	1.89

1) Using conservative values of soil parameters, the design appears to satisfy the required static F.S. of 1.50. A re-evaluation should be performed should there be any revision in the geometry of the design.

Results of the static slope analyses are contained in the slope stability calculation set in **Appendix E** of this report.

11.0 LIMITATIONS

The recommendations and evaluations provided herein by W&R are based on the project information provided to us at the time of this report. Modification of recommendations and evaluations in this report may be required if there are any changes in the nature, design, or location of the proposed facility or structures.

The recommendations in this report are based in part upon the data obtained from previous investigations, the borings, and the geotechnical laboratory results. The nature and extent of variations between subsurface data may not become evident until construction. If variations from the anticipated conditions are encountered, it may become necessary to revise the recommendations of this report.

Our professional services for this project have been performed in accordance with generally accepted engineering practices. No other warranty, expressed or implied, is made.

12.0 REFERENCES

Brown, P. et. al. 1985. Geologic Map of North Carolina. North Carolina Geological Survey, Raleigh, North Carolina.

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Johnson, A.I. 1967. Specific Yields for Geologic Materials. USGS Water Supply Paper 1662-D.

Stuckey, J.L., 1965, North Carolina: Its Geology and Mineral Resources, North Carolina Department of Conservation and Development, Raleigh, NC, 550p.

Withers & Ravenel, Site Application for the Central Carolina Phase III Scrap Tire Monofill Landfill, February 9, 2004.

DESIGN HYDROGEOLOGICAL REPORT

TABLES

TABLE 1
Soil Boring Details
Central Carolina Tire Monofill Design Study
Harnett County, North Carolina
Project Number 202334.01

Boring Designation	Northing	Easting	Ground Surface Elevation (Ft MSL)	Total Boring Depth (in Ft)	Bottom of Boring Elevation (Ft MSL)	Boring Purpose	Abandoned by Grouting to Surface? Yes / No
WRB-17	549059.59	1954844.32	362.53	61.5	301.0	Piezometer, Soil Samples	No
WRB-18	548529.54	1954482.41	363.31	41.5	321.8	Piezometer, Soil Samples	No
WRB-19	548730.55	1955288.06	350.86	50	300.9	Piezometer, Soil Samples	No
WRB-20	548385.09	1955075.96	344.14	41	303.1	Piezometer, Soil Samples	No
WRB-20A	548385.09	1955075.96	344.14	25.5	318.6	U/D Soil Samples	Yes
WRB-21	548047.45	1954995.76	347.67	19	328.7	Piezometer	No
WRB-21A	548047.45	1954995.76	347.67	61	286.7	Soil Samples	Yes
MW-10	549731.36	1954619.21	353.74	31.5	322.2	GW Well, Soil Samples	No
MW-11	548984.87	1955599.35	345.70	21	324.7	GW Well	No
MW-11A	548984.87	1955599.35	345.70	31	314.7	Soil Samples	Yes
MW-12	548054.79	1955590.24	334.45	19.5	315.0	GW Well	No
MW-12A	548054.79	1955590.24	334.45	41	293.5	Soil Samples	Yes
MW-13	547826.40	1955420.62	337.36	19	318.4	GW Well	No
MW-13A	547826.40	1955420.62	337.36	38	299.4	Soil Samples	Yes
MW-14	547781.99	1954436.12	341.86	10.5	331.4	GW Well	No
MW-14A	547781.99	1954436.12	341.86	36	305.9	Soil Samples	Yes
MW-14B	547781.99	1954436.12	341.86	11.5	330.4	U/D Soil Samples	Yes

Notes:
WRB = Withers & Ravenel Boring / Piezometer Location
MW = Designated Groundwater Monitoring Well Location
TOC = Top of Casing
BTOC = Below Top of Casing
BLS = Below Land Surface
MSL = Mean Sea Level

TABLE 2
Piezometer / Groundwater Monitoring Well Details
Central Carolina Tire Monofill Design Study
Harnett County, North Carolina
Project Number 202334.01

Boring Designation	Northing	Easting	TOC Elevation (Ft MSL)	Ground Surface Elevation (Ft MSL)	Total Piezometer / Well Depth (in Ft BLS)	Piezometer / Well bottom Elevation (Ft MSL)	Screened Interval (Ft MSL)	Depth to GW on 9/29/04 (in Ft BTOC)	Elevation of GW on 9/29/04 (Ft MSL)
WRB - 17	549059.59	1954844.32	365.42	362.53	33.0	329.5	329.5 To 339.5	20.76	344.66
WRB - 18	548529.54	1954482.41	366.07	363.31	29.0	334.3	334.3 To 344.3	19.55	346.52
WRB - 19	548730.55	1955288.06	353.00	350.86	21.0	329.9	329.9 To 339.9	9.42	343.58
WRB - 20	548385.09	1955075.96	347.14	344.14	18.0	326.1	326.1 To 336.1	6.27	340.87
WRB - 21	548047.45	1954995.76	350.66	347.67	18.0	329.7	329.7 To 339.7	7.17	343.49
MW - 10	549731.36	1954619.21	356.28	353.74	24.0	329.7	329.7 To 344.7	12.15	344.13
MW - 11	548984.87	1955599.35	347.80	345.70	20.5	325.2	325.2 To 340.2	8.75	339.05
MW - 12	548054.79	1955590.24	336.58	334.45	18.5	316.0	316.0 To 331.0	4.04	332.54
MW - 13	547826.40	1955420.62	339.47	337.36	18.0	319.4	319.4 To 334.4	8.13	331.34
MW - 14	547781.99	1954436.12	344.12	341.86	10.0	331.9	331.9 To 336.9	4.80	339.32

Notes:

WRB = Withers & Ravenel Boring / Piezometer Location

MW = Designated Groundwater Monitoring Well Location

TOC = Top of Casing

BTOC = Below Top of Casing

BLS = Below Land Surface

MSL = Mean Sea Level

TABLE 3
Summary of Laboratory Geotechnical Results
Central Carolina Tire Monofill Design Study
Harnett County, North Carolina
Project Number 202334.01

Sample ID	Sample Depth (BLS)	Moisture Content (%)	LL (%)	PL (%)	PI (%)	Fines USCS	Gravel (%)	Sand (%)	Fines (%)	Specific Gravity	Dry Unit Weight (pcf)	Permeability (cm/sec.)	Manual Description
WRB-20A	4.5 - 6.5	20.3	-		-	-	-	-	-	2.84	120.9	1.7 x 10-4	Poorly Graded Sand with Silt (SP- SM)
WRB-20A	25.5 - 27.0	16.6	42	16	26	CL	0	17.58	82.42	2.83	115.5	6.7 x 10-9	Lean Clay with Sand (CL)
WRB-21A	16.5 - 17.5	12.7	27	12	15	CL	1.24	57.92	40.84	2.85	111.4	1.6 x 10-5	Sandy Lean Clay (CL)
WRB-21A	41.5 - 42.5	-	35	12	23	CL	0	85.81	14.19	-		-	Clayey Sand (SC)
MW-14B	12.5 - 14.0	-	42	15	27	CL	-	-	-	-	-	-	Brown Lean Clay (CL)

Notes:
WRB = Withers & Ravenel Boring / Piezometer Location
MW = Designated Groundwater Monitoring Well Location
LL = Liquid Limit
PI = Plasticity Index
pcf = Per Cubic Foot
BLS = Below Land Surface

TABLE 4
Depth To Groundwater Measurements / Elevations
Central Carolina Tire Monofill Design Study
Harnett County, North Carolina
W&R Project No. 202334.01

Seeps

Well #	TOC	NG	7/22/03	7/22/03	7/31/03	7/31/03	8/20/03	8/20/03	9/24/03	9/24/03	11/4/03	11/4/03	12/15/03	12/15/03	1/21/04	1/21/04	4/2/04	4/2/04	5/5/04	5/5/04	8/29/04	8/29/04	9/14/04	9/14/04	9/29/04	9/29/04	10/11/04	10/11/04
	Elevation	Elevation	(depth BTOC)	(elev.)	(depth BTOC)	(elev.)	(depth BTOC)	(elev.)	(depth BTOC)	(elev.)	(depth BTOC)	(elev.)	(depth BTOC)	(elev.)	(depth BTOC)	(elev.)	(depth BTOC)	(elev.)	(depth BTOC)	(elev.)	(depth BTOC)	(elev.)	(depth BTOC)	(elev.)	(depth BTOC)	(elev.)	(depth BTOC)	(elev.)
WRB - 1	361.04	358.23	13.86	347.18	14.14	346.90	12.41	348.63	14.15	346.89	15.59	345.45	16.65	344.39	17.18	343.86	17.15	343.89	17.42	343.62	18.42	342.62	NM	NM	16.61	344.43	16.64	344.40
WRB - 2	360.37	357.29	14.71	345.66	15.10	345.27	13.49	346.88	15.30	345.07	16.59	343.78	17.46	342.91	17.90	342.47	17.70	342.67	18.00	342.37	18.88	341.49	NM	NM	16.81	343.56	17.05	343.32
WRB - 3S	363.41	360.60	15.89	347.52	16.60	346.81	14.55	348.86	17.35	346.06	18.75	344.66	19.85	343.56	20.13	343.28	19.45	343.96	20.15	343.26	20.49	342.92	NM	NM	17.84	345.57	18.32	345.09
WRB - 3D	363.57	360.54	52.12	311.45	48.46	315.11	40.41	323.16	32.00	331.57	27.40	336.17	25.28	338.29	24.36	339.21	24.01	339.56	24.40	339.17	26.09	337.48	NM	NM	25.70	337.87	25.55	338.02
WRB - 4S	355.27	352.86	10.37	344.90	10.69	344.58	9.29	345.98	10.95	344.32	12.00	343.27	12.68	342.59	12.87	342.40	12.46	342.81	12.87	342.40	13.75	341.52	NM	NM	11.73	343.54	11.94	343.33
WRB - 4D	355.67	352.54	55.40	300.27	49.42	306.25	39.27	316.40	29.94	325.73	25.30	330.37	23.24	332.43	22.23	333.44	21.43	334.24	21.41	334.26	22.70	332.97	NM	NM	22.72	332.95	22.72	332.95
WRB - 5	364.83	362.08	18.83	346.00	19.13	345.70	17.45	347.38	19.43	345.40	20.70	344.13	21.44	343.39	21.83	343.00	21.30	343.53	22.00	342.83	22.60	342.23	NM	NM	20.28	344.55	20.53	344.30
WRB - 6S	356.85	353.96	8.76	348.09	9.23	347.62	7.84	349.01	9.71	347.14	11.90	344.95	13.25	343.60	13.16	343.69	11.65	345.20	13.03	343.82	11.49	345.36	NM	NM	9.46	347.39	10.11	346.74
WRB - 6D	357.20	354.01	9.17	348.03	9.63	347.57	8.20	349.00	10.14	347.06	12.30	344.90	13.62	343.58	13.57	343.63	12.00	345.20	13.43	343.77	11.91	345.29	NM	NM	9.83	347.37	10.50	346.70
WRB - 7	347.30	344.03	11.00	336.30	11.32	335.98	9.80	337.50	11.55	335.75	12.68	334.62	13.17	334.13	13.22	334.08	12.75	334.55	13.00	334.30	13.29	334.01	NM	NM	11.34	335.96	11.84	335.46
WRB - 8S	339.99	337.11	5.64	334.35	5.59	334.40	5.00	334.99	5.95	334.04	6.95	333.04	6.76	333.23	7.13	332.86	6.77	333.22	6.50	333.49	7.34	332.65	NM	NM	5.83	334.16	6.32	333.67
WRB - 8D	340.20	337.12	10.52	329.68	8.96	331.24	8.36	331.84	7.97	332.23	7.92	332.28	8.00	332.20	8.78	331.42	10.36	329.84	10.70	329.50	9.71	330.49	NM	NM	8.72	331.48	8.61	331.59
WRB - 9	351.22	348.10	9.74	341.48	10.27	340.95	8.73	342.49	10.76	340.46	12.00	339.22	12.65	338.57	12.34	338.88	11.20	340.02	NM	NM	13.31	337.91	NM	NM	10.23	340.99	10.75	340.47
WRB - 10	338.18	335.13	14.82	323.36	15.44	322.74	13.00	325.18	16.60	321.58	19.51	318.67	21.10	317.08	20.98	317.20	19.00	319.18	20.10	318.08	22.57	315.61	NM	NM	16.80	321.38	17.52	320.66
WRB - 11S	322.88	319.42	6.55	316.33	6.83	316.05	5.50	317.38	7.30	315.58	7.96	314.92	7.60	315.28	7.80	315.08	7.41	315.47	6.70	316.18	8.99	313.89	NM	NM	6.86	316.02	7.10	315.78
WRB - 11D	322.46	319.30	40.17	282.29	26.56	295.90	21.13	301.33	19.67	302.79	18.50	303.96	17.56	304.90	17.34	305.12	18.50	303.96	19.37	303.09	20.08	302.38	NM	NM	19.13	303.33	18.90	303.56
WRB - 12S	344.42	344.42	6.81	337.61	7.00	337.42	6.31	338.11	7.02	337.40	7.67	336.75	9.00	335.42	8.25	336.17	8.00	336.42	8.15	336.27	7.81	336.61	NM	NM	7.15	337.27	7.58	336.84
WRB - 12D	345.02	344.29	Dry	Dry	Dry	Dry	40.93	304.09	39.30	305.72	37.45	307.57	35.30	309.72	33.10	311.92	27.10	317.92	24.25	320.77	18.15	326.87	NM	NM	16.65	328.37	16.15	328.87
WRB - 13	333.19	329.92	22.91	310.28	23.07	310.12	21.55	311.64	23.15	310.04	25.28	307.91	26.50	306.69	27.30	305.89	26.70	306.49	26.70	306.49	28.17	305.02	NM	NM	26.80	306.39	26.34	306.85
WRB - 14	328.36	325.33	16.02	312.34	15.90	312.46	13.21	315.15	16.66	311.70	20.60	307.76	22.13	306.23	21.33	307.03	18.70	309.66	20.50	307.86	24.70	303.66	NM	NM	16.86	311.50	17.16	311.20
WRB - 15	330.32	327.36	12.30	318.02	13.69	316.63	9.98	320.34	15.00	315.32	15.45	314.87	16.76	313.56	16.10	314.22	14.28	316.04	14.50	315.82	18.60	311.72	NM	NM	13.52	316.80	14.46	315.86
WRB - 16S	318.65	315.16	15.69	302.96	16.15	302.50	14.21	304.44	16.40	302.25	18.36	300.29	19.35	299.30	19.75	298.90	19.13	299.52	19.30	299.35	20.58	298.07	NM	NM	18.98	299.67	18.74	299.91
WRB - 16D	318.41	315.73	47.17	271.24	36.30	282.11	25.77	292.64	21.17	297.24	20.62	297.79	21.00	297.41	21.60	296.81	22.67	295.74	23.00	295.41	23.66	294.75	NM	NM	23.00	295.41	22.83	295.58
WRB - 17	365.42	362.53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21.82	343.60	20.76	344.66	20.81	344.61
WRB - 18	366.07	363.31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.26	346.81	19.55	346.52	20.20	345.87
WRB - 19	353.00	350.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.36	343.64	9.42	343.58	9.86	343.14
WRB - 20	347.14	344.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.36	340.78	6.27	340.87	6.54	340.60
WRB - 21	350.66	347.67	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.00	343.66	7.17	343.49	7.54	343.12
MW - 10	356.28	353.74	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.61	343.67	12.15	344.13	12.11	344.17
MW - 11	347.80	345.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.45	339.35	8.75	339.05	9.16	338.64
MW - 12	336.58	334.45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.51	333.07	4.04	332.54	4.53	332.05
MW - 13	339.47	337.36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.80	332.67	8.13	331.34	9.50	329.97
MW - 14	344.12	341.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.64	339.48	4.80	339.32	5.30	338.82

3
3
3

347.5
346.
343.6

Notes:
- WRB = Withers & Ravenel Boring/Piezometer
- MW = Designated Groundwater Monitoring Well
- TOC = Top of Casing
- BTOC = Below Top of Casing
- GW = Groundwater
- NA = Not Available
- NM = Not Measured
- Shaded Rows indicate Deep Piezometer (of Well Pair)

TABLE 5
Summary of Vertical Hydraulic Gradient Data
Central Carolina Tire Monofill Design Study
Harnett County, North Carolina
W&R Project No. 202334.01

Piezometer ID	G.W. Elevation on 9/29/04 in Ft MSL	d(h) in Ft.	Midpoint Screened Interval Elev. In Ft MSL	d(l) in Ft.	(iv)	Direction
WRB - 3S	345.57	7.70	353.12	32.58	0.24	Downward
WRB - 3D	337.87		320.54			
WRB - 4S	343.54	10.59	340.36	37.82	0.28	Downward
WRB - 4D	332.95		302.54			
WRB - 6S	347.39	0.02	346.46	12.45	0.002	Downward
WRB - 6D	347.37		334.01			
WRB - 8S	334.16	2.68	334.61	17.49	0.15	Downward
WRB - 8D	331.48		317.12			
*WRB - 11S	316.02	12.69	315.39	41.09	0.31	Downward
*WRB - 11D	303.33		274.30			
*WRB - 12S	337.27	8.90	339.42	20.13	0.44	Downward
*WRB - 12D	328.37		319.29			
*WRB - 16S	299.67	4.26	301.16	30.43	0.14	Downward
*WRB - 16D	295.41		270.73			

Notes:
Where:
d(h) = Difference in G.W. Elevation Between Piezometer Pair
d(l) = Difference in Saturated Midpoint of Screen Elevations Between Piezometer Pair
i_v = Vertical Gradient
* Denotes Piezometer Pair Located Outside Phase III L/F Footprint (and Within Site Application Study Area).

TABLE 6
Hydraulic Conductivities Determined From Water-Level Recovery Tests
Central Carolina Tire Monofill Design Study
Harnett County, North Carolina
W&R Project No. 202334.01

Location Identity	Total Depth (Ft BG)	Screen Interval (Ft BLS)	Material Screened	Test Type	Calculated K (cm/s)	Calculated K (ft/d)	Geometric Mean (ft/d)
WRB-1	29	29 to 19	Surficial Aquifer	Falling Head	1.0E-03	2.8	
				Rising Head	1.0E-03	2.8	
WRB-2	30	30 to 20	Surficial Aquifer	Falling Head	1.5E-03	4.3	
				Rising Head	2.6E-03	7.4	
WRB-4S	35	35 to 20	Surficial Aquifer	Falling Head	1.4E-05	0.040	
				Rising Head	1.8E-06	0.005	
WRB-5	35	35 to 25	Surficial Aquifer	Rising Head	1.4E-03	4.0	
				Falling Head	1.7E-03	4.8	
WRB-6S	15	15 to 10	Surficial Aquifer	Falling Head	4.0E-04	1.1	
				Rising Head	4.1E-04	1.2	
WRB-10	35	35 to 25	Surficial Aquifer	Falling Head	2.5E-04	0.7	
				Rising Head	1.3E-04	0.4	
WRB-17	33	33.0 to 23.0	Surficial Aquifer	Falling Head	3.5E-06	0.01	
				Rising Head	1.9E-05	0.05	
WRB-18	29	29.0 to 19.0	Surficial Aquifer	Falling Head	1.0E-05	0.03	
				Rising Head	5.5E-05	0.16	
WRB-19	21	21.0 to 11.0	Surficial Aquifer	Falling Head	5.3E-05	0.15	
				Rising Head	3.0E-05	0.09	
WRB-20	18	18.0 to 8.0	Surficial Aquifer	Falling Head	5.1E-05	0.14	
				Rising Head	1.2E-05	0.03	
WRB-21	18	18.0 to 8.0	Surficial Aquifer	Falling Head	3.9E-04	1.11	
				Rising Head	1.1E-04	0.31	
MW-10	24	24 to 14.0	Surficial Aquifer	Falling Head	1.2E-04	0.34	
				Rising Head	5.0E-04	1.42	
MW-11	20.5	20.5 to 10.5	Surficial Aquifer	Falling Head	9.3E-04	2.64	
				Rising Head	2.2E-03	6.24	
MW-12	18.5	18.5 to 3.5	Surficial Aquifer	Falling Head	1.1E-04	0.31	
				Rising Head	1.3E-05	0.04	
MW-13	18	18.0 to 3.0	Surficial Aquifer	Falling Head	2.9E-04	0.82	
				Rising Head	3.1E-03	8.79	
MW-14	10	10.0 to 5.0	Surficial Aquifer	Falling Head	1.4E-04	0.40	
				Rising Head	7.0E-05	0.20	0.43
WRB-3D	55	55 to 45	Gray Silts and Clays	Falling Head	7.1E-08	0.00020	
WRB-8D	35	35 to 25	Gray Silts and Clays	Falling Head	5.6E-07	0.0016	
WRB-16D	60	60 to 50	Gray Silts and Clays	Falling Head	5.4E-08	0.00015	0.00037

Notes:
K = Hydraulic Conductivity
Ft BLS = Feet Below Land Surface
cm/s = Centimeters per Second
ft/d = Feet per Day

TABLE 7
Average Linear Groundwater Flow Velocity Estimates
Central Carolina Tire Monofill Design Study
Harnett County, North Carolina
W&R Project No. 202334.01

Location Identity	K Test Type	Calculated K (ft/d)	Average K (ft/d)	dh/dl at Location	Effective Porosity	Flow Velocity (ft/d)	Geometric Mean (ft/d)
WRB-1	Falling Head	2.8	2.80	0.02	0.18	0.3111	
	Rising Head	2.8					
WRB-2	Falling Head	4.3	5.85	0.017	0.18	0.5525	
	Rising Head	7.4					
WRB-4S	Falling Head	0.04	0.02	0.019	0.18	0.0024	
	Rising Head	0.005					
WRB-5	Rising Head	4	4.40	0.025	0.18	0.6111	
	Falling Head	4.8					
WRB-6S	Falling Head	1.1	1.15	0.017	0.18	0.1086	
	Rising Head	1.2					
WRB-10	Falling Head	0.7	0.55	0.02	0.18	0.0611	
	Rising Head	0.4					
WRB - 17	Falling Head	0.01	0.03	0.012	0.18	0.0021	
	Rising Head	0.05					
WRB - 18	Falling Head	0.03	0.09	0.014	0.18	0.0070	
	Rising Head	0.16					
WRB - 19	Falling Head	0.15	0.12	0.011	0.18	0.0073	
	Rising Head	0.09					
WRB - 20	Rising Head	0.14	0.09	0.019	0.18	0.0092	
	Falling Head	0.03					
WRB - 21	Falling Head	1.11	0.71	0.017	0.18	0.0667	
	Rising Head	0.31					
MW - 10	Falling Head	0.34	0.88	0.011	0.18	0.0518	
	Rising Head	1.42					
MW - 11	Falling Head	2.64	4.44	0.020	0.18	0.4856	
	Rising Head	6.24					
MW -12	Falling Head	0.31	0.17	0.047	0.18	0.0456	
	Rising Head	0.04					
MW - 13	Rising Head	0.82	4.80	0.029	0.18	0.7627	
	Falling Head	8.79					
MW - 14	Falling Head	0.40	0.30	0.031	0.18	0.0517	
	Rising Head	0.20					0.065

Notes:
All Tests Conducted on 9/29/04
K = Hydraulic Conductivity
dh/dl = Change in Height / Change in Length
Ft BLS = Feet Below Land Surface
cm/s = Centimeters per Second
ft/d = Feet per Day

TABLE 8
Proposed / Existing Groundwater Monitoring Well Details
Central Carolina Tire Monofill Design Study
Harnett County, North Carolina
Project Number 202334.01

Boring Designation	Northing	Easting	TOC Elevation (Ft MSL)	Ground Surface Elevation (Ft MSL)	Total Piezometer / Well Depth (Ft BLS)	Piezometer / Well bottom Elevation (Ft MSL)	Screened Interval Depth (Ft BLS)	Screened Interval (Ft MSL)
MW - 10	549731.36	1954619.21	356.28	353.74	24.0	329.7	24.0 To 9.0	329.7 To 344.7
MW - 11	548984.87	1955599.35	347.80	345.7	20.5	325.2	20.5 To 5.5	325.2 To 340.2
MW - 12	548054.79	1955590.24	336.58	334.45	18.5	316.0	18.5 To 3.5	316.0 To 331.0
MW - 13	547826.40	1955420.62	339.47	337.36	18.0	319.4	18.0 To 3.0	319.4 To 334.4
MW - 14	547781.99	1954436.12	344.12	341.86	10.0	331.9	10.0 To 5.0	331.9 To 336.9
*MW - 15	549323.35	1954289.29	~342.0	~340.0	~24	~329.74	17.7 To 2.5	337.5 To 322.5

Notes:

MW = Designated Groundwater Monitoring Well Location

TOC = Top of Casing

BLS = Below Land Surface

MSL = Mean Sea Level

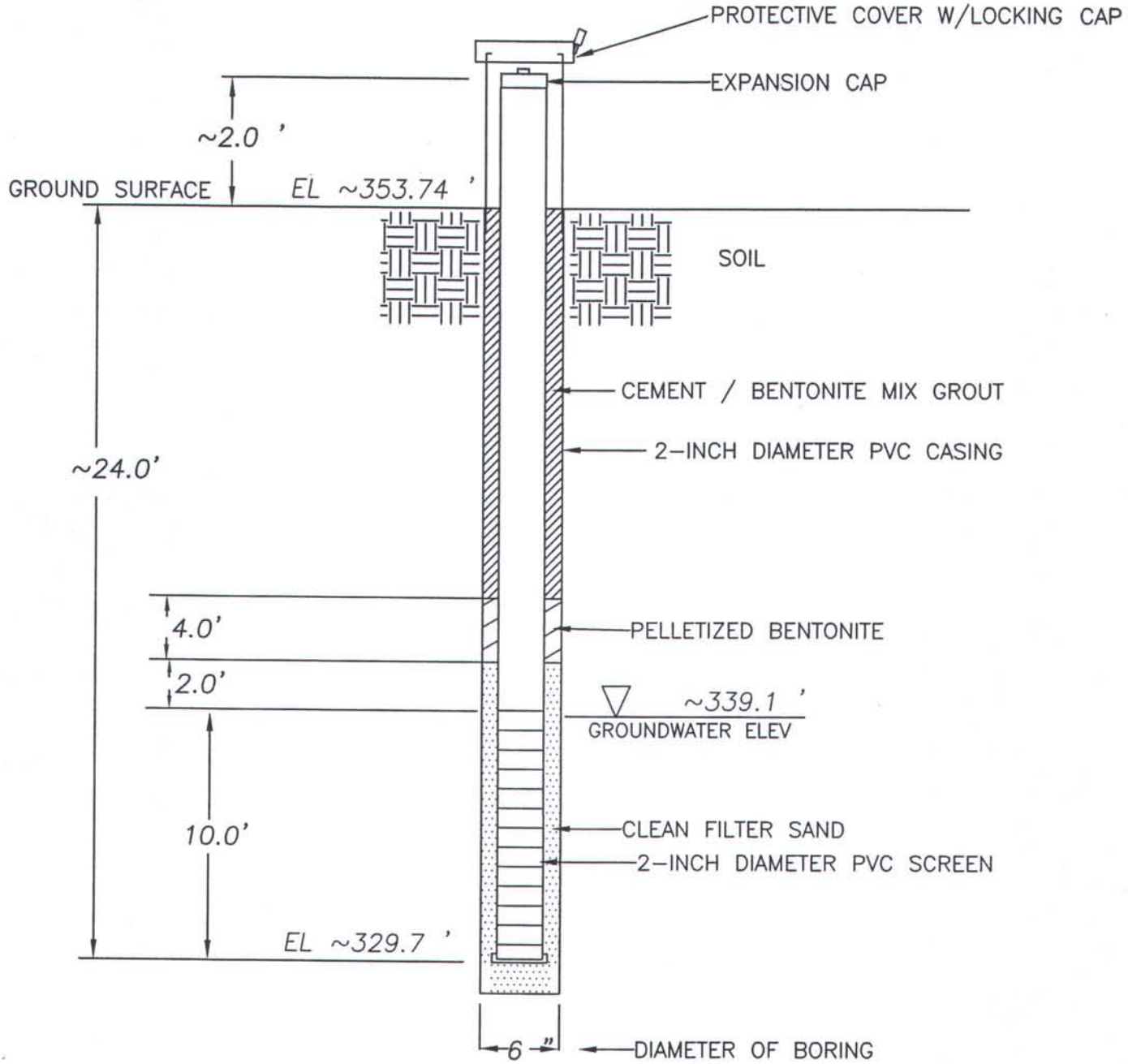
NA = Not Available

* Proposed GW Monitoring Well Location.

DESIGN HYDROGEOLOGICAL REPORT

FIGURES

Under Seperate Cover



WELL NO. MW-10

SCREEN SLOT SIZE: 0.01"

INSTALLATION DATE: 9/10/04

(DRAWING NOT TO SCALE)

Withers & Ravenel
Engineering & Surveying, Inc.
111 MACKENAN DRIVE · CARY, N.C. 27511
919-460-6006 · FAX 919-460-6082

CENTRAL CAROLINA TIRE	DRAWN BY: JMP	SCALE: NTS	FIGURE NO. 7
G.W. Well Schematic	APPROVED BY: ML	DATE: 10/18/04	JOB NO: 203141.10

DESIGN HYDROGEOLOGICAL REPORT
APPENDIX A

BORING LOGS AND PIEZOMETER/MONITORING WELL CONSTRUCTION RECORDS

WITHERS & RAVENEL
ENGINEERS I PLANNERS I SURVEYORS
111 MacKenan Drive Cary, North Carolina 27511
tel: 919-460-6006 fax: 919-535-4545
www.withersravenel.com

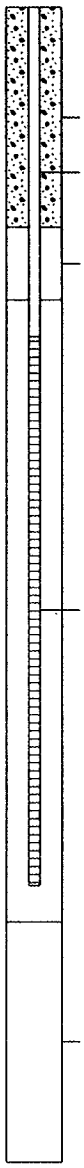
LOG OF BORING MW-10

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 9/10/04	Drilling Company	: GeoTechnologies
Date Completed	: 9/10/04	Northing Coord.	: 549731.36
Hole Diameter	: 5.0"	Easting Coord.	: 1954619.21
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Well: MW-10
Elev.: 344.13

Depth in Feet	USCS	DESCRIPTION
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Loose, Moist, Light Brown
5	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic, ~10% Fines, Loose, Very Moist, Light Brown, Fe Concretions Noted
10	SP	SAND; Very Fine to Coarse Subangular Sand, Non-Plastic, ~5% Fines, Loose, Wet to Very Wet, Gray & Purple
	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic to Medium Plasticity, Loose to Dense, Very Wet, Gray to Light Brown, Minor Clay Layers (<6") Noted
15		
20	SP	SAND; Very Fine to Medium Subangular Sand, Non-Plastic, ~5% Fines, Dense, Very Wet, Beige
25	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Medium Plasticity, ~40% Fines, Firm, Light Gray, Very Wet, Micaceous
30	CH	SILTY CLAY; Very Plastic, ~98% Fines, Hard, Wet, Light Gray & Orange Brown, Micaceous
35		



Samples	Blow Count
1	4 5 6 4
2	3 4 5 5
3	11 13 12 16
4	9 19 23 25
5	6 8 9 10
6	4 11 24 40

Well Construction Information

WELL CONSTRUCTION

Date Compl.	: 9/10/04
Hole Dia.	: 5.0"
Drill. Method	: Mud Rotary
	:

WELL CASING

Joints	: Threaded
Material	: Sch 40 PVC
Diameter	: 2 in.
	:
WELL SCREENING	: 0.010" Slotted

NOTES

Installed bentonite 25.0 to 29.5' BLS

Bottom of borehole is 29.5' BLS

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LOG OF BORING MW-11A

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 09/02/04	Drilling Company	: GeoTechnologies
Date Completed	: 09/02/04	Northing	: 548984.87
Hole Diameter	: 5.0"	Easting	: 1955599.34
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	REMARKS
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~5% Fines, Firm, Moist to Very Wet, Light Brown			Grouted borehole to surface upon completion
5			1	5 5 7 7	
10			2	8 11 10 12	
	SC	SAND WITH CLAY; Very Fine to Medium Subangular Sand, Somewhat Plastic, Very Firm, Very Wet, White & Orange/Brown, Clay Zoning & Fe Concretions Noted			
15			3	9 14 15 11	
	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low Plasticity, Loose, Very Wet, Beige			
20			4	3 5 5 24	
	SC	SANDY CLAY WITH SILT; Low to Medium Plasticity, ~50 to 60% Fines, Very Fine Subangular Sand, Very Stiff, Very Wet, Light Gray & Orange/Brown, Sandy Zoning Noted, Micaceous, (Qp=2.2 to 2.8)			
25			5	7 9 19 30	
	CH	SILTY CLAY; Extremely Plastic, ~98% Fines, Hard, Wet, Gray, (Qp=3.6 to 4.3)			Bottom of borehole is 29.0' BLS
30			6	8 15 23 28	
35					

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LOG OF BORING MW-12A

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 08/29/04	Drilling Company	: GeoTechnologies
Date Completed	: 08/29/04	Northing	: 548054.78
Hole Diameter	: 5.0"	Easting	: 1955590.23
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	REMARKS
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Loose, Dry to Moist, Beige			Grouted borehole to surface upon completion
5	SC	CLAYEY SAND; Very Fine to Fine Subangular Sand, Somewhat Plastic, ~10% Fines, Loose to Dense, Very Moist to Very Wet, Beige to Light Gray.	1	3 2 3 3	
10			2	1 2 1 2	
15			3	7 18 23 31	
20	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low Plasticity, ~20% Fines, Very Firm, Very Wet, Light Gray	4	7 9 14 18	
	CH	SILTY, SANDY CLAY; Very Plastic, ~90% Fines, Hard, Wet, Gray			
25	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic, ~10% Fines, Very Firm, Very Wet, Gray	5	13 12 15 15	
30			6	6 13 14 12	
35	CH	SANDY CLAY; Extremely Plastic, ~95% Fines, Firm, Very Wet, Gray, (Qp=1.1)	7	3 5 7 8	
	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic, ~15% Fines, Firm, Very Wet, Dark Gray			Bottom of borehole is 39.0' BLS
40	CH	SANDY CLAY; Extremely Plastic, ~90% Fines, Very Fine to Fine Subangular Sand, Hard, Wet, Dark Gray, (Qp=3.1 to 4.2)	8	9 13 18 23	
45					

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LOG OF BORING MW-13A

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 09/01/04	Drilling Company	: GeoTechnologies
Date Completed	: 09/01/04	Northing	: 547826.40
Hole Diameter	: 6.0"	Easting	: 1955420.61
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	REMARKS
0	SC	SAND WITH CLAY; Very Fine to Fine Subangular Sand, Non-Plastic, ~5% Fines, Loose, Very Moist, Light Brown			Grouted borehole to surface upon completion
5	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low to Medium Plasticity, ~35% Fines, Very Firm, Very Moist, Beige	1	4 8 14 16	
10	MH	CLAYEY SILT WITH SAND; Medium Plasticity, ~95% Fines, Very Fine Subangular Sand, Very Stiff to Hard, Very Moist, Gray/Brown, CLayey oning Noted, (Qp= 3.7 to 4.7)	2	9 13 20 26	
15	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low to Medium Plasticity, ~40% Fines, Dense, Very Moist to Wet, Light Gray	3	8 16 23 27	
20	CH	SANDY, SILTY CLAY; Medium to High Plasticity, ~60 to 70% Fines, Very Fine to Fine Subangular Sand, Hard, Wet, Light Gray, (Qp= >4.7)	4	12 16 23 33	
25	SC	CLAYEY SAND; Very Fine to Fine Subangular Sand, Low Plasticity, ~25% Fines, Firm, Very Wet, Light Gray	5	4 5 8 7	
30	MH	SANDY SILT WITH CLAY; Medium Plasticity, ~75% Fines, Very Fine Subangular Sand, Stiff, Very Wet, Gray	6	4 5 7 10	
35	MH	CLAYEY, SANDY SILT; Very Plastic, ~85% Fines, Very Fine Subangular Sand, Hard, Wet, Gray, Micaceous	7	8 16 21 24	Bottom of borehole is 38.0' BLS
40					

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LOG OF BORING MW-14A

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 09/03/04	Drilling Company	: GeoTechnologies
Date Completed	: 09/03/04	Northing	: 547781.99
Hole Diameter	: 5.0"	Easting	: 1954436.12
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	REMARKS
0	SM	SILTY SAND; Very Fine Subangular Sand, Non-Plastic, ~40% Fines, Loose to Firm, Dry to Moist, Light Brown			Grouted borehole to surface upon completion
5	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Low Plasticity, ~10% Fines, Very Firm, Wet to Very Wet, Orange/Brown	1	9 12 11 12	Minor pea-gravel layer noted ~4.0' BLS
10	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Medium Plasticity, ~20% Fines, Very Firm, Very Wet, Light Gray	2	6 7 16 29	
	CH	SANDY, SILTY CLAY; Very Plastic, ~80% Fines, Very Fine to Fine Subangular Sand, Hard, Very Wet, Light Gray, (Qp= >4.7)			
15	SC	CLAYEY, SILTY SAND; Very Fine Subangular Sand, Somewhat Plastic to Medium Plasticity, ~25% Fines, Dense to Very Dense, Wet to Very Wet, Gray to Dark Gray, Micaceous, Clayey Zoning Noted	3	12 20 25 31	
20			4	22 31 36 34	
25	SM	CLAYEY, SILTY SAND; Medium Plasticity, ~70% Fines, Very Fine Subangular Sand, Very Stiff, Very Wet, Gray, Micaceous	5	11 13 11 16	
30	SC	SILTY, CLAYEY SAND; Very Fine Subangular Sand, Low to Medium Plasticity, ~35% Fines, Firm, Very Wet, Gray, Micaceous	6	5 7 6 7	Bottom of borehole is 34.0' BLS
35			7	5 8 12 13	
40					

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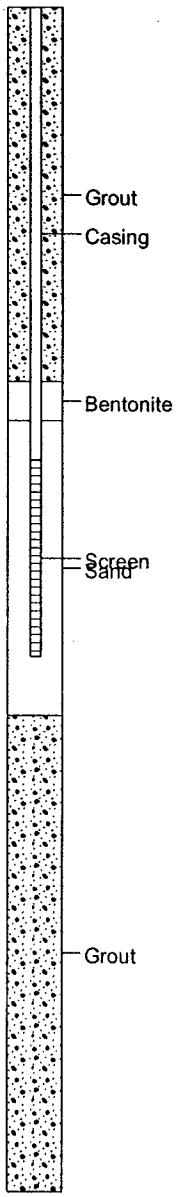
LOG OF BORING WRB-17

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 08/25/04	Drilling Company	: GeoTechnologies
Date Completed	: 08/25/04	Northing Coord.	: 549059.59
Hole Diameter	: 6.0"	Easting Coord.	: 1954844.32
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Well: WRB-17
Elev.: 344.66

Depth in Feet	USCS	DESCRIPTION
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Loose, Dry to Moist, Light Brown
5	SC	CLAYEY SAND; Very Fine to Medium, Non-Plastic to Medium Plasticity, ~5% to 45% Fines, Firm to Very Dense, Very Moist to Wet, Light Brown, Numerous Intermittent Minor Clay Layers Noted
10		
15	SM	SAND WITH SILT; Very Fine Subangular Sand, Non-Plastic, ~5% Fines, Very Firm to Dense, Very Wet, Beige & White
20		
25		
30	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic, ~10% Fines, Very Firm, Very Wet, Beige
35	SC	
	CH	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Medium Plasticity, ~25% Fines, Dense, Very Wet, Light Gray
40	SC	SILTY CLAY WITH SAND; Very Plastic, ~95% Fines, Very Fine Subangular Sand, Hard, Very Wet, Light Gray
45	MH	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low to Medium Plasticity, ~20% Fines, Very Firm to Dense, Very Wet, Light Gray
50		CLAYEY, SANDY SILT; Medium to Very Plastic, ~70 to 90% Fines, Very Fine Subangular Sand, Hard, Wet, Gray & Dark Gray, Clayey Zones Noted, Micaceous, (Qp= 2.75 to 4.7)
55		
60		
65		



Samples	Blow Count
1	5, 7, 11, 13
2	13, 41, 49, 50/5
3	6, 15, 21, 25
4	6, 13, 15, 17
5	11, 18, 26, 17
6	11, 13, 15, 12
7	8, 23, 27, 17
8	3, 7, 11, 20
9	14, 14, 25, 38
10	14, 44, 50/4
11	18, 40, 50/3
12	14, 30, 37, 46

Well Construction Information

WELL CONSTRUCTION

Date Compl.	: 08/25/04
Hole Dia.	: 6.0"
Drill. Method	: Mud Rotary
	:

WELL CASING

Joints	: Threaded
Material	: Sch 40 PVC
Diameter	: 2 in.
	:
WELL SCREENING	: 0.010" Slotted

NOTES

Shelby Tube removed 34.5 to 35.5 BLS (clayey sand/limited sample)

Bottom of borehole is 59.5' BLS

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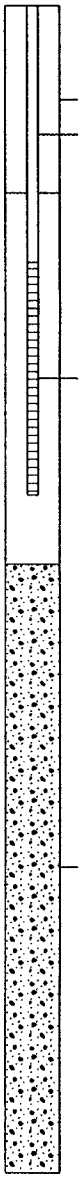
LOG OF BORING WRB-19

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 08/12/04	Drilling Company	: Titan Atlantic
Date Completed	: 08/12/04	Northing Coord.	: 548730.54
Hole Diameter	: 4.0"	Easting Coord.	: 1955288.05
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Well: WRB-19
Elev.: 343.58

Depth in Feet	USCS	DESCRIPTION
0–5	SP	SAND; Very Fine to Medium Subangular Sand, Non-Plastic, Loose, Dry to Very Moist, Light Brown
5–8	SC	VERY CLAYEY SAND; Very Fine to Medium Subangular Sand, Low to Medium Plasticity, ~40% Fines, Dense, Wet, Orange/Brown
8–26	SC	CLAYEY SAND; Very Fine to Fine Subangular Sand, Non-Plastic to Low Plasticity, ~5 to 20% Fines, Firm to Dense, Wet to Very Wet, Pink, Minor Clayey Zones Noted
26–34	CL	SANDY, SILTY CLAY; Medium Plasticity, ~55% Fines, Very Fine to Fine Subangular Sand, Very Stiff, Wet, Light Gray, (Qp= 2.3 to 2.6 / Qt= .88 to 1.13)
34–37	CH	SILTY CLAY WITH SAND; Very Plastic, ~97% Fines, Very Fine Subangular Sand, Hard, Wet, Gray, (Qp= 3.3 to 4.7 / Qt= 1.78 to 2.75)
37–50	MH	CLAYEY SILT WITH SAND; Medium Plasticity, ~95% Fines, Very Fine Subangular Sand, Very Stiff



Samples	Blow Count
1	2, 3, 3, 4
2	6, 10, 12, 27, 26
3	10, 8, 8, 11
4	6, 8, 8, 9
5	7, 5, 6, 8
6	6, 11, 16, 20
7	9, 13, 24, 27
8	7, 8, 10, 9
9	8, 10, 14, 19
10	17, 23, 25, 30

Well Construction Information

WELL CONSTRUCTION

Date Compl.	: 08/12/04
Hole Dia.	: 4.0"
Drill. Method	: Mud Rotary
	:

WELL CASING

Joints	: Threaded
Material	: Sch 40 PVC
Diameter	: 2 in.
	:
WELL SCREENING	: 0.010" Slotted

NOTES

Bottom of borehole is 48.0' BLS

Bottom of boring was grouted 50.0 to 24.0' BLS

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LOG OF BORING WRB-20A

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 09/09/04	Drilling Company	: GeoTechnologies
Date Completed	: 09/09/04	Northing	: 548385.08
Hole Diameter	: 6.0"	Easting	: 1955075.96
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	REMARKS
0		Offset Boring For Shelby Tubes, See WRB-20			No SPT conducted
					Grouted borehole to surface upon completion of sampling
5					Shelby Tube removed (4.5 to 6.5' BLS - Sand) - standard push method
10					
			1		
15					
20					Shelby Tube removed (25.5 to 27.0' BLS - (Silty Clay With Sand to Clayey Silt With Sand - top is Clay, bottom is Silt) - Dennison Tube
					Bottom of borehole is 25.5' BLS
25					
30					

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LOG OF BORING WRB-21A

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 08/26/04	Drilling Company	: GeoTechnologies
Date Completed	: 08/26/04	Northing	: 548047.45
Hole Diameter	: 6.0"	Easting	: 1954995.76
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	REMARKS
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Loose to Firm, Dry to Very Wet, Light Brown	1	4 4 8 12	
5	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic, ~5% Fines, Firm, Very Wet, Light Brown, Fe Concretions Noted	2	7 7 7 7	
10	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Very Firm, Very Wet, Light Gray	3	8 12 11 12	Shelby Tube removed 16.5 to 17.5' BLS (Very Clayey Sand)
15	SC	VERY CLAYEY SAND; Very Fine to Medium Subangular Sand, Low Plasticity, ~20% Fines, Very Dense, Very Wet, Light Gray	4	22 21 48 50/3	
	ML		5	27 50/5	
20	SC	CLAYEY, SANDY SILT; Low Plasticity, ~90% Fines, Very Fine Subangular Sand, Hard, Wet, Light Gray, (Qp= 74.7)	6	18 33 50/45	Driller reports gravel at 23.5' BLS
25	CH	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Somewhat Plastic to Low Plasticity, Very Dense, Very Wet, Ligth Gray	7	16 22 27 35	
30	ML	SILTY CLAY WITH SAND; Extremely Plastic, ~95% Fines, Very Fine to Fine Subangular Sand, Hard, Wet, Gray, (Qp= >4.7)	8	7 10 14 18	
35		CLAYEY, SANDY SILT; Low to Medium Plasticity, ~70 to 90% Fines, Very Fine Subangular Sand, Very Stiff to Hard, Wet, Gray, Variations in Clay Content Noted, (Qp= 3.2 to >4.7)	9	6 9 9 9	Shelby removed 41.5 to 42.5' BLS (Clayey, Silty Sand)
40	SC	CLAYEY, SILTY SAND; Very Fine to Fine Subangular Sand, Low Plasticity, ~45% Fines, Loose to Firm, Very Wet, Gray	10	4 4 6 7	Driller reports hard conditions beginning at 48.5' BLS
45	ML	CLAYEY, SANDY SILT; Low Plasticity, ~75% Fines, Very Fine Subangular Sand, Hard, Wet, Gray, (Qp= >4.7)	11	50/3.5	
50	CH	CLAYEY, SILTY SAND; Very Plastic, ~90% Fines, Very Fine to Fine Subangular Sand, Hard, Wet, Gray, (Qp= >4.7)	12	33 50/5.5	Bottom of borehole is 59.0' BLS
55	SC	SILTY, SANDY CLAY; Very Fine to Fine Subangular Sand, Medium Plasticity, ~40% Fines, Very Dense, Wet, Gray, Micaceous	13	37 50/4	
60					

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DESIGN HYDROGEOLOGICAL REPORT
APPENDIX B

LABORATORY TESTING RESULTS

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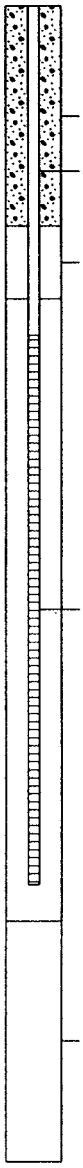
LOG OF BORING MW-10

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 9/10/04	Drilling Company	: GeoTechnologies
Date Completed	: 9/10/04	Northing Coord.	: 549731.36
Hole Diameter	: 5.0"	Easting Coord.	: 1954619.21
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Well: MW-10
Elev.: 344.13

Depth in Feet	USCS	DESCRIPTION
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Loose, Moist, Light Brown
5	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic, ~10% Fines, Loose, Very Moist, Light Brown, Fe Concretions Noted
10	SP	SAND; Very Fine to Coarse Subangular Sand, Non-Plastic, ~5% Fines, Loose, Wet to Very Wet, Gray & Purple
	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic to Medium Plasticity, Loose to Dense, Very Wet, Gray to Light Brown, Minor Clay Layers (<6") Noted
15		
20	SP	SAND; Very Fine to Medium Subangular Sand, Non-Plastic, ~5% Fines, Dense, Very Wet, Beige
25	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Medium Plasticity, ~40% Fines, Firm, Light Gray, Very Wet, Micaceous
30	CH	SILTY CLAY; Very Plastic, ~98% Fines, Hard, Wet, Light Gray & Orange Brown, Micaceous
35		



Samples	Blow Count
1	4 5 6 4
2	3 4 5 5
3	11 13 12 16
4	9 19 23 25
5	6 8 9 10
6	4 11 24 40

Well Construction Information

WELL CONSTRUCTION

Date Compl.	: 9/10/04
Hole Dia.	: 5.0"
Drill. Method	: Mud Rotary
	:

WELL CASING

Joints	: Threaded
Material	: Sch 40 PVC
Diameter	: 2 in.
	:
WELL SCREENING	: 0.010" Slotted

NOTES

Installed bentonite 25.0 to 29.5' BLS

Bottom of borehole is 29.5' BLS

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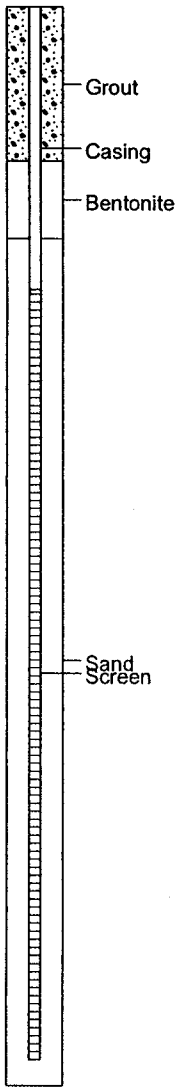
LOG OF BORING MW-11

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 9/02/04	Drilling Company	: GeoTechnologies
Date Completed	: 9/02/04	Northing Coord.	: 548984.87
Hole Diameter	: 6.0"	Easting Coord.	: 1955599.34
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Well: MW-11
Elev.: 339.05

Depth in Feet	USCS	DESCRIPTION
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~5% Fines, Firm, Moist to Very Wet, Light Brown
10	SC	SAND WITH CLAY; Very Fine to Medium Subangular Sand, Somewhat Plastic, Very Firm, Very Wet, White & Orange/Brown, Clay Zoning & Fe Concretions Noted
20	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low Plasticity, Loose, Very Wet, Beige



Samples | Blow Count

Well Construction Information

WELL CONSTRUCTION

Date Compl.	: 9/02/04
Hole Dia.	: 5.0"
Drill. Method	: Mud Rotary

WELL CASING

Joints	: Threaded
Material	: Sch 40 PVC
Diameter	: 2 in.
WELL SCREENING	: 0.010" Slotted

NOTES

No SPT conducted, no soil samples exist

Bottom of borehole is 21.0' BLS

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LOG OF BORING MW-11A

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 09/02/04	Drilling Company	: GeoTechnologies
Date Completed	: 09/02/04	Northing	: 548984.87
Hole Diameter	: 5.0"	Easting	: 1955599.34
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	REMARKS
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~5% Fines, Firm, Moist to Very Wet, Light Brown			Grouted borehole to surface upon completion
5			1	5 5 7 7	
10			2	8 11 10 12	
	SC	SAND WITH CLAY; Very Fine to Medium Subangular Sand, Somewhat Plastic, Very Firm, Very Wet, White & Orange/Brown, Clay Zoning & Fe Concretions Noted			
15			3	9 14 15 11	
	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low Plasticity, Loose, Very Wet, Beige			
20			4	3 5 5 24	
	SC	SANDY CLAY WITH SILT; Low to Medium Plasticity, ~50 to 60% Fines, Very Fine Subangular Sand, Very Stiff, Very Wet, Light Gray & Orange/Brown, Sandy Zoning Noted, Micaceous, (Qp=2.2 to 2.8)			
25			5	7 9 19 30	
	CH	SILTY CLAY; Extremely Plastic, ~98% Fines, Hard, Wet, Gray, (Qp=3.6 to 4.3)			Bottom of borehole is 29.0' BLS
30			6	8 15 23 28	
35					

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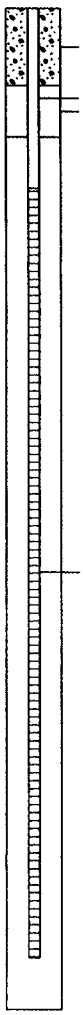
LOG OF BORING MW-12

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 9/02/04	Drilling Company	: GeoTechnologies
Date Completed	: 9/02/04	Northing Coord.	: 548054.78
Hole Diameter	: 8.0"	Easting Coord.	: 1955590.23
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Well: MW-12
Elev.: 332.54

Depth in Feet	USCS	DESCRIPTION
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Loose, Dry to Moist, Beige
5	SC	CLAYEY SAND; Very Fine to Fine Subangular Sand, Somewhat Plastic, ~10% Fines, Loose to Dense, Very Moist to Very Wet, Beige to Light Gray.
10		
15		
20	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low Plasticity, ~20% Fines, Very Firm, Very Wet, Light Gray
25		



Samples | Blow Count

Well Construction Information

WELL CONSTRUCTION

Date Compl.	: 9/02/04
Hole Dia.	: 8.0"
Drill. Method	: Mud Rotary
	:

WELL CASING

Joints	: Threaded
Material	: Sch 40 PVC
Diameter	: 2 in.
	:
WELL SCREENING	: 0.010" Slotted

NOTES

No SPT conducted, no soil samples exist

Bottom of borehole is 19.5' BLS

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LOG OF BORING MW-12A

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 08/29/04	Drilling Company	: GeoTechnologies
Date Completed	: 08/29/04	Northing	: 548054.78
Hole Diameter	: 5.0"	Easting	: 1955590.23
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	REMARKS
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Loose, Dry to Moist, Beige			Grouted borehole to surface upon completion
5	SC	CLAYEY SAND; Very Fine to Fine Subangular Sand, Somewhat Plastic, ~10% Fines, Loose to Dense, Very Moist to Very Wet, Beige to Light Gray.	1	3 3 3 3	
10			2	1 2 1 2	
15			3	7 18 23 31	
20	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low Plasticity, ~20% Fines, Very Firm, Very Wet, Light Gray	4	7 9 14 18	
	CH	SILTY, SANDY CLAY; Very Plastic, ~90% Fines, Hard, Wet, Gray			
25	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic, ~10% Fines, Very Firm, Very Wet, Gray	5	13 12 15 15	
30			6	6 13 14 12	
	CH	SANDY CLAY; Extremely Plastic, ~95% Fines, Firm, Very Wet, Gray, (Qp=1.1)	7	3 5 5 8	
35	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic, ~15% Fines, Firm, Very Wet, Dark Gray			Bottom of borehole is 39.0' BLS
40	CH	SANDY CLAY; Extremely Plastic, ~90% Fines, Very Fine to Fine Subangular Sand, Hard, Wet, Dark Gray, (Qp=3.1 to 4.2)	8	9 13 18 23	
45					

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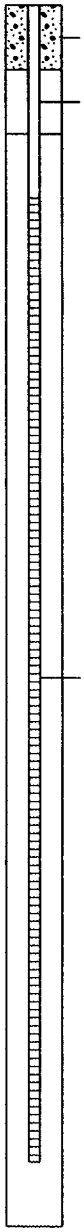
LOG OF BORING MW-13

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 09/03/04	Drilling Company	: GeoTechnologies
Date Completed	: 09/03/04	Northing Coord.	: 547826.40
Hole Diameter	: 8.0"	Easting Coord.	: 1955420.61
Drilling Method	: Hollow Stem Auger	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Well: MW-13
Elev.: 331.34

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	Well Construction Information
0	SC	SAND WITH CLAY; Very Fine to Fine Subangular Sand, Non-Plastic, ~5% Fines, Loose, Very Moist, Light Brown			
5	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low to Medium Plasticity, ~35% Fines, Very Firm, Very Moist, Beige			
10	MH	CLAYEY SILT WITH SAND; Medium Plasticity, ~95% Fines, Very Fine Subangular Sand, Very Stiff to Hard, Very Moist, Gray/Brown, CLayey oning Noted, (Qp= 3.7 to 4.7)			
15	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low to Medium Plasticity, ~40% Fines, Dense, Very Moist to Wet, Light Gray			
20					



WELL CONSTRUCTION

Date Compl.	: 09/03/04
Hole Dia.	: 8.0"
Drill. Method	: Hollow Stem Auger
	:

WELL CASING

Joints	: Threaded
Material	: Sch 40 PVC
Diameter	: 2 in.
	:
WELL SCREENING	: 0.010" Slotted

NOTES

No SPT conducted, no soil samples exist

Bottom of borehole is 19.0' BLS

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LOG OF BORING MW-13A

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 09/01/04	Drilling Company	: GeoTechnologies
Date Completed	: 09/01/04	Northing	: 547826.40
Hole Diameter	: 6.0"	Easting	: 1955420.61
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	REMARKS
0	SC	SAND WITH CLAY; Very Fine to Fine Subangular Sand, Non-Plastic, ~5% Fines, Loose, Very Moist, Light Brown			Grouted borehole to surface upon completion
5	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low to Medium Plasticity, ~35% Fines, Very Firm, Very Moist, Beige	1	4 8 14 16	
10	MH	CLAYEY SILT WITH SAND; Medium Plasticity, ~95% Fines, Very Fine Subangular Sand, Very Stiff to Hard, Very Moist, Gray/Brown, CLayey oning Noted, (Qp= 3.7 to 4.7)	2	9 13 20 26	
15	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low to Medium Plasticity, ~40% Fines, Dense, Very Moist to Wet, Light Gray	3	8 16 23 27	
20	CH	SANDY, SILTY CLAY; Medium to High Plasticity, ~60 to 70% Fines, Very Fine to Fine Subangular Sand, Hard, Wet, Light Gray, (Qp= >4.7)	4	12 16 23 33	
25	SC	CLAYEY SAND; Very Fine to Fine Subangular Sand, Low Plasticity, ~25% Fines, Firm, Very Wet, Light Gray	5	4 5 8 7	
30	MH	SANDY SILT WITH CLAY; Medium Plasticity, ~75% Fines, Very Fine Subangular Sand, Stiff, Very Wet, Gray	6	4 5 7 10	
35	MH	CLAYEY, SANDY SILT; Very Plastic, ~85% Fines, Very Fine Subangular Sand, Hard, Wet, Gray, Micaceous	7	8 16 21 24	Bottom of borehole is 38.0' BLS
40					

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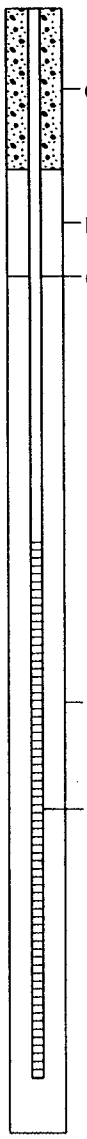
LOG OF BORING MW-14

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 09/09/04	Drilling Company	: GeoTechnologies
Date Completed	: 09/09/04	Northing Coord.	: 547781.99
Hole Diameter	: 8.0"	Easting Coord.	: 1954436.12
Drilling Method	: Hollow Stem Auger	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Well: MW-14
Elev.: 339.32

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count
0	SM	SILTY SAND; Very Fine Subangular Sand, Non-Plastic, ~40% Fines, Loose to Firm, Dry to Moist, Light Brown		
5	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Low Plasticity, ~10% Fines, Very Firm, Wet to Very Wet, Orange/Brown		
10	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Medium Plasticity, ~20% Fines, Very Firm, Very Wet, Light Gray		



Well Construction Information

WELL CONSTRUCTION

Date Compl.	: 09/09/04
Hole Dia.	: 8.0"
Drill. Method	: Hollow Stem Auger
	:

WELL CASING

Joints	: Threaded
Material	: Sch 40 PVC
Diameter	: 2 in.
	:
WELL SCREENING	: 0.010" Slotted

NOTES

No SPT conducted, no soil samples exist

Bottom of borehole is 10.5' BLS

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LOG OF BORING MW-14A

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 09/03/04	Drilling Company	: GeoTechnologies
Date Completed	: 09/03/04	Northing	: 547781.99
Hole Diameter	: 5.0"	Easting	: 1954436.12
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	REMARKS
0	SM	SILTY SAND; Very Fine Subangular Sand, Non-Plastic, ~40% Fines, Loose to Firm, Dry to Moist, Light Brown			Grouted borehole to surface upon completion
5	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Low Plasticity, ~10% Fines, Very Firm, Wet to Very Wet, Orange/Brown	1	9 12 11 12	Minor pea-gravel layer noted ~4.0' BLS
10	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Medium Plasticity, ~20% Fines, Very Firm, Very Wet, Light Gray	2	6 7 16 29	
	CH	SANDY, SILTY CLAY; Very Plastic, ~80% Fines, Very Fine to Fine Subangular Sand, Hard, Very Wet, Light Gray, (Qp= >4.7)			
15	SC	CLAYEY, SILTY SAND; Very Fine Subangular Sand, Somewhat Plastic to Medium Plasticity, ~25% Fines, Dense to Very Dense, Wet to Very Wet, Gray to Dark Gray, Micaceous, Clayey Zoning Noted	3	12 20 25 31	
20			4	22 31 36 34	
25	SM	CLAYEY, SILTY SAND; Medium Plasticity, ~70% Fines, Very Fine Subangular Sand, Very Stiff, Very Wet, Gray, Micaceous	5	11 13 11 16	
30	SC	SILTY, CLAYEY SAND; Very Fine Subangular Sand, Low to Medium Plasticity, ~35% Fines, Firm, Very Wet, Gray, Micaceous	6	5 7 6 7	Bottom of borehole is 34.0' BLS
35			7	5 8 12 13	
40					

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LOG OF BORING MW-14B

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 09/09/04	Drilling Company	: GeoTechnologies
Date Completed	: 09/09/04	Northing	: 547781.99
Hole Diameter	: 6.0"	Easting	: 195446.12
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	REMARKS
0		Offset Boring For Shelby Tubes, See MW-12A			
					No SPT conducted
					Grouted borehole to surface upon completion of sampling
5					Shelby Tube removed from (11.5 to 12.5' BLS, very clayey sand)
			1		
10					Bottom of borehole is 11.5' BLS
					Shelby Tube removed from (12.5 to 14.0' BLS, sandy, silty clay)
15					

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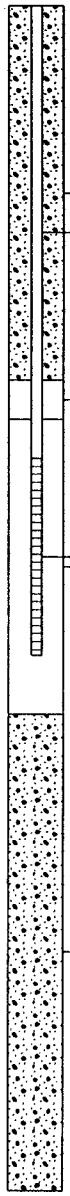
LOG OF BORING WRB-17

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 08/25/04	Drilling Company	: GeoTechnologies
Date Completed	: 08/25/04	Northing Coord.	: 549059.59
Hole Diameter	: 6.0"	Easting Coord.	: 1954844.32
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Well: WRB-17
Elev.: 344.66

Depth in Feet	USCS	DESCRIPTION
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Loose, Dry to Moist, Light Brown
5	SC	CLAYEY SAND; Very Fine to Medium, Non-Plastic to Medium Plasticity, ~5% to 45% Fines, Firm to Very Dense, Very Moist to Wet, Light Brown, Numerous Intermittent Minor Clay Layers Noted
10		
15	SM	SAND WITH SILT; Very Fine Subangular Sand, Non-Plastic, ~5% Fines, Very Firm to Dense, Very Wet, Beige & White
20		
25		
30	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic, ~10% Fines, Very Firm, Very Wet, Beige
35	SC	
	CH	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Medium Plasticity, ~25% Fines, Dense, Very Wet, Light Gray
40	SC	SILTY CLAY WITH SAND; Very Plastic, ~95% Fines, Very Fine Subangular Sand, Hard, Very Wet, Light Gray
45	MH	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low to Medium Plasticity, ~20% Fines, Very Firm to Dense, Very Wet, Light Gray
50		CLAYEY, SANDY SILT; Medium to Very Plastic, ~70 to 90% Fines, Very Fine Subangular Sand, Hard, Wet, Gray & Dark Gray, Clayey Zones Noted, Micaceous, (Qp= 2.75 to 4.7)
55		
60		
65		



Samples	Blow Count
1	5, 7, 11, 13
2	13, 41, 49, 50/5
3	6, 15, 21, 25
4	6, 13, 16, 17
5	11, 18, 26, 17
6	11, 13, 15, 12
7	8, 23, 17, 17
8	3, 7, 11, 20
9	14, 23, 35, 38
10	14, 44, 50/4
11	18, 19, 30, 50/3
12	14, 30, 32, 45

WELL CONSTRUCTION

Date Compl.	: 08/25/04
Hole Dia.	: 6.0"
Drill. Method	: Mud Rotary
	:

WELL CASING

Joints	: Threaded
Material	: Sch 40 PVC
Diameter	: 2 in.
	:
WELL SCREENING	: 0.010" Slotted

NOTES

Shelby Tube removed 34.5 to 35.5 BLS (clayey sand/limited sample)

Bottom of borehole is 59.5' BLS

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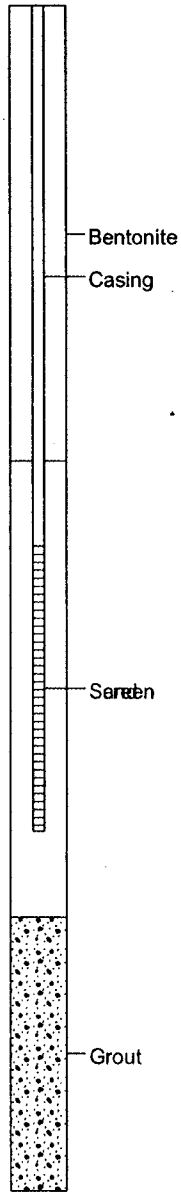
LOG OF BORING WRB-18

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 08/24/04	Drilling Company	: GeoTechnologies
Date Completed	: 08/24/04	Northing Coord.	: 548529.53
Hole Diameter	: 6.0"	Easting Coord.	: 1954482.41
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Well: WRB-18
Elev.: 346.52

Depth in Feet	USCS	DESCRIPTION
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Loose to Very Firm, Dry to Wet, Light Brown & Gray
20	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic to Low Plasticity, ~5 to 10% Fines, Firm to Dense, Very Wet, Gray & Purple, Minor Clay Layers and Fe Concretions Noted
30	ML	CLAYEY SILT WITH SAND; Somewhat Plastic, ~90% Fines, Very Fine Subangular Sand, Hard, Very Wet, Light Gray
35	SC	CLAYEY, SILTY SAND; Very Fine Subangular Sand, Somewhat Plastic, ~45% Fines, Very Dense, Very Wet, Gray
40	ML	SANDY SILT WITH CLAY; Somewhat Plastic to Medium Plasticity, Very Fine Subangluar Sand, ~75% Fines, Hard, Wet, Gray, Micaceous



Samples	Blow Count
1	5 6 8 8
2	4 4 5 7
3	9 13 14 16
4	12 18 25 27
5	7 9 10 5
6	3 14 50/5
7	33 50/4.5
8	24 50/4

Well Construction Information

WELL CONSTRUCTION

Date Compl.	: 08/24/04
Hole Dia.	: 6.0"
Drill. Method	: Mud Rotary

WELL CASING

Joints	: Threaded
Material	: Sch 40 PVC
Diameter	: 2 in.
WELL SCREENING	: 0.010" Slotted

NOTES

Bottom of borehole was grouted 41.5 to 29.5' BLS

Bottom of borehole is 39.5' BLS

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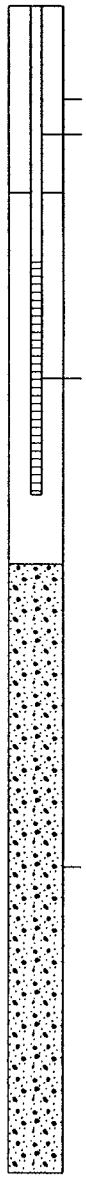
LOG OF BORING WRB-19

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 08/12/04	Drilling Company	: Titan Atlantic
Date Completed	: 08/12/04	Northing Coord.	: 548730.54
Hole Diameter	: 4.0"	Easting Coord.	: 1955288.05
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Well: WRB-19
Elev.: 343.58

Depth in Feet	USCS	DESCRIPTION
0–5	SP	SAND; Very Fine to Medium Subangular Sand, Non-Plastic, Loose, Dry to Very Moist, Light Brown
5–9	SC	VERY CLAYEY SAND; Very Fine to Medium Subangular Sand, Low to Medium Plasticity, ~40% Fines, Dense, Wet, Orange/Brown
9–25	SC	CLAYEY SAND; Very Fine to Fine Subangular Sand, Non-Plastic to Low Plasticity, ~5 to 20% Fines, Firm to Dense, Wet to Very Wet, Pink, Minor Clayey Zones Noted
25–35	CL	SANDY, SILTY CLAY; Medium Plasticity, ~55% Fines, Very Fine to Fine Subangular Sand, Very Stiff, Wet, Light Gray, (Qp= 2.3 to 2.6 / Qt= .88 to 1.13)
35–37	CH	SILTY CLAY WITH SAND; Very Plastic, ~97% Fines, Very Fine Subangular Sand, Hard, Wet, Gray, (Qp= 3.3 to 4.7 / Qt= 1.78 to 2.75)
37–50	MH	CLAYEY SILT WITH SAND; Medium Plasticity, ~95% Fines, Very Fine Subangular Sand, Very Stiff



Samples	Blow Count
1	2, 3, 2, 4
2	6, 12, 27, 26
3	10, 8, 9, 11
4	6, 8, 8, 9
5	7, 5, 8, 8
6	6, 11, 16, 20
7	9, 13, 24, 27
8	7, 8, 10, 9
9	8, 10, 14, 19
10	17, 23, 25, 30

WELL CONSTRUCTION

Date Compl.	: 08/12/04
Hole Dia.	: 4.0"
Drill. Method	: Mud Rotary
	:

WELL CASING

Joints	: Threaded
Material	: Sch 40 PVC
Diameter	: 2 in.
	:
WELL SCREENING	: 0.010" Slotted

NOTES

Bottom of borehole is 48.0' BLS

Bottom of boring was grouted 50.0 to 24.0' BLS

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LOG OF BORING WRB-20

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 08/27/04	Drilling Company	: GeoTechnologies
Date Completed	: 08/27/04	Northing Coord.	: 548385.08
Hole Diameter	: 6.0"	Easting Coord.	: 1955075.96
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Well: WRB-20
Elev.: 340.87

Depth in Feet	USCS	DESCRIPTION
0–5	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Loose to Firm, Dry to Wet, Light Brown
5–18	SC	CLAYEY SAND; Very Fine to Fine Subangular Sand, Somewhat Plastic, ~5 to 15% Fines, Firm to Very Firm, Wet to Very Wet, Light Brown
18–19	MH	CLAYEY SILT WITH SAND; Very Plastic, ~95% Fines, Very Fine Subangular Sand, Very Stiff, Very Wet, Light Gray
19–25	SC	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Low to Medium Plasticity, ~30% Fines, Firm to Dense, Very Wet, Light Brown
25–33	CH	SILTY CLAY WITH SAND; Very to Extremely Plastic, ~95 to 99% Fines, Very Fine Subangular Sand, Very Stiff to Hard, Wet, Gray, Silty Zoning Noted, (Qp= 4.1 to 4.7)
33–41	ML	CLAYEY, SANDY SILT; Low to Medium Plasticity, ~75% Fines, Very Fine Subangular Sand, Very Stiff to Hard, Wet, Gray to Light Gray

Samples	Blow Count
1	2, 3, 2, 4
2	6, 12, 27, 26
3	10, 8, 9, 11
4	6, 6, 8, 9
5	7, 5, 6, 8
6	6, 11, 16, 20
7	9, 13, 24, 27
8	7, 8, 10, 9
9	8, 10

Well Construction Information

WELL CONSTRUCTION

Date Compl.	: 08/27/04
Hole Dia.	: 6.0"
Drill. Method	: Mud Rotary

WELL CASING

Joints	: Threaded
Material	: Sch 40 PVC
Diameter	: 2 in.
WELL SCREENING	: 0.010" Slotted

NOTES

Boring grouted to surface upon completion

Minor gravel layer @ 19.5' BLS

Shelby attempted @ 19.5 to 21.5 (too hard and gravel present)

Bottom of borehole is 39.0' BLS

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LOG OF BORING WRB-20A

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 09/09/04	Drilling Company	: GeoTechnologies
Date Completed	: 09/09/04	Northing	: 548385.08
Hole Diameter	: 6.0"	Easting	: 1955075.96
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	REMARKS
0		Offset Boring For Shelby Tubes, See WRB-20			No SPT conducted
					Grouted borehole to surface upon completion of sampling
5					Shelby Tube removed (4.5 to 6.5' BLS - Sand) - standard push method
10					
			1		
15					
20					Shelby Tube removed (25.5 to 27.0' BLS - (Silty Clay With Sand to Clayey Silt With Sand - top is Clay, bottom is Silt) - Dennison Tube
					Bottom of borehole is 25.5' BLS
25					
30					

10-15-2004 k:\02\02-330\02334.01 LF Expansion\Boring Plan\WRB-20A.bor

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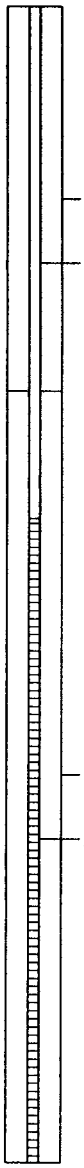
LOG OF BORING WRB-21

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 08/27/04	Drilling Company	: GeoTechnologies
Date Completed	: 08/27/04	Northing Coord.	: 548047.45
Hole Diameter	: 6.0"	Easting Coord.	: 1954995.76
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Well: WRB-21
Elev.: 343.49

Depth in Feet	USCS	DESCRIPTION
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Loose to Firm, Dry to Very Wet, Light Brown
5		
10	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic, ~5% Fines, Firm, Very Wet, Light Brown, Fe Concretions Noted
15	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Very Firm, Very Wet, Light Gray
	SC	VERY CLAYEY SAND; Very Fine to Medium Subangular Sand, Low Plasticity, ~20% Fines, Very Dense, Very Wet, Light Gray
20		



Samples | Blow Count

Well Construction Information

WELL CONSTRUCTION

Date Compl.	: 08/27/04
Hole Dia.	: 6.0"
Drill. Method	: Mud Rotary

WELL CASING

Joints	: Threaded
Material	: Sch 40 PVC
Diameter	: 2 in.
WELL SCREENING	: 0.010" Slotted

NOTES

No SPT conducted, no soil sampling exists

Bottom of borehole is 19.0' BLS

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LOG OF BORING WRB-21A

Central Carolina Tire
Landfill Expansion
Project No. 202334.01

Date Started	: 08/26/04	Drilling Company	: GeoTechnologies
Date Completed	: 08/26/04	Northing	: 548047.45
Hole Diameter	: 6.0"	Easting	: 1954995.76
Drilling Method	: Mud Rotary	Survey By	:
Sampling Method	: SPT	Logged By	: John Palmer

Depth in Feet	USCS	DESCRIPTION	Samples	Blow Count	REMARKS
0	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Loose to Firm, Dry to Very Wet, Light Brown	1	4 5 5 12	
5	SC	CLAYEY SAND; Very Fine to Medium Subangular Sand, Somewhat Plastic, ~5% Fines, Firm, Very Wet, Light Brown, Fe Concretions Noted	2	7 7 7 7	
10	SW	SAND; Very Fine to Fine Subangular Sand, Non-Plastic, ~3% Fines, Very Firm, Very Wet, Light Gray	3	8 12 11 12	Shelby Tube removed 16.5 to 17.5' BLS (Very Clayey Sand)
15	SC	VERY CLAYEY SAND; Very Fine to Medium Subangular Sand, Low Plasticity, ~20% Fines, Very Dense, Very Wet, Light Gray	4	22 21 28 50/3	
	ML		5	27 50/5	
20	SC	CLAYEY, SANDY SILT; Low Plasticity, ~90% Fines, Very Fine Subangular Sand, Hard, Wet, Light Gray, (Qp= 74.7)	6	18 33 50/45	Driller reports gravel at 23.5' BLS
25	CH	VERY CLAYEY SAND; Very Fine to Fine Subangular Sand, Somewhat Plastic to Low Plasticity, Very Dense, Very Wet, Ligth Gray	7	16 22 27 35	
30	ML	SILTY CLAY WITH SAND; Extremely Plastic, ~95% Fines, Very Fine to Fine Subangular Sand, Hard, Wet, Gray, (Qp= >4.7)	8	7 10 14 18	
35		CLAYEY, SANDY SILT; Low to Medium Plasticity, ~70 to 90% Fines, Very Fine Subangular Sand, Very Stiff to Hard, Wet, Gray, Variations in Clay Content Noted, (Qp= 3.2 to >4.7)	9	6 8 9 9	Shelby removed 41.5 to 42.5' BLS (Clayey, Silty Sand)
40	SC	CLAYEY, SILTY SAND; Very Fine to Fine Subangular Sand, Low Plasticity, ~45% Fines, Loose to Firm, Very Wet, Gray	10	4 4 6 7	Driller reports hard conditions beginning at 48.5' BLS
45	ML	CLAYEY, SANDY SILT; Low Plasticity, ~75% Fines, Very Fine Subangular Sand, Hard, Wet, Gray, (Qp= >4.7)	11	50/3.5	
50	CH	CLAYEY, SILTY SAND; Very Plastic, ~90% Fines, Very Fine to Fine Subangular Sand, Hard, Wet, Gray, (Qp= >4.7)	12	33 50/5.5	Bottom of borehole is 59.0' BLS
55	SC	SILTY, SANDY CLAY; Very Fine to Fine Subangular Sand, Medium Plasticity, ~40% Fines, Very Dense, Wet, Gray, Micaceous	13	37 50/4	
60					

DESIGN HYDROGEOLOGICAL REPORT
APPENDIX B

LABORATORY TESTING RESULTS

Geotechnics

.....GEOTECHNICAL, GEOENVIRONMENTAL, AND GEOSYNTHETIC LABORATORIES

LABORATORY TEST REPORT

October 11, 2004

Project No.: NA

RECEIVED
OCT 11 2004
WITHERS & RAVENEL

Mr. John Palmer
Withers & Ravenel
111 MacKenan Dr.
Cary, NC 27511

RE: Soils Testing – CCT

Geotechnics No.: 2004-577-01

Transmitted herein are the results of the soils testing performed for the above referenced project verified on the Project Verification Form, submitted September 20, 2004. There was no testing performed on sample 5. Testing on sample 3 is incomplete at this time, results to follow. The testing was performed in accordance with the ASTM methods listed on the enclosed data sheets. The remaining sample materials for this project will be retained for a minimum of 90 days as directed by the Geotechnics' Quality Program.

Disclaimer

The test results are believed to be representative of the samples submitted but are indicative only of the specimens which were evaluated. Geotechnics has no direct knowledge of the origin of the samples, implies no position with regard to the disposition of the test results, i.e. pass/fail, and makes no claims as to the suitability of the material for its intended use.

The test data and all associated project information provided shall be held in strict confidence and disclosed to other parties only with authorization of the Client and Geotechnics. The test data submitted herein is considered integral with this report and is not to be reproduced except in whole and only with the authorization of the Client and Geotechnics.

We are pleased to provide these testing services. Should you have any questions or if we may be of further assistance, please do not hesitate to contact our office.

Respectively submitted,

Michael P. Smith
Regional Manager

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INTEGRITY IN TESTING

MOISTURE CONTENT

ASTM D 2216 (SOP-S1)

Client	WITHERS & RAVENEL
Client Reference	CCT
Project No.	2004-577-01

Lab ID	.002	.003	.004
Boring No.	MW-20A SILT	MW-20A SAND	MW-21A SAND
Depth (ft)	25.5-27.0	4.5-6.5	16.5-17.5
Sample No.	NA	NA	NA
Tare Number	SS-7	Y-4	SS-4
Wt. of Tare & WS (gm)	248.64	247.30	261.98
Wt. of Tare & DS (gm)	227.36	222.50	243.76
Wt. of Tare (gm)	98.90	100.17	100.55
Wt. of Water (gm)	21.28	24.8	18.22
Wt. of DS (gm)	128.46	122.33	143.21
Water Content (%)	**16.6**	**20.3**	**12.7**

Notes : *NA*

Tested By *MW* *Date* *09/28/04* *Checked By* GEM *Date* 10-11-04

DCN: CT-S1 DATE 6-30-98 REVISION: 2

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INTEGRITY IN TESTING

SPECIFIC GRAVITY

ASTM D 854-00 (SOP - S5)

Client	WITHERS & RAVENEL	Boring No.	MW 20A SILT
Client Reference	CCT	Depth (ft)	25.5-27.0
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-02	Visual Description	**TAN SILT**
			(Minus No.4 sieve material, airdried)

Replicate Number	**1**	**2**
Pycnometer ID	R 240	R 242
Weight of Pycnometer + Soil + Water (gm)	699.3	703.4
Temperature, T (°Celsius)	25.2	22.3
Weight of Pycnometer + Water (gm)	666.41	668.96
Tare Number	G-2	K-4
Weight of Tare + Dry Soil (gm)	205.93	206.56
Weight of Tare (gm)	154.59	153.71
Weight of Dry Soil (gm)	51.34	52.85
Specific Gravity of Soil @ T	2.783	2.871
Specific Gravity of Water @ T	0.9970	0.9977
Conversion Factor for Temperature T	0.9988	0.9995
Specific Gravity @ 20° Celsius	2.786	2.872

Average Specific Gravity @ 20° Celsius	2.83

Tested By MPS *Date* 10/04/04 *Checked By* GEM *Date* 10-7-04

DCN: CT-S5 Date10/3/03 Revision:8R

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INTEGRITY IN TESTING

SPECIFIC GRAVITY

ASTM D 854-00 (SOP - S5)

Client	WITHERS & RAVENEL	Boring No.	MW 20A SAND
Client Reference	CCT	Depth (ft)	4.5-6.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-03	Visual Description	**TAN SAND**
			(MInus No.4 sieve material, airdried)

Replicate Number	**1**	**2**
Pycnometer ID	R 240	R 241
Weight of Pycnometer + Soil + Water (gm)	701.9	701.6
Temperature, T (°Celsius)	22.2	22.2
Weight of Pycnometer + Water (gm)	666.77	665.71
Tare Number	K-7	K-5
Weight of Tare + Dry Soil (gm)	206.6	208.26
Weight of Tare (gm)	152.27	153.03
Weight of Dry Soil (gm)	54.33	55.23
Specific Gravity of Soil @ T	2.829	2.855
Specific Gravity of Water @ T	0.9978	0.9978
Conversion Factor for Temperature T	0.9995	0.9995
Specific Gravity @ 20° Celsius	2.831	2.857

Average Specific Gravity @ 20° Celsius	2.84

Tested By MPS *Date* 10/06/04 *Checked By* GBM *Date* 10-7-04

DCN: CT-S5 Date10/3/03 Revision:8R

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INTEGRITY IN TESTING

SPECIFIC GRAVITY

ASTM D 854-00 (SOP - S5)

Client	WITHERS & RAVENEL	Boring No.	MW 21A SAND
Client Reference	CCT	Depth (ft)	16.5-17.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-04	Visual Description	**TAN SAND**
			(Minus No.4 sieve material, airdried)

Replicate Number	**1**	**2**
Pycnometer ID	R 242	R 241
Weight of Pycnometer + Soil + Water (gm)	701.7	698.3
Temperature, T (°Celsius)	26.9	26.9
Weight of Pycnometer + Water (gm)	668.38	665.12
Tare Number	K-3	A-A
Weight of Tare + Dry Soil (gm)	203.48	203.64
Weight of Tare (gm)	152.06	152.5
Weight of Dry Soil (gm)	51.42	51.14
Specific Gravity of Soil @ T	2.840	2.847
Specific Gravity of Water @ T	0.9966	0.9966
Conversion Factor for Temperature T	0.9983	0.9983
Specific Gravity @ 20° Celsius	2.845	2.852

Average Specific Gravity @ 20° Celsius	2.85

Tested By MW *Date* 10/07/04 *Checked By* GBM *Date* 10-7-04

DCN: CT-S5 Date10/3/03 Revision:8R

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INTEGRITY IN TESTING

SHELBY TUBE UNIT WEIGHT

(SOP - S37)

Client	WITHERS & RAVENEL	Boring No.	MW-20A SILT
Client Reference	CCT	Depth Pushed(ft)	25.5-27.0
Project No.	2004-577-01	Shelby Tube No.	NA
Lab ID	2004-577-01-02	Recovery(ft)	1.5

MOISTURE CONTENT

Section Number	1	2	3	4	5
Tare Number	B-1				
Wt. Tare & WS(gm.)	167.58				
Wt. Tare & DS(gm.)	158.26				
Wt. Tare(gm.)	100.48				
Moisture Content(%)	16.13				

UNIT WEIGHT

Wt. Tube & WS.(gms.)	777.53
Wt. Of Tube(gms.)	198.65
Wt. Of WS.(gms.)	578.88
Length 1 (in.)	2.535
Length 2 (in.)	2.539
Length 3 (in.)	2.591
Top Diameter (in.)	2.852
Middle Diameter (in.)	2.861
Bottom Diameter (in.)	2.871
Sample Volume (cc)	269.23
Moisture Content(%)	16.13
Unit Wet Wt.(gms/cc)	2.15
Unit Wet Wt.(pcf.)	134.2
Unit Dry Wt.(gms/cc)	**1.85**
Unit Dry Wt.(pcf.)	**115.5**

SOIL PROFILE AND SAMPLING

DEPTH ( )	ELEV ( )	SECTION No.	SOIL PROFILE	SOIL DESCRIPTION AND REMARKS	TEST PERFORMED
25.5				CLAYEY	
26.0				GRAY TAN SILTY SANDY CLAY	PERM. UNIT WT. SPEC.GRAV.
26.5					LIMITS SIEVE WATER CONT.
27.0				SILTY	

Note: When full recovery is not achieved, the elevation can not be accurately defined.
Indicate each cut of the tube with an arrow.
Indicate dividing line between soil types with a solid line.
Indicate wax by cross-hatching. Indicate soil types by standard symbols.

Tested By *MPS* Date *10/1/2004* Checked By GEM Date 10-11-04

DCN: CT-S37 DATE:1-29-98 REVISION: 2 *\\Lab1\C\2004 Projects\2004-577 W&R\2004-577-01-04 Shelby Unit Wt.XLS]Sheet1*
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SHELBY TUBE UNIT WEIGHT

(SOP - S37)

Client	WITHERS & RAVENEL	Boring No.	MW-20A SAND
Client Reference	CCT	Depth Pushed(ft)	4.5-6.5
Project No.	2004-577-01	Shelby Tube No.	NA
Lab ID	2004-577-01-03	Recovery(ft)	1.8

MOISTURE CONTENT

Section Number	1	2	3	4	5
Tare Number	A-O				
Wt. Tare & WS(gm.)	60.22				
Wt. Tare & DS(gm.)	54.20				
Wt. Tare(gm.)	15.44				
Moisture Content(%)	15.53				

UNIT WEIGHT

Wt. Tube & WS.(gms.)	1178.70
Wt. Of Tube(gms.)	272.63
Wt. Of WS.(gms.)	906.07
Length 1 (in.)	4.015
Length 2 (in.)	4.002
Length 3 (in.)	4.016
Top Diameter (in.)	2.800
Middle Diameter (in.)	2.800
Bottom Diameter (in.)	2.800
Sample Volume (cc)	404.72
Moisture Content(%)	15.53
Unit Wet Wt.(gms/cc)	2.24
Unit Wet Wt.(pcf.)	139.7
Unit Dry Wt.(gms/cc)	**1.94**
Unit Dry Wt.(pcf.)	**120.9**

SOIL PROFILE AND SAMPLING

DEPTH ( )	ELEV ( )	SECTION No.	SOIL PROFILE	SOIL DESCRIPTION AND REMARKS	TEST PERFORMED
4.5					
5.0					UNIT WT.
5.5				ORANGE BROWN SILTY SAND	PERM. SPEC.GRAV.
6.0				ORANGE BROWN COARSE SAND	SIEVE
6.5					WATER CONT.

Note: When full recovery is not achieved, the elevation can not be accurately defined.
Indicate each cut of the tube with an arrow.
Indicate dividing line between soil types with a solid line.
Indicate wax by cross-hatching. Indicate soil types by standard symbols.

Tested By *MPS* Date *10/1/2004* Checked By Gen Date 10-7-04

DCN: CT-S37 DATE:1-29-98 REVISION: 2 *\\Lab1\C\2004 Projects\2004-577 W&R\[2004-577-01-03 Shelby Unit Wt.XLS]Sheet1*

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SHELBY TUBE UNIT WEIGHT

(SOP - S37)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth Pushed(ft)	16.5-17.5
Project No.	2004-577-01	Shelby Tube No.	NA
Lab ID	2004-577-01-04	Recovery(ft)	1

MOISTURE CONTENT

Section Number	1	2	3	4	5
Tare Number	A-1				
Wt. Tare & WS(gm.)	151.52				
Wt. Tare & DS(gm.)	142.45				
Wt. Tare(gm.)	99.60				
Moisture Content(%)	21.17				

UNIT WEIGHT

Wt. Tube & WS.(gms.)	816.00
Wt. Of Tube(gms.)	220.66
Wt. Of WS.(gms.)	595.34
Length 1 (in.)	2.804
Length 2 (in.)	2.708
Length 3 (in.)	2.673
Top Diameter (in.)	2.800
Middle Diameter (in.)	2.800
Bottom Diameter (in.)	2.800
Sample Volume (cc)	275.30
Moisture Content(%)	21.17
Unit Wet Wt.(gms/cc)	2.16
Unit Wet Wt.(pcf.)	134.9
Unit Dry Wt.(gms/cc)	**1.78**
Unit Dry Wt.(pcf.)	**111.4**

SOIL PROFILE AND SAMPLING

DEPTH ( )	ELEV ( )	SECTION No.	SOIL PROFILE	SOIL DESCRIPTION AND REMARKS	TEST PERFORMED
16.5					
				GRAY TAN CLAYEY SAND	PERM. SPEC.GRAV.
17.0					LIMITS SIEVE
17.5					WATER CONT.

Note: When full recovery is not achieved, the elevation can not be accurately defined.
Indicate each cut of the tube with an arrow.
Indicate dividing line between soil types with a solid line.
Indicate wax by cross-hatching. Indicate soil types by standard symbols.

Tested By *MPS* Date *10/1/2004* Checked By Date

DCN: CT-S37 DATE:1-29-98 REVISION: 2 *\\Lab1\C\2004 Projects\2004-577 W&R\[2004-577-01-04 Shelby Unit Wt.XLS]Sheet1*

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INTEGRITY IN TESTING

ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	WITHERS & RAVENEL	Boring No.	MW-14B CLAY
Client Reference	CCT	Depth (ft)	12.5-14.0
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-01	Soil Description	**BROWN LEAN CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

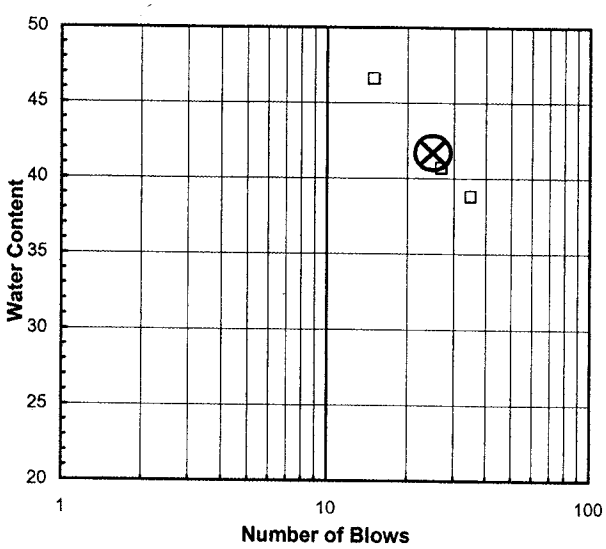
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	A-G	B	B-B	**MULTIPOINT**
Wt. of Tare & WS (gm)	33.32	31.28	30.76	
Wt. of Tare & DS (gm)	27.68	26.64	26.53	
Wt. of Tare (gm)	15.57	15.23	15.62	
Wt. of Water (gm)	5.6	4.6	4.2	
Wt. of DS (gm)	12.1	11.4	10.9	
Moisture Content (%)	**46.6**	**40.7**	**38.8**	
Number of Blows	**15**	**27**	**35**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	A-N	A-I	
Wt. of Tare & WS (gm)	23.98	23.88	
Wt. of Tare & DS (gm)	22.80	22.81	
Wt. of Tare (gm)	15.46	15.52	
Wt. of Water (gm)	1.2	1.1	
Wt. of DS (gm)	7.3	7.3	
Moisture Content (%)	**16.1**	**14.7**	**1.4**

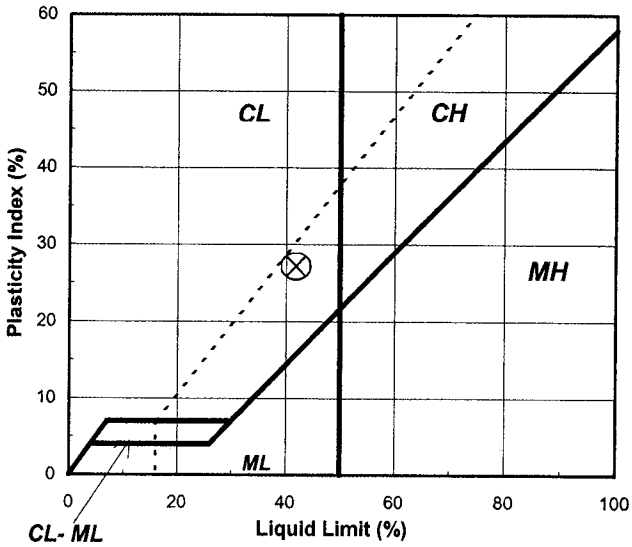
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**42**
Plastic Limit (%)	**15**
Plasticity Index (%)	**27**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



Tested By *MW* *Date* *10/07/04* *Checked By* Gam *Date* 10-11-04

 DCN: CT-S4B **DATE:** 10/08/01 **REVISION:** 2

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INTEGRITY IN TESTING

ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	WITHERS & RAVENEL	Boring No.	MW-20A SILT
Client Reference	CCT	Depth (ft)	25.5-27.0
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-02	Soil Description	**LIGHT BROWN LEAN CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

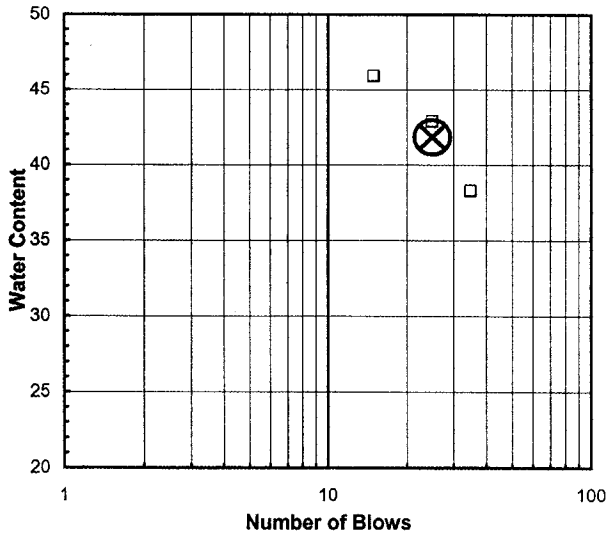
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	B-B	A-R	D	MULTIPOINT
Wt. of Tare & WS (gm)	32.79	32.16	32.67	
Wt. of Tare & DS (gm)	27.39	27.20	27.83	
Wt. of Tare (gm)	15.62	15.62	15.18	
Wt. of Water (gm)	5.4	5.0	4.8	
Wt. of DS (gm)	11.8	11.6	12.7	
Moisture Content (%)	**45.9**	**42.8**	**38.3**	
Number of Blows	**15**	**25**	**35**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	A-V	K	
Wt. of Tare & WS (gm)	21 64	21.97	
Wt. of Tare & DS (gm)	20.81	21.03	
Wt. of Tare (gm)	15.62	15.29	
Wt. of Water (gm)	0.8	0.9	
Wt. of DS (gm)	5.2	5.7	
Moisture Content (%)	**16.0**	**16.4**	**-0.4**

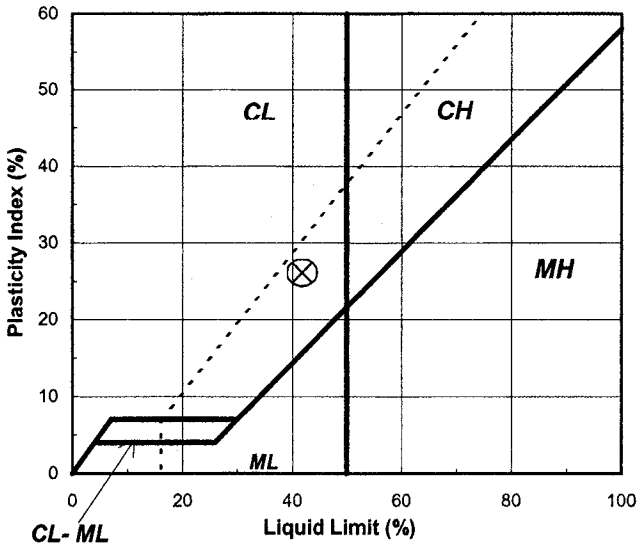
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**42**
Plastic Limit (%)	**16**
Plasticity Index (%)	**26**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



Tested By *MW* *Date* *10/06/04* *Checked By* GEM *Date* 10-7-04

page 1 of 1 **DCN:** CT-S4B **DATE:** 10/08/01 **REVISION:** 2

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	16.5-17.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-04	Soil Description	**LIGHT BROWN LEAN CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

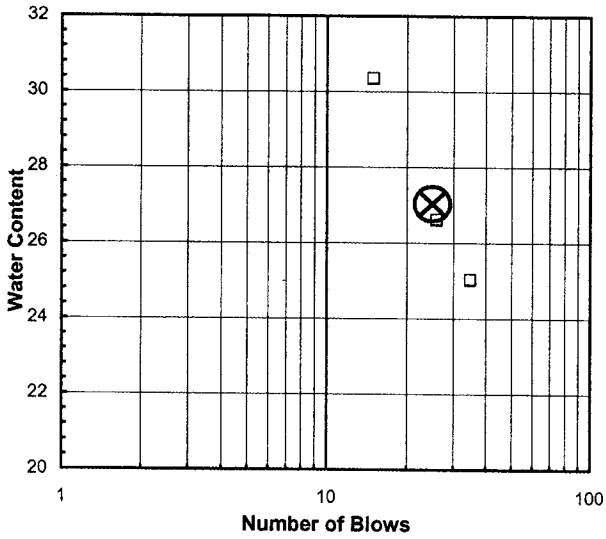
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	A-L	U	A-C	MULTIPOINT
Wt. of Tare & WS (gm)	31.47	31.62	32.44	
Wt. of Tare & DS (gm)	27.75	28.18	29.07	
Wt. of Tare (gm)	15.49	15.25	15.60	
Wt. of Water (gm)	3.7	3.4	3.4	
Wt. of DS (gm)	12.3	12.9	13.5	
Moisture Content (%)	**30.3**	**26.6**	**25.0**	
Number of Blows	**15**	**26**	**35**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	F	G	
Wt. of Tare & WS (gm)	24.21	23.73	
Wt. of Tare & DS (gm)	23.25	22.80	
Wt. of Tare (gm)	15.24	15.06	
Wt. of Water (gm)	1.0	0.9	
Wt. of DS (gm)	8.0	7.7	
Moisture Content (%)	**12.0**	**12.0**	**0.0**

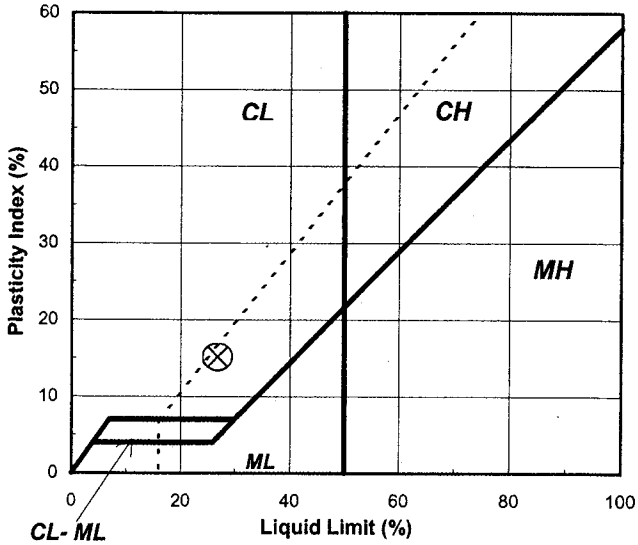
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**27**
Plastic Limit (%)	**12**
Plasticity Index (%)	**15**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



Tested By *MW* *Date* *10/08/04* *Checked By* *Date* 10-11-04

page 1 of 1 **DCN:** CT-S4B **DATE:** 10/08/01 **REVISION:** 2

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	41.5-42.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Soil Description	**GRAY LEAN CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

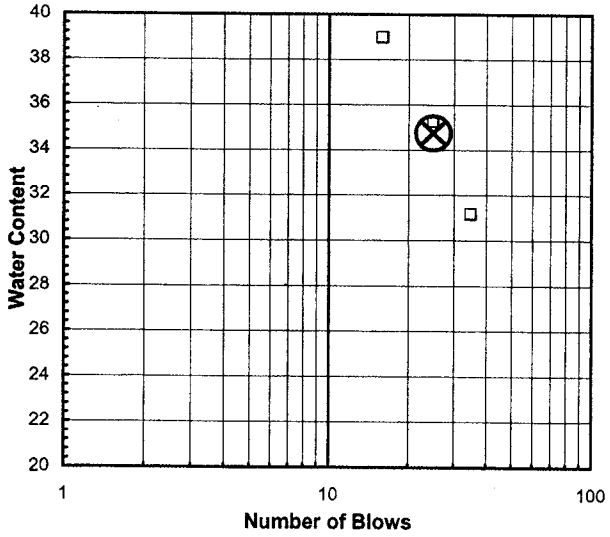
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	K-A	X	A	MULTIPOINT
Wt. of Tare & WS (gm)	31.82	33.46	30.84	
Wt. of Tare & DS (gm)	27.25	28.71	27.14	
Wt. of Tare (gm)	15.52	15.23	15.26	
Wt. of Water (gm)	4.6	4.8	3.7	
Wt. of DS (gm)	11.7	13.5	11.9	
Moisture Content (%)	**39.0**	**35.2**	**31.1**	
Number of Blows	**16**	**25**	**35**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	A-M	P	
Wt. of Tare & WS (gm)	23.55	24.23	
Wt. of Tare & DS (gm)	22.72	23.28	
Wt. of Tare (gm)	15.41	15.27	
Wt. of Water (gm)	0.8	0.9	
Wt. of DS (gm)	7.3	8.0	
Moisture Content (%)	**11.4**	**11.9**	**-0.5**

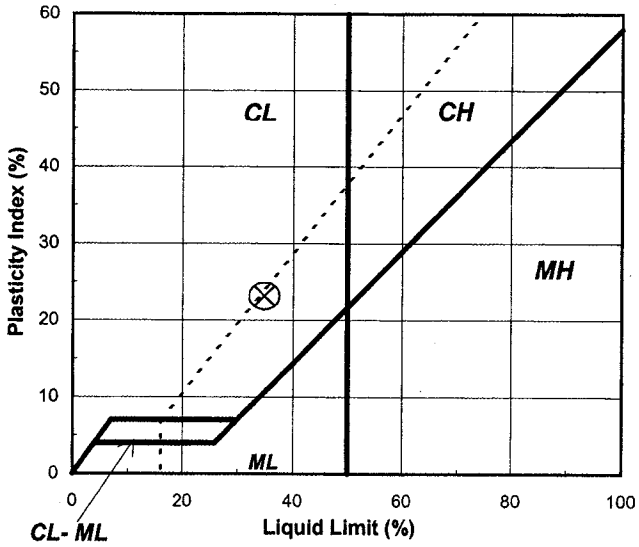
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**35**
Plastic Limit (%)	**12**
Plasticity Index (%)	**23**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



Tested By *MW* *Date* *10/08/04* *Checked By* GSM *Date* 10-11-04

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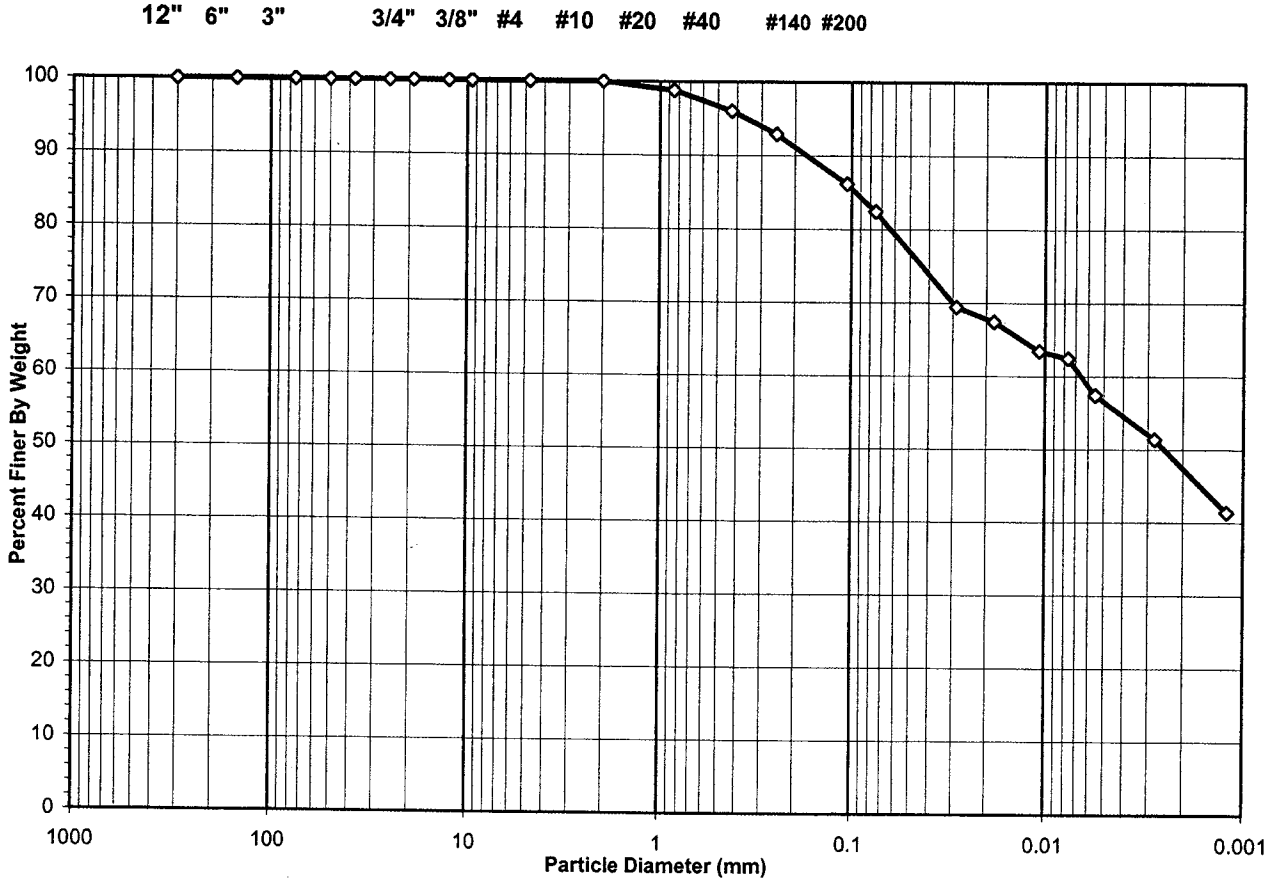
SIEVE AND HYDROMETER ANALYSIS
ASTM D 422-63 (SOP-S3)

Client	WITHERS & RAVENEL	Boring No.	MW-20A SILT
Client Reference	CCT	Depth (ft)	25.5-27.0
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-02	Soil Color	**LIGHT GRAY**

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay



Sieve Sizes (mm)	USCS Summary	Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	17.58
Finer Than #200	*Silt & Clay*	82.42

USCS Symbol ***CL, TESTED***

USCS Classification ***LEAN CLAY WITH SAND***

DCN: CT-S3P DATE: 03/07/01 REVISION: 5 *C:\2004 Projects\2004-577 W&R\[2004-577-01-02 #10 Split Hydrometer.xls]Sheet1*

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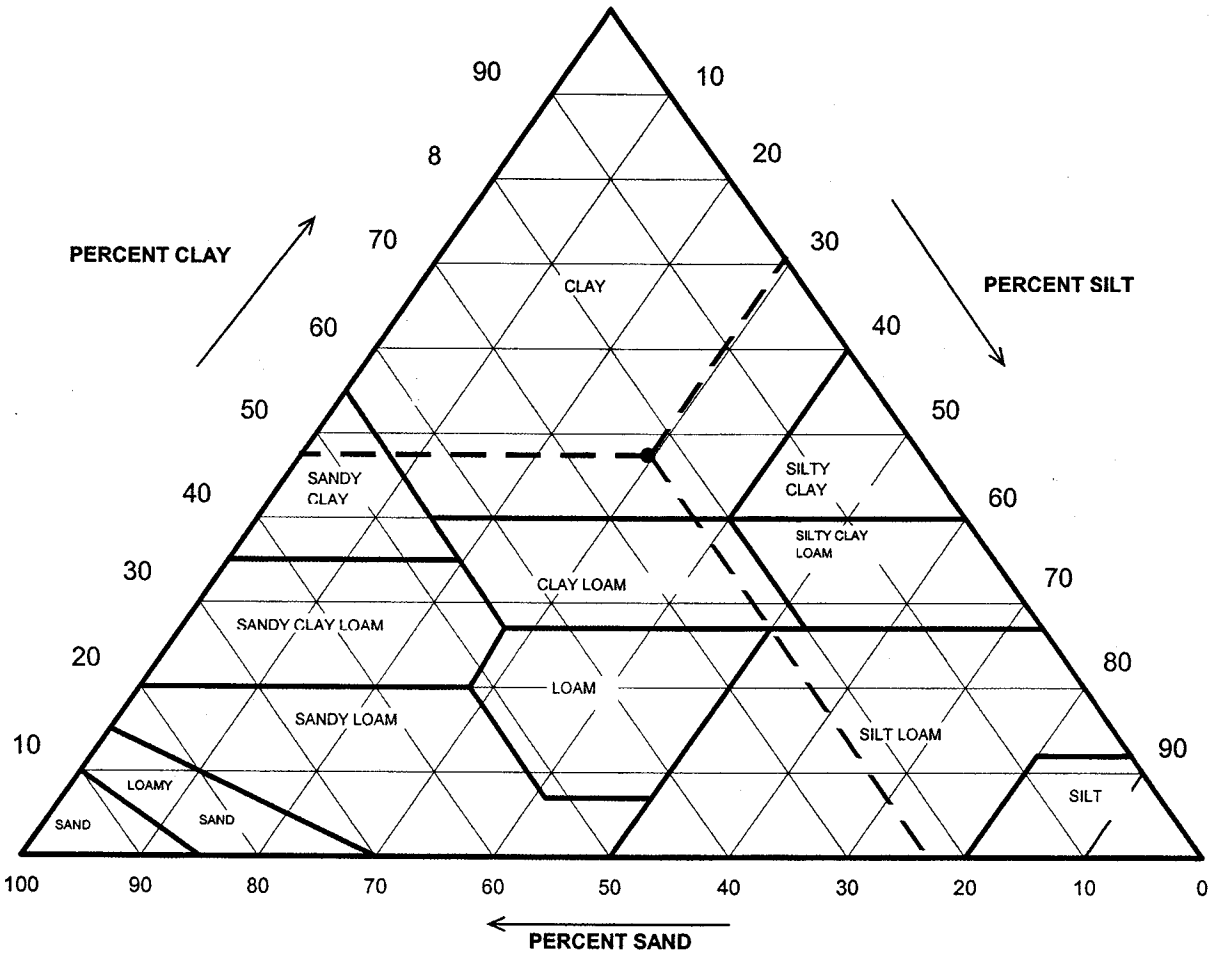
USDA CLASSIFICATION CHART

Client	WITHERS & RAVENEL	Boring No.	MW-20A SILT
Client Reference	CCT	Depth (ft)	25.5-27.0
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-02	Soil Color	**LIGHT GRAY**



Particle Size (mm)	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
		Gravel	0.00	**0.00**
2	100.00	*Sand*	23.06	**23.06**
0.05	76.94	*Silt*	29.49	**29.49**
0.002	47.45	*Clay*	47.45	**47.45**

USDA Classification: ***CLAY***

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WASH SIEVE ANALYSIS #10 SPLIT

ASTM D 422-63 (SOP-S3)

Client	WITHERS & RAVENEL	Boring No.	MW-20A SILT
Client Reference	CCT	Depth (ft)	25.5-27.0
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-02	Soil Color	**LIGHT GRAY**

Moisture Content/sieve +10 Material		Moisture Content for Hydrometer Portion	
Tare No.	K-4	Tare No.	C
Wgt.Tare + Wet Soil (gm)	396.13	Wgt.Tare + Wet Soil (gm)	26.99
Wgt.Tare + Dry Soil (gm)	360.98	Wgt.Tare + Dry Soil (gm)	26.84
Weight of Tare (gm)	154.40	Weight of Tare (gm)	15.25
Weight of Water (gm)	35.15	Weight of Water (gm)	0.15
Weight of Dry Soil (gm)	206.58	Weight of Dry Soil (gm)	11.59
Moisture Content (%)	**17.0**	**Moisture Content (%)**	**1.3**

Soil Specimen Data			
Wet Weight +#10 Material (gm)	241.73	Weight of the Dry Sample (gm)	256.47
Dry Weight +#10 Material(gm)	206.6	Weight of minus #200 material (gm)	41.12
Wet Weight Hydro. Material.(gm)	50.54	Weight of plus #200 material (gm)	215.35
Dry Weight Hydro. Material (gm)	49.89		
Total Dry Weight Sample (gm)	256.47	**J-FACTOR (%FINER THAN #10)**	**1.0000**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00	0.0	0.0	100.0	**100.0**
6"	150	0.00	0.0	0.0	100.0	**100.0**
3"	75	0.00	0.0	0.0	100.0	**100.0**
2"	50	0.00	0.0	0.0	100.0	**100.0**
1 1/2"	37.5	0.00	0.0	0.0	100.0	**100.0**
1"	25.0	0.00	0.0	0.0	100.0	**100.0**
3/4"	19.0	0.00	0.0	0.0	100.0	**100.0**
1/2"	12.5	0.00	0.0	0.0	100.0	**100.0**
3/8"	9.50	0.00	0.0	0.0	100.0	**100.0**
#4	4.75	0.00	0.0	0.0	100.0	**100.0**
#10	2.00	0.00	0.0	0.0	100.0	**100.0**
#20	0.85	0.58	1.2	1.2	98.8	**98.8**
#40	0.425	1.39	2.8	3.9	96.1	**96.1**
#60	0.250	1.56	3.1	7.1	92.9	**92.9**
#140	0.106	3.37	6.8	13.8	86.2	**86.2**
#200	0.075	1.87	3.7	17.6	82.4	**82.4**
Pan	-	41.12	82.4	100.0	-	-

Notes :

Tested By MW Date 10/04/04 Checked By GSM Date 10-7-04

DCN: CT-S3P DATE: 03/07/01 REVISION: 5 *C:\2004 Projects\2004-577 W&R\[2004-577-01-02 #10 Split Hydrometer.xls]Sheet1*

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HYDROMETER ANALYSIS

ASTM D 422-63 (SOP-S3)

Client	WITHERS & RAVENEL	Boring No.	MW-20A SILT
Client Reference	CCT	Depth (ft)	25.5-27.0
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-02	Soil Color	**LIGHT GRAY**

Bulb Ser.#
667986

Elapsed Time (min)		R Measured	Temp. (°C)	Composite Correction	R Corrected	N (%)	K Factor	Diameter (mm)	N' (%)
0	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	41.0	41.0	22.2	6.02	35.0	69.4	0.01310	0.0287	**69.4**
5		40.0	22.1	6.03	34.0	67.4	0.01311	0.0183	**67.4**
15		38.0	22.1	6.03	32.0	63.4	0.01311	0.0107	**63.4**
30		37.5	22.0	6.04	31.5	62.4	0.01313	0.0076	**62.4**
60		35.0	21.8	6.06	28.9	57.4	0.01316	0.0055	**57.4**
250		32.0	21.3	6.10	25.9	51.4	0.01324	0.0028	**51.4**
1440		27.0	21.1	6.12	20.9	41.4	0.01328	0.0012	**41.4**

Soil Specimen Data		**Other Corrections**	
Tare + Dry Material (gm)	49.89	a - Factor	0.99
Weight of Tare (gm)	0		
Weight of Deflocculant (gm)	5.0	Percent Finer than # 10	100.00
Weight of Dry Material (gm)	49.89		
		Specific Gravity	2.70 Assumed

Note:

Tested By MW Date 10/01/04 Checked By Gem Date 10-7-04

DCN: CT-S3P DATE: 03/07/01 REVISION: 5 *C:\2004 Projects\2004-577 W&R\[2004-577-01-02 #10 Split Hydrometer.xls]Sheet1*

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SIEVE ANALYSIS
ASTM D 422-63 (SOP-S3)

Client	WITHERS & RAVENEL	Boring No.	MW-20A SAND
Client Reference	CCT	Depth (ft)	4.5-6.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-03	Soil Color	**TAN**

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay

USCS Symbol	***sp-sm, ASSUMED***	**D60 =**	**0.6**	**CC =**	**1.4**
USCS Classification	***POORLY GRADED SAND WITH SILT***	**D30 =**	**0.4**	**CU =**	**4.4**
		D10 =	**0.1**		

Tested By MW Date 10/04/04 Checked By GEM Date 10-11-04

DCN: CT-S3C DATE 6-25-98 REVISION: 2

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WASH SIEVE ANALYSIS

ASTM D 422-63 (SOP-S3)

Client	WITHERS & RAVENEL	Boring No.	MW-20A SAND
Client Reference	CCT	Depth (ft)	4.5-6.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-03	Soil Color	**TAN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	K-7	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	794.48	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	690.84	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	152.82	Weight of Tare (gm)	NA
Weight of Water (gm)	103.64	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	538.02	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**19.3**	**Moisture Content (%)**	**NA**

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	538.02
Dry Weight - 3/4" Sample (gm)	507.9	Weight of minus #200 material (gm)	30.15
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	507.87
Dry Weight + 3/4" Sample (gm)	0.00		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00	0.0	0.0	100.0	**100.0**
6"	150	0.00	0.0	0.0	100.0	**100.0**
3"	75	0.00	0.0	0.0	100.0	**100.0**
2"	50	0.00	0.0	0.0	100.0	**100.0**
1 1/2"	37.5	0.00	0.0	0.0	100.0	**100.0**
1"	25.0	0.00	0.0	0.0	100.0	**100.0**
3/4"	19.0	0.00	0.0	0.0	100.0	**100.0**
1/2"	12.50	0.00	0.0	0.0	100.0	**100.0**
3/8"	9.50	0.00	0.0	0.0	100.0	**100.0**
#4	4.75	0.00	0.0	0.0	100.0	**100.0**
#10	2.00	4.89	0.9	0.9	99.1	**99.1**
#20	0.850	109.75	20.4	21.3	78.7	**78.7**
#40	0.425	222.66	41.4	62.7	37.3	**37.3**
#60	0.250	110.87	20.6	83.3	16.7	**16.7**
#140	0.106	54.20	10.1	93.4	6.6	**6.6**
#200	0.075	5.50	1.0	94.4	5.6	**5.6**
Pan	-	30.15	5.6	100.0	-	**-**

Tested By MW Date 10/04/04 Checked By GEM Date 10-11-04

DCN: CT-S3C DATE 6-25-98 REVISION: 2

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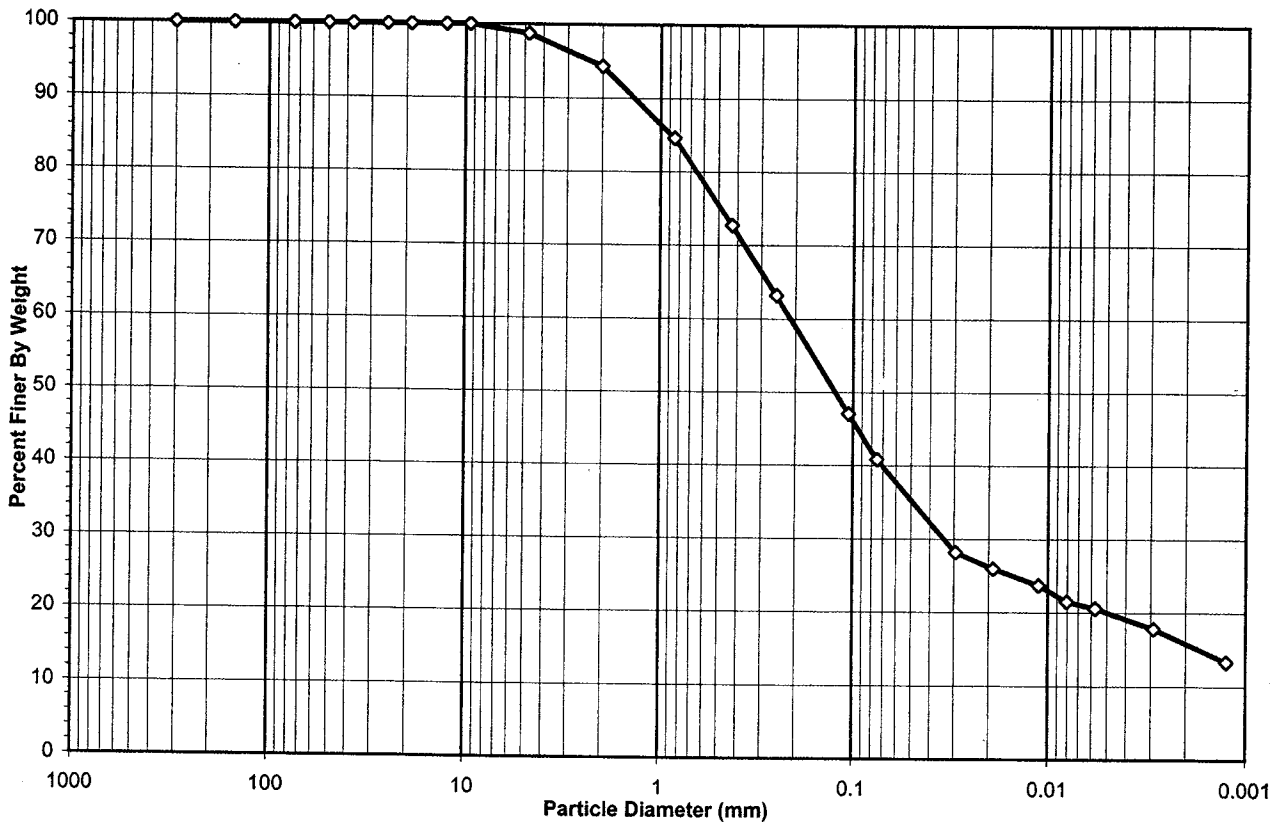
SIEVE AND HYDROMETER ANALYSIS
ASTM D 422-63 (SOP-S3)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	16.5-17.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-04	Soil Color	**LIGHT BROWN**

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

12" 6" 3" 3/4" 3/8" #4 #10 #20 #40 #140 #200



Sieve Sizes (mm)	USCS Summary	Percentage
Greater Than #4	*Gravel*	1.24
#4 To #200	*Sand*	57.92
Finer Than #200	*Silt & Clay*	40.84

USCS Symbol ***SC, TESTED***

USCS Classification ***CLAYEY SAND***

DCN: CT-S3P DATE: 03/07/01 REVISION: 5 *C:\2004 Projects\2004-577 W&R\[2004-577-01-04 #10 Split Hydrometer.xls]Sheet1*

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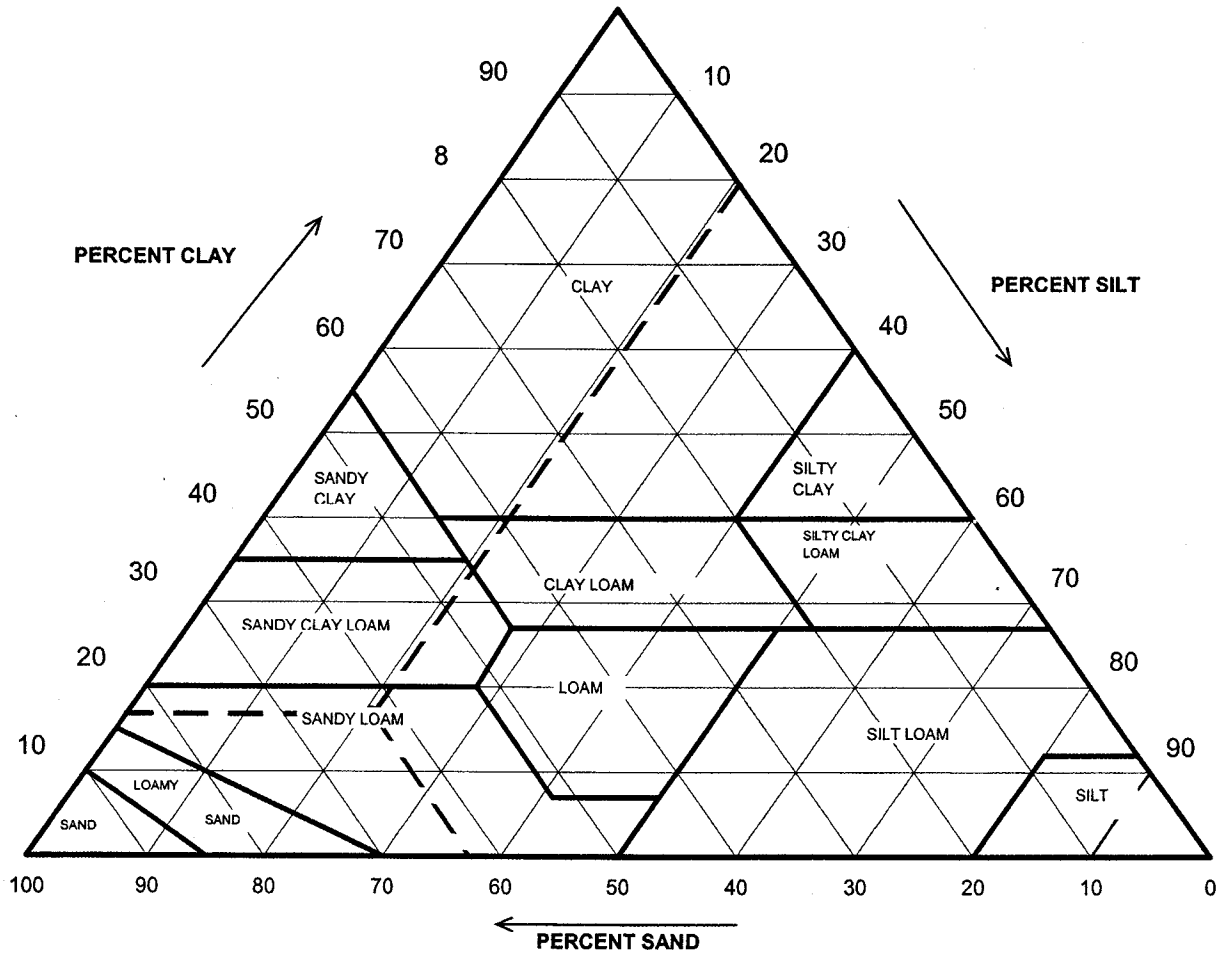
USDA CLASSIFICATION CHART

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	16.5-17.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-04	Soil Color	**LIGHT BROWN**



Particle Size (mm)	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
		Gravel	5.65	**0.00**
2	94.35	*Sand*	58.99	**62.52**
0.05	35.36	*Silt*	19.53	**20.70**
0.002	15.83	*Clay*	15.83	**16.78**

USDA Classification: ***SANDY LOAM***

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INTEGRITY IN TESTING

WASH SIEVE ANALYSIS #10 SPLIT

ASTM D 422-63 (SOP-S3)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	16.5-17.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-04	Soil Color	**LIGHT BROWN**

Moisture Content/sieve +10 Material		Moisture Content for Hydrometer Portion	
Tare No.	G-5	Tare No.	A-1
Wgt.Tare + Wet Soil (gm)	533.30	Wgt.Tare + Wet Soil (gm)	116.41
Wgt.Tare + Dry Soil (gm)	483.83	Wgt.Tare + Dry Soil (gm)	116.37
Weight of Tare (gm)	148.82	Weight of Tare (gm)	99.60
Weight of Water (gm)	49.47	Weight of Water (gm)	0.04
Weight of Dry Soil (gm)	335.01	Weight of Dry Soil (gm)	16.77
Moisture Content (%)	**14.8**	**Moisture Content (%)**	**0.2**

Soil Specimen Data			
Wet Weight +#10 Material (gm)	384.48	Weight of the Dry Sample (gm)	439.34
Dry Weight +#10 Material(gm)	335.0	Weight of minus #200 material (gm)	45.16
Wet Weight Hydro. Material.(gm)	104.58	Weight of plus #200 material (gm)	394.18
Dry Weight Hydro. Material (gm)	104.33		
Total Dry Weight Sample (gm)	439.34	**J-FACTOR (%FINER THAN #10)**	**0.9435**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00	0.0	0.0	100.0	**100.0**
6"	150	0.00	0.0	0.0	100.0	**100.0**
3"	75	0.00	0.0	0.0	100.0	**100.0**
2"	50	0.00	0.0	0.0	100.0	**100.0**
1 1/2"	37.5	0.00	0.0	0.0	100.0	**100.0**
1"	25.0	0.00	0.0	0.0	100.0	**100.0**
3/4"	19.0	0.00	0.0	0.0	100.0	**100.0**
1/2"	12.5	0.00	0.0	0.0	100.0	**100.0**
3/8"	9.50	0.00	0.0	0.0	100.0	**100.0**
#4	4.75	4.16	1.2	1.2	98.8	**98.8**
#10	2.00	14.76	4.4	5.6	94.4	**94.4**
#20	0.85	10.77	10.3	10.3	89.7	**84.6**
#40	0.425	13.19	12.6	23.0	77.0	**72.7**
#60	0.250	10.47	10.0	33.0	67.0	**63.2**
#140	0.106	17.85	17.1	50.1	49.9	**47.1**
#200	0.075	6.89	6.6	56.7	43.3	**40.8**
Pan	-	45.16	43.3	100.0	-	-

Notes :

Tested By MW Date 09/28/04 Checked By GEM Date 10-11-04

DCN: CT-S3P DATE: 03/07/01 REVISION: 5 *C:\2004 Projects\2004-577 W&R\[2004-577-01-04 #10 Split Hydrometer.xls]Sheet1*

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HYDROMETER ANALYSIS

ASTM D 422-63 (SOP-S3)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	16.5-17.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-04	Soil Color	**LIGHT BROWN**

Bulb Ser.#
667986

Elapsed Time (min)		R Measured	Temp. (°C)	Composite Correction	R Corrected	N (%)	K Factor	Diameter (mm)	N' (%)
0	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	37.5	37.5	22.4	6.00	31.5	29.9	0.01307	0.0294	**28.2**
5		35.0	22.3	6.01	29.0	27.5	0.01308	0.0190	**26.0**
15		32.5	22.3	6.01	26.5	25.1	0.01308	0.0112	**23.7**
30		30.0	22.3	6.01	24.0	22.8	0.01308	0.0081	**21.5**
60		29.0	22.2	6.02	23.0	21.8	0.01310	0.0057	**20.6**
250		26.0	21.3	6.10	19.9	18.9	0.01324	0.0029	**17.8**
1440		21.0	21.3	6.10	14.9	14.1	0.01324	0.0013	**13.3**

Soil Specimen Data		**Other Corrections**	
Tare + Dry Material (gm)	104.33	a - Factor	0.99
Weight of Tare (gm)	0		
Weight of Deflocculant (gm)	5.0	Percent Finer than # 10	94.35
Weight of Dry Material (gm)	104.33		
		Specific Gravity	2.70 Assumed

Note:

Tested By JDR Date 09/28/04 Checked By GEM Date 10-11-04

DCN: CT-S3P DATE: 03/07/01 REVISION: 5 *C:\2004 Projects\2004-577 W&R\[2004-577-01-04 #10 Split Hydrometer.xls]Sheet1*

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SIEVE AND HYDROMETER ANALYSIS
ASTM D 422-63 (SOP-S3)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	41.5-42.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Soil Color	**GRAY**

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

12" 6" 3" 3/4" 3/8" #4 #10 #20 #40 #140 #200

Sieve Sizes (mm)	USCS Summary	Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	85.81
Finer Than #200	*Silt & Clay*	14.19

USCS Symbol ***SC, TESTED***

USCS Classification ***CLAYEY SAND***

DCN: CT-S3P DATE: 03/07/01 REVISION: 5 *C:\2004 Projects\2004-577 W&R\[2004-577-01-05 #10 Split Hydrometer.xls]Sheet1*

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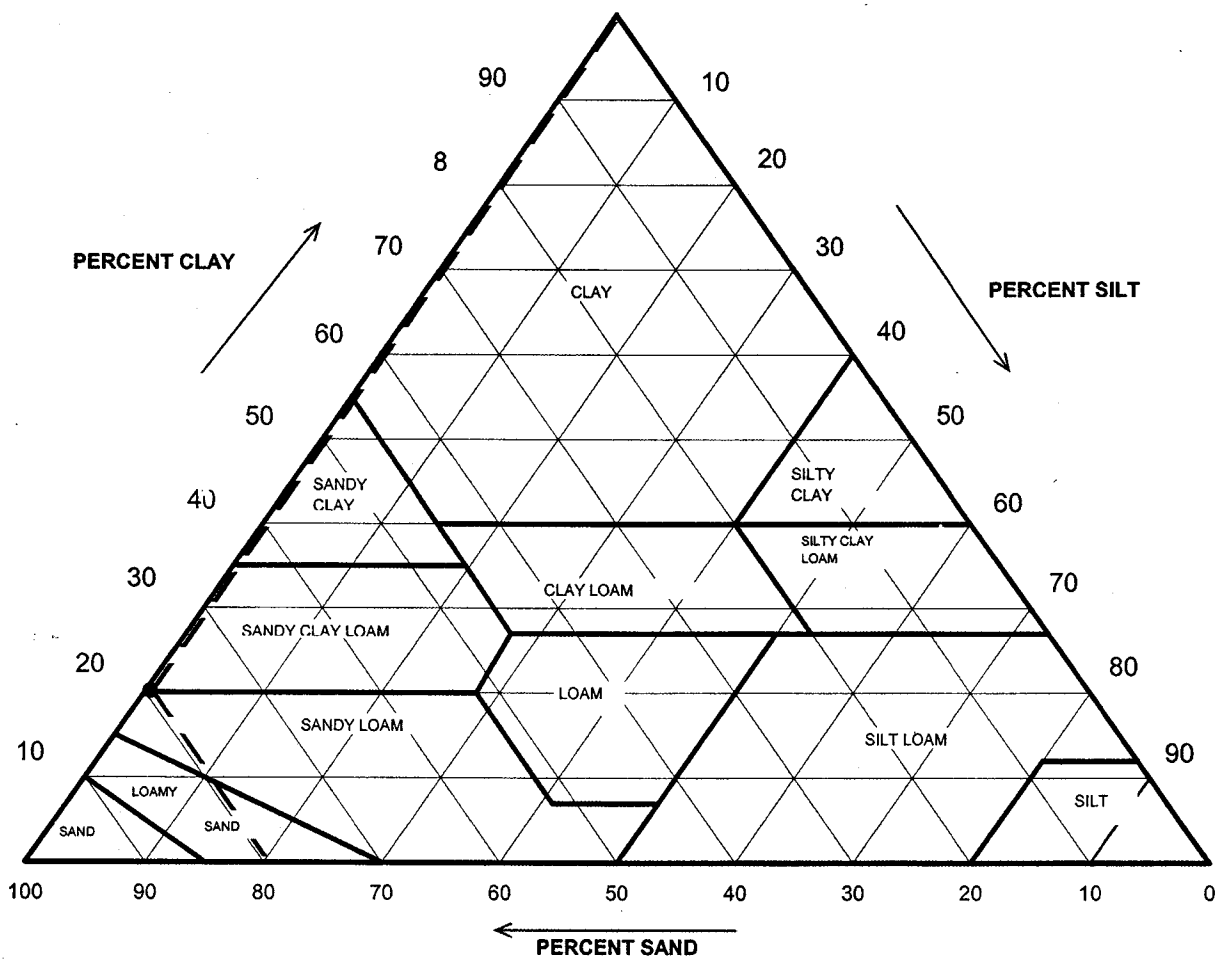
USDA CLASSIFICATION CHART

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	41.5-42.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Soil Color	**GRAY**



Particle Size (mm)	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
		Gravel	0.09	**0.00**
2	99.91	*Sand*	79.35	**79.42**
0.05	20.56	*Silt*	0.40	**0.40**
0.002	20.16	*Clay*	20.16	**20.18**

USDA Classification: ***SANDY CLAY LOAM***

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WASH SIEVE ANALYSIS #10 SPLIT

ASTM D 422-63 (SOP-S3)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	41.5-42.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Soil Color	**GRAY**

Moisture Content/sieve +10 Material		Moisture Content for Hydrometer Portion	
Tare No.	G-5	Tare No.	A-Q
Wgt.Tare + Wet Soil (gm)	523.19	Wgt.Tare + Wet Soil (gm)	27.37
Wgt.Tare + Dry Soil (gm)	459.37	Wgt.Tare + Dry Soil (gm)	27.27
Weight of Tare (gm)	148.67	Weight of Tare (gm)	15.55
Weight of Water (gm)	63.82	Weight of Water (gm)	0.10
Weight of Dry Soil (gm)	310.70	Weight of Dry Soil (gm)	11.72
Moisture Content (%)	**20.5**	**Moisture Content (%)**	**0.9**

Soil Specimen Data			
Wet Weight +#10 Material (gm)	374.52	Weight of the Dry Sample (gm)	360.38
Dry Weight +#10 Material(gm)	310.7	Weight of minus #200 material (gm)	7.06
Wet Weight Hydro. Material.(gm)	50.10	Weight of plus #200 material (gm)	353.32
Dry Weight Hydro. Material (gm)	49.68		
Total Dry Weight Sample (gm)	360.38	**J-FACTOR (%FINER THAN #10)**	**0.9991**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00	0.0	0.0	100.0	**100.0**
6"	150	0.00	0.0	0.0	100.0	**100.0**
3"	75	0.00	0.0	0.0	100.0	**100.0**
2"	50	0.00	0.0	0.0	100.0	**100.0**
1 1/2"	37.5	0.00	0.0	0.0	100.0	**100.0**
1"	25.0	0.00	0.0	0.0	100.0	**100.0**
3/4"	19.0	0.00	0.0	0.0	100.0	**100.0**
1/2"	12.5	0.00	0.0	0.0	100.0	**100.0**
3/8"	9.50	0.00	0.0	0.0	100.0	**100.0**
#4	4.75	0.00	0.0	0.0	100.0	**100.0**
#10	2.00	0.29	0.1	0.1	99.9	**99.9**
#20	0.85	2.50	5.0	5.0	95.0	**94.9**
#40	0.425	6.95	14.0	19.0	81.0	**80.9**
#60	0.250	7.59	15.3	34.3	65.7	**65.6**
#140	0.106	16.20	32.6	66.9	33.1	**33.1**
#200	0.075	9.38	18.9	85.8	14.2	**14.2**
Pan	-	7.06	14.2	100.0	-	-

Notes :

Tested By MW Date 10/01/04 Checked By Gem Date 10-11-04

DCN: CT-S3P DATE: 03/07/01 REVISION: 5 *C:\2004 Projects\2004-577 W&R\[2004-577-01-05 #10 Split Hydrometer.xls]Sheet1*

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HYDROMETER ANALYSIS

ASTM D 422-63 (SOP-S3)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	41.5-42.5
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Soil Color	**GRAY**

Bulb Ser.#
667986

Elapsed Time (min)		R Measured	Temp. (°C)	Composite Correction	R Corrected	N (%)	K Factor	Diameter (mm)	N' (%)
0	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	19.5	19.5	22.0	6.04	13.5	26.8	0.01313	0.0336	**26.8**
5		19.0	22.0	6.04	13.0	25.8	0.01313	0.0213	**25.8**
15		18.5	21.8	6.06	12.4	24.8	0.01316	0.0124	**24.8**
30		18.0	21.8	6.06	11.9	23.8	0.01316	0.0088	**23.8**
60		17.5	21.6	6.07	11.4	22.8	0.01319	0.0062	**22.7**
250		16.5	21.2	6.11	10.4	20.7	0.01325	0.0031	**20.7**
1440		16.0	20.9	6.14	9.9	19.7	0.01330	0.0013	**19.6**

Soil Specimen Data		**Other Corrections**	
Tare + Dry Material (gm)	49.68	a - Factor	0.99
Weight of Tare (gm)	0		
Weight of Deflocculant (gm)	5.0	Percent Finer than # 10	99.91
Weight of Dry Material (gm)	49.68		
		Specific Gravity	2.70 Assumed

Note:

Tested By MW Date 09/29/04 Checked By GEM Date 10-11-04

DCN: CT-S3P DATE: 03/07/01 REVISION: 5 *C:\2004 Projects\2004-577 W&R\[2004-577-01-05 #10 Split Hydrometer.xls]Sheet1*

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FLEXIBLE WALL PERMEABILITY TEST

PERMOMETER METHOD

ASTM D 5084-97
(SOP-S22C)

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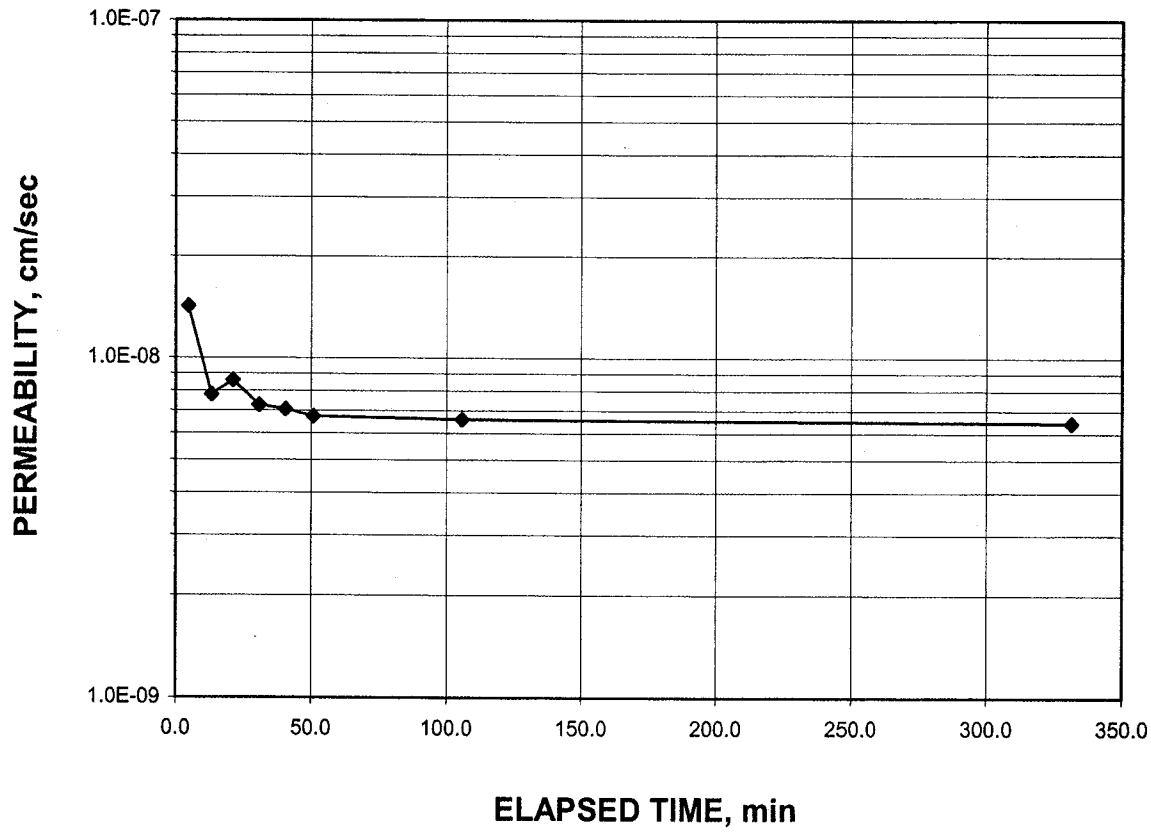
Client	WITHERS & RAVENEL	Boring No.	MW 20A SILT
Client Project	CCT	Depth (ft.)	25.5-27.0
Project No.	2004-577-01	Sample No.	NA
Lab ID No.	2004-577-01-02		

Visual Description: GRAY TAN SILTY CLAY

AVERAGE PERMEABILITY = 6.7E-09 cm/sec @ 20°C
AVERAGE PERMEABILITY = 6.7E-11 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: MW Date: 10/7/2004 Checked By: MMS Date: 10-8-04

DCN: CT-22A DATE:12-21-98 REVISION: 4 \\Lab1\C\2004 Projects\2004-577 W&R\[2004-577-01-02 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

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INTEGRITY IN TESTING

PERMOMETER METHOD

ASTM D 5084-97
(SOP-S22A & B)

Client	WITHERS & RAVENEL	Boring No.	MW 20A SILT
Client Project	CCT	Depth (ft.)	25.5-27.0
Project No.	2004-577-01	Sample No.	NA
Lab ID No.	2004-577-01-02		

Specific Gravity	2.83	Measured
Sample Condition		Undisturbed

Visual Description: GRAY TAN SILTY CLAY

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	B-1	SS-6
Wt. of Tare & WS (gm.)	167.58	681
Wt. of Tare & DS (gm.)	158.26	600.4
Wt. of Tare (gm.)	100.48	100.96
Wt. of Water (gm.)	9.32	80.60
Wt. of DS (gm.)	57.78	499.44
Moisture Content (%)	**16.1**	**16.1**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	578.90	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (gm.)	578.90	578.94
Length 1 (in.)	2.535	2.569
Length 2 (in.)	2.539	2.543
Length 3 (in.)	2.591	2.504
Top Diameter (in.)	2.852	2.877
Middle Diameter (in.)	2.861	2.875
Bottom Diameter (in.)	2.871	2.861
Average Length (in.)	2.56	2.54
Average Area (in.^{2})	6.43	6.47
Sample Volume (cm^3)	269.23	269.32
Unit Wet Wt. (gm./ cm^3)	2.150	2.150
Unit Wet Wt. (pcf)	134.2	134.2
Unit Dry Wt. (pcf)	115.6	115.5
Unit Dry Wt. (gm./ cm^3)	1.852	1.851
Void Ratio, e	0.528	0.529
Porosity, n	0.346	0.346
Pore Volume (cm^3)	93.1	93.2

Tested By: MW Date: 10/7/2004 Checked By: MPS Date: 10-8-04

DCN: CT-22A DATE:12-21-98 REVISION: 4 \\Lab1\C\2004 Projects\2004-577 W&R\[2004-577-01-02 Permometer.xls]Sheet1

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FLEXIBLE WALL PERMEABILITY TEST

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INTEGRITY IN TESTING

PERMOMETER METHOD

ASTM D 5084-97
(SOP-S22A & B)

Client	WITHERS & RAVENEL	Boring No.	MW 20A SILT
Client Project	CCT	Depth (ft.)	25.5-27.0
Project No.	2004-577-01	Sample No.	NA
Lab ID No.	2004-577-01-02		

Test Pressures		Final Sample Dimensions	
Cell Pressure(psi)	66.3	Sample Length (cm), L	6.45
Back Pressure(psi)	50.0	Sample Area (cm^2), A	41.77
Eff. Cons. Pressure(psi)	16.3	Pipette Area (cm^2), a_p	0.03142
Response (%)	95	Annulus Area (cm^2), a_a	0.76712
		Equilibrium Level (cm), R_{eq}	1.75

AVERAGE PERMEABILITY = 6.7E-09 cm/sec @ 20°C
AVERAGE PERMEABILITY = 6.7E-11 m/sec @ 20°C

DATE (mm/dd/yy)	TIME (hr)	TIME (min)	ELAPSED TIME t (min)	PIPETTE READING R_p (cm)	INCREMENT GRADIENT i (cm/cm)	FLOW CONDITION (0 flow) (1 stop)	TEMP. (°C)	INCREMENTAL PERMEABILITY @ 20°C (cm/sec)
10/7/2004	10	25.7	0	19.8	36.6	0	21.7	NA
10/7/2004	10	30.3	5	19.6	36.2	0	21.7	1.4E-08
10/7/2004	10	38.9	13	19.4	35.7	0	21.7	7.8E-09
10/7/2004	10	46.8	21	19.2	35.3	0	21.7	8.6E-09
10/7/2004	10	56.2	31	19.0	34.9	0	21.7	7.2E-09
10/7/2004	11	6.05	40	18.8	34.5	0	21.7	7.1E-09
10/7/2004	11	16.5	51	18.6	34.1	0	21.7	6.7E-09
10/7/2004	12	11.4	106	17.6	32.1	0	22.0	6.6E-09
10/7/2004	15	57.1	331	14.1	25.0	1	22.5	6.4E-09

Tested By: MW Date: 10/7/2004 Checked By: MPS Date: 10-8-04

DCN: CT-22A DATE:12-21-98 REVISION: 4 \\Lab1\C\2004 Projects\2004-577 W&R\[2004-577-01-02 Permometer.xls]Sheet1

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PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

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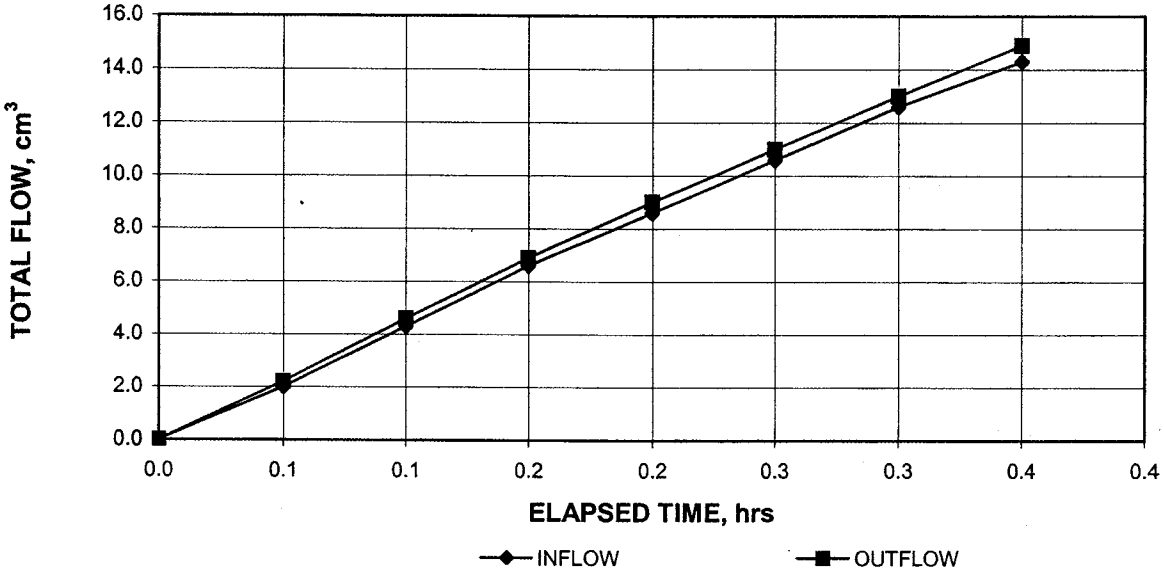
INTEGRITY IN TESTING

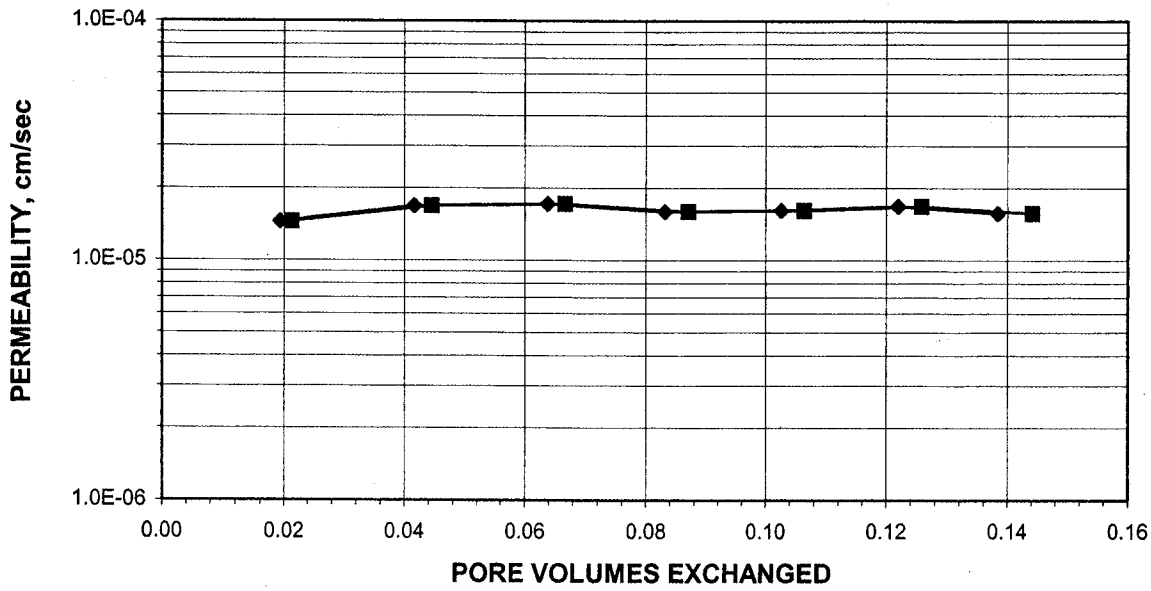
Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft.)	16.5-17.5
Project No.	2004-577-01	Sample No.	NA
Lab ID No.	2004-577-01-04		

AVERAGE PERMEABILITY = 1.6E-05 cm/sec @ 20°C
AVERAGE PERMEABILITY = 1.6E-07 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: MPS Date: 09/28/04 Checked By: GEM Date: 10-7-04

DCN: CT-22 DATE: 01-08-99 REVISION:2 C:\2004 Projects\2004-577 W&R\[2004-577-01-04 PERM.xls]Sheet1

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PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

geotechnics
INTEGRITY IN TESTING

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft.)	16.5-17.5
Project No.	2004-577-01	Sample No.	NA
Lab ID No.	2004-577-01-04		
		Specific Gravity	2.85 Measured
		Sample Condition	Undisturbed

Visual Description: GRAY TAN CLAY AND COARSE SAND

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	A-1	Y-11
Wt. of Tare & WS (gm.)	151.52	685.30
Wt. of Tare & DS (gm.)	142.45	591.71
Wt. of Tare (gm.)	99.60	99.86
Wt. of Water (gm.)	9.07	93.59
Wt. of DS (gm.)	42.85	491.85
Moisture Content (%)	**21.2**	**19.0**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	595.30	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (gm.)	595.30	584.79
Length 1 (in.)	2.804	2.658
Length 2 (in.)	2.708	2.610
Length 3 (in.)	2.673	2.601
Top Diameter (in.)	2.800	2.858
Middle Diameter (in.)	2.800	2.858
Bottom Diameter (in.)	2.800	2.858
Average Length (in.)	2.73	2.62
Average Area (in.^{2})	6.16	6.42
Sample Volume (cm^3)	275.30	275.75
Unit Wet Wt. (gm./ cm^3)	2.16	2.12
Unit Wet Wt. (pcf)	135.0	132.4
Unit Dry Wt. (pcf)	111.4	111.2
Unit Dry Wt. (gm./ cm^3)	1.78	1.78
Void Ratio, e	0.60	0.60
Porosity, n	0.37	0.37
Pore Volume (cm^3)	102.9	103.4

Tested By: MPS Date: 09/28/04 Checked By: GSM Date: 10-7-04

DCN: CT-22 DATE: 01-08-99 REVISION:2 C:\2004 Projects\2004-577 W&R\[2004-577-01-04 PERM.xls]Sheet1

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PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

geotechnics
INTEGRITY IN TESTING

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft.)	16.5-17.5
Project No.	2004-577-01	Sample No.	NA
Lab ID No.	2004-577-01-04		

Pressure Heads (Constant)		Final Sample Dimensions	
Top Cap (psi)	48.5	Sample Length (cm), L	6.66
Bottom Cap (psi)	50.0	Sample Diameter (cm)	7.26
Cell (psi)	62.2	Sample Area (cm^2), A	41.39
Total Pressure Head (cm)	105.5	Inflow Burette Area (cm^2), a-in	0.934
Hydraulic Gradient	15.83	Outflow Burette Area (cm^2), a-out	0.986
		B Parameter (%)	98

AVERAGE PERMEABILITY = 1.6E-05 cm/sec @ 20°C
AVERAGE PERMEABILITY = 1.6E-07 m/sec @ 20°C

DATE (mm/dd/yy)	TIME (hr)	TIME (min)	ELAPSED TIME t (hr)	TOTAL INFLOW (cm^3)	TOTAL OUTFLOW (cm^3)	TOTAL HEAD h (cm)	FLOW (0 flow) (1 stop)	TEMP. (°C)	INCREMENTAL PERMEABILITY @ 20°C (cm/sec)
10/05/04	9	30	0.0	0.0	0.0	127.4	0	21.3	NA
10/05/04	9	33	0.1	2.0	2.2	123.1	0	21.3	1.4E-05
10/05/04	9	36	0.1	4.3	4.6	118.2	0	21.3	1.7E-05
10/05/04	9	39	0.2	6.6	6.9	113.4	0	21.3	1.7E-05
10/05/04	9	42	0.2	8.6	9.0	109.1	0	21.3	1.6E-05
10/05/04	9	45	0.3	10.6	11.0	105.0	0	21.3	1.6E-05
10/05/04	9	48	0.3	12.6	13.0	100.8	0	21.3	1.7E-05
10/05/04	9	51	0.4	14.3	14.9	97.1	1	21.3	1.6E-05

Tested By: MPS Date: 09/28/04 Checked By: GEM Date: 10-7-04

DCN: CT-22 DATE: 01-08-99 REVISION:2 C:\2004 Projects\2004-577 W&R\[2004-577-01-04 PERM.xls]Sheet1

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PERMEABILITY TEST

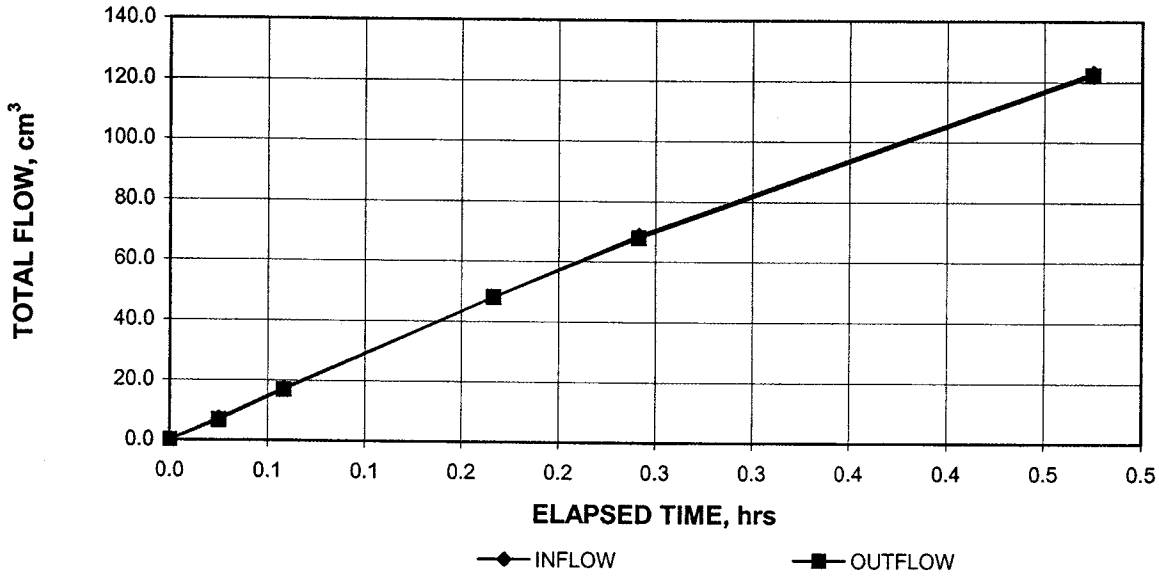
ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

geotechnics
INTEGRITY IN TESTING

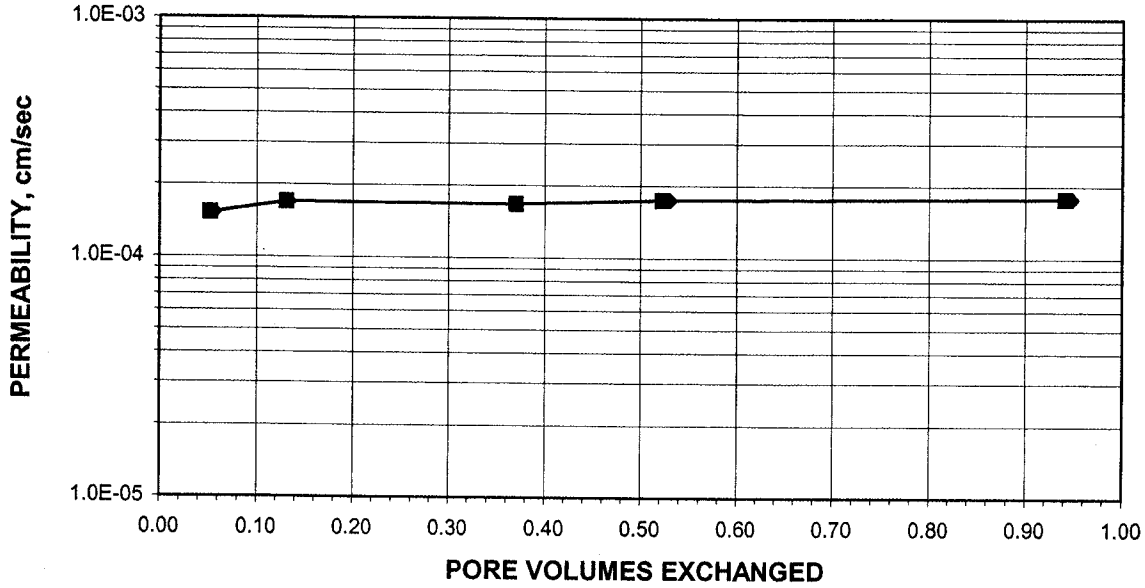
Client	WITHERS & RAVENEL	Boring No.	MW-20A SAND
Client Project	CCT	Depth (ft.)	4.5-6.5
Project No.	2004-577-01	Sample No.	NA
Lab ID No.	2004-577-01-03		

AVERAGE PERMEABILITY = 1.7E-04 cm/sec @ 20°C
AVERAGE PERMEABILITY = 1.7E-06 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: MPS Date: 10/4/2004 Checked By: Date:

DCN: CT-22 DATE: 01-08-99 REVISION:2 \\Lab1\C\2004 Projects\2004-577 W&R\[2004-577-01-03 PERM.xls]Sheet1

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PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

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INTEGRITY IN TESTING

Client	WITHERS & RAVENEL	Boring No.	MW-20A SAND
Client Project	CCT	Depth (ft.)	4.5-6.5
Project No.	2004-577-01	Sample No.	NA
Lab ID No.	2004-577-01-03		
		Specific Gravity	2.84 Measured
		Sample Condition	Undisturbed

Visual Description: TAN CLAYEY SAND

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	A-O	Y-11
Wt. of Tare & WS (gm.)	60.22	998.40
Wt. of Tare & DS (gm.)	54.20	883.19
Wt. of Tare (gm.)	15.53	99.84
Wt. of Water (gm.)	6.02	115.21
Wt. of DS (gm.)	38.67	783.35
Moisture Content (%)	**15.6**	**14.7**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	920.00	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (gm.)	920.00	913.15
Length 1 (in.)	4.000	3.984
Length 2 (in.)	4.000	3.946
Length 3 (in.)	4.000	3.932
Top Diameter (in.)	2.800	2.827
Middle Diameter (in.)	2.800	2.845
Bottom Diameter (in.)	2.800	2.845
Average Length (in.)	4.00	3.95
Average Area (in.^{2})	6.16	6.33
Sample Volume (cm^3)	403.61	410.16
Unit Wet Wt. (gm./ cm^3)	2.28	2.23
Unit Wet Wt. (pcf)	142.3	139.0
Unit Dry Wt. (pcf)	123.1	121.2
Unit Dry Wt. (gm./ cm^3)	1.97	1.94
Void Ratio, e	0.44	0.46
Porosity, n	0.31	0.32
Pore Volume (cm^3)	123.3	129.9

Tested By: MPS Date: 10/4/2004 Checked By: GZM Date: 10-11-04

DCN: CT-22 DATE: 01-08-99 REVISION:2 \\Lab1\C\2004 Projects\2004-577 W&R\[2004-577-01-03 PERM.xls]Sheet1

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PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
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geotechnics
INTEGRITY IN TESTING

Client	WITHERS & RAVENEL	Boring No.	MW-20A SAND
Client Project	CCT	Depth (ft.)	4.5-6.5
Project No.	2004-577-01	Sample No.	NA
Lab ID No.	2004-577-01-03		

Pressure Heads (Constant)		Final Sample Dimensions	
Top Cap (psi)	38.6	Sample Length (cm), L	10.04
Bottom Cap (psi)	40.0	Sample Diameter (cm)	7.21
Cell (psi)	45.0	Sample Area (cm^2), A	40.84
Total Pressure Head (cm)	98.4	Inflow Burette Area (cm^2), a-in	4.945
Hydraulic Gradient	9.80	Outflow Burette Area (cm^2), a-out	5.002
		B Parameter (%)	95

AVERAGE PERMEABILITY = 1.7E-04 cm/sec @ 20°C
AVERAGE PERMEABILITY = 1.7E-06 m/sec @ 20°C

DATE (mm/dd/yy)	TIME (hr)	TIME (min)	ELAPSED TIME t (hr)	TOTAL INFLOW (cm^3)	TOTAL OUTFLOW (cm^3)	TOTAL HEAD h (cm)	FLOW (0 flow) (1 stop)	TEMP. (°C)	INCREMENTAL PERMEABILITY @ 20°C (cm/sec)
10/6/2004	15	14.5	0.0	0.0	0.0	121.7	0	21.9	NA
10/6/2004	15	16	0.0	7.3	6.8	118.9	0	21.9	1.5E-04
10/6/2004	15	18	0.1	17.3	17.0	114.8	1	21.9	1.7E-04
10/6/2004	16	42	0.1	17.3	17.0	117.5	0	21.9	NA
10/6/2004	16	48.5	0.2	48.1	48.1	105.1	0	21.9	1.7E-04
10/6/2004	16	53	0.2	68.8	67.9	97.0	0	21.9	1.7E-04
10/6/2004	17	7	0.5	123.1	122.2	75.1	1	21.9	1.8E-04

Tested By: MPS Date: 10/4/2004 Checked By: Date:

DCN: CT-22 DATE: 01-08-99 REVISION:2 \\Lab1\C\2004 Projects\2004-577 W&R\[2004-577-01-03 PERM.xls]Sheet1

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ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-96 (SOP-S24)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. 276
1 Division = 0.0001 (in)

Sample Properties	**Initial**	**Final**
Water Content		
Tare Number	SS-6	Y-6
Wt. Tare & WS (gm)	245.39	268.01
Wt. Tare & DS (gm)	223.33	243.13
Wt. Water (gm)	22.06	24.88
Wt. Tare (gm)	100.98	100.57
Wt. DS (gm)	122.35	142.56
Water Content (%)	18.03	17.45
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.000	0.948
Sample Volume (cc)	80.44	76.22
Wt. Wet Sample + Ring (gm)	382.90	382.07
Wt. of Ring (gm)	212.61	212.61
Wt. of Wet Sample (gm)	170.29	169.46
Wet Density (pcf)	132.10	138.73
Wet Density (g/cc)	2.12	2.22
Water Content (%)	18.03	17.45
Wt. of Dry Sample (gm)	144.28	144.28
Dry Density (pcf)	111.92	118.12
Dry Density (g/cc)	1.79	1.89
Void Ratio	0.5778	0.4950
Saturation (%)	88.30	99.77
Specific Gravity	2.83	*Assumed*

Test Data Summary

Applied Pressure (tsf)	Final Dial Reading (div)	Machine Deflection (div)	Corrected Reading (div)	Height of Sample (mm)	Volume (cc)	Dry Density (g/cc)	Void Ratio
Seating	0	0	0	25.400	80.440	1.79360	**0.57784**
0.25	101.7	12.1	89.6	25.172	79.719	1.80981	**0.56370**
0.5	145.3	23.2	122.1	25.090	79.458	1.81577	**0.55857**
1	212.8	39.8	173.0	24.961	79.048	1.82517	**0.55054**
2	298.1	59.5	238.6	24.794	78.521	1.83744	**0.54019**
4	405.6	81.2	324.4	24.576	77.830	1.85373	**0.52665**
1	370.0	54.9	315.1	24.600	77.905	1.85195	**0.52812**
0.25	327.6	30.3	297.3	24.645	78.048	1.84855	**0.53093**
0.5	336.5	35.6	300.9	24.636	78.019	1.84924	**0.53036**
1	358.1	47.4	310.7	24.611	77.941	1.85111	**0.52881**
2	381.3	63.5	317.8	24.593	77.883	1.85247	**0.52769**
4	420.7	81.7	339.0	24.539	77.713	1.85653	**0.52435**
8	538.5	103.3	435.2	24.295	76.939	1.87521	**0.50917**
16	713.4	126.5	586.9	23.909	75.719	1.90543	**0.48523**
4	666.2	101.7	564.5	23.966	75.899	1.90090	**0.48877**
1	615.4	67.6	547.8	24.009	76.033	1.89754	**0.49140**
0.25	566.8	42.1	524.7	24.067	76.219	1.89292	**0.49505**

Tested By MPS *Date* 9/29/2004 *Input Checked By* GEM *Date* 10-11-04

DCN: CT-S24F Date: 11/9/00 Revision: 4

\\Lab1\c\2004 Projects\2004-577 W&R\[Copy of 2004-577-01-05 CONFINAL(RALEIGH).xls]Sheet1

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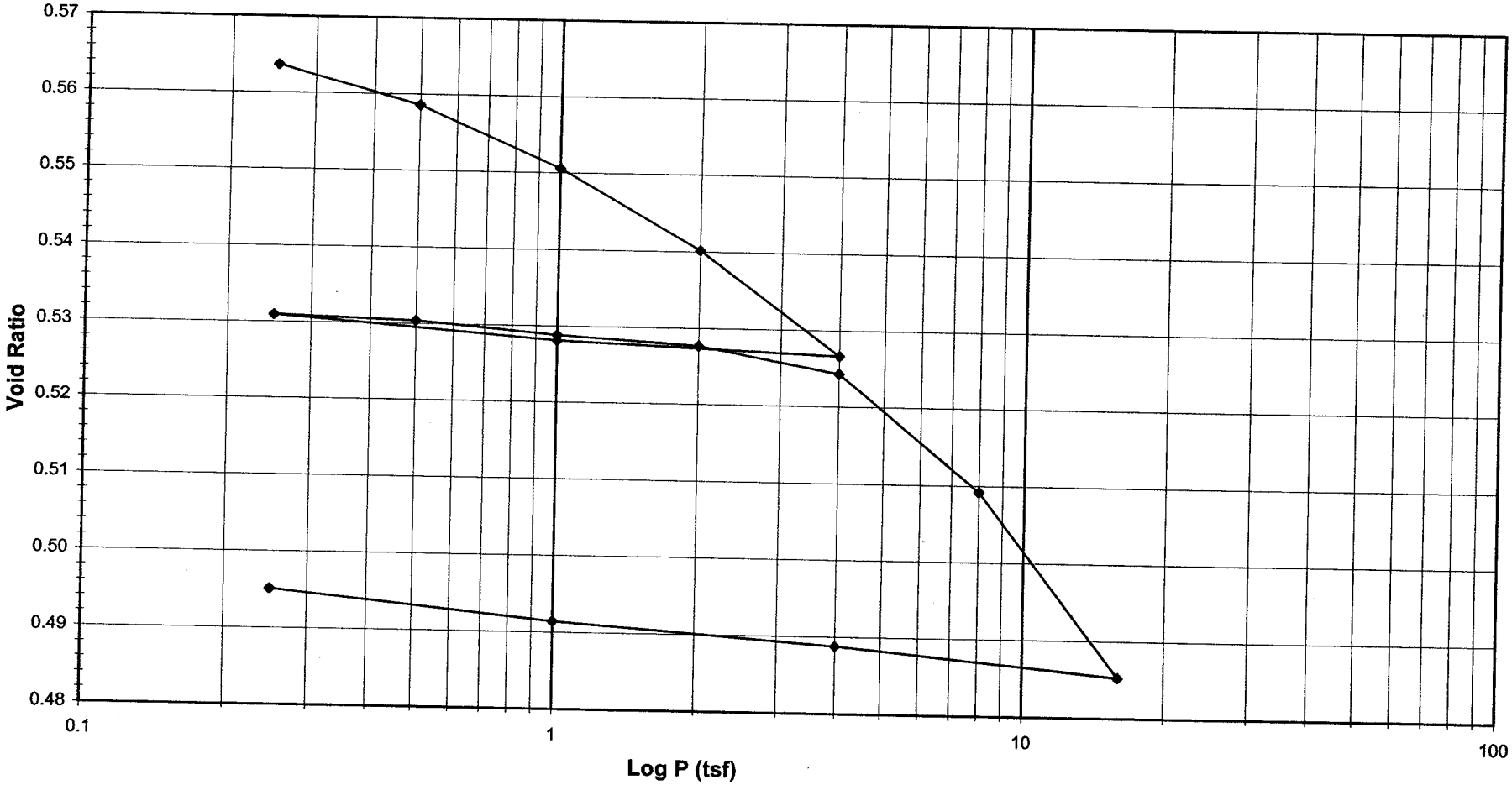
ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-96 (SOP-S24)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By MPS *Date* 9/29/2004 *Approved By* GEM *Date* 10-11-04

DCN: CT-S24F Date: 11/9/00 Revision: 4

\\Lab1\c\2004 Projects\2004-577 W&R\[Copy of 2004-577-01-05 CONFINAL(RALEIGH).xls]Sheet1

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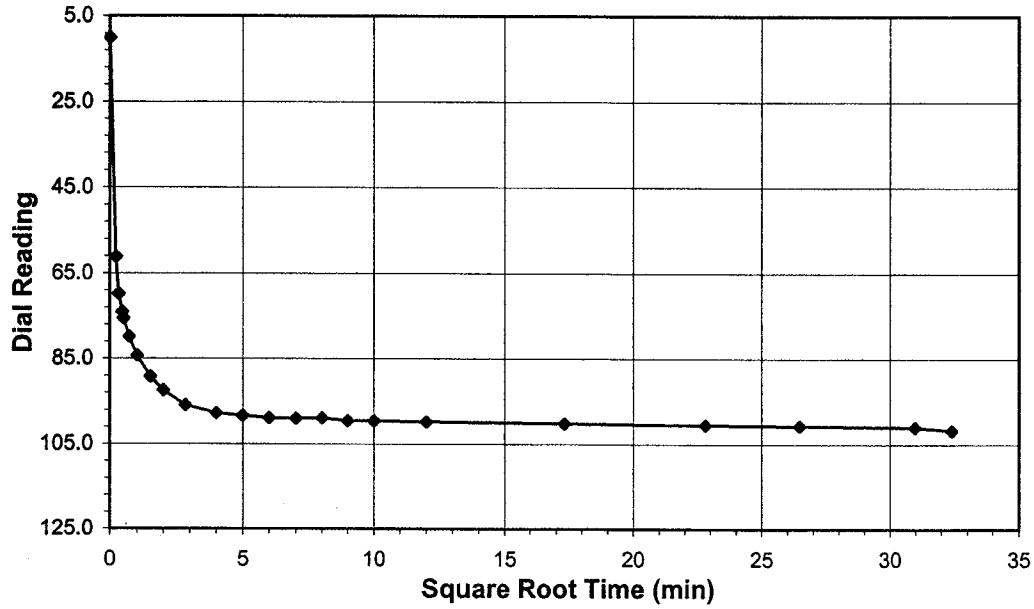
ASTM D 2435-96 (SOP-S24A)

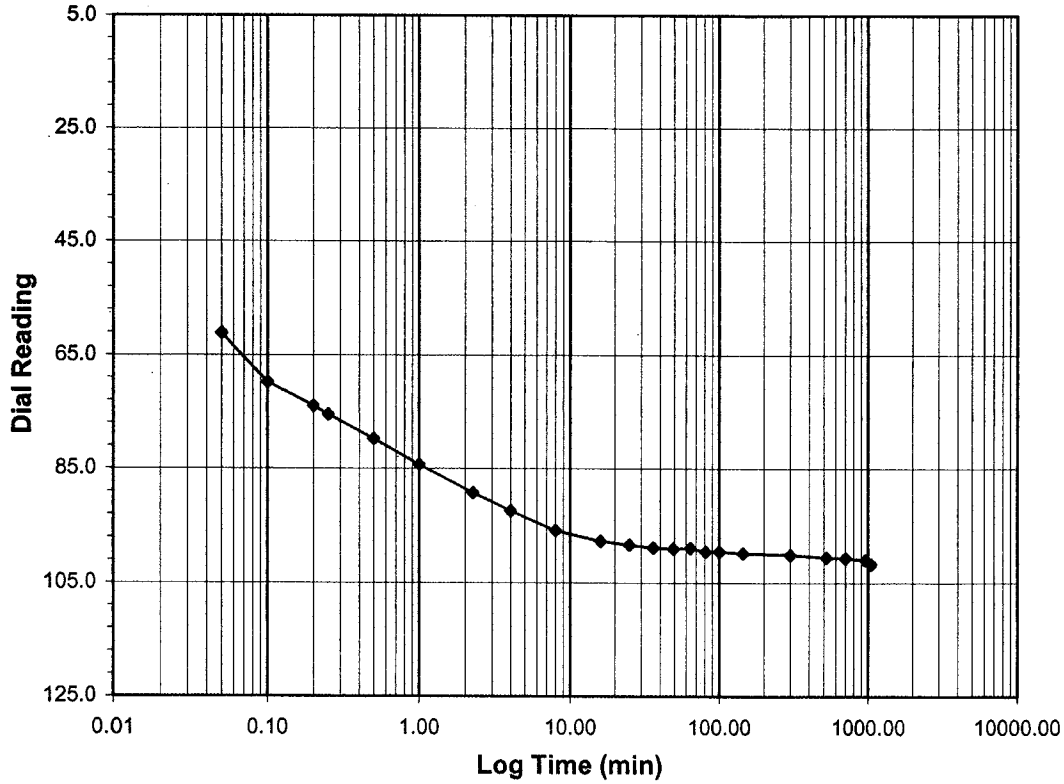
Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**0-0.25**
Final Reading	**(div)**	**101.7**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		9/29/2004
Start Time		16:49:38

Elapsed Time (min)	Dial Reading (div)
Initial	**10.0**
0.05	61.2
0.10	69.8
0.20	74.1
0.25	75.6
0.50	79.8
1.00	84.3
2.25	89.3
4.00	92.4
8.00	95.9
16.00	97.8
25.00	98.3
36.00	98.9
49.00	99.1
64.00	98.9
81.00	99.6
100.00	99.6
144.00	99.8
300.00	100.1
520.00	100.6
700.00	100.7
960.00	101.0
1049.13	101.7



Tested By *MPS* *Date* *9/29/2004* *Checked By* Gem *Date* 10-11-04

DCN: CT-24E Date: 3/2/98 Revision: 2

C:\Program Files\TestNet Data 2\[2004-577-01-05 16.xls]Sheet1 (2)

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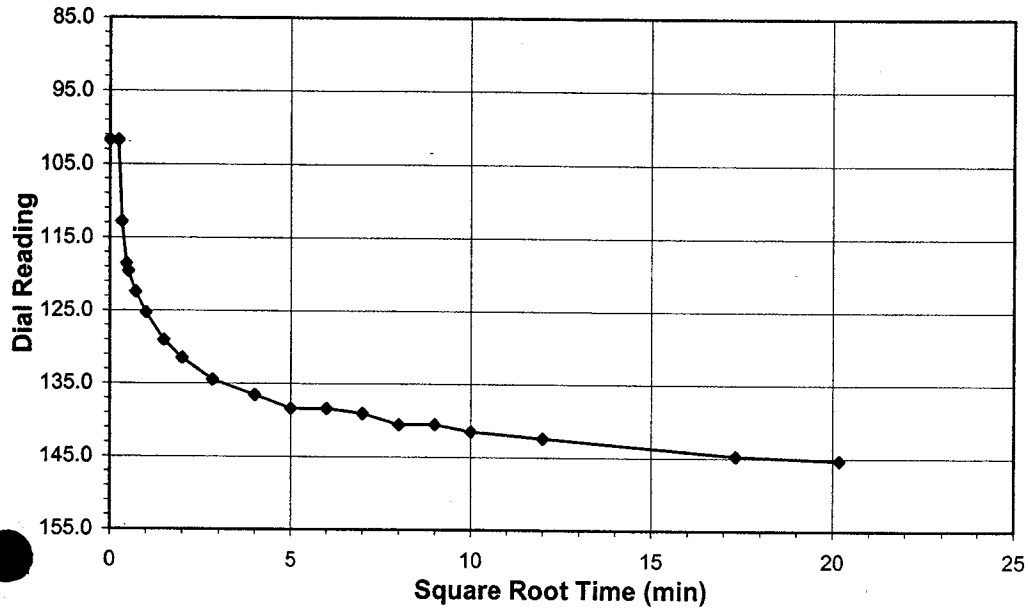
ASTM D 2435-96 (SOP-S24A)

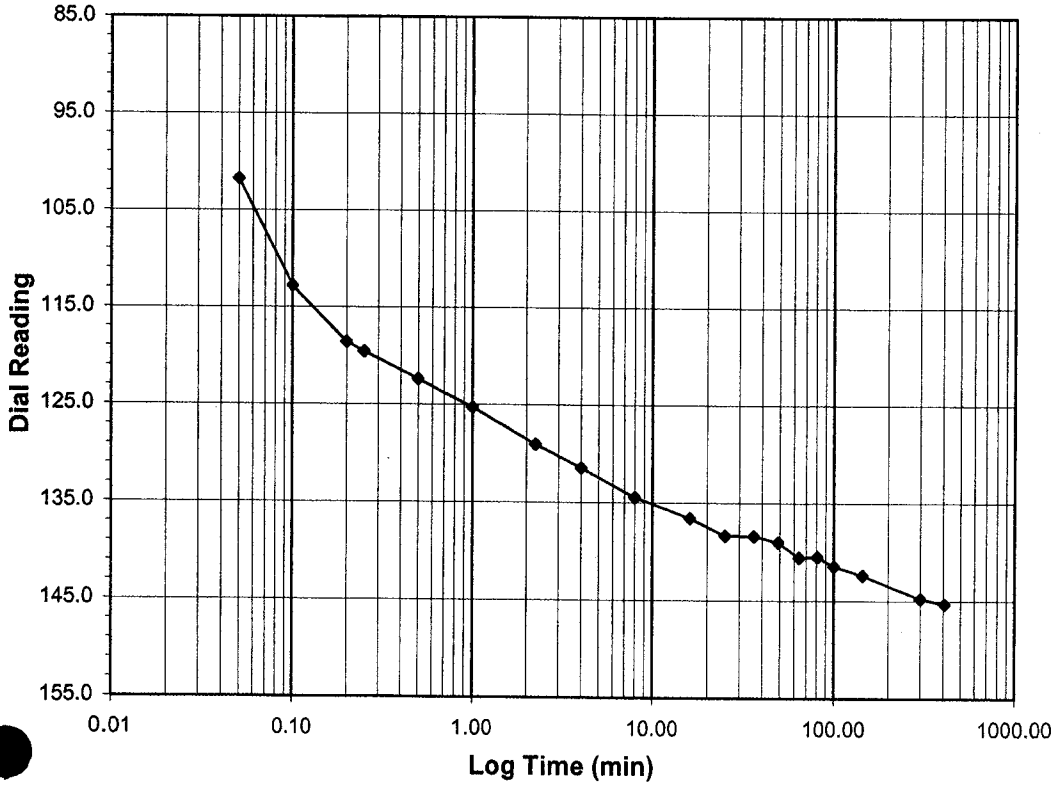
Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEYSAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**.25-.5**
Final Reading	**(div)**	**145.3**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		9/30/2004
Start Time		10:25:58

Elapsed Time (min)	Dial Reading (div)
Initial	**101.7**
0.05	101.8
0.10	112.8
0.20	118.6
0.25	119.6
0.50	122.4
1.00	125.3
2.25	129.1
4.00	131.5
8.00	134.5
16.00	136.6
25.00	138.4
36.00	138.4
49.00	139.0
64.00	140.6
81.00	140.5
100.00	141.5
144.00	142.4
300.00	144.7
407.15	145.3



Tested By MPS *Date* 9/30/2004 *Checked By* CEM *Date* 10-11-04

DCN: CT-24E Date: 3/2/98 Revision: 2

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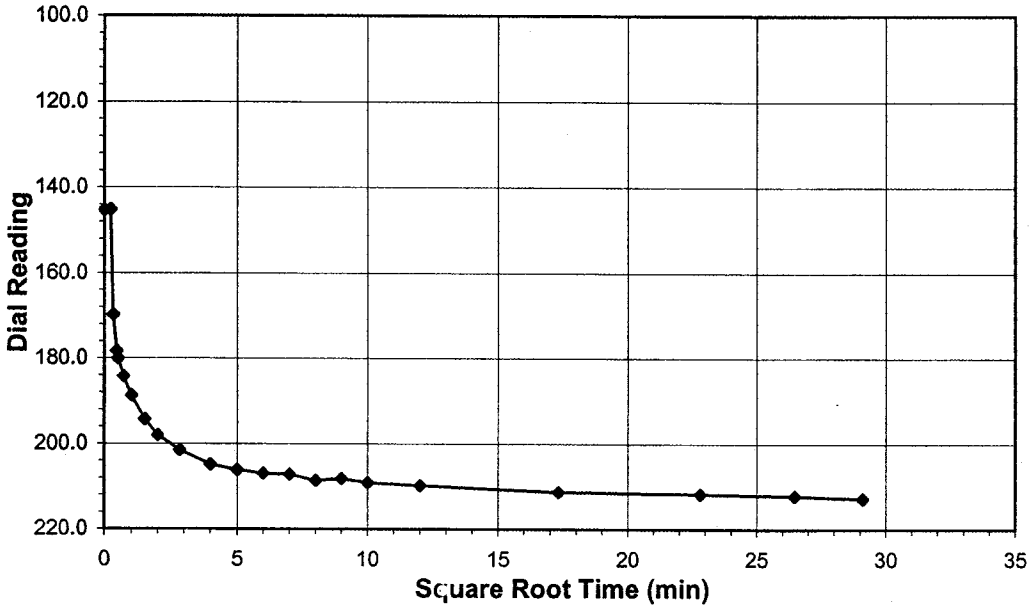
ASTM D 2435-96 (SOP-S24A)

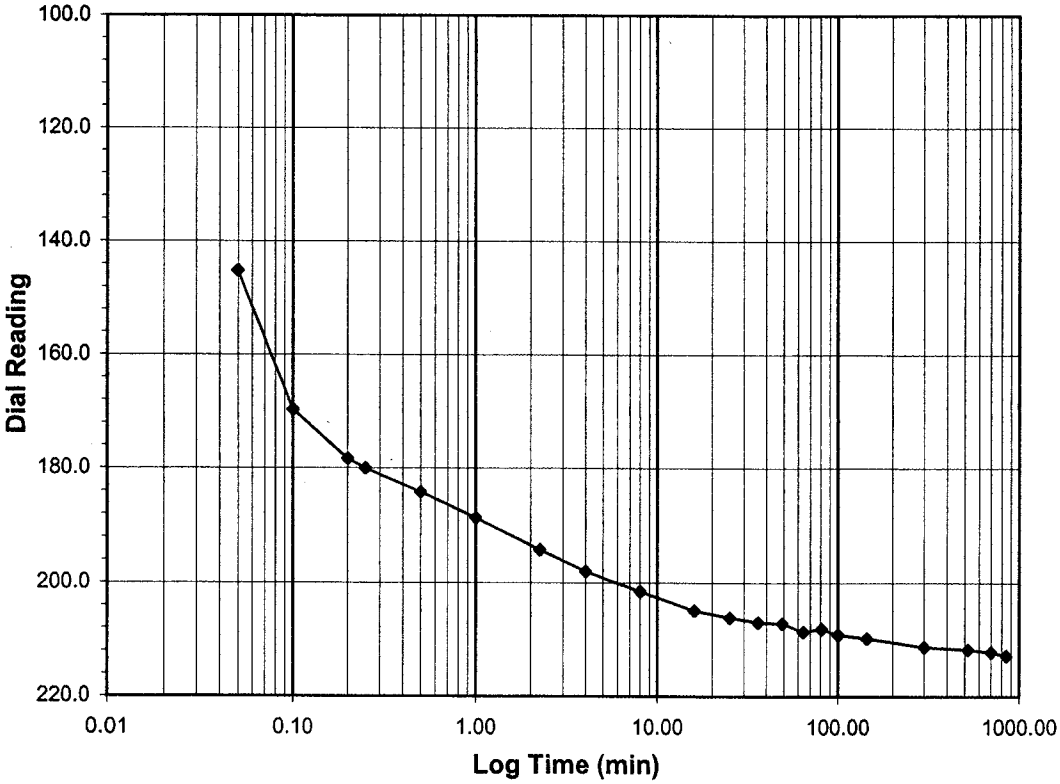
Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**.5-1.0**
Final Reading	**(div)**	**212.8**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		9/30/2004
Start Time		17:18:31

Elapsed Time (min)	Dial Reading (div)
Initial	**145.3**
0.05	145.2
0.10	169.8
0.20	178.3
0.25	180.1
0.50	184.2
1.00	188.8
2.25	194.2
4.00	198.0
8.00	201.6
16.00	204.9
25.00	206.2
36.00	207.0
49.00	207.2
64.00	208.7
81.00	208.2
100.00	209.1
144.00	209.8
300.00	211.3
520.00	211.8
700.00	212.2
846.90	212.8



Tested By *MPS* *Date* *9/30/2004* *Checked By* GEM *Date* 10-11-04

DCN: CT-24E Date: 3/2/98 Revision: 2

C:\Program Files\TestNet Data 2\[2004-577-01-05 09.xls]Sheet1 (2)

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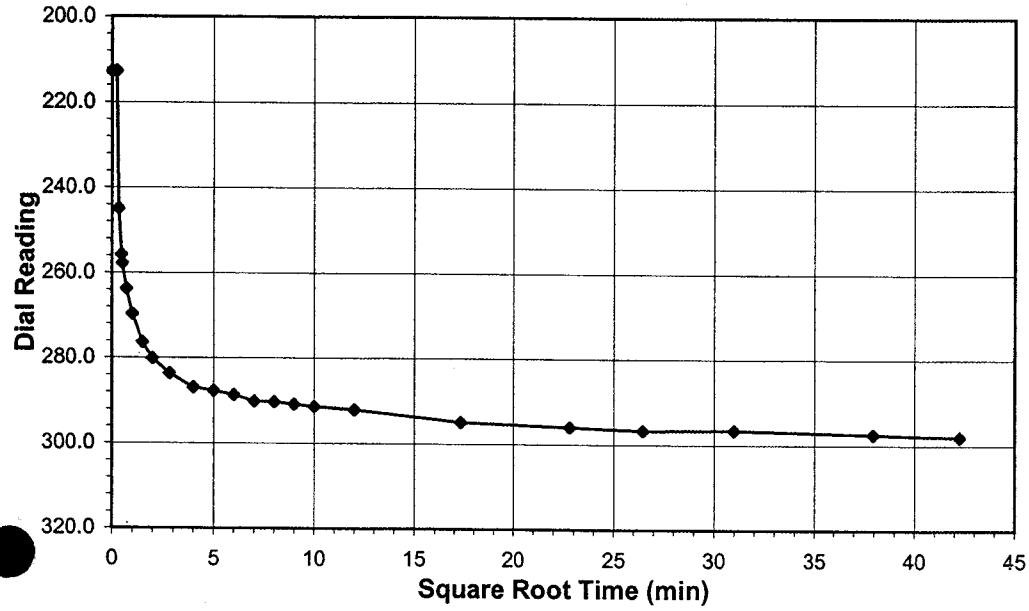
ASTM D 2435-96 (SOP-S24A)

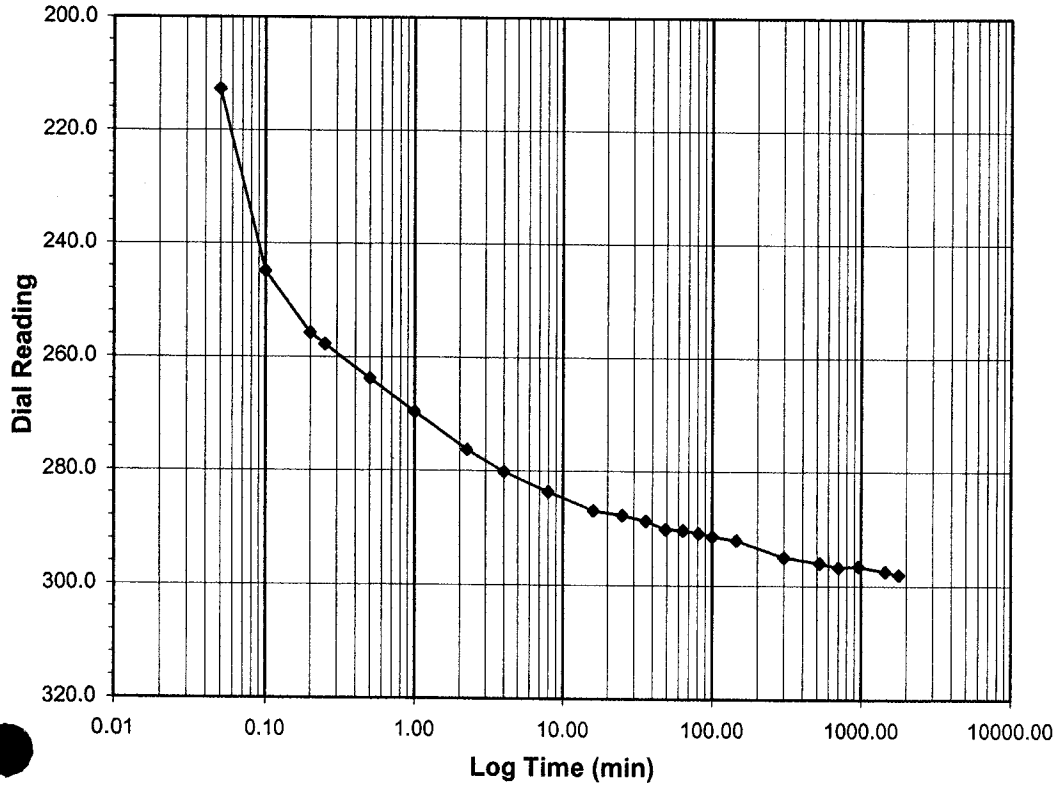
Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**298.1**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		10/1/2004
Start Time		7:31:21

Elapsed Time (min)	Dial Reading (div)
Initial	**212.8**
0.05	212.7
0.10	244.9
0.20	255.8
0.25	257.8
0.50	263.8
1.00	269.7
2.25	276.3
4.00	280.2
8.00	283.7
16.00	286.9
25.00	287.7
36.00	288.7
49.00	290.2
64.00	290.3
81.00	290.8
100.00	291.4
144.00	292.1
300.00	295.0
520.00	296.0
700.00	296.8
960.00	296.6
1440.00	297.5
1785.10	298.1



Tested By MPS *Date* 10/1/2004 *Checked By* GEM *Date* 10-11-04

DCN: CT-24E Date: 3/2/98 Revision: 2

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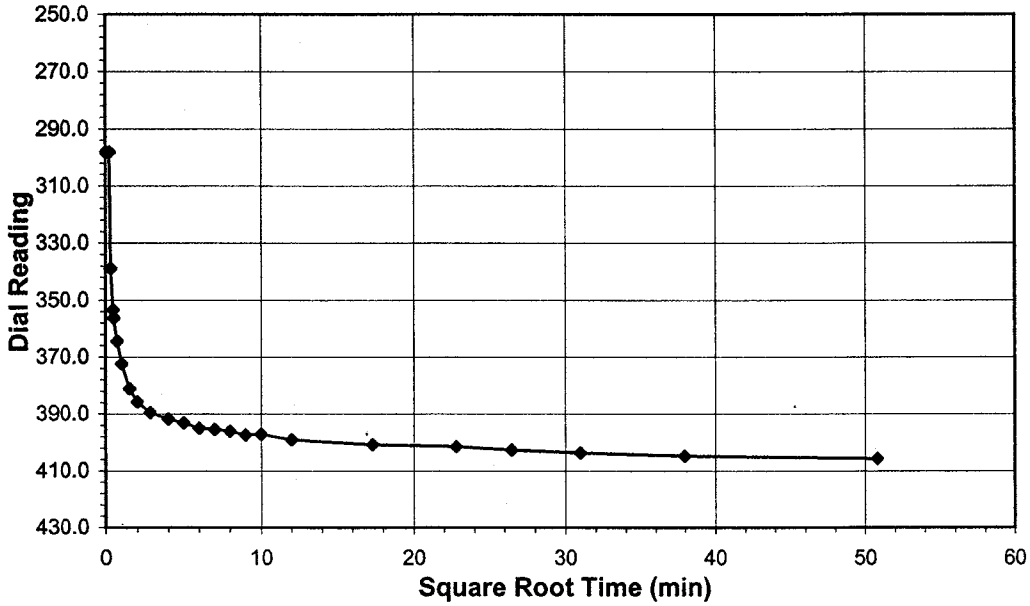
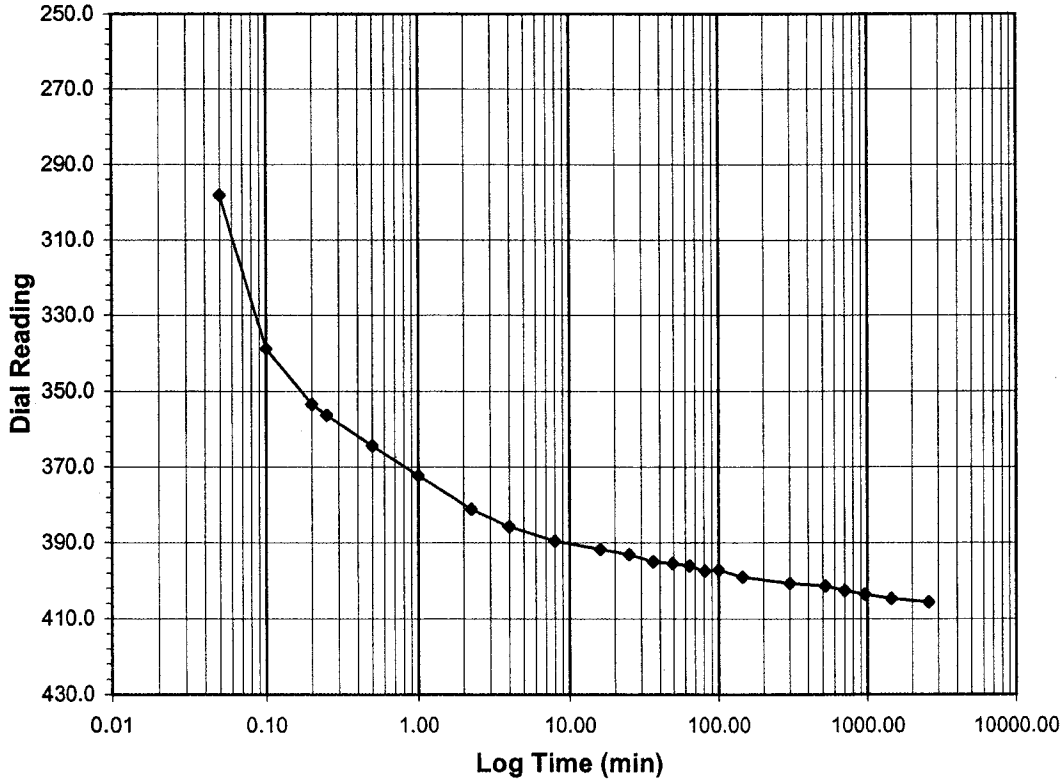
ASTM D 2435-96 (SOP-S24A)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**405.6**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		10/2/2004
Start Time		13:24:42

Elapsed Time (min)	Dial Reading (div)
Initial	**298.1**
0.05	298.1
0.10	338.9
0.20	353.5
0.25	356.3
0.50	364.4
1.00	372.3
2.25	381.1
4.00	385.7
8.00	389.5
16.00	391.7
25.00	393.1
36.00	395.0
49.00	395.5
64.00	396.0
81.00	397.4
100.00	397.2
144.00	399.0
300.00	400.7
520.00	401.4
700.00	402.6
960.00	403.6
1440.00	404.7
2580.47	405.6

Tested By *MPS* *Date* *10/2/2004* *Checked By* GEM *Date* 10-11-04

 DCN: CT-24E Date: 3/2/98 Revision: 2 *C:\Program Files\TestNet Data 2\[2004-577-01-05 09.xls]Sheet1 (2)*

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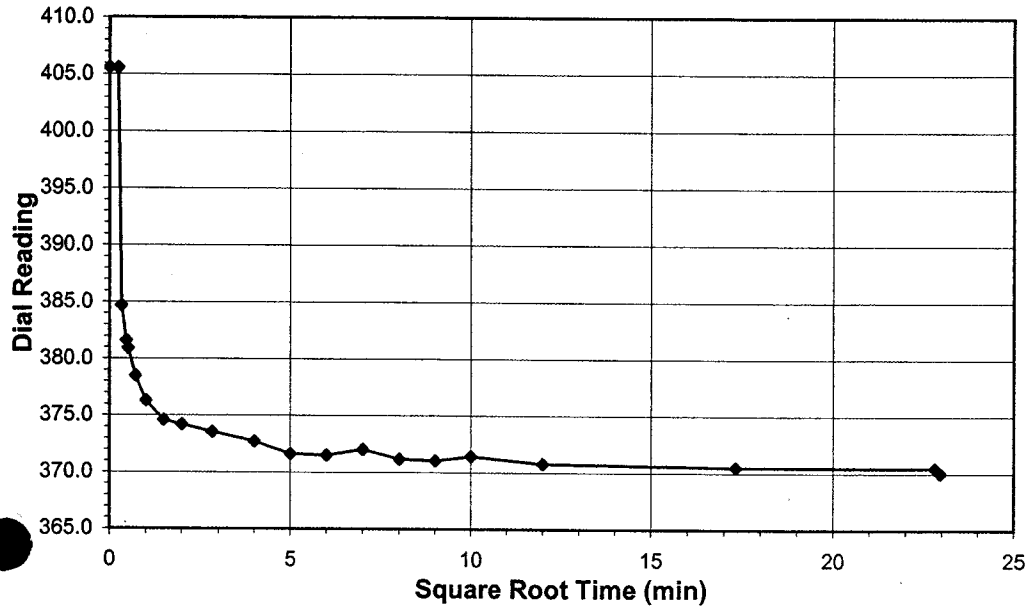
ASTM D 2435-96 (SOP-S24A)

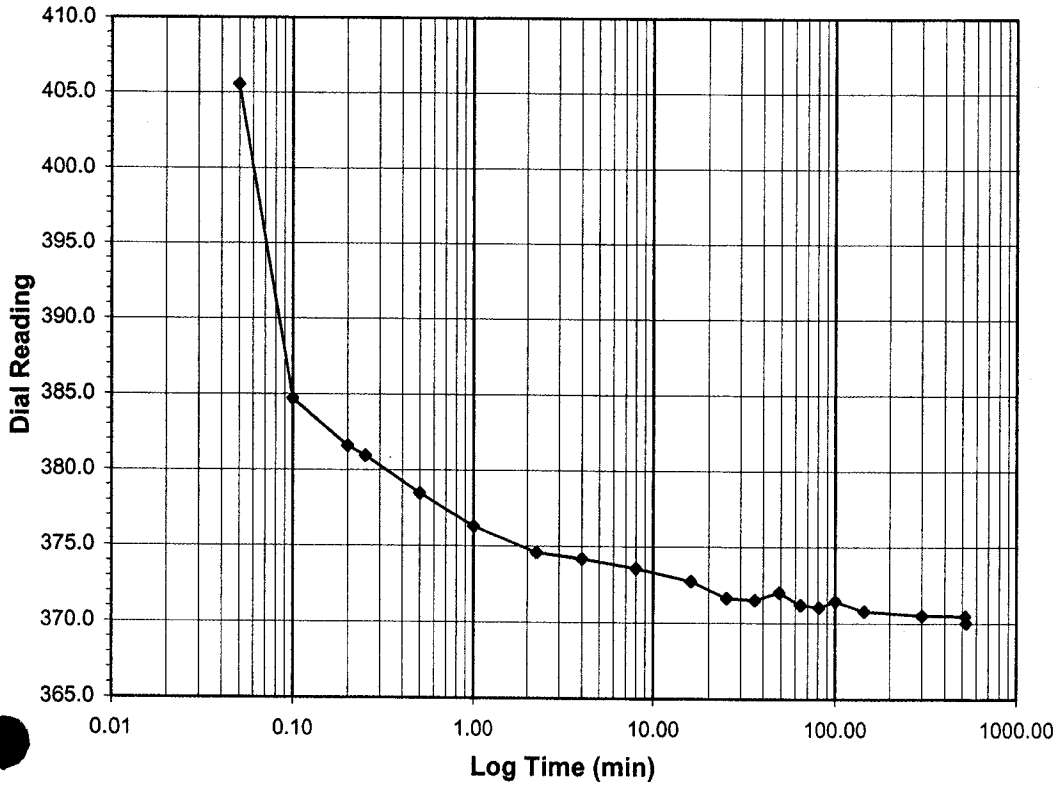
Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**370.0**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		10/4/2004
Start Time		8:42:49

Elapsed Time (min)	Dial Reading (div)
Initial	**405.6**
0.05	405.6
0.10	384.7
0.20	381.6
0.25	380.9
0.50	378.5
1.00	376.3
2.25	374.6
4.00	374.2
8.00	373.6
16.00	372.7
25.00	371.6
36.00	371.5
49.00	372.0
64.00	371.2
81.00	371.0
100.00	371.4
144.00	370.8
300.00	370.5
520.00	370.5
526.50	370.0



Tested By MPS *Date* 10/4/2004 *Checked By* GCM *Date* 10-11-04

 DCN: CT-24E Date: 3/2/98 Revision: 2 *C:\Program Files\TestNet Data 2\[2004-577-01-05 09.xls]Sheet1 (2)*

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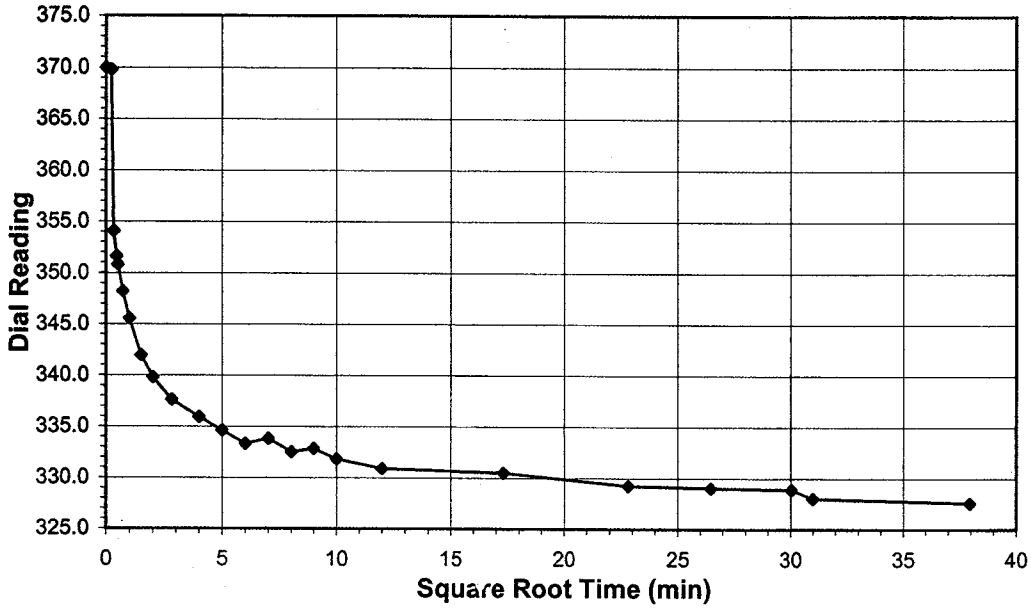
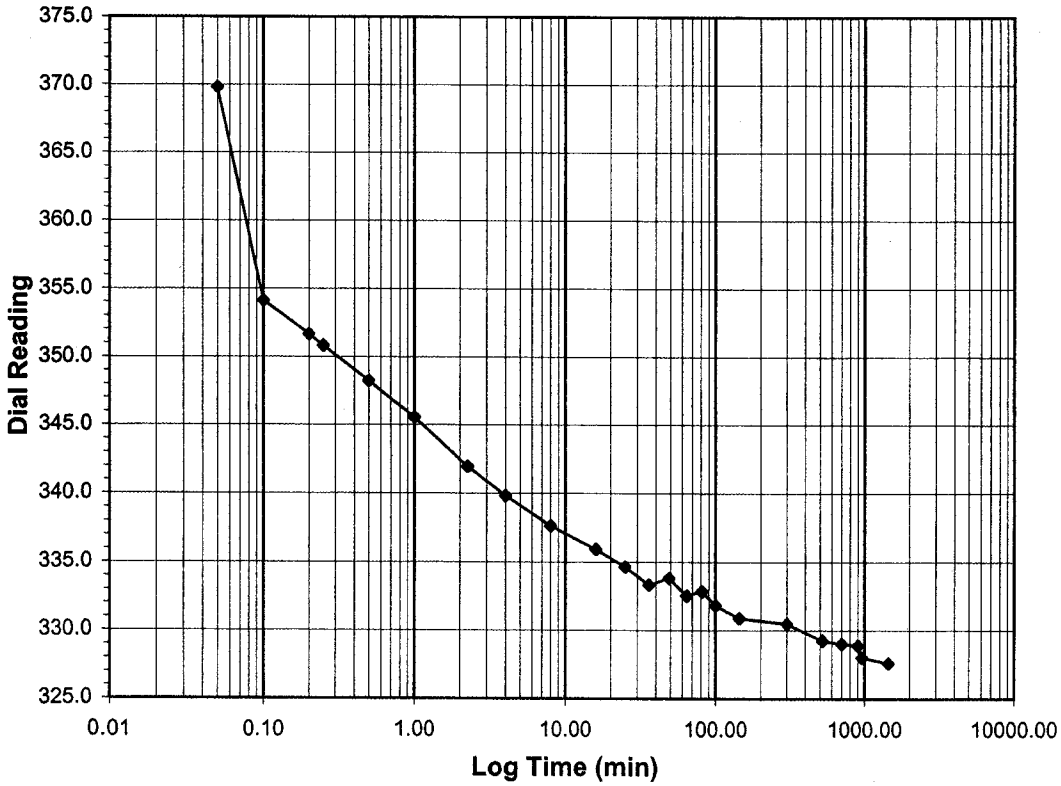
ASTM D 2435-96 (SOP-S24A)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-.25**
Final Reading	**(div)**	**327.6**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		10/4/2004
Start Time		17:35:58

Elapsed Time (min)	Dial Reading (div)
Initial	**370.0**
0.05	369.8
0.10	354.1
0.20	351.6
0.25	350.8
0.50	348.2
1.00	345.6
2.25	342.0
4.00	339.8
8.00	337.6
16.00	335.9
25.00	334.6
36.00	333.3
49.00	333.8
64.00	332.5
81.00	332.9
100.00	331.8
144.00	330.9
300.00	330.5
520.00	329.2
700.00	329.0
902.00	328.9
960.00	328.0
1440.00	327.6

Tested By *MPS* *Date* *10/4/2004* *Checked By* GEM *Date* 10-11-04

DCN: CT-24E Date: 3/2/98 Revision: 2

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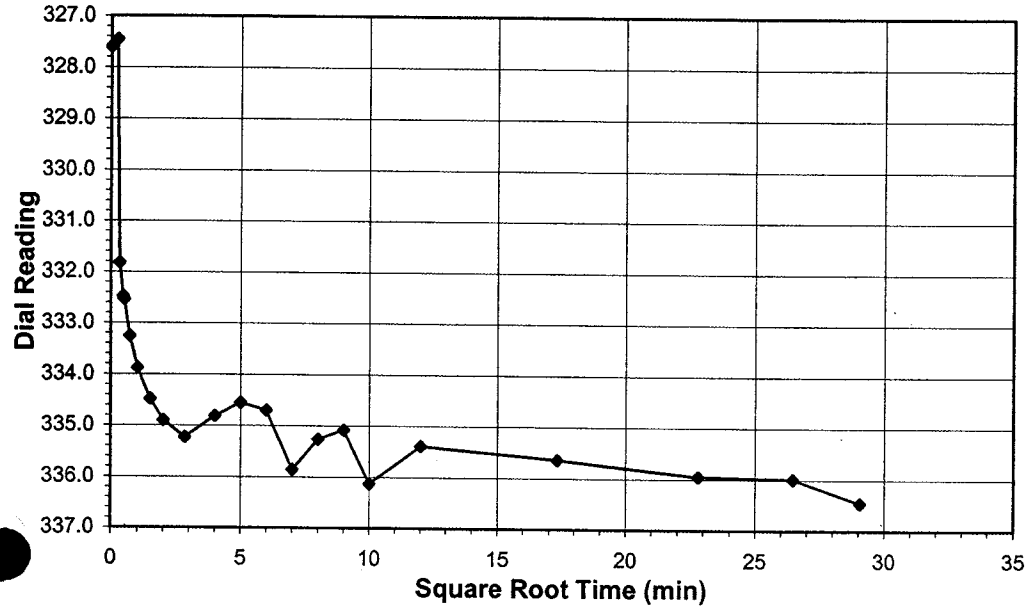
ASTM D 2435-96 (SOP-S24A)

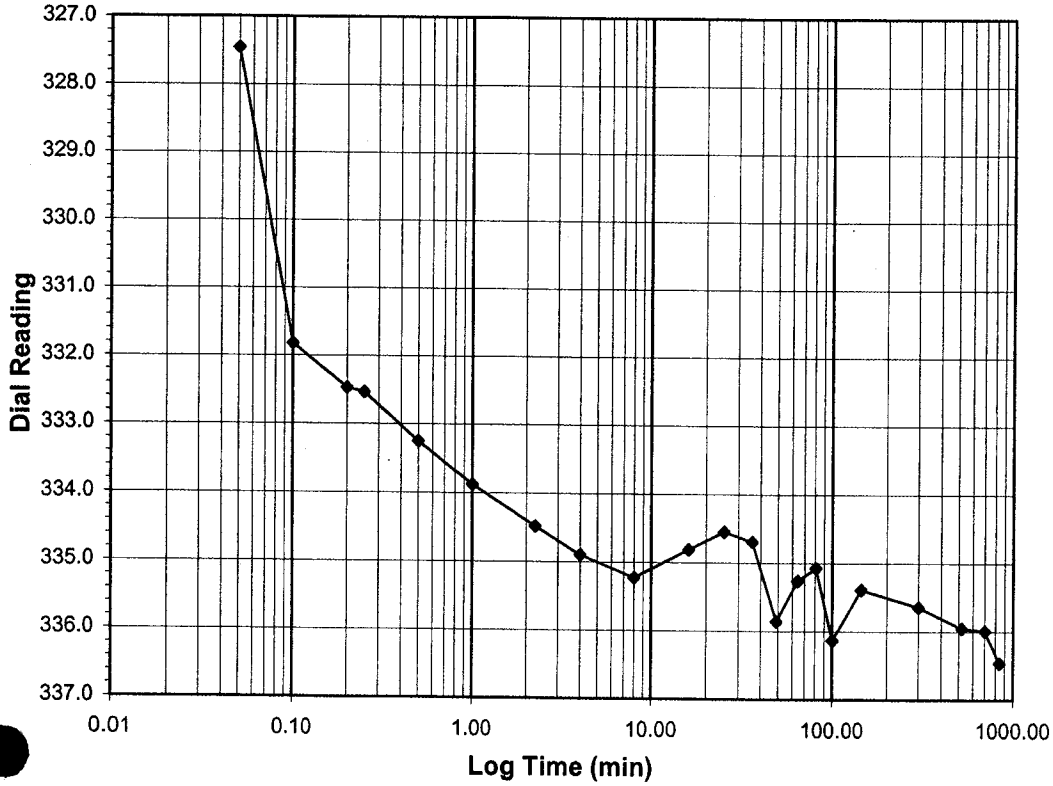
Client	WITHERS & RAVENEL	Boring No.	MW-21A
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**.25-.50**
Final Reading	**(div)**	**336.5**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		10/5/2004
Start Time		18:20:30

Elapsed Time (min)	Dial Reading (div)
Initial	**327.6**
0.05	327.5
0.10	331.8
0.20	332.5
0.25	332.5
0.50	333.3
1.00	333.9
2.25	334.5
4.00	334.9
8.00	335.2
16.00	334.8
25.00	334.5
36.00	334.7
49.00	335.9
64.00	335.3
81.00	335.1
100.00	336.1
144.00	335.4
300.00	335.6
520.00	336.0
700.00	336.0
843.77	336.5



Tested By MPS *Date* 10/5/2004 *Checked By* GCM *Date* 10-11-04

DCN: CT-24E Date: 3/2/98 Revision: 2

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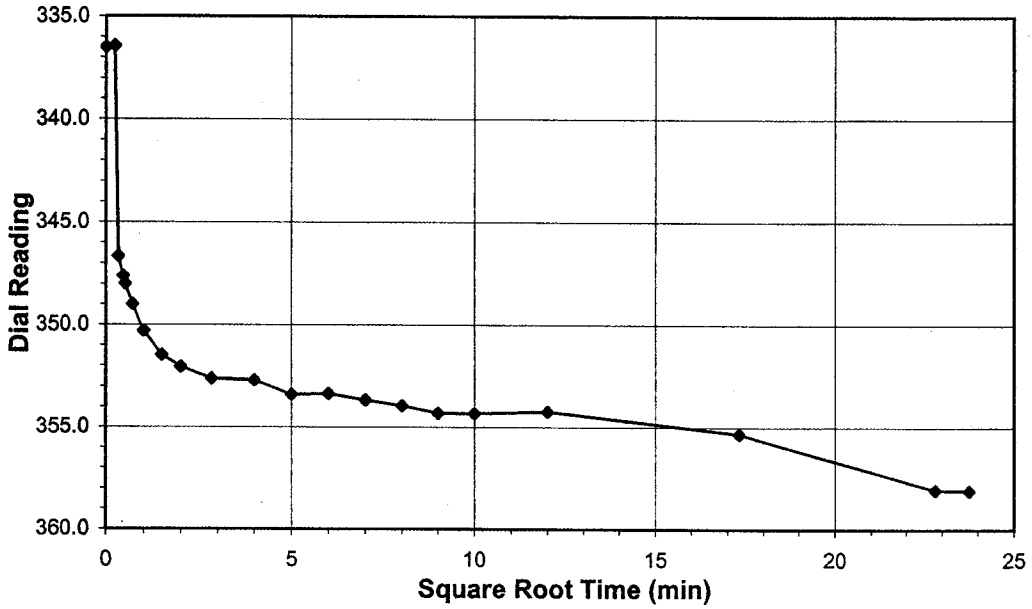
ASTM D 2435-96 (SOP-S24A)

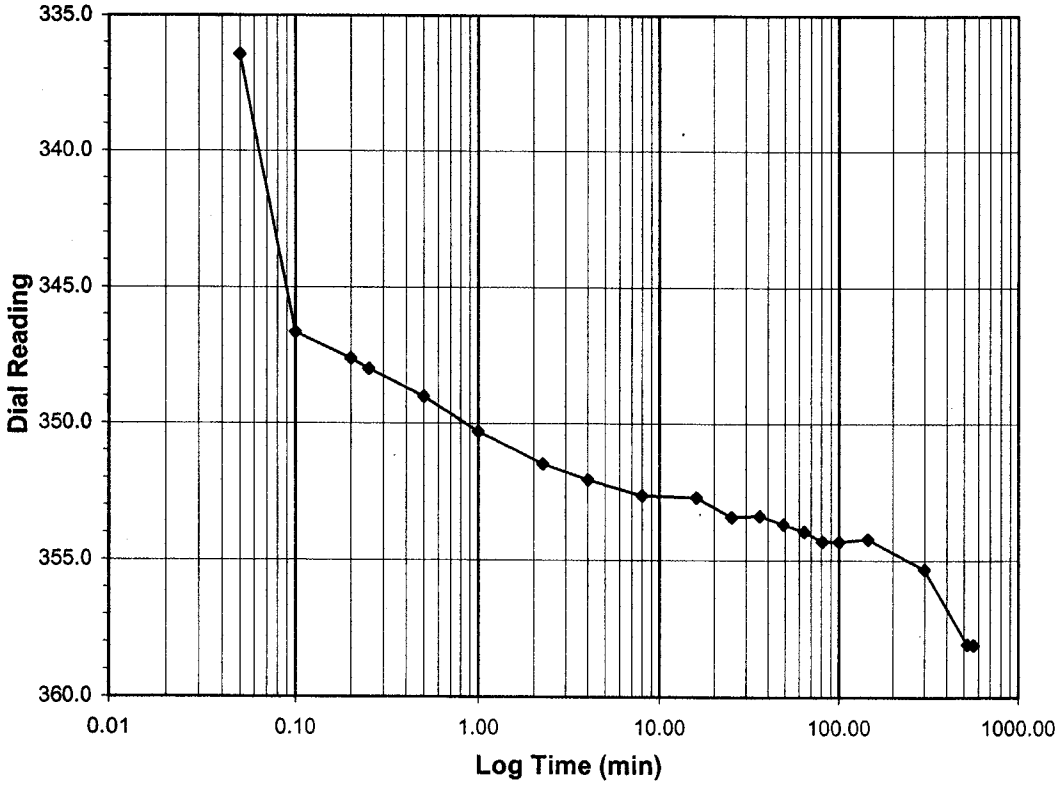
Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**.5-1.0**
Final Reading	**(div)**	**358.1**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		10/6/2004
Start Time		8:34:43

Elapsed Time (min)	Dial Reading (div)
Initial	**336.5**
0.05	336.4
0.10	346.7
0.20	347.6
0.25	348.0
0.50	349.0
1.00	350.3
2.25	351.5
4.00	352.1
8.00	352.6
16.00	352.7
25.00	353.4
36.00	353.4
49.00	353.7
64.00	354.0
81.00	354.3
100.00	354.3
144.00	354.2
300.00	355.3
520.00	358.1
564.25	358.1



Tested By *MPS* *Date* *10/6/2004* *Checked By* GBM *Date* 10-11-04

DCN: CT-24E Date: 3/2/98 Revision: 2

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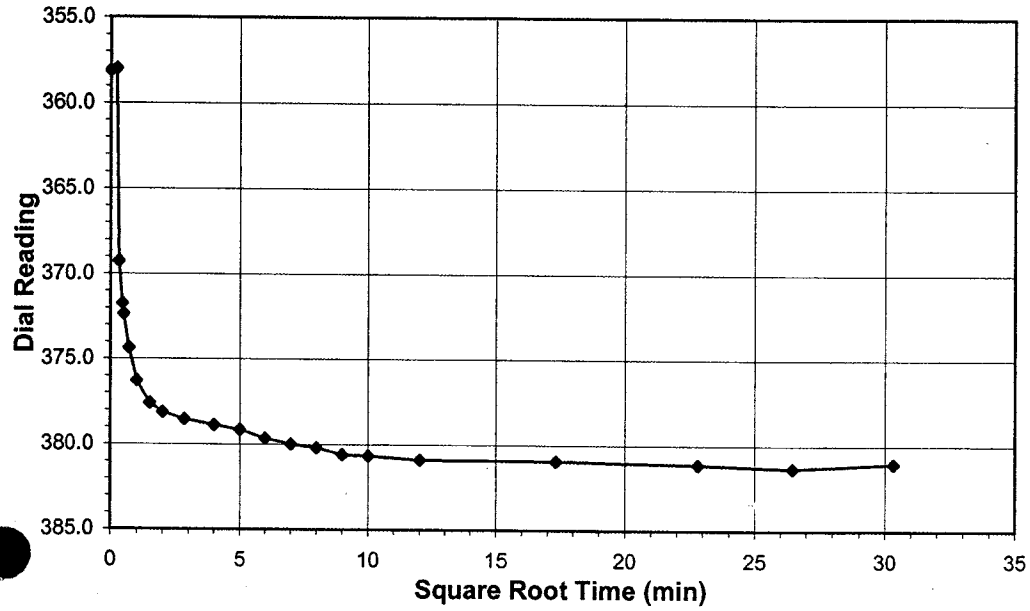
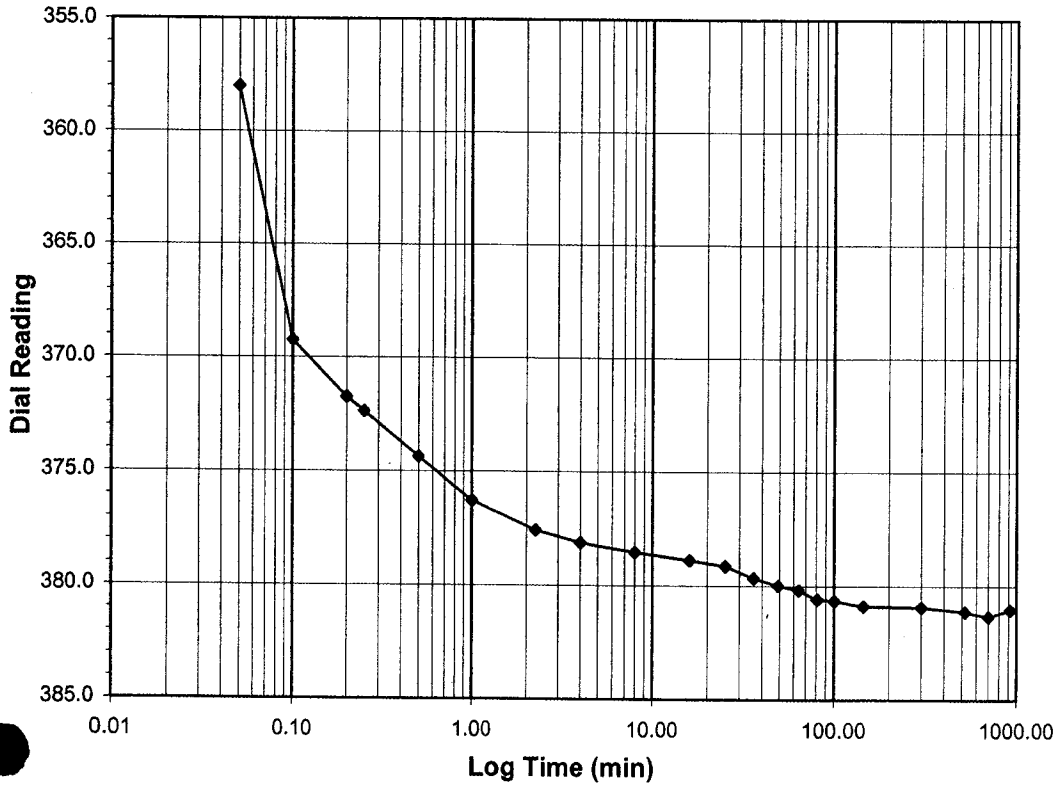
Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED





Test Load	**(tsf)**	**1.0-2.0**
Final Reading	**(div)**	**381.3**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		10/6/2004
Start Time		18:05:05

Elapsed Time (min)	Dial Reading (div)
Initial	**358.1**
0.05	358.0
0.10	369.3
0.20	371.7
0.25	372.4
0.50	374.4
1.00	376.3
2.25	377.6
4.00	378.1
8.00	378.5
16.00	378.9
25.00	379.1
36.00	379.7
49.00	380.0
64.00	380.2
81.00	380.6
100.00	380.7
144.00	380.9
300.00	380.9
520.00	381.1
700.00	381.3
919.32	381.1

Tested By DAJ *Date* 10/6/2004 *Checked By* GBM *Date* 10-11-04

DCN: CT-24E Date: 3/2/98 Revision: 2

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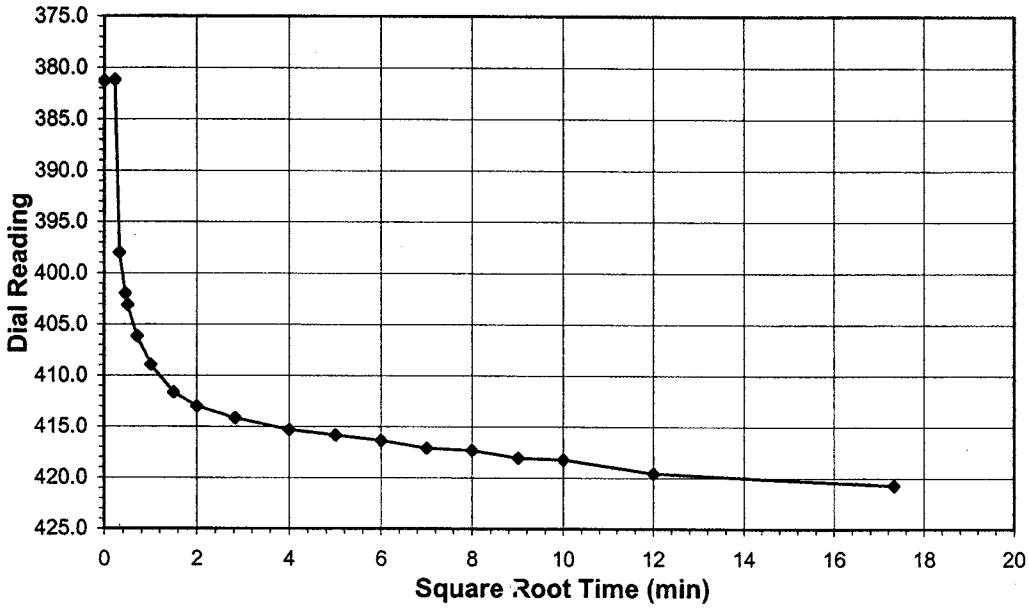
ASTM D 2435-96 (SOP-S24A)

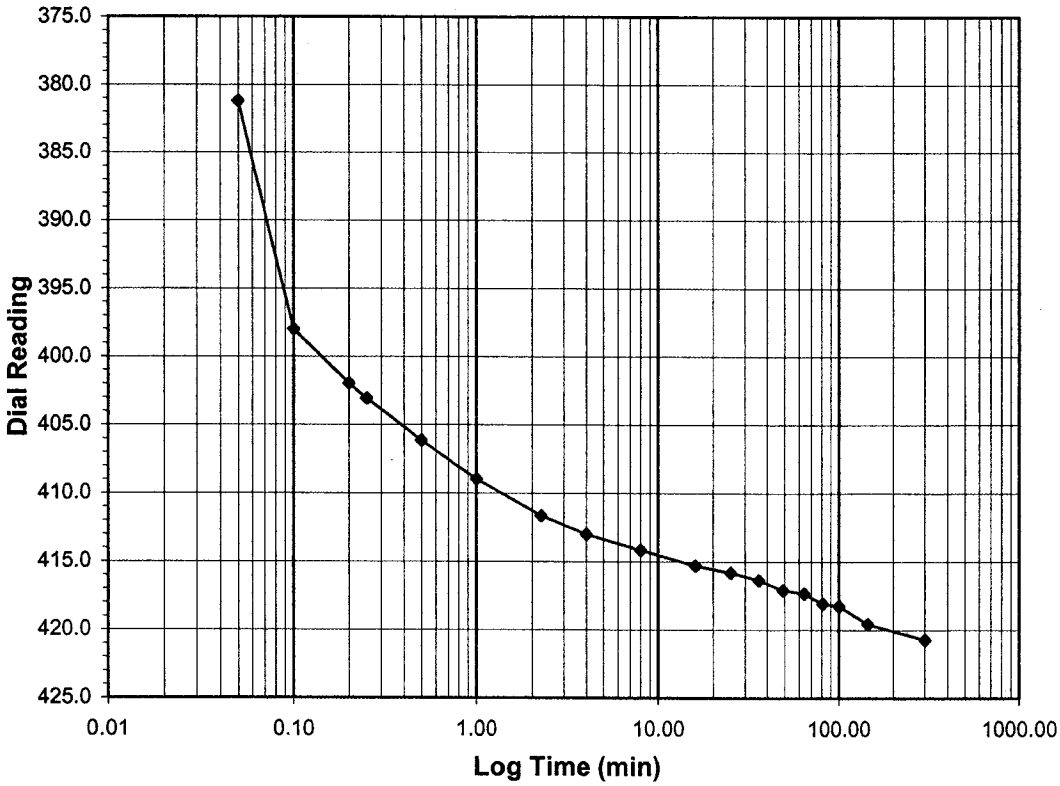
Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-566-01	Sample No.	NA
Lab ID	2004-566-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**2.0-4.0**
Final Reading	**(div)**	**420.7**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		10/7/2004
Start Time		9:36:48

Elapsed Time (min)	Dial Reading (div)
Initial	**381.3**
0.05	381.2
0.10	398.0
0.20	402.0
0.25	403.1
0.50	406.2
1.00	409.0
2.25	411.7
4.00	413.0
8.00	414.2
16.00	415.3
25.00	415.8
36.00	416.4
49.00	417.1
64.00	417.3
81.00	418.1
100.00	418.3
144.00	419.6
300.00	420.7



Tested By *MPS* *Date* *10/7/2004* *Checked By* CGM *Date* 10-11-04

DCN: CT-24E Date: 3/2/98 Revision: 2

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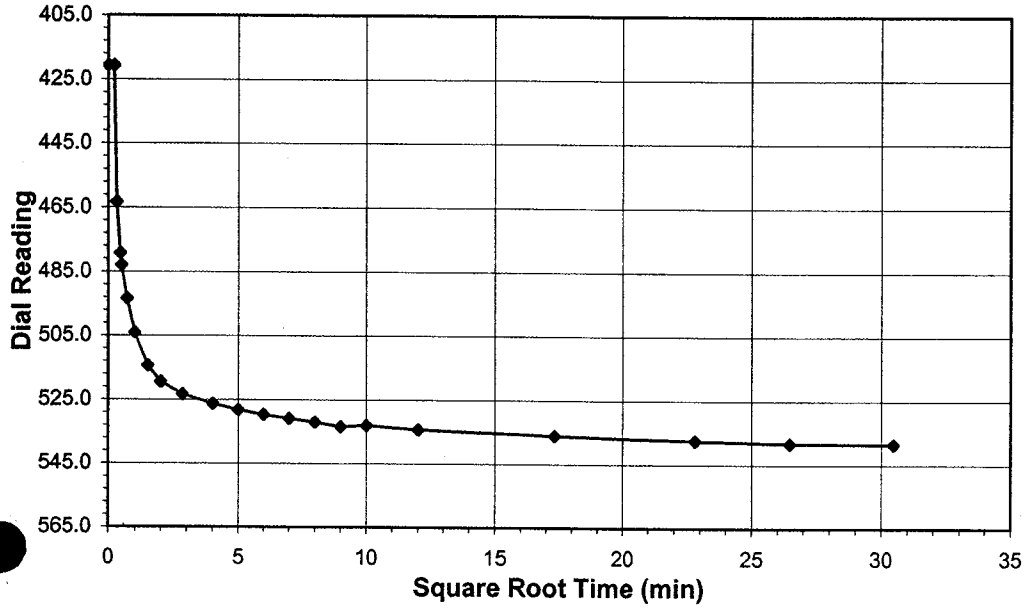
ASTM D 2435-96 (SOP-S24A)

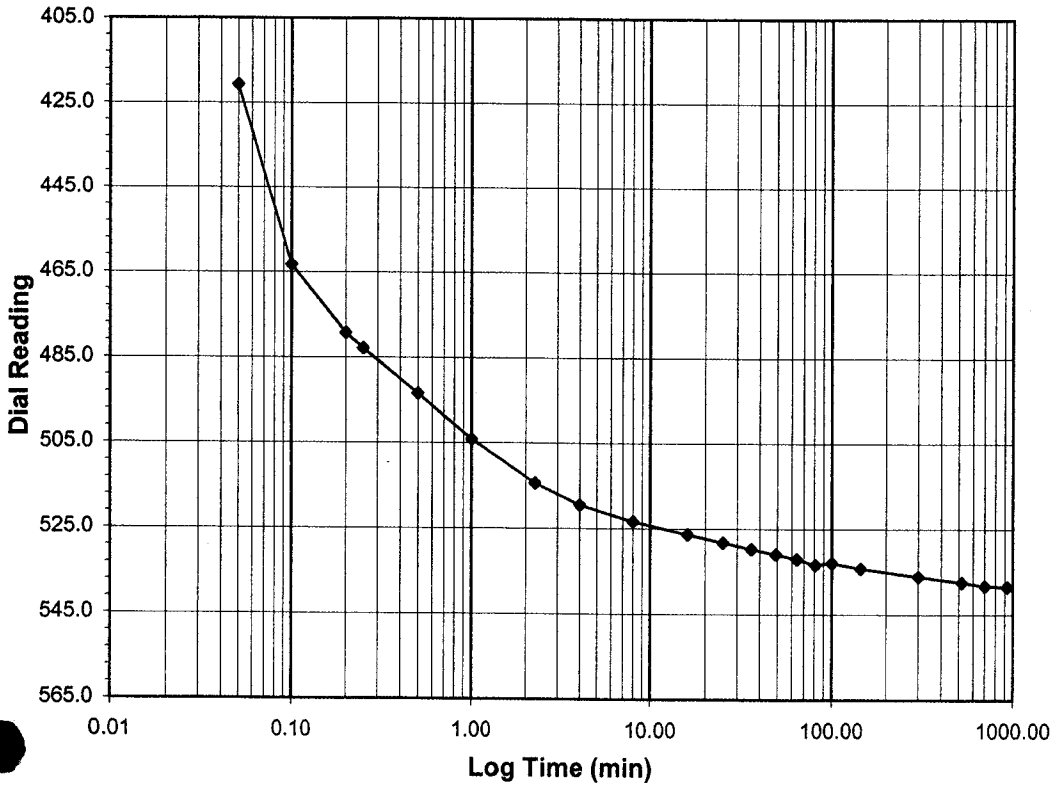
Client	WITHERS & RAVENEL	Boring No.	MW-21A
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**4.0-8.0**
Final Reading	**(div)**	**538.5**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		10/7/2004
Start Time		17:07:52

Elapsed Time (min)	Dial Reading (div)
Initial	**420.7**
0.05	420.6
0.10	463.3
0.20	479.3
0.25	482.9
0.50	493.5
1.00	504.1
2.25	514.3
4.00	519.5
8.00	523.3
16.00	526.4
25.00	528.2
36.00	529.7
49.00	530.9
64.00	532.0
81.00	533.4
100.00	533.0
144.00	534.2
300.00	536.1
520.00	537.5
700.00	538.3
928.55	538.5



Tested By MPS *Date* 10/7/2004 *Checked By* GEM *Date* 10-11-04

DCN: CT-24E Date: 3/2/98 Revision: 2

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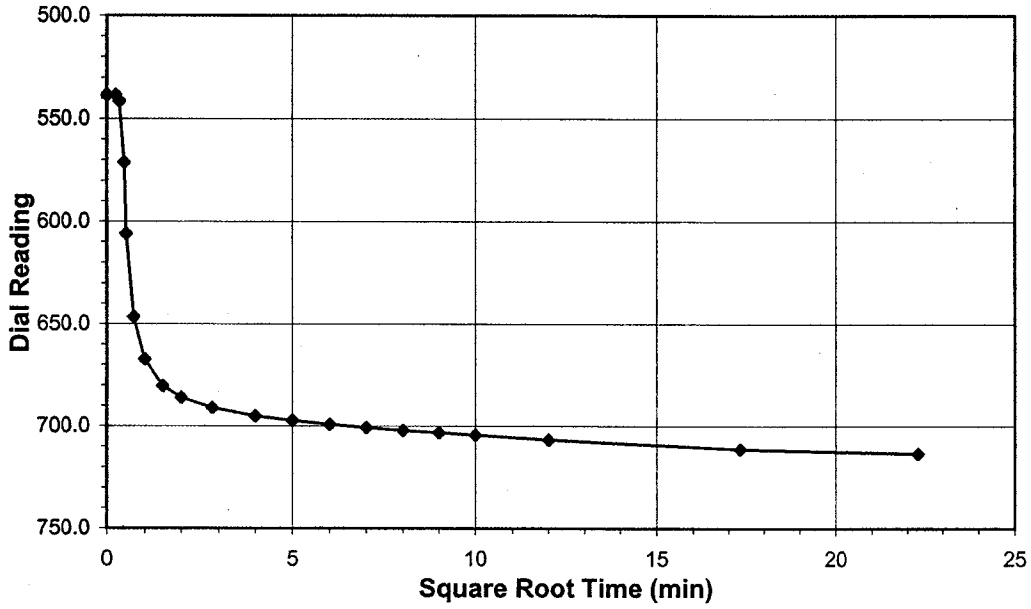
ASTM D 2435-96 (SOP-S24A)

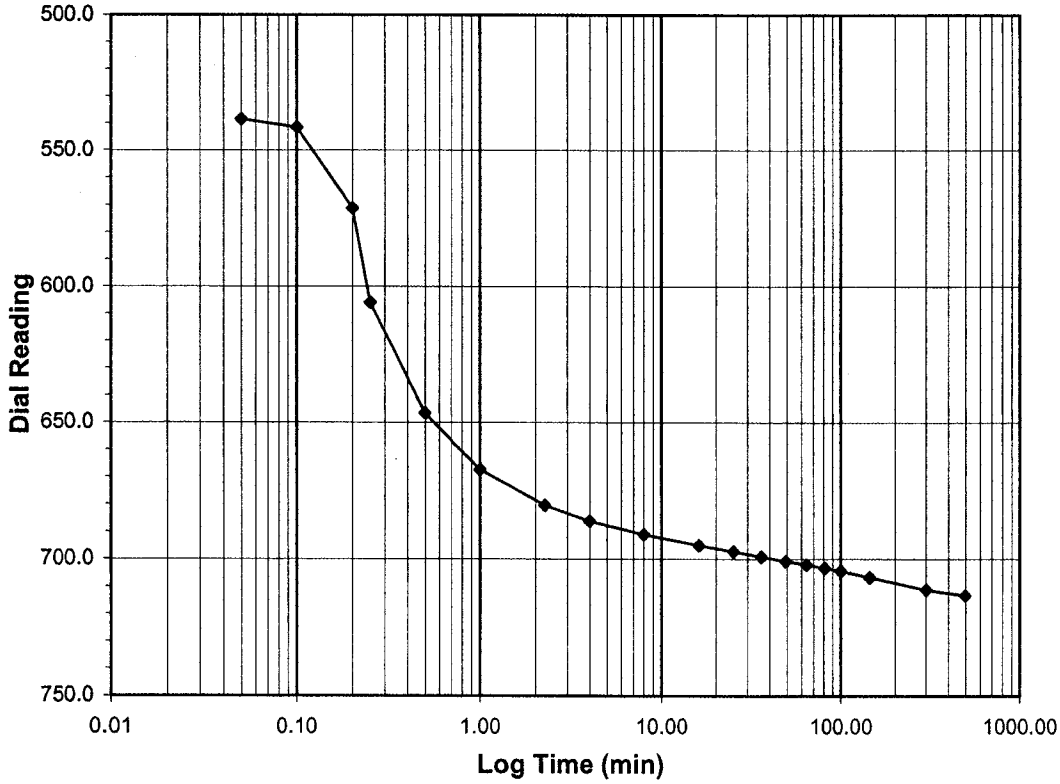
Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-01	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**8.0-16.0**
Final Reading	**(div)**	**713.4**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		10/8/2004
Start Time		8:43:20

Elapsed Time (min)	Dial Reading (div)
Initial	**538.5**
0.05	538.4
0.10	541.5
0.20	571.2
0.25	605.9
0.50	646.5
1.00	667.3
2.25	680.4
4.00	686.1
8.00	691.1
16.00	695.1
25.00	697.3
36.00	699.2
49.00	700.8
64.00	702.2
81.00	703.3
100.00	704.4
144.00	706.8
300.00	711.3
497.12	713.4



Tested By MPS *Date* 10/8/2004 *Checked By* GDM *Date* 10-11-04

DCN: CT-24E Date: 3/2/98 Revision: 2

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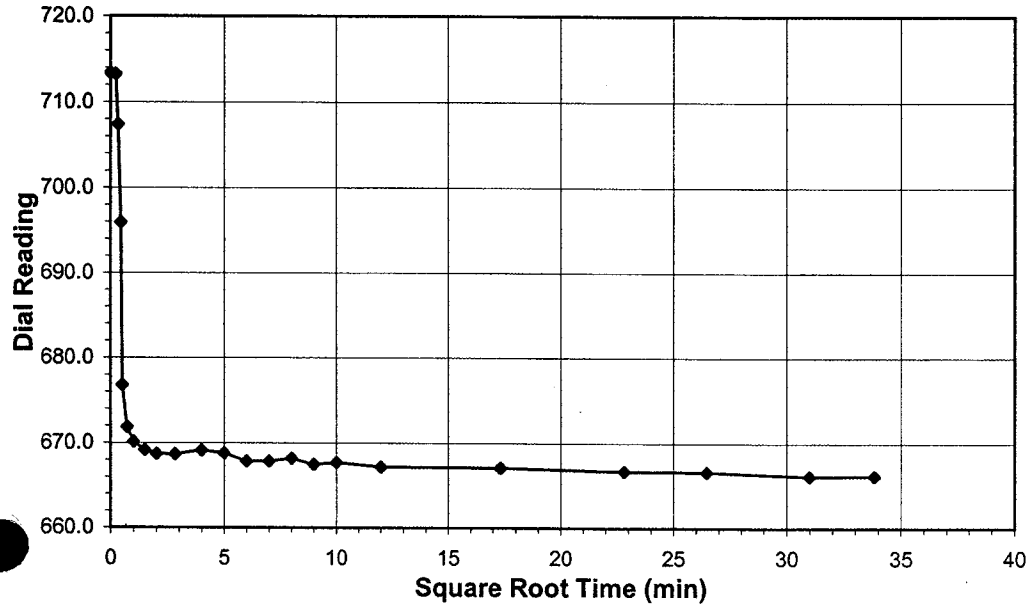
ASTM D 2435-96 (SOP-S24A)

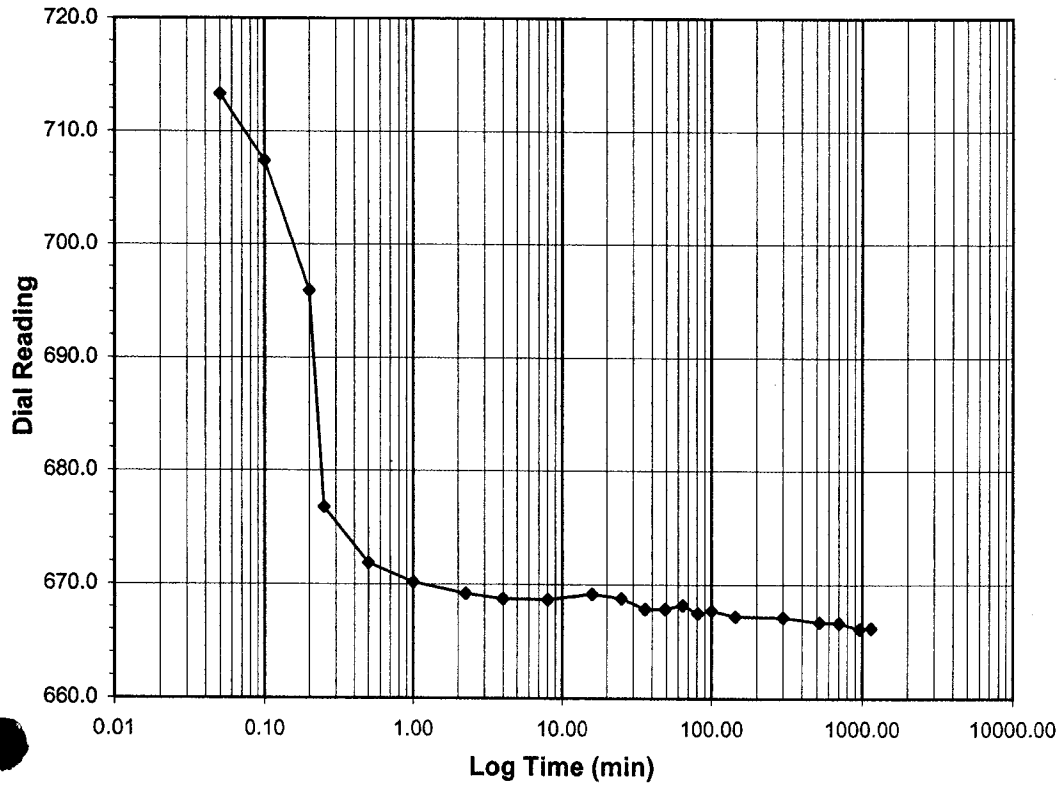
Client	WITHERS & RAVENEL	Boring No.	MW-21A
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**16.0-4.0**
Final Reading	**(div)**	**666.1**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		10/8/2004
Start Time		17:03:25

Elapsed Time (min)	Dial Reading (div)
Initial	**713.4**
0.05	713.3
0.10	707.4
0.20	695.9
0.25	676.8
0.50	671.9
1.00	670.1
2.25	669.2
4.00	668.7
8.00	668.7
16.00	669.1
25.00	668.8
36.00	667.9
49.00	667.8
64.00	668.2
81.00	667.5
100.00	667.7
144.00	667.2
300.00	667.1
520.00	666.7
700.00	666.6
960.00	666.1
1143.98	666.2



Tested By MPS *Date* 10/8/2004 *Checked By* GCM *Date* 10-11-04

DCN: CT-24E Date: 3/2/98 Revision: 2

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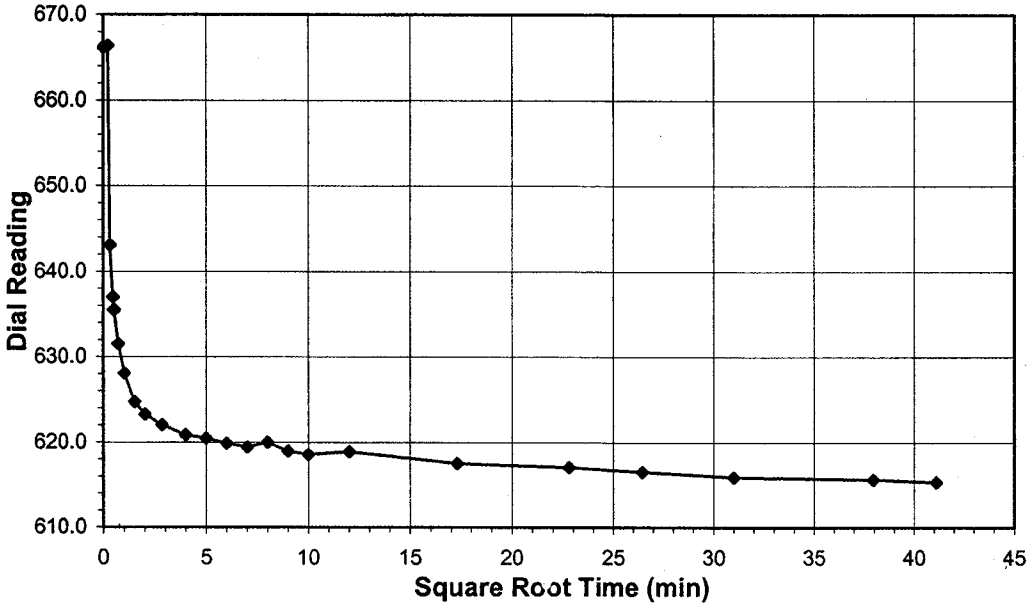
ASTM D 2435-96 (SOP-S24A)

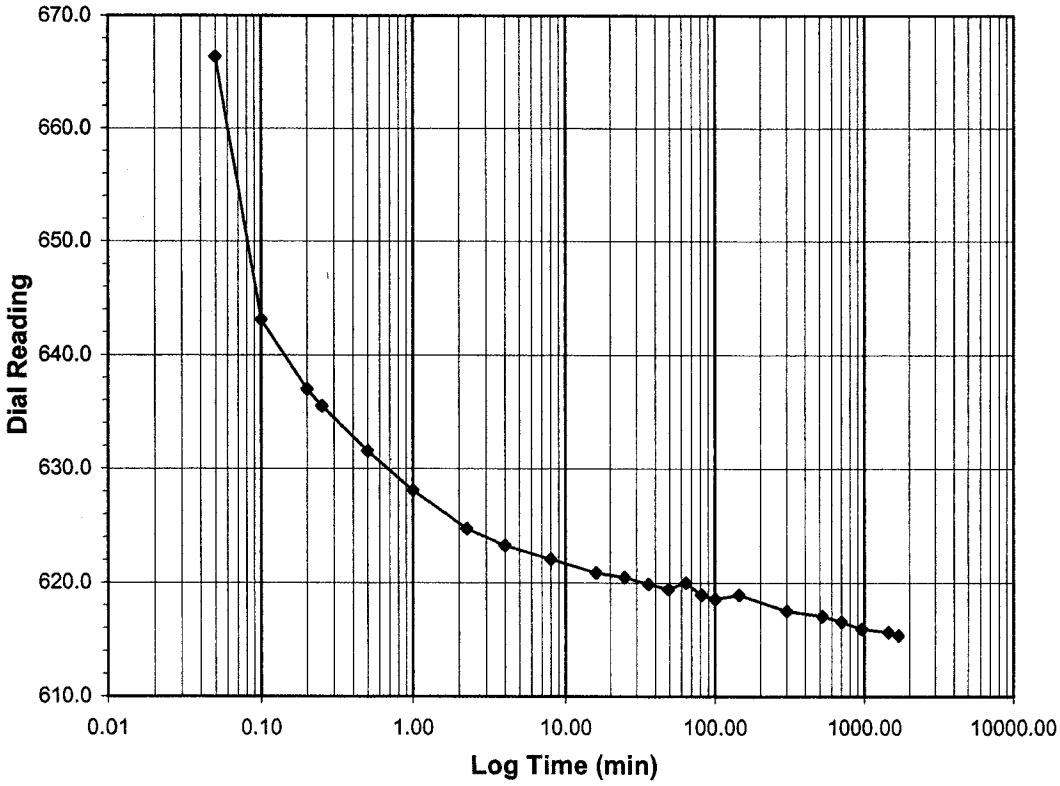
Client	WITHERS & REAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**4.0-1.0**
Final Reading	**(div)**	**615.4**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		10/9/2004
Start Time		12:10:47

Elapsed Time (min)	Dial Reading (div)
Initial	**666.2**
0.05	666.4
0.10	643.1
0.20	637.0
0.25	635.5
0.50	631.5
1.00	628.1
2.25	624.7
4.00	623.3
8.00	622.0
16.00	620.9
25.00	620.5
36.00	619.9
49.00	619.4
64.00	620.0
81.00	618.9
100.00	618.6
144.00	618.9
300.00	617.5
520.00	617.1
700.00	616.6
960.00	615.9
1440.00	615.6
1690.43	615.4



Tested By MPS *Date* 10/9/2004 *Checked By* GCM *Date* 10-11-04

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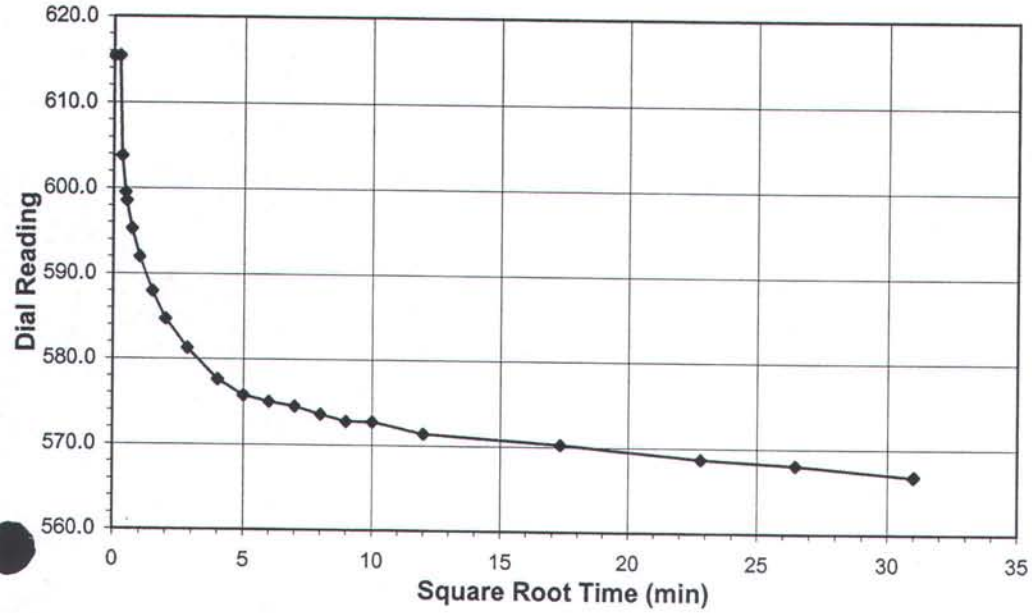
geotechnics
INTEGRITY IN TESTING

ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-96 (SOP-S24A)

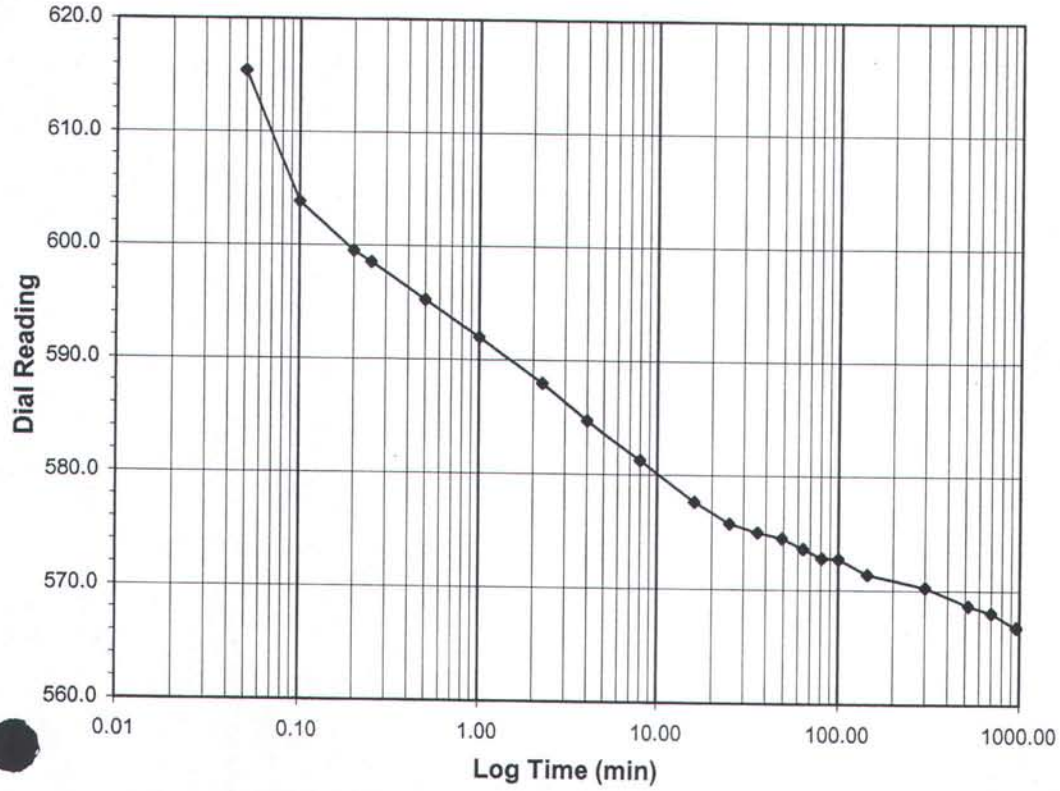
Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Project	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Test Load	**(tsf)**	**1.0-.25**
Final Reading	**(div)**	**566.8**
Consolidometer No.		5
1 Division	(in)	0.0001
Start Date		10/10/2004
Start Time		16:22:49

Elapsed Time (min)	Dial Reading (div)
Initial	**615.4**
0.05	615.4
0.10	603.8
0.20	599.5
0.25	598.5
0.50	595.2
1.00	592.0
2.25	588.0
4.00	584.7
8.00	581.3
16.00	577.6
25.00	575.7
36.00	575.0
49.00	574.5
64.00	573.6
81.00	572.8
100.00	572.7
144.00	571.3
300.00	570.2
520.00	568.7
700.00	568.0
960.00	566.8
961.77	566.8



Tested By MPS *Date* 10/10/2004 *Checked By* GCM *Date* 10-11-04

DCN: CT-24E Date: 3/2/98 Revision: 2

C:\Program Files\TestNet Data 2\[2004-577-01-05 16.xls]Sheet1 (2)

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DESIGN HYDROGEOLOGICAL REPORT
APPENDIX C

IN-SITU HYDRAULIC CONDUCTIVITY CALCULATION WORKSHEETS

Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **MW-10**
Test Date: 9/29/2004
Test Type: Falling Head (Slug in)

Conducted by: Palmer
Entered/date: Palmer -9/30/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	12.15	(ft BTOC)
WD =	26.54	(ft BTOC)
WD =	24.00	(ft BGS)
DTSP =	10.54	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.22	(ft)
Le =	16	(ft)
Lw =	14.39	(ft)
Le/rw =	42.67	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	2.431	(ft) from plot
yt =	2.257	(ft) from plot
t =	1.033	(minutes) from plot
ln(Re/rw) =	2.38	
K =	**0.34**	**(ft/day)**
K =	**1.2E-04**	**(cm/sec)**

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.3742	0.43	2.678	9.472
0.3963	0.43	2.665	9.485
0.3742	0.43	2.678	9.472
0.3963	0.43	2.665	9.485
0.4198	0.42	2.607	9.543
0.4447	0.41	2.560	9.59
0.4697	0.40	2.529	9.621
0.4963	0.40	2.504	9.646
0.5247	0.39	2.483	9.667
0.5547	0.39	2.464	9.686
0.5863	0.39	2.445	9.705
0.6213	0.39	2.431	9.719
0.658	0.38	2.418	9.732
0.6963	0.38	2.408	9.742
0.738	0.38	2.393	9.757
0.7813	0.38	2.383	9.767
0.828	0.38	2.372	9.778
0.8763	0.37	2.360	9.79
0.928	0.37	2.349	9.801
0.983	0.37	2.339	9.811
1.0413	0.37	2.329	9.821
1.103	0.37	2.320	9.83
1.168	0.36	2.310	9.84
1.238	0.36	2.301	9.849
1.3113	0.36	2.291	9.859
1.3897	0.36	2.280	9.87
1.473	0.36	2.272	9.878
1.5613	0.35	2.261	9.889
1.6547	0.35	2.257	9.893
1.753	0.35	2.248	9.902
1.858	0.35	2.240	9.91
1.968	0.35	2.232	9.918
2.0847	0.35	2.225	9.925
2.2097	0.34	2.212	9.938
2.3412	0.34	2.210	9.94
2.4813	0.34	2.202	9.948
2.6297	0.34	2.195	9.955
2.7863	0.34	2.191	9.959
2.953	0.34	2.191	9.959
3.1297	0.34	2.188	9.962
3.3163	0.34	2.186	9.964
3.5147	0.34	2.182	9.968
3.7247	0.34	2.181	9.969
3.9463	0.34	2.179	9.971
4.1813	0.34	2.177	9.973
4.4297	0.34	2.176	9.974
4.693	0.34	2.178	9.972
4.973	0.34	2.176	9.974

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.38

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.78

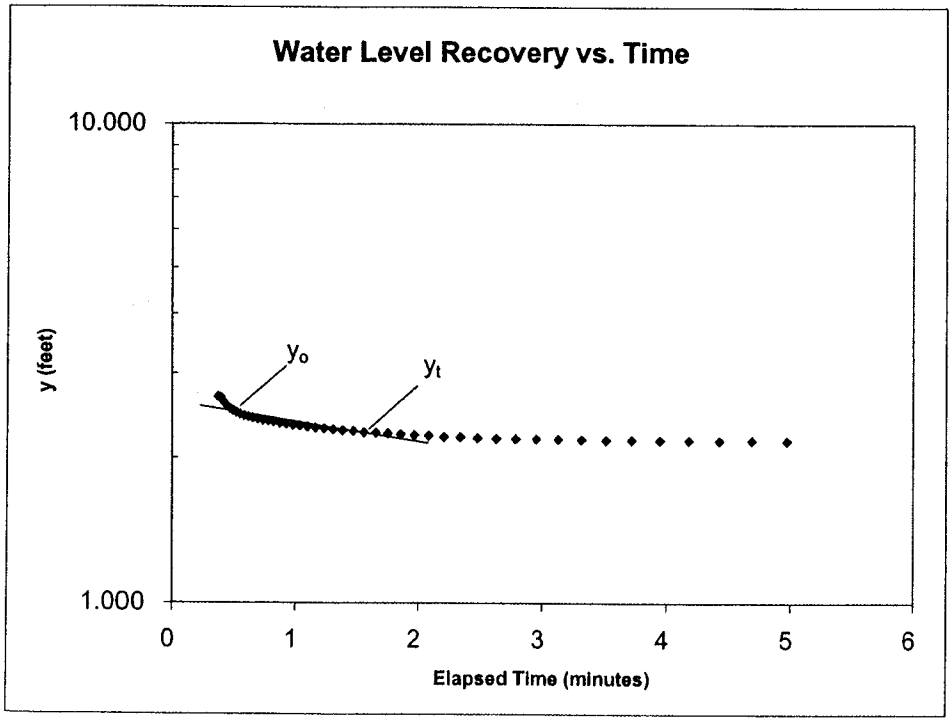
Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
40	2.75	0.45	2.45
50	3	0.5	2.7

Interpolated values of A, B and C for Le/rw

42.67	2.82	0.46	2.52

Reference: Bouwer(1989), Bouwer and Rice(1976)



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **MW-10**
Test Date: 9/29/2004
Test Type: Rising Head (Slug out)

Conducted by: Palmer
Entered/date: Palmer - 9/29/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	12.15	(ft BTOC)
WD =	26.54	(ft BTOC)
WD =	24.00	(ft BGS)
DTSP =	10.54	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.22	(ft)
Le =	16	(ft)
Lw =	14.39	(ft)
Le/rw =	42.11	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	1.277	(ft) from plot
yt =	0.965	(ft) from plot
t =	1.016	(minutes) from plot
ln(Re/rw) =	2.38	
K =	1.43	(ft/day)
K =	5.0E-04	(cm/sec)

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.38

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.78

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
40	2.75	0.45	2.45
50	3	0.5	2.7

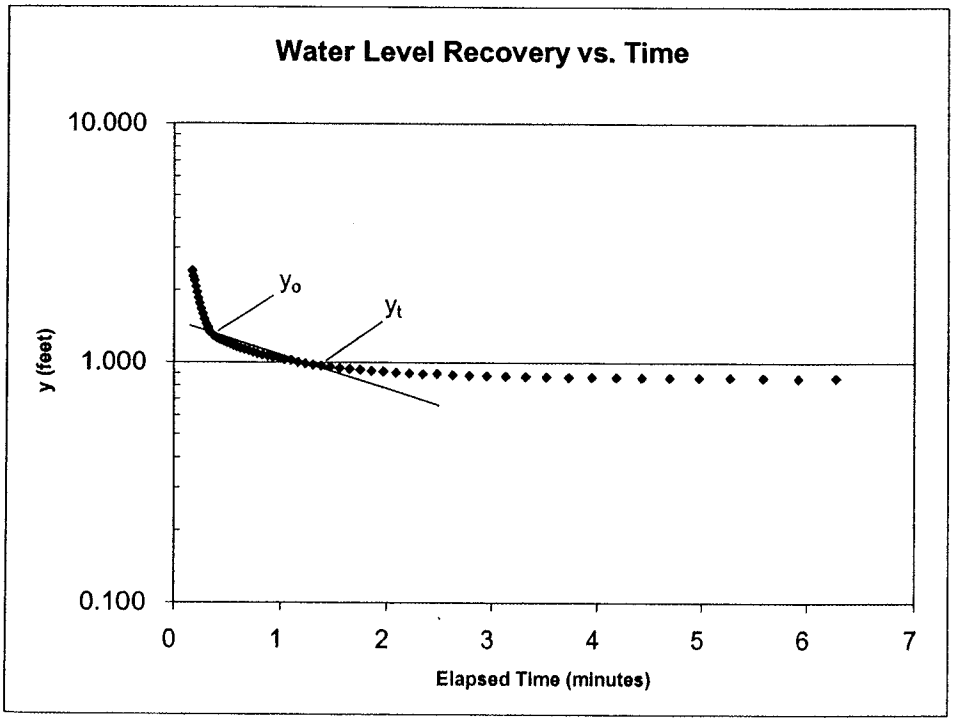
Interpolated values of A, B and C for Le/rw

42.11	2.80	0.46	2.50

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.167	0.38	2.410	14.56
0.177	0.36	2.277	14.427
0.1875	0.34	2.187	14.337
0.1985	0.31	2.065	14.215
0.2102	0.29	1.955	14.105
0.2227	0.27	1.850	14
0.2358	0.25	1.759	13.909
0.2498	0.22	1.670	13.82
0.2647	0.20	1.588	13.738
0.2803	0.18	1.512	13.662
0.297	0.16	1.441	13.591
0.3147	0.14	1.386	13.536
0.3333	0.12	1.331	13.481
0.3532	0.11	1.300	13.45
0.3742	0.11	1.277	13.427
0.3963	0.10	1.258	13.408
0.4198	0.09	1.243	13.393
0.4447	0.09	1.229	13.379
0.4697	0.08	1.216	13.366
0.4963	0.08	1.201	13.351
0.5247	0.08	1.189	13.339
0.5547	0.07	1.172	13.322
0.5863	0.06	1.159	13.309
0.6213	0.06	1.143	13.293
0.658	0.05	1.128	13.278
0.6963	0.05	1.115	13.265
0.738	0.04	1.099	13.249
0.7813	0.04	1.086	13.236
0.828	0.03	1.071	13.221
0.8763	0.02	1.059	13.209
0.928	0.02	1.048	13.198
0.983	0.02	1.036	13.186
1.0413	0.01	1.023	13.173
1.103	0.01	1.017	13.167
1.168	0.00	1.000	13.15
1.238	-0.01	0.986	13.136
1.3113	-0.01	0.973	13.123
1.3897	-0.02	0.965	13.115
1.473	-0.02	0.954	13.104
1.5613	-0.03	0.944	13.094
1.6547	-0.03	0.936	13.086
1.753	-0.03	0.929	13.079
1.858	-0.04	0.919	13.069
1.968	-0.04	0.912	13.062
2.0847	-0.04	0.906	13.056
2.2097	-0.05	0.900	13.05
2.3412	-0.05	0.894	13.044
2.4813	-0.05	0.896	13.046
2.6297	-0.05	0.885	13.035
2.7863	-0.06	0.881	13.031
2.953	-0.06	0.877	13.027
3.1297	-0.06	0.874	13.024
3.3163	-0.06	0.872	13.022
3.5147	-0.06	0.870	13.02
3.7247	-0.06	0.868	13.018
3.9463	-0.06	0.866	13.016
4.1813	-0.06	0.866	13.016
4.4297	-0.06	0.865	13.015
4.693	-0.06	0.863	13.013
4.973	-0.06	0.863	13.013
5.2697	-0.06	0.863	13.013
5.583	-0.06	0.862	13.012
5.9147	-0.07	0.860	13.01
6.2663	-0.06	0.862	13.012



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **MW-11**
Test Date: 9/29/2004
Test Type: Falling Head (Slug in)

Conducted by: Palmer
Entered/date: Palmer -9/30/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	8.75	(ft BTOC)
WD =	22.60	(ft BTOC)
WD =	20.50	(ft BGS)
DTSP =	6.60	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.22	(ft)
Le =	16	(ft)
Lw =	13.85	(ft)
Le/rw =	42.67	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	1.813	(ft) from plot
yt =	1.073	(ft) from plot
t =	0.997	(minutes) from plot
ln(Re/rw) =	2.38	
K =	**2.63**	**(ft/day)**
K =	**9.3E-04**	**(cm/sec)**

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.38

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.78

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
40	2.75	0.45	2.45
50	3	0.5	2.7

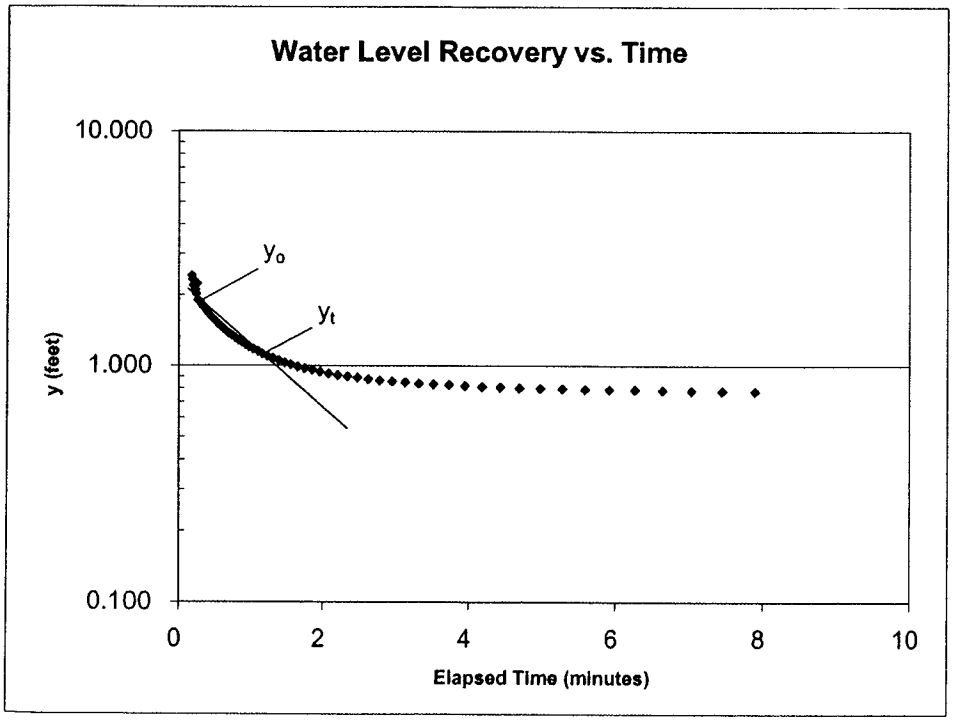
Interpolated values of A, B and C for Le/rw

42.67	2.82	0.46	2.52

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.177	0.38	2.414	6.336
0.1875	0.37	2.338	6.412
0.177	0.38	2.414	6.336
0.1875	0.37	2.338	6.412
0.1985	0.34	2.192	6.558
0.2102	0.34	2.202	6.548
0.2227	0.32	2.108	6.642
0.2358	0.31	2.024	6.726
0.2498	0.35	2.233	6.517
0.2647	0.28	1.897	6.853
0.2803	0.27	1.875	6.875
0.297	0.27	1.844	6.906
0.3147	0.26	1.813	6.937
0.3333	0.25	1.778	6.972
0.3532	0.24	1.748	7.002
0.3742	0.23	1.717	7.033
0.3963	0.23	1.682	7.068
0.4198	0.22	1.651	7.099
0.4447	0.21	1.619	7.131
0.4697	0.20	1.588	7.162
0.4963	0.19	1.557	7.193
0.5247	0.18	1.528	7.222
0.5547	0.17	1.496	7.254
0.5863	0.17	1.463	7.287
0.6213	0.16	1.432	7.318
0.658	0.15	1.403	7.347
0.6963	0.14	1.373	7.377
0.738	0.13	1.344	7.406
0.7813	0.12	1.313	7.437
0.828	0.11	1.282	7.468
0.8763	0.10	1.254	7.496
0.928	0.09	1.225	7.525
0.983	0.08	1.198	7.552
1.0413	0.07	1.172	7.578
1.103	0.06	1.147	7.603
1.168	0.05	1.120	7.63
1.238	0.04	1.096	7.654
1.3113	0.03	1.073	7.677
1.3897	0.02	1.051	7.699
1.473	0.01	1.030	7.72
1.5613	0.00	1.010	7.74
1.6547	0.00	0.989	7.761
1.753	-0.01	0.973	7.777
1.858	-0.02	0.956	7.794
1.968	-0.03	0.940	7.81
2.0847	-0.03	0.926	7.824
2.2097	-0.04	0.911	7.839
2.3412	-0.05	0.899	7.851
2.4813	-0.05	0.887	7.863
2.6297	-0.06	0.874	7.876
2.7863	-0.06	0.864	7.886
2.953	-0.07	0.856	7.894
3.1297	-0.07	0.846	7.904
3.3163	-0.08	0.837	7.913
3.5147	-0.08	0.831	7.919
3.7247	-0.08	0.825	7.925
3.9463	-0.09	0.819	7.931
4.1813	-0.09	0.812	7.938
4.4297	-0.09	0.808	7.942
4.693	-0.10	0.802	7.948
4.973	-0.10	0.798	7.952
5.2697	-0.10	0.796	7.954
5.583	-0.10	0.792	7.958
5.9147	-0.10	0.790	7.96
6.2663	-0.10	0.788	7.962
6.6397	-0.11	0.783	7.967
7.0347	-0.11	0.781	7.969
7.453	-0.11	0.779	7.971
7.8963	-0.11	0.777	7.973



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **MW-11**
Test Date: 9/29/2004
Test Type: Rising Head (Slug out)

Conducted by: Palmer
Entered/date: Palmer - 9/29/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	8.75	(ft BTOC)
WD =	22.60	(ft BTOC)
WD =	20.50	(ft BGS)
DTSP =	6.60	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.22	(ft)
Le =	16	(ft)
Lw =	13.85	(ft)
Le/rw =	42.11	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	2.250	(ft) from plot
yt =	1.601	(ft) from plot
t =	0.274	(minutes) from plot
ln(Re/rw) =	2.33	
K =	**6.26**	**(ft/day)**
K =	**2.2E-03**	**(cm/sec)**

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.33

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.70

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
40	2.75	0.45	2.45
50	3	0.5	2.7

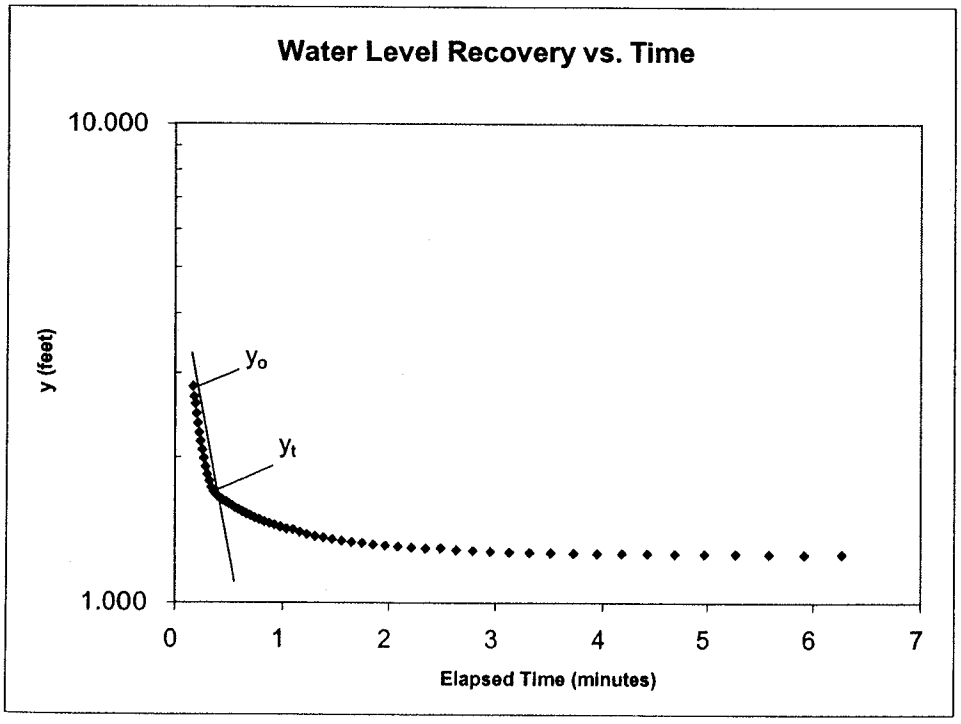
Interpolated values of A, B and C for Le/rw

42.11	2.80	0.46	2.50

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.167	0.45	2.810	11.56
0.177	0.43	2.677	11.427
0.1875	0.41	2.587	11.337
0.1985	0.39	2.465	11.215
0.2102	0.37	2.355	11.105
0.2227	0.35	2.250	11
0.2358	0.33	2.159	10.909
0.2498	0.32	2.070	10.82
0.2647	0.30	1.988	10.738
0.2803	0.28	1.912	10.662
0.297	0.27	1.841	10.591
0.3147	0.25	1.786	10.536
0.3333	0.24	1.731	10.481
0.3532	0.23	1.700	10.45
0.3742	0.22	1.677	10.427
0.3963	0.22	1.658	10.408
0.4198	0.22	1.643	10.393
0.4447	0.21	1.629	10.379
0.4697	0.21	1.616	10.366
0.4963	0.20	1.601	10.351
0.5247	0.20	1.589	10.339
0.5547	0.20	1.572	10.322
0.5863	0.19	1.559	10.309
0.6213	0.19	1.543	10.293
0.658	0.18	1.528	10.278
0.6963	0.18	1.515	10.265
0.738	0.18	1.499	10.249
0.7813	0.17	1.486	10.236
0.828	0.17	1.471	10.221
0.8763	0.16	1.459	10.209
0.928	0.16	1.448	10.198
0.983	0.16	1.436	10.186
1.0413	0.15	1.423	10.173
1.103	0.15	1.417	10.167
1.168	0.15	1.400	10.15
1.238	0.14	1.386	10.136
1.3113	0.14	1.373	10.123
1.3897	0.14	1.365	10.115
1.473	0.13	1.354	10.104
1.5613	0.13	1.344	10.094
1.6547	0.13	1.336	10.086
1.753	0.12	1.329	10.079
1.858	0.12	1.319	10.069
1.968	0.12	1.312	10.062
2.0847	0.12	1.306	10.056
2.2097	0.11	1.300	10.05
2.3412	0.11	1.294	10.044
2.4813	0.11	1.296	10.046
2.6297	0.11	1.285	10.035
2.7863	0.11	1.281	10.031
2.953	0.11	1.277	10.027
3.1297	0.11	1.274	10.024
3.3163	0.10	1.272	10.022
3.5147	0.10	1.270	10.02
3.7247	0.10	1.268	10.018
3.9463	0.10	1.266	10.016
4.1813	0.10	1.266	10.016
4.4297	0.10	1.265	10.015
4.693	0.10	1.263	10.013
4.973	0.10	1.263	10.013
5.2697	0.10	1.263	10.013
5.583	0.10	1.262	10.012
5.9147	0.10	1.260	10.01
6.2663	0.10	1.262	10.012



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **MW-12**
Test Date: 9/29/2004
Test Type: Falling Head (Slug in)

Conducted by: Palmer
Entered/date: Palmer -9/30/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	4.04	(ft BTOC)
WD =	20.63	(ft BTOC)
WD =	18.50	(ft BGS)
DTSP =	4.63	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	16	(ft)
Lw =	16.59	(ft)
Le/rw =	42.67	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	1.416	(ft) from plot
yt =	0.546	(ft) from plot
t =	2.256	(minutes) from plot
ln(Re/rw) =	2.44	
K =	**0.30**	**(ft/day)**
K =	**1.1E-04**	**(cm/sec)**

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.44

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.86

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
40	2.75	0.45	2.45
50	3	0.5	2.7

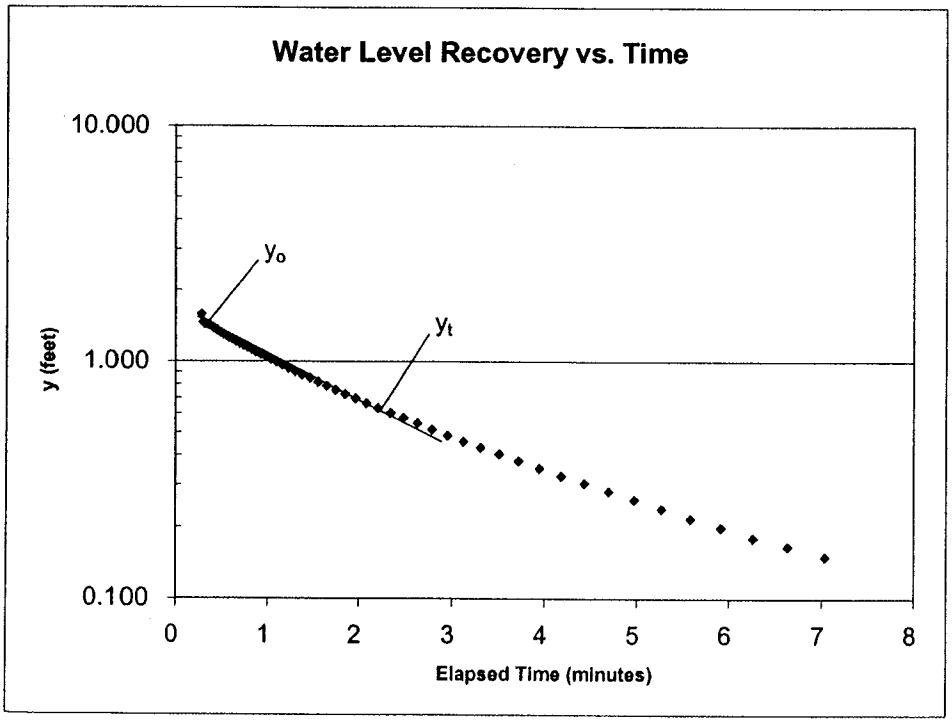
Interpolated values of A, B and C for Le/rw

42.67	2.82	0.46	2.52

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.2803	0.20	1.582	2.458
0.297	0.16	1.461	2.579
0.2803	0.20	1.582	2.458
0.297	0.16	1.461	2.579
0.3147	0.16	1.440	2.6
0.3333	0.16	1.438	2.602
0.3532	0.15	1.428	2.612
0.3742	0.15	1.416	2.624
0.3963	0.15	1.400	2.64
0.4198	0.14	1.379	2.661
0.4447	0.13	1.359	2.681
0.4697	0.13	1.339	2.701
0.4963	0.12	1.318	2.722
0.5247	0.11	1.298	2.742
0.5547	0.11	1.277	2.763
0.5863	0.10	1.257	2.783
0.6213	0.09	1.234	2.806
0.658	0.08	1.212	2.828
0.6963	0.07	1.187	2.853
0.738	0.07	1.165	2.875
0.7813	0.06	1.141	2.899
0.828	0.05	1.116	2.924
0.8763	0.04	1.092	2.948
0.928	0.03	1.067	2.973
0.983	0.02	1.041	2.999
1.0413	0.01	1.014	3.026
1.103	-0.01	0.988	3.052
1.168	-0.02	0.961	3.079
1.238	-0.03	0.931	3.109
1.3113	-0.04	0.902	3.138
1.3897	-0.06	0.874	3.166
1.473	-0.07	0.845	3.195
1.5613	-0.09	0.814	3.226
1.6547	-0.11	0.784	3.256
1.753	-0.12	0.753	3.287
1.858	-0.14	0.725	3.315
1.968	-0.16	0.694	3.346
2.0847	-0.18	0.664	3.376
2.2097	-0.20	0.633	3.407
2.3412	-0.22	0.602	3.438
2.4813	-0.24	0.574	3.466
2.6297	-0.26	0.546	3.494
2.7863	-0.29	0.513	3.527
2.953	-0.32	0.484	3.556
3.1297	-0.34	0.458	3.582
3.3163	-0.37	0.431	3.609
3.5147	-0.39	0.405	3.635
3.7247	-0.42	0.378	3.662
3.9463	-0.45	0.352	3.688
4.1813	-0.49	0.327	3.713
4.4297	-0.52	0.305	3.735
4.693	-0.55	0.282	3.758
4.973	-0.59	0.260	3.78
5.2697	-0.62	0.238	3.802
5.583	-0.66	0.217	3.823
5.9147	-0.70	0.199	3.841
6.2663	-0.74	0.180	3.86
6.6397	-0.78	0.166	3.874
7.0347	-0.82	0.150	3.89



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **MW-12**
Test Date: 9/29/2004
Test Type: Rising Head (Slug out)

Conducted by: Palmer
Entered/date: Palmer - 9/29/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	3.51	(ft BTOC)
WD =	20.63	(ft BTOC)
WD =	18.50	(ft BGS)
DTSP =	4.63	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	16	(ft)
Lw =	17.12	(ft)
Le/rw =	42.67	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	7.915	(ft) from plot
yt =	7.155	(ft) from plot
t =	1.945	(minutes) from plot
ln(Re/rw) =	2.44	
K =	0.04	(ft/day)
K =	1.3E-05	(cm/sec)

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.44

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.86

Calculation of Coefficients

Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
40	2.75	0.45	2.45
50	3	0.5	2.7

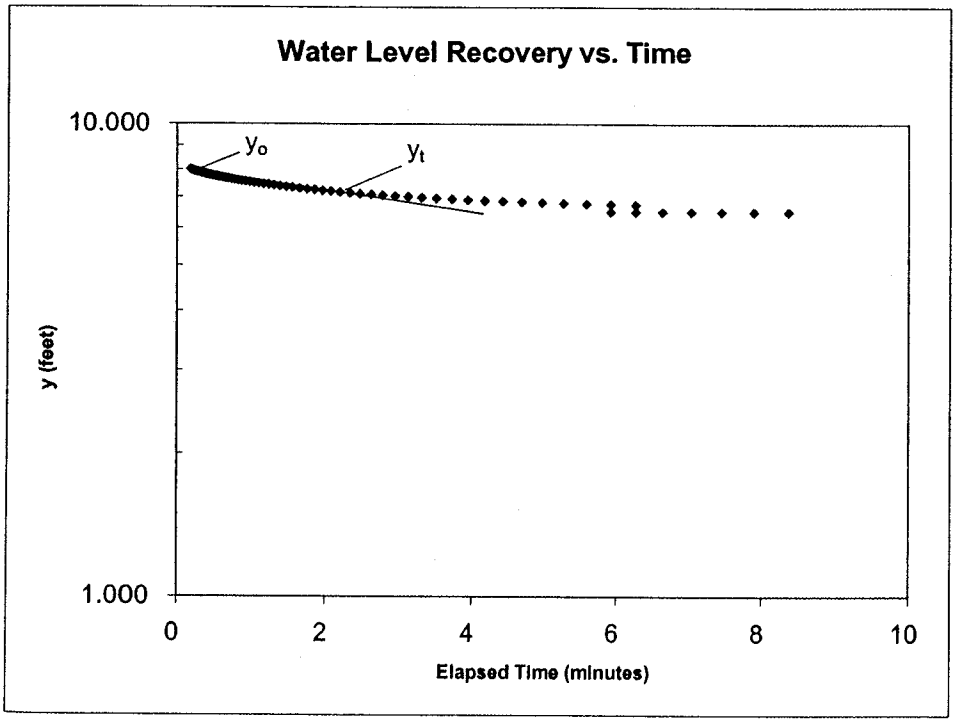
Interpolated values of A, B and C for Le/rw

42.67	2.82	0.46	2.52

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.1875	0.90	8.000	11.51
0.1985	0.90	7.971	11.481
0.2102	0.90	7.961	11.471
0.2227	0.90	7.954	11.464
0.2358	0.90	7.942	11.452
0.2498	0.90	7.930	11.44
0.2647	0.90	7.915	11.425
0.2803	0.90	7.903	11.413
0.297	0.90	7.891	11.401
0.3147	0.90	7.877	11.387
0.3333	0.90	7.862	11.372
0.3532	0.89	7.846	11.356
0.3742	0.89	7.831	11.341
0.3963	0.89	7.815	11.325
0.4198	0.89	7.799	11.309
0.4447	0.89	7.782	11.292
0.4697	0.89	7.766	11.276
0.4963	0.89	7.751	11.261
0.5247	0.89	7.735	11.245
0.5547	0.89	7.717	11.227
0.5863	0.89	7.698	11.208
0.6213	0.89	7.680	11.19
0.658	0.88	7.659	11.169
0.6963	0.88	7.641	11.151
0.738	0.88	7.620	11.13
0.7813	0.88	7.602	11.112
0.828	0.88	7.579	11.089
0.8763	0.88	7.556	11.066
0.928	0.88	7.536	11.046
0.983	0.88	7.513	11.023
1.0413	0.87	7.491	11.001
1.103	0.87	7.468	10.978
1.168	0.87	7.444	10.954
1.238	0.87	7.419	10.929
1.3113	0.87	7.395	10.905
1.3897	0.87	7.370	10.88
1.473	0.87	7.343	10.853
1.5613	0.86	7.319	10.829
1.6547	0.86	7.290	10.8
1.753	0.86	7.266	10.776
1.858	0.86	7.237	10.747
1.968	0.86	7.210	10.72
2.0847	0.86	7.184	10.694
2.2097	0.85	7.155	10.665
2.3412	0.85	7.129	10.639
2.4813	0.85	7.100	10.61
2.6297	0.85	7.073	10.583
2.7863	0.85	7.047	10.557
2.953	0.85	7.020	10.53
3.1297	0.84	6.993	10.503
3.3163	0.84	6.967	10.477
3.5147	0.84	6.942	10.452
3.7247	0.84	6.917	10.427
3.9463	0.84	6.893	10.403
4.1813	0.84	6.870	10.38
4.4297	0.84	6.847	10.357
4.693	0.83	6.825	10.335
4.973	0.83	6.804	10.314
5.2697	0.83	6.786	10.296
5.583	0.83	6.765	10.275
5.9147	0.83	6.746	10.256
6.2663	0.83	6.730	10.24
5.9147	0.81	6.500	10.01
6.2663	0.81	6.502	10.012
6.6397	0.81	6.501	10.011
7.0347	0.81	6.501	10.011
7.453	0.81	6.501	10.011
7.8963	0.81	6.502	10.012
8.3663	0.81	6.504	10.014



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **MW-13**
Test Date: 9/29/2004
Test Type: Falling Head (Slug in)

Conducted by: Palmer
Entered/date: Palmer -9/30/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	6.80	(ft BTOC)
WD =	20.11	(ft BTOC)
WD =	18.00	(ft BGS)
DTSP =	4.11	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.22	(ft)
Le =	16	(ft)
Lw =	13.31	(ft)
Le/rw =	42.67	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	1.139	(ft) from plot
yt =	0.933	(ft) from plot
t =	1.210	(minutes) from plot
ln(Re/rw) =	2.33	
K =	**0.81**	**(ft/day)**
K =	**2.9E-04**	**(cm/sec)**

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.33

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.70

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
40	2.75	0.45	2.45
50	3	0.5	2.7

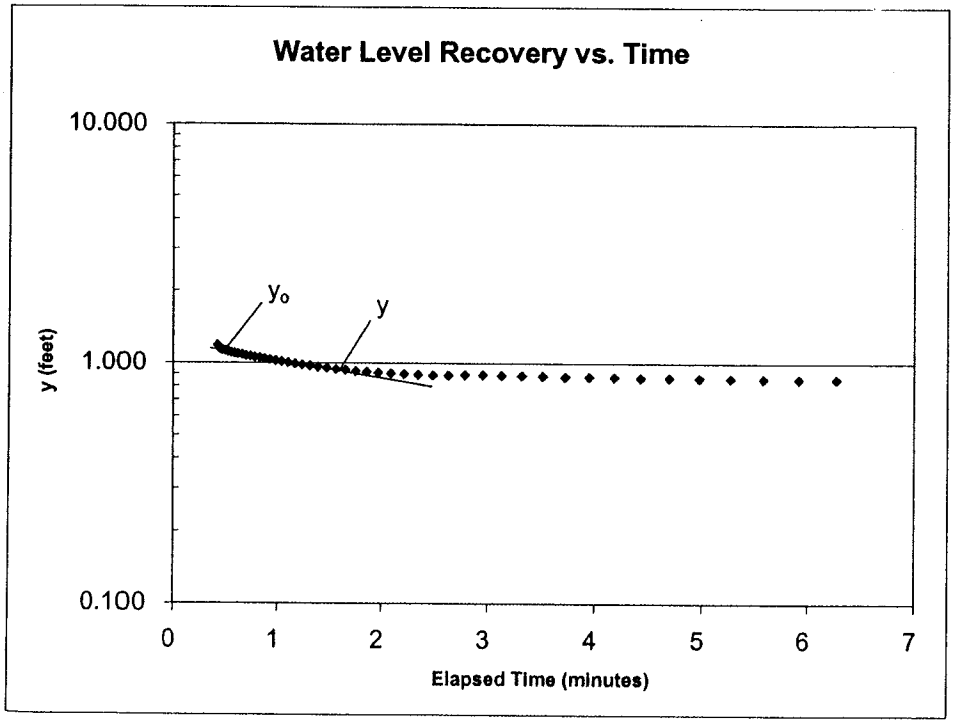
Interpolated values of A, B and C for Le/rw

42.67	2.82	0.46	2.52

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.4198	0.07	1.184	5.616
0.4447	0.06	1.139	5.661
0.4198	0.07	1.184	5.616
0.4447	0.06	1.139	5.661
0.4697	0.05	1.129	5.671
0.4963	0.05	1.121	5.679
0.5247	0.05	1.111	5.689
0.5547	0.04	1.103	5.697
0.5863	0.04	1.095	5.705
0.6213	0.04	1.087	5.713
0.658	0.03	1.080	5.72
0.6963	0.03	1.070	5.73
0.738	0.03	1.064	5.736
0.7813	0.02	1.056	5.744
0.828	0.02	1.048	5.752
0.8763	0.02	1.038	5.762
0.928	0.01	1.030	5.77
0.983	0.01	1.020	5.78
1.0413	0.01	1.012	5.788
1.103	0.00	1.002	5.798
1.168	0.00	0.990	5.81
1.238	-0.01	0.980	5.82
1.3113	-0.01	0.970	5.83
1.3897	-0.02	0.960	5.84
1.473	-0.02	0.950	5.85
1.5613	-0.03	0.940	5.86
1.6547	-0.03	0.933	5.867
1.753	-0.03	0.923	5.877
1.858	-0.04	0.915	5.885
1.968	-0.04	0.907	5.893
2.0847	-0.04	0.902	5.898
2.2097	-0.05	0.896	5.904
2.3412	-0.05	0.890	5.91
2.4813	-0.05	0.885	5.915
2.6297	-0.05	0.885	5.915
2.7863	-0.05	0.891	5.909
2.953	-0.05	0.890	5.91
3.1297	-0.05	0.886	5.914
3.3163	-0.05	0.883	5.917
3.5147	-0.06	0.879	5.921
3.7247	-0.06	0.874	5.926
3.9463	-0.06	0.874	5.926
4.1813	-0.06	0.871	5.929
4.4297	-0.06	0.868	5.932
4.693	-0.06	0.866	5.934
4.973	-0.06	0.863	5.937
5.2697	-0.06	0.861	5.939
5.583	-0.07	0.858	5.942
5.9147	-0.07	0.857	5.943
6.2663	-0.07	0.855	5.945



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **MW-13**
Test Date: 9/29/2004
Test Type: Rising Head (Slug out)

Conducted by: Palmer
Entered/date: Palmer - 9/29/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	6.80	(ft BTOC)
WD =	20.11	(ft BTOC)
WD =	18.00	(ft BGS)
DTSP =	4.11	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.22	(ft)
Le =	16	(ft)
Lw =	13.31	(ft)
Le/rw =	42.67	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	4.431	(ft) from plot
yt =	3.511	(ft) from plot
t =	0.127	(minutes) from plot
ln(Re/rw) =	2.33	
K =	8.85	(ft/day)
K =	3.1E-03	(cm/sec)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.1875	0.65	4.431	11.231
0.1985	0.63	4.271	11.071
0.2102	0.62	4.140	10.94
0.2227	0.60	4.000	10.8
0.2358	0.59	3.861	10.661
0.2498	0.57	3.742	10.542
0.2647	0.56	3.635	10.435
0.2803	0.55	3.570	10.37
0.297	0.55	3.531	10.331
0.3147	0.55	3.511	10.311
0.3333	0.54	3.498	10.298
0.3532	0.54	3.488	10.288
0.3742	0.54	3.478	10.278
0.3963	0.54	3.468	10.268
0.4198	0.54	3.460	10.26
0.4447	0.54	3.452	10.252
0.4697	0.54	3.448	10.248
0.4963	0.54	3.442	10.242
0.5247	0.54	3.438	10.238
0.5547	0.54	3.432	10.232
0.5863	0.54	3.430	10.23
0.6213	0.53	3.424	10.224
0.658	0.53	3.420	10.22
0.6963	0.53	3.416	10.216
0.738	0.53	3.412	10.212
0.7813	0.53	3.408	10.208
0.828	0.53	3.404	10.204
0.8763	0.53	3.400	10.2
0.928	0.53	3.396	10.196
0.983	0.53	3.392	10.192
1.0413	0.53	3.387	10.187
1.103	0.53	3.382	10.182
1.168	0.53	3.381	10.181
1.238	0.53	3.375	10.175
1.3113	0.53	3.370	10.17
1.3897	0.53	3.364	10.164
1.473	0.53	3.360	10.16
1.5613	0.53	3.354	10.154
1.6547	0.53	3.350	10.15
1.753	0.52	3.346	10.146
1.858	0.52	3.340	10.14
1.968	0.52	3.336	10.136
2.0847	0.52	3.329	10.129
2.2097	0.52	3.326	10.126

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.33

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.70

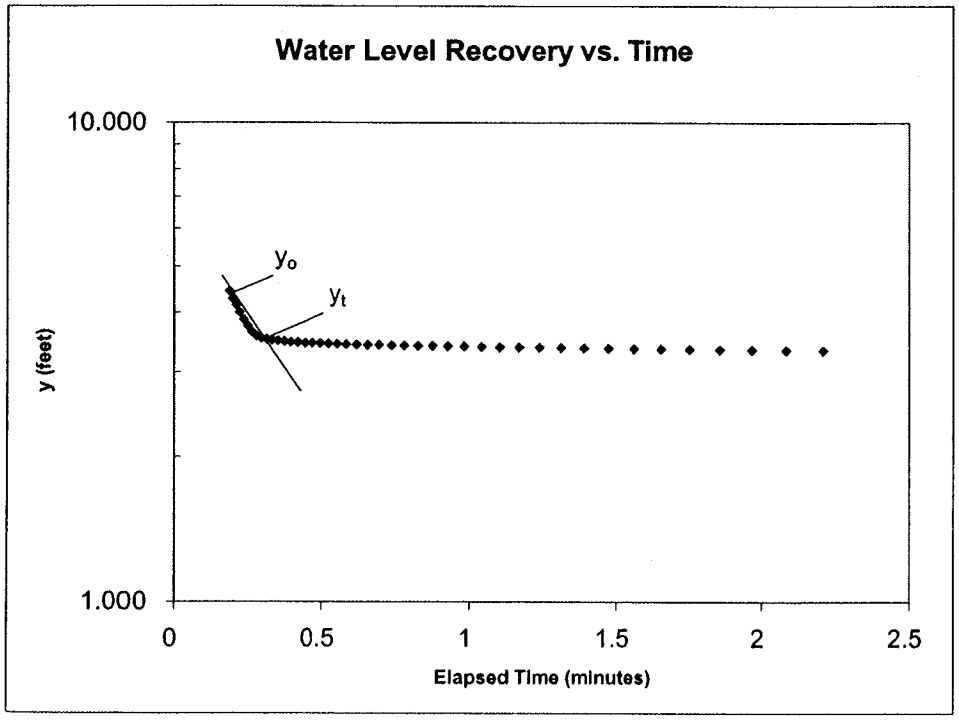
Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
40	2.75	0.45	2.45
50	3	0.5	2.7

Interpolated values of A, B and C for Le/rw

42.67	2.82	0.46	2.52

Reference: Bouwer(1989), Bouwer and Rice(1976)



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **MW-14**
Test Date: 9/29/2004
Test Type: Falling Head (Slug in)

Conducted by: Palmer
Entered/date: Palmer -9/30/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	4.64	(ft BTOC)
WD =	12.26	(ft BTOC)
WD =	10.00	(ft BGS)
DTSP =	6.26	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	6	(ft)
Lw =	7.62	(ft)
Le/rw =	16.00	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	2.225	(ft) from plot
yt =	1.234	(ft) from plot
t =	2.210	(minutes) from plot
ln(Re/rw) =	1.69	
K =	**0.38**	**(ft/day)**
K =	**1.4E-04**	**(cm/sec)**

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 1.69

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.13

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
15	2.1	0.27	1.5
25	2.4	0.31	1.9

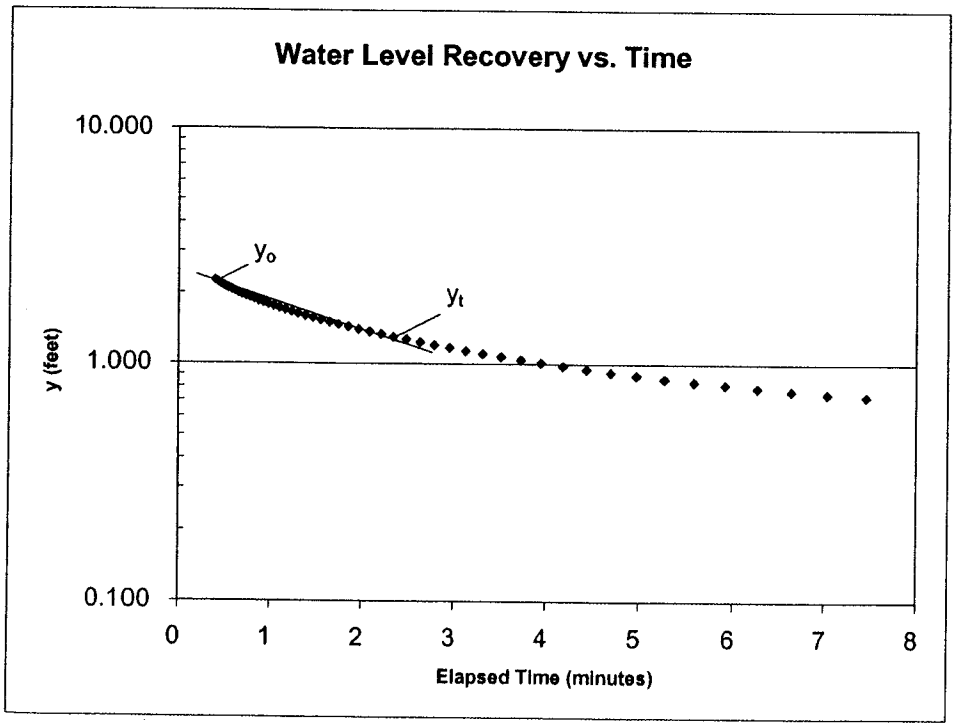
Interpolated values of A, B and C for Le/rw

16.00	2.13	0.27	1.54

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.3963	0.35	2.256	2.384
0.4198	0.35	2.225	2.415
0.3963	0.35	2.256	2.384
0.4198	0.35	2.225	2.415
0.4447	0.34	2.195	2.445
0.4697	0.33	2.162	2.478
0.4963	0.33	2.138	2.502
0.5247	0.32	2.107	2.533
0.5547	0.32	2.081	2.559
0.5863	0.31	2.052	2.588
0.6213	0.31	2.022	2.618
0.658	0.30	1.993	2.647
0.6963	0.29	1.963	2.677
0.738	0.29	1.935	2.705
0.7813	0.28	1.904	2.736
0.828	0.27	1.874	2.766
0.8763	0.27	1.843	2.797
0.928	0.26	1.815	2.825
0.983	0.25	1.782	2.858
1.0413	0.24	1.752	2.888
1.103	0.24	1.719	2.921
1.168	0.23	1.687	2.953
1.238	0.22	1.656	2.984
1.3113	0.21	1.624	3.016
1.3897	0.20	1.593	3.047
1.473	0.19	1.559	3.081
1.5613	0.18	1.526	3.114
1.6547	0.17	1.494	3.146
1.753	0.16	1.461	3.179
1.858	0.16	1.429	3.211
1.968	0.14	1.396	3.244
2.0847	0.13	1.364	3.276
2.2097	0.12	1.331	3.309
2.3412	0.11	1.297	3.343
2.4813	0.10	1.266	3.374
2.6297	0.09	1.234	3.406
2.7863	0.08	1.199	3.441
2.953	0.07	1.167	3.473
3.1297	0.05	1.134	3.506
3.3163	0.04	1.102	3.538
3.5147	0.03	1.071	3.569
3.7247	0.02	1.038	3.602
3.9463	0.00	1.008	3.632
4.1813	-0.01	0.977	3.663
4.4297	-0.02	0.949	3.691
4.693	-0.04	0.920	3.72
4.973	-0.05	0.894	3.746
5.2697	-0.06	0.865	3.775
5.583	-0.08	0.839	3.801
5.9147	-0.09	0.816	3.824
6.2663	-0.10	0.792	3.848
6.6397	-0.11	0.769	3.871
7.0347	-0.13	0.749	3.891
7.453	-0.14	0.730	3.91



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **MW-14**
Test Date: 9/29/2004
Test Type: Rising Head (Slug out)

Conducted by: Palmer
Entered/date: Palmer - 9/29/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	4.64	(ft BTOC)
WD =	12.26	(ft BTOC)
WD =	10.00	(ft BGS)
DTSP =	6.26	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	6	(ft)
Lw =	7.62	(ft)
Le/rw =	16.00	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	3.844	(ft) from plot
yt =	3.271	(ft) from plot
t =	1.158	(minutes) from plot
ln(Re/rw) =	1.69	
K =	**0.20**	**(ft/day)**
K =	**7.0E-05**	**(cm/sec)**

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 1.69

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+(C/(Le/rw))]^-1 = 2.13

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
15	2.1	0.27	1.5
25	2.4	0.31	1.9

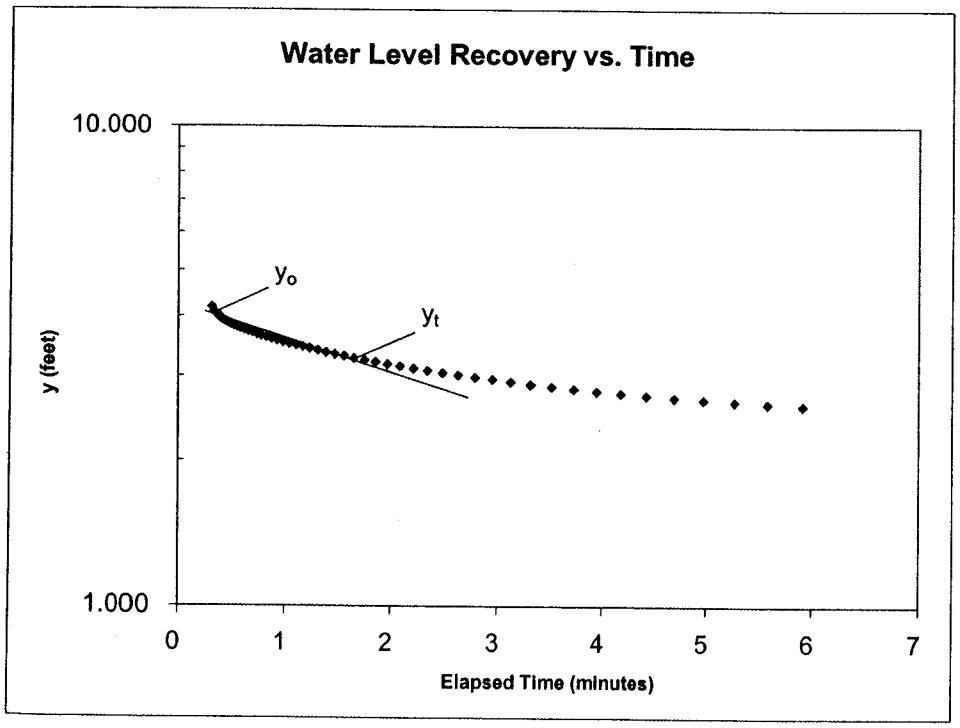
Interpolated values of A, B and C for Le/rw

16.00	2.13	0.27	1.54

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.3147	0.62	4.173	8.813
0.3333	0.61	4.081	8.721
0.3532	0.61	4.042	8.682
0.3742	0.60	4.012	8.652
0.3963	0.60	3.952	8.592
0.4198	0.59	3.921	8.561
0.4447	0.59	3.895	8.535
0.4697	0.59	3.868	8.508
0.4963	0.58	3.844	8.484
0.5247	0.58	3.817	8.457
0.5547	0.58	3.792	8.432
0.5863	0.58	3.768	8.408
0.6213	0.57	3.741	8.381
0.658	0.57	3.714	8.354
0.6963	0.57	3.692	8.332
0.738	0.56	3.663	8.303
0.7813	0.56	3.636	8.276
0.828	0.56	3.610	8.25
0.8763	0.55	3.587	8.227
0.928	0.55	3.558	8.198
0.983	0.55	3.532	8.172
1.0413	0.54	3.503	8.143
1.103	0.54	3.476	8.116
1.168	0.54	3.449	8.089
1.238	0.53	3.421	8.061
1.3113	0.53	3.390	8.03
1.3897	0.53	3.361	8.001
1.473	0.52	3.331	7.971
1.5613	0.52	3.302	7.942
1.6547	0.51	3.271	7.911
1.753	0.51	3.238	7.878
1.858	0.51	3.207	7.847
1.968	0.50	3.174	7.814
2.0847	0.50	3.144	7.784
2.2097	0.49	3.111	7.751
2.3412	0.49	3.078	7.718
2.4813	0.48	3.047	7.687
2.6297	0.48	3.015	7.655
2.7863	0.47	2.981	7.621
2.953	0.47	2.951	7.591
3.1297	0.46	2.916	7.556
3.3163	0.46	2.883	7.523
3.5147	0.46	2.852	7.492
3.7247	0.45	2.822	7.462
3.9463	0.45	2.791	7.431
4.1813	0.44	2.762	7.402
4.4297	0.44	2.735	7.375
4.693	0.43	2.706	7.346
4.973	0.43	2.680	7.32
5.2697	0.42	2.655	7.295
5.583	0.42	2.630	7.27
5.9147	0.42	2.608	7.248



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **WRB-17**
Test Date: 9/29/2004
Test Type: Falling Head (Slug in)

Conducted by: Palmer
Entered/date: Palmer -9/30/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	21.82	(ft BTOC)
WD =	35.89	(ft BTOC)
WD =	33.00	(ft BGS)
DTSP =	24.89	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	11	(ft)
Lw =	14.07	(ft)
Le/rw =	29.33	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	13.525	(ft) from plot
yt =	11.986	(ft) from plot
t =	12.138	(minutes) from plot
ln(Re/rw) =	2.27	
K =	**0.01**	**(ft/day)**
K =	**3.5E-06**	**(cm/sec)**

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.27

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.70

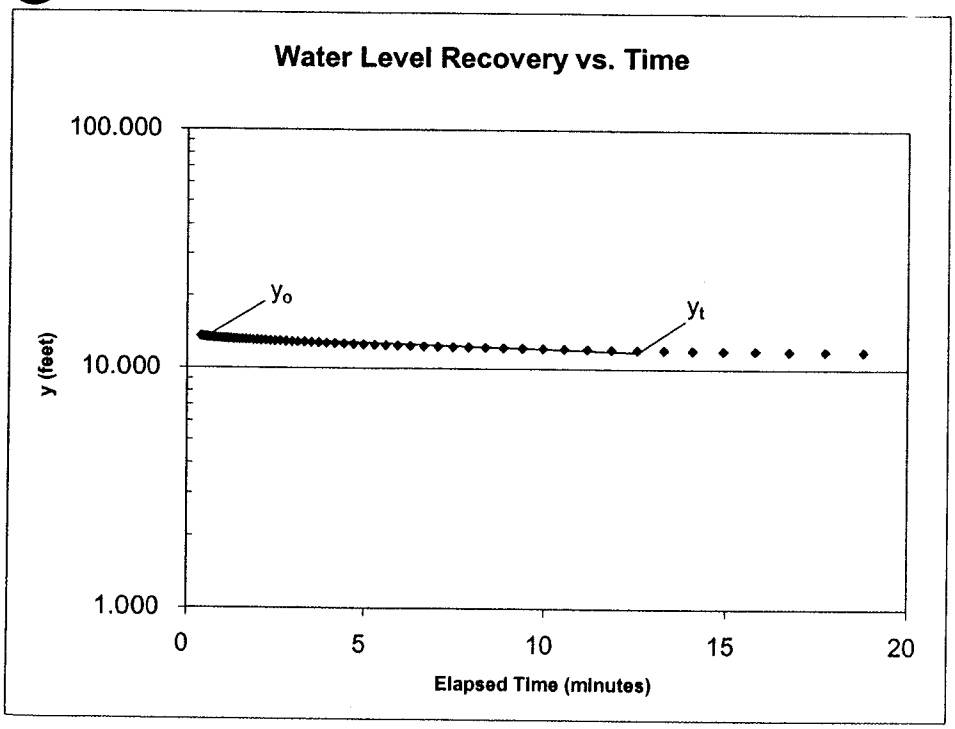
Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
25	2.4	0.31	1.9
30	2.5	0.35	2.1

Interpolated values of A, B and C for Le/rw

29.33	2.49	0.34	2.07

Reference: Bouwer(1989), Bouwer and Rice(1976)



TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.3742	1.13	13.545	8.275
0.3963	1.13	13.525	8.295
0.3742	1.13	13.545	8.275
0.3963	1.13	13.525	8.295
0.4198	1.13	13.505	8.315
0.4447	1.13	13.487	8.333
0.4697	1.13	13.470	8.35
0.4963	1.13	13.450	8.37
0.5247	1.13	13.433	8.387
0.5547	1.13	13.415	8.405
0.5863	1.13	13.396	8.424
0.6213	1.13	13.374	8.446
0.658	1.13	13.359	8.461
0.6963	1.13	13.346	8.474
0.738	1.12	13.330	8.49
0.7813	1.12	13.319	8.501
0.828	1.12	13.306	8.514
0.8763	1.12	13.286	8.534
0.928	1.12	13.273	8.547
0.983	1.12	13.258	8.562
1.0413	1.12	13.250	8.57
1.103	1.12	13.235	8.585
1.168	1.12	13.219	8.601
1.238	1.12	13.204	8.616
1.3113	1.12	13.186	8.634
1.3897	1.12	13.168	8.652
1.473	1.12	13.148	8.672
1.5613	1.12	13.127	8.693
1.6547	1.12	13.107	8.713
1.753	1.12	13.087	8.733
1.858	1.12	13.064	8.756
1.968	1.12	13.038	8.782
2.0847	1.11	13.017	8.803
2.2097	1.11	12.990	8.83
2.3412	1.11	12.965	8.855
2.4813	1.11	12.938	8.882
2.6297	1.11	12.911	8.909
2.7863	1.11	12.884	8.936
2.953	1.11	12.852	8.968
3.1297	1.11	12.825	8.995
3.3163	1.11	12.791	9.029
3.5147	1.11	12.759	9.061
3.7247	1.10	12.725	9.095
3.9463	1.10	12.691	9.129
4.1813	1.10	12.656	9.164
4.4297	1.10	12.620	9.2
4.693	1.10	12.584	9.236
4.973	1.10	12.548	9.272
5.2697	1.10	12.512	9.308
5.583	1.10	12.475	9.345
5.9147	1.09	12.437	9.383
6.2663	1.09	12.399	9.421
6.6397	1.09	12.363	9.457
7.0347	1.09	12.324	9.496
7.453	1.09	12.288	9.532
7.8963	1.09	12.252	9.568
8.3663	1.09	12.214	9.606
8.8647	1.09	12.178	9.642
9.3913	1.08	12.144	9.676
9.9497	1.08	12.112	9.708
10.5413	1.08	12.078	9.742
11.168	1.08	12.047	9.773
11.8313	1.08	12.016	9.804
12.5347	1.08	11.986	9.834
13.2797	1.08	11.961	9.859
14.0697	1.08	11.928	9.892
14.9063	1.08	11.903	9.917
15.7913	1.07	11.880	9.94
16.7297	1.07	11.866	9.954
17.723	1.07	11.848	9.972
18.7763	1.07	11.827	9.993

Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **WRB-17**
Test Date: 9/29/2004
Test Type: Rising Head (Slug out)

Conducted by: Palmer
Entered/date: Palmer - 9/29/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	21.82	(ft BTOC)
WD =	35.89	(ft BTOC)
WD =	33.00	(ft BGS)
DTSP =	24.89	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	11	(ft)
Lw =	14.07	(ft)
Le/rw =	29.33	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	1.028	(ft) from plot
yt =	0.617	(ft) from plot
t =	9.751	(minutes) from plot
ln(Re/rw) =	2.27	
K =	0.05	(ft/day)
K =	1.9E-05	(cm/sec)

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.27

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.70

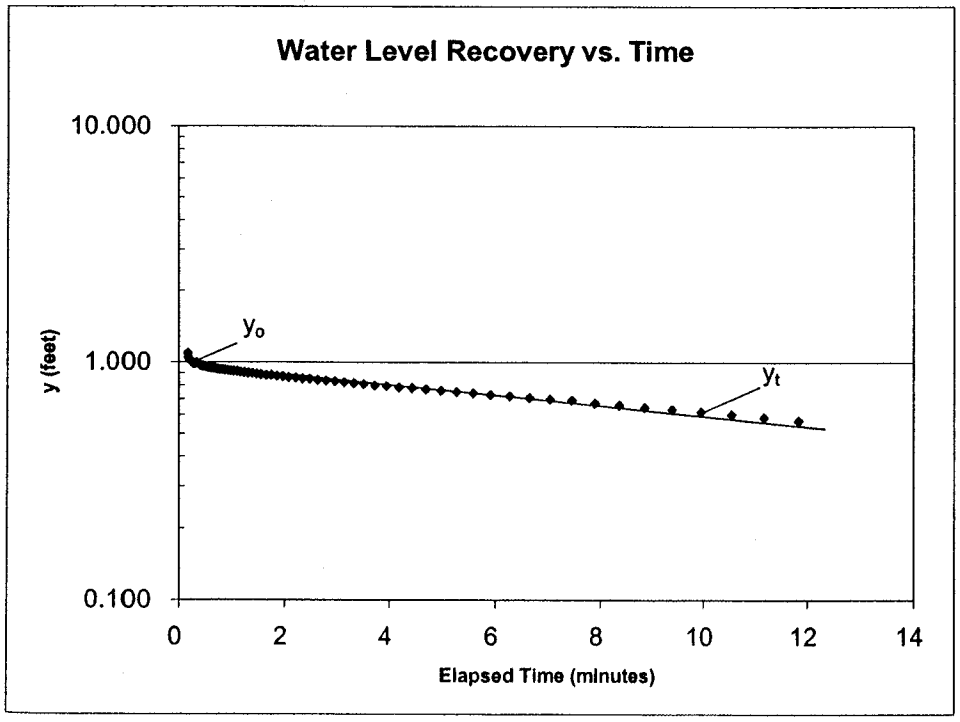
Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
25	2.4	0.31	1.9
30	2.5	0.35	2.1

Interpolated values of A, B and C for Le/rw

29.33	2.49	0.34	2.07

Reference: Bouwer(1989), Bouwer and Rice(1976)



TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.167	0.04	1.088	22.908
0.177	0.02	1.049	22.869
0.1875	0.02	1.039	22.859
0.1985	0.01	1.028	22.848
0.2102	0.01	1.018	22.838
0.2227	0.00	1.011	22.831
0.2358	0.00	1.004	22.824
0.2498	0.00	0.998	22.818
0.2647	0.00	0.993	22.813
0.2803	-0.01	0.987	22.807
0.297	-0.01	0.985	22.805
0.3147	0.00	0.989	22.809
0.3333	0.00	0.990	22.81
0.3532	0.00	0.990	22.81
0.3742	-0.01	0.981	22.801
0.3963	-0.01	0.975	22.795
0.4198	-0.02	0.966	22.786
0.4447	-0.02	0.963	22.783
0.4697	-0.02	0.961	22.781
0.4963	-0.02	0.956	22.776
0.5247	-0.02	0.954	22.774
0.5547	-0.02	0.951	22.771
0.5863	-0.02	0.949	22.769
0.6213	-0.03	0.944	22.764
0.658	-0.03	0.942	22.762
0.6963	-0.03	0.939	22.759
0.738	-0.03	0.935	22.755
0.7813	-0.03	0.932	22.752
0.828	-0.03	0.930	22.75
0.8763	-0.03	0.925	22.745
0.928	-0.04	0.921	22.741
0.983	-0.04	0.918	22.738
1.0413	-0.04	0.916	22.736
1.103	-0.04	0.913	22.733
1.168	-0.04	0.907	22.727
1.238	-0.04	0.904	22.724
1.3113	-0.05	0.900	22.72
1.3897	-0.05	0.897	22.717
1.473	-0.05	0.890	22.71
1.5613	-0.05	0.886	22.706
1.6547	-0.06	0.881	22.701
1.753	-0.06	0.879	22.699
1.858	-0.06	0.872	22.692
1.968	-0.06	0.868	22.688
2.0847	-0.06	0.861	22.681
2.2097	-0.07	0.859	22.679
2.3412	-0.07	0.850	22.67
2.4813	-0.07	0.848	22.668
2.6297	-0.08	0.841	22.661
2.7863	-0.08	0.835	22.655
2.953	-0.08	0.829	22.649
3.1297	-0.09	0.822	22.642
3.3163	-0.09	0.815	22.635
3.5147	-0.09	0.807	22.627
3.7247	-0.10	0.798	22.618
3.9463	-0.10	0.792	22.612
4.1813	-0.11	0.783	22.603
4.4297	-0.11	0.777	22.597
4.693	-0.11	0.768	22.588
4.973	-0.12	0.759	22.579
5.2697	-0.13	0.749	22.569
5.583	-0.13	0.740	22.56
5.9147	-0.14	0.729	22.549
6.2663	-0.14	0.719	22.539
6.6397	-0.15	0.708	22.528
7.0347	-0.16	0.698	22.518
7.453	-0.16	0.691	22.511
7.8963	-0.17	0.672	22.492
8.3663	-0.18	0.659	22.479
8.8647	-0.19	0.644	22.464
9.3913	-0.20	0.632	22.452
9.9497	-0.21	0.617	22.437
10.5413	-0.22	0.602	22.422
11.168	-0.23	0.585	22.405
11.8313	-0.25	0.568	22.388

Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **WRB-18**
Test Date: 9/29/2004
Test Type: Falling Head (Slug in)

Conducted by: Palmer
Entered/date: Palmer -9/30/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	19.26	(ft BTOC)
WD =	31.76	(ft BTOC)
WD =	29.00	(ft BGS)
DTSP =	20.76	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	11	(ft)
Lw =	12.50	(ft)
Le/rw =	29.33	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	11.358	(ft) from plot
yt =	9.543	(ft) from plot
t =	5.892	(minutes) from plot
ln(Re/rw) =	2.22	
K =	**0.03**	**(ft/day)**
K =	**1.0E-05**	**(cm/sec)**

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.22

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.63

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
25	2.4	0.31	1.9
30	2.5	0.35	2.1

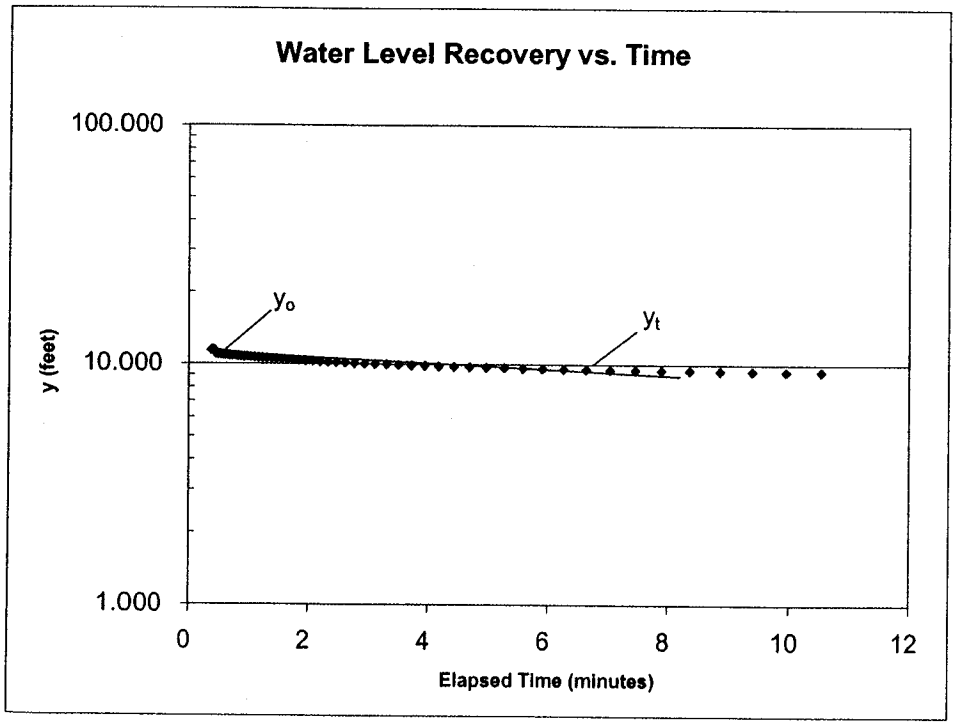
Interpolated values of A, B and C for Le/rw

29.33	2.49	0.34	2.07

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.3742	1.06	11.358	7.902
0.3963	1.06	11.383	7.877
0.3742	1.06	11.358	7.902
0.3963	1.06	11.383	7.877
0.4198	1.06	11.381	7.879
0.4447	1.04	11.007	8.253
0.4697	1.04	10.984	8.276
0.4963	1.04	10.960	8.3
0.5247	1.04	10.938	8.322
0.5547	1.04	10.915	8.345
0.5863	1.04	10.893	8.367
0.6213	1.04	10.869	8.391
0.658	1.04	10.845	8.415
0.6963	1.03	10.821	8.439
0.738	1.03	10.798	8.462
0.7813	1.03	10.774	8.486
0.828	1.03	10.750	8.51
0.8763	1.03	10.725	8.535
0.928	1.03	10.699	8.561
0.983	1.03	10.672	8.588
1.0413	1.03	10.644	8.616
1.103	1.03	10.615	8.645
1.168	1.02	10.587	8.673
1.238	1.02	10.558	8.702
1.3113	1.02	10.528	8.732
1.3897	1.02	10.497	8.763
1.473	1.02	10.464	8.796
1.5613	1.02	10.431	8.829
1.6547	1.02	10.396	8.864
1.753	1.02	10.361	8.899
1.858	1.01	10.326	8.934
1.968	1.01	10.289	8.971
2.0847	1.01	10.252	9.008
2.2097	1.01	10.215	9.045
2.3412	1.01	10.175	9.085
2.4813	1.01	10.136	9.124
2.6297	1.00	10.097	9.163
2.7863	1.00	10.058	9.202
2.953	1.00	10.018	9.242
3.1297	1.00	9.979	9.281
3.3163	1.00	9.940	9.32
3.5147	1.00	9.900	9.36
3.7247	0.99	9.861	9.399
3.9463	0.99	9.824	9.436
4.1813	0.99	9.785	9.475
4.4297	0.99	9.745	9.515
4.693	0.99	9.710	9.55
4.973	0.99	9.675	9.585
5.2697	0.98	9.640	9.62
5.583	0.98	9.607	9.653
5.9147	0.98	9.574	9.686
6.2663	0.98	9.543	9.717
6.6397	0.98	9.514	9.746
7.0347	0.98	9.485	9.775
7.453	0.98	9.456	9.804
7.8963	0.97	9.431	9.829
8.3663	0.97	9.406	9.854
8.8647	0.97	9.384	9.876
9.3913	0.97	9.361	9.899
9.9497	0.97	9.341	9.919
10.5413	0.97	9.322	9.938



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **WRB-18**
Test Date: 9/29/2004
Test Type: Rising Head (Slug out)

Conducted by: Palmer
Entered/date: Palmer - 9/29/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	19.26	(ft BTOC)
WD =	31.76	(ft BTOC)
WD =	29.00	(ft BGS)
DTSP =	20.76	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	11	(ft)
Lw =	12.50	(ft)
Le/rw =	29.33	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	1.568	(ft) from plot
yt =	0.456	(ft) from plot
t =	7.992	(minutes) from plot
ln(Re/rw) =	2.22	
K =	**0.16**	**(ft/day)**
K =	**5.5E-05**	**(cm/sec)**

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.22

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.63

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
25	2.4	0.31	1.9
30	2.5	0.35	2.1

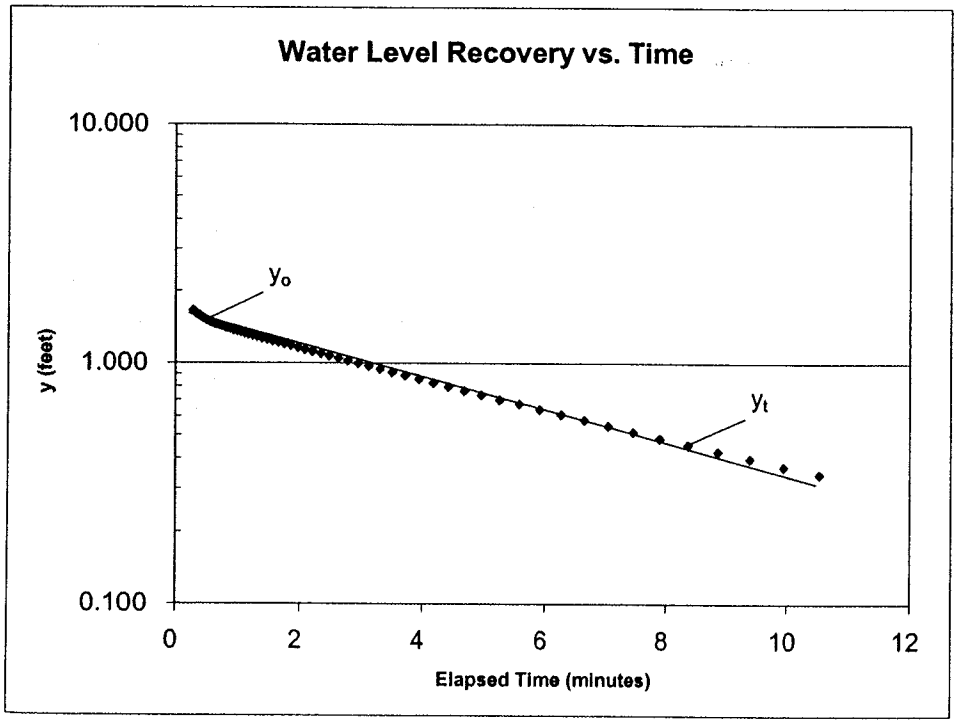
Interpolated values of A, B and C for Le/rw

29.33	2.49	0.34	2.07

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.2803	0.22	1.649	20.909
0.297	0.21	1.635	20.895
0.3147	0.21	1.614	20.874
0.3333	0.20	1.598	20.858
0.3532	0.20	1.582	20.842
0.3742	0.20	1.568	20.828
0.3963	0.19	1.564	20.824
0.4198	0.19	1.539	20.799
0.4447	0.19	1.533	20.793
0.4697	0.18	1.517	20.777
0.4963	0.18	1.500	20.76
0.5247	0.17	1.490	20.75
0.5547	0.17	1.476	20.736
0.5863	0.17	1.466	20.726
0.6213	0.16	1.453	20.713
0.658	0.16	1.443	20.703
0.6963	0.16	1.431	20.691
0.738	0.15	1.419	20.679
0.7813	0.15	1.407	20.667
0.828	0.14	1.392	20.652
0.8763	0.14	1.382	20.642
0.928	0.14	1.368	20.628
0.983	0.13	1.356	20.616
1.0413	0.13	1.341	20.601
1.103	0.12	1.327	20.587
1.168	0.12	1.314	20.574
1.238	0.11	1.298	20.558
1.3113	0.11	1.284	20.544
1.3897	0.10	1.267	20.527
1.473	0.10	1.248	20.508
1.5613	0.09	1.232	20.492
1.6547	0.08	1.215	20.475
1.753	0.08	1.197	20.457
1.858	0.07	1.178	20.438
1.968	0.06	1.157	20.417
2.0847	0.05	1.134	20.394
2.2097	0.05	1.114	20.374
2.3412	0.04	1.093	20.353
2.4813	0.03	1.068	20.328
2.6297	0.02	1.043	20.303
2.7863	0.01	1.020	20.28
2.953	0.00	0.995	20.255
3.1297	-0.01	0.968	20.228
3.3163	-0.03	0.941	20.201
3.5147	-0.04	0.912	20.172
3.7247	-0.05	0.885	20.145
3.9463	-0.07	0.856	20.116
4.1813	-0.08	0.825	20.085
4.4297	-0.10	0.795	20.055
4.693	-0.12	0.764	20.024
4.973	-0.13	0.733	19.993
5.2697	-0.15	0.702	19.962
5.583	-0.17	0.673	19.933
5.9147	-0.19	0.640	19.9
6.2663	-0.22	0.609	19.869
6.6397	-0.24	0.578	19.838
7.0347	-0.26	0.547	19.807
7.453	-0.29	0.516	19.776
7.8963	-0.31	0.485	19.745
8.3663	-0.34	0.456	19.716
8.8647	-0.37	0.427	19.687
9.3913	-0.40	0.399	19.659
9.9497	-0.43	0.370	19.63
10.5413	-0.46	0.343	19.603



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **WRB-19**
Test Date: 9/29/2004
Test Type: Falling Head (Slug in)

Conducted by: Palmer
Entered/date: Palmer -9/30/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	9.36	(ft BTOC)
WD =	23.14	(ft BTOC)
WD =	21.00	(ft BGS)
DTSP =	12.14	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	11	(ft)
Lw =	13.78	(ft)
Le/rw =	29.33	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	3.086	(ft) from plot
yt =	2.264	(ft) from plot
t =	2.077	(minutes) from plot
ln(Re/rw) =	2.22	
K =	**0.15**	**(ft/day)**
K =	**5.3E-05**	**(cm/sec)**

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.22

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.63

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
25	2.4	0.31	1.9
30	2.5	0.35	2.1

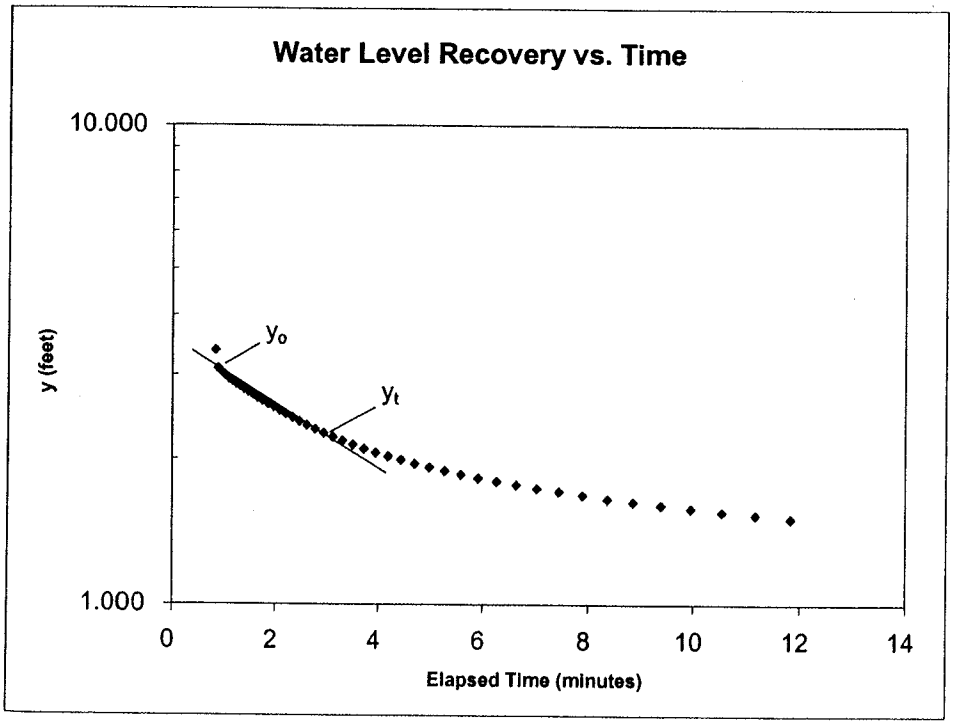
Interpolated values of A, B and C for Le/rw

29.33	2.49	0.34	2.07

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.828	0.53	3.373	5.987
0.8763	0.49	3.086	6.274
0.828	0.53	3.373	5.987
0.8763	0.49	3.086	6.274
0.928	0.48	3.054	6.306
0.983	0.48	3.011	6.349
1.0413	0.47	2.974	6.386
1.103	0.47	2.937	6.423
1.168	0.46	2.902	6.458
1.238	0.46	2.865	6.495
1.3113	0.45	2.831	6.529
1.3897	0.45	2.794	6.566
1.473	0.44	2.757	6.603
1.5613	0.43	2.720	6.64
1.6547	0.43	2.681	6.679
1.753	0.42	2.642	6.718
1.858	0.42	2.602	6.758
1.968	0.41	2.563	6.797
2.0847	0.40	2.522	6.838
2.2097	0.39	2.479	6.881
2.3412	0.39	2.438	6.922
2.4813	0.38	2.393	6.967
2.6297	0.37	2.350	7.01
2.7863	0.36	2.307	7.053
2.953	0.35	2.264	7.096
3.1297	0.35	2.221	7.139
3.3163	0.34	2.182	7.178
3.5147	0.33	2.141	7.219
3.7247	0.32	2.100	7.26
3.9463	0.31	2.061	7.299
4.1813	0.31	2.026	7.334
4.4297	0.30	1.991	7.369
4.693	0.29	1.956	7.404
4.973	0.28	1.922	7.438
5.2697	0.28	1.889	7.471
5.583	0.27	1.858	7.502
5.9147	0.26	1.827	7.533
6.2663	0.26	1.799	7.561
6.6397	0.25	1.770	7.59
7.0347	0.24	1.741	7.619
7.453	0.23	1.715	7.645
7.8963	0.23	1.686	7.674
8.3663	0.22	1.657	7.703
8.8647	0.21	1.633	7.727
9.3913	0.21	1.608	7.752
9.9497	0.20	1.584	7.776
10.5413	0.19	1.557	7.803
11.168	0.19	1.535	7.825
11.8313	0.18	1.510	7.85



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **WRB-19**
Test Date: 9/29/2004
Test Type: Rising Head (Slug out)

Conducted by: Palmer
Entered/date: Palmer - 9/29/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	9.36	(ft BTOC)
WD =	23.14	(ft BTOC)
WD =	21.00	(ft BGS)
DTSP =	12.14	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	11	(ft)
Lw =	13.78	(ft)
Le/rw =	29.33	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	2.396	(ft) from plot
yt =	2.028	(ft) from plot
t =	2.044	(minutes) from plot
ln(Re/rw) =	2.22	
K =	**0.08**	**(ft/day)**
K =	**3.0E-05**	**(cm/sec)**

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.22

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.63

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
25	2.4	0.31	1.9
30	2.5	0.35	2.1

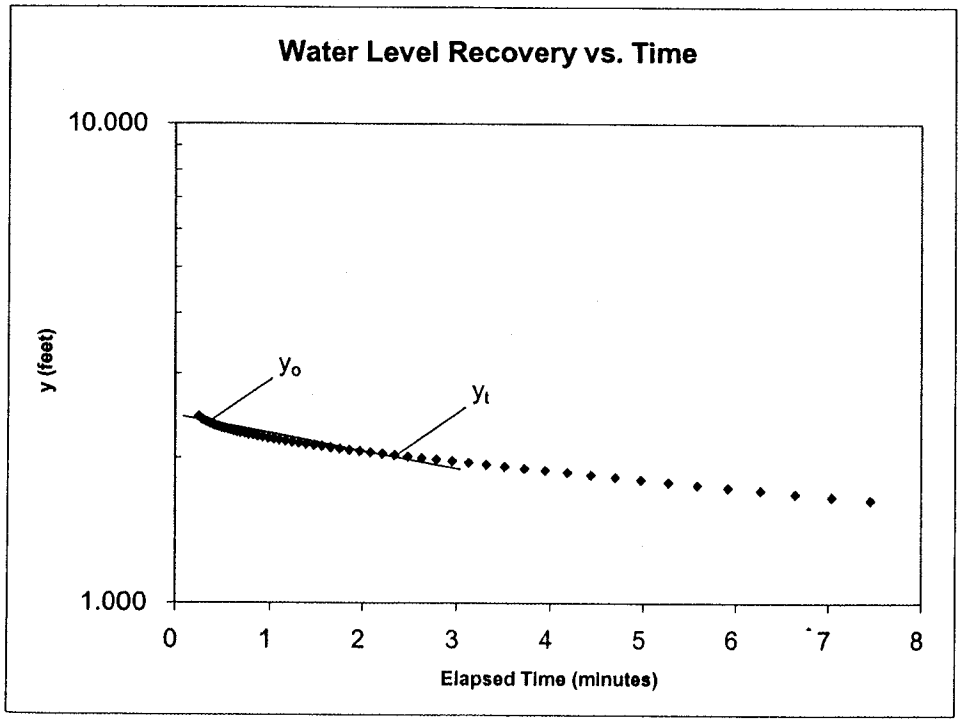
Interpolated values of A, B and C for Le/rw

29.33	2.49	0.34	2.07

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.2498	0.39	2.431	11.791
0.2647	0.38	2.418	11.778
0.2803	0.38	2.404	11.764
0.297	0.38	2.396	11.756
0.3147	0.38	2.385	11.745
0.3333	0.38	2.373	11.733
0.3532	0.37	2.365	11.725
0.3742	0.37	2.355	11.715
0.3963	0.37	2.346	11.706
0.4198	0.37	2.336	11.696
0.4447	0.37	2.328	11.688
0.4697	0.37	2.320	11.68
0.4963	0.36	2.310	11.67
0.5247	0.36	2.301	11.661
0.5547	0.36	2.293	11.653
0.5863	0.36	2.283	11.643
0.6213	0.36	2.274	11.634
0.658	0.35	2.264	11.624
0.6963	0.35	2.256	11.616
0.738	0.35	2.246	11.606
0.7813	0.35	2.237	11.597
0.828	0.35	2.227	11.587
0.8763	0.35	2.219	11.579
0.928	0.34	2.209	11.569
0.983	0.34	2.199	11.559
1.0413	0.34	2.188	11.548
1.103	0.34	2.178	11.538
1.168	0.34	2.168	11.528
1.238	0.33	2.158	11.518
1.3113	0.33	2.147	11.507
1.3897	0.33	2.135	11.495
1.473	0.33	2.125	11.485
1.5613	0.33	2.114	11.474
1.6547	0.32	2.102	11.462
1.753	0.32	2.090	11.45
1.858	0.32	2.077	11.437
1.968	0.32	2.067	11.427
2.0847	0.31	2.055	11.415
2.2097	0.31	2.040	11.4
2.3412	0.31	2.028	11.388
2.4813	0.30	2.013	11.373
2.6297	0.30	1.999	11.359
2.7863	0.30	1.987	11.347
2.953	0.29	1.970	11.33
3.1297	0.29	1.954	11.314
3.3163	0.29	1.938	11.298
3.5147	0.28	1.919	11.279
3.7247	0.28	1.903	11.263
3.9463	0.28	1.884	11.244
4.1813	0.27	1.866	11.226
4.4297	0.27	1.845	11.205
4.693	0.26	1.825	11.185
4.973	0.26	1.802	11.162
5.2697	0.25	1.779	11.139
5.583	0.24	1.757	11.117
5.9147	0.24	1.734	11.094
6.2663	0.23	1.712	11.072
6.6397	0.23	1.685	11.045
7.0347	0.22	1.662	11.022
7.453	0.21	1.635	10.995



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **WRB-20**
Test Date: 9/29/2004
Test Type: Falling Head (Slug in)

Conducted by: Palmer
Entered/date: Palmer -9/30/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	6.36	(ft BTOC)
WD =	21.00	(ft BTOC)
WD =	18.00	(ft BGS)
DTSP =	10.00	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	11	(ft)
Lw =	14.64	(ft)
Le/rw =	29.33	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	2.085	(ft) from plot
yt =	1.028	(ft) from plot
t =	4.955	(minutes) from plot
ln(Re/rw) =	2.27	
K =	**0.14**	**(ft/day)**
K =	**5.1E-05**	**(cm/sec)**

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.27

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.70

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
25	2.4	0.31	1.9
30	2.5	0.35	2.1

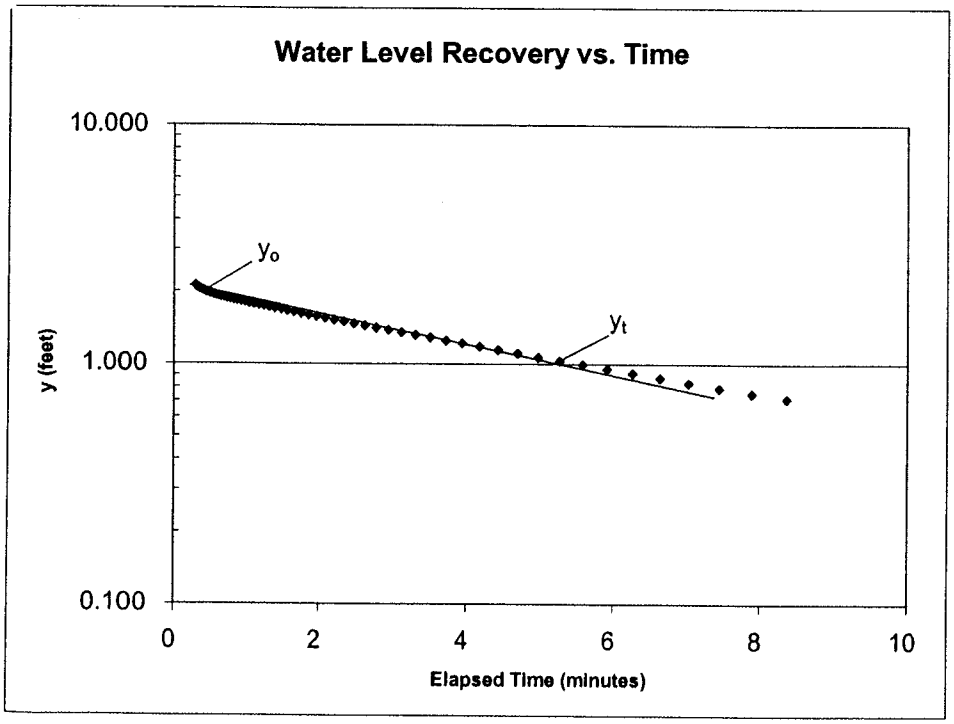
Interpolated values of A, B and C for Le/rw

29.33	2.49	0.34	2.07

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.297	0.33	2.118	4.242
0.3147	0.32	2.085	4.275
0.297	0.33	2.118	4.242
0.3147	0.32	2.085	4.275
0.3333	0.32	2.069	4.291
0.3532	0.31	2.053	4.307
0.3742	0.31	2.036	4.324
0.3963	0.31	2.020	4.34
0.4198	0.30	2.006	4.354
0.4447	0.30	1.989	4.371
0.4697	0.30	1.977	4.383
0.4963	0.29	1.965	4.395
0.5247	0.29	1.950	4.41
0.5547	0.29	1.936	4.424
0.5863	0.28	1.924	4.436
0.6213	0.28	1.910	4.45
0.658	0.28	1.897	4.463
0.6963	0.28	1.885	4.475
0.738	0.27	1.869	4.491
0.7813	0.27	1.857	4.503
0.828	0.27	1.844	4.516
0.8763	0.26	1.830	4.53
0.928	0.26	1.816	4.544
0.983	0.26	1.800	4.56
1.0413	0.25	1.783	4.577
1.103	0.25	1.767	4.593
1.168	0.24	1.750	4.61
1.238	0.24	1.732	4.628
1.3113	0.23	1.714	4.646
1.3897	0.23	1.697	4.663
1.473	0.22	1.677	4.683
1.5613	0.22	1.656	4.704
1.6547	0.21	1.636	4.724
1.753	0.21	1.614	4.746
1.858	0.20	1.591	4.769
1.968	0.20	1.569	4.791
2.0847	0.19	1.544	4.816
2.2097	0.18	1.519	4.841
2.3412	0.17	1.493	4.867
2.4813	0.17	1.466	4.894
2.6297	0.16	1.438	4.922
2.7863	0.15	1.409	4.951
2.953	0.14	1.381	4.979
3.1297	0.13	1.348	5.012
3.3163	0.12	1.317	5.043
3.5147	0.11	1.284	5.076
3.7247	0.10	1.247	5.113
3.9463	0.08	1.215	5.145
4.1813	0.07	1.178	5.182
4.4297	0.06	1.141	5.219
4.693	0.04	1.104	5.256
4.973	0.03	1.061	5.299
5.2697	0.01	1.028	5.332
5.583	0.00	0.992	5.368
5.9147	-0.02	0.951	5.409
6.2663	-0.04	0.912	5.448
6.6397	-0.06	0.871	5.489
7.0347	-0.08	0.830	5.53
7.453	-0.10	0.791	5.569
7.8963	-0.12	0.750	5.61
8.3663	-0.15	0.713	5.647



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **WRB-20**
Test Date: 9/29/2004
Test Type: Rising Head (Slug out)

Conducted by: Palmer
Entered/date: Palmer - 9/29/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	6.36	(ft BTOC)
WD =	21.00	(ft BTOC)
WD =	18.00	(ft BGS)
DTSP =	10.00	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	11	(ft)
Lw =	14.64	(ft)
Le/rw =	29.33	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	5.445	(ft) from plot
yt =	4.741	(ft) from plot
t =	4.194	(minutes) from plot
ln(Re/rw) =	2.27	
K =	0.03	(ft/day)
K =	1.2E-05	(cm/sec)

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.27

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.70

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
25	2.4	0.31	1.9
30	2.5	0.35	2.1

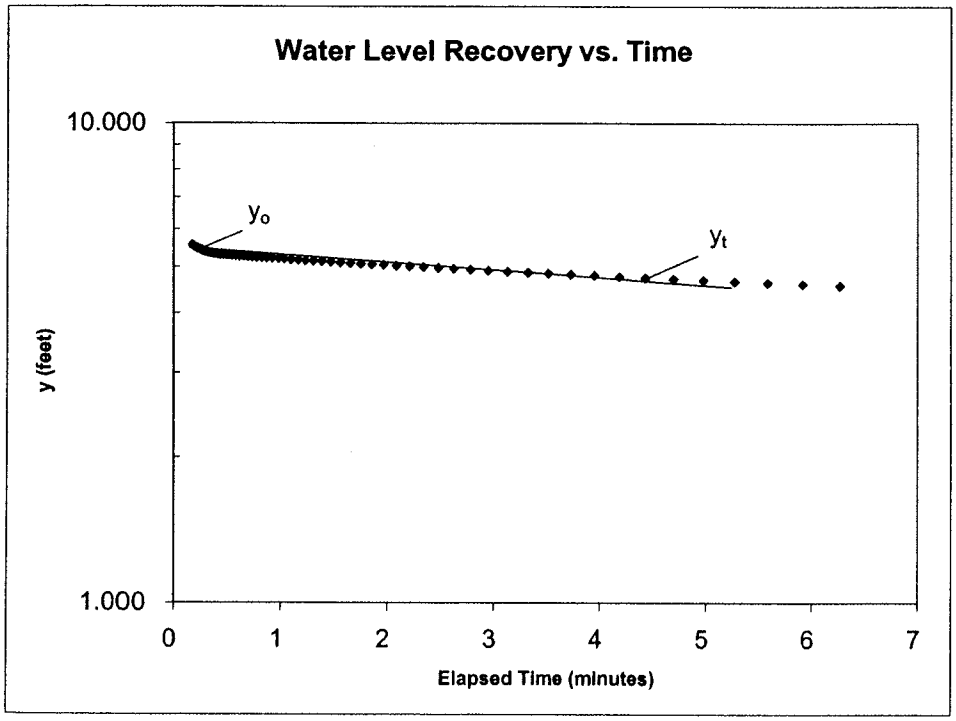
Interpolated values of A, B and C for Le/rw

29.33	2.49	0.34	2.07

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.177	0.74	5.549	11.909
0.1875	0.74	5.522	11.882
0.1985	0.74	5.496	11.856
0.2102	0.74	5.482	11.842
0.2227	0.74	5.463	11.823
0.2358	0.74	5.445	11.805
0.2498	0.73	5.428	11.788
0.2647	0.73	5.414	11.774
0.2803	0.73	5.391	11.751
0.297	0.73	5.377	11.737
0.3147	0.73	5.362	11.722
0.3333	0.73	5.348	11.708
0.3532	0.73	5.338	11.698
0.3742	0.73	5.328	11.688
0.3963	0.73	5.319	11.679
0.4198	0.73	5.309	11.669
0.4447	0.72	5.301	11.661
0.4697	0.72	5.295	11.655
0.4963	0.72	5.287	11.647
0.5247	0.72	5.280	11.64
0.5547	0.72	5.274	11.634
0.5863	0.72	5.266	11.626
0.6213	0.72	5.258	11.618
0.658	0.72	5.252	11.612
0.6963	0.72	5.244	11.604
0.738	0.72	5.235	11.595
0.7813	0.72	5.227	11.587
0.828	0.72	5.219	11.579
0.8763	0.72	5.209	11.569
0.928	0.72	5.203	11.563
0.983	0.72	5.192	11.552
1.0413	0.71	5.182	11.542
1.103	0.71	5.170	11.53
1.168	0.71	5.159	11.519
1.238	0.71	5.149	11.509
1.3113	0.71	5.137	11.497
1.3897	0.71	5.127	11.487
1.473	0.71	5.112	11.47[illegible]
1.5613	0.71	5.100	11.46
1.6547	0.71	5.085	11.445
1.753	0.70	5.069	11.429
1.858	0.70	5.055	11.415
1.968	0.70	5.040	11.4
2.0847	0.70	5.022	11.382
2.2097	0.70	5.005	11.365
2.3412	0.70	4.987	11.347
2.4813	0.70	4.969	11.329
2.6297	0.69	4.948	11.308
2.7863	0.69	4.930	11.29
2.953	0.69	4.909	11.269
3.1297	0.69	4.887	11.247
3.3163	0.69	4.864	11.224
3.5147	0.68	4.841	11.201
3.7247	0.68	4.817	11.177
3.9463	0.68	4.792	11.152
4.1813	0.68	4.765	11.125
4.4297	0.68	4.741	11.101
4.693	0.67	4.712	11.072
4.973	0.67	4.685	11.045
5.2697	0.67	4.657	11.017
5.583	0.67	4.628	10.988
5.9147	0.66	4.597	10.957
6.2663	0.66	4.566	10.926



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **WRB-21**
Test Date: 9/29/2004
Test Type: Falling Head (Slug in)

Conducted by: Palmer
Entered/date: Palmer -9/30/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	7.00	(ft BTOC)
WD =	20.99	(ft BTOC)
WD =	18.00	(ft BGS)
DTSP =	9.99	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	11	(ft)
Lw =	13.99	(ft)
Le/rw =	29.33	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	1.321	(ft) from plot
yt =	0.033	(ft) from plot
t =	3.328	(minutes) from plot
ln(Re/rw) =	2.27	
K =	1.12	(ft/day)
K =	3.9E-04	(cm/sec)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.3742	0.14	1.389	5.611
0.3963	0.12	1.321	5.679
0.3742	0.14	1.389	5.611
0.3963	0.12	1.321	5.679
0.4198	0.10	1.262	5.738
0.4447	0.08	1.206	5.794
0.4697	0.06	1.153	5.847
0.4963	0.04	1.100	5.9
0.5247	0.02	1.045	5.955
0.5547	0.00	0.991	6.009
0.5863	-0.03	0.936	6.064
0.6213	-0.06	0.881	6.119
0.658	-0.08	0.825	6.175
0.6963	-0.11	0.772	6.228
0.738	-0.14	0.719	6.281
0.7813	-0.17	0.670	6.33
0.828	-0.20	0.629	6.371
0.8763	-0.23	0.592	6.408
0.928	-0.25	0.557	6.443
0.983	-0.28	0.522	6.478
1.0413	-0.31	0.490	6.51
1.103	-0.34	0.454	6.546
1.168	-0.37	0.422	6.578
1.238	-0.41	0.391	6.609
1.3113	-0.44	0.360	6.64
1.3897	-0.48	0.331	6.669
1.473	-0.52	0.302	6.698
1.5613	-0.56	0.276	6.724
1.6547	-0.60	0.251	6.749
1.753	-0.64	0.228	6.772
1.858	-0.69	0.203	6.797
1.968	-0.74	0.184	6.816
2.0847	-0.79	0.164	6.836
2.2097	-0.84	0.143	6.857
2.3412	-0.90	0.127	6.873
2.4813	-0.95	0.112	6.888
2.6297	-1.02	0.095	6.905
2.7863	-1.09	0.081	6.919
2.953	-1.15	0.071	6.929
3.1297	-1.24	0.058	6.942
3.3163	-1.32	0.048	6.952
3.5147	-1.40	0.040	6.96
3.7247	-1.48	0.033	6.967
3.9463	-1.60	0.025	6.975
4.1813	-1.68	0.021	6.979
4.4297	-1.82	0.015	6.985
4.693	-1.89	0.013	6.987
4.973	-1.96	0.011	6.989

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.27

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.70

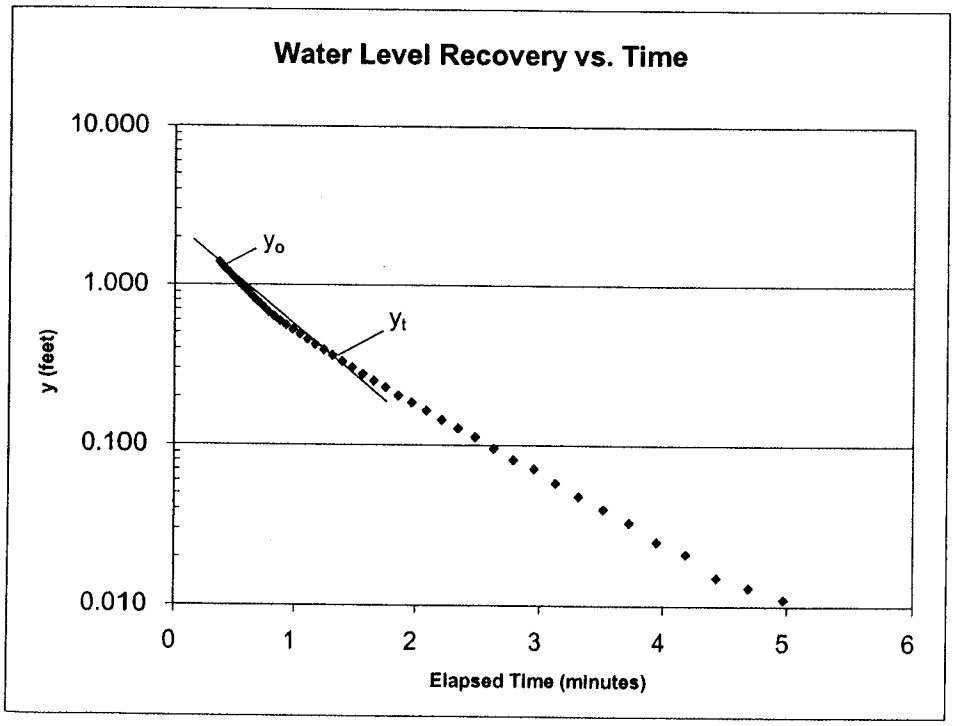
Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
25	2.4	0.31	1.9
30	2.5	0.35	2.1

Interpolated values of A, B and C for Le/rw

29.33	2.49	0.34	2.07

Reference: Bouwer(1989), Bouwer and Rice(1976)



Carolina Central Tire Design Study
Hydraulic Conductivity (K) Calculation Worksheet
W&R Project Number: 202334.01

Well: **WRB-21**
Test Date: 9/29/2004
Test Type: Rising Head (Slug out)

Conducted by: Palmer
Entered/date: Palmer - 9/29/04
Checked/date: Bellis -10/4/04

WELL DATA

SWL =	7.00	(ft BTOC)
WD =	20.99	(ft BTOC)
WD =	18.00	(ft BGS)
DTSP =	9.99	(ft BTOC)
rc =	0.083	(ft)
n =	0.30	
rw =	0.38	(ft)
rc (adjusted) =	0.08	(ft)
Le =	11	(ft)
Lw =	13.99	(ft)
Le/rw =	29.33	
H =	75.00	(ft)

CALCULATION OF K

K = [(rc^2 ln(Re/rw))/2Le]*(1/t)ln(yo/yt)

yo =	4.641	(ft) from plot
yt =	3.749	(ft) from plot
t =	0.654	(minutes) from plot
ln(Re/rw) =	2.27	
K =	**0.32**	**(ft/day)**
K =	**1.1E-04**	**(cm/sec)**

Calculation of ln(Re/rw)

Where: Lw < H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{A+Bln((H-Lw)/rw)}/(Le/rw)]^-1= 2.27

Where: Lw = H;

ln(Re/rw) = [{1.1/(ln(Lw/rw))}+{C/(Le/rw)}]^-1 = 2.70

Calculation of Coefficients
Value range for Le/rw from Table of Coefficients

Le/rw	A	B	C
25	2.4	0.31	1.9
30	2.5	0.35	2.1

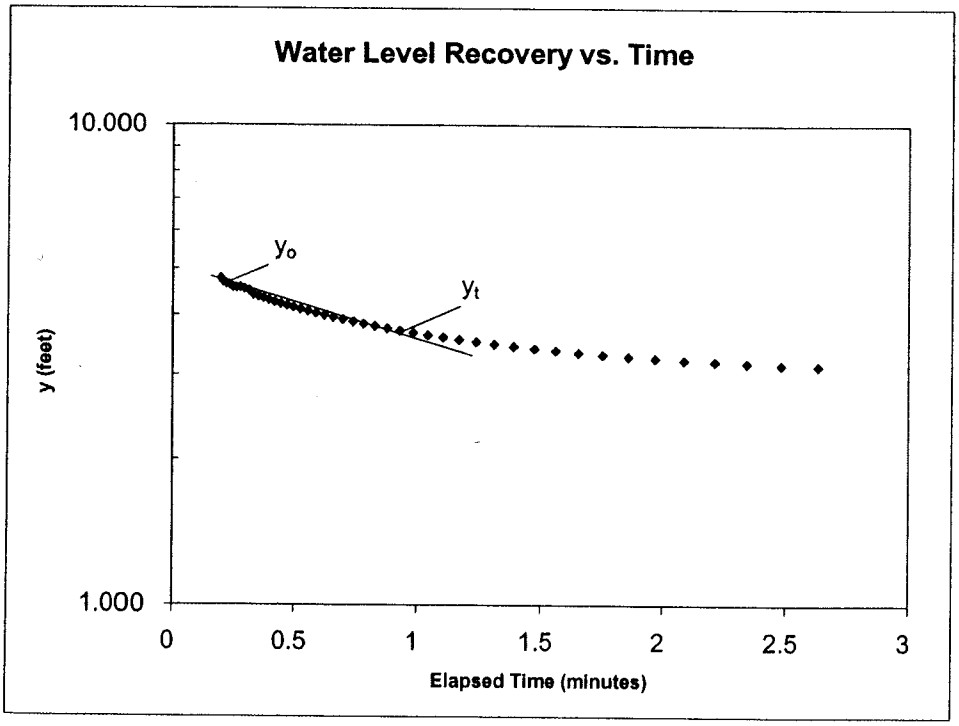
Interpolated values of A, B and C for Le/rw

29.33	2.49	0.34	2.07

Reference: Bouwer(1989), Bouwer and Rice(1976)

TEST DATA

Elapsed time (min)	Log y	y (ft)	WL (ft BTOC)
0.1985	0.68	4.766	11.766
0.2102	0.67	4.675	11.675
0.2227	0.67	4.641	11.641
0.2358	0.66	4.618	11.618
0.2498	0.66	4.567	11.567
0.2647	0.66	4.555	11.555
0.2803	0.66	4.563	11.563
0.297	0.66	4.530	11.53
0.3147	0.65	4.493	11.493
0.3333	0.64	4.399	11.399
0.3532	0.64	4.364	11.364
0.3742	0.64	4.329	11.329
0.3963	0.63	4.292	11.292
0.4198	0.63	4.255	11.255
0.4447	0.62	4.216	11.216
0.4697	0.62	4.183	11.183
0.4963	0.62	4.144	11.144
0.5247	0.61	4.107	11.107
0.5547	0.61	4.068	11.068
0.5863	0.61	4.031	11.031
0.6213	0.60	3.992	10.992
0.658	0.60	3.951	10.951
0.6963	0.59	3.912	10.912
0.738	0.59	3.869	10.869
0.7813	0.58	3.830	10.83
0.828	0.58	3.789	10.789
0.8763	0.57	3.749	10.749
0.928	0.57	3.708	10.708
0.983	0.56	3.667	10.667
1.0413	0.56	3.628	10.628
1.103	0.55	3.589	10.589
1.168	0.55	3.549	10.549
1.238	0.55	3.512	10.512
1.3113	0.54	3.475	10.475
1.3897	0.54	3.438	10.438
1.473	0.53	3.403	10.403
1.5613	0.53	3.370	10.37
1.6547	0.52	3.337	10.337
1.753	0.52	3.305	10.305
1.858	0.52	3.274	10.274
1.968	0.51	3.247	10.247
2.0847	0.51	3.220	10.22
2.2097	0.50	3.198	10.198
2.3412	0.50	3.173	10.173
2.4813	0.50	3.152	10.152
2.6297	0.50	3.131	10.131



DESIGN HYDROGEOLOGICAL REPORT
APPENDIX D

EFFECTIVE POROSITY CALCULATIONS BY TERNARY DIAGRAM

MW-21A
16.5-17.5

SAND 62.52 %
SILT 20.70 "
CLAY 16.78 "
(SANDY LOAM)
SANDY LEAN CLAY

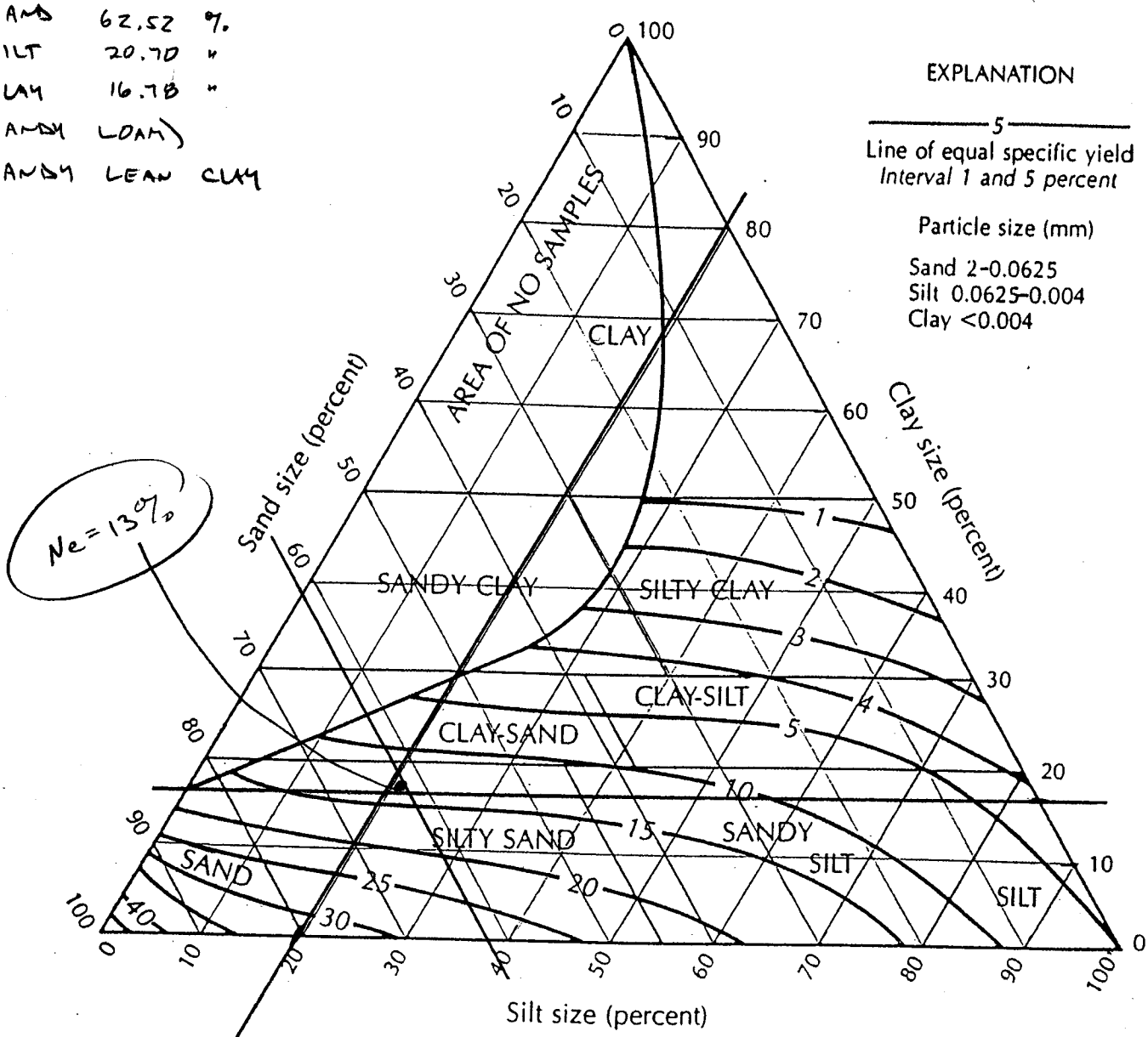


FIGURE 4.8. Textural classification triangle for unconsolidated materials showing the relation between particle size and specific yield. SOURCE: A. I. Johnson, U.S. Geological Survey Water Supply Paper 1662-D, 1967.

JOHNSON, A. I. *Specific Yield—Compilation of Specific Yields for Various Materials.* U.S. Geological Survey Water Supply Paper 1662-D, 1967, 74 pp.

Source: Fetter, C.W., Jr., 1980, Applied Hydrogeology, Charles E. Merril Publishing Company, Columbus Ohio, 488p.

MW-21A
41.5-42.5
SAND 79.42 %
SILT 0.40 "
CLAY 20.18 "
(SANDY CLAY LOAM)
CLAYEY SAND "

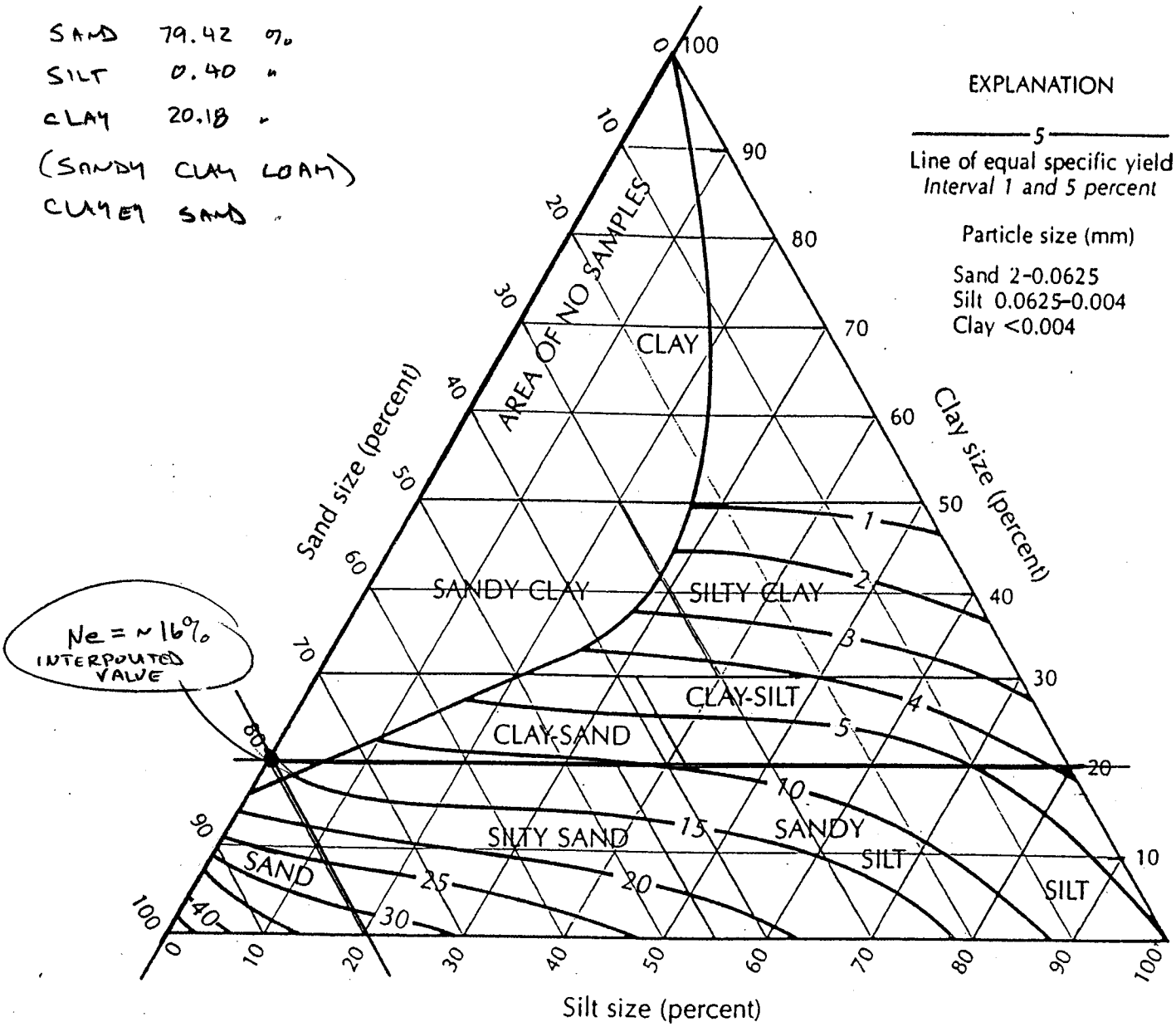


FIGURE 4.8. Textural classification triangle for unconsolidated materials showing the relation between particle size and specific yield. SOURCE: A. I. Johnson, U.S. Geological Survey Water Supply Paper 1662-D, 1967.

JOHNSON, A. I. *Specific Yield—Compilation of Specific Yields for Various Materials.* U.S. Geological Survey Water Supply Paper 1662-D, 1967, 74 pp.

Source: Fetter, C.W., Jr., 1980, Applied Hydrogeology, Charles E. Merril Publishing Company, Columbus Ohio, 488p.

DESIGN HYDROGEOLOGICAL REPORT
APPENDIX E

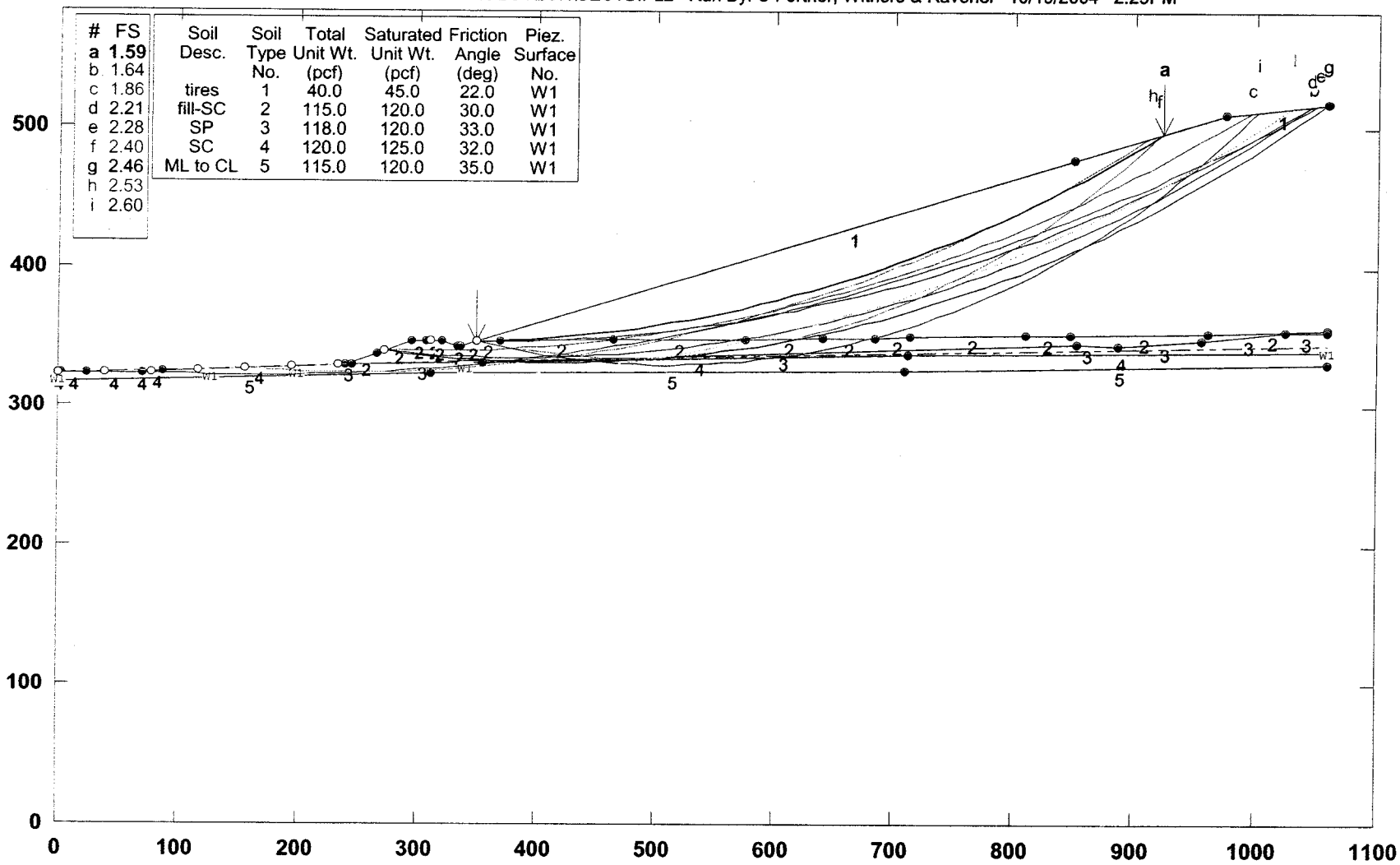
STABILITY RESULTS

Central Carolina Tire Phase 3 Monofill Static Analysis

K:\02\02-330\02334~1.01L\GEOTECH\SECTB.PL2 Run By: C Fortner, Withers & Ravenel 10/19/2004 2:29PM

#	FS
a	1.59
b	1.64
c	1.86
d	2.21
e	2.28
f	2.40
g	2.46
h	2.53
i	2.60

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Friction Angle (deg)	Piez. Surface No.
tires	1	40.0	45.0	22.0	W1
fill-SC	2	115.0	120.0	30.0	W1
SP	3	118.0	120.0	33.0	W1
SC	4	120.0	125.0	32.0	W1
ML to CL	5	115.0	120.0	35.0	W1



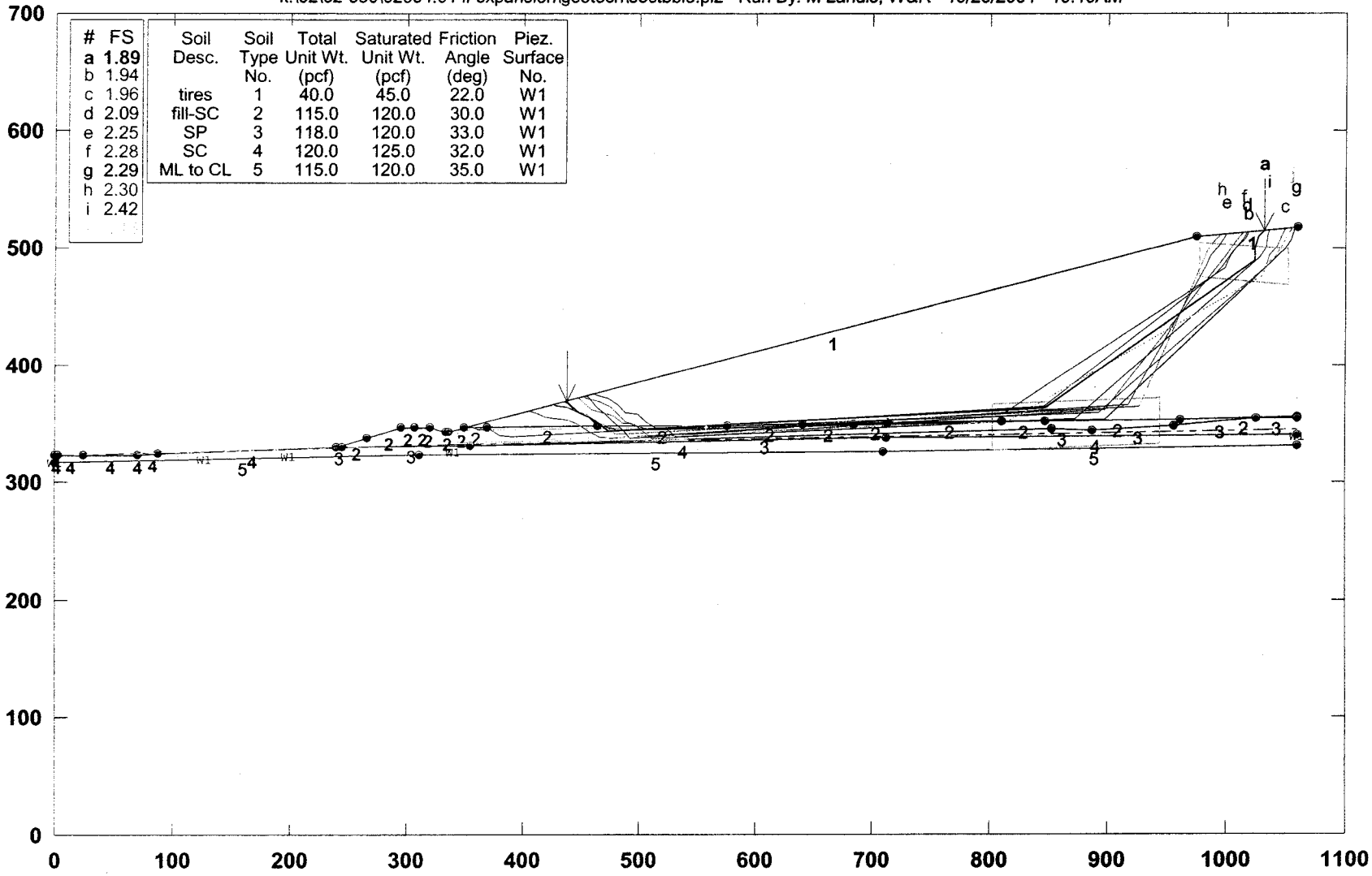
STABL6H FSmin=1.59

Safety Factors Are Calculated By The Modified Bishop Method

STED

Central Carolina Tire Phase 3 Monofill Static Analysis - block3

k:\02\02-330\02334.01 lf expansion\geotech\sectbbl3.pl2 Run By: M Landis, W&R 10/20/2004 10:10AM



STABL6H FSmin=1.89

Safety Factors Are Calculated By The Modified Janbu Method

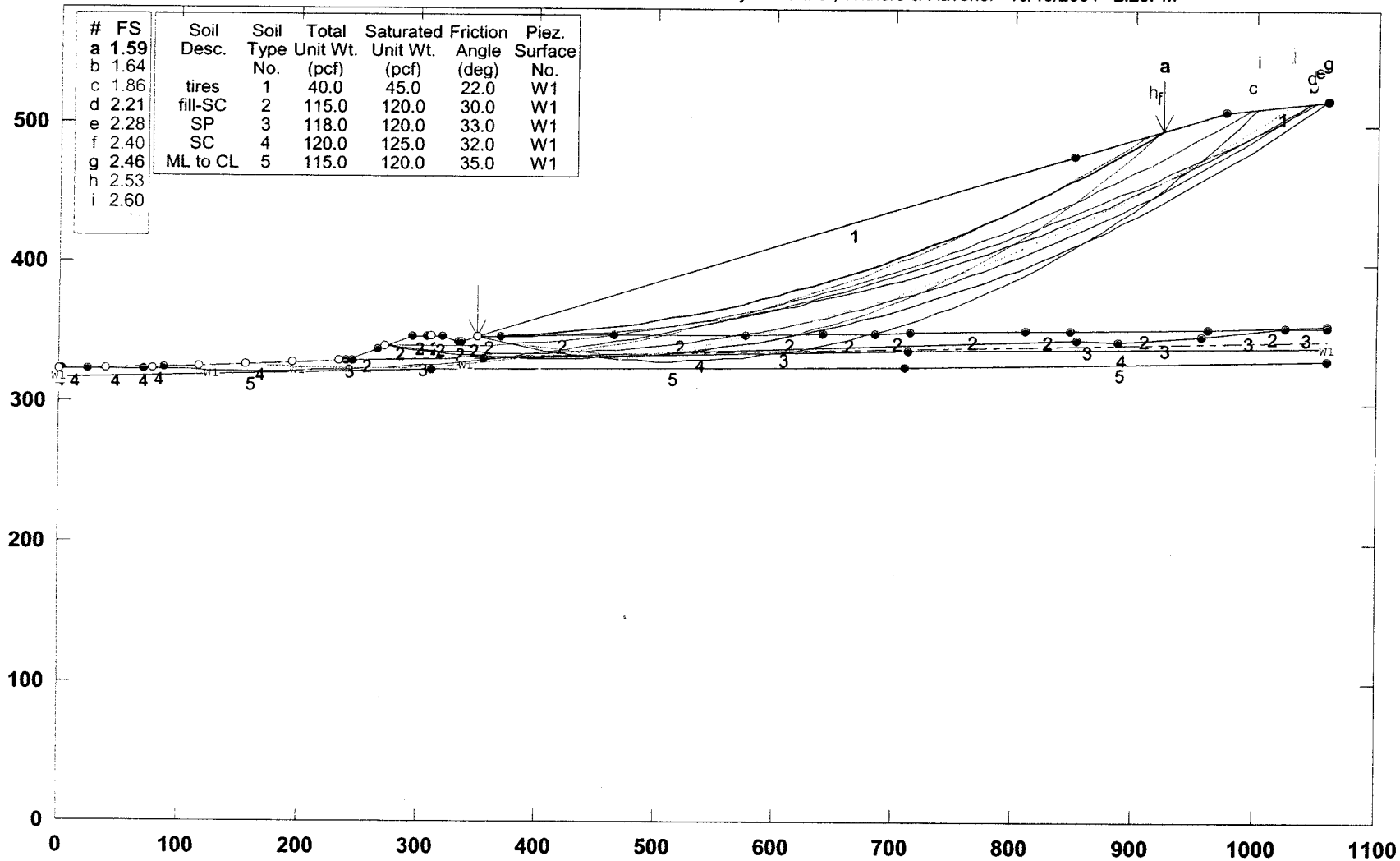
STED

Central Carolina Tire Phase 3 Monofill Static Analysis

K:\02\02-330\02334~1.01L\GEOTECH\SECTB.PL2 Run By: C Fortner, Withers & Ravenel 10/19/2004 2:29PM

#	FS
a	**1.59**
b	1.64
c	1.86
d	2.21
e	2.28
f	2.40
g	2.46
h	2.53
i	2.60

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Friction Angle (deg)	Piez. Surface No.
tires	1	40.0	45.0	22.0	W1
fill-SC	2	115.0	120.0	30.0	W1
SP	3	118.0	120.0	33.0	W1
SC	4	120.0	125.0	32.0	W1
ML to CL	5	115.0	120.0	35.0	W1



STABL6H FSmin=1.59

Safety Factors Are Calculated By The Modified Bishop Method

STED

Central Carolina Tire Phase 3 Monofill Static Analysis - block3

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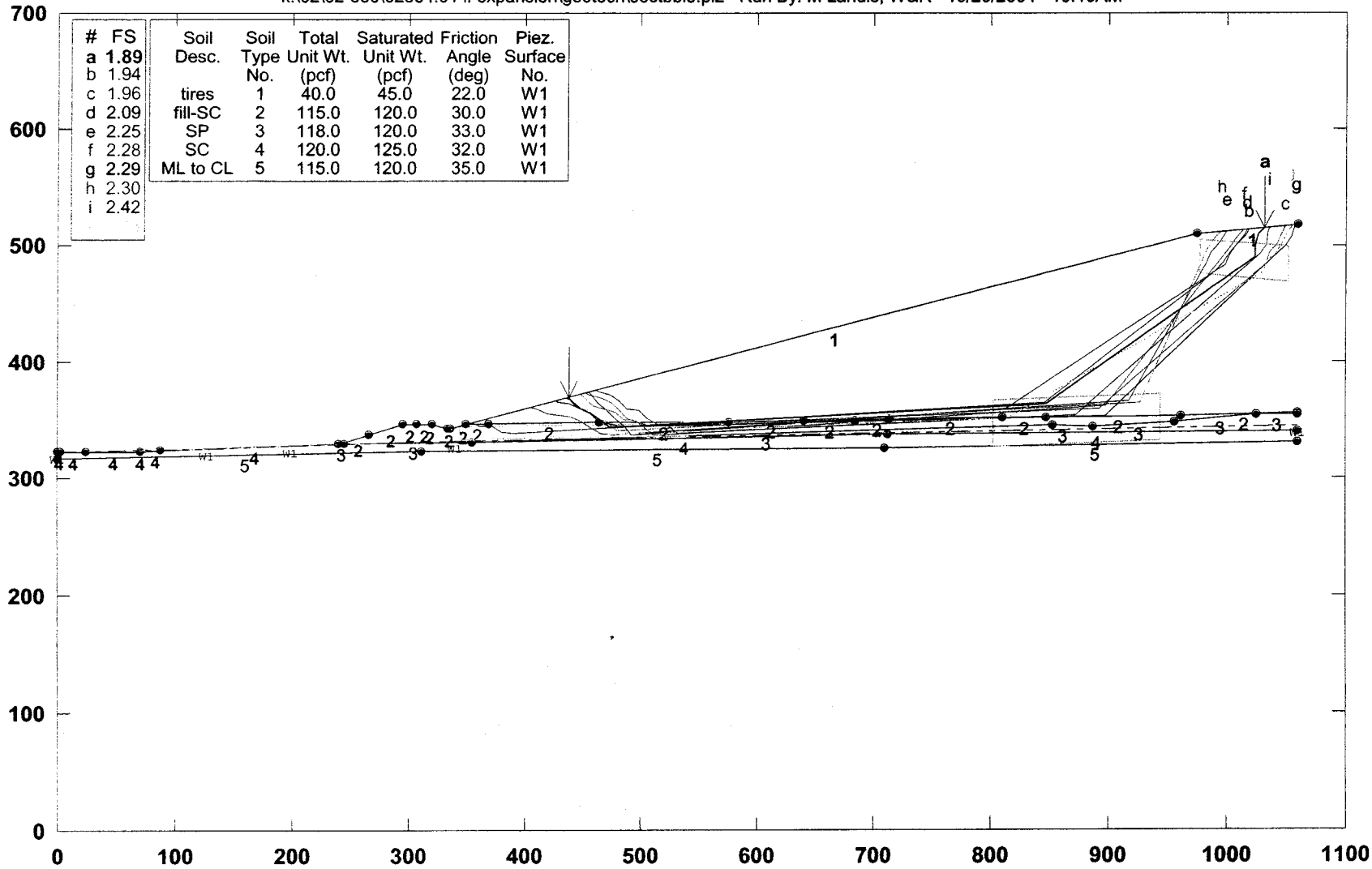


STABL6H FSmin=1.89

Safety Factors Are Calculated By The Modified Janbu Method

STED

DESIGN HYDROGEOLOGICAL REPORT
APPENDIX F

SETTLEMENT EVALUATION RESULTS

JOB NAME **Central Carolina Tire**
SUBJECT **Settlement Evaluation**

COMPUTED BY CMF
CHECKED BY ML

Purpose

Evaluate settlement of in-situ materials and proposed fill for the Central Carolina Tire Phase 3 Tire Monofill. Settlement is evaluated using the Hough method for estimating elastic compression and Terzaghi's method for estimating one-dimensional consolidation for comparison.

Assumptions - Elastic Compression

1) Due to the generally granular nature of the in-situ materials, the method of compression will be elastic.
2) Fill material will be sandy clay with an equivalent average n-value of 15 bpf.
3) Unit weights provided are estimated based on typical values
4) The compressible layer is 50'-thick based on high blow count material at depth (n>40 bpf)
5) Maximum waste and final cover height is 162'. Maximum fill height is 8'

Assumptions - Consolidation Settlement

1) Method of settlement will be one-dimensional consolidation
2) Laboratory one-dimensional consolidation results are applicable to the entire soil column.
3) Unit weights provided are estimated based on typical values
4) The compressible layer is 50'-thick based on high blow count material at depth (n>40 bpf)
5) Maximum waste and final cover height is 162'. Maximum fill height is 8'

Conclusions/Summary

Elastic Compression	<12 inches	See calculations on following sheets
Consolidation	<12 inches	See calculations on following sheets

WITHERS & RAVENEL
ENGINEERS | PLANNERS | SURVEYORS

JOB NO. 202334.01
SHEET NO. 1 of 1
DATE 10/10/2004

JOB NAME **Central Carolina Tire**
SUBJECT **Settlement Evaluation - Elastic**

COMPUTED BY CMF
CHECKED BY ML

Purpose

Evaluate settlement of in-situ materials and proposed fill for the Central Carolina Tire Phase 3 Tire Monofill. Settlement is evaluated using the Hough method for estimating elastic settlement.

N_{avg} = Average SPT N-value for sublayer
$C^{(1)}$ = Hough bearing capacity index (see attached figure)
Dz = Thickness of sublayer
z = Depth to midpoint of sublayer
γ_{wet} = Unit weight of sublayer material
σ_v = Initial vertical stress at bottom of sublayer
σ_o' = Initial vertical stress at mid-depth of sublayer
$\Delta\sigma_z$ = Net increase in vertical stress at mid-depth of sublayer
ρ = Estimated elastic settlement

$$\rho_i = \sum_{i=1}^{n} \frac{H_i}{C_i} \log\left(1 + \frac{\Delta\sigma}{\sigma_0'}\right)_i$$

Elastic settlement of in-situ materials and fill from weight of waste

160' waste @ 40 pcf + 2' final cover system @ 120 pcf = 6640 psf

Sublayers:
1) Fill, assume sandy clay
2) Poorly to well graded sand
3) Sandy clay to clayey sand
4) Silty clay to clayey sand

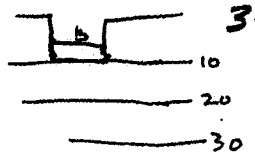
Layer	Depth ft	N_{avg} blows/ft	$C^{(1)}$ dim	Dz ft	z ft	γ_{wet} pcf	σ_v psf	σ_o' psf	$\Delta\sigma_z$ psf	ρ in
1	8	15	44	8	4	120	960	480	6640	2.6
2	13	15	50	5	10.5	120	1560	1260	6640	1.0
3	24	25	70	11	18.5	120	2880	2220	6640	1.1
4	50	36	74	26	37	115	5870	4375	6640	1.7
										6.3 **in.**

(1) Determined from attached figure, ref. Hough (1969)

JOB NAME Central Carolina Tire
SUBJECT Settlement Evaluation - Elastic

COMPUTED BY CMF
CHECKED BY ML

9/
3-16



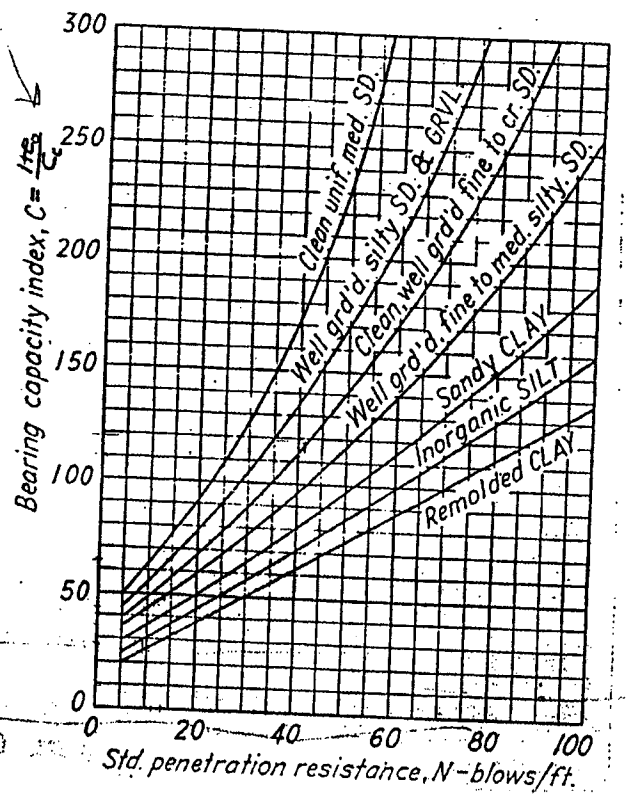
D. Hough (1969)

$$\rho_i = \sum_{i=1}^{n} \frac{H_i}{C_i} \log\left(1 + \frac{\Delta\sigma}{\sigma_o'}\right)_i$$

where H_i = thickness of sublayer "i"
C_i = Bearing capacity index = $\frac{1+e_o}{C_c}$ for sublayer

middle of layer → $\Delta\sigma_z$ = net increase in vertical stress at mid-depth of sublayer
σ_o' = initial effective overburden pressure at mid-depth of sublayer
includes wt conditions

per layer



WITHERS & RAVENEL
ENGINEERS | PLANNERS | SURVEYORS

JOB NO. 202334.01
SHEET NO. 1 of 1
DATE 10/10/2004

JOB NAME **Central Carolina Tire**
SUBJECT **Settlement Evaluation - Consolidation**

COMPUTED BY CMF
CHECKED BY ML

Purpose
Evaluate settlement of in-situ materials and proposed fill for the Central Carolina Tire Phase 3 Tire Monofill.
Settlement is evaluated using the Terzaghi method for one-dimensional consolidation settlement.

Sublayers:
1) Fill, assume sandy clay
2) Poorly to well graded sand
3) Sandy clay to clayey sand
4) Silty clay to clayey sand

$$\Delta H_i = C_r \frac{H_o}{1+e_o} \log \frac{\sigma_{po} + \Delta\sigma_v}{\sigma_{po}}$$

when $\sigma_{vo} + \Delta\sigma_v <= \sigma_{po}$

$$\Delta H_i = C_r \frac{H_o}{1+e_o} \log \frac{\sigma_{po}}{\sigma_{vo}} + C_c \frac{H_o}{1+e_o} \log \frac{\sigma_{vo} + \Delta\sigma_v}{\sigma_{po}}$$

when $\sigma_{vo} + \Delta\sigma_v > \sigma_{po}$

Layer	Depth	Δz	z_{ave}	γ_{wet}	σ_{vo}	σ_{po}	e_o	Cr	Cc	ΔStress	Final Str	log p/v_0	log fin/p_o	log fin/v_o	Δ H
	ft	ft	ft	pcf	psf	psf	dim	dim	dim	psf	psf				ft
1	8	8	4	120	480	6000	0.5778	0.006	0.083	6640	7120	1.10	0.07	1.17	0.065
2	13	5	10.5	120	1260	6000	0.5778	0.006	0.083	6640	7900	0.68	0.12	0.80	0.044
3	24	11	18.5	120	2220	6000	0.5778	0.006	0.083	6640	8860	0.43	0.17	0.60	0.116
4	50	26	37	115	4255	6000	0.5778	0.006	0.083	6640	10895	0.15	0.26	0.41	0.369

50 Thickness of Compressible Layer (ft)

Total Settlement (ft)	**0.594**
Total Settlement (in)	**7.13**

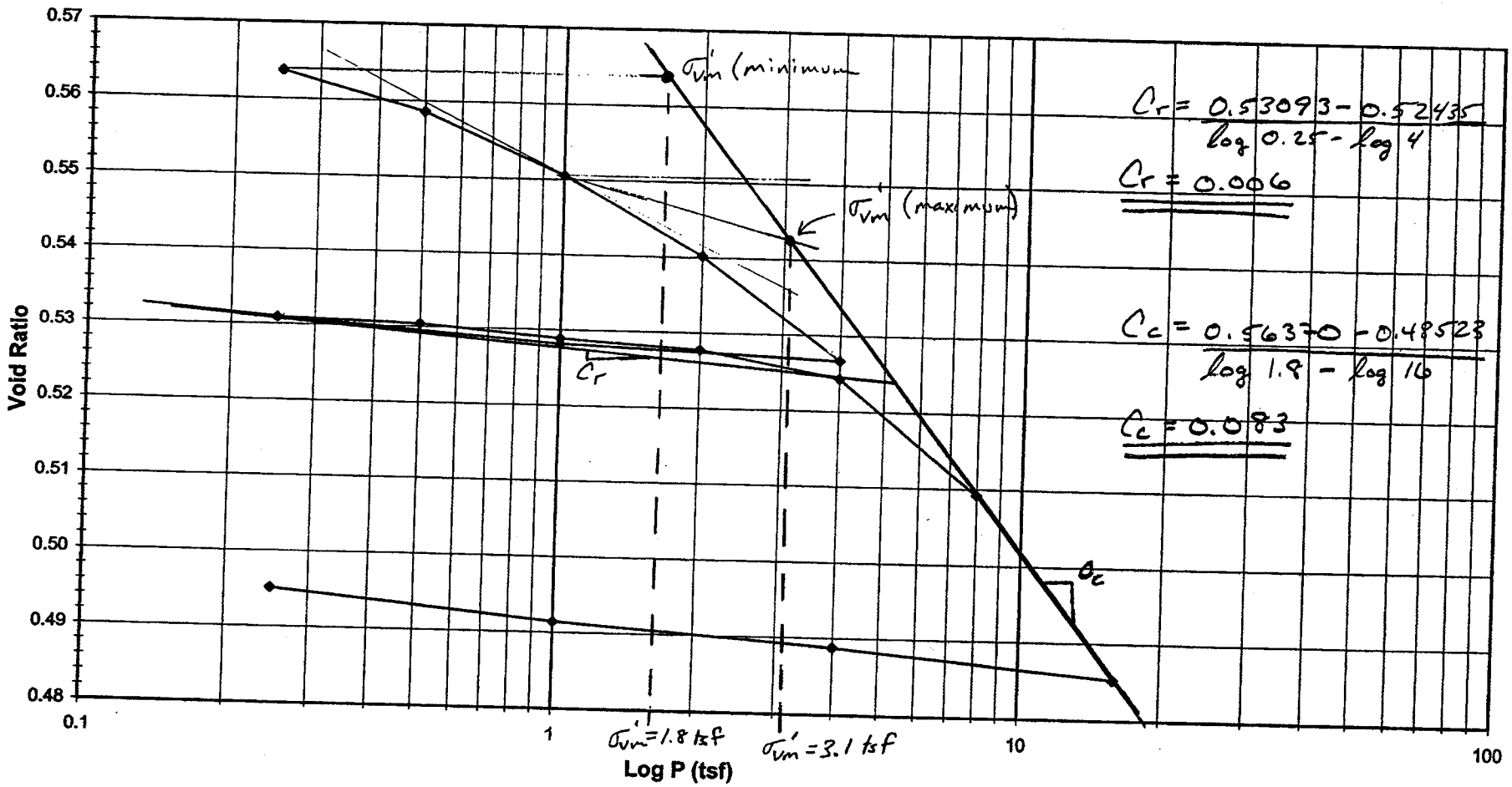
geotechnics

ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-96 (SOP-S24)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By MPS Date 9/29/2004 Approved By GEM Date 10-11-04

DCN: CT-S24F Date: 11/9/00 Revision: 4

\\Lab1\c\2004 Projects\2004-577 W&R\[Copy of 2004-577-01-05 CONFINAL(RALEIGH).xls]Sheet1

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geotechnics

ONE DIMENSIONAL CONSOLIDATION

ASTM D 2435-96 (SOP-S24)

Client	WITHERS & RAVENEL	Boring No.	MW-21A SAND
Client Reference	CCT	Depth (ft)	42.1-42.2
Project No.	2004-577-01	Sample No.	NA
Lab ID	2004-577-01-05	Visual Description	GRAY CLAYEY SAND

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED
Consolidometer No. 276
1 Division = 0.0001 (in)

Sample Properties	Initial	Final
Water Content		
Tare Number	SS-6	Y-6
Wt. Tare & WS (gm)	245.39	268.01
Wt. Tare & DS (gm)	223.33	243.13
Wt. Water (gm)	22.06	24.88
Wt. Tare (gm)	100.98	100.57
Wt. DS (gm)	122.35	142.56
Water Content (%)	18.03	17.45
Sample Parameters		
Sample Diameter (in)	2.5	2.5
Sample Height (in)	1.000	0.948
Sample Volume (cc)	80.44	76.22
Wt. Wet Sample + Ring (gm)	382.90	382.07
Wt. of Ring (gm)	212.61	212.61
Wt. of Wet Sample (gm)	170.29	169.46
Wet Density (pcf)	132.10	138.73
Wet Density (g/cc)	2.12	2.22
Water Content (%)	18.03	17.45
Wt. of Dry Sample (gm)	144.28	144.28
Dry Density (pcf)	111.92	118.12
Dry Density (g/cc)	1.79	1.89
Void Ratio	0.5778	0.4950
Saturation (%)	88.30	99.77
Specific Gravity	2.83	*Assumed*

Test Data Summary

	Applied Pressure (tsf)	Final Dial Reading (div)	Machine Deflection (div)	Corrected Reading (div)	Height of Sample (mm)	Volume (cc)	Dry Density (g/cc)	Void Ratio
	Seating	0	0	0	25.400	80.440	1.79360	**0.57784**
	0.25	101.7	12.1	89.6	25.172	79.719	1.80981	**0.56370**
	0.5	145.3	23.2	122.1	25.090	79.458	1.81577	**0.55857**
	1	212.8	39.8	173.0	24.961	79.048	1.82517	**0.55054**
	2	298.1	59.5	238.6	24.794	78.521	1.83744	**0.54019**
	4	405.6	81.2	324.4	24.576	77.830	1.85373	**0.52665**
	1	370.0	54.9	315.1	24.600	77.905	1.85195	**0.52812**
	0.25	327.6	30.3	297.3	24.645	78.048	1.84855	**0.53093**
	0.5	336.5	35.6	300.9	24.636	78.019	1.84924	**0.53036**
Cr	1	358.1	47.4	310.7	24.611	77.941	1.85111	**0.52881** Cr
	2	381.3	63.5	317.8	24.593	77.883	1.85247	**0.52769**
	4	420.7	81.7	339.0	24.539	77.713	1.85653	**0.52435**
	8	538.5	103.3	435.2	24.295	76.939	1.87521	**0.50917**
	16	713.4	126.5	586.9	23.909	75.719	1.90543	**0.48523**
	4	666.2	101.7	564.5	23.966	75.899	1.90090	**0.48877**
	1	615.4	67.6	547.8	24.009	76.033	1.89754	**0.49140**
	0.25	566.8	42.1	524.7	24.067	76.219	1.89292	**0.49505**

Tested By MPS *Date* 9/29/2004 *Input Checked By* GBM *Date* 10-11-04

DCN: CT-S24F Date: 11/9/00 Revision: 4

\\Lab1\c\2004 Projects\2004-577 W&R\[Copy of 2004-577-01-05 CONFINAL(RALEIGH).xls]Sheet1

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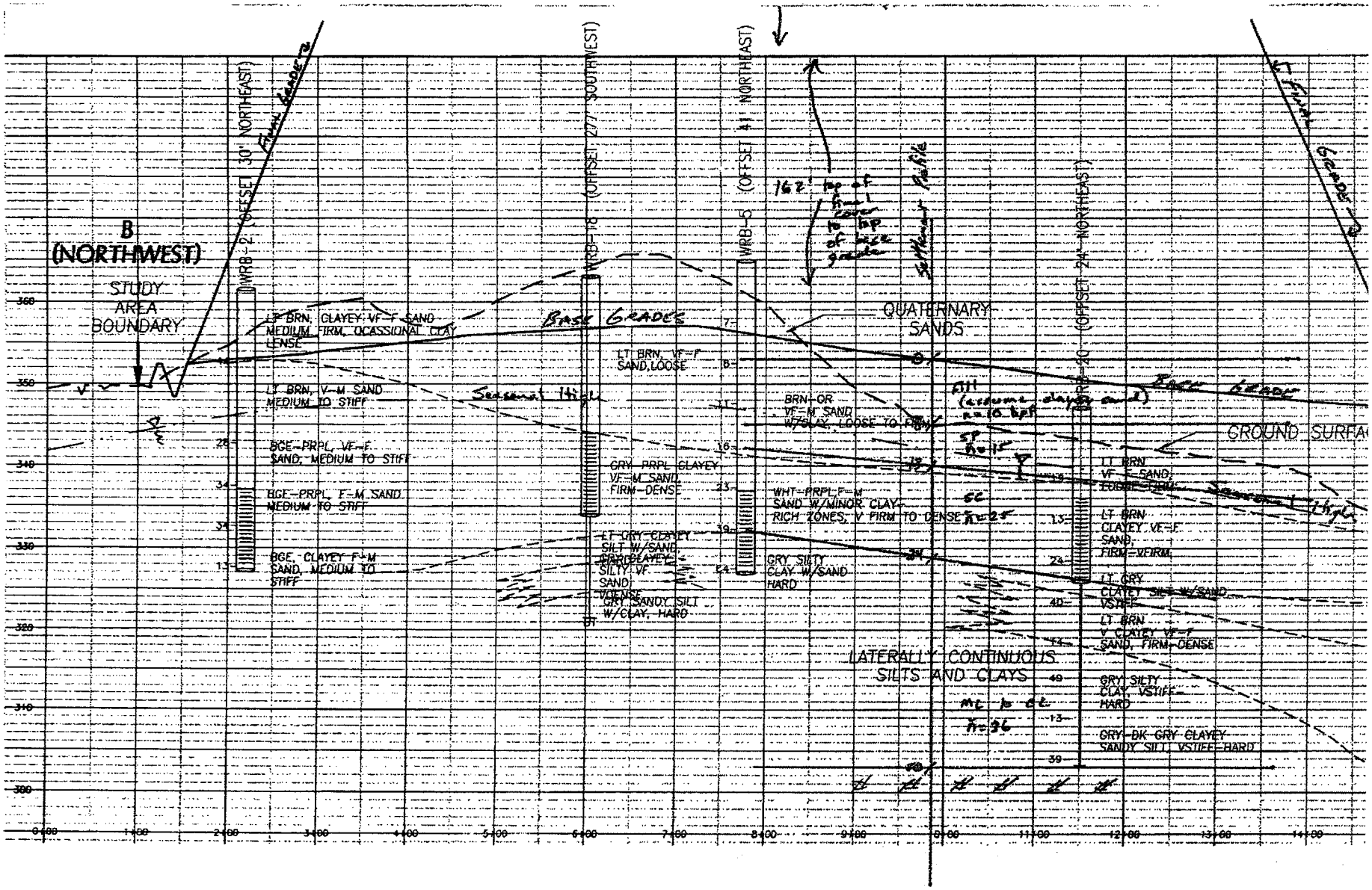
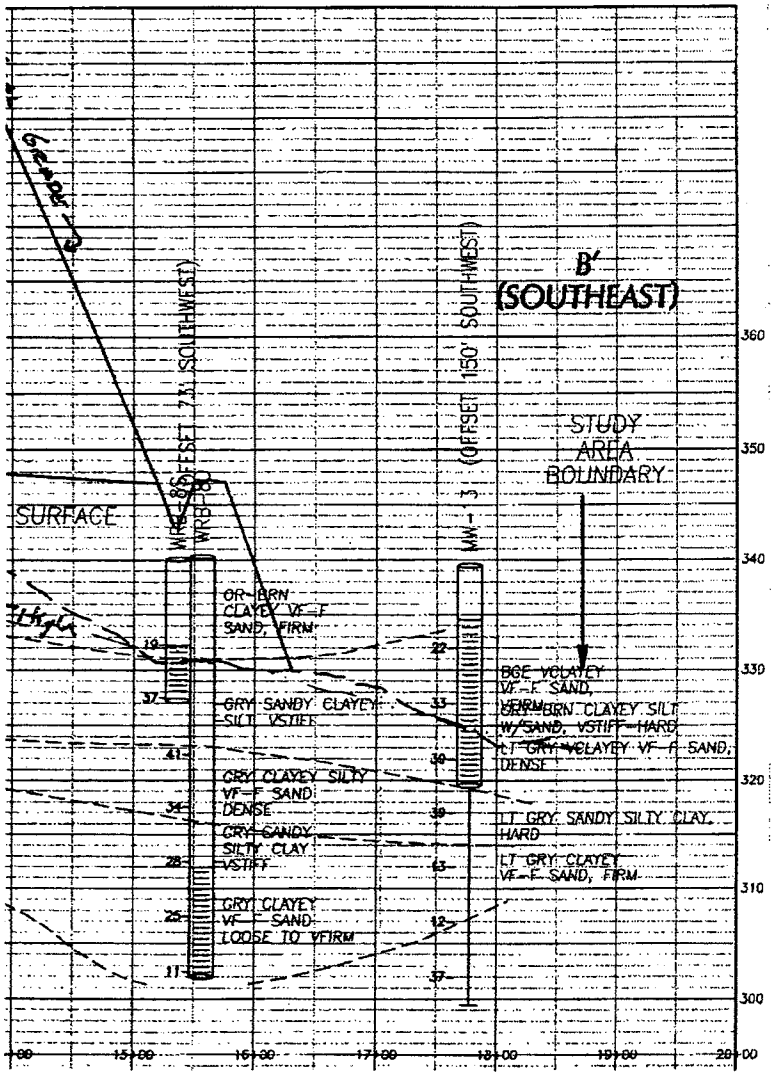


B
(NORTHWEST)
STUDY AREA BOUNDARY
WRB-2 (OFFSET 30' NORTHEAST)
WRB-18 (OFFSET 277' SOUTHWEST)
WRB-5 (OFFSET 41' NORTHEAST)
WRB-20 (OFFSET 24' NORTHEAST)
Final Grade
Base Grades
Seasonal High
QUATERNARY SANDS
162' top of final cover to top of base grade
Settlement Profile
Fill (assume clayey sand) n=10 bpf
SP n=15
SC n=25
ML to CL n=36
GROUND SURFA
LT BRN, CLAYEY VF-F SAND MEDIUM FIRM, OCASSIONAL CLAY LENSE
LT BRN, V-M SAND MEDIUM TO STIFF
BGE-PRPL, VF-F SAND, MEDIUM TO STIFF
BGE-PRPL, F-M SAND MEDIUM TO STIFF
BGE, CLAYEY F-M SAND, MEDIUM TO STIFF
LT BRN, VF-F SAND, LOOSE
GRY PRPL CLAYEY VF-M SAND, FIRM-DENSE
LT GRY CLAYEY SILT W/SAND, GRY CLAYEY SILTY VF SAND, VDENSE
GRY SANDY SILT W/CLAY, HARD
BRN-OR VF-M SAND W/CLAY, LOOSE TO FIRM
WHT-PRPL F-M SAND W/MINOR CLAY-RICH ZONES, V FIRM TO DENSE
GRY SILTY CLAY W/SAND HARD
LT BRN VF-F SAND, LOOSE-FIRM
LT BRN CLAYEY VF-F SAND, FIRM-VFIRM
LT GRY CLAYEY SILT W/SAND, VSTIFF
LT BRN V CLAYEY VF-F SAND, FIRM-DENSE
GRY SILTY CLAY, VSTIFF-HARD
GRY-DK GRY CLAYEY SANDY SILT, VSTIFF-HARD
LATERALLY CONTINUOUS SILTS AND CLAYS
360
350
340
330
320
310
300
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
11+00
12+00
13+00
14+00


B'
(SOUTHEAST)
STUDY
AREA
BOUNDARY
SURFACE
WRB-86 (OFFSET 73' SOUTHWEST)
WRB-80
MW-1 3 (OFFSET 1150' SOUTHWEST)
OR-BRN
CLAYEY VF-F
SAND, FIRM
GRY SANDY CLAYEY
SILT VSTIFF
GRY CLAYEY SILTY
VF-F SAND
DENSE
GRY SANDY
SILTY CLAY
VSTIFF
GRY CLAYEY
VF-F SAND
LOOSE TO VFIRM
BGE VCLAYEY
VF-F SAND,
FIRM
BRN CLAYEY SILT
W/SAND, VSTIFF-HARD
LT GRY VCLAYEY VF-F SAND,
DENSE
LT GRY SANDY SILTY CLAY
HARD
LT GRY CLAYEY
VF-F SAND, FIRM
360
350
340
330
320
310
300
14+00
15+00
16+00
17+00
18+00
19+00
20+00

Appendix C

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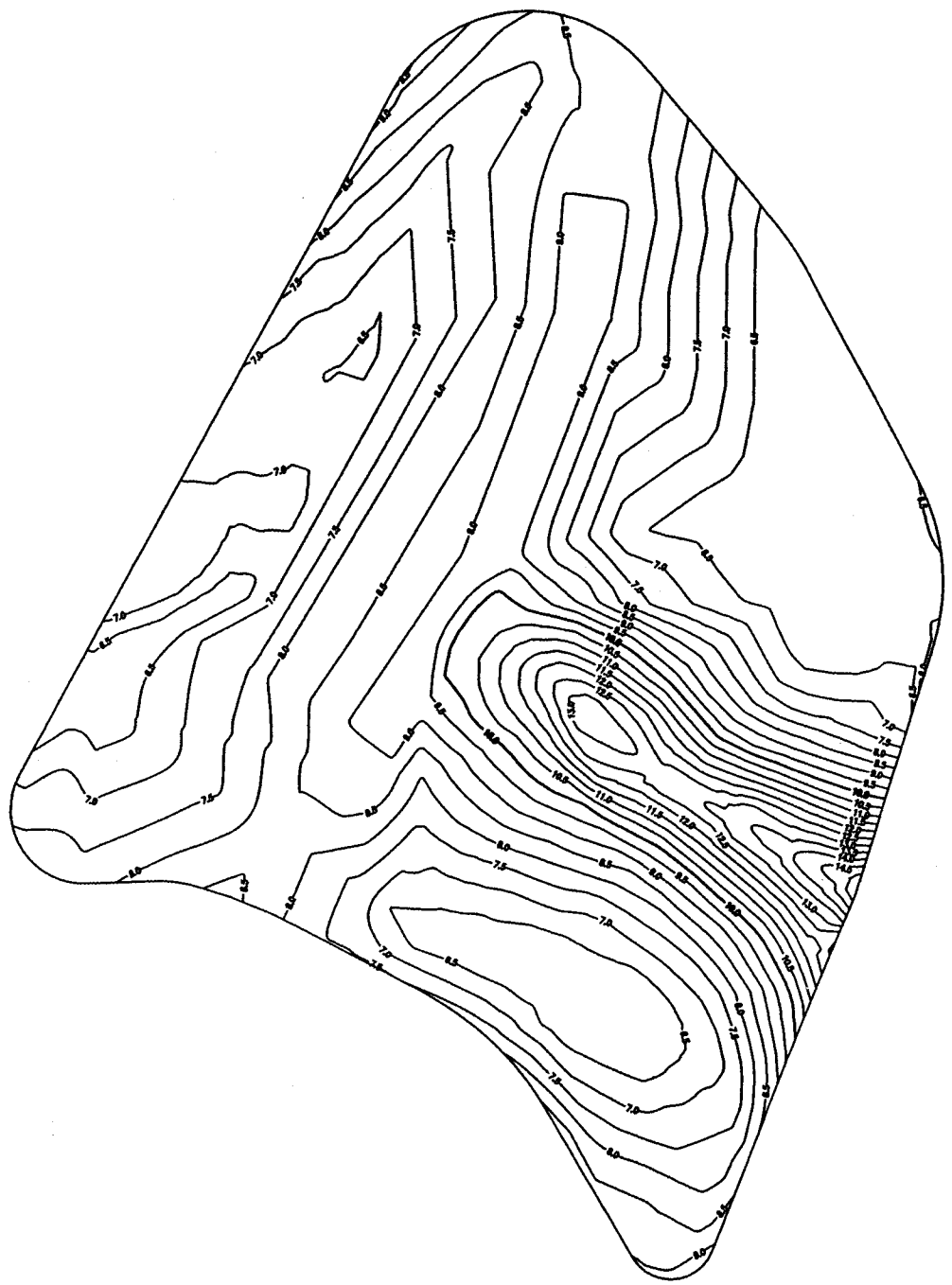
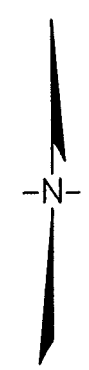




GRAPHIC SCALE 1"=300'

0 300 600 900

No.	Revision	Date	By

Designer W&R	Scale 1"=300'
Drawn By JCI	Date 10/22/04
Checked By SJB	Job No. 202334.01

CENTRAL CAROLINA TIRE
PHASE 3 SCRAP TIRE MONOFILL LANDFILL

HARNETT COUNTY NORTH CAROLINA

VERTICAL SEPARATION BETWEEN SEASONAL HIGH GROUNDWATER AND PHASE 3 BASE GRADES

WITHERS & RAVENEL
ENGINEERS | PLANNERS | SURVEYORS
111 MacKenan Drive Cary, North Carolina 27511
tel: 919-469-3340 www.withersravenel.com fax: 919-535-4545

Figure No. 1

Storm Runoff Calculations

The runoff control system was designed to collect and control the peak discharge resulting from a 25-year, 24-hour storm to comply with NCDENR Solid Waste Regulations.

Precipitation values for the design storm events were obtained for the Central Carolina Tire Monofill Landfill Facility from Appendix 8.03 in the North Carolina Erosion and Sediment Control Planning and Design Manual and are listed below:

Storm Event	Precipitation
2-yr, 24-hr	3.75 inches
10-yr, 24-hr	5.6 inches
25-yr, 24-hr	6.6 inches
100-yr, 24-hr	8.2 inches

Permanent Ditch Calculations

Perimeter landfill stormwater ditches will be constructed and used to transport stormwater that falls on the landfill once the intermediate cover and final cover systems are installed. The ditches will also be used to capture stormwater falling on the undisturbed areas within the proposed landfill footprint prior to waste placement. The following calculations will illustrate that the ditches are sized adequately. Figure 1 illustrates the areas used to size the ditches.

All channels have been designed to accommodate the runoff from 25-year, 24-hour design storm that will fall on the newly constructed cap prior to vegetative growth. The CN used to calculate the runoff from each completed phase will be 86. This corresponds to a hydrologic soil group B, and a cover type/hydrologic condition of newly graded areas (pervious and no vegetation). Runoff is calculated using the SCS method in PondPack. The time of concentration for was calculated using Kirpich (TN).

Perimeter Ditches Areas 1 and 2

Areas 1 and 2 will use perimeter landfill stormwater ditches to route stormwater from the final cover system down to the sedimentation pond 2. This ditch will be sized to handle a flow of 131.86 cfs from the final cover system before being captured in a drop inlet and transported to sediment pond 2. This flow will allow for 1 foot of free board in the ditch during the 25-yr, 24-hour storm event.

Channel:

Slope:	0.0052 ft/ft
Q_{des}	131.86 cfs
n	0.035

Based on FlowMaster Results the ditch will have the following dimensions:

Side slopes	3:1 (H:V)
Bottom width	3 feet
Channel Depth	4 feet (minimum)

FlowMaster results are presented at the end of this summary.

Perimeter Ditch Area 3

Area 3 will use perimeter landfill stormwater ditches to route stormwater from the final cover system down to the sedimentation pond 1. This ditch will be sized to handle a flow of 74.76 cfs from the final cover system before being captured in a drop inlet and transported to sediment pond 1. This flow will allow for 1 foot of free board in the ditch during the 25-yr, 24-hour storm event.

Channel:

Slope:	0.0093 ft/ft
Q_{des}	74.76 cfs
n	0.035

Based on FlowMaster Results the ditch will have the following dimensions:

Side slopes	3:1 (H:V)
Bottom width	3 feet
Channel Depth	4 feet (minimum)

FlowMaster results are presented at the end of this summary.

Perimeter Ditches Areas 4 and 5

Areas 4 and 5 will use perimeter landfill stormwater ditches to route stormwater from the final cover system down to the sedimentation pond 1. This ditch will be sized to handle a flow of 155.85 cfs from the final cover system before being captured in a drop inlet and transported to sediment pond 1. This flow will allow for 1 foot of free board in the ditch during the 25-yr, 24-hour storm event.

Channel:

Slope:	0.0050 ft/ft
Q_{des}	155.85 cfs
n	0.035

Based on FlowMaster Results the ditch will have the following dimensions:

Side slopes	3:1 (H:V)
Bottom width	3 feet
Channel Depth	4 feet (minimum)

FlowMaster results are presented at the end of this summary.

Phase 3A Ditch Calculations

Intermediate landfill stormwater ditches will be constructed and used to transport stormwater that falls on the landfill during operations in phase 3A. The following calculations will illustrate that the ditches are sized adequately. Figure 2 illustrates the areas used to size the ditches.

Phase 3A-1

Area 3A-1 will use intermediate landfill stormwater ditches to route stormwater from phase 3A-1 to the permanent perimeter ditch. This ditch will be sized to handle a flow of 26.86 cfs during the 25-yr, 24-hour storm event.

Channel:

Slope:	0.0016 ft/ft
Q_{des}	26.86 cfs
n	0.035

Based on FlowMaster Results the ditch will have the following dimensions:

Side slopes	3:1 (H:V)
Bottom width	5 feet
Channel Depth	2 feet (minimum)

FlowMaster results are presented at the end of this summary.

Phase 3A-2

Area 3A-2 will use intermediate landfill stormwater ditches to route stormwater from phase 3A-2 to the permanent perimeter. This ditch will be sized to handle a flow of 35.08 cfs during the 25-yr, 24-hour storm event.

Channel:

Slope:	0.0126 ft/ft
Q_{des}	35.08 cfs
n	0.035

Based on FlowMaster Results the ditch will have the following dimensions:

Side slopes	3:1 (H:V)
Bottom width	5 feet
Channel Depth	2 feet (minimum)

FlowMaster results are presented at the end of this summary.

Drop Inlets

In order to route the stormwater off of the cap down to the sedimentation pond a series of drop inlets will be used. These drop inlets will be sized using a Neenah R-4215-C or equivalent grate and a 36-inch RCP. The following calculations were used to determine the number of grates for each pipe.

Drop Inlet Sediment Pond 1

For Sediment Pond 1 three separate drop inlets will be used. The first drop inlet will be a single drop inlet system and will capture and transport runoff from a part of Area 4 (in the routings this area will be 4A). The second drop inlet will be a single drop inlet system and will capture and transport runoff from Area 3. The third will consist of a double drop inlet system and will capture and transport runoff from the other part of Area 4 (4B in the routing) and Area 5.

Area 4A

Drop Inlet #1

Assume 30-inch pipe will have a minimum of 7 feet of head and a minimum slope of 0.50%, this will allow 53.36 cfs to pass through.

Assuming that the area of grate is 70% open and 30% grate, the total area open is:

$$\text{Area} = ((34\text{inch} * 34\text{inch})/144) * .70 = 5.62\ \text{ft}^2/\text{grate}$$

Want to pass 53.36 cfs per drop inlet w/ a maximum head above the grate equal to 3'.

Using orifice equation:

$$Q = C_d * A * (2 * g * h)^{1/2}$$

Where:

C_d = Coefficient of discharge

A = Cross-sectional area of flow at the orifice opening (ft^2)
g = Acceleration of gravity (32.2 ft/sec^2)
h = Drving head (ft)

$$53.36 \text{ cfs} = .6*A*(2*32.2 \text{ ft/sec}^2*3 \text{ ft})^{1/2}$$

$$A = 6.40 \text{ ft}^2$$

Therefore need 2 drop inlet grates per pipe.

Area 3

Drop Inlet #2

Assume 36-inch pipe will have a minimum of 7 feet of head and a minimum slope of 0.50%, this will allow 87.13 cfs to pass through.

Assuming that the area of grate is 70% open and 30% grate, the total area open is:

$$\text{Area} = ((34\text{inch} * 34\text{inch})/144) * .70 = 5.62 \text{ ft}^2/\text{grate}$$

Want to pass 87.13 cfs per drop inlet w/ a maximum head above the grate equal to 3'.

Using orifice equation:

$$Q = C_d*A*(2*g*h)^{1/2}$$

Where:

C_d = Coefficient of discharge
A = Cross-sectional area of flow at the orifice opening (ft^2)
g = Acceleration of gravity (32.2 ft/sec^2)
h = Drving head (ft)

$$87.13 \text{ cfs} = .6*A*(2*32.2 \text{ ft/sec}^2*3 \text{ ft})^{1/2}$$

$$A = 10.45 \text{ ft}^2$$

Therefore need 2 drop inlet grates per pipe.

Area 4B & 5

Drop Inlet #3

Assume 36-inch pipe will have a minimum of 7 feet of head and a minimum slope of 0.5%, this will allow 72.43 cfs to pass through.

Assuming that the area of grate is 70% open and 30% grate, the total area open is:

$$\text{Area} = ((34\text{inch} * 34\text{inch})/144) * .70 = 5.62 \text{ ft}^2/\text{grate}$$

Want to pass 72.43 cfs per drop inlet w/ a maximum head above the grate equal to 3'.

Using orifice equation:

$$Q = C_d*A*(2*g*h)^{1/2}$$

Where:

C_d = Coefficient of discharge
A = Cross-sectional area of flow at the orifice opening (ft^2)
g = Acceleration of gravity (32.2 ft/sec^2)
h = Drving head (ft)

$$72.43 \text{ cfs} = .6*A*(2*32.2 \text{ ft/sec}^2*3 \text{ ft})^{1/2}$$

$$A = 8.68 \text{ ft}^2$$

Therefore need 2 drop inlet grates per pipe.

Drop Inlet Sediment Pond 2

For Sediment Pond 2 one double drop inlet will be used and will capture runoff from Area 1 and 2.

Area 1 & 2

Drop Inlet #4

Assume 36-inch pipe will have a minimum of 7 feet of head and a minimum slope of 1.66%, this will allow 87.93 cfs to pass through.

Assuming that the area of grate is 70% open and 30% grate, the total area open is:

$$\text{Area} = ((34\text{inch} * 34\text{inch})/144) * .70 = 5.62 \text{ ft}^2/\text{grate}$$

Want to pass 87.93 cfs per drop inlet w/ a maximum head above the grate equal to 3'.

Using orifice equation:

$$Q = C_d*A*(2*g*h)^{1/2}$$

Where:

C_d = Coefficient of discharge
A = Cross-sectional area of flow at the orifice opening (ft^2)
g = Acceleration of gravity (32.2 ft/sec^2)
h = Drving head (ft)

$$87.93 \text{ cfs} = .6*A*(2*32.2 \text{ ft/sec}^2*3 \text{ ft})^{1/2}$$

$$A = 10.54 \text{ ft}^2$$

Therefore need 2 drop inlet grates per pipe.

Number of Drop Inlets Required

Sediment Pond 1 Drop Inlet #1 Area 4A

Q = 44.88 cfs (Condition prior to waste placement, after waste placement a flow of 21.05 cfs will be captured)

Using Culvert Master a single drop inlet with a 30-inch RCP pipe will be required.

Sediment Pond 1 Drop Inlet #2 Area 3

Q = 74.76 cfs

Using Culvert Master a single drop inlet with a 36-inch RCP pipe will be required.

Sediment Pond 1 Drop Inlet #3 Areas 4B & 5

Q = 134.80 cfs

Using Culvert Master a double drop inlet with a 36-inch RCP pipe will be required.

Sediment Pond 2 Drop Inlet Areas 1 & 2

Q = 131.86 cfs

Using Culvert Master a double drop inlet with a 36-inch RCP pipe will be required.

Culvert Master results are attached at the end of this summary.

Locations of the drop inlets are illustrated on the engineering drawings.

Channel Lining Calculations

Using the flow rates obtained in the runoff calculations, the flow depth and flow velocity the desired channel lining was determined. The permissible velocity of the channel lining was then compared with the predicted channel velocity and unit shear stress, and if it was not satisfactory, a new lining was evaluated. Channel Lining calculations are provided in the following section. For each ditch specified below a temporary channel lining of North American Green Blanket, C125/C150BN with a maximum permissible shear stress of 2.25 psf was used. The permanent lining will be Tall Fescue with a permissible velocity of 4.5 ft/sec.

Ditch Area 1

Permissible Shear Stress

$$T = y*d*s$$

Where:

y = unit weight of water, 62.4 lbs/ft^3
d = flow depth (ft)
s = channel gradient (ft/ft)

Based on FlowMaster Results attached to this summary following Permissible shear stress was calculated:

$$T = 62.4\ lbs/ft^3 * 2.00\ ft * 0.0052\ ft/ft$$
$$T = 0.65\ lbs/ft^2$$

The velocity is 3.36 ft/sec as calculated by Flow Master.

Ditch Area 2

Permissible Shear Stress

$$T = y*d*s$$

Where:

y = unit weight of water, 62.4 lbs/ft^3
d = flow depth (ft)
s = channel gradient (ft/ft)

Based on FlowMaster Results attached to this summary following Permissible shear stress was calculated:

$T = 62.4\ lbs/ft^3 * 2.13\ ft * 0.0054\ ft/ft$
$T = 0.72\ lbs/ft^2$

The velocity is 3.56 ft/sec as calculated by Flow Master.

Ditch Area 3

Permissible Shear Stress

$T = y*d*s$

Where:
y = unit weight of water, 62.4 lbs/ft^3
d = flow depth (ft)
s = channel gradient (ft/ft)

Based on FlowMaster Results attached to this summary following Permissible shear stress was calculated:

$T = 62.4\ lbs/ft^3 * 1.93\ ft * 0.0093\ ft/ft$
$T = 1.12\ lbs/ft^2$

The velocity is 4.40 ft/sec as calculated by Flow Master.

Ditch Area 4

Permissible Shear Stress

$T = y*d*s$

Where:
y = unit weight of water, 62.4 lbs/ft^3
d = flow depth (ft)
s = channel gradient (ft/ft)

Based on FlowMaster Results attached to this summary following Permissible shear stress was calculated:

$T = 62.4\ lbs/ft^3 * 1.58\ ft * 0.0050\ ft/ft$
$T = 0.49\ lbs/ft^2$

The velocity is 2.88 ft/sec as calculated by Flow Master.

Ditch Area 5

Ditch Area 5 was broken up into two calculations due to a slope change. Area 5A captures stormwater from a portion of phase 3 and has a slope of 0.84%. Area 5 is used to calculate what flow is expected at the drop inlet. This area 5 uses a slope of 0.52%.

Permissible Shear Stress Area 5A

$T = y*d*s$

Where:

y = unit weight of water, 62.4 lbs/ft^3
d = flow depth (ft)
s = channel gradient (ft/ft)

Based on FlowMaster Results attached to this summary following Permissible shear stress was calculated:

$T = 62.4\ lbs/ft^3 * 1.95ft * 0.0084\ ft/ft$
$T = 1.02\ lbs/ft^2$

The velocity is 4.21 ft/sec as calculated by Flow Master.

Permissible Shear Stress Area 5

$T = y*d*s$

Where:

y = unit weight of water, 62.4 lbs/ft^3
d = flow depth (ft)
s = channel gradient (ft/ft)

Based on FlowMaster Results attached to this summary following Permissible shear stress was calculated:

$T = 62.4\ lbs/ft^3 * 2.71ft * 0.0052\ ft/ft$
$T = 0.88\ lbs/ft^2$

The velocity is 4.01 ft/sec as calculated by Flow Master.

Ditch Phase 3A-1

Permissible Shear Stress

$T = y*d*s$

Where:

y = unit weight of water, 62.4 lbs/ft^3
d = flow depth (ft)
s = channel gradient (ft/ft)

Based on FlowMaster Results attached to this summary following Permissible shear stress was calculated:

$T = 62.4\ lbs/ft^3 * 1.59\ ft * 0.0016\ ft/ft$
$T = 0.16\ lbs/ft^2$

The velocity is 1.73 ft/sec as calculated by Flow Master.

Ditch Phase 3A-2

Permissible Shear Stress

$T = y*d*s$

Where:

y = unit weight of water, 62.4 lbs/ft^3
d = flow depth (ft)
s = channel gradient (ft/ft)

Based on FlowMaster Results attached to this summary following Permissible shear stress was calculated:

$T = 62.4\ lbs/ft^3 * 1.08\ ft * 0.0126\ ft/ft$
$T = 0.85\ lbs/ft^2$

The velocity is 3.94 ft/sec as calculated by Flow Master

Sediment Pond Calculations

A full routing for each sediment pond was performed using the PondPack program from Haestad Methods. The pond was modeled using design contours and outlet structures. Sediment ponds have adequate storage to detain the first 1-inch of runoff from the site.

The Sediment Pond routing is attached at the end of this report including minimum drain time and first flush volumes.

Storm Runoff Using SCS Peak Discharge Method

Sediment Pond 1

The drainage areas going to sediment pond 1 was divided into 3 drainage areas. The first drainage area is for Area 3, the second drainage area is Areas 4 & 5 and the third drainage area is for the sediment pond. Based on this the following input results were entered into PondPack.

Sediment Pond 1 was also routed to include 1 foot of sediment buildup on the bottom of the pond and continue to function properly without overtopping.

The following are input parameters entered into PondPack for Areas 3:

CN: 86
Area: 9.91 acres

Time of Concentration

Using Kirpich (TN)

Hydraulic Length	1888 ft
Slope	0.094 ft/ft

The time of concentration for Area 3 is 0.1076 hrs or 6.46 minutes.

The following are input parameters entered into PondPack for Areas 4&5:

CN: 86
Area: 20.66 acres

Time of Concentration

Using Kirpich (TN)

Hydraulic Length	2200 ft
Slope	0.076 ft/ft

The time of concentration for Areas 4&5 is 0.1314 hrs or 7.88 minutes.

The following are input parameters entered into PondPack for Pond Area:

CN: 98
Area: 2.82 acres

The time of concentration for the pond area is 5 minutes.

Pond Volume Inputs:

Elevation (ft)	Area (acres)
337.5	1.40
338	1.45
339	1.55
340	1.66
341	1.76
342	1.87
343	1.98
344	2.09
345	2.20

Riser/Barrel Inputs:

Riser:

Invert Elevation	341.5 ft
Diameter	5.0 ft
Orifice Coefficient	0.6
Weir Coefficient	3.0

Barrel:

Diameter	3.0 ft
Upstream Invert	337.54 ft
Downstream Invert	337.0 ft
Horizontal Length	106.31 ft
Type Pipe	CMP
Mannings n	0.022

Orifice Inputs:

Orifice 1:

# of Openings	10
Invert Elevation	337.5 ft
Diameter	0.167 ft
Orifice Coeff.	0.6

Orifice 2:

# of Openings	10
Invert Elevation	338.5 ft
Diameter	0.167 ft
Orifice Coeff.	0.6

Weir Inputs:

Weir:

Invert Elevation	343.0 ft
Weir Coefficient	3.0
Weir Length	20 ft

For pond with 1-foot of sediment buildup orifice 1 will not operate.

Detailed routings from PondPack are presented at the end of this summary.

Results Table

Structure #	Pre-Dev. Drainage Area (AC)	Post-Dev. Drainage Area (AC)	Pre-Dev. Flow Q 10 (cfs)	Post-Dev. Flow Q 10 (cfs)
Sediment Pond	19.42	33.39	44.36	13.46
Sediment Pond w/ 1 ft sediment buildup	-	-	44.36	30.66

Sedimentology

Trapping Efficiency

Based on the studies performed by Barfield and Clark a trapping efficiency greater than 75% can be calculated as follows:

$$A = 0.01*q$$

Where:

A = basin surface area at crest of principal spillway
q= peak inflow from 2-year storm

$$A = 0.01 * 115.43 \text{ cfs} = 1.15 \text{ acres}$$

The pond has a surface area of 1.82 acres at the principal spillway height therefore the pond will meet the trapping efficiency of 75% during the 2-year storm event.

Sediment Storage Volume

The required sediment storage volume below the crest of the principal spillway is as follows:

$$\text{Sediment Storage Volume} = 1800 \text{ ft}^3/\text{acre} * \text{drainage area}$$

$$= 1800 \text{ ft}^3/\text{acre} * 33.39 \text{ acres} = 60{,}102 \text{ ft}^3$$

The current pond has a storage volume of 280,125 ft^3. Therefore there is enough storage below the riser to help ensure trapping efficiency.

Sediment Pond Dissipator Calculations

Riprap outlet protection or energy dissipators will be installed at the location the sediment pond discharges. The purpose for using the riprap outlet protection is to convert high-velocity, concentrated pipe flow into low-velocity, open channel flow. All energy dissipators will be sized based on the flows from the 25-year, 24-hour design storm. The following is the method used for sizing the energy dissipators.

From the North Carolina Erosion and Sediment Control Planning and Design Manual the following steps were used to size the energy dissipators.

Step 1: Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe.

Step 2: Determine the d_{50} riprap size and minimum apron length (L_a) from either figure 8.06a or 8.06b depending on the results from step 1.

Step 3: Determine the apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in step 2.

$$\text{Apron Width at Pipe Outlet} = 3 \times D_0$$

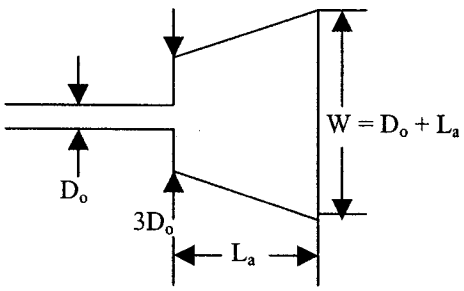
$$\text{Apron Width at Outlet End} = D_0 + L_a$$

Step 4: Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

Step 5: Determine the apron thickness:

$$\text{Apron thickness} = 1.5 \times d_{max}$$



D_0 = diameter of outlet pipe
L_a = length of apron
W = width of end of apron

Summary Table

Energy Dissipator #	Pipe Diameter (D_o) (in)	$Q_{25\text{-}yr}$ (cfs)	d_{50} (ft)	d_{max} (ft)	Apron Thickness (ft)	L_a (ft)	Width (ft)	$3D_0$ (ft)
1	36	50.03	0.5	0.75	1.125	20	23	9
2	30	53.36	0.7	1.05	1.575	24	26.5	7.5
3	36	87.13	1.0	1.5	2.25	30	33	9
4*	two-36	72.44	0.8	1.2	1.8	26	29	9

* Size of Energy Dissipator for each pipe

Buoyancy Force Under Riser/Barrel Structure

The following calculations will be used to verify that the riser will not float when placed in the pond on top of the proposed base.

The 5'-diam CMP riser is 4' tall. Assume $\gamma_{concrete}$ = 150 pcf. The proposed base for the riser is 7'*7'*2'.

$F_b = [\pi*(5.0')^2/4]*4'*62.4$ pcf = 4,900 lbs

W = (7'*7'*2')*150 pcf = 14,700 lb

FS = 14,700 lbs/4,900 lbs = 3

A table summarizing the outlet structures is presented on the engineering drawings.

Sediment Pond 2

The drainage areas going to sediment pond 2 was divided into 3 drainage areas. The first drainage area is for Area 1, the second drainage area is Area 2 and the third drainage area is for the sediment pond. Based on this the following input results were entered into PondPack.

Sediment Pond 2 was also routed to include 1 foot of sediment buildup on the bottom of the pond and continue to function properly without overtopping.

The following are input parameters entered into PondPack for Areas 1:

CN: 86
Area: 8.02 acres

Time of Concentration

The time of concentration for Area 1 is 5 minutes.

The following are input parameters entered into PondPack for Area 2:

CN: 86
Area: 9.46 acres

Time of Concentration

The time of concentration for Area 2 is 5 minutes.

The following are input parameters entered into PondPack for Pond Area:

CN: 98
Area: 1.89 acres

The time of concentration for the pond area is 5 minutes.

Pond Volume Inputs:

Elevation (ft)	Area (acres)
338	0.80
342	1.08
344	1.23
345	1.31

Riser/Barrel Inputs:

Riser:

Invert Elevation	343.0 ft
Diameter	5.0 ft
Orifice Coefficient	0.6
Weir Coefficient	3.0

Barrel:

Diameter	2.5 ft
Upstream Invert	338.04 ft
Downstream Invert	337.62 ft
Horizontal Length	83.38 ft
Type Pipe	CMP
Mannings n	0.022

Orifice Inputs:

Orifice 1:

# of Openings	10
Invert Elevation	338.04 ft
Diameter	0.167 ft
Orifice Coeff.	0.6

Orifice 2:

# of Openings	10
Invert Elevation	339.0 ft
Diameter	0.167 ft
Orifice Coeff.	0.6

Weir Inputs:

Weir:

Invert Elevation	343.5 ft
Weir Coefficient	3.0
Weir Length	30 ft

For pond with 1-foot of sediment buildup orifice 1 will not operate.

Detailed routings from PondPack are presented at the end of this summary.

Results Table

Structure #	Pre-Dev. Drainage Area (AC)	Post-Dev. Drainage Area (AC)	Pre-Dev. Flow Q 10 (cfs)	Post-Dev. Flow Q 10 (cfs)
Sediment Pond	1.63	19.37	6.09	3.90
Sediment Pond w/ 1-ft Sediment buildup	-	-	6.09	5.80

Sedimentology

Trapping Efficiency

Based on the studies performed by Barfield and Clark a trapping efficiency greater than 75% can be calculated as follows:

$$A = 0.01*q$$

Where:

A = basin surface area at crest of principal spillway
q= peak inflow from 2-year storm

$$A = 0.01 * 73.80 \text{ cfs} = 0.74 \text{ acres}$$

The pond has a surface area of 1.16 acres at the principal spillway height therefore the pond will meet the trapping efficiency of 75% during the 2-year storm event.

Sediment Storage Volume

The required sediment storage volume below the crest of the principal spillway is as follows:

$$\text{Sediment Storage Volume} = 1800 \text{ ft}^3/\text{acre} * \text{drainage area}$$

$$= 1800 \text{ ft}^3/\text{acre} * 19.37 \text{ acres} = 34{,}866 \text{ ft}^3$$

The current pond has a storage volume of 212,301 ft^3. Therefore there is enough storage below the riser to help ensure trapping efficiency.

Sediment Pond Dissipator Calculations

Riprap outlet protection or energy dissipators will be installed at the location the sediment pond discharges. The purpose for using the riprap outlet protection is to convert high-velocity, concentrated pipe flow into low-velocity, open channel flow. All energy dissipators will be sized based on the flows from the 25-year, 24-hour design storm. The following is the method used for sizing the energy dissipators.

From the North Carolina Erosion and Sediment Control Planning and Design Manual the following steps were used to size the energy dissipators.

Step 1: Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe.

Step 2: Determine the d_{50} riprap size and minimum apron length (L_a) from either figure 8.06a or 8.06b depending on the results from step 1.

Step 3: Determine the apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in step 2.

$$\text{Apron Width at Pipe Outlet} = 3 \times D_0$$

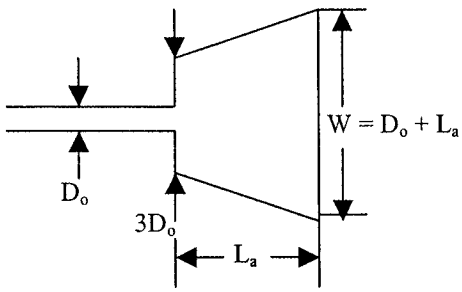
$$\text{Apron Width at Outlet End} = D_0 + L_a$$

Step 4: Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

Step 5: Determine the apron thickness:

$$\text{Apron thickness} = 1.5 \times d_{max}$$



D_0 = diameter of outlet pipe
L_a = length of apron
W = width of end of apron

Summary Table

Energy Dissipator #	Pipe Diameter (D_0) (in)	$Q_{25\text{-}yr}$ (cfs)	d_{50} (ft)	d_{max} (ft)	Apron Thickness (ft)	L_a (ft)	Width (ft)	$3D_0$ (ft)
5	30	18.12	0.5	0.75	1.125	20	23	9
6*	Two-36	87.93	1.0	1.5	2.25	30	33	9

* Size of Energy Dissipator for each pipe

Buoyancy Force Under Riser/Barrel Structure

The following calculations will be used to verify that the riser will not float when placed in the pond on top of the proposed base.

The 5'-diam CMP riser is 5' tall. Assume $\gamma_{concrete}$ = 150 pcf. The proposed base for the riser is 7'*7'*2'.

$F_b = [\pi*(5.0')^2/4]*5'*62.4$ pcf = 6,126 lbs

W = (7'*7'*2')*150 pcf = 14,700 lb

FS = 14,700 lbs/6,126 lbs = 2.4

A table summarizing the outlet structures is presented on the engineering drawings.

Downdrain Sizing

Downdrains and terrace ditches will be used to capture stormwater falling onto the closed landfill. All downdrains and terrace ditches have been sized as follows:

Terrace Ditch

The terrace dicth was sized to handle a maximum acre coming to it before being captured in a downdrain. The following is the calculation used to get the maximum acreage:

Ditch will have the following dimensions:

Side slopes	3.5:1 (H:V)
Right Side slope	3:1 (H:V)
Bottom width	3 feet
Channel Depth	1.5 feet

FlowMaster results calculate that the ditch will be able to convey 32.92 cfs. The depth of 1.5 feet will allow the ditch to have 0.5 feet of freeboard. The actual depth of the ditch will be 2 feet. FlowMaster results are presented at the end of this summary.

Once the flow was calculated the rational method was used to calculate the maximum area the ditch can capture.

$$Q = C*I*A$$

Where:

Q = desired flow (cfs)
C = rational coefficient corresponding to a CN = 86Based on a CN of 86 for newly graded areas (converted using C_{hrm} = .0193 CN - .91 from Elements of Urban Stormwater Design by H. Rooney Malcom, P.E.)
I = Rainfall intensity (in/hr) (Using rainfall intensity from Figure 8.03d for Raleigh for the 10-yr storm with a Tc = 5minutes
A = area that can be captured

32.92 cfs = 0.75*8 in/hr*A

A = 5.49 acres

Downdrains will be placed such that each terrace ditch will have no greater than 5.49 acres draining to it.

Downdrain Sizing

Downdrains were sized using FlowMaster assuming open channel flow. Each downdrain will be 24-inches in diameter and will be placed such that the maximum flow going to anyone downdrain will not exceed 130.99 cfs. The following was entered into FlowMaster:

Mannings Coefficient	0.012
Channel Slope	0.2857 ft/ft
Diameter	24 in.

FlowMaster results are presented at the end of this summary.

FlowMaster Ditch Design Results

LF Ditch Area 1
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	LF Area 1
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.035	
Channel Slope	005200	ft/ft
Left Side Slope	3.00	H : V
Right Side Slope	3.00	H : V
Bottom Width	3.00	ft
Discharge	60.50	cfs

Results		
Depth	2.00	ft
Flow Area	18.0	ft²
Wetted Perim	15.65	ft
Top Width	15.00	ft
Critical Depth	1.48	ft
Critical Slope	0.019287	ft/ft
Velocity	3.36	ft/s
Velocity Head	0.18	ft
Specific Energ	2.18	ft
Froude Numb	0.54	
Flow Type	Subcritical	

LF Ditch Area 2
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	LF Area 2
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.035	
Channel Slope	005400	ft/ft
Left Side Slope	3.00	H : V
Right Side Slope	3.00	H : V
Bottom Width	3.00	ft
Discharge	71.36	cfs

Results		
Depth	2.13	ft
Flow Area	20.1	ft²
Wetted Perim	16.50	ft
Top Width	15.81	ft
Critical Depth	1.61	ft
Critical Slope	0.018866	ft/ft
Velocity	3.56	ft/s
Velocity Head	0.20	ft
Specific Energ	2.33	ft
Froude Numb	0.56	
Flow Type	Subcritical	

LF Ditch Area 3
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	LF Area 3
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.035	
Channel Slope	009300	ft/ft
Left Side Slope	3.00	H : V
Right Side Slope	3.00	H : V
Bottom Width	3.00	ft
Discharge	74.76	cfs

Results		
Depth	1.93	ft
Flow Area	17.0	ft²
Wetted Perim	15.21	ft
Top Width	14.58	ft
Critical Depth	1.65	ft
Critical Slope	0.018752	ft/ft
Velocity	4.40	ft/s
Velocity Head	0.30	ft
Specific Energ	2.23	ft
Froude Numb	0.72	
Flow Type	Subcritical	

LF Ditch Area 4
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	LF Area 4
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.035	
Channel Slope	005000	ft/ft
Left Side Slope	3.00	H : V
Right Side Slope	3.00	H : V
Bottom Width	3.00	ft
Discharge	35.23	cfs

Results		
Depth	1.58	ft
Flow Area	12.2	ft²
Wetted Perim	12.99	ft
Top Width	12.48	ft
Critical Depth	1.13	ft
Critical Slope	0.020740	ft/ft
Velocity	2.88	ft/s
Velocity Head	0.13	ft
Specific Energ	1.71	ft
Froude Numb	0.51	
Flow Type	Subcritical	

LF Ditch Area 5A
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	LF Area 5A
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.035	
Channel Slope	008400	ft/ft
Left Side Slope	3.00	H : V
Right Side Slope	3.00	H : V
Bottom Width	3.00	ft
Discharge	72.95	cfs

Results		
Depth	1.95	ft
Flow Area	17.3	ft²
Wetted Perim	15.35	ft
Top Width	14.72	ft
Critical Depth	1.63	ft
Critical Slope	0.018812	ft/ft
Velocity	4.21	ft/s
Velocity Head	0.28	ft
Specific Energ	2.23	ft
Froude Numb	0.69	
Flow Type	Subcritical	

LF Ditch Area 5
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	LF Area 5
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.035	
Channel Slope	005200	ft/ft
Left Side Slope	3.00	H : V
Right Side Slope	3.00	H : V
Bottom Width	3.00	ft
Discharge	120.62	cfs

Results		
Depth	2.71	ft
Flow Area	30.1	ft²
Wetted Perim	20.12	ft
Top Width	19.25	ft
Critical Depth	2.07	ft
Critical Slope	0.017596	ft/ft
Velocity	4.01	ft/s
Velocity Head	0.25	ft
Specific Energ	2.96	ft
Froude Numb	0.56	
Flow Type	Subcritical	

LF Phase 3A-1 Ditch
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	LF Ph3A-1
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.035	
Channel Slope	001600	ft/ft
Left Side Slope	3.00	H : V
Right Side Slope	3.00	H : V
Bottom Width	5.00	ft
Discharge	26.86	cfs

Results		
Depth	1.59	ft
Flow Area	15.5	ft²
Wetted Perim	15.04	ft
Top Width	14.53	ft
Critical Depth	0.81	ft
Critical Slope	0.021774	ft/ft
Velocity	1.73	ft/s
Velocity Head	0.05	ft
Specific Energ	1.63	ft
Froude Numb	0.30	
Flow Type	Subcritical	

LF Phase 3A-2 Ditch
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	LF Ph3A-2
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.035	
Channel Slope	012600	ft/ft
Left Side Slope	3.00	H : V
Right Side Slope	3.00	H : V
Bottom Width	5.00	ft
Discharge	35.08	cfs

Results		
Depth	1.08	ft
Flow Area	8.9	ft²
Wetted Perim	11.83	ft
Top Width	11.48	ft
Critical Depth	0.95	ft
Critical Slope	0.020924	ft/ft
Velocity	3.94	ft/s
Velocity Head	0.24	ft
Specific Energ	1.32	ft
Froude Numb	0.79	
Flow Type	Subcritical	

Terrace Ditches
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Down Drains
Flow Element	Trapezoidal Cha
Method	Manning's Formı
Solve For	Discharge

Input Data		
Mannings Coeffic	0.035	
Channel Slope	005000	ft/ft
Depth	1.50	ft
Left Side Slope	3.50	H : V
Right Side Slope	3.00	H : V
Bottom Width	3.00	ft

Results		
Discharge	32.92	cfs
Flow Area	11.8	ft²
Wetted Perim	13.20	ft
Top Width	12.75	ft
Critical Depth	1.07	ft
Critical Slope	0.021007	ft/ft
Velocity	2.79	ft/s
Velocity Head	0.12	ft
Specific Energ	1.62	ft
Froude Numb	0.51	
Flow Type	Subcritical	

Down Drain Pipe
Worksheet for Circular Channel

Project Description	
Worksheet	Down Drain Pip
Flow Element	Circular Channe
Method	Manning's Form
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.012	
Channel Slope	285700	ft/ft
Diameter	24.0	in

Results		
Depth	2.00	ft
Discharge	130.99	cfs
Flow Area	3.1	ft²
Wetted Perime	6.28	ft
Top Width	0.00	ft
Critical Depth	2.00	ft
Percent Full	100.0	%
Critical Slope	281143	ft/ft
Velocity	41.69	ft/s
Velocity Head	27.02	ft
Specific Energ	29.02	ft
Froude Numbe	0.00	
Maximum Disc	140.90	cfs
Discharge Full	130.99	cfs
Slope Full	285700	ft/ft
Flow Type	N/A	

Culvert Master Results

Culvert Calculator Report
DROP INLET #1

Solve For: Discharge

Culvert Summary					
Allowable HW Elevation	346.37	ft	Headwater Depth/Height	2.80	
Computed Headwater Elev:	346.37	ft	Discharge	53.36	cfs
Inlet Control HW Elev.	344.83	ft	Tailwater Elevation	342.82	ft
Outlet Control HW Elev.	346.37	ft	Control Type	Outlet Control	

Grades					
Upstream Invert	339.37	ft	Downstream Invert	338.97	ft
Length	79.57	ft	Constructed Slope	0.005027	ft/ft

Hydraulic Profile					
Profile	PressureProfile		Depth, Downstream	3.85	ft
Slope Type	N/A		Normal Depth	N/A	ft
Flow Regime	N/A		Critical Depth	2.34	ft
Velocity Downstream	10.87	ft/s	Critical Slope	0.014627	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.013	
Section Material	Concrete		Span	2.50	ft
Section Size	30 inch		Rise	2.50	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	346.37	ft	Upstream Velocity Head	1.84	ft
Ke	0.20		Entrance Loss	0.37	ft

Inlet Control Properties					
Inlet Control HW Elev.	344.83	ft	Flow Control	Submerged	
Inlet Type	Groove end projecting		Area Full	4.9	ft^2
K	0.00450		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	3	
C	0.03170		Equation Form	1	
Y	0.69000				

Culvert Calculator Report
DROP INLET #2

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	347.98 ft	Headwater Depth/Height	2.33
Computed Headwater Elev:	347.98 ft	Discharge	87.13 cfs
Inlet Control HW Elev.	347.86 ft	Tailwater Elevation	342.82 ft
Outlet Control HW Elev.	347.98 ft	Control Type	Outlet Control

Grades			
Upstream Invert	340.98 ft	Downstream Invert	340.47 ft
Length	102.22 ft	Constructed Slope	0.004989 ft/ft

Hydraulic Profile			
Profile	CompositeM2PressureProfile	Depth, Downstream	2.83 ft
Slope Type	Mild	Normal Depth	N/A ft
Flow Regime	Subcritical	Critical Depth	2.83 ft
Velocity Downstream	12.62 ft/s	Critical Slope	0.014754 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	347.98 ft	Upstream Velocity Head	2.36 ft
Ke	0.20	Entrance Loss	0.47 ft

Inlet Control Properties			
Inlet Control HW Elev.	347.86 ft	Flow Control	N/A
Inlet Type	Groove end projecting	Area Full	7.1 ft²
K	0.00450	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	3
C	0.03170	Equation Form	1
Y	0.69000		

Culvert Calculator Report
DROP INLET #3

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	346.30 ft	Headwater Depth/Height	2.33
Computed Headwater Elev	346.30 ft	Discharge	144.87 cfs
Inlet Control HW Elev.	344.69 ft	Tailwater Elevation	342.82 ft
Outlet Control HW Elev.	346.30 ft	Control Type	Outlet Control

Grades			
Upstream Invert	339.30 ft	Downstream Invert	338.65 ft
Length	129.02 ft	Constructed Slope	0.005038 ft/ft

Hydraulic Profile			
Profile	PressureProfile	Depth, Downstream	4.17 ft
Slope Type	N/A	Normal Depth	N/A ft
Flow Regime	N/A	Critical Depth	2.69 ft
Velocity Downstream	10.25 ft/s	Critical Slope	0.010419 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	346.30 ft	Upstream Velocity Head	1.63 ft
Ke	0.20	Entrance Loss	0.33 ft

Inlet Control Properties			
Inlet Control HW Elev.	344.69 ft	Flow Control	N/A
Inlet Type	Groove end projecting	Area Full	14.1 ft^2
K	0.00450	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	3
C	0.03170	Equation Form	1
Y	0.69000		

Culvert Calculator Report
DROP INLET #4

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	350.47 ft	Headwater Depth/Height	2.32
Computed Headwater Elev	350.47 ft	Discharge	175.85 cfs
Inlet Control HW Elev.	350.47 ft	Tailwater Elevation	343.49 ft
Outlet Control HW Elev.	350.05 ft	Control Type	Inlet Control

Grades			
Upstream Invert	343.52 ft	Downstream Invert	340.00 ft
Length	211.61 ft	Constructed Slope	0.016634 ft/ft

Hydraulic Profile			
Profile	PressureProfile	Depth, Downstream	2.54 ft
Slope Type	N/A	Normal Depth	2.52 ft
Flow Regime	N/A	Critical Depth	2.83 ft
Velocity Downstream	13.78 ft/s	Critical Slope	0.015029 ft/ft

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	2		

Outlet Control Properties			
Outlet Control HW Elev.	350.05 ft	Upstream Velocity Head	2.51 ft
Ke	0.20	Entrance Loss	0.48 ft

Inlet Control Properties			
Inlet Control HW Elev.	350.47 ft	Flow Control	N/A
Inlet Type	Groove end projecting	Area Full	14.1 ft²
K	0.00450	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	3
C	0.03170	Equation Form	1
Y	0.69000		

Sediment Pond Routings

Sediment Pond 1

==========
JOB TITLE
==========

Project Date: 9/28/2004
Project Engineer: wr
Project Title: Watershed
Project Comments:

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MASTER DESIGN STORM SUMMARY

Network Storm Collection: Harnett County

Return Event	Total Depth in	Rainfall Type	RNF ID
2	3.7500	Synthetic Curve	TypeII 24hr
10	5.6000	Synthetic Curve	TypeII 24hr
25	6.6000	Synthetic Curve	TypeII 24hr
100	8.2000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
LF AREA 3	AREA	2	1.917		11.9350	34.33		
LF AREA 3	AREA	10	3.328		11.9350	58.51		
LF AREA 3	AREA	25	4.114		11.9350	71.58		
LF AREA 3	AREA	100	5.389		11.9350	92.41		
LF AREA 4&5	AREA	2	3.996		11.9500	68.52		
LF AREA 4&5	AREA	10	6.939		11.9450	116.95		
LF AREA 4&5	AREA	25	8.577		11.9450	143.21		
LF AREA 4&5	AREA	100	11.235		11.9450	185.02		
LF AREA3	AREA	2	1.917		11.9350	34.33		
LF AREA3	AREA	10	3.328		11.9350	58.51		
LF AREA3	AREA	25	4.114		11.9350	71.58		
LF AREA3	AREA	100	5.389		11.9350	92.41		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
LF AREA45	AREA	2	3.996		11.9500	68.52		
LF AREA45	AREA	10	6.939		11.9450	116.95		
LF AREA45	AREA	25	8.577		11.9450	143.21		
LF AREA45	AREA	100	11.235		11.9450	185.02		
*OUT 1	JCT	2	2.961		15.3350	2.94		
*OUT 1	JCT	10	5.736		12.7650	13.46		
*OUT 1	JCT	25	8.178		12.2500	37.24		
*OUT 1	JCT	100	12.237		12.1750	64.97		
*OUT 1 W/ 1FT	JCT	2	1.939		18.2800	1.92		
*OUT 1 W/ 1FT	JCT	10	6.541		12.2500	30.66		
*OUT 1 W/ 1FT	JCT	25	9.164		12.1800	50.03		
*OUT 1 W/ 1FT	JCT	100	13.428		12.1250	95.59		
POND 1 IN	POND	2	6.739		11.9450	115.43		
POND 1 IN	POND	10	11.528		11.9450	194.21		
POND 1 IN	POND	25	14.186		11.9450	236.83		
POND 1 IN	POND	100	18.494		11.9400	304.82		
POND 1 OUT	POND	2	2.961		15.3350	2.94	340.45	4.581
POND 1 OUT	POND	10	5.736		12.7650	13.46	341.86	7.082
POND 1 OUT	POND	25	8.178		12.2500	37.24	342.32	7.946
POND 1 OUT	POND	100	12.237		12.1750	64.97	343.33	9.931
POND 1 W/ 1FTIN	POND	2	6.739		11.9450	115.43		
POND 1 W/ 1FTIN	POND	10	11.528		11.9450	194.21		
POND 1 W/ 1FTIN	POND	25	14.186		11.9450	236.83		
POND 1 W/ 1FTIN	POND	100	18.494		11.9400	304.82		
POND 1 W/ 1FTOUT	POND	2	1.939		18.2800	1.92	341.52	6.455
POND 1 W/ 1FTOUT	POND	10	6.541		12.2500	30.66	342.23	7.773
POND 1 W/ 1FTOUT	POND	25	9.164		12.1800	50.03	342.82	8.914
POND 1 W/ 1FTOUT	POND	100	13.428		12.1250	95.59	343.76	10.799

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
POND AREA	AREA	2	.826		11.9150	13.67		
POND AREA	AREA	10	1.260		11.9150	20.52		
POND AREA	AREA	25	1.495		11.9150	24.22		
POND AREA	AREA	100	1.871		11.9150	30.13		
PRE-DEV	AREA	2	1.041		12.0200	15.25		
PRE-DEV	AREA	10	2.695		12.0000	44.37		
PRE-DEV	AREA	25	3.762		11.9850	63.00		
PRE-DEV	AREA	100	5.638		11.9650	95.73		
*PRE-OUT	JCT	2	1.041		12.0200	15.25		
*PRE-OUT	JCT	10	2.695		12.0000	44.37		
*PRE-OUT	JCT	25	3.762		11.9850	63.00		
*PRE-OUT	JCT	100	5.638		11.9650	95.73		
SP-1DA	AREA	2	.826		11.9150	13.67		
SP-1DA	AREA	10	1.260		11.9150	20.52		
SP-1DA	AREA	25	1.495		11.9150	24.22		
SP-1DA	AREA	100	1.871		11.9150	30.13		

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Harnett County

Storm Tag Name = 2

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.7500 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	1.917		11.9350	34.33	LF AREA 3
		DL	1.917		11.9350	34.33	
		DN	6.739		11.9450	115.43	POND 1 W/ 1FTIN
ADDLINK 20	ADD	UN	3.996		11.9500	68.52	LF AREA 4&5
		DL	3.996		11.9500	68.52	
		DN	6.739		11.9450	115.43	POND 1 W/ 1FTIN
ADDLINK 30	ADD	UN	.826		11.9150	13.67	POND AREA
		DL	.826		11.9150	13.67	
		DN	6.739		11.9450	115.43	POND 1 W/ 1FTIN
ADDLINK 40	ADD	UN	1.041		12.0200	15.25	PRE-DEV
		DL	1.041		12.0200	15.25	
		DN	1.041		12.0200	15.25	PRE-OUT
ADDLINK 50	ADD	UN	1.917		11.9350	34.33	LF AREA3
		DL	1.917		11.9350	34.33	
		DN	6.739		11.9450	115.43	POND 1 IN
ADDLINK 60	ADD	UN	.826		11.9150	13.67	SP-1DA
		DL	.826		11.9150	13.67	
		DN	6.739		11.9450	115.43	POND 1 IN
ADDLINK 70	ADD	UN	3.996		11.9500	68.52	LF AREA45
		DL	3.996		11.9500	68.52	
		DN	6.739		11.9450	115.43	POND 1 IN

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points	
ROUTE 10	PONDrt	UN	6.739		11.9450	115.43	POND 1 W/ 1FTIN	
ROUTE 10			1.939		18.2800	1.92	POND 1 W/ 1FTOUT	
		DL	1.939		18.2800	1.92		
		DN	1.939		18.2800	1.92	OUT 1 W/ 1FT	
ROUTE 20	PONDrt	UN	6.739		11.9450	115.43	POND 1	IN
ROUTE 20			2.961		15.3350	2.94	POND 1	OUT
		DL	2.961		15.3350	2.94		
		DN	2.961		15.3350	2.94	OUT 1	

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Harnett County

Storm Tag Name = 10

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points	
ADDLINK 10	ADD	UN	3.328		11.9350	58.51	LF AREA 3	
		DL	3.328		11.9350	58.51		
		DN	11.528		11.9450	194.21	POND 1 W/ 1FTIN	
ADDLINK 20	ADD	UN	6.939		11.9450	116.95	LF AREA 4&5	
		DL	6.939		11.9450	116.95		
		DN	11.528		11.9450	194.21	POND 1 W/ 1FTIN	
ADDLINK 30	ADD	UN	1.260		11.9150	20.52	POND AREA	
		DL	1.260		11.9150	20.52		
		DN	11.528		11.9450	194.21	POND 1 W/ 1FTIN	
ADDLINK 40	ADD	UN	2.695		12.0000	44.37	PRE-DEV	
		DL	2.695		12.0000	44.37		
		DN	2.695		12.0000	44.37	PRE-OUT	
ADDLINK 50	ADD	UN	3.328		11.9350	58.51	LF AREA3	
		DL	3.328		11.9350	58.51		
		DN	11.528		11.9450	194.21	POND 1	IN
ADDLINK 60	ADD	UN	1.260		11.9150	20.52	SP-1DA	
		DL	1.260		11.9150	20.52		
		DN	11.528		11.9450	194.21	POND 1	IN
ADDLINK 70	ADD	UN	6.939		11.9450	116.95	LF AREA45	
		DL	6.939		11.9450	116.95		
		DN	11.528		11.9450	194.21	POND 1	IN

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points	
ROUTE 10	PONDrt	UN	11.528		11.9450	194.21	POND 1 W/ 1FTIN	
ROUTE 10			6.541		12.2500	30.66	POND 1 W/ 1FTOUT	
		DL	6.541		12.2500	30.66		
		DN	6.541		12.2500	30.66	OUT 1 W/ 1FT	
ROUTE 20	PONDrt	UN	11.528		11.9450	194.21	POND 1	IN
ROUTE 20			5.736		12.7650	13.46	POND 1	OUT
		DL	5.736		12.7650	13.46		
		DN	5.736		12.7650	13.46	OUT 1	

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Harnett County

Storm Tag Name = 25

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 25 yr
Total Rainfall Depth= 6.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points	
ADDLINK 10	ADD	UN	4.114		11.9350	71.58	LF AREA 3	
		DL	4.114		11.9350	71.58		
		DN	14.186		11.9450	236.83	POND 1 W/ 1FTIN	
ADDLINK 20	ADD	UN	8.577		11.9450	143.21	LF AREA 4&5	
		DL	8.577		11.9450	143.21		
		DN	14.186		11.9450	236.83	POND 1 W/ 1FTIN	
ADDLINK 30	ADD	UN	1.495		11.9150	24.22	POND AREA	
		DL	1.495		11.9150	24.22		
		DN	14.186		11.9450	236.83	POND 1 W/ 1FTIN	
ADDLINK 40	ADD	UN	3.762		11.9850	63.00	PRE-DEV	
		DL	3.762		11.9850	63.00		
		DN	3.762		11.9850	63.00	PRE-OUT	
ADDLINK 50	ADD	UN	4.114		11.9350	71.58	LF AREA3	
		DL	4.114		11.9350	71.58		
		DN	14.186		11.9450	236.83	POND 1	IN
ADDLINK 60	ADD	UN	1.495		11.9150	24.22	SP-1DA	
		DL	1.495		11.9150	24.22		
		DN	14.186		11.9450	236.83	POND 1	IN
ADDLINK 70	ADD	UN	8.577		11.9450	143.21	LF AREA45	
		DL	8.577		11.9450	143.21		
		DN	14.186		11.9450	236.83	POND 1	IN

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points	
ROUTE 10	PONDrt	UN	14.186		11.9450	236.83	POND 1 W/ 1FTIN	
ROUTE 10			9.164		12.1800	50.03	POND 1 W/ 1FTOUT	
		DL	9.164		12.1800	50.03		
		DN	9.164		12.1800	50.03	OUT 1 W/ 1FT	
ROUTE 20	PONDrt	UN	14.186		11.9450	236.83	POND 1	IN
ROUTE 20			8.178		12.2500	37.24	POND 1	OUT
		DL	8.178		12.2500	37.24		
		DN	8.178		12.2500	37.24	OUT 1	

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Harnett County

Storm Tag Name = 100

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 8.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	5.389		11.9350	92.41	LF AREA 3
		DL	5.389		11.9350	92.41	
		DN	18.494		11.9400	304.82	POND 1 W/ 1FTIN
ADDLINK 20	ADD	UN	11.235		11.9450	185.02	LF AREA 4&5
		DL	11.235		11.9450	185.02	
		DN	18.494		11.9400	304.82	POND 1 W/ 1FTIN
ADDLINK 30	ADD	UN	1.871		11.9150	30.13	POND AREA
		DL	1.871		11.9150	30.13	
		DN	18.494		11.9400	304.82	POND 1 W/ 1FTIN
ADDLINK 40	ADD	UN	5.638		11.9650	95.73	PRE-DEV
		DL	5.638		11.9650	95.73	
		DN	5.638		11.9650	95.73	PRE-OUT
ADDLINK 50	ADD	UN	5.389		11.9350	92.41	LF AREA3
		DL	5.389		11.9350	92.41	
		DN	18.494		11.9400	304.82	POND 1 IN
ADDLINK 60	ADD	UN	1.871		11.9150	30.13	SP-1DA
		DL	1.871		11.9150	30.13	
		DN	18.494		11.9400	304.82	POND 1 IN
ADDLINK 70	ADD	UN	11.235		11.9450	185.02	LF AREA45
		DL	11.235		11.9450	185.02	
		DN	18.494		11.9400	304.82	POND 1 IN

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ROUTE 10	PONDrt	UN	18.494		11.9400	304.82	POND 1 W/ 1FTIN
ROUTE 10			13.428		12.1250	95.59	POND 1 W/ 1FTOUT
		DL	13.428		12.1250	95.59	
		DN	13.428		12.1250	95.59	OUT 1 W/ 1FT
ROUTE 20	PONDrt	UN	18.494		11.9400	304.82	POND 1 IN
ROUTE 20			12.237		12.1750	64.97	POND 1 OUT
		DL	12.237		12.1750	64.97	
		DN	12.237		12.1750	64.97	OUT 1

File.... K:\02\02-330\02334.01 LF Expansion\H&H\
Title... Project Date: 9/28/2004
Project Engineer: wr
Project Title: Watershed
Project Comments:

DESIGN STORMS SUMMARY

Design Storm File,ID = Harnett County

Storm Tag Name = 2

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.7500 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 10

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 25

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 25 yr
Total Rainfall Depth= 6.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 100

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 8.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: Kirpich (TN)

Hydraulic Length	1888.00	ft
Slope	.094000	ft/ft
Multiplier	1.000	(Tc Adjustment)

Avg.Velocity 4.87 ft/sec

Segment #1 Time: .1076 hrs

==========
Total Tc: .1076 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

Tc Equations used...

==== Kirpich (TN) ==========

Tc = 0.00013 * (Lf**0.77) * (Sf**-0.385) * Mt

Where: Tc = Time of concentration, hrs
Lf = Flow length, ft
Sf = Slope, ft/ft
Mt = Tc Multiplier (Tc adjustment)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: Kirpich (TN)

Hydraulic Length	2200.00	ft
Slope	.076000	ft/ft
Multiplier	1.000	(Tc Adjustment)

Avg.Velocity 4.65 ft/sec

Segment #1 Time: .1314 hrs

==========
Total Tc: .1314 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

Tc Equations used...

==== Kirpich (TN) ==========

Tc = 0.00013 * (Lf**0.77) * (Sf**-0.385) * Mt

Where: Tc = Time of concentration, hrs
Lf = Flow length, ft
Sf = Slope, ft/ft
Mt = Tc Multiplier (Tc adjustment)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: Kirpich (TN)

Hydraulic Length	1888.00	ft
Slope	.094000	ft/ft
Multiplier	1.000	(Tc Adjustment)

Avg.Velocity 4.87 ft/sec

Segment #1 Time: .1076 hrs

==========
Total Tc: .1076 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

Tc Equations used...

==== Kirpich (TN) ==========

Tc = 0.00013 * (Lf**0.77) * (Sf**-0.385) * Mt

Where: Tc = Time of concentration, hrs
Lf = Flow length, ft
Sf = Slope, ft/ft
Mt = Tc Multiplier (Tc adjustment)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: Kirpich (TN)

Hydraulic Length	2200.00	ft
Slope	.076000	ft/ft
Multiplier	1.000	(Tc Adjustment)

Avg.Velocity 4.65 ft/sec

Segment #1 Time: .1314 hrs

==========
Total Tc: .1314 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

Tc Equations used...

==== Kirpich (TN) ==========

Tc = 0.00013 * (Lf**0.77) * (Sf**-0.385) * Mt

Where: Tc = Time of concentration, hrs
Lf = Flow length, ft
Sf = Slope, ft/ft
Mt = Tc Multiplier (Tc adjustment)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

==========
Total Tc: .0830 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: Kirpich (TN)

Hydraulic Length	1454.00	ft
Slope	.029300	ft/ft
Multiplier	1.000	(Tc Adjustment)

Avg.Velocity 2.93 ft/sec

Segment #1 Time: .1378 hrs

==========
Total Tc: .1378 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

Tc Equations used...

==== Kirpich (TN) ==========

Tc = 0.00013 * (Lf**0.77) * (Sf**-0.385) * Mt

Where: Tc = Time of concentration, hrs
Lf = Flow length, ft
Sf = Slope, ft/ft
Mt = Tc Multiplier (Tc adjustment)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

```
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
TIME OF CONCENTRATION CALCULATOR
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::


----------------------------------------------------------------------


Segment #1:  Tc: User Defined

                                        Segment #1 Time:     .0830 hrs
----------------------------------------------------------------------

                                          ========================
                                           Total Tc:     .0830 hrs

                                           Calculated Tc < Min.Tc:
                                           Use Minimum Tc...
                                           Use Tc =      .0833 hrs
                                          ========================
```

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	86	9.910			86.00
COMPOSITE AREA & WEIGHTED CN --->		9.910			86.00 (86)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	86	20.660			86.00
COMPOSITE AREA & WEIGHTED CN --->		20.660			86.00 (86)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	86	9.910			86.00
COMPOSITE AREA & WEIGHTED CN --->		9.910			86.00 (86)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
	86	20.660			86.00
COMPOSITE AREA & WEIGHTED CN --->		20.660			86.00 (86)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	98	2.820			98.00
COMPOSITE AREA & WEIGHTED CN --->		2.820			98.00 (98)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	60	19.420			60.00
COMPOSITE AREA & WEIGHTED CN --->		19.420			60.00 (60)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	98	2.820			98.00
COMPOSITE AREA & WEIGHTED CN --->		2.820			98.00 (98)

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

DEFINITION OF TERMS: ----------

```
At    = Total area (acres):  At = Ai+Ap
Ai    = Impervious area (acres)
Ap    = Pervious area (acres)
CNi   = Runoff curve number for impervious area
CNp   = Runoff curve number for pervious area
fLoss = f loss constant infiltration (depth/time)
gKs   = Saturated Hydraulic Conductivity (depth/time)
Md    = Volumetric Moisture Deficit
Psi   = Capillary Suction (length)
hK    = Horton Infiltration Decay Rate (time^-1)
fo    = Initial Infiltration Rate (depth/time)
fc    = Ultimate(capacity)Infiltration Rate (depth/time)
Ia    = Initial Abstraction (length)
dt    = Computational increment (duration of unit excess rainfall)
        Default dt is smallest value of 0.1333Tc, rtm, and th
        (Smallest dt is then adjusted to match up with Tp)
UDdt  = User specified override computational main time increment
        (only used if UDdt is => .1333Tc)
D(t)  = Point on distribution curve (fraction of P) for time step t

K     = 2 / (1 + (Tr/Tp)):  default K = 0.75: (for Tr/Tp = 1.67)
Ks    = Hydrograph shape factor
      = Unit Conversions * K:
      = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K
        Default Ks = 645.333 * 0.75 = 484

Lag   = Lag time from center of excess runoff (dt) to Tp:  Lag = 0.6Tc
P     = Total precipitation depth, inches
Pa(t) = Accumulated rainfall at time step t
Pi(t) = Incremental rainfall at time step t
qp    = Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi.
      = (Ks * A * Q) / Tp   (where Q = 1in. runoff, A=sq.mi.)
Qu(t) = Unit hydrograph ordinate (cfs) at time step t
Q(t)  = Final hydrograph ordinate (cfs) at time step t
Rai(t)= Accumulated runoff (inches) at time step t for impervious area
Rap(t)= Accumulated runoff (inches) at time step t for pervious area
Rii(t)= Incremental runoff (inches) at time step t for impervious area
Rip(t)= Incremental runoff (inches) at time step t for pervious area
R(t)  = Incremental weighted total runoff (inches)
Rtm   = Time increment for rainfall table
Si    = S for impervious area:  Si = (1000/CNi) - 10
Sp    = S for pervious area:    Sp = (1000/CNp) - 10
t     = Time step (row) number
Tc    = Time of concentration
Tb    = Time (hrs) of entire unit hydrograph:  Tb = Tp + Tr
Tp    = Time (hrs) to peak of a unit hydrograph:  Tp = (dt/2) + Lag
Tr    = Time (hrs) of receding limb of unit hydrograph:  Tr = ratio of Tp
```

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

PRECIPITATION: ----------

```
Column (1):  Time for time step t
Column (2):  D(t)  = Point on distribution curve for time step t
Column (3):  Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4):  Pa(t) = D(t) x P:        Col.(2) x P
```

PERVIOUS AREA RUNOFF (using SCS Runoff CN Method) ----------

```
Column (5):  Rap(t) = Accumulated pervious runoff for time step t
             If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
             If (Pa(t) is >  0.2Sp) then use:

             Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6):  Rip(t) = Incremental pervious runoff for time step t
             Rip(t) =         Rap(t)          -         Rap(t-1)
             Rip(t) = Col.(5) for current row - Col.(5) for preceding row.
```

IMPERVIOUS AREA RUNOFF ----------

```
Column (7 & 8)... Did not specify to use impervious areas.
```

INCREMENTAL WEIGHTED RUNOFF: ----------

```
Column (9):  R(t)  = (Ap/At) x Rip(t)   +  (Ai/At) x Rii(t)
             R(t)  = (Ap/At) x Col.(6)  +  (Ai/At) x Col.(8)
```

SCS UNIT HYDROGRAPH METHOD: ----------

```
Column (10): Q(t)   is computed with the SCS unit hydrograph method
                    using R() and Qu().
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.7500 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 3 2
Tc            = .1076 hrs
Drainage Area = 9.910 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01435 hrs
Computed Peak Time             =  11.9364 hrs
Computed Peak Flow             =    34.37 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  11.9352 hrs
Peak Flow, Interpolated Output =    34.33 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:LF AREA 3
              CN   =   86
              Area =       9.910 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      2.3210 in
                       1.917 ac-ft

HYG Volume...          1.917 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .10760 hrs (ID: LF AREA 3)
Computational Incr, Tm =   .01435 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   104.35 cfs
Unit peak time      Tp =   .07173 hrs
Unit receding limb, Tr =   .28693 hrs
Total unit time,    Tb =   .35867 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 3 10
Tc            = .1076 hrs
Drainage Area = 9.910 acres  Runoff CN= 86

==========================================
Computational Time Increment   =   .01435 hrs
Computed Peak Time             =  11.9364 hrs
Computed Peak Flow             =    58.55 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  11.9352 hrs
Peak Flow, Interpolated Output =    58.51 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 3
               CN   =   86
               Area =       9.910 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       4.0305 in
                        3.328 ac-ft

HYG Volume...           3.328 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .10760 hrs (ID: LF AREA 3)
Computational Incr, Tm =   .01435 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   104.35 cfs
Unit peak time      Tp =   .07173 hrs
Unit receding limb, Tr =   .28693 hrs
Total unit time,    Tb =   .35867 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 6.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 3 25
Tc            = .1076 hrs
Drainage Area = 9.910 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01435 hrs
Computed Peak Time             =  11.9364 hrs
Computed Peak Flow             =    71.62 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  11.9352 hrs
Peak Flow, Interpolated Output =    71.58 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 3
               CN   =   86
               Area =       9.910 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       4.9819 in
                        4.114 ac-ft

HYG Volume...          4.114 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .10760 hrs (ID: LF AREA 3)
Computational Incr, Tm =   .01435 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   104.35 cfs
Unit peak time      Tp =   .07173 hrs
Unit receding limb, Tr =   .28693 hrs
Total unit time,    Tb =   .35867 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 3 100
Tc            = .1076 hrs
Drainage Area = 9.910 acres  Runoff CN= 86

==========================================
Computational Time Increment   =   .01435 hrs
Computed Peak Time             =  11.9364 hrs
Computed Peak Flow             =    92.45 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  11.9352 hrs
Peak Flow, Interpolated Output =    92.41 cfs
==========================================

                DRAINAGE AREA
               -------------------
               ID:LF AREA 3
               CN    =   86
               Area =       9.910 acres
               S     =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       6.5254 in
                        5.389 ac-ft

HYG Volume...          5.389 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .10760 hrs (ID: LF AREA 3)
Computational Incr, Tm =   .01435 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   104.35 cfs
Unit peak time      Tp =   .07173 hrs
Unit receding limb, Tr =   .28693 hrs
Total unit time,    Tb =   .35867 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.7500 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 4&5 2
Tc            = .1314 hrs
Drainage Area = 20.660 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01752 hrs
Computed Peak Time             =  11.9459 hrs
Computed Peak Flow             =    68.53 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  11.9502 hrs
Peak Flow, Interpolated Output =    68.52 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 4&5
               CN   =   86
               Area =      20.660 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       2.3210 in
                        3.996 ac-ft

HYG Volume...          3.996 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .13137 hrs (ID: LF AREA 4&5)
Computational Incr, Tm =   .01752 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   178.19 cfs
Unit peak time      Tp =   .08758 hrs
Unit receding limb, Tr =   .35032 hrs
Total unit time,    Tb =   .43790 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 4&5 10
Tc            = .1314 hrs
Drainage Area = 20.660 acres  Runoff CN= 86

==========================================
Computational Time Increment   =   .01752 hrs
Computed Peak Time             =  11.9459 hrs
Computed Peak Flow             =   117.06 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  11.9452 hrs
Peak Flow, Interpolated Output =   116.95 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 4&5
               CN   =   86
               Area =      20.660 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       4.0305 in
                        6.939 ac-ft

HYG Volume...          6.939 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .13137 hrs (ID: LF AREA 4&5)
Computational Incr, Tm =   .01752 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   178.19 cfs
Unit peak time      Tp =   .08758 hrs
Unit receding limb, Tr =   .35032 hrs
Total unit time,    Tb =   .43790 hrs
```

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 6.6000 in
Rain Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID = - LF AREA 4&5 25
Tc = .1314 hrs
Drainage Area = 20.660 acres Runoff CN= 86

==========
Computational Time Increment = .01752 hrs
Computed Peak Time = 11.9459 hrs
Computed Peak Flow = 143.32 cfs

Time Increment for HYG File = .0050 hrs
Peak Time, Interpolated Output = 11.9452 hrs
Peak Flow, Interpolated Output = 143.21 cfs
==========

DRAINAGE AREA

ID:LF AREA 4&5
CN = 86
Area = 20.660 acres
S = 1.6279 in
0.2S = .3256 in

Cumulative Runoff

4.9819 in
8.577 ac-ft

HYG Volume... 8.577 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .13137 hrs (ID: LF AREA 4&5)
Computational Incr, Tm = .01752 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 178.19 cfs
Unit peak time Tp = .08758 hrs
Unit receding limb, Tr = .35032 hrs
Total unit time, Tb = .43790 hrs

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 4&5 100
Tc            = .1314 hrs
Drainage Area = 20.660 acres  Runoff CN= 86

==========================================
Computational Time Increment   =   .01752 hrs
Computed Peak Time             =  11.9459 hrs
Computed Peak Flow             =   185.15 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  11.9452 hrs
Peak Flow, Interpolated Output =   185.02 cfs
==========================================

                DRAINAGE AREA
               -------------------
               ID:LF AREA 4&5
               CN    =   86
               Area =      20.660 acres
               S     =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       6.5254 in
                       11.235 ac-ft

HYG Volume...          11.235 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .13137 hrs (ID: LF AREA 4&5)
Computational Incr, Tm =   .01752 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   178.19 cfs
Unit peak time      Tp =   .08758 hrs
Unit receding limb, Tr =   .35032 hrs
Total unit time,    Tb =   .43790 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.7500 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - POND AREA 2
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 2.820 acres  Runoff CN= 98

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    13.69 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  11.9152 hrs
Peak Flow, Interpolated Output =    13.67 cfs
============================================

                DRAINAGE AREA
             -------------------
             ID:POND AREA
             CN   =   98
             Area =       2.820 acres
             S    =    .2041 in
             0.2S =    .0408 in

              Cumulative Runoff
             -------------------
                     3.5157 in
                       .826 ac-ft

HYG Volume...           .826 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: POND AREA)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    38.36 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - POND AREA 10
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 2.820 acres  Runoff CN= 98

==========================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    20.55 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  11.9152 hrs
Peak Flow, Interpolated Output =    20.52 cfs
==========================================

                DRAINAGE AREA
               -------------------
               ID:POND AREA
               CN   =   98
               Area =       2.820 acres
               S    =    .2041 in
               0.2S =    .0408 in

                Cumulative Runoff
               -------------------
                       5.3623 in
                        1.260 ac-ft

HYG Volume...          1.260 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: POND AREA)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    38.36 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 6.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - POND AREA 25
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 2.820 acres  Runoff CN= 98

=============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    24.25 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  11.9152 hrs
Peak Flow, Interpolated Output =    24.22 cfs
=============================================

                 DRAINAGE AREA
              -------------------
              ID:POND AREA
              CN   =   98
              Area =       2.820 acres
              S    =    .2041 in
              0.2S =    .0408 in

               Cumulative Runoff
              -------------------
                      6.3613 in
                       1.495 ac-ft

HYG Volume...          1.495 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: POND AREA)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    38.36 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - POND AREA 100
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 2.820 acres  Runoff CN= 98

==========================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    30.17 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  11.9152 hrs
Peak Flow, Interpolated Output =    30.13 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:POND AREA
               CN   =   98
               Area =       2.820 acres
               S    =    .2041 in
               0.2S =    .0408 in

                Cumulative Runoff
               -------------------
                       7.9601 in
                        1.871 ac-ft

HYG Volume...          1.871 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: POND AREA)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    38.36 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.7500 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - PRE-DEV 2
Tc            = .1378 hrs
Drainage Area = 19.420 acres  Runoff CN= 60

============================================
Computational Time Increment   =   .01838 hrs
Computed Peak Time             =  12.0196 hrs
Computed Peak Flow             =    15.26 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  12.0202 hrs
Peak Flow, Interpolated Output =    15.25 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:PRE-DEV
              CN   =   60
              Area =      19.420 acres
              S    =   6.6667 in
              0.2S =   1.3333 in

               Cumulative Runoff
              -------------------
                       .6430 in
                       1.041 ac-ft

HYG Volume...          1.041 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .13784 hrs (ID: PRE-DEV)
Computational Incr, Tm =   .01838 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   159.63 cfs
Unit peak time      Tp =   .09189 hrs
Unit receding limb, Tr =   .36757 hrs
Total unit time,    Tb =   .45947 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - PRE-DEV 10
Tc            = .1378 hrs
Drainage Area = 19.420 acres  Runoff CN= 60

============================================
Computational Time Increment   =   .01838 hrs
Computed Peak Time             =  12.0012 hrs
Computed Peak Flow             =    44.38 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  12.0002 hrs
Peak Flow, Interpolated Output =    44.37 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:PRE-DEV
               CN   =   60
               Area =      19.420 acres
               S    =   6.6667 in
               0.2S =   1.3333 in

                Cumulative Runoff
               -------------------
                       1.6650 in
                        2.695 ac-ft

HYG Volume...           2.695 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .13784 hrs (ID: PRE-DEV)
Computational Incr, Tm =   .01838 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   159.63 cfs
Unit peak time      Tp =   .09189 hrs
Unit receding limb, Tr =   .36757 hrs
Total unit time,    Tb =   .45947 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 6.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - PRE-DEV 25
Tc            = .1378 hrs
Drainage Area = 19.420 acres  Runoff CN= 60

============================================
Computational Time Increment   =   .01838 hrs
Computed Peak Time             =  11.9829 hrs
Computed Peak Flow             =    63.02 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  11.9852 hrs
Peak Flow, Interpolated Output =    63.00 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:PRE-DEV
               CN   =   60
               Area =      19.420 acres
               S    =   6.6667 in
               0.2S =   1.3333 in

                Cumulative Runoff
               -------------------
                       2.3244 in
                        3.762 ac-ft

HYG Volume...           3.762 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .13784 hrs (ID: PRE-DEV)
Computational Incr, Tm =   .01838 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   159.63 cfs
Unit peak time      Tp =   .09189 hrs
Unit receding limb, Tr =   .36757 hrs
Total unit time,    Tb =   .45947 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - PRE-DEV 100
Tc            = .1378 hrs
Drainage Area = 19.420 acres  Runoff CN= 60

==========================================
Computational Time Increment   =   .01838 hrs
Computed Peak Time             =  11.9645 hrs
Computed Peak Flow             =    95.73 cfs

Time Increment for HYG File    =    .0050 hrs
Peak Time, Interpolated Output =  11.9652 hrs
Peak Flow, Interpolated Output =    95.73 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:PRE-DEV
               CN   =   60
               Area =      19.420 acres
               S    =   6.6667 in
               0.2S =   1.3333 in

                Cumulative Runoff
               -------------------
                       3.4841 in
                        5.638 ac-ft

HYG Volume...           5.638 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .13784 hrs (ID: PRE-DEV)
Computational Incr, Tm =   .01838 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   159.63 cfs
Unit peak time      Tp =   .09189 hrs
Unit receding limb, Tr =   .36757 hrs
Total unit time,    Tb =   .45947 hrs
```

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
337.50	-----	1.4000	.0000	.000	.000
338.00	-----	1.4500	4.2748	.712	.712
339.00	-----	1.5500	4.4992	1.500	2.212
340.00	-----	1.6600	4.8141	1.605	3.817
341.00	-----	1.7600	5.1293	1.710	5.527
342.00	-----	1.8700	5.4442	1.815	7.341
343.00	-----	1.9800	5.7742	1.925	9.266
344.00	-----	2.0900	6.1043	2.035	11.301
345.00	-----	2.2000	6.4343	2.145	13.446

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
337.50	-----	1.4000	.0000	.000	.000
338.00	-----	1.4500	4.2748	.712	.712
339.00	-----	1.5500	4.4992	1.500	2.212
340.00	-----	1.6600	4.8141	1.605	3.817
341.00	-----	1.7600	5.1293	1.710	5.527
342.00	-----	1.8700	5.4442	1.815	7.341
343.00	-----	1.9800	5.7742	1.925	9.266
344.00	-----	2.0900	6.1043	2.035	11.301
345.00	-----	2.2000	6.4343	2.145	13.446

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 337.50 ft
Increment = .01 ft
Max. Elev.= 345.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	WR	--->	TW	343.000	345.000
Stand Pipe	SP	--->	CV	341.500	345.000
Orifice-Circular	O2	--->	CV	338.500	345.000
Orifice-Circular	O1	--->	CV	337.540	345.000
Culvert-Circular	CV	--->	TW	337.540	345.000
TW SETUP, DS Channel					

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

OUTLET STRUCTURE INPUT DATA

```
Structure ID      = WR
Structure Type    = Weir-Rectangular
-----------------------------------
# of Openings     =         1
Crest Elev.       =    343.00 ft
Weir Length       =     20.00 ft
Weir Coeff.       =  3.000000

Weir TW effects     (Use adjustment equation)
```

```
Structure ID      = SP
Structure Type    = Stand Pipe
-----------------------------------
# of Openings     =         1
Invert Elev.      =    341.50 ft
Diameter          =    5.0000 ft
Orifice Area      =   19.6350 sq.ft
Orifice Coeff.    =      .600
Weir Length       =     15.71 ft
Weir Coeff.       =     3.000
K, Submerged      =      .000
K, Reverse        =     1.000
Kb,Barrel         =   .000000  (per ft of full flow)
Barrel Length     =       .00 ft
Mannings n        =     .0000
```

```
Structure ID      = O2
Structure Type    = Orifice-Circular
-----------------------------------
# of Openings     =        10
Invert Elev.      =    338.50 ft
Diameter          =     .1667 ft
Orifice Coeff.    =      .600
```

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OUTLET STRUCTURE INPUT DATA

```
Structure ID       = O1
Structure Type     = Orifice-Circular
-----------------------------------
# of Openings      =        10
Invert Elev.       =    337.54 ft
Diameter           =     .1667 ft
Orifice Coeff.     =      .600


Structure ID       = CV
Structure Type     = Culvert-Circular
-----------------------------------
No. Barrels        =         1
Barrel Diameter    =    3.0000 ft
Upstream Invert    =    337.54 ft
Dnstream Invert    =    337.00 ft
Horiz. Length      =    106.31 ft
Barrel Length      =    106.31 ft
Barrel Slope       =    .00508 ft/ft

OUTLET CONTROL DATA...
Mannings n         =     .0220
Ke                 =     .9000  (forward entrance loss)
Kb                 =   .020700  (per ft of full flow)
Kr                 =     .9000  (reverse entrance loss)
HW Convergence     =      .001  +/- ft

INLET CONTROL DATA...
Equation form      =         1
Inlet Control K    =     .0340
Inlet Control M    =    1.5000
Inlet Control c    =    .05530
Inlet Control Y    =     .5400
T1 ratio (HW/D)    =     1.260
T2 ratio (HW/D)    =     1.422
Slope Factor       =     -.500

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use   submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...
At T1 Elev =    341.32 ft  --->  Flow =     42.85 cfs
At T2 Elev =    341.81 ft  --->  Flow =     48.97 cfs
```

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OUTLET STRUCTURE INPUT DATA

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
337.50	.00	Free Outfall		(no Q: WR,SP,O2,O1,CV)
337.51	.00	Free Outfall		(no Q: WR,SP,O2,O1,CV)
337.52	.00	Free Outfall		(no Q: WR,SP,O2,O1,CV)
337.53	.00	Free Outfall		(no Q: WR,SP,O2,O1,CV)
337.54	.00	Free Outfall		(no Q: WR,SP,O2,O1,CV)
337.55	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.56	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.57	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.58	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.59	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.60	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.61	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.62	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.63	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.64	.12	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.65	.14	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.66	.14	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.67	.16	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.68	.16	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.69	.16	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.70	.17	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.71	.17	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.72	.17	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.73	.20	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.74	.22	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.75	.22	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.76	.22	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.77	.22	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.78	.26	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.79	.26	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.80	.26	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.81	.26	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.82	.26	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.83	.26	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.84	.26	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.85	.26	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.86	.51	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.87	.52	Free Outfall		O1,CV (no Q: WR,SP,O2)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
337.88	.52	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.89	.54	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.90	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.91	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.92	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.93	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.94	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.95	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.96	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.97	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.98	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
337.99	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.00	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.01	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.02	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.03	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.04	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.05	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.06	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.07	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.08	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.09	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.10	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.11	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.12	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.13	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.14	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.15	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.16	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.17	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.18	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.19	.56	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.20	.56	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.21	.57	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.22	.57	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.23	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.24	.59	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.25	.60	Free Outfall		O1,CV (no Q: WR,SP,O2)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
338.26	.60	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.27	.61	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.28	.62	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.29	.63	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.30	.63	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.31	.64	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.32	.65	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.33	.65	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.34	.66	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.35	.67	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.36	.67	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.37	.68	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.38	.69	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.39	.69	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.40	.70	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.41	.71	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.42	.71	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.43	.72	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.44	.73	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.45	.73	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.46	.74	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.47	.75	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.48	.75	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.49	.76	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.50	.76	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.51	.77	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.52	.78	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.53	.79	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.54	.80	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.55	.82	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.56	.84	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.57	.85	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.58	.88	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.59	.90	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.60	.93	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.61	.95	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.62	.98	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.63	1.01	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
338.64	1.03	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.65	1.06	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.66	1.09	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.67	1.13	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.68	1.15	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.69	1.17	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.70	1.19	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.71	1.21	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.72	1.23	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.73	1.25	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.74	1.27	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.75	1.28	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.76	1.30	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.77	1.32	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.78	1.33	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.79	1.35	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.80	1.36	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.81	1.38	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.82	1.39	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.83	1.41	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.84	1.42	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.85	1.44	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.86	1.45	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.87	1.47	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.88	1.48	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.89	1.49	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.90	1.51	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.91	1.52	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.92	1.54	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.93	1.55	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.94	1.56	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.95	1.57	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.96	1.59	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.97	1.60	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.98	1.61	Free Outfall		O2,O1,CV (no Q: WR,SP)
338.99	1.63	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.00	1.64	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.01	1.65	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
339.02	1.66	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.03	1.68	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.04	1.69	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.05	1.70	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.06	1.71	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.07	1.72	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.08	1.73	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.09	1.75	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.10	1.76	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.11	1.77	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.12	1.78	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.13	1.79	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.14	1.80	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.15	1.81	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.16	1.83	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.17	1.84	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.18	1.85	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.19	1.86	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.20	1.87	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.21	1.88	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.22	1.89	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.23	1.90	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.24	1.91	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.25	1.92	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.26	1.93	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.27	1.94	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.28	1.96	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.29	1.97	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.30	1.98	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.31	1.99	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.32	2.00	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.33	2.01	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.34	2.02	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.35	2.03	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.36	2.04	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.37	2.05	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.38	2.06	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.39	2.07	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
339.40	2.08	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.41	2.09	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.42	2.10	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.43	2.11	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.44	2.12	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.45	2.13	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.46	2.13	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.47	2.14	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.48	2.15	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.49	2.16	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.50	2.17	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.51	2.18	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.52	2.19	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.53	2.20	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.54	2.21	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.55	2.22	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.56	2.23	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.57	2.24	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.58	2.25	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.59	2.26	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.60	2.27	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.61	2.27	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.62	2.28	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.63	2.29	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.64	2.30	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.65	2.31	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.66	2.32	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.67	2.33	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.68	2.34	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.69	2.35	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.70	2.35	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.71	2.36	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.72	2.37	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.73	2.38	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.74	2.39	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.75	2.40	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.76	2.41	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.77	2.42	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
339.78	2.42	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.79	2.43	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.80	2.44	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.81	2.45	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.82	2.46	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.83	2.47	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.84	2.47	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.85	2.48	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.86	2.49	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.87	2.50	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.88	2.51	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.89	2.52	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.90	2.52	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.91	2.53	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.92	2.54	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.93	2.55	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.94	2.56	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.95	2.56	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.96	2.57	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.97	2.58	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.98	2.59	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.99	2.60	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.00	2.60	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.01	2.61	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.02	2.62	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.03	2.63	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.04	2.64	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.05	2.64	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.06	2.65	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.07	2.66	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.08	2.67	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.09	2.68	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.10	2.68	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.11	2.69	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.12	2.70	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.13	2.71	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.14	2.71	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.15	2.72	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
340.16	2.73	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.17	2.74	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.18	2.74	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.19	2.75	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.20	2.76	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.21	2.77	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.22	2.77	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.23	2.78	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.24	2.79	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.25	2.80	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.26	2.80	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.27	2.81	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.28	2.82	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.29	2.83	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.30	2.83	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.31	2.84	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.32	2.85	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.33	2.86	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.34	2.86	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.35	2.87	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.36	2.88	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.37	2.89	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.38	2.89	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.39	2.90	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.40	2.91	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.41	2.91	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.42	2.92	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.43	2.93	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.44	2.94	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.45	2.94	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.46	2.95	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.47	2.96	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.48	2.96	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.49	2.97	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.50	2.98	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.51	2.99	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.52	2.99	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.53	3.00	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
340.54	3.01	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.55	3.01	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.56	3.02	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.57	3.03	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.58	3.03	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.59	3.04	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.60	3.05	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.61	3.05	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.62	3.06	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.63	3.07	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.64	3.08	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.65	3.08	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.66	3.09	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.67	3.10	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.68	3.10	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.69	3.11	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.70	3.12	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.71	3.12	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.72	3.13	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.73	3.14	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.74	3.14	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.75	3.15	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.76	3.16	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.77	3.16	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.78	3.17	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.79	3.18	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.80	3.18	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.81	3.19	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.82	3.20	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.83	3.20	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.84	3.21	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.85	3.22	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.86	3.22	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.87	3.23	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.88	3.24	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.89	3.24	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.90	3.25	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.91	3.25	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
340.92	3.26	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.93	3.27	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.94	3.27	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.95	3.28	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.96	3.29	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.97	3.29	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.98	3.30	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.99	3.31	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.00	3.31	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.01	3.32	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.02	3.33	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.03	3.33	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.04	3.34	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.05	3.34	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.06	3.35	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.07	3.36	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.08	3.36	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.09	3.37	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.10	3.38	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.11	3.38	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.12	3.39	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.13	3.39	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.14	3.40	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.15	3.41	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.16	3.41	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.17	3.42	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.18	3.43	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.19	3.43	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.20	3.44	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.21	3.44	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.22	3.45	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.23	3.46	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.24	3.46	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.25	3.47	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.26	3.47	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.27	3.48	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.28	3.49	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.29	3.49	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
341.30	3.50	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.31	3.50	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.32	3.51	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.33	3.52	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.34	3.52	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.35	3.53	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.36	3.53	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.37	3.54	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.38	3.55	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.39	3.55	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.40	3.56	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.41	3.56	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.42	3.57	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.43	3.58	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.44	3.58	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.45	3.59	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.46	3.59	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.47	3.60	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.48	3.61	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.49	3.61	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.50	3.62	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.51	3.67	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.52	3.76	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.53	3.87	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.54	4.00	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.55	4.15	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.56	4.32	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.57	4.49	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.58	4.68	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.59	4.87	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.60	5.08	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.61	5.30	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.62	5.53	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.63	5.77	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.64	6.02	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.65	6.28	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.66	6.54	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.67	6.82	Free Outfall		SP,O2,O1,CV (no Q: WR)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
341.68	7.10	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.69	7.40	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.70	7.70	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.71	8.00	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.72	8.32	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.73	8.64	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.74	8.97	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.75	9.31	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.76	9.65	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.77	10.00	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.78	10.36	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.79	10.72	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.80	11.09	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.81	11.47	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.82	11.85	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.83	12.24	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.84	12.63	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.85	13.03	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.86	13.44	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.87	13.85	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.88	14.27	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.89	14.69	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.90	15.12	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.91	15.55	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.92	15.99	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.93	16.43	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.94	16.88	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.95	17.34	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.96	17.80	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.97	18.26	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.98	18.73	Free Outfall		SP,O2,O1,CV (no Q: WR)
341.99	19.21	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.00	19.69	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.01	20.17	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.02	20.66	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.03	21.15	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.04	21.65	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.05	22.15	Free Outfall		SP,O2,O1,CV (no Q: WR)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
342.06	22.66	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.07	23.17	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.08	23.69	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.09	24.21	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.10	24.73	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.11	25.26	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.12	25.80	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.13	26.33	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.14	26.87	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.15	27.42	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.16	27.97	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.17	28.52	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.18	29.08	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.19	29.64	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.20	30.20	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.21	30.77	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.22	31.34	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.23	31.92	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.24	32.49	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.25	33.07	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.26	33.66	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.27	34.24	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.28	34.83	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.29	35.43	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.30	36.02	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.31	36.62	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.32	37.22	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.33	37.82	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.34	38.42	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.35	39.02	Free Outfall		SP,O2,O1,CV (no Q: WR)
342.36	40.58	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.37	41.20	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.38	41.82	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.39	42.44	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.40	43.06	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.41	43.68	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.42	44.30	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.43	44.92	Free Outfall		SP,CV (no Q: WR,O2,O1)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Elev. ft	Total Q, Q cfs	Converge: TW Elev ft	Converge: Error +/-ft	Notes: Contributing Structures
342.44	45.53	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.45	45.78	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.46	45.97	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.47	46.56	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.48	47.63	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.49	47.71	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.50	47.78	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.51	47.84	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.52	47.91	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.53	47.99	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.54	48.06	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.55	48.13	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.56	48.19	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.57	48.26	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.58	48.34	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.59	48.41	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.60	48.48	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.61	48.54	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.62	48.61	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.63	48.70	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.64	48.78	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.65	48.83	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.66	48.91	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.67	48.98	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.68	49.06	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.69	49.12	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.70	49.19	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.71	49.26	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.72	49.33	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.73	49.40	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.74	49.47	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.75	49.53	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.76	49.60	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.77	49.68	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.78	49.74	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.79	49.81	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.80	49.88	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.81	49.95	Free Outfall		SP,CV (no Q: WR,O2,O1)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
342.82	50.02	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.83	50.09	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.84	50.15	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.85	50.23	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.86	50.29	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.87	50.36	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.88	50.43	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.89	50.50	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.90	50.57	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.91	50.63	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.92	50.71	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.93	50.76	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.94	50.84	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.95	50.90	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.96	50.98	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.97	51.03	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.98	51.11	Free Outfall		SP,CV (no Q: WR,O2,O1)
342.99	51.17	Free Outfall		SP,CV (no Q: WR,O2,O1)
343.00	51.24	Free Outfall		SP,CV (no Q: WR,O2,O1)
343.01	51.37	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.02	51.56	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.03	51.77	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.04	52.01	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.05	52.26	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.06	52.55	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.07	52.84	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.08	53.16	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.09	53.48	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.10	53.83	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.11	54.19	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.12	54.55	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.13	54.94	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.14	55.34	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.15	55.75	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.16	56.17	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.17	56.60	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.18	57.04	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.19	57.50	Free Outfall		WR,SP,CV (no Q: O2,O1)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Elev. ft	Total Q, Q cfs	Notes: Converge, TW Elev ft	Converge, Error +/-ft	Contributing Structures
343.20	57.96	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.21	58.43	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.22	58.92	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.23	59.41	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.24	59.90	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.25	60.41	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.26	60.94	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.27	61.46	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.28	62.00	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.29	62.54	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.30	63.09	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.31	63.66	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.32	64.22	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.33	64.80	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.34	65.38	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.35	65.97	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.36	66.57	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.37	67.18	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.38	67.79	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.39	68.42	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.40	69.04	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.41	69.67	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.42	70.31	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.43	70.95	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.44	71.61	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.45	72.28	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.46	72.94	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.47	73.61	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.48	74.30	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.49	74.98	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.50	75.68	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.51	76.37	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.52	77.08	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.53	77.78	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.54	78.50	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.55	79.22	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.56	79.95	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.57	80.69	Free Outfall		WR,SP,CV (no Q: O2,O1)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
343.58	81.43	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.59	82.18	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.60	82.93	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.61	83.68	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.62	84.43	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.63	85.24	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.64	86.01	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.65	86.79	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.66	87.57	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.67	88.37	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.68	89.16	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.69	89.96	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.70	90.76	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.71	91.58	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.72	92.40	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.73	93.21	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.74	94.04	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.75	94.87	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.76	95.71	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.77	96.54	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.78	97.40	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.79	98.25	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.80	99.10	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.81	99.96	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.82	100.82	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.83	101.69	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.84	102.57	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.85	103.45	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.86	104.33	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.87	105.22	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.88	106.11	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.89	107.01	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.90	107.91	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.91	108.81	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.92	109.72	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.93	110.64	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.94	111.55	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.95	112.48	Free Outfall		WR,SP,CV (no Q: O2,O1)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
343.96	113.40	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.97	114.34	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.98	115.28	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.99	116.22	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.00	117.17	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.01	118.11	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.02	119.07	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.03	120.03	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.04	120.99	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.05	121.95	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.06	122.92	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.07	123.90	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.08	124.88	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.09	125.86	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.10	126.85	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.11	127.83	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.12	128.83	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.13	129.83	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.14	130.83	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.15	131.83	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.16	132.84	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.17	133.86	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.18	134.88	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.19	135.90	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.20	136.93	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.21	137.96	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.22	138.99	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.23	140.03	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.24	141.06	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.25	142.10	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.26	143.15	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.27	144.21	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.28	145.27	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.29	146.32	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.30	147.38	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.31	148.46	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.32	149.52	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.33	150.60	Free Outfall		WR,SP,CV (no Q: O2,O1)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
344.34	151.68	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.35	152.76	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.36	153.83	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.37	154.93	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.38	156.02	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.39	157.12	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.40	158.21	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.41	159.32	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.42	160.42	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.43	161.53	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.44	162.65	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.45	163.76	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.46	164.88	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.47	166.00	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.48	167.13	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.49	168.25	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.50	169.39	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.51	170.53	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.52	171.67	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.53	172.80	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.54	173.95	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.55	175.10	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.56	176.25	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.57	177.42	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.58	178.57	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.59	179.73	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.60	180.90	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.61	182.06	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.62	183.24	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.63	184.41	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.64	185.60	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.65	186.77	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.66	187.96	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.67	189.14	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.68	190.34	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.69	191.53	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.70	192.73	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.71	193.92	Free Outfall		WR,SP,CV (no Q: O2,O1)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
344.72	195.13	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.73	196.33	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.74	197.54	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.75	198.75	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.76	199.97	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.77	201.30	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.78	202.52	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.79	203.74	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.80	204.97	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.81	206.20	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.82	207.44	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.83	208.68	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.84	209.92	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.85	211.16	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.86	212.41	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.87	213.66	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.88	214.92	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.89	216.17	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.90	217.43	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.91	218.68	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.92	219.94	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.93	221.21	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.94	222.48	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.95	223.75	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.96	225.03	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.97	226.31	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.98	227.60	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.99	228.87	Free Outfall		WR,SP,CV (no Q: O2,O1)
345.00	230.17	Free Outfall		WR,SP,CV (no Q: O2,O1)

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REQUESTED POND WS ELEVATIONS:

Min. Elev.= 337.50 ft
Increment = .01 ft
Max. Elev.= 345.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	WR	--->	TW	343.000	345.000
Stand Pipe	SP	--->	CV	341.500	345.000
Orifice-Circular	O2	--->	CV	338.500	345.000
Culvert-Circular	CV	--->	TW	337.540	345.000

TW SETUP, DS Channel

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OUTLET STRUCTURE INPUT DATA

```
Structure ID       = WR
Structure Type     = Weir-Rectangular
-----------------------------------
# of Openings      =         1
Crest Elev.        =    343.00 ft
Weir Length        =     20.00 ft
Weir Coeff.        =  3.000000

Weir TW effects      (Use adjustment equation)
```

```
Structure ID       = SP
Structure Type     = Stand Pipe
-----------------------------------
# of Openings      =         1
Invert Elev.       =    341.50 ft
Diameter           =    5.0000 ft
Orifice Area       =   19.6350 sq.ft
Orifice Coeff.     =      .600
Weir Length        =     15.71 ft
Weir Coeff.        =     3.000
K, Submerged       =      .000
K, Reverse         =     1.000
Kb,Barrel          =   .000000  (per ft of full flow)
Barrel Length      =       .00 ft
Mannings n         =     .0000
```

```
Structure ID       = O2
Structure Type     = Orifice-Circular
-----------------------------------
# of Openings      =        10
Invert Elev.       =    338.50 ft
Diameter           =     .1667 ft
Orifice Coeff.     =      .600
```

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OUTLET STRUCTURE INPUT DATA

```
Structure ID       = CV
Structure Type     = Culvert-Circular
-----------------------------------
No. Barrels        =         1
Barrel Diameter    =    3.0000 ft
Upstream Invert    =    337.54 ft
Dnstream Invert    =    337.00 ft
Horiz. Length      =    106.31 ft
Barrel Length      =    106.31 ft
Barrel Slope       =    .00508 ft/ft

OUTLET CONTROL DATA...
Mannings n         =     .0220
Ke                 =     .9000  (forward entrance loss)
Kb                 =   .020700  (per ft of full flow)
Kr                 =     .9000  (reverse entrance loss)
HW Convergence     =      .001  +/- ft

INLET CONTROL DATA...
Equation form      =         1
Inlet Control K    =     .0340
Inlet Control M    =    1.5000
Inlet Control c    =    .05530
Inlet Control Y    =     .5400
T1 ratio (HW/D)    =     1.260
T2 ratio (HW/D)    =     1.422
Slope Factor       =     -.500

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use   submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...
At T1 Elev =    341.32 ft  --->  Flow =     42.85 cfs
At T2 Elev =    341.81 ft  --->  Flow =     48.97 cfs


Structure ID       = TW
Structure Type     = TW SETUP, DS Channel
-----------------------------------
FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations=    30
Min. TW tolerance =    .01 ft
Max. TW tolerance =    .01 ft
Min. HW tolerance =    .01 ft
Max. HW tolerance =    .01 ft
Min.  Q tolerance =    .00 cfs
Max.  Q tolerance =    .00 cfs
```

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
337.50	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.51	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.52	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.53	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.54	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.55	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.56	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.57	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.58	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.59	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.60	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.61	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.62	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.63	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.64	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.65	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.66	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.67	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.68	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.69	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.70	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.71	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.72	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.73	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.74	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.75	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.76	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.77	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.78	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.79	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.80	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.81	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.82	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.83	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.84	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.85	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.86	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.87	.00	Free Outfall		(no Q: WR,SP,O2,CV)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
337.88	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.89	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.90	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.91	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.92	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.93	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.94	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.95	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.96	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.97	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.98	.00	Free Outfall		(no Q: WR,SP,O2,CV)
337.99	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.00	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.01	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.02	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.03	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.04	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.05	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.06	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.07	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.08	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.09	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.10	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.11	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.12	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.13	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.14	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.15	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.16	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.17	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.18	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.19	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.20	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.21	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.22	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.23	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.24	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.25	.00	Free Outfall		(no Q: WR,SP,O2,CV)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
338.26	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.27	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.28	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.29	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.30	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.31	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.32	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.33	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.34	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.35	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.36	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.37	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.38	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.39	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.40	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.41	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.42	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.43	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.44	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.45	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.46	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.47	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.48	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.49	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.50	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.51	.00	Free Outfall		O2,CV (no Q: WR,SP)
338.52	.00	Free Outfall		O2,CV (no Q: WR,SP)
338.53	.01	Free Outfall		O2,CV (no Q: WR,SP)
338.54	.01	Free Outfall		O2,CV (no Q: WR,SP)
338.55	.03	Free Outfall		O2,CV (no Q: WR,SP)
338.56	.05	Free Outfall		O2,CV (no Q: WR,SP)
338.57	.06	Free Outfall		O2,CV (no Q: WR,SP)
338.58	.08	Free Outfall		O2,CV (no Q: WR,SP)
338.59	.10	Free Outfall		O2,CV (no Q: WR,SP)
338.60	.12	Free Outfall		O2,CV (no Q: WR,SP)
338.61	.14	Free Outfall		O2,CV (no Q: WR,SP)
338.62	.17	Free Outfall		O2,CV (no Q: WR,SP)
338.63	.19	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
338.64	.22	Free Outfall		O2,CV (no Q: WR,SP)
338.65	.25	Free Outfall		O2,CV (no Q: WR,SP)
338.66	.27	Free Outfall		O2,CV (no Q: WR,SP)
338.67	.31	Free Outfall		O2,CV (no Q: WR,SP)
338.68	.33	Free Outfall		O2,CV (no Q: WR,SP)
338.69	.34	Free Outfall		O2,CV (no Q: WR,SP)
338.70	.36	Free Outfall		O2,CV (no Q: WR,SP)
338.71	.37	Free Outfall		O2,CV (no Q: WR,SP)
338.72	.39	Free Outfall		O2,CV (no Q: WR,SP)
338.73	.40	Free Outfall		O2,CV (no Q: WR,SP)
338.74	.42	Free Outfall		O2,CV (no Q: WR,SP)
338.75	.43	Free Outfall		O2,CV (no Q: WR,SP)
338.76	.44	Free Outfall		O2,CV (no Q: WR,SP)
338.77	.45	Free Outfall		O2,CV (no Q: WR,SP)
338.78	.47	Free Outfall		O2,CV (no Q: WR,SP)
338.79	.48	Free Outfall		O2,CV (no Q: WR,SP)
338.80	.49	Free Outfall		O2,CV (no Q: WR,SP)
338.81	.50	Free Outfall		O2,CV (no Q: WR,SP)
338.82	.51	Free Outfall		O2,CV (no Q: WR,SP)
338.83	.52	Free Outfall		O2,CV (no Q: WR,SP)
338.84	.53	Free Outfall		O2,CV (no Q: WR,SP)
338.85	.54	Free Outfall		O2,CV (no Q: WR,SP)
338.86	.55	Free Outfall		O2,CV (no Q: WR,SP)
338.87	.56	Free Outfall		O2,CV (no Q: WR,SP)
338.88	.57	Free Outfall		O2,CV (no Q: WR,SP)
338.89	.58	Free Outfall		O2,CV (no Q: WR,SP)
338.90	.59	Free Outfall		O2,CV (no Q: WR,SP)
338.91	.60	Free Outfall		O2,CV (no Q: WR,SP)
338.92	.61	Free Outfall		O2,CV (no Q: WR,SP)
338.93	.62	Free Outfall		O2,CV (no Q: WR,SP)
338.94	.63	Free Outfall		O2,CV (no Q: WR,SP)
338.95	.64	Free Outfall		O2,CV (no Q: WR,SP)
338.96	.64	Free Outfall		O2,CV (no Q: WR,SP)
338.97	.65	Free Outfall		O2,CV (no Q: WR,SP)
338.98	.66	Free Outfall		O2,CV (no Q: WR,SP)
338.99	.67	Free Outfall		O2,CV (no Q: WR,SP)
339.00	.68	Free Outfall		O2,CV (no Q: WR,SP)
339.01	.69	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
339.02	.69	Free Outfall		O2,CV (no Q: WR,SP)
339.03	.70	Free Outfall		O2,CV (no Q: WR,SP)
339.04	.71	Free Outfall		O2,CV (no Q: WR,SP)
339.05	.72	Free Outfall		O2,CV (no Q: WR,SP)
339.06	.73	Free Outfall		O2,CV (no Q: WR,SP)
339.07	.73	Free Outfall		O2,CV (no Q: WR,SP)
339.08	.74	Free Outfall		O2,CV (no Q: WR,SP)
339.09	.75	Free Outfall		O2,CV (no Q: WR,SP)
339.10	.76	Free Outfall		O2,CV (no Q: WR,SP)
339.11	.76	Free Outfall		O2,CV (no Q: WR,SP)
339.12	.77	Free Outfall		O2,CV (no Q: WR,SP)
339.13	.78	Free Outfall		O2,CV (no Q: WR,SP)
339.14	.78	Free Outfall		O2,CV (no Q: WR,SP)
339.15	.79	Free Outfall		O2,CV (no Q: WR,SP)
339.16	.80	Free Outfall		O2,CV (no Q: WR,SP)
339.17	.80	Free Outfall		O2,CV (no Q: WR,SP)
339.18	.81	Free Outfall		O2,CV (no Q: WR,SP)
339.19	.82	Free Outfall		O2,CV (no Q: WR,SP)
339.20	.82	Free Outfall		O2,CV (no Q: WR,SP)
339.21	.83	Free Outfall		O2,CV (no Q: WR,SP)
339.22	.84	Free Outfall		O2,CV (no Q: WR,SP)
339.23	.84	Free Outfall		O2,CV (no Q: WR,SP)
339.24	.85	Free Outfall		O2,CV (no Q: WR,SP)
339.25	.86	Free Outfall		O2,CV (no Q: WR,SP)
339.26	.86	Free Outfall		O2,CV (no Q: WR,SP)
339.27	.87	Free Outfall		O2,CV (no Q: WR,SP)
339.28	.88	Free Outfall		O2,CV (no Q: WR,SP)
339.29	.88	Free Outfall		O2,CV (no Q: WR,SP)
339.30	.89	Free Outfall		O2,CV (no Q: WR,SP)
339.31	.90	Free Outfall		O2,CV (no Q: WR,SP)
339.32	.90	Free Outfall		O2,CV (no Q: WR,SP)
339.33	.91	Free Outfall		O2,CV (no Q: WR,SP)
339.34	.91	Free Outfall		O2,CV (no Q: WR,SP)
339.35	.92	Free Outfall		O2,CV (no Q: WR,SP)
339.36	.93	Free Outfall		O2,CV (no Q: WR,SP)
339.37	.93	Free Outfall		O2,CV (no Q: WR,SP)
339.38	.94	Free Outfall		O2,CV (no Q: WR,SP)
339.39	.94	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
339.40	.95	Free Outfall		O2,CV (no Q: WR,SP)
339.41	.96	Free Outfall		O2,CV (no Q: WR,SP)
339.42	.96	Free Outfall		O2,CV (no Q: WR,SP)
339.43	.97	Free Outfall		O2,CV (no Q: WR,SP)
339.44	.97	Free Outfall		O2,CV (no Q: WR,SP)
339.45	.98	Free Outfall		O2,CV (no Q: WR,SP)
339.46	.98	Free Outfall		O2,CV (no Q: WR,SP)
339.47	.99	Free Outfall		O2,CV (no Q: WR,SP)
339.48	.99	Free Outfall		O2,CV (no Q: WR,SP)
339.49	1.00	Free Outfall		O2,CV (no Q: WR,SP)
339.50	1.01	Free Outfall		O2,CV (no Q: WR,SP)
339.51	1.01	Free Outfall		O2,CV (no Q: WR,SP)
339.52	1.02	Free Outfall		O2,CV (no Q: WR,SP)
339.53	1.02	Free Outfall		O2,CV (no Q: WR,SP)
339.54	1.03	Free Outfall		O2,CV (no Q: WR,SP)
339.55	1.03	Free Outfall		O2,CV (no Q: WR,SP)
339.56	1.04	Free Outfall		O2,CV (no Q: WR,SP)
339.57	1.04	Free Outfall		O2,CV (no Q: WR,SP)
339.58	1.05	Free Outfall		O2,CV (no Q: WR,SP)
339.59	1.05	Free Outfall		O2,CV (no Q: WR,SP)
339.60	1.06	Free Outfall		O2,CV (no Q: WR,SP)
339.61	1.06	Free Outfall		O2,CV (no Q: WR,SP)
339.62	1.07	Free Outfall		O2,CV (no Q: WR,SP)
339.63	1.07	Free Outfall		O2,CV (no Q: WR,SP)
339.64	1.08	Free Outfall		O2,CV (no Q: WR,SP)
339.65	1.08	Free Outfall		O2,CV (no Q: WR,SP)
339.66	1.09	Free Outfall		O2,CV (no Q: WR,SP)
339.67	1.10	Free Outfall		O2,CV (no Q: WR,SP)
339.68	1.10	Free Outfall		O2,CV (no Q: WR,SP)
339.69	1.11	Free Outfall		O2,CV (no Q: WR,SP)
339.70	1.11	Free Outfall		O2,CV (no Q: WR,SP)
339.71	1.11	Free Outfall		O2,CV (no Q: WR,SP)
339.72	1.12	Free Outfall		O2,CV (no Q: WR,SP)
339.73	1.12	Free Outfall		O2,CV (no Q: WR,SP)
339.74	1.13	Free Outfall		O2,CV (no Q: WR,SP)
339.75	1.13	Free Outfall		O2,CV (no Q: WR,SP)
339.76	1.14	Free Outfall		O2,CV (no Q: WR,SP)
339.77	1.14	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
339.78	1.15	Free Outfall		O2,CV (no Q: WR,SP)
339.79	1.15	Free Outfall		O2,CV (no Q: WR,SP)
339.80	1.16	Free Outfall		O2,CV (no Q: WR,SP)
339.81	1.16	Free Outfall		O2,CV (no Q: WR,SP)
339.82	1.17	Free Outfall		O2,CV (no Q: WR,SP)
339.83	1.17	Free Outfall		O2,CV (no Q: WR,SP)
339.84	1.18	Free Outfall		O2,CV (no Q: WR,SP)
339.85	1.18	Free Outfall		O2,CV (no Q: WR,SP)
339.86	1.19	Free Outfall		O2,CV (no Q: WR,SP)
339.87	1.19	Free Outfall		O2,CV (no Q: WR,SP)
339.88	1.20	Free Outfall		O2,CV (no Q: WR,SP)
339.89	1.20	Free Outfall		O2,CV (no Q: WR,SP)
339.90	1.21	Free Outfall		O2,CV (no Q: WR,SP)
339.91	1.21	Free Outfall		O2,CV (no Q: WR,SP)
339.92	1.21	Free Outfall		O2,CV (no Q: WR,SP)
339.93	1.22	Free Outfall		O2,CV (no Q: WR,SP)
339.94	1.22	Free Outfall		O2,CV (no Q: WR,SP)
339.95	1.23	Free Outfall		O2,CV (no Q: WR,SP)
339.96	1.23	Free Outfall		O2,CV (no Q: WR,SP)
339.97	1.24	Free Outfall		O2,CV (no Q: WR,SP)
339.98	1.24	Free Outfall		O2,CV (no Q: WR,SP)
339.99	1.25	Free Outfall		O2,CV (no Q: WR,SP)
340.00	1.25	Free Outfall		O2,CV (no Q: WR,SP)
340.01	1.25	Free Outfall		O2,CV (no Q: WR,SP)
340.02	1.26	Free Outfall		O2,CV (no Q: WR,SP)
340.03	1.26	Free Outfall		O2,CV (no Q: WR,SP)
340.04	1.27	Free Outfall		O2,CV (no Q: WR,SP)
340.05	1.27	Free Outfall		O2,CV (no Q: WR,SP)
340.06	1.28	Free Outfall		O2,CV (no Q: WR,SP)
340.07	1.28	Free Outfall		O2,CV (no Q: WR,SP)
340.08	1.29	Free Outfall		O2,CV (no Q: WR,SP)
340.09	1.29	Free Outfall		O2,CV (no Q: WR,SP)
340.10	1.29	Free Outfall		O2,CV (no Q: WR,SP)
340.11	1.30	Free Outfall		O2,CV (no Q: WR,SP)
340.12	1.30	Free Outfall		O2,CV (no Q: WR,SP)
340.13	1.31	Free Outfall		O2,CV (no Q: WR,SP)
340.14	1.31	Free Outfall		O2,CV (no Q: WR,SP)
340.15	1.31	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
340.16	1.32	Free Outfall		O2,CV (no Q: WR,SP)
340.17	1.32	Free Outfall		O2,CV (no Q: WR,SP)
340.18	1.33	Free Outfall		O2,CV (no Q: WR,SP)
340.19	1.33	Free Outfall		O2,CV (no Q: WR,SP)
340.20	1.34	Free Outfall		O2,CV (no Q: WR,SP)
340.21	1.34	Free Outfall		O2,CV (no Q: WR,SP)
340.22	1.34	Free Outfall		O2,CV (no Q: WR,SP)
340.23	1.35	Free Outfall		O2,CV (no Q: WR,SP)
340.24	1.35	Free Outfall		O2,CV (no Q: WR,SP)
340.25	1.36	Free Outfall		O2,CV (no Q: WR,SP)
340.26	1.36	Free Outfall		O2,CV (no Q: WR,SP)
340.27	1.36	Free Outfall		O2,CV (no Q: WR,SP)
340.28	1.37	Free Outfall		O2,CV (no Q: WR,SP)
340.29	1.37	Free Outfall		O2,CV (no Q: WR,SP)
340.30	1.38	Free Outfall		O2,CV (no Q: WR,SP)
340.31	1.38	Free Outfall		O2,CV (no Q: WR,SP)
340.32	1.38	Free Outfall		O2,CV (no Q: WR,SP)
340.33	1.39	Free Outfall		O2,CV (no Q: WR,SP)
340.34	1.39	Free Outfall		O2,CV (no Q: WR,SP)
340.35	1.40	Free Outfall		O2,CV (no Q: WR,SP)
340.36	1.40	Free Outfall		O2,CV (no Q: WR,SP)
340.37	1.40	Free Outfall		O2,CV (no Q: WR,SP)
340.38	1.41	Free Outfall		O2,CV (no Q: WR,SP)
340.39	1.41	Free Outfall		O2,CV (no Q: WR,SP)
340.40	1.42	Free Outfall		O2,CV (no Q: WR,SP)
340.41	1.42	Free Outfall		O2,CV (no Q: WR,SP)
340.42	1.42	Free Outfall		O2,CV (no Q: WR,SP)
340.43	1.43	Free Outfall		O2,CV (no Q: WR,SP)
340.44	1.43	Free Outfall		O2,CV (no Q: WR,SP)
340.45	1.44	Free Outfall		O2,CV (no Q: WR,SP)
340.46	1.44	Free Outfall		O2,CV (no Q: WR,SP)
340.47	1.44	Free Outfall		O2,CV (no Q: WR,SP)
340.48	1.45	Free Outfall		O2,CV (no Q: WR,SP)
340.49	1.45	Free Outfall		O2,CV (no Q: WR,SP)
340.50	1.45	Free Outfall		O2,CV (no Q: WR,SP)
340.51	1.46	Free Outfall		O2,CV (no Q: WR,SP)
340.52	1.46	Free Outfall		O2,CV (no Q: WR,SP)
340.53	1.47	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
340.54	1.47	Free Outfall		O2,CV (no Q: WR,SP)
340.55	1.47	Free Outfall		O2,CV (no Q: WR,SP)
340.56	1.48	Free Outfall		O2,CV (no Q: WR,SP)
340.57	1.48	Free Outfall		O2,CV (no Q: WR,SP)
340.58	1.48	Free Outfall		O2,CV (no Q: WR,SP)
340.59	1.49	Free Outfall		O2,CV (no Q: WR,SP)
340.60	1.49	Free Outfall		O2,CV (no Q: WR,SP)
340.61	1.50	Free Outfall		O2,CV (no Q: WR,SP)
340.62	1.50	Free Outfall		O2,CV (no Q: WR,SP)
340.63	1.50	Free Outfall		O2,CV (no Q: WR,SP)
340.64	1.51	Free Outfall		O2,CV (no Q: WR,SP)
340.65	1.51	Free Outfall		O2,CV (no Q: WR,SP)
340.66	1.51	Free Outfall		O2,CV (no Q: WR,SP)
340.67	1.52	Free Outfall		O2,CV (no Q: WR,SP)
340.68	1.52	Free Outfall		O2,CV (no Q: WR,SP)
340.69	1.52	Free Outfall		O2,CV (no Q: WR,SP)
340.70	1.53	Free Outfall		O2,CV (no Q: WR,SP)
340.71	1.53	Free Outfall		O2,CV (no Q: WR,SP)
340.72	1.54	Free Outfall		O2,CV (no Q: WR,SP)
340.73	1.54	Free Outfall		O2,CV (no Q: WR,SP)
340.74	1.54	Free Outfall		O2,CV (no Q: WR,SP)
340.75	1.55	Free Outfall		O2,CV (no Q: WR,SP)
340.76	1.55	Free Outfall		O2,CV (no Q: WR,SP)
340.77	1.55	Free Outfall		O2,CV (no Q: WR,SP)
340.78	1.56	Free Outfall		O2,CV (no Q: WR,SP)
340.79	1.56	Free Outfall		O2,CV (no Q: WR,SP)
340.80	1.56	Free Outfall		O2,CV (no Q: WR,SP)
340.81	1.57	Free Outfall		O2,CV (no Q: WR,SP)
340.82	1.57	Free Outfall		O2,CV (no Q: WR,SP)
340.83	1.57	Free Outfall		O2,CV (no Q: WR,SP)
340.84	1.58	Free Outfall		O2,CV (no Q: WR,SP)
340.85	1.58	Free Outfall		O2,CV (no Q: WR,SP)
340.86	1.58	Free Outfall		O2,CV (no Q: WR,SP)
340.87	1.59	Free Outfall		O2,CV (no Q: WR,SP)
340.88	1.59	Free Outfall		O2,CV (no Q: WR,SP)
340.89	1.60	Free Outfall		O2,CV (no Q: WR,SP)
340.90	1.60	Free Outfall		O2,CV (no Q: WR,SP)
340.91	1.60	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
340.92	1.61	Free Outfall		O2,CV (no Q: WR,SP)
340.93	1.61	Free Outfall		O2,CV (no Q: WR,SP)
340.94	1.61	Free Outfall		O2,CV (no Q: WR,SP)
340.95	1.62	Free Outfall		O2,CV (no Q: WR,SP)
340.96	1.62	Free Outfall		O2,CV (no Q: WR,SP)
340.97	1.62	Free Outfall		O2,CV (no Q: WR,SP)
340.98	1.63	Free Outfall		O2,CV (no Q: WR,SP)
340.99	1.63	Free Outfall		O2,CV (no Q: WR,SP)
341.00	1.63	Free Outfall		O2,CV (no Q: WR,SP)
341.01	1.64	Free Outfall		O2,CV (no Q: WR,SP)
341.02	1.64	Free Outfall		O2,CV (no Q: WR,SP)
341.03	1.64	Free Outfall		O2,CV (no Q: WR,SP)
341.04	1.65	Free Outfall		O2,CV (no Q: WR,SP)
341.05	1.65	Free Outfall		O2,CV (no Q: WR,SP)
341.06	1.65	Free Outfall		O2,CV (no Q: WR,SP)
341.07	1.66	Free Outfall		O2,CV (no Q: WR,SP)
341.08	1.66	Free Outfall		O2,CV (no Q: WR,SP)
341.09	1.66	Free Outfall		O2,CV (no Q: WR,SP)
341.10	1.67	Free Outfall		O2,CV (no Q: WR,SP)
341.11	1.67	Free Outfall		O2,CV (no Q: WR,SP)
341.12	1.67	Free Outfall		O2,CV (no Q: WR,SP)
341.13	1.68	Free Outfall		O2,CV (no Q: WR,SP)
341.14	1.68	Free Outfall		O2,CV (no Q: WR,SP)
341.15	1.68	Free Outfall		O2,CV (no Q: WR,SP)
341.16	1.69	Free Outfall		O2,CV (no Q: WR,SP)
341.17	1.69	Free Outfall		O2,CV (no Q: WR,SP)
341.18	1.69	Free Outfall		O2,CV (no Q: WR,SP)
341.19	1.70	Free Outfall		O2,CV (no Q: WR,SP)
341.20	1.70	Free Outfall		O2,CV (no Q: WR,SP)
341.21	1.70	Free Outfall		O2,CV (no Q: WR,SP)
341.22	1.71	Free Outfall		O2,CV (no Q: WR,SP)
341.23	1.71	Free Outfall		O2,CV (no Q: WR,SP)
341.24	1.71	Free Outfall		O2,CV (no Q: WR,SP)
341.25	1.72	Free Outfall		O2,CV (no Q: WR,SP)
341.26	1.72	Free Outfall		O2,CV (no Q: WR,SP)
341.27	1.72	Free Outfall		O2,CV (no Q: WR,SP)
341.28	1.73	Free Outfall		O2,CV (no Q: WR,SP)
341.29	1.73	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
341.30	1.73	Free Outfall		O2,CV (no Q: WR,SP)
341.31	1.73	Free Outfall		O2,CV (no Q: WR,SP)
341.32	1.74	Free Outfall		O2,CV (no Q: WR,SP)
341.33	1.74	Free Outfall		O2,CV (no Q: WR,SP)
341.34	1.74	Free Outfall		O2,CV (no Q: WR,SP)
341.35	1.75	Free Outfall		O2,CV (no Q: WR,SP)
341.36	1.75	Free Outfall		O2,CV (no Q: WR,SP)
341.37	1.75	Free Outfall		O2,CV (no Q: WR,SP)
341.38	1.76	Free Outfall		O2,CV (no Q: WR,SP)
341.39	1.76	Free Outfall		O2,CV (no Q: WR,SP)
341.40	1.76	Free Outfall		O2,CV (no Q: WR,SP)
341.41	1.77	Free Outfall		O2,CV (no Q: WR,SP)
341.42	1.77	Free Outfall		O2,CV (no Q: WR,SP)
341.43	1.77	Free Outfall		O2,CV (no Q: WR,SP)
341.44	1.78	Free Outfall		O2,CV (no Q: WR,SP)
341.45	1.78	Free Outfall		O2,CV (no Q: WR,SP)
341.46	1.78	Free Outfall		O2,CV (no Q: WR,SP)
341.47	1.78	Free Outfall		O2,CV (no Q: WR,SP)
341.48	1.79	Free Outfall		O2,CV (no Q: WR,SP)
341.49	1.79	Free Outfall		O2,CV (no Q: WR,SP)
341.50	1.79	Free Outfall		O2,CV (no Q: WR,SP)
341.51	1.84	Free Outfall		SP,O2,CV (no Q: WR)
341.52	1.93	Free Outfall		SP,O2,CV (no Q: WR)
341.53	2.05	Free Outfall		SP,O2,CV (no Q: WR)
341.54	2.18	Free Outfall		SP,O2,CV (no Q: WR)
341.55	2.34	Free Outfall		SP,O2,CV (no Q: WR)
341.56	2.50	Free Outfall		SP,O2,CV (no Q: WR)
341.57	2.69	Free Outfall		SP,O2,CV (no Q: WR)
341.58	2.88	Free Outfall		SP,O2,CV (no Q: WR)
341.59	3.09	Free Outfall		SP,O2,CV (no Q: WR)
341.60	3.31	Free Outfall		SP,O2,CV (no Q: WR)
341.61	3.55	Free Outfall		SP,O2,CV (no Q: WR)
341.62	3.79	Free Outfall		SP,O2,CV (no Q: WR)
341.63	4.04	Free Outfall		SP,O2,CV (no Q: WR)
341.64	4.31	Free Outfall		SP,O2,CV (no Q: WR)
341.65	4.57	Free Outfall		SP,O2,CV (no Q: WR)
341.66	4.84	Free Outfall		SP,O2,CV (no Q: WR)
341.67	5.12	Free Outfall		SP,O2,CV (no Q: WR)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
341.68	5.41	Free Outfall		SP,O2,CV (no Q: WR)
341.69	5.71	Free Outfall		SP,O2,CV (no Q: WR)
341.70	6.01	Free Outfall		SP,O2,CV (no Q: WR)
341.71	6.32	Free Outfall		SP,O2,CV (no Q: WR)
341.72	6.64	Free Outfall		SP,O2,CV (no Q: WR)
341.73	6.97	Free Outfall		SP,O2,CV (no Q: WR)
341.74	7.31	Free Outfall		SP,O2,CV (no Q: WR)
341.75	7.65	Free Outfall		SP,O2,CV (no Q: WR)
341.76	8.00	Free Outfall		SP,O2,CV (no Q: WR)
341.77	8.35	Free Outfall		SP,O2,CV (no Q: WR)
341.78	8.72	Free Outfall		SP,O2,CV (no Q: WR)
341.79	9.09	Free Outfall		SP,O2,CV (no Q: WR)
341.80	9.46	Free Outfall		SP,O2,CV (no Q: WR)
341.81	9.85	Free Outfall		SP,O2,CV (no Q: WR)
341.82	10.23	Free Outfall		SP,O2,CV (no Q: WR)
341.83	10.63	Free Outfall		SP,O2,CV (no Q: WR)
341.84	11.03	Free Outfall		SP,O2,CV (no Q: WR)
341.85	11.44	Free Outfall		SP,O2,CV (no Q: WR)
341.86	11.85	Free Outfall		SP,O2,CV (no Q: WR)
341.87	12.27	Free Outfall		SP,O2,CV (no Q: WR)
341.88	12.69	Free Outfall		SP,O2,CV (no Q: WR)
341.89	13.13	Free Outfall		SP,O2,CV (no Q: WR)
341.90	13.56	Free Outfall		SP,O2,CV (no Q: WR)
341.91	14.00	Free Outfall		SP,O2,CV (no Q: WR)
341.92	14.45	Free Outfall		SP,O2,CV (no Q: WR)
341.93	14.90	Free Outfall		SP,O2,CV (no Q: WR)
341.94	15.36	Free Outfall		SP,O2,CV (no Q: WR)
341.95	15.82	Free Outfall		SP,O2,CV (no Q: WR)
341.96	16.29	Free Outfall		SP,O2,CV (no Q: WR)
341.97	16.76	Free Outfall		SP,O2,CV (no Q: WR)
341.98	17.24	Free Outfall		SP,O2,CV (no Q: WR)
341.99	17.72	Free Outfall		SP,O2,CV (no Q: WR)
342.00	18.21	Free Outfall		SP,O2,CV (no Q: WR)
342.01	18.71	Free Outfall		SP,O2,CV (no Q: WR)
342.02	19.20	Free Outfall		SP,O2,CV (no Q: WR)
342.03	19.71	Free Outfall		SP,O2,CV (no Q: WR)
342.04	20.21	Free Outfall		SP,O2,CV (no Q: WR)
342.05	20.72	Free Outfall		SP,O2,CV (no Q: WR)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
342.06	21.24	Free Outfall		SP,O2,CV (no Q: WR)
342.07	21.76	Free Outfall		SP,O2,CV (no Q: WR)
342.08	22.29	Free Outfall		SP,O2,CV (no Q: WR)
342.09	22.82	Free Outfall		SP,O2,CV (no Q: WR)
342.10	23.36	Free Outfall		SP,O2,CV (no Q: WR)
342.11	23.89	Free Outfall		SP,O2,CV (no Q: WR)
342.12	24.44	Free Outfall		SP,O2,CV (no Q: WR)
342.13	24.99	Free Outfall		SP,O2,CV (no Q: WR)
342.14	25.54	Free Outfall		SP,O2,CV (no Q: WR)
342.15	26.09	Free Outfall		SP,O2,CV (no Q: WR)
342.16	26.65	Free Outfall		SP,O2,CV (no Q: WR)
342.17	27.22	Free Outfall		SP,O2,CV (no Q: WR)
342.18	27.79	Free Outfall		SP,O2,CV (no Q: WR)
342.19	28.36	Free Outfall		SP,O2,CV (no Q: WR)
342.20	28.94	Free Outfall		SP,O2,CV (no Q: WR)
342.21	29.52	Free Outfall		SP,O2,CV (no Q: WR)
342.22	30.10	Free Outfall		SP,O2,CV (no Q: WR)
342.23	30.69	Free Outfall		SP,O2,CV (no Q: WR)
342.24	31.28	Free Outfall		SP,O2,CV (no Q: WR)
342.25	31.88	Free Outfall		SP,O2,CV (no Q: WR)
342.26	32.48	Free Outfall		SP,O2,CV (no Q: WR)
342.27	33.08	Free Outfall		SP,O2,CV (no Q: WR)
342.28	33.69	Free Outfall		SP,O2,CV (no Q: WR)
342.29	34.30	Free Outfall		SP,O2,CV (no Q: WR)
342.30	34.91	Free Outfall		SP,O2,CV (no Q: WR)
342.31	35.53	Free Outfall		SP,O2,CV (no Q: WR)
342.32	36.15	Free Outfall		SP,O2,CV (no Q: WR)
342.33	36.77	Free Outfall		SP,O2,CV (no Q: WR)
342.34	37.39	Free Outfall		SP,O2,CV (no Q: WR)
342.35	38.02	Free Outfall		SP,O2,CV (no Q: WR)
342.36	38.65	Free Outfall		SP,O2,CV (no Q: WR)
342.37	39.28	Free Outfall		SP,O2,CV (no Q: WR)
342.38	39.91	Free Outfall		SP,O2,CV (no Q: WR)
342.39	40.54	Free Outfall		SP,CV (no Q: WR,O2)
342.40	41.17	Free Outfall		SP,CV (no Q: WR,O2)
342.41	41.80	Free Outfall		SP,CV (no Q: WR,O2)
342.42	42.43	Free Outfall		SP,CV (no Q: WR,O2)
342.43	43.06	Free Outfall		SP,CV (no Q: WR,O2)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
342.44	43.69	Free Outfall		SP,CV (no Q: WR,O2)
342.45	44.32	Free Outfall		SP,CV (no Q: WR,O2)
342.46	44.95	Free Outfall		SP,CV (no Q: WR,O2)
342.47	45.57	Free Outfall		SP,CV (no Q: WR,O2)
342.48	46.19	Free Outfall		SP,CV (no Q: WR,O2)
342.49	46.79	Free Outfall		SP,CV (no Q: WR,O2)
342.50	47.78	Free Outfall		SP,CV (no Q: WR,O2)
342.51	47.84	Free Outfall		SP,CV (no Q: WR,O2)
342.52	47.91	Free Outfall		SP,CV (no Q: WR,O2)
342.53	47.99	Free Outfall		SP,CV (no Q: WR,O2)
342.54	48.06	Free Outfall		SP,CV (no Q: WR,O2)
342.55	48.13	Free Outfall		SP,CV (no Q: WR,O2)
342.56	48.19	Free Outfall		SP,CV (no Q: WR,O2)
342.57	48.26	Free Outfall		SP,CV (no Q: WR,O2)
342.58	48.34	Free Outfall		SP,CV (no Q: WR,O2)
342.59	48.41	Free Outfall		SP,CV (no Q: WR,O2)
342.60	48.48	Free Outfall		SP,CV (no Q: WR,O2)
342.61	48.54	Free Outfall		SP,CV (no Q: WR,O2)
342.62	48.61	Free Outfall		SP,CV (no Q: WR,O2)
342.63	48.70	Free Outfall		SP,CV (no Q: WR,O2)
342.64	48.78	Free Outfall		SP,CV (no Q: WR,O2)
342.65	48.83	Free Outfall		SP,CV (no Q: WR,O2)
342.66	48.91	Free Outfall		SP,CV (no Q: WR,O2)
342.67	48.98	Free Outfall		SP,CV (no Q: WR,O2)
342.68	49.06	Free Outfall		SP,CV (no Q: WR,O2)
342.69	49.12	Free Outfall		SP,CV (no Q: WR,O2)
342.70	49.19	Free Outfall		SP,CV (no Q: WR,O2)
342.71	49.26	Free Outfall		SP,CV (no Q: WR,O2)
342.72	49.33	Free Outfall		SP,CV (no Q: WR,O2)
342.73	49.40	Free Outfall		SP,CV (no Q: WR,O2)
342.74	49.47	Free Outfall		SP,CV (no Q: WR,O2)
342.75	49.53	Free Outfall		SP,CV (no Q: WR,O2)
342.76	49.60	Free Outfall		SP,CV (no Q: WR,O2)
342.77	49.68	Free Outfall		SP,CV (no Q: WR,O2)
342.78	49.74	Free Outfall		SP,CV (no Q: WR,O2)
342.79	49.81	Free Outfall		SP,CV (no Q: WR,O2)
342.80	49.88	Free Outfall		SP,CV (no Q: WR,O2)
342.81	49.95	Free Outfall		SP,CV (no Q: WR,O2)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
342.82	50.02	Free Outfall		SP,CV (no Q: WR,O2)
342.83	50.09	Free Outfall		SP,CV (no Q: WR,O2)
342.84	50.15	Free Outfall		SP,CV (no Q: WR,O2)
342.85	50.23	Free Outfall		SP,CV (no Q: WR,O2)
342.86	50.29	Free Outfall		SP,CV (no Q: WR,O2)
342.87	50.36	Free Outfall		SP,CV (no Q: WR,O2)
342.88	50.43	Free Outfall		SP,CV (no Q: WR,O2)
342.89	50.50	Free Outfall		SP,CV (no Q: WR,O2)
342.90	50.57	Free Outfall		SP,CV (no Q: WR,O2)
342.91	50.63	Free Outfall		SP,CV (no Q: WR,O2)
342.92	50.71	Free Outfall		SP,CV (no Q: WR,O2)
342.93	50.76	Free Outfall		SP,CV (no Q: WR,O2)
342.94	50.84	Free Outfall		SP,CV (no Q: WR,O2)
342.95	50.90	Free Outfall		SP,CV (no Q: WR,O2)
342.96	50.98	Free Outfall		SP,CV (no Q: WR,O2)
342.97	51.03	Free Outfall		SP,CV (no Q: WR,O2)
342.98	51.11	Free Outfall		SP,CV (no Q: WR,O2)
342.99	51.17	Free Outfall		SP,CV (no Q: WR,O2)
343.00	51.24	Free Outfall		SP,CV (no Q: WR,O2)
343.01	51.37	Free Outfall		WR,SP,CV (no Q: O2)
343.02	51.56	Free Outfall		WR,SP,CV (no Q: O2)
343.03	51.77	Free Outfall		WR,SP,CV (no Q: O2)
343.04	52.01	Free Outfall		WR,SP,CV (no Q: O2)
343.05	52.26	Free Outfall		WR,SP,CV (no Q: O2)
343.06	52.55	Free Outfall		WR,SP,CV (no Q: O2)
343.07	52.84	Free Outfall		WR,SP,CV (no Q: O2)
343.08	53.16	Free Outfall		WR,SP,CV (no Q: O2)
343.09	53.48	Free Outfall		WR,SP,CV (no Q: O2)
343.10	53.83	Free Outfall		WR,SP,CV (no Q: O2)
343.11	54.19	Free Outfall		WR,SP,CV (no Q: O2)
343.12	54.55	Free Outfall		WR,SP,CV (no Q: O2)
343.13	54.94	Free Outfall		WR,SP,CV (no Q: O2)
343.14	55.34	Free Outfall		WR,SP,CV (no Q: O2)
343.15	55.75	Free Outfall		WR,SP,CV (no Q: O2)
343.16	56.17	Free Outfall		WR,SP,CV (no Q: O2)
343.17	56.60	Free Outfall		WR,SP,CV (no Q: O2)
343.18	57.04	Free Outfall		WR,SP,CV (no Q: O2)
343.19	57.50	Free Outfall		WR,SP,CV (no Q: O2)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
343.20	57.96	Free Outfall		WR,SP,CV (no Q: O2)
343.21	58.43	Free Outfall		WR,SP,CV (no Q: O2)
343.22	58.92	Free Outfall		WR,SP,CV (no Q: O2)
343.23	59.41	Free Outfall		WR,SP,CV (no Q: O2)
343.24	59.90	Free Outfall		WR,SP,CV (no Q: O2)
343.25	60.41	Free Outfall		WR,SP,CV (no Q: O2)
343.26	60.94	Free Outfall		WR,SP,CV (no Q: O2)
343.27	61.46	Free Outfall		WR,SP,CV (no Q: O2)
343.28	62.00	Free Outfall		WR,SP,CV (no Q: O2)
343.29	62.54	Free Outfall		WR,SP,CV (no Q: O2)
343.30	63.09	Free Outfall		WR,SP,CV (no Q: O2)
343.31	63.66	Free Outfall		WR,SP,CV (no Q: O2)
343.32	64.22	Free Outfall		WR,SP,CV (no Q: O2)
343.33	64.80	Free Outfall		WR,SP,CV (no Q: O2)
343.34	65.38	Free Outfall		WR,SP,CV (no Q: O2)
343.35	65.97	Free Outfall		WR,SP,CV (no Q: O2)
343.36	66.57	Free Outfall		WR,SP,CV (no Q: O2)
343.37	67.18	Free Outfall		WR,SP,CV (no Q: O2)
343.38	67.79	Free Outfall		WR,SP,CV (no Q: O2)
343.39	68.42	Free Outfall		WR,SP,CV (no Q: O2)
343.40	69.04	Free Outfall		WR,SP,CV (no Q: O2)
343.41	69.67	Free Outfall		WR,SP,CV (no Q: O2)
343.42	70.31	Free Outfall		WR,SP,CV (no Q: O2)
343.43	70.95	Free Outfall		WR,SP,CV (no Q: O2)
343.44	71.61	Free Outfall		WR,SP,CV (no Q: O2)
343.45	72.28	Free Outfall		WR,SP,CV (no Q: O2)
343.46	72.94	Free Outfall		WR,SP,CV (no Q: O2)
343.47	73.61	Free Outfall		WR,SP,CV (no Q: O2)
343.48	74.30	Free Outfall		WR,SP,CV (no Q: O2)
343.49	74.98	Free Outfall		WR,SP,CV (no Q: O2)
343.50	75.68	Free Outfall		WR,SP,CV (no Q: O2)
343.51	76.37	Free Outfall		WR,SP,CV (no Q: O2)
343.52	77.08	Free Outfall		WR,SP,CV (no Q: O2)
343.53	77.78	Free Outfall		WR,SP,CV (no Q: O2)
343.54	78.50	Free Outfall		WR,SP,CV (no Q: O2)
343.55	79.22	Free Outfall		WR,SP,CV (no Q: O2)
343.56	79.95	Free Outfall		WR,SP,CV (no Q: O2)
343.57	80.69	Free Outfall		WR,SP,CV (no Q: O2)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
343.58	81.43	Free Outfall		WR,SP,CV (no Q: O2)
343.59	82.18	Free Outfall		WR,SP,CV (no Q: O2)
343.60	82.93	Free Outfall		WR,SP,CV (no Q: O2)
343.61	83.68	Free Outfall		WR,SP,CV (no Q: O2)
343.62	84.43	Free Outfall		WR,SP,CV (no Q: O2)
343.63	85.24	Free Outfall		WR,SP,CV (no Q: O2)
343.64	86.01	Free Outfall		WR,SP,CV (no Q: O2)
343.65	86.79	Free Outfall		WR,SP,CV (no Q: O2)
343.66	87.57	Free Outfall		WR,SP,CV (no Q: O2)
343.67	88.37	Free Outfall		WR,SP,CV (no Q: O2)
343.68	89.16	Free Outfall		WR,SP,CV (no Q: O2)
343.69	89.96	Free Outfall		WR,SP,CV (no Q: O2)
343.70	90.76	Free Outfall		WR,SP,CV (no Q: O2)
343.71	91.58	Free Outfall		WR,SP,CV (no Q: O2)
343.72	92.40	Free Outfall		WR,SP,CV (no Q: O2)
343.73	93.21	Free Outfall		WR,SP,CV (no Q: O2)
343.74	94.04	Free Outfall		WR,SP,CV (no Q: O2)
343.75	94.87	Free Outfall		WR,SP,CV (no Q: O2)
343.76	95.71	Free Outfall		WR,SP,CV (no Q: O2)
343.77	96.54	Free Outfall		WR,SP,CV (no Q: O2)
343.78	97.40	Free Outfall		WR,SP,CV (no Q: O2)
343.79	98.25	Free Outfall		WR,SP,CV (no Q: O2)
343.80	99.10	Free Outfall		WR,SP,CV (no Q: O2)
343.81	99.96	Free Outfall		WR,SP,CV (no Q: O2)
343.82	100.82	Free Outfall		WR,SP,CV (no Q: O2)
343.83	101.69	Free Outfall		WR,SP,CV (no Q: O2)
343.84	102.57	Free Outfall		WR,SP,CV (no Q: O2)
343.85	103.45	Free Outfall		WR,SP,CV (no Q: O2)
343.86	104.33	Free Outfall		WR,SP,CV (no Q: O2)
343.87	105.22	Free Outfall		WR,SP,CV (no Q: O2)
343.88	106.11	Free Outfall		WR,SP,CV (no Q: O2)
343.89	107.01	Free Outfall		WR,SP,CV (no Q: O2)
343.90	107.91	Free Outfall		WR,SP,CV (no Q: O2)
343.91	108.81	Free Outfall		WR,SP,CV (no Q: O2)
343.92	109.72	Free Outfall		WR,SP,CV (no Q: O2)
343.93	110.64	Free Outfall		WR,SP,CV (no Q: O2)
343.94	111.55	Free Outfall		WR,SP,CV (no Q: O2)
343.95	112.48	Free Outfall		WR,SP,CV (no Q: O2)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
343.96	113.40	Free Outfall		WR,SP,CV (no Q: O2)
343.97	114.34	Free Outfall		WR,SP,CV (no Q: O2)
343.98	115.28	Free Outfall		WR,SP,CV (no Q: O2)
343.99	116.22	Free Outfall		WR,SP,CV (no Q: O2)
344.00	117.17	Free Outfall		WR,SP,CV (no Q: O2)
344.01	118.11	Free Outfall		WR,SP,CV (no Q: O2)
344.02	119.07	Free Outfall		WR,SP,CV (no Q: O2)
344.03	120.03	Free Outfall		WR,SP,CV (no Q: O2)
344.04	120.99	Free Outfall		WR,SP,CV (no Q: O2)
344.05	121.95	Free Outfall		WR,SP,CV (no Q: O2)
344.06	122.92	Free Outfall		WR,SP,CV (no Q: O2)
344.07	123.90	Free Outfall		WR,SP,CV (no Q: O2)
344.08	124.88	Free Outfall		WR,SP,CV (no Q: O2)
344.09	125.86	Free Outfall		WR,SP,CV (no Q: O2)
344.10	126.85	Free Outfall		WR,SP,CV (no Q: O2)
344.11	127.83	Free Outfall		WR,SP,CV (no Q: O2)
344.12	128.83	Free Outfall		WR,SP,CV (no Q: O2)
344.13	129.83	Free Outfall		WR,SP,CV (no Q: O2)
344.14	130.83	Free Outfall		WR,SP,CV (no Q: O2)
344.15	131.83	Free Outfall		WR,SP,CV (no Q: O2)
344.16	132.84	Free Outfall		WR,SP,CV (no Q: O2)
344.17	133.86	Free Outfall		WR,SP,CV (no Q: O2)
344.18	134.88	Free Outfall		WR,SP,CV (no Q: O2)
344.19	135.90	Free Outfall		WR,SP,CV (no Q: O2)
344.20	136.93	Free Outfall		WR,SP,CV (no Q: O2)
344.21	137.96	Free Outfall		WR,SP,CV (no Q: O2)
344.22	138.99	Free Outfall		WR,SP,CV (no Q: O2)
344.23	140.03	Free Outfall		WR,SP,CV (no Q: O2)
344.24	141.06	Free Outfall		WR,SP,CV (no Q: O2)
344.25	142.10	Free Outfall		WR,SP,CV (no Q: O2)
344.26	143.15	Free Outfall		WR,SP,CV (no Q: O2)
344.27	144.21	Free Outfall		WR,SP,CV (no Q: O2)
344.28	145.27	Free Outfall		WR,SP,CV (no Q: O2)
344.29	146.32	Free Outfall		WR,SP,CV (no Q: O2)
344.30	147.38	Free Outfall		WR,SP,CV (no Q: O2)
344.31	148.46	Free Outfall		WR,SP,CV (no Q: O2)
344.32	149.52	Free Outfall		WR,SP,CV (no Q: O2)
344.33	150.60	Free Outfall		WR,SP,CV (no Q: O2)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
344.34	151.68	Free Outfall		WR,SP,CV (no Q: O2)
344.35	152.76	Free Outfall		WR,SP,CV (no Q: O2)
344.36	153.83	Free Outfall		WR,SP,CV (no Q: O2)
344.37	154.93	Free Outfall		WR,SP,CV (no Q: O2)
344.38	156.02	Free Outfall		WR,SP,CV (no Q: O2)
344.39	157.12	Free Outfall		WR,SP,CV (no Q: O2)
344.40	158.21	Free Outfall		WR,SP,CV (no Q: O2)
344.41	159.32	Free Outfall		WR,SP,CV (no Q: O2)
344.42	160.42	Free Outfall		WR,SP,CV (no Q: O2)
344.43	161.53	Free Outfall		WR,SP,CV (no Q: O2)
344.44	162.65	Free Outfall		WR,SP,CV (no Q: O2)
344.45	163.76	Free Outfall		WR,SP,CV (no Q: O2)
344.46	164.88	Free Outfall		WR,SP,CV (no Q: O2)
344.47	166.00	Free Outfall		WR,SP,CV (no Q: O2)
344.48	167.13	Free Outfall		WR,SP,CV (no Q: O2)
344.49	168.25	Free Outfall		WR,SP,CV (no Q: O2)
344.50	169.39	Free Outfall		WR,SP,CV (no Q: O2)
344.51	170.53	Free Outfall		WR,SP,CV (no Q: O2)
344.52	171.67	Free Outfall		WR,SP,CV (no Q: O2)
344.53	172.80	Free Outfall		WR,SP,CV (no Q: O2)
344.54	173.95	Free Outfall		WR,SP,CV (no Q: O2)
344.55	175.10	Free Outfall		WR,SP,CV (no Q: O2)
344.56	176.25	Free Outfall		WR,SP,CV (no Q: O2)
344.57	177.42	Free Outfall		WR,SP,CV (no Q: O2)
344.58	178.57	Free Outfall		WR,SP,CV (no Q: O2)
344.59	179.73	Free Outfall		WR,SP,CV (no Q: O2)
344.60	180.90	Free Outfall		WR,SP,CV (no Q: O2)
344.61	182.06	Free Outfall		WR,SP,CV (no Q: O2)
344.62	183.24	Free Outfall		WR,SP,CV (no Q: O2)
344.63	184.41	Free Outfall		WR,SP,CV (no Q: O2)
344.64	185.60	Free Outfall		WR,SP,CV (no Q: O2)
344.65	186.77	Free Outfall		WR,SP,CV (no Q: O2)
344.66	187.96	Free Outfall		WR,SP,CV (no Q: O2)
344.67	189.14	Free Outfall		WR,SP,CV (no Q: O2)
344.68	190.34	Free Outfall		WR,SP,CV (no Q: O2)
344.69	191.53	Free Outfall		WR,SP,CV (no Q: O2)
344.70	192.73	Free Outfall		WR,SP,CV (no Q: O2)
344.71	193.92	Free Outfall		WR,SP,CV (no Q: O2)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
344.72	195.13	Free Outfall		WR,SP,CV (no Q: O2)
344.73	196.33	Free Outfall		WR,SP,CV (no Q: O2)
344.74	197.54	Free Outfall		WR,SP,CV (no Q: O2)
344.75	198.75	Free Outfall		WR,SP,CV (no Q: O2)
344.76	199.97	Free Outfall		WR,SP,CV (no Q: O2)
344.77	201.30	Free Outfall		WR,SP,CV (no Q: O2)
344.78	202.52	Free Outfall		WR,SP,CV (no Q: O2)
344.79	203.74	Free Outfall		WR,SP,CV (no Q: O2)
344.80	204.97	Free Outfall		WR,SP,CV (no Q: O2)
344.81	206.20	Free Outfall		WR,SP,CV (no Q: O2)
344.82	207.44	Free Outfall		WR,SP,CV (no Q: O2)
344.83	208.68	Free Outfall		WR,SP,CV (no Q: O2)
344.84	209.92	Free Outfall		WR,SP,CV (no Q: O2)
344.85	211.16	Free Outfall		WR,SP,CV (no Q: O2)
344.86	212.41	Free Outfall		WR,SP,CV (no Q: O2)
344.87	213.66	Free Outfall		WR,SP,CV (no Q: O2)
344.88	214.92	Free Outfall		WR,SP,CV (no Q: O2)
344.89	216.17	Free Outfall		WR,SP,CV (no Q: O2)
344.90	217.43	Free Outfall		WR,SP,CV (no Q: O2)
344.91	218.68	Free Outfall		WR,SP,CV (no Q: O2)
344.92	219.94	Free Outfall		WR,SP,CV (no Q: O2)
344.93	221.21	Free Outfall		WR,SP,CV (no Q: O2)
344.94	222.48	Free Outfall		WR,SP,CV (no Q: O2)
344.95	223.75	Free Outfall		WR,SP,CV (no Q: O2)
344.96	225.03	Free Outfall		WR,SP,CV (no Q: O2)
344.97	226.31	Free Outfall		WR,SP,CV (no Q: O2)
344.98	227.60	Free Outfall		WR,SP,CV (no Q: O2)
344.99	228.87	Free Outfall		WR,SP,CV (no Q: O2)
345.00	230.17	Free Outfall		WR,SP,CV (no Q: O2)

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
337.50	.00	.000	1.4000	.00	.00	.00
337.51	.00	.014	1.4010	.00	.00	67.85
337.52	.00	.028	1.4020	.00	.00	135.54
337.53	.00	.042	1.4030	.00	.00	203.49
337.54	.00	.056	1.4040	.00	.00	271.48
337.55	.00	.070	1.4050	.00	.00	339.32
337.56	.00	.084	1.4060	.00	.00	407.41
337.57	.00	.098	1.4069	.00	.00	475.55
337.58	.00	.112	1.4079	.00	.00	543.53
337.59	.00	.126	1.4089	.00	.00	611.76
337.60	.00	.141	1.4099	.00	.00	680.04
337.61	.00	.155	1.4109	.00	.00	748.17
337.62	.00	.169	1.4119	.00	.00	816.55
337.63	.00	.183	1.4129	.00	.00	884.97
337.64	.12	.197	1.4139	.00	.12	953.57
337.65	.14	.211	1.4149	.00	.14	1021.91
337.66	.14	.225	1.4159	.00	.14	1090.48
337.67	.16	.239	1.4169	.00	.16	1159.12
337.68	.16	.254	1.4179	.00	.16	1227.58
337.69	.16	.268	1.4189	.00	.16	1296.30

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
337.70	.17	.282	1.4199	.00	.17	1365.07
337.71	.17	.296	1.4209	.00	.17	1433.68
337.72	.17	.310	1.4219	.00	.17	1502.54
337.73	.20	.325	1.4229	.00	.20	1571.48
337.74	.22	.339	1.4239	.00	.22	1640.25
337.75	.22	.353	1.4249	.00	.22	1709.26
337.76	.22	.367	1.4259	.00	.22	1778.32
337.77	.22	.382	1.4269	.00	.22	1847.21
337.78	.26	.396	1.4279	.00	.26	1916.40
337.79	.26	.410	1.4289	.00	.26	1985.60
337.80	.26	.424	1.4299	.00	.26	2054.64
337.81	.26	.439	1.4309	.00	.26	2123.94
337.82	.26	.453	1.4319	.00	.26	2193.29
337.83	.26	.467	1.4329	.00	.26	2262.47
337.84	.26	.482	1.4339	.00	.26	2331.92
337.85	.26	.496	1.4349	.00	.26	2401.41
337.86	.51	.510	1.4359	.00	.51	2470.99
337.87	.52	.525	1.4369	.00	.52	2540.59
337.88	.52	.539	1.4379	.00	.52	2610.23
337.89	.54	.554	1.4389	.00	.54	2679.94

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
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Pond Volume Data = POND 1
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INITIAL CONDITIONS

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Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
337.90	.55	.568	1.4399	.00	.55	2749.47
337.91	.55	.582	1.4409	.00	.55	2819.26
337.92	.55	.597	1.4419	.00	.55	2889.09
337.93	.55	.611	1.4429	.00	.55	2958.76
337.94	.55	.626	1.4440	.00	.55	3028.69
337.95	.55	.640	1.4450	.00	.55	3098.67
337.96	.55	.655	1.4460	.00	.55	3168.49
337.97	.55	.669	1.4470	.00	.55	3238.56
337.98	.55	.683	1.4480	.00	.55	3308.69
337.99	.55	.698	1.4490	.00	.55	3378.65
338.00	.55	.712	1.4500	.00	.55	3448.88
338.01	.55	.727	1.4510	.00	.55	3519.15
338.02	.55	.741	1.4520	.00	.55	3589.25
338.03	.55	.756	1.4530	.00	.55	3659.62
338.04	.55	.771	1.4539	.00	.55	3730.04
338.05	.55	.785	1.4549	.00	.55	3800.29
338.06	.55	.800	1.4559	.00	.55	3870.80
338.07	.55	.814	1.4569	.00	.55	3941.35
338.08	.55	.829	1.4579	.00	.55	4011.75
338.09	.55	.843	1.4589	.00	.55	4082.40

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
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INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.10	.55	.858	1.4599	.00	.55	4153.10
338.11	.55	.873	1.4608	.00	.55	4223.64
338.12	.55	.887	1.4618	.00	.55	4294.43
338.13	.55	.902	1.4628	.00	.55	4365.28
338.14	.55	.916	1.4638	.00	.55	4436.17
338.15	.55	.931	1.4648	.00	.55	4506.90
338.16	.55	.946	1.4658	.00	.55	4577.89
338.17	.55	.960	1.4668	.00	.55	4648.92
338.18	.55	.975	1.4678	.00	.55	4719.79
338.19	.56	.990	1.4687	.00	.56	4790.93
338.20	.56	1.004	1.4697	.00	.56	4862.11
338.21	.57	1.019	1.4707	.00	.57	4933.13
338.22	.57	1.034	1.4717	.00	.57	5004.41
338.23	.58	1.049	1.4727	.00	.58	5075.75
338.24	.59	1.063	1.4737	.00	.59	5146.91
338.25	.60	1.078	1.4747	.00	.60	5218.34
338.26	.60	1.093	1.4757	.00	.60	5289.81
338.27	.61	1.108	1.4767	.00	.61	5361.12
338.28	.62	1.122	1.4777	.00	.62	5432.69
338.29	.63	1.137	1.4787	.00	.63	5504.31

LEVEL POOL ROUTING DATA

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INITIAL CONDITIONS

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Starting Outflow = .00 cfs
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Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.30	.63	1.152	1.4796	.00	.63	5575.76
338.31	.64	1.167	1.4806	.00	.64	5647.48
338.32	.65	1.182	1.4816	.00	.65	5719.24
338.33	.65	1.196	1.4826	.00	.65	5790.83
338.34	.66	1.211	1.4836	.00	.66	5862.69
338.35	.67	1.226	1.4846	.00	.67	5934.60
338.36	.67	1.241	1.4856	.00	.67	6006.34
338.37	.68	1.256	1.4866	.00	.68	6078.34
338.38	.69	1.271	1.4876	.00	.69	6150.40
338.39	.69	1.285	1.4886	.00	.69	6222.50
338.40	.70	1.300	1.4896	.00	.70	6294.43
338.41	.71	1.315	1.4906	.00	.71	6366.63
338.42	.71	1.330	1.4916	.00	.71	6438.87
338.43	.72	1.345	1.4926	.00	.72	6510.94
338.44	.73	1.360	1.4936	.00	.73	6583.29
338.45	.73	1.375	1.4946	.00	.73	6655.68
338.46	.74	1.390	1.4956	.00	.74	6727.90
338.47	.75	1.405	1.4966	.00	.75	6800.38
338.48	.75	1.420	1.4976	.00	.75	6872.92
338.49	.76	1.435	1.4986	.00	.76	6945.28

LEVEL POOL ROUTING DATA

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INITIAL CONDITIONS

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Starting Outflow = .00 cfs
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Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.50	.76	1.450	1.4996	.00	.76	7017.92
338.51	.77	1.465	1.5006	.00	.77	7090.60
338.52	.78	1.480	1.5016	.00	.78	7163.10
338.53	.79	1.495	1.5026	.00	.79	7235.89
338.54	.80	1.510	1.5036	.00	.80	7308.72
338.55	.82	1.525	1.5046	.00	.82	7381.39
338.56	.84	1.540	1.5056	.00	.84	7454.32
338.57	.85	1.555	1.5066	.00	.85	7527.30
338.58	.88	1.570	1.5076	.00	.88	7600.12
338.59	.90	1.585	1.5086	.00	.90	7673.21
338.60	.93	1.600	1.5096	.00	.93	7746.34
338.61	.95	1.615	1.5106	.00	.95	7819.30
338.62	.98	1.630	1.5116	.00	.98	7892.54
338.63	1.01	1.646	1.5126	.00	1.01	7965.83
338.64	1.03	1.661	1.5136	.00	1.03	8039.16
338.65	1.06	1.676	1.5146	.00	1.06	8112.32
338.66	1.09	1.691	1.5156	.00	1.09	8185.75
338.67	1.13	1.706	1.5166	.00	1.13	8259.24
338.68	1.15	1.721	1.5176	.00	1.15	8332.54
338.69	1.17	1.737	1.5186	.00	1.17	8406.11

LEVEL POOL ROUTING DATA

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Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.70	1.19	1.752	1.5197	.00	1.19	8479.73
338.71	1.21	1.767	1.5207	.00	1.21	8553.17
338.72	1.23	1.782	1.5217	.00	1.23	8626.89
338.73	1.25	1.797	1.5227	.00	1.25	8700.65
338.74	1.27	1.813	1.5237	.00	1.27	8774.24
338.75	1.28	1.828	1.5247	.00	1.28	8848.10
338.76	1.30	1.843	1.5257	.00	1.30	8922.01
338.77	1.32	1.858	1.5267	.00	1.32	8995.74
338.78	1.33	1.874	1.5277	.00	1.33	9069.74
338.79	1.35	1.889	1.5287	.00	1.35	9143.80
338.80	1.36	1.904	1.5297	.00	1.36	9217.67
338.81	1.38	1.920	1.5307	.00	1.38	9291.82
338.82	1.39	1.935	1.5318	.00	1.39	9366.02
338.83	1.41	1.950	1.5328	.00	1.41	9440.05
338.84	1.42	1.965	1.5338	.00	1.42	9514.34
338.85	1.44	1.980	1.5348	.00	1.44	9588.69
338.86	1.45	1.996	1.5358	.00	1.45	9662.86
338.87	1.47	2.012	1.5368	.00	1.47	9737.30
338.88	1.48	2.027	1.5378	.00	1.48	9811.79
338.89	1.49	2.042	1.5388	.00	1.49	9886.34

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
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Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.90	1.51	2.058	1.5398	.00	1.51	9960.70
338.91	1.52	2.073	1.5409	.00	1.52	10035.34
338.92	1.54	2.089	1.5419	.00	1.54	10110.03
338.93	1.55	2.104	1.5429	.00	1.55	10184.54
338.94	1.56	2.119	1.5439	.00	1.56	10259.32
338.95	1.57	2.135	1.5449	.00	1.57	10334.16
338.96	1.59	2.150	1.5459	.00	1.59	10408.82
338.97	1.60	2.166	1.5470	.00	1.60	10483.75
338.98	1.61	2.181	1.5480	.00	1.61	10558.73
338.99	1.63	2.197	1.5490	.00	1.63	10633.54
339.00	1.64	2.212	1.5500	.00	1.64	10708.62
339.01	1.65	2.228	1.5511	.00	1.65	10783.75
339.02	1.66	2.243	1.5522	.00	1.66	10858.70
339.03	1.68	2.259	1.5532	.00	1.68	10933.94
339.04	1.69	2.274	1.5543	.00	1.69	11009.23
339.05	1.70	2.290	1.5554	.00	1.70	11084.34
339.06	1.71	2.305	1.5565	.00	1.71	11159.73
339.07	1.72	2.321	1.5576	.00	1.72	11235.18
339.08	1.73	2.337	1.5587	.00	1.73	11310.45
339.09	1.75	2.352	1.5597	.00	1.75	11386.00

LEVEL POOL ROUTING DATA

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Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.10	1.76	2.368	1.5608	.00	1.76	11461.60
339.11	1.77	2.383	1.5619	.00	1.77	11537.03
339.12	1.78	2.399	1.5630	.00	1.78	11612.74
339.13	1.79	2.415	1.5641	.00	1.79	11688.50
339.14	1.80	2.430	1.5652	.00	1.80	11764.31
339.15	1.81	2.446	1.5663	.00	1.81	11839.95
339.16	1.83	2.462	1.5673	.00	1.83	11915.86
339.17	1.84	2.477	1.5684	.00	1.84	11991.83
339.18	1.85	2.493	1.5695	.00	1.85	12067.63
339.19	1.86	2.509	1.5706	.00	1.86	12143.70
339.20	1.87	2.524	1.5717	.00	1.87	12219.83
339.21	1.88	2.540	1.5728	.00	1.88	12295.78
339.22	1.89	2.556	1.5739	.00	1.89	12372.02
339.23	1.90	2.572	1.5750	.00	1.90	12448.30
339.24	1.91	2.587	1.5761	.00	1.91	12524.41
339.25	1.92	2.603	1.5771	.00	1.92	12600.80
339.26	1.93	2.619	1.5782	.00	1.93	12677.25
339.27	1.94	2.635	1.5793	.00	1.94	12753.51
339.28	1.96	2.650	1.5804	.00	1.96	12830.06
339.29	1.97	2.666	1.5815	.00	1.97	12906.67

LEVEL POOL ROUTING DATA

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Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.30	1.98	2.682	1.5826	.00	1.98	12983.09
339.31	1.99	2.698	1.5837	.00	1.99	13059.80
339.32	2.00	2.714	1.5848	.00	2.00	13136.56
339.33	2.01	2.730	1.5859	.00	2.01	13213.14
339.34	2.02	2.745	1.5870	.00	2.02	13290.01
339.35	2.03	2.761	1.5881	.00	2.03	13366.93
339.36	2.04	2.777	1.5892	.00	2.04	13443.67
339.37	2.05	2.793	1.5903	.00	2.05	13520.70
339.38	2.06	2.809	1.5914	.00	2.06	13597.78
339.39	2.07	2.825	1.5925	.00	2.07	13674.91
339.40	2.08	2.841	1.5935	.00	2.08	13751.87
339.41	2.09	2.857	1.5946	.00	2.09	13829.10
339.42	2.10	2.873	1.5957	.00	2.10	13906.40
339.43	2.11	2.889	1.5968	.00	2.11	13983.51
339.44	2.12	2.905	1.5979	.00	2.12	14060.91
339.45	2.13	2.921	1.5990	.00	2.13	14138.36
339.46	2.13	2.937	1.6001	.00	2.13	14215.63
339.47	2.14	2.953	1.6012	.00	2.14	14293.18
339.48	2.15	2.969	1.6023	.00	2.15	14370.79
339.49	2.16	2.985	1.6034	.00	2.16	14448.22

LEVEL POOL ROUTING DATA

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Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.50	2.17	3.001	1.6045	.00	2.17	14525.94
339.51	2.18	3.017	1.6056	.00	2.18	14603.71
339.52	2.19	3.033	1.6067	.00	2.19	14681.30
339.53	2.20	3.049	1.6078	.00	2.20	14759.18
339.54	2.21	3.065	1.6089	.00	2.21	14837.11
339.55	2.22	3.081	1.6100	.00	2.22	14914.86
339.56	2.23	3.097	1.6111	.00	2.23	14992.89
339.57	2.24	3.113	1.6122	.00	2.24	15070.98
339.58	2.25	3.129	1.6133	.00	2.25	15148.89
339.59	2.26	3.146	1.6144	.00	2.26	15227.09
339.60	2.27	3.162	1.6155	.00	2.27	15305.34
339.61	2.27	3.178	1.6167	.00	2.27	15383.40
339.62	2.28	3.194	1.6178	.00	2.28	15461.76
339.63	2.29	3.210	1.6189	.00	2.29	15540.17
339.64	2.30	3.227	1.6200	.00	2.30	15618.64
339.65	2.31	3.243	1.6211	.00	2.31	15696.92
339.66	2.32	3.259	1.6222	.00	2.32	15775.49
339.67	2.33	3.275	1.6233	.00	2.33	15854.12
339.68	2.34	3.291	1.6244	.00	2.34	15932.56
339.69	2.35	3.308	1.6255	.00	2.35	16011.29

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.70	2.35	3.324	1.6266	.00	2.35	16090.08
339.71	2.36	3.340	1.6277	.00	2.36	16168.67
339.72	2.37	3.356	1.6288	.00	2.37	16247.57
339.73	2.38	3.373	1.6299	.00	2.38	16326.52
339.74	2.39	3.389	1.6310	.00	2.39	16405.28
339.75	2.40	3.405	1.6321	.00	2.40	16484.33
339.76	2.41	3.422	1.6333	.00	2.41	16563.44
339.77	2.42	3.438	1.6344	.00	2.42	16642.36
339.78	2.42	3.454	1.6355	.00	2.42	16721.58
339.79	2.43	3.471	1.6366	.00	2.43	16800.85
339.80	2.44	3.487	1.6377	.00	2.44	16879.93
339.81	2.45	3.503	1.6388	.00	2.45	16959.30
339.82	2.46	3.520	1.6399	.00	2.46	17038.73
339.83	2.47	3.536	1.6410	.00	2.47	17117.98
339.84	2.47	3.553	1.6421	.00	2.47	17197.52
339.85	2.48	3.569	1.6433	.00	2.48	17277.11
339.86	2.49	3.586	1.6444	.00	2.49	17356.52
339.87	2.50	3.602	1.6455	.00	2.50	17436.21
339.88	2.51	3.618	1.6466	.00	2.51	17515.97
339.89	2.52	3.635	1.6477	.00	2.52	17595.78

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
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INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.90	2.52	3.651	1.6488	.00	2.52	17675.40
339.91	2.53	3.668	1.6499	.00	2.53	17755.31
339.92	2.54	3.684	1.6511	.00	2.54	17835.29
339.93	2.55	3.701	1.6522	.00	2.55	17915.07
339.94	2.56	3.717	1.6533	.00	2.56	17995.14
339.95	2.56	3.734	1.6544	.00	2.56	18075.28
339.96	2.57	3.751	1.6555	.00	2.57	18155.22
339.97	2.58	3.767	1.6566	.00	2.58	18235.46
339.98	2.59	3.784	1.6578	.00	2.59	18315.76
339.99	2.60	3.800	1.6589	.00	2.60	18395.86
340.00	2.60	3.817	1.6600	.00	2.60	18476.26
340.01	2.61	3.833	1.6610	.00	2.61	18556.72
340.02	2.62	3.850	1.6620	.00	2.62	18636.97
340.03	2.63	3.867	1.6630	.00	2.63	18717.52
340.04	2.64	3.883	1.6639	.00	2.64	18798.12
340.05	2.64	3.900	1.6649	.00	2.64	18878.52
340.06	2.65	3.917	1.6659	.00	2.65	18959.21
340.07	2.66	3.933	1.6669	.00	2.66	19039.96
340.08	2.67	3.950	1.6679	.00	2.67	19120.50
340.09	2.68	3.967	1.6689	.00	2.68	19201.33

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.10	2.68	3.983	1.6699	.00	2.68	19282.22
340.11	2.69	4.000	1.6709	.00	2.69	19362.90
340.12	2.70	4.017	1.6718	.00	2.70	19443.88
340.13	2.71	4.034	1.6728	.00	2.71	19524.91
340.14	2.71	4.050	1.6738	.00	2.71	19605.99
340.15	2.72	4.067	1.6748	.00	2.72	19686.87
340.16	2.73	4.084	1.6758	.00	2.73	19768.04
340.17	2.74	4.101	1.6768	.00	2.74	19849.25
340.18	2.74	4.117	1.6778	.00	2.74	19930.28
340.19	2.75	4.134	1.6788	.00	2.75	20011.59
340.20	2.76	4.151	1.6798	.00	2.76	20092.96
340.21	2.77	4.168	1.6808	.00	2.77	20174.12
340.22	2.77	4.184	1.6817	.00	2.77	20255.58
340.23	2.78	4.201	1.6827	.00	2.78	20337.09
340.24	2.79	4.218	1.6837	.00	2.79	20418.39
340.25	2.80	4.235	1.6847	.00	2.80	20500.00
340.26	2.80	4.252	1.6857	.00	2.80	20581.65
340.27	2.81	4.269	1.6867	.00	2.81	20663.10
340.28	2.82	4.286	1.6877	.00	2.82	20744.85
340.29	2.83	4.302	1.6887	.00	2.83	20826.64

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.30	2.83	4.319	1.6897	.00	2.83	20908.24
340.31	2.84	4.336	1.6907	.00	2.84	20990.13
340.32	2.85	4.353	1.6917	.00	2.85	21072.07
340.33	2.86	4.370	1.6927	.00	2.86	21153.81
340.34	2.86	4.387	1.6937	.00	2.86	21235.85
340.35	2.87	4.404	1.6947	.00	2.87	21317.93
340.36	2.88	4.421	1.6957	.00	2.88	21399.82
340.37	2.89	4.438	1.6967	.00	2.89	21482.00
340.38	2.89	4.455	1.6977	.00	2.89	21564.23
340.39	2.90	4.472	1.6987	.00	2.90	21646.51
340.40	2.91	4.489	1.6996	.00	2.91	21728.58
340.41	2.91	4.506	1.7006	.00	2.91	21810.96
340.42	2.92	4.523	1.7016	.00	2.92	21893.38
340.43	2.93	4.540	1.7026	.00	2.93	21975.60
340.44	2.94	4.557	1.7036	.00	2.94	22058.12
340.45	2.94	4.574	1.7046	.00	2.94	22140.69
340.46	2.95	4.591	1.7056	.00	2.95	22223.05
340.47	2.96	4.608	1.7066	.00	2.96	22305.71
340.48	2.96	4.625	1.7076	.00	2.96	22388.43
340.49	2.97	4.642	1.7086	.00	2.97	22470.94

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.50	2.98	4.659	1.7096	.00	2.98	22553.75
340.51	2.99	4.676	1.7106	.00	2.99	22636.61
340.52	2.99	4.693	1.7116	.00	2.99	22719.26
340.53	3.00	4.711	1.7126	.00	3.00	22802.21
340.54	3.01	4.728	1.7136	.00	3.01	22885.22
340.55	3.01	4.745	1.7146	.00	3.01	22968.02
340.56	3.02	4.762	1.7156	.00	3.02	23051.12
340.57	3.03	4.779	1.7166	.00	3.03	23134.27
340.58	3.03	4.796	1.7176	.00	3.03	23217.21
340.59	3.04	4.814	1.7186	.00	3.04	23300.46
340.60	3.05	4.831	1.7197	.00	3.05	23383.75
340.61	3.05	4.848	1.7207	.00	3.05	23466.84
340.62	3.06	4.865	1.7217	.00	3.06	23550.23
340.63	3.07	4.882	1.7227	.00	3.07	23633.67
340.64	3.08	4.900	1.7237	.00	3.08	23717.17
340.65	3.08	4.917	1.7247	.00	3.08	23800.45
340.66	3.09	4.934	1.7257	.00	3.09	23884.04
340.67	3.10	4.951	1.7267	.00	3.10	23967.67
340.68	3.10	4.969	1.7277	.00	3.10	24051.10
340.69	3.11	4.986	1.7287	.00	3.11	24134.83

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.70	3.12	5.003	1.7297	.00	3.12	24218.61
340.71	3.12	5.020	1.7307	.00	3.12	24302.19
340.72	3.13	5.038	1.7317	.00	3.13	24386.06
340.73	3.14	5.055	1.7327	.00	3.14	24469.99
340.74	3.14	5.072	1.7337	.00	3.14	24553.71
340.75	3.15	5.090	1.7347	.00	3.15	24637.74
340.76	3.16	5.107	1.7357	.00	3.16	24721.81
340.77	3.16	5.124	1.7367	.00	3.16	24805.68
340.78	3.17	5.142	1.7377	.00	3.17	24889.85
340.79	3.18	5.159	1.7388	.00	3.18	24974.07
340.80	3.18	5.177	1.7398	.00	3.18	25058.08
340.81	3.19	5.194	1.7408	.00	3.19	25142.40
340.82	3.20	5.211	1.7418	.00	3.20	25226.77
340.83	3.20	5.229	1.7428	.00	3.20	25310.93
340.84	3.21	5.246	1.7438	.00	3.21	25395.39
340.85	3.22	5.264	1.7448	.00	3.22	25479.90
340.86	3.22	5.281	1.7458	.00	3.22	25564.21
340.87	3.23	5.299	1.7468	.00	3.23	25648.82
340.88	3.24	5.316	1.7478	.00	3.24	25733.48
340.89	3.24	5.334	1.7489	.00	3.24	25818.19

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.90	3.25	5.351	1.7499	.00	3.25	25902.69
340.91	3.25	5.369	1.7509	.00	3.25	25987.49
340.92	3.26	5.386	1.7519	.00	3.26	26072.35
340.93	3.27	5.404	1.7529	.00	3.27	26157.00
340.94	3.27	5.421	1.7539	.00	3.27	26241.95
340.95	3.28	5.439	1.7549	.00	3.28	26326.96
340.96	3.29	5.456	1.7559	.00	3.29	26411.75
340.97	3.29	5.474	1.7570	.00	3.29	26496.85
340.98	3.30	5.491	1.7580	.00	3.30	26582.00
340.99	3.31	5.509	1.7590	.00	3.31	26666.94
341.00	3.31	5.527	1.7600	.00	3.31	26752.19
341.01	3.32	5.544	1.7611	.00	3.32	26837.49
341.02	3.33	5.562	1.7622	.00	3.33	26922.58
341.03	3.33	5.579	1.7633	.00	3.33	27007.99
341.04	3.34	5.597	1.7643	.00	3.34	27093.45
341.05	3.34	5.615	1.7654	.00	3.34	27178.70
341.06	3.35	5.632	1.7665	.00	3.35	27264.26
341.07	3.36	5.650	1.7676	.00	3.36	27349.87
341.08	3.36	5.668	1.7687	.00	3.36	27435.28
341.09	3.37	5.685	1.7698	.00	3.37	27521.00

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
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Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.10	3.38	5.703	1.7709	.00	3.38	27606.77
341.11	3.38	5.721	1.7719	.00	3.38	27692.33
341.12	3.39	5.739	1.7730	.00	3.39	27778.21
341.13	3.39	5.756	1.7741	.00	3.39	27864.14
341.14	3.40	5.774	1.7752	.00	3.40	27950.13
341.15	3.41	5.792	1.7763	.00	3.41	28035.90
341.16	3.41	5.810	1.7774	.00	3.41	28121.99
341.17	3.42	5.827	1.7785	.00	3.42	28208.13
341.18	3.43	5.845	1.7796	.00	3.43	28294.06
341.19	3.43	5.863	1.7806	.00	3.43	28380.31
341.20	3.44	5.881	1.7817	.00	3.44	28466.61
341.21	3.44	5.899	1.7828	.00	3.44	28552.70
341.22	3.45	5.916	1.7839	.00	3.45	28639.10
341.23	3.46	5.934	1.7850	.00	3.46	28725.56
341.24	3.46	5.952	1.7861	.00	3.46	28811.81
341.25	3.47	5.970	1.7872	.00	3.47	28898.38
341.26	3.47	5.988	1.7883	.00	3.47	28984.99
341.27	3.48	6.006	1.7894	.00	3.48	29071.40
341.28	3.49	6.024	1.7905	.00	3.49	29158.12
341.29	3.49	6.042	1.7916	.00	3.49	29244.90

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

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Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
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Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.30	3.50	6.059	1.7926	.00	3.50	29331.46
341.31	3.50	6.077	1.7937	.00	3.50	29418.34
341.32	3.51	6.095	1.7948	.00	3.51	29505.27
341.33	3.52	6.113	1.7959	.00	3.52	29592.00
341.34	3.52	6.131	1.7970	.00	3.52	29679.04
341.35	3.53	6.149	1.7981	.00	3.53	29766.13
341.36	3.53	6.167	1.7992	.00	3.53	29853.01
341.37	3.54	6.185	1.8003	.00	3.54	29940.21
341.38	3.55	6.203	1.8014	.00	3.55	30027.46
341.39	3.55	6.221	1.8025	.00	3.55	30114.77
341.40	3.56	6.239	1.8036	.00	3.56	30201.87
341.41	3.56	6.257	1.8047	.00	3.56	30289.27
341.42	3.57	6.275	1.8058	.00	3.57	30376.74
341.43	3.58	6.293	1.8069	.00	3.58	30463.99
341.44	3.58	6.312	1.8080	.00	3.58	30551.56
341.45	3.59	6.330	1.8091	.00	3.59	30639.19
341.46	3.59	6.348	1.8102	.00	3.59	30726.60
341.47	3.60	6.366	1.8113	.00	3.60	30814.33
341.48	3.61	6.384	1.8124	.00	3.61	30902.11
341.49	3.61	6.402	1.8135	.00	3.61	30989.68

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.50	3.62	6.420	1.8146	.00	3.62	31077.57
341.51	3.67	6.438	1.8157	.00	3.67	31165.56
341.52	3.76	6.457	1.8168	.00	3.76	31253.38
341.53	3.87	6.475	1.8179	.00	3.87	31341.54
341.54	4.00	6.493	1.8190	.00	4.00	31429.77
341.55	4.15	6.511	1.8201	.00	4.15	31517.79
341.56	4.32	6.529	1.8212	.00	4.32	31606.17
341.57	4.49	6.548	1.8223	.00	4.49	31694.60
341.58	4.68	6.566	1.8234	.00	4.68	31782.83
341.59	4.87	6.584	1.8245	.00	4.87	31871.39
341.60	5.08	6.602	1.8256	.00	5.08	31960.02
341.61	5.30	6.620	1.8267	.00	5.30	32048.44
341.62	5.53	6.639	1.8278	.00	5.53	32137.19
341.63	5.77	6.657	1.8289	.00	5.77	32226.01
341.64	6.02	6.675	1.8300	.00	6.02	32314.89
341.65	6.28	6.694	1.8311	.00	6.28	32403.56
341.66	6.54	6.712	1.8322	.00	6.54	32492.57
341.67	6.82	6.730	1.8333	.00	6.82	32581.64
341.68	7.10	6.749	1.8344	.00	7.10	32670.50
341.69	7.40	6.767	1.8355	.00	7.40	32759.70

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.70	7.70	6.785	1.8367	.00	7.70	32848.95
341.71	8.00	6.804	1.8378	.00	8.00	32937.99
341.72	8.32	6.822	1.8389	.00	8.32	33027.37
341.73	8.64	6.841	1.8400	.00	8.64	33116.80
341.74	8.97	6.859	1.8411	.00	8.97	33206.03
341.75	9.31	6.877	1.8422	.00	9.31	33295.59
341.76	9.65	6.896	1.8433	.00	9.65	33385.21
341.77	10.00	6.914	1.8444	.00	10.00	33474.62
341.78	10.36	6.933	1.8455	.00	10.36	33564.35
341.79	10.72	6.951	1.8466	.00	10.72	33654.16
341.80	11.09	6.970	1.8477	.00	11.09	33743.74
341.81	11.47	6.988	1.8488	.00	11.47	33833.66
341.82	11.85	7.007	1.8500	.00	11.85	33923.64
341.83	12.24	7.025	1.8511	.00	12.24	34013.41
341.84	12.63	7.044	1.8522	.00	12.63	34103.51
341.85	13.03	7.062	1.8533	.00	13.03	34193.67
341.86	13.44	7.081	1.8544	.00	13.44	34283.62
341.87	13.85	7.099	1.8555	.00	13.85	34373.90
341.88	14.27	7.118	1.8566	.00	14.27	34464.23
341.89	14.69	7.136	1.8577	.00	14.69	34554.63

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
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Outflow HYG file = NONE STORED - POND 1 OUT 2

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INITIAL CONDITIONS

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Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.90	15.12	7.155	1.8588	.00	15.12	34644.82
341.91	15.55	7.174	1.8600	.00	15.55	34735.33
341.92	15.99	7.192	1.8611	.00	15.99	34825.91
341.93	16.43	7.211	1.8622	.00	16.43	34916.27
341.94	16.88	7.229	1.8633	.00	16.88	35006.96
341.95	17.34	7.248	1.8644	.00	17.34	35097.72
341.96	17.80	7.267	1.8655	.00	17.80	35188.26
341.97	18.26	7.285	1.8667	.00	18.26	35279.13
341.98	18.73	7.304	1.8678	.00	18.73	35370.06
341.99	19.21	7.323	1.8689	.00	19.21	35460.77
342.00	19.69	7.341	1.8700	.00	19.69	35551.82
342.01	20.17	7.360	1.8711	.00	20.17	35642.93
342.02	20.66	7.379	1.8722	.00	20.66	35733.82
342.03	21.15	7.397	1.8733	.00	21.15	35825.04
342.04	21.65	7.416	1.8743	.00	21.65	35916.32
342.05	22.15	7.435	1.8754	.00	22.15	36007.38
342.06	22.66	7.454	1.8765	.00	22.66	36098.77
342.07	23.17	7.473	1.8776	.00	23.17	36190.22
342.08	23.69	7.491	1.8787	.00	23.69	36281.45
342.09	24.21	7.510	1.8798	.00	24.21	36373.02

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
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INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
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Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.10	24.73	7.529	1.8809	.00	24.73	36464.63
342.11	25.26	7.548	1.8819	.00	25.26	36556.03
342.12	25.80	7.567	1.8830	.00	25.80	36647.77
342.13	26.33	7.585	1.8841	.00	26.33	36739.56
342.14	26.87	7.604	1.8852	.00	26.87	36831.41
342.15	27.42	7.623	1.8863	.00	27.42	36923.03
342.16	27.97	7.642	1.8874	.00	27.97	37014.99
342.17	28.52	7.661	1.8885	.00	28.52	37107.02
342.18	29.08	7.680	1.8896	.00	29.08	37198.81
342.19	29.64	7.699	1.8907	.00	29.64	37290.94
342.20	30.20	7.718	1.8918	.00	30.20	37383.13
342.21	30.77	7.736	1.8928	.00	30.77	37475.09
342.22	31.34	7.755	1.8939	.00	31.34	37567.39
342.23	31.92	7.774	1.8950	.00	31.92	37659.75
342.24	32.49	7.793	1.8961	.00	32.49	37751.88
342.25	33.07	7.812	1.8972	.00	33.07	37844.35
342.26	33.66	7.831	1.8983	.00	33.66	37936.87
342.27	34.24	7.850	1.8994	.00	34.24	38029.17
342.28	34.83	7.869	1.9005	.00	34.83	38121.81
342.29	35.43	7.888	1.9016	.00	35.43	38214.50

LEVEL POOL ROUTING DATA

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INITIAL CONDITIONS

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Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.30	36.02	7.907	1.9027	.00	36.02	38306.97
342.31	36.62	7.926	1.9038	.00	36.62	38399.77
342.32	37.22	7.945	1.9049	.00	37.22	38492.63
342.33	37.82	7.964	1.9060	.00	37.82	38585.26
342.34	38.42	7.983	1.9070	.00	38.42	38678.22
342.35	39.02	8.003	1.9081	.00	39.02	38771.24
342.36	40.58	8.022	1.9092	.00	40.58	38864.99
342.37	41.20	8.041	1.9103	.00	41.20	38958.13
342.38	41.82	8.060	1.9114	.00	41.82	39051.33
342.39	42.44	8.079	1.9125	.00	42.44	39144.58
342.40	43.06	8.098	1.9136	.00	43.06	39237.61
342.41	43.68	8.117	1.9147	.00	43.68	39330.96
342.42	44.30	8.136	1.9158	.00	44.30	39424.37
342.43	44.92	8.156	1.9169	.00	44.92	39517.55
342.44	45.53	8.175	1.9180	.00	45.53	39611.05
342.45	45.78	8.194	1.9191	.00	45.78	39704.25
342.46	45.97	8.213	1.9202	.00	45.97	39797.16
342.47	46.56	8.232	1.9213	.00	46.56	39890.82
342.48	47.63	8.252	1.9224	.00	47.63	39984.99
342.49	47.71	8.271	1.9235	.00	47.71	40077.95

LEVEL POOL ROUTING DATA

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INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
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Starting Outflow = .00 cfs
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Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.50	47.78	8.290	1.9246	.00	47.78	40171.23
342.51	47.84	8.309	1.9257	.00	47.84	40264.56
342.52	47.91	8.328	1.9268	.00	47.91	40357.67
342.53	47.99	8.348	1.9279	.00	47.99	40451.12
342.54	48.06	8.367	1.9290	.00	48.06	40544.62
342.55	48.13	8.386	1.9301	.00	48.13	40637.89
342.56	48.19	8.406	1.9312	.00	48.19	40731.49
342.57	48.26	8.425	1.9323	.00	48.26	40825.14
342.58	48.34	8.444	1.9334	.00	48.34	40918.58
342.59	48.41	8.464	1.9345	.00	48.41	41012.34
342.60	48.48	8.483	1.9356	.00	48.48	41106.17
342.61	48.54	8.502	1.9367	.00	48.54	41199.74
342.62	48.61	8.522	1.9378	.00	48.61	41293.67
342.63	48.70	8.541	1.9389	.00	48.70	41387.67
342.64	48.78	8.561	1.9400	.00	48.78	41481.71
342.65	48.83	8.580	1.9411	.00	48.83	41575.49
342.66	48.91	8.599	1.9422	.00	48.91	41669.64
342.67	48.98	8.619	1.9434	.00	48.98	41763.84
342.68	49.06	8.638	1.9445	.00	49.06	41857.80
342.69	49.12	8.658	1.9456	.00	49.12	41952.09

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
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No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
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Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.70	49.19	8.677	1.9467	.00	49.19	42046.45
342.71	49.26	8.697	1.9478	.00	49.26	42140.57
342.72	49.33	8.716	1.9489	.00	49.33	42235.02
342.73	49.40	8.736	1.9500	.00	49.40	42329.54
342.74	49.47	8.755	1.9511	.00	49.47	42423.82
342.75	49.53	8.775	1.9522	.00	49.53	42518.43
342.76	49.60	8.794	1.9533	.00	49.60	42613.12
342.77	49.68	8.814	1.9544	.00	49.68	42707.56
342.78	49.74	8.833	1.9555	.00	49.74	42802.33
342.79	49.81	8.853	1.9566	.00	49.81	42897.18
342.80	49.88	8.872	1.9577	.00	49.88	42991.78
342.81	49.95	8.892	1.9589	.00	49.95	43086.71
342.82	50.02	8.912	1.9600	.00	50.02	43181.71
342.83	50.09	8.931	1.9611	.00	50.09	43276.48
342.84	50.15	8.951	1.9622	.00	50.15	43371.58
342.85	50.23	8.970	1.9633	.00	50.23	43466.75
342.86	50.29	8.990	1.9644	.00	50.29	43561.66
342.87	50.36	9.010	1.9655	.00	50.36	43656.92
342.88	50.43	9.029	1.9666	.00	50.43	43752.24
342.89	50.50	9.049	1.9677	.00	50.50	43847.61

LEVEL POOL ROUTING DATA

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No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
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Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.90	50.57	9.069	1.9689	.00	50.57	43942.76
342.91	50.63	9.088	1.9700	.00	50.63	44038.23
342.92	50.71	9.108	1.9711	.00	50.71	44133.77
342.93	50.76	9.128	1.9722	.00	50.76	44229.06
342.94	50.84	9.147	1.9733	.00	50.84	44324.71
342.95	50.90	9.167	1.9744	.00	50.90	44420.40
342.96	50.98	9.187	1.9755	.00	50.98	44515.87
342.97	51.03	9.207	1.9767	.00	51.03	44611.66
342.98	51.11	9.227	1.9778	.00	51.11	44707.53
342.99	51.17	9.246	1.9789	.00	51.17	44803.14
343.00	51.24	9.266	1.9800	.00	51.24	44899.11
343.01	51.37	9.286	1.9811	.00	51.37	44995.19
343.02	51.56	9.306	1.9822	.00	51.56	45091.09
343.03	51.77	9.326	1.9833	.00	51.77	45187.36
343.04	52.01	9.345	1.9843	.00	52.01	45283.71
343.05	52.26	9.365	1.9854	.00	52.26	45379.83
343.06	52.55	9.385	1.9865	.00	52.55	45476.33
343.07	52.84	9.405	1.9876	.00	52.84	45572.89
343.08	53.16	9.425	1.9887	.00	53.16	45669.24
343.09	53.48	9.445	1.9898	.00	53.48	45765.93

LEVEL POOL ROUTING DATA

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No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
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Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.10	53.83	9.465	1.9909	.00	53.83	45862.71
343.11	54.19	9.485	1.9920	.00	54.19	45959.25
343.12	54.55	9.504	1.9930	.00	54.55	46056.14
343.13	54.94	9.524	1.9941	.00	54.94	46153.12
343.14	55.34	9.544	1.9952	.00	55.34	46250.15
343.15	55.75	9.564	1.9963	.00	55.75	46346.96
343.16	56.17	9.584	1.9974	.00	56.17	46444.11
343.17	56.60	9.604	1.9985	.00	56.60	46541.34
343.18	57.04	9.624	1.9996	.00	57.04	46638.34
343.19	57.50	9.644	2.0007	.00	57.50	46735.69
343.20	57.96	9.664	2.0018	.00	57.96	46833.11
343.21	58.43	9.684	2.0029	.00	58.43	46930.29
343.22	58.92	9.704	2.0039	.00	58.92	47027.84
343.23	59.41	9.724	2.0050	.00	59.41	47125.44
343.24	59.90	9.744	2.0061	.00	59.90	47222.80
343.25	60.41	9.764	2.0072	.00	60.41	47320.52
343.26	60.94	9.785	2.0083	.00	60.94	47418.33
343.27	61.46	9.805	2.0094	.00	61.46	47515.88
343.28	62.00	9.825	2.0105	.00	62.00	47613.79
343.29	62.54	9.845	2.0116	.00	62.54	47711.77

LEVEL POOL ROUTING DATA

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INITIAL CONDITIONS

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Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.30	63.09	9.865	2.0127	.00	63.09	47809.50
343.31	63.66	9.885	2.0138	.00	63.66	47907.61
343.32	64.22	9.905	2.0149	.00	64.22	48005.76
343.33	64.80	9.925	2.0160	.00	64.80	48103.67
343.34	65.38	9.946	2.0171	.00	65.38	48201.95
343.35	65.97	9.966	2.0182	.00	65.97	48300.29
343.36	66.57	9.986	2.0193	.00	66.57	48398.40
343.37	67.18	10.006	2.0204	.00	67.18	48496.86
343.38	67.79	10.026	2.0215	.00	67.79	48595.38
343.39	68.42	10.047	2.0225	.00	68.42	48693.96
343.40	69.04	10.067	2.0236	.00	69.04	48792.30
343.41	69.67	10.087	2.0247	.00	69.67	48891.00
343.42	70.31	10.107	2.0258	.00	70.31	48989.75
343.43	70.95	10.128	2.0269	.00	70.95	49088.27
343.44	71.61	10.148	2.0280	.00	71.61	49187.16
343.45	72.28	10.168	2.0291	.00	72.28	49286.11
343.46	72.94	10.188	2.0302	.00	72.94	49384.80
343.47	73.61	10.209	2.0313	.00	73.61	49483.86
343.48	74.30	10.229	2.0324	.00	74.30	49582.98
343.49	74.98	10.249	2.0335	.00	74.98	49681.85

LEVEL POOL ROUTING DATA

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Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.50	75.68	10.270	2.0346	.00	75.68	49781.09
343.51	76.37	10.290	2.0357	.00	76.37	49880.39
343.52	77.08	10.310	2.0368	.00	77.08	49979.45
343.53	77.78	10.331	2.0379	.00	77.78	50078.86
343.54	78.50	10.351	2.0390	.00	78.50	50178.34
343.55	79.22	10.372	2.0401	.00	79.22	50277.56
343.56	79.95	10.392	2.0412	.00	79.95	50377.16
343.57	80.69	10.412	2.0423	.00	80.69	50476.82
343.58	81.43	10.433	2.0434	.00	81.43	50576.23
343.59	82.18	10.453	2.0445	.00	82.18	50676.00
343.60	82.93	10.474	2.0456	.00	82.93	50775.83
343.61	83.68	10.494	2.0467	.00	83.68	50875.41
343.62	84.43	10.515	2.0478	.00	84.43	50975.36
343.63	85.24	10.535	2.0490	.00	85.24	51075.40
343.64	86.01	10.556	2.0501	.00	86.01	51175.46
343.65	86.79	10.576	2.0512	.00	86.79	51275.29
343.66	87.57	10.597	2.0523	.00	87.57	51375.47
343.67	88.37	10.617	2.0534	.00	88.37	51475.71
343.68	89.16	10.638	2.0545	.00	89.16	51575.71
343.69	89.96	10.658	2.0556	.00	89.96	51676.07

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.70	90.76	10.679	2.0567	.00	90.76	51776.49
343.71	91.58	10.699	2.0578	.00	91.58	51876.67
343.72	92.40	10.720	2.0589	.00	92.40	51977.21
343.73	93.21	10.741	2.0600	.00	93.21	52077.80
343.74	94.04	10.761	2.0611	.00	94.04	52178.16
343.75	94.87	10.782	2.0622	.00	94.87	52278.87
343.76	95.71	10.802	2.0633	.00	95.71	52379.64
343.77	96.54	10.823	2.0644	.00	96.54	52480.16
343.78	97.40	10.844	2.0655	.00	97.40	52581.05
343.79	98.25	10.864	2.0667	.00	98.25	52682.00
343.80	99.10	10.885	2.0678	.00	99.10	52782.70
343.81	99.96	10.906	2.0689	.00	99.96	52883.77
343.82	100.82	10.926	2.0700	.00	100.82	52984.89
343.83	101.69	10.947	2.0711	.00	101.69	53085.76
343.84	102.57	10.968	2.0722	.00	102.57	53187.00
343.85	103.45	10.989	2.0733	.00	103.45	53288.30
343.86	104.33	11.009	2.0744	.00	104.33	53389.36
343.87	105.22	11.030	2.0755	.00	105.22	53490.77
343.88	106.11	11.051	2.0766	.00	106.11	53592.23
343.89	107.01	11.072	2.0778	.00	107.01	53693.77

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.90	107.91	11.092	2.0789	.00	107.91	53795.05
343.91	108.81	11.113	2.0800	.00	108.81	53896.70
343.92	109.72	11.134	2.0811	.00	109.72	53998.41
343.93	110.64	11.155	2.0822	.00	110.64	54099.86
343.94	111.55	11.176	2.0833	.00	111.55	54201.68
343.95	112.48	11.197	2.0844	.00	112.48	54303.57
343.96	113.40	11.217	2.0855	.00	113.40	54405.20
343.97	114.34	11.238	2.0867	.00	114.34	54507.20
343.98	115.28	11.259	2.0878	.00	115.28	54609.26
343.99	116.22	11.280	2.0889	.00	116.22	54711.06
344.00	117.17	11.301	2.0900	.00	117.17	54813.24
344.01	118.11	11.322	2.0911	.00	118.11	54915.46
344.02	119.07	11.343	2.0922	.00	119.07	55017.44
344.03	120.03	11.364	2.0933	.00	120.03	55119.79
344.04	120.99	11.385	2.0943	.00	120.99	55222.19
344.05	121.95	11.405	2.0954	.00	121.95	55324.33
344.06	122.92	11.426	2.0965	.00	122.92	55426.85
344.07	123.90	11.447	2.0976	.00	123.90	55529.43
344.08	124.88	11.468	2.0987	.00	124.88	55631.75
344.09	125.86	11.489	2.0998	.00	125.86	55734.43

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.10	126.85	11.510	2.1009	.00	126.85	55837.18
344.11	127.83	11.531	2.1020	.00	127.83	55939.65
344.12	128.83	11.552	2.1031	.00	128.83	56042.51
344.13	129.83	11.573	2.1041	.00	129.83	56145.42
344.14	130.83	11.595	2.1052	.00	130.83	56248.39
344.15	131.83	11.616	2.1063	.00	131.83	56351.11
344.16	132.84	11.637	2.1074	.00	132.84	56454.18
344.17	133.86	11.658	2.1085	.00	133.86	56557.32
344.18	134.88	11.679	2.1096	.00	134.88	56660.21
344.19	135.90	11.700	2.1107	.00	135.90	56763.46
344.20	136.93	11.721	2.1118	.00	136.93	56866.77
344.21	137.96	11.742	2.1129	.00	137.96	56969.83
344.22	138.99	11.763	2.1140	.00	138.99	57073.25
344.23	140.03	11.784	2.1151	.00	140.03	57176.73
344.24	141.06	11.806	2.1161	.00	141.06	57279.94
344.25	142.10	11.827	2.1172	.00	142.10	57383.54
344.26	143.15	11.848	2.1183	.00	143.15	57487.19
344.27	144.21	11.869	2.1194	.00	144.21	57590.58
344.28	145.27	11.890	2.1205	.00	145.27	57694.35
344.29	146.32	11.912	2.1216	.00	146.32	57798.16

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.30	147.38	11.933	2.1227	.00	147.38	57901.72
344.31	148.46	11.954	2.1238	.00	148.46	58005.66
344.32	149.52	11.975	2.1249	.00	149.52	58109.64
344.33	150.60	11.996	2.1260	.00	150.60	58213.38
344.34	151.68	12.018	2.1271	.00	151.68	58317.48
344.35	152.76	12.039	2.1282	.00	152.76	58421.64
344.36	153.83	12.060	2.1293	.00	153.83	58525.53
344.37	154.93	12.082	2.1304	.00	154.93	58629.81
344.38	156.02	12.103	2.1315	.00	156.02	58734.14
344.39	157.12	12.124	2.1326	.00	157.12	58838.53
344.40	158.21	12.146	2.1337	.00	158.21	58942.65
344.41	159.32	12.167	2.1348	.00	159.32	59047.15
344.42	160.42	12.188	2.1359	.00	160.42	59151.70
344.43	161.53	12.210	2.1370	.00	161.53	59256.00
344.44	162.65	12.231	2.1381	.00	162.65	59360.68
344.45	163.76	12.252	2.1392	.00	163.76	59465.40
344.46	164.88	12.274	2.1402	.00	164.88	59569.86
344.47	166.00	12.295	2.1413	.00	166.00	59674.71
344.48	167.13	12.317	2.1424	.00	167.13	59779.61
344.49	168.25	12.338	2.1435	.00	168.25	59884.23

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.50	169.39	12.359	2.1446	.00	169.39	59989.23
344.51	170.53	12.381	2.1457	.00	170.53	60094.30
344.52	171.67	12.402	2.1468	.00	171.67	60199.11
344.53	172.80	12.424	2.1479	.00	172.80	60304.28
344.54	173.95	12.445	2.1491	.00	173.95	60409.52
344.55	175.10	12.467	2.1502	.00	175.10	60514.50
344.56	176.25	12.488	2.1513	.00	176.25	60619.84
344.57	177.42	12.510	2.1524	.00	177.42	60725.25
344.58	178.57	12.531	2.1535	.00	178.57	60830.39
344.59	179.73	12.553	2.1546	.00	179.73	60935.91
344.60	180.90	12.575	2.1557	.00	180.90	61041.49
344.61	182.06	12.596	2.1568	.00	182.06	61146.79
344.62	183.24	12.618	2.1579	.00	183.24	61252.49
344.63	184.41	12.639	2.1590	.00	184.41	61358.23
344.64	185.60	12.661	2.1601	.00	185.60	61464.04
344.65	186.77	12.682	2.1612	.00	186.77	61569.57
344.66	187.96	12.704	2.1623	.00	187.96	61675.49
344.67	189.14	12.726	2.1634	.00	189.14	61781.45
344.68	190.34	12.747	2.1645	.00	190.34	61887.17
344.69	191.53	12.769	2.1656	.00	191.53	61993.25

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.70	192.73	12.791	2.1667	.00	192.73	62099.40
344.71	193.92	12.812	2.1678	.00	193.92	62205.27
344.72	195.13	12.834	2.1689	.00	195.13	62311.52
344.73	196.33	12.856	2.1700	.00	196.33	62417.84
344.74	197.54	12.877	2.1711	.00	197.54	62523.88
344.75	198.75	12.899	2.1722	.00	198.75	62630.30
344.76	199.97	12.921	2.1733	.00	199.97	62736.79
344.77	201.30	12.943	2.1744	.00	201.30	62843.11
344.78	202.52	12.964	2.1756	.00	202.52	62949.71
344.79	203.74	12.986	2.1767	.00	203.74	63056.36
344.80	204.97	13.008	2.1778	.00	204.97	63162.75
344.81	206.20	13.030	2.1789	.00	206.20	63269.51
344.82	207.44	13.051	2.1800	.00	207.44	63376.33
344.83	208.68	13.073	2.1811	.00	208.68	63482.89
344.84	209.92	13.095	2.1822	.00	209.92	63589.82
344.85	211.16	13.117	2.1833	.00	211.16	63696.81
344.86	212.41	13.139	2.1844	.00	212.41	63803.54
344.87	213.66	13.161	2.1855	.00	213.66	63910.66
344.88	214.92	13.182	2.1867	.00	214.92	64017.82
344.89	216.17	13.204	2.1878	.00	216.17	64125.04

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 IN 2
Outflow HYG file = NONE STORED - POND 1 OUT 2

Pond Node Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 337.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.90	217.43	13.226	2.1889	.00	217.43	64231.99
344.91	218.68	13.248	2.1900	.00	218.68	64339.32
344.92	219.94	13.270	2.1911	.00	219.94	64446.70
344.93	221.21	13.292	2.1922	.00	221.21	64553.82
344.94	222.48	13.314	2.1933	.00	222.48	64661.33
344.95	223.75	13.336	2.1944	.00	223.75	64768.89
344.96	225.03	13.358	2.1955	.00	225.03	64876.18
344.97	226.31	13.380	2.1967	.00	226.31	64983.86
344.98	227.60	13.402	2.1978	.00	227.60	65091.60
344.99	228.87	13.424	2.1989	.00	228.87	65199.05
345.00	230.17	13.446	2.2000	.00	230.17	65306.89

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 1       IN  2
Outflow HYG file = NONE STORED - POND 1       OUT 2

Pond Node   Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   337.50 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0050 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =    115.43 cfs    at   11.9450 hrs
Peak Outflow      =      2.95 cfs    at   15.3350 hrs
-----------------------------------------------------
Peak Elevation    =    340.45 ft
Peak Storage =          4.581 ac-ft
=====================================================


MASS BALANCE (ac-ft)
---------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =       6.739
- Infiltration =        .000
- HYG Vol OUT  =       2.961
- Retained Vol =       3.778
                  ----------
Unrouted Vol =        .000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 1       IN  10
Outflow HYG file = NONE STORED - POND 1       OUT 10

Pond Node   Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   337.50 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0050 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =    194.21 cfs    at   11.9450 hrs
Peak Outflow      =     13.46 cfs    at   12.7650 hrs
-----------------------------------------------------
Peak Elevation    =    341.86 ft
Peak Storage =          7.082 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =      11.528
- Infiltration =        .000
- HYG Vol OUT  =       5.736
- Retained Vol =       5.792
                 ----------
Unrouted Vol =       -.000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 1       IN  25
Outflow HYG file = NONE STORED - POND 1       OUT 25

Pond Node   Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   337.50 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0050 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =    236.83 cfs    at   11.9450 hrs
Peak Outflow      =     37.24 cfs    at   12.2500 hrs
-----------------------------------------------------
Peak Elevation    =    342.32 ft
Peak Storage =          7.946 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =      14.186
- Infiltration =        .000
- HYG Vol OUT  =       8.178
- Retained Vol =       6.008
                 ----------
Unrouted Vol =        .000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 1       IN  100
Outflow HYG file = NONE STORED - POND 1       OUT 100

Pond Node   Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   337.50 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0050 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =    304.82 cfs    at   11.9400 hrs
Peak Outflow      =     64.97 cfs    at   12.1750 hrs
-----------------------------------------------------
Peak Elevation    =    343.33 ft
Peak Storage =          9.931 ac-ft
=====================================================


MASS BALANCE (ac-ft)
---------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =      18.494
- Infiltration =        .000
- HYG Vol OUT  =      12.237
- Retained Vol =       6.257
                 ----------
Unrouted Vol =       -.000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
337.50	.00	.000	1.4000	.00	.00	.00
337.51	.00	.014	1.4010	.00	.00	67.85
337.52	.00	.028	1.4020	.00	.00	135.54
337.53	.00	.042	1.4030	.00	.00	203.49
337.54	.00	.056	1.4040	.00	.00	271.48
337.55	.00	.070	1.4050	.00	.00	339.32
337.56	.00	.084	1.4060	.00	.00	407.41
337.57	.00	.098	1.4069	.00	.00	475.55
337.58	.00	.112	1.4079	.00	.00	543.53
337.59	.00	.126	1.4089	.00	.00	611.76
337.60	.00	.141	1.4099	.00	.00	680.04
337.61	.00	.155	1.4109	.00	.00	748.17
337.62	.00	.169	1.4119	.00	.00	816.55
337.63	.00	.183	1.4129	.00	.00	884.97
337.64	.00	.197	1.4139	.00	.00	953.45
337.65	.00	.211	1.4149	.00	.00	1021.77
337.66	.00	.225	1.4159	.00	.00	1090.34
337.67	.00	.239	1.4169	.00	.00	1158.96
337.68	.00	.254	1.4179	.00	.00	1227.42
337.69	.00	.268	1.4189	.00	.00	1296.14

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
337.70	.00	.282	1.4199	.00	.00	1364.90
337.71	.00	.296	1.4209	.00	.00	1433.51
337.72	.00	.310	1.4219	.00	.00	1502.37
337.73	.00	.325	1.4229	.00	.00	1571.28
337.74	.00	.339	1.4239	.00	.00	1640.03
337.75	.00	.353	1.4249	.00	.00	1709.04
337.76	.00	.367	1.4259	.00	.00	1778.09
337.77	.00	.382	1.4269	.00	.00	1846.99
337.78	.00	.396	1.4279	.00	.00	1916.14
337.79	.00	.410	1.4289	.00	.00	1985.34
337.80	.00	.424	1.4299	.00	.00	2054.38
337.81	.00	.439	1.4309	.00	.00	2123.68
337.82	.00	.453	1.4319	.00	.00	2193.03
337.83	.00	.467	1.4329	.00	.00	2262.21
337.84	.00	.482	1.4339	.00	.00	2331.66
337.85	.00	.496	1.4349	.00	.00	2401.15
337.86	.00	.510	1.4359	.00	.00	2470.48
337.87	.00	.525	1.4369	.00	.00	2540.07
337.88	.00	.539	1.4379	.00	.00	2609.71
337.89	.00	.554	1.4389	.00	.00	2679.40

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
337.90	.00	.568	1.4399	.00	.00	2748.92
337.91	.00	.582	1.4409	.00	.00	2818.70
337.92	.00	.597	1.4419	.00	.00	2888.54
337.93	.00	.611	1.4429	.00	.00	2958.21
337.94	.00	.626	1.4440	.00	.00	3028.14
337.95	.00	.640	1.4450	.00	.00	3098.12
337.96	.00	.655	1.4460	.00	.00	3167.93
337.97	.00	.669	1.4470	.00	.00	3238.01
337.98	.00	.683	1.4480	.00	.00	3308.14
337.99	.00	.698	1.4490	.00	.00	3378.10
338.00	.00	.712	1.4500	.00	.00	3448.32
338.01	.00	.727	1.4510	.00	.00	3518.60
338.02	.00	.741	1.4520	.00	.00	3588.70
338.03	.00	.756	1.4530	.00	.00	3659.07
338.04	.00	.771	1.4539	.00	.00	3729.48
338.05	.00	.785	1.4549	.00	.00	3799.73
338.06	.00	.800	1.4559	.00	.00	3870.24
338.07	.00	.814	1.4569	.00	.00	3940.80
338.08	.00	.829	1.4579	.00	.00	4011.19
338.09	.00	.843	1.4589	.00	.00	4081.85

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
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Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.10	.00	.858	1.4599	.00	.00	4152.55
338.11	.00	.873	1.4608	.00	.00	4223.08
338.12	.00	.887	1.4618	.00	.00	4293.88
338.13	.00	.902	1.4628	.00	.00	4364.73
338.14	.00	.916	1.4638	.00	.00	4435.62
338.15	.00	.931	1.4648	.00	.00	4506.34
338.16	.00	.946	1.4658	.00	.00	4577.33
338.17	.00	.960	1.4668	.00	.00	4648.37
338.18	.00	.975	1.4678	.00	.00	4719.24
338.19	.00	.990	1.4687	.00	.00	4790.37
338.20	.00	1.004	1.4697	.00	.00	4861.55
338.21	.00	1.019	1.4707	.00	.00	4932.56
338.22	.00	1.034	1.4717	.00	.00	5003.84
338.23	.00	1.049	1.4727	.00	.00	5075.16
338.24	.00	1.063	1.4737	.00	.00	5146.32
338.25	.00	1.078	1.4747	.00	.00	5217.74
338.26	.00	1.093	1.4757	.00	.00	5289.21
338.27	.00	1.108	1.4767	.00	.00	5360.51
338.28	.00	1.122	1.4777	.00	.00	5432.07
338.29	.00	1.137	1.4787	.00	.00	5503.68

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
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Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.30	.00	1.152	1.4796	.00	.00	5575.13
338.31	.00	1.167	1.4806	.00	.00	5646.83
338.32	.00	1.182	1.4816	.00	.00	5718.59
338.33	.00	1.196	1.4826	.00	.00	5790.18
338.34	.00	1.211	1.4836	.00	.00	5862.03
338.35	.00	1.226	1.4846	.00	.00	5933.93
338.36	.00	1.241	1.4856	.00	.00	6005.66
338.37	.00	1.256	1.4866	.00	.00	6077.66
338.38	.00	1.271	1.4876	.00	.00	6149.71
338.39	.00	1.285	1.4886	.00	.00	6221.80
338.40	.00	1.300	1.4896	.00	.00	6293.73
338.41	.00	1.315	1.4906	.00	.00	6365.92
338.42	.00	1.330	1.4916	.00	.00	6438.16
338.43	.00	1.345	1.4926	.00	.00	6510.22
338.44	.00	1.360	1.4936	.00	.00	6582.56
338.45	.00	1.375	1.4946	.00	.00	6654.95
338.46	.00	1.390	1.4956	.00	.00	6727.16
338.47	.00	1.405	1.4966	.00	.00	6799.64
338.48	.00	1.420	1.4976	.00	.00	6872.17
338.49	.00	1.435	1.4986	.00	.00	6944.52

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.50	.00	1.450	1.4996	.00	.00	7017.15
338.51	.00	1.465	1.5006	.00	.00	7089.83
338.52	.00	1.480	1.5016	.00	.00	7162.33
338.53	.01	1.495	1.5026	.00	.01	7235.11
338.54	.01	1.510	1.5036	.00	.01	7307.93
338.55	.03	1.525	1.5046	.00	.03	7380.60
338.56	.05	1.540	1.5056	.00	.05	7453.53
338.57	.06	1.555	1.5066	.00	.06	7526.51
338.58	.08	1.570	1.5076	.00	.08	7599.32
338.59	.10	1.585	1.5086	.00	.10	7672.40
338.60	.12	1.600	1.5096	.00	.12	7745.54
338.61	.14	1.615	1.5106	.00	.14	7818.50
338.62	.17	1.630	1.5116	.00	.17	7891.73
338.63	.19	1.646	1.5126	.00	.19	7965.02
338.64	.22	1.661	1.5136	.00	.22	8038.35
338.65	.25	1.676	1.5146	.00	.25	8111.50
338.66	.27	1.691	1.5156	.00	.27	8184.94
338.67	.31	1.706	1.5166	.00	.31	8258.42
338.68	.33	1.721	1.5176	.00	.33	8331.72
338.69	.34	1.737	1.5186	.00	.34	8405.28

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
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Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.70	.36	1.752	1.5197	.00	.36	8478.90
338.71	.37	1.767	1.5207	.00	.37	8552.34
338.72	.39	1.782	1.5217	.00	.39	8626.05
338.73	.40	1.797	1.5227	.00	.40	8699.81
338.74	.42	1.813	1.5237	.00	.42	8773.39
338.75	.43	1.828	1.5247	.00	.43	8847.24
338.76	.44	1.843	1.5257	.00	.44	8921.15
338.77	.45	1.858	1.5267	.00	.45	8994.87
338.78	.47	1.874	1.5277	.00	.47	9068.88
338.79	.48	1.889	1.5287	.00	.48	9142.92
338.80	.49	1.904	1.5297	.00	.49	9216.80
338.81	.50	1.920	1.5307	.00	.50	9290.94
338.82	.51	1.935	1.5318	.00	.51	9365.14
338.83	.52	1.950	1.5328	.00	.52	9439.16
338.84	.53	1.965	1.5338	.00	.53	9513.45
338.85	.54	1.981	1.5348	.00	.54	9587.79
338.86	.55	1.996	1.5358	.00	.55	9661.96
338.87	.56	2.012	1.5368	.00	.56	9736.40
338.88	.57	2.027	1.5378	.00	.57	9810.89
338.89	.58	2.042	1.5388	.00	.58	9885.42

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.90	.59	2.058	1.5398	.00	.59	9959.78
338.91	.60	2.073	1.5409	.00	.60	10034.42
338.92	.61	2.089	1.5419	.00	.61	10109.10
338.93	.62	2.104	1.5429	.00	.62	10183.61
338.94	.63	2.119	1.5439	.00	.63	10258.39
338.95	.64	2.135	1.5449	.00	.64	10333.22
338.96	.64	2.150	1.5459	.00	.64	10407.87
338.97	.65	2.166	1.5470	.00	.65	10482.80
338.98	.66	2.181	1.5480	.00	.66	10557.78
338.99	.67	2.197	1.5490	.00	.67	10632.58
339.00	.68	2.212	1.5500	.00	.68	10707.66
339.01	.69	2.228	1.5511	.00	.69	10782.79
339.02	.69	2.243	1.5522	.00	.69	10857.74
339.03	.70	2.259	1.5532	.00	.70	10932.97
339.04	.71	2.274	1.5543	.00	.71	11008.25
339.05	.72	2.290	1.5554	.00	.72	11083.36
339.06	.73	2.305	1.5565	.00	.73	11158.75
339.07	.73	2.321	1.5576	.00	.73	11234.19
339.08	.74	2.337	1.5587	.00	.74	11309.45
339.09	.75	2.352	1.5597	.00	.75	11385.00

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
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No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
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Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.10	.76	2.368	1.5608	.00	.76	11460.60
339.11	.76	2.383	1.5619	.00	.76	11536.02
339.12	.77	2.399	1.5630	.00	.77	11611.72
339.13	.78	2.415	1.5641	.00	.78	11687.48
339.14	.78	2.430	1.5652	.00	.78	11763.29
339.15	.79	2.446	1.5663	.00	.79	11838.92
339.16	.80	2.462	1.5673	.00	.80	11914.83
339.17	.80	2.477	1.5684	.00	.80	11990.80
339.18	.81	2.493	1.5695	.00	.81	12066.59
339.19	.82	2.509	1.5706	.00	.82	12142.66
339.20	.82	2.524	1.5717	.00	.82	12218.79
339.21	.83	2.540	1.5728	.00	.83	12294.73
339.22	.84	2.556	1.5739	.00	.84	12370.96
339.23	.84	2.572	1.5750	.00	.84	12447.24
339.24	.85	2.587	1.5761	.00	.85	12523.35
339.25	.86	2.603	1.5771	.00	.86	12599.74
339.26	.86	2.619	1.5782	.00	.86	12676.18
339.27	.87	2.635	1.5793	.00	.87	12752.44
339.28	.88	2.650	1.5804	.00	.88	12828.99
339.29	.88	2.666	1.5815	.00	.88	12905.58

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
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No Infiltration

INITIAL CONDITIONS

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Starting Outflow = .00 cfs
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Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.30	.89	2.682	1.5826	.00	.89	12982.00
339.31	.90	2.698	1.5837	.00	.90	13058.71
339.32	.90	2.714	1.5848	.00	.90	13135.47
339.33	.91	2.730	1.5859	.00	.91	13212.04
339.34	.91	2.745	1.5870	.00	.91	13288.91
339.35	.92	2.761	1.5881	.00	.92	13365.83
339.36	.93	2.777	1.5892	.00	.93	13442.56
339.37	.93	2.793	1.5903	.00	.93	13519.58
339.38	.94	2.809	1.5914	.00	.94	13596.66
339.39	.94	2.825	1.5925	.00	.94	13673.79
339.40	.95	2.841	1.5935	.00	.95	13750.74
339.41	.96	2.857	1.5946	.00	.96	13827.97
339.42	.96	2.873	1.5957	.00	.96	13905.26
339.43	.97	2.889	1.5968	.00	.97	13982.37
339.44	.97	2.905	1.5979	.00	.97	14059.76
339.45	.98	2.921	1.5990	.00	.98	14137.21
339.46	.98	2.937	1.6001	.00	.98	14214.47
339.47	.99	2.953	1.6012	.00	.99	14292.03
339.48	.99	2.969	1.6023	.00	.99	14369.64
339.49	1.00	2.985	1.6034	.00	1.00	14447.06

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
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Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
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Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.50	1.01	3.001	1.6045	.00	1.01	14524.77
339.51	1.01	3.017	1.6056	.00	1.01	14602.54
339.52	1.02	3.033	1.6067	.00	1.02	14680.13
339.53	1.02	3.049	1.6078	.00	1.02	14758.00
339.54	1.03	3.065	1.6089	.00	1.03	14835.92
339.55	1.03	3.081	1.6100	.00	1.03	14913.67
339.56	1.04	3.097	1.6111	.00	1.04	14991.70
339.57	1.04	3.113	1.6122	.00	1.04	15069.79
339.58	1.05	3.129	1.6133	.00	1.05	15147.69
339.59	1.05	3.146	1.6144	.00	1.05	15225.88
339.60	1.06	3.162	1.6155	.00	1.06	15304.13
339.61	1.06	3.178	1.6167	.00	1.06	15382.19
339.62	1.07	3.194	1.6178	.00	1.07	15460.55
339.63	1.07	3.210	1.6189	.00	1.07	15538.96
339.64	1.08	3.227	1.6200	.00	1.08	15617.42
339.65	1.08	3.243	1.6211	.00	1.08	15695.69
339.66	1.09	3.259	1.6222	.00	1.09	15774.26
339.67	1.10	3.275	1.6233	.00	1.10	15852.88
339.68	1.10	3.291	1.6244	.00	1.10	15931.32
339.69	1.11	3.308	1.6255	.00	1.11	16010.05

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.70	1.11	3.324	1.6266	.00	1.11	16088.83
339.71	1.11	3.340	1.6277	.00	1.11	16167.43
339.72	1.12	3.356	1.6288	.00	1.12	16246.32
339.73	1.12	3.373	1.6299	.00	1.12	16325.26
339.74	1.13	3.389	1.6310	.00	1.13	16404.02
339.75	1.13	3.405	1.6321	.00	1.13	16483.07
339.76	1.14	3.422	1.6333	.00	1.14	16562.17
339.77	1.14	3.438	1.6344	.00	1.14	16641.09
339.78	1.15	3.454	1.6355	.00	1.15	16720.30
339.79	1.15	3.471	1.6366	.00	1.15	16799.57
339.80	1.16	3.487	1.6377	.00	1.16	16878.64
339.81	1.16	3.503	1.6388	.00	1.16	16958.02
339.82	1.17	3.520	1.6399	.00	1.17	17037.45
339.83	1.17	3.536	1.6410	.00	1.17	17116.69
339.84	1.18	3.553	1.6421	.00	1.18	17196.22
339.85	1.18	3.569	1.6433	.00	1.18	17275.81
339.86	1.19	3.586	1.6444	.00	1.19	17355.21
339.87	1.19	3.602	1.6455	.00	1.19	17434.91
339.88	1.20	3.618	1.6466	.00	1.20	17514.66
339.89	1.20	3.635	1.6477	.00	1.20	17594.46

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
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Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.90	1.21	3.651	1.6488	.00	1.21	17674.08
339.91	1.21	3.668	1.6499	.00	1.21	17753.99
339.92	1.21	3.684	1.6511	.00	1.21	17833.96
339.93	1.22	3.701	1.6522	.00	1.22	17913.74
339.94	1.22	3.717	1.6533	.00	1.22	17993.81
339.95	1.23	3.734	1.6544	.00	1.23	18073.94
339.96	1.23	3.751	1.6555	.00	1.23	18153.88
339.97	1.24	3.767	1.6566	.00	1.24	18234.12
339.98	1.24	3.784	1.6578	.00	1.24	18314.41
339.99	1.25	3.800	1.6589	.00	1.25	18394.51
340.00	1.25	3.817	1.6600	.00	1.25	18474.91
340.01	1.25	3.833	1.6610	.00	1.25	18555.36
340.02	1.26	3.850	1.6620	.00	1.26	18635.61
340.03	1.26	3.867	1.6630	.00	1.26	18716.16
340.04	1.27	3.883	1.6639	.00	1.27	18796.75
340.05	1.27	3.900	1.6649	.00	1.27	18877.15
340.06	1.28	3.917	1.6659	.00	1.28	18957.84
340.07	1.28	3.933	1.6669	.00	1.28	19038.58
340.08	1.29	3.950	1.6679	.00	1.29	19119.12
340.09	1.29	3.967	1.6689	.00	1.29	19199.95

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

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INITIAL CONDITIONS

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Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.10	1.29	3.983	1.6699	.00	1.29	19280.83
340.11	1.30	4.000	1.6709	.00	1.30	19361.51
340.12	1.30	4.017	1.6718	.00	1.30	19442.49
340.13	1.31	4.034	1.6728	.00	1.31	19523.51
340.14	1.31	4.050	1.6738	.00	1.31	19604.58
340.15	1.31	4.067	1.6748	.00	1.31	19685.46
340.16	1.32	4.084	1.6758	.00	1.32	19766.63
340.17	1.32	4.101	1.6768	.00	1.32	19847.84
340.18	1.33	4.117	1.6778	.00	1.33	19928.86
340.19	1.33	4.134	1.6788	.00	1.33	20010.17
340.20	1.34	4.151	1.6798	.00	1.34	20091.53
340.21	1.34	4.168	1.6808	.00	1.34	20172.69
340.22	1.34	4.184	1.6817	.00	1.34	20254.15
340.23	1.35	4.201	1.6827	.00	1.35	20335.65
340.24	1.35	4.218	1.6837	.00	1.35	20416.96
340.25	1.36	4.235	1.6847	.00	1.36	20498.55
340.26	1.36	4.252	1.6857	.00	1.36	20580.20
340.27	1.36	4.269	1.6867	.00	1.36	20661.65
340.28	1.37	4.286	1.6877	.00	1.37	20743.40
340.29	1.37	4.302	1.6887	.00	1.37	20825.19

LEVEL POOL ROUTING DATA

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No Infiltration

INITIAL CONDITIONS

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Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.30	1.38	4.319	1.6897	.00	1.38	20906.78
340.31	1.38	4.336	1.6907	.00	1.38	20988.67
340.32	1.38	4.353	1.6917	.00	1.38	21070.61
340.33	1.39	4.370	1.6927	.00	1.39	21152.34
340.34	1.39	4.387	1.6937	.00	1.39	21234.38
340.35	1.40	4.404	1.6947	.00	1.40	21316.46
340.36	1.40	4.421	1.6957	.00	1.40	21398.34
340.37	1.40	4.438	1.6967	.00	1.40	21480.52
340.38	1.41	4.455	1.6977	.00	1.41	21562.74
340.39	1.41	4.472	1.6987	.00	1.41	21645.02
340.40	1.42	4.489	1.6996	.00	1.42	21727.09
340.41	1.42	4.506	1.7006	.00	1.42	21809.46
340.42	1.42	4.523	1.7016	.00	1.42	21891.88
340.43	1.43	4.540	1.7026	.00	1.43	21974.10
340.44	1.43	4.557	1.7036	.00	1.43	22056.61
340.45	1.44	4.574	1.7046	.00	1.44	22139.18
340.46	1.44	4.591	1.7056	.00	1.44	22221.54
340.47	1.44	4.608	1.7066	.00	1.44	22304.20
340.48	1.45	4.625	1.7076	.00	1.45	22386.91
340.49	1.45	4.642	1.7086	.00	1.45	22469.42

LEVEL POOL ROUTING DATA

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Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.50	1.45	4.659	1.7096	.00	1.45	22552.22
340.51	1.46	4.676	1.7106	.00	1.46	22635.08
340.52	1.46	4.693	1.7116	.00	1.46	22717.73
340.53	1.47	4.711	1.7126	.00	1.47	22800.68
340.54	1.47	4.728	1.7136	.00	1.47	22883.68
340.55	1.47	4.745	1.7146	.00	1.47	22966.48
340.56	1.48	4.762	1.7156	.00	1.48	23049.57
340.57	1.48	4.779	1.7166	.00	1.48	23132.72
340.58	1.48	4.796	1.7176	.00	1.48	23215.66
340.59	1.49	4.814	1.7186	.00	1.49	23298.91
340.60	1.49	4.831	1.7197	.00	1.49	23382.20
340.61	1.50	4.848	1.7207	.00	1.50	23465.29
340.62	1.50	4.865	1.7217	.00	1.50	23548.67
340.63	1.50	4.882	1.7227	.00	1.50	23632.11
340.64	1.51	4.900	1.7237	.00	1.51	23715.60
340.65	1.51	4.917	1.7247	.00	1.51	23798.88
340.66	1.51	4.934	1.7257	.00	1.51	23882.46
340.67	1.52	4.951	1.7267	.00	1.52	23966.09
340.68	1.52	4.969	1.7277	.00	1.52	24049.52
340.69	1.52	4.986	1.7287	.00	1.52	24133.25

LEVEL POOL ROUTING DATA

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Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.70	1.53	5.003	1.7297	.00	1.53	24217.02
340.71	1.53	5.020	1.7307	.00	1.53	24300.59
340.72	1.54	5.038	1.7317	.00	1.54	24384.47
340.73	1.54	5.055	1.7327	.00	1.54	24468.40
340.74	1.54	5.072	1.7337	.00	1.54	24552.11
340.75	1.55	5.090	1.7347	.00	1.55	24636.13
340.76	1.55	5.107	1.7357	.00	1.55	24720.20
340.77	1.55	5.124	1.7367	.00	1.55	24804.07
340.78	1.56	5.142	1.7377	.00	1.56	24888.24
340.79	1.56	5.159	1.7388	.00	1.56	24972.45
340.80	1.56	5.177	1.7398	.00	1.56	25056.46
340.81	1.57	5.194	1.7408	.00	1.57	25140.78
340.82	1.57	5.211	1.7418	.00	1.57	25225.14
340.83	1.57	5.229	1.7428	.00	1.57	25309.30
340.84	1.58	5.246	1.7438	.00	1.58	25393.76
340.85	1.58	5.264	1.7448	.00	1.58	25478.27
340.86	1.58	5.281	1.7458	.00	1.58	25562.57
340.87	1.59	5.299	1.7468	.00	1.59	25647.18
340.88	1.59	5.316	1.7478	.00	1.59	25731.84
340.89	1.60	5.334	1.7489	.00	1.60	25816.54

LEVEL POOL ROUTING DATA

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Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.90	1.60	5.351	1.7499	.00	1.60	25901.04
340.91	1.60	5.369	1.7509	.00	1.60	25985.84
340.92	1.61	5.386	1.7519	.00	1.61	26070.70
340.93	1.61	5.404	1.7529	.00	1.61	26155.34
340.94	1.61	5.421	1.7539	.00	1.61	26240.29
340.95	1.62	5.439	1.7549	.00	1.62	26325.29
340.96	1.62	5.456	1.7559	.00	1.62	26410.08
340.97	1.62	5.474	1.7570	.00	1.62	26495.18
340.98	1.63	5.491	1.7580	.00	1.63	26580.33
340.99	1.63	5.509	1.7590	.00	1.63	26665.27
341.00	1.63	5.527	1.7600	.00	1.63	26750.51
341.01	1.64	5.544	1.7611	.00	1.64	26835.81
341.02	1.64	5.562	1.7622	.00	1.64	26920.90
341.03	1.64	5.579	1.7633	.00	1.64	27006.30
341.04	1.65	5.597	1.7643	.00	1.65	27091.75
341.05	1.65	5.615	1.7654	.00	1.65	27177.00
341.06	1.65	5.632	1.7665	.00	1.65	27262.56
341.07	1.66	5.650	1.7676	.00	1.66	27348.17
341.08	1.66	5.668	1.7687	.00	1.66	27433.58
341.09	1.66	5.685	1.7698	.00	1.66	27519.29

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Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.10	1.67	5.703	1.7709	.00	1.67	27605.06
341.11	1.67	5.721	1.7719	.00	1.67	27690.62
341.12	1.67	5.739	1.7730	.00	1.67	27776.50
341.13	1.68	5.756	1.7741	.00	1.68	27862.42
341.14	1.68	5.774	1.7752	.00	1.68	27948.41
341.15	1.68	5.792	1.7763	.00	1.68	28034.18
341.16	1.69	5.810	1.7774	.00	1.69	28120.26
341.17	1.69	5.827	1.7785	.00	1.69	28206.40
341.18	1.69	5.845	1.7796	.00	1.69	28292.33
341.19	1.70	5.863	1.7806	.00	1.70	28378.57
341.20	1.70	5.881	1.7817	.00	1.70	28464.87
341.21	1.70	5.899	1.7828	.00	1.70	28550.96
341.22	1.71	5.916	1.7839	.00	1.71	28637.36
341.23	1.71	5.934	1.7850	.00	1.71	28723.82
341.24	1.71	5.952	1.7861	.00	1.71	28810.06
341.25	1.72	5.970	1.7872	.00	1.72	28896.62
341.26	1.72	5.988	1.7883	.00	1.72	28983.24
341.27	1.72	6.006	1.7894	.00	1.72	29069.64
341.28	1.73	6.024	1.7905	.00	1.73	29156.36
341.29	1.73	6.042	1.7916	.00	1.73	29243.13

LEVEL POOL ROUTING DATA

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Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.30	1.73	6.059	1.7926	.00	1.73	29329.69
341.31	1.73	6.077	1.7937	.00	1.73	29416.57
341.32	1.74	6.095	1.7948	.00	1.74	29503.50
341.33	1.74	6.113	1.7959	.00	1.74	29590.22
341.34	1.74	6.131	1.7970	.00	1.74	29677.26
341.35	1.75	6.149	1.7981	.00	1.75	29764.35
341.36	1.75	6.167	1.7992	.00	1.75	29851.23
341.37	1.75	6.185	1.8003	.00	1.75	29938.42
341.38	1.76	6.203	1.8014	.00	1.76	30025.67
341.39	1.76	6.221	1.8025	.00	1.76	30112.98
341.40	1.76	6.239	1.8036	.00	1.76	30200.07
341.41	1.77	6.257	1.8047	.00	1.77	30287.47
341.42	1.77	6.275	1.8058	.00	1.77	30374.94
341.43	1.77	6.293	1.8069	.00	1.77	30462.19
341.44	1.78	6.312	1.8080	.00	1.78	30549.76
341.45	1.78	6.330	1.8091	.00	1.78	30637.38
341.46	1.78	6.348	1.8102	.00	1.78	30724.79
341.47	1.78	6.366	1.8113	.00	1.78	30812.52
341.48	1.79	6.384	1.8124	.00	1.79	30900.29
341.49	1.79	6.402	1.8135	.00	1.79	30987.86

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
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INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
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Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.50	1.79	6.420	1.8146	.00	1.79	31075.75
341.51	1.84	6.438	1.8157	.00	1.84	31163.74
341.52	1.93	6.457	1.8168	.00	1.93	31251.55
341.53	2.05	6.475	1.8179	.00	2.05	31339.71
341.54	2.18	6.493	1.8190	.00	2.18	31427.95
341.55	2.34	6.511	1.8201	.00	2.34	31515.98
341.56	2.50	6.529	1.8212	.00	2.50	31604.35
341.57	2.69	6.548	1.8223	.00	2.69	31692.79
341.58	2.88	6.566	1.8234	.00	2.88	31781.04
341.59	3.09	6.584	1.8245	.00	3.09	31869.61
341.60	3.31	6.602	1.8256	.00	3.31	31958.25
341.61	3.55	6.620	1.8267	.00	3.55	32046.68
341.62	3.79	6.639	1.8278	.00	3.79	32135.45
341.63	4.04	6.657	1.8289	.00	4.04	32224.28
341.64	4.31	6.675	1.8300	.00	4.31	32313.18
341.65	4.57	6.694	1.8311	.00	4.57	32401.86
341.66	4.84	6.712	1.8322	.00	4.84	32490.87
341.67	5.12	6.730	1.8333	.00	5.12	32579.94
341.68	5.41	6.749	1.8344	.00	5.41	32668.80
341.69	5.71	6.767	1.8355	.00	5.71	32758.00

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.70	6.01	6.785	1.8367	.00	6.01	32847.26
341.71	6.32	6.804	1.8378	.00	6.32	32936.31
341.72	6.64	6.822	1.8389	.00	6.64	33025.70
341.73	6.97	6.841	1.8400	.00	6.97	33115.14
341.74	7.31	6.859	1.8411	.00	7.31	33204.36
341.75	7.65	6.877	1.8422	.00	7.65	33293.93
341.76	8.00	6.896	1.8433	.00	8.00	33383.56
341.77	8.35	6.914	1.8444	.00	8.35	33472.97
341.78	8.72	6.933	1.8455	.00	8.72	33562.71
341.79	9.09	6.951	1.8466	.00	9.09	33652.52
341.80	9.46	6.970	1.8477	.00	9.46	33742.11
341.81	9.85	6.988	1.8488	.00	9.85	33832.04
341.82	10.23	7.007	1.8500	.00	10.23	33922.03
341.83	10.63	7.025	1.8511	.00	10.63	34011.80
341.84	11.03	7.044	1.8522	.00	11.03	34101.91
341.85	11.44	7.062	1.8533	.00	11.44	34192.08
341.86	11.85	7.081	1.8544	.00	11.85	34282.03
341.87	12.27	7.099	1.8555	.00	12.27	34372.32
341.88	12.69	7.118	1.8566	.00	12.69	34462.66
341.89	13.13	7.136	1.8577	.00	13.13	34553.07

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

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Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.90	13.56	7.155	1.8588	.00	13.56	34643.26
341.91	14.00	7.174	1.8600	.00	14.00	34733.79
341.92	14.45	7.192	1.8611	.00	14.45	34824.37
341.93	14.90	7.211	1.8622	.00	14.90	34914.74
341.94	15.36	7.229	1.8633	.00	15.36	35005.44
341.95	15.82	7.248	1.8644	.00	15.82	35096.20
341.96	16.29	7.267	1.8655	.00	16.29	35186.75
341.97	16.76	7.285	1.8667	.00	16.76	35277.63
341.98	17.24	7.304	1.8678	.00	17.24	35368.57
341.99	17.72	7.323	1.8689	.00	17.72	35459.29
342.00	18.21	7.341	1.8700	.00	18.21	35550.35
342.01	18.71	7.360	1.8711	.00	18.71	35641.46
342.02	19.20	7.379	1.8722	.00	19.20	35732.36
342.03	19.71	7.397	1.8733	.00	19.71	35823.59
342.04	20.21	7.416	1.8743	.00	20.21	35914.88
342.05	20.72	7.435	1.8754	.00	20.72	36005.95
342.06	21.24	7.454	1.8765	.00	21.24	36097.35
342.07	21.76	7.473	1.8776	.00	21.76	36188.81
342.08	22.29	7.491	1.8787	.00	22.29	36280.05
342.09	22.82	7.510	1.8798	.00	22.82	36371.63

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
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No Infiltration

INITIAL CONDITIONS

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Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.10	23.36	7.529	1.8809	.00	23.36	36463.25
342.11	23.89	7.548	1.8819	.00	23.89	36554.66
342.12	24.44	7.567	1.8830	.00	24.44	36646.41
342.13	24.99	7.585	1.8841	.00	24.99	36738.21
342.14	25.54	7.604	1.8852	.00	25.54	36830.07
342.15	26.09	7.623	1.8863	.00	26.09	36921.71
342.16	26.65	7.642	1.8874	.00	26.65	37013.68
342.17	27.22	7.661	1.8885	.00	27.22	37105.71
342.18	27.79	7.680	1.8896	.00	27.79	37197.52
342.19	28.36	7.699	1.8907	.00	28.36	37289.66
342.20	28.94	7.718	1.8918	.00	28.94	37381.86
342.21	29.52	7.736	1.8928	.00	29.52	37473.84
342.22	30.10	7.755	1.8939	.00	30.10	37566.15
342.23	30.69	7.774	1.8950	.00	30.69	37658.53
342.24	31.28	7.793	1.8961	.00	31.28	37750.67
342.25	31.88	7.812	1.8972	.00	31.88	37843.15
342.26	32.48	7.831	1.8983	.00	32.48	37935.69
342.27	33.08	7.850	1.8994	.00	33.08	38028.01
342.28	33.69	7.869	1.9005	.00	33.69	38120.66
342.29	34.30	7.888	1.9016	.00	34.30	38213.38

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
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No Infiltration

INITIAL CONDITIONS

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Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.30	34.91	7.907	1.9027	.00	34.91	38305.86
342.31	35.53	7.926	1.9038	.00	35.53	38398.68
342.32	36.15	7.945	1.9049	.00	36.15	38491.55
342.33	36.77	7.964	1.9060	.00	36.77	38584.21
342.34	37.39	7.983	1.9070	.00	37.39	38677.20
342.35	38.02	8.003	1.9081	.00	38.02	38770.24
342.36	38.65	8.022	1.9092	.00	38.65	38863.06
342.37	39.28	8.041	1.9103	.00	39.28	38956.22
342.38	39.91	8.060	1.9114	.00	39.91	39049.43
342.39	40.54	8.079	1.9125	.00	40.54	39142.68
342.40	41.17	8.098	1.9136	.00	41.17	39235.71
342.41	41.80	8.117	1.9147	.00	41.80	39329.08
342.42	42.43	8.136	1.9158	.00	42.43	39422.50
342.43	43.06	8.156	1.9169	.00	43.06	39515.69
342.44	43.69	8.175	1.9180	.00	43.69	39609.21
342.45	44.32	8.194	1.9191	.00	44.32	39702.80
342.46	44.95	8.213	1.9202	.00	44.95	39796.14
342.47	45.57	8.232	1.9213	.00	45.57	39889.82
342.48	46.19	8.252	1.9224	.00	46.19	39983.55
342.49	46.79	8.271	1.9235	.00	46.79	40077.03

LEVEL POOL ROUTING DATA

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Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
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Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
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Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.50	47.78	8.290	1.9246	.00	47.78	40171.23
342.51	47.84	8.309	1.9257	.00	47.84	40264.56
342.52	47.91	8.328	1.9268	.00	47.91	40357.67
342.53	47.99	8.348	1.9279	.00	47.99	40451.12
342.54	48.06	8.367	1.9290	.00	48.06	40544.62
342.55	48.13	8.386	1.9301	.00	48.13	40637.89
342.56	48.19	8.406	1.9312	.00	48.19	40731.49
342.57	48.26	8.425	1.9323	.00	48.26	40825.14
342.58	48.34	8.444	1.9334	.00	48.34	40918.58
342.59	48.41	8.464	1.9345	.00	48.41	41012.34
342.60	48.48	8.483	1.9356	.00	48.48	41106.17
342.61	48.54	8.502	1.9367	.00	48.54	41199.74
342.62	48.61	8.522	1.9378	.00	48.61	41293.67
342.63	48.70	8.541	1.9389	.00	48.70	41387.67
342.64	48.78	8.561	1.9400	.00	48.78	41481.71
342.65	48.83	8.580	1.9411	.00	48.83	41575.49
342.66	48.91	8.599	1.9422	.00	48.91	41669.64
342.67	48.98	8.619	1.9434	.00	48.98	41763.84
342.68	49.06	8.638	1.9445	.00	49.06	41857.80
342.69	49.12	8.658	1.9456	.00	49.12	41952.09

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.70	49.19	8.677	1.9467	.00	49.19	42046.45
342.71	49.26	8.697	1.9478	.00	49.26	42140.57
342.72	49.33	8.716	1.9489	.00	49.33	42235.02
342.73	49.40	8.736	1.9500	.00	49.40	42329.54
342.74	49.47	8.755	1.9511	.00	49.47	42423.82
342.75	49.53	8.775	1.9522	.00	49.53	42518.43
342.76	49.60	8.794	1.9533	.00	49.60	42613.12
342.77	49.68	8.814	1.9544	.00	49.68	42707.56
342.78	49.74	8.833	1.9555	.00	49.74	42802.33
342.79	49.81	8.853	1.9566	.00	49.81	42897.18
342.80	49.88	8.872	1.9577	.00	49.88	42991.78
342.81	49.95	8.892	1.9589	.00	49.95	43086.71
342.82	50.02	8.912	1.9600	.00	50.02	43181.71
342.83	50.09	8.931	1.9611	.00	50.09	43276.48
342.84	50.15	8.951	1.9622	.00	50.15	43371.58
342.85	50.23	8.970	1.9633	.00	50.23	43466.75
342.86	50.29	8.990	1.9644	.00	50.29	43561.66
342.87	50.36	9.010	1.9655	.00	50.36	43656.92
342.88	50.43	9.029	1.9666	.00	50.43	43752.24
342.89	50.50	9.049	1.9677	.00	50.50	43847.61

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
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Pond Outlet Data = Riser/Barrelw1ft

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INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
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Starting Total Qout= .00 cfs
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Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.90	50.57	9.069	1.9689	.00	50.57	43942.76
342.91	50.63	9.088	1.9700	.00	50.63	44038.23
342.92	50.71	9.108	1.9711	.00	50.71	44133.77
342.93	50.76	9.128	1.9722	.00	50.76	44229.06
342.94	50.84	9.147	1.9733	.00	50.84	44324.71
342.95	50.90	9.167	1.9744	.00	50.90	44420.40
342.96	50.98	9.187	1.9755	.00	50.98	44515.87
342.97	51.03	9.207	1.9767	.00	51.03	44611.66
342.98	51.11	9.227	1.9778	.00	51.11	44707.53
342.99	51.17	9.246	1.9789	.00	51.17	44803.14
343.00	51.24	9.266	1.9800	.00	51.24	44899.11
343.01	51.37	9.286	1.9811	.00	51.37	44995.19
343.02	51.56	9.306	1.9822	.00	51.56	45091.09
343.03	51.77	9.326	1.9833	.00	51.77	45187.36
343.04	52.01	9.345	1.9843	.00	52.01	45283.71
343.05	52.26	9.365	1.9854	.00	52.26	45379.83
343.06	52.55	9.385	1.9865	.00	52.55	45476.33
343.07	52.84	9.405	1.9876	.00	52.84	45572.89
343.08	53.16	9.425	1.9887	.00	53.16	45669.24
343.09	53.48	9.445	1.9898	.00	53.48	45765.93

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
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Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.10	53.83	9.465	1.9909	.00	53.83	45862.71
343.11	54.19	9.485	1.9920	.00	54.19	45959.25
343.12	54.55	9.504	1.9930	.00	54.55	46056.14
343.13	54.94	9.524	1.9941	.00	54.94	46153.12
343.14	55.34	9.544	1.9952	.00	55.34	46250.15
343.15	55.75	9.564	1.9963	.00	55.75	46346.96
343.16	56.17	9.584	1.9974	.00	56.17	46444.11
343.17	56.60	9.604	1.9985	.00	56.60	46541.34
343.18	57.04	9.624	1.9996	.00	57.04	46638.34
343.19	57.50	9.644	2.0007	.00	57.50	46735.69
343.20	57.96	9.664	2.0018	.00	57.96	46833.11
343.21	58.43	9.684	2.0029	.00	58.43	46930.29
343.22	58.92	9.704	2.0039	.00	58.92	47027.84
343.23	59.41	9.724	2.0050	.00	59.41	47125.44
343.24	59.90	9.744	2.0061	.00	59.90	47222.80
343.25	60.41	9.764	2.0072	.00	60.41	47320.52
343.26	60.94	9.785	2.0083	.00	60.94	47418.33
343.27	61.46	9.805	2.0094	.00	61.46	47515.88
343.28	62.00	9.825	2.0105	.00	62.00	47613.79
343.29	62.54	9.845	2.0116	.00	62.54	47711.77

LEVEL POOL ROUTING DATA

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Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.30	63.09	9.865	2.0127	.00	63.09	47809.50
343.31	63.66	9.885	2.0138	.00	63.66	47907.61
343.32	64.22	9.905	2.0149	.00	64.22	48005.76
343.33	64.80	9.925	2.0160	.00	64.80	48103.67
343.34	65.38	9.946	2.0171	.00	65.38	48201.95
343.35	65.97	9.966	2.0182	.00	65.97	48300.29
343.36	66.57	9.986	2.0193	.00	66.57	48398.40
343.37	67.18	10.006	2.0204	.00	67.18	48496.86
343.38	67.79	10.026	2.0215	.00	67.79	48595.38
343.39	68.42	10.047	2.0225	.00	68.42	48693.96
343.40	69.04	10.067	2.0236	.00	69.04	48792.30
343.41	69.67	10.087	2.0247	.00	69.67	48891.00
343.42	70.31	10.107	2.0258	.00	70.31	48989.75
343.43	70.95	10.128	2.0269	.00	70.95	49088.27
343.44	71.61	10.148	2.0280	.00	71.61	49187.16
343.45	72.28	10.168	2.0291	.00	72.28	49286.11
343.46	72.94	10.188	2.0302	.00	72.94	49384.80
343.47	73.61	10.209	2.0313	.00	73.61	49483.86
343.48	74.30	10.229	2.0324	.00	74.30	49582.98
343.49	74.98	10.249	2.0335	.00	74.98	49681.85

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
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INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
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Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.50	75.68	10.270	2.0346	.00	75.68	49781.09
343.51	76.37	10.290	2.0357	.00	76.37	49880.39
343.52	77.08	10.310	2.0368	.00	77.08	49979.45
343.53	77.78	10.331	2.0379	.00	77.78	50078.86
343.54	78.50	10.351	2.0390	.00	78.50	50178.34
343.55	79.22	10.372	2.0401	.00	79.22	50277.56
343.56	79.95	10.392	2.0412	.00	79.95	50377.16
343.57	80.69	10.412	2.0423	.00	80.69	50476.82
343.58	81.43	10.433	2.0434	.00	81.43	50576.23
343.59	82.18	10.453	2.0445	.00	82.18	50676.00
343.60	82.93	10.474	2.0456	.00	82.93	50775.83
343.61	83.68	10.494	2.0467	.00	83.68	50875.41
343.62	84.43	10.515	2.0478	.00	84.43	50975.36
343.63	85.24	10.535	2.0490	.00	85.24	51075.40
343.64	86.01	10.556	2.0501	.00	86.01	51175.46
343.65	86.79	10.576	2.0512	.00	86.79	51275.29
343.66	87.57	10.597	2.0523	.00	87.57	51375.47
343.67	88.37	10.617	2.0534	.00	88.37	51475.71
343.68	89.16	10.638	2.0545	.00	89.16	51575.71
343.69	89.96	10.658	2.0556	.00	89.96	51676.07

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.70	90.76	10.679	2.0567	.00	90.76	51776.49
343.71	91.58	10.699	2.0578	.00	91.58	51876.67
343.72	92.40	10.720	2.0589	.00	92.40	51977.21
343.73	93.21	10.741	2.0600	.00	93.21	52077.80
343.74	94.04	10.761	2.0611	.00	94.04	52178.16
343.75	94.87	10.782	2.0622	.00	94.87	52278.87
343.76	95.71	10.802	2.0633	.00	95.71	52379.64
343.77	96.54	10.823	2.0644	.00	96.54	52480.16
343.78	97.40	10.844	2.0655	.00	97.40	52581.05
343.79	98.25	10.864	2.0667	.00	98.25	52682.00
343.80	99.10	10.885	2.0678	.00	99.10	52782.70
343.81	99.96	10.906	2.0689	.00	99.96	52883.77
343.82	100.82	10.926	2.0700	.00	100.82	52984.89
343.83	101.69	10.947	2.0711	.00	101.69	53085.76
343.84	102.57	10.968	2.0722	.00	102.57	53187.00
343.85	103.45	10.989	2.0733	.00	103.45	53288.30
343.86	104.33	11.009	2.0744	.00	104.33	53389.36
343.87	105.22	11.030	2.0755	.00	105.22	53490.77
343.88	106.11	11.051	2.0766	.00	106.11	53592.23
343.89	107.01	11.072	2.0778	.00	107.01	53693.77

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

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Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.90	107.91	11.092	2.0789	.00	107.91	53795.05
343.91	108.81	11.113	2.0800	.00	108.81	53896.70
343.92	109.72	11.134	2.0811	.00	109.72	53998.41
343.93	110.64	11.155	2.0822	.00	110.64	54099.86
343.94	111.55	11.176	2.0833	.00	111.55	54201.68
343.95	112.48	11.197	2.0844	.00	112.48	54303.57
343.96	113.40	11.217	2.0855	.00	113.40	54405.20
343.97	114.34	11.238	2.0867	.00	114.34	54507.20
343.98	115.28	11.259	2.0878	.00	115.28	54609.26
343.99	116.22	11.280	2.0889	.00	116.22	54711.06
344.00	117.17	11.301	2.0900	.00	117.17	54813.24
344.01	118.11	11.322	2.0911	.00	118.11	54915.46
344.02	119.07	11.343	2.0922	.00	119.07	55017.44
344.03	120.03	11.364	2.0933	.00	120.03	55119.79
344.04	120.99	11.385	2.0943	.00	120.99	55222.19
344.05	121.95	11.405	2.0954	.00	121.95	55324.33
344.06	122.92	11.426	2.0965	.00	122.92	55426.85
344.07	123.90	11.447	2.0976	.00	123.90	55529.43
344.08	124.88	11.468	2.0987	.00	124.88	55631.75
344.09	125.86	11.489	2.0998	.00	125.86	55734.43

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
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No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.10	126.85	11.510	2.1009	.00	126.85	55837.18
344.11	127.83	11.531	2.1020	.00	127.83	55939.65
344.12	128.83	11.552	2.1031	.00	128.83	56042.51
344.13	129.83	11.573	2.1041	.00	129.83	56145.42
344.14	130.83	11.595	2.1052	.00	130.83	56248.39
344.15	131.83	11.616	2.1063	.00	131.83	56351.11
344.16	132.84	11.637	2.1074	.00	132.84	56454.18
344.17	133.86	11.658	2.1085	.00	133.86	56557.32
344.18	134.88	11.679	2.1096	.00	134.88	56660.21
344.19	135.90	11.700	2.1107	.00	135.90	56763.46
344.20	136.93	11.721	2.1118	.00	136.93	56866.77
344.21	137.96	11.742	2.1129	.00	137.96	56969.83
344.22	138.99	11.763	2.1140	.00	138.99	57073.25
344.23	140.03	11.784	2.1151	.00	140.03	57176.73
344.24	141.06	11.806	2.1161	.00	141.06	57279.94
344.25	142.10	11.827	2.1172	.00	142.10	57383.54
344.26	143.15	11.848	2.1183	.00	143.15	57487.19
344.27	144.21	11.869	2.1194	.00	144.21	57590.58
344.28	145.27	11.890	2.1205	.00	145.27	57694.35
344.29	146.32	11.912	2.1216	.00	146.32	57798.16

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
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No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
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Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.30	147.38	11.933	2.1227	.00	147.38	57901.72
344.31	148.46	11.954	2.1238	.00	148.46	58005.66
344.32	149.52	11.975	2.1249	.00	149.52	58109.64
344.33	150.60	11.996	2.1260	.00	150.60	58213.38
344.34	151.68	12.018	2.1271	.00	151.68	58317.48
344.35	152.76	12.039	2.1282	.00	152.76	58421.64
344.36	153.83	12.060	2.1293	.00	153.83	58525.53
344.37	154.93	12.082	2.1304	.00	154.93	58629.81
344.38	156.02	12.103	2.1315	.00	156.02	58734.14
344.39	157.12	12.124	2.1326	.00	157.12	58838.53
344.40	158.21	12.146	2.1337	.00	158.21	58942.65
344.41	159.32	12.167	2.1348	.00	159.32	59047.15
344.42	160.42	12.188	2.1359	.00	160.42	59151.70
344.43	161.53	12.210	2.1370	.00	161.53	59256.00
344.44	162.65	12.231	2.1381	.00	162.65	59360.68
344.45	163.76	12.252	2.1392	.00	163.76	59465.40
344.46	164.88	12.274	2.1402	.00	164.88	59569.86
344.47	166.00	12.295	2.1413	.00	166.00	59674.71
344.48	167.13	12.317	2.1424	.00	167.13	59779.61
344.49	168.25	12.338	2.1435	.00	168.25	59884.23

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
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Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.50	169.39	12.359	2.1446	.00	169.39	59989.23
344.51	170.53	12.381	2.1457	.00	170.53	60094.30
344.52	171.67	12.402	2.1468	.00	171.67	60199.11
344.53	172.80	12.424	2.1479	.00	172.80	60304.28
344.54	173.95	12.445	2.1491	.00	173.95	60409.52
344.55	175.10	12.467	2.1502	.00	175.10	60514.50
344.56	176.25	12.488	2.1513	.00	176.25	60619.84
344.57	177.42	12.510	2.1524	.00	177.42	60725.25
344.58	178.57	12.531	2.1535	.00	178.57	60830.39
344.59	179.73	12.553	2.1546	.00	179.73	60935.91
344.60	180.90	12.575	2.1557	.00	180.90	61041.49
344.61	182.06	12.596	2.1568	.00	182.06	61146.79
344.62	183.24	12.618	2.1579	.00	183.24	61252.49
344.63	184.41	12.639	2.1590	.00	184.41	61358.23
344.64	185.60	12.661	2.1601	.00	185.60	61464.04
344.65	186.77	12.682	2.1612	.00	186.77	61569.57
344.66	187.96	12.704	2.1623	.00	187.96	61675.49
344.67	189.14	12.726	2.1634	.00	189.14	61781.45
344.68	190.34	12.747	2.1645	.00	190.34	61887.17
344.69	191.53	12.769	2.1656	.00	191.53	61993.25

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.70	192.73	12.791	2.1667	.00	192.73	62099.40
344.71	193.92	12.812	2.1678	.00	193.92	62205.27
344.72	195.13	12.834	2.1689	.00	195.13	62311.52
344.73	196.33	12.856	2.1700	.00	196.33	62417.84
344.74	197.54	12.877	2.1711	.00	197.54	62523.88
344.75	198.75	12.899	2.1722	.00	198.75	62630.30
344.76	199.97	12.921	2.1733	.00	199.97	62736.79
344.77	201.30	12.943	2.1744	.00	201.30	62843.11
344.78	202.52	12.964	2.1756	.00	202.52	62949.71
344.79	203.74	12.986	2.1767	.00	203.74	63056.36
344.80	204.97	13.008	2.1778	.00	204.97	63162.75
344.81	206.20	13.030	2.1789	.00	206.20	63269.51
344.82	207.44	13.051	2.1800	.00	207.44	63376.33
344.83	208.68	13.073	2.1811	.00	208.68	63482.89
344.84	209.92	13.095	2.1822	.00	209.92	63589.82
344.85	211.16	13.117	2.1833	.00	211.16	63696.01
344.86	212.41	13.139	2.1844	.00	212.41	63803.54
344.87	213.66	13.161	2.1855	.00	213.66	63910.66
344.88	214.92	13.182	2.1867	.00	214.92	64017.82
344.89	216.17	13.204	2.1878	.00	216.17	64125.04

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 1 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.50 ft
Starting Volume = 1.450 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0050 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.90	217.43	13.226	2.1889	.00	217.43	64231.99
344.91	218.68	13.248	2.1900	.00	218.68	64339.32
344.92	219.94	13.270	2.1911	.00	219.94	64446.70
344.93	221.21	13.292	2.1922	.00	221.21	64553.82
344.94	222.48	13.314	2.1933	.00	222.48	64661.33
344.95	223.75	13.336	2.1944	.00	223.75	64768.89
344.96	225.03	13.358	2.1955	.00	225.03	64876.18
344.97	226.31	13.380	2.1967	.00	226.31	64983.86
344.98	227.60	13.402	2.1978	.00	227.60	65091.60
344.99	228.87	13.424	2.1989	.00	228.87	65199.05
345.00	230.17	13.446	2.2000	.00	230.17	65306.89

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 1 W/ 1FTIN  2
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 2

Pond Node   Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   338.50 ft
Starting Volume    =    1.450 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0050 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =    115.43 cfs    at   11.9450 hrs
Peak Outflow      =      1.93 cfs    at   18.2800 hrs
-----------------------------------------------------
Peak Elevation    =    341.52 ft
Peak Storage =          6.455 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =       1.450
+ HYG Vol IN   =       6.739
- Infiltration =        .000
- HYG Vol OUT  =       1.939
- Retained Vol =       6.250
                  ----------
Unrouted Vol =        .000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 1 W/ 1FTIN  10
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 10

Pond Node   Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   338.50 ft
Starting Volume    =    1.450 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0050 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =    194.21 cfs    at   11.9450 hrs
Peak Outflow      =     30.66 cfs    at   12.2500 hrs
-----------------------------------------------------
Peak Elevation    =    342.23 ft
Peak Storage =          7.773 ac-ft
=====================================================


MASS BALANCE (ac-ft)
---------------------------
+ Initial Vol  =       1.450
+ HYG Vol IN   =      11.528
- Infiltration =        .000
- HYG Vol OUT  =       6.541
- Retained Vol =       6.436
                  ----------
Unrouted Vol =       -.000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 1 W/ 1FTIN  25
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 25

Pond Node   Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   338.50 ft
Starting Volume    =    1.450 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0050 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =    236.83 cfs    at   11.9450 hrs
Peak Outflow      =     50.03 cfs    at   12.1800 hrs
-----------------------------------------------------
Peak Elevation    =    342.82 ft
Peak Storage =          8.914 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =       1.450
+ HYG Vol IN   =      14.186
- Infiltration =        .000
- HYG Vol OUT  =       9.164
- Retained Vol =       6.472
                  ----------
Unrouted Vol =        .000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 1 W/ 1FTIN  100
Outflow HYG file = NONE STORED - POND 1 W/ 1FTOUT 100

Pond Node   Data = POND 1 W/ 1FT
Pond Volume Data = POND 1 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   338.50 ft
Starting Volume    =    1.450 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0050 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =    304.82 cfs    at   11.9400 hrs
Peak Outflow      =     95.59 cfs    at   12.1250 hrs
-----------------------------------------------------
Peak Elevation    =    343.76 ft
Peak Storage =         10.799 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =       1.450
+ HYG Vol IN   =      18.494
- Infiltration =        .000
- HYG Vol OUT  =      13.428
- Retained Vol =       6.516
                  ----------
Unrouted Vol =       -.000 ac-ft  (.000% of Inflow Volume)
```

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LF AREA3... 4.05, 5.03
LF AREA45... 4.07, 5.04

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----- R -----
Riser/Barrel... 8.01, 8.05
Riser/Barrelw1ft... 8.25, 8.28

----- S -----
SP-1DA... 4.13, 5.07

----- W -----
Watershed... 1.01, 2.01, 2.03, 2.05,
2.07

Minimum Drain Time

==========
JOB TITLE
==========

Project Date: 9/28/2004
Project Engineer: wr
Project Title: Watershed
Project Comments:

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********** TIME VS.ELEV **********

MIN DRAIN TIMOUT Time-Elev 1.01

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 1-EC.PPW

TIME vs. ELEVATION (ft)

Output Time increment = .5000 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	339.20	339.15	339.10	339.06	339.01
2.5000	338.97	338.93	338.89	338.85	338.81
5.0000	338.77	338.74	338.70	338.67	338.64
7.5000	338.62	338.59	338.57	338.54	338.52
10.0000	338.50	338.48	338.46	338.44	338.42
12.5000	338.40	338.38	338.36	338.34	338.32
15.0000	338.31	338.29	338.27	338.25	338.24
17.5000	338.22	338.21	338.19	338.17	338.16
20.0000	338.14	338.13	338.11	338.10	338.08
22.5000	338.06	338.05	338.03	338.02	338.00
25.0000	337.99	337.97	337.95	337.94	337.92
27.5000	337.91	337.89	337.88	337.86	337.85
30.0000	337.84	337.83	337.83	337.82	337.81
32.5000	337.80	337.80	337.79	337.78	337.77
35.0000	337.77	337.76	337.75	337.75	337.74
37.5000	337.74	337.73	337.72	337.72	337.71
40.0000	337.71	337.70	337.70	337.69	337.69
42.5000	337.68	337.68	337.68	337.67	337.67
45.0000	337.66	337.66	337.65	337.65	337.65
47.5000	337.64	337.64	337.64	337.63	337.63
50.0000	337.63	337.63	337.63	337.63	337.63
52.5000	337.63	337.63	337.63	337.63	337.63
55.0000	337.63	337.63	337.63	337.63	337.63
57.5000	337.63	337.63	337.63	337.63	337.63
60.0000	337.63	337.63	337.63	337.63	337.63
62.5000	337.63	337.63	337.63	337.63	337.63
65.0000	337.63	337.63	337.63	337.63	337.63
67.5000	337.63	337.63	337.63	337.63	337.63
70.0000	337.63	337.63	337.63	337.63	337.63

Index of Starting Page Numbers for ID Names

----- M -----
MIN DRAIN TIMOUT... 1.01

First Flush Volume

==========
JOB TITLE
==========

Project Date: 9/28/2004
Project Engineer: wr
Project Title: Watershed
Project Comments:

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********** BMP (BEST MGT. PRACTICES) **********

FIRST FLUSH..... 1st Flush 1.01

BMP FIRST FLUSH CALCULATIONS

First Flush Depth = 1.0000 in
Drainage Area = 33.390 acres

Volume = Flush Depth * Drainage Area

First Flush volume = 2.783 ac-ft

Index of Starting Page Numbers for ID Names

----- F -----
FIRST FLUSH... 1.01

Sediment Pond 2

==========
JOB TITLE
==========

Project Date: 10/4/2004
Project Engineer: wr
Project Title: Watershed
Project Comments:

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********** MASTER SUMMARY **********

Watershed..... Master Network Summary 1.01

********** NETWORK SUMMARIES (DETAILED) **********

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Executive Summary (Links) 2.01

Watershed..... 10
Executive Summary (Links) 2.03

Watershed..... 25
Executive Summary (Links) 2.05

Watershed..... 100
Executive Summary (Links) 2.07

********** DESIGN STORMS SUMMARY **********

Harnett County.. Design Storms 3.01

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LF AREA 1..... Tc Calcs 4.01

LF AREA 2..... Tc Calcs 4.03

LF AREA1..... Tc Calcs 4.05

LF AREA2..... Tc Calcs 4.07

PRE DEV..... Tc Calcs 4.09

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SP-2 DA..... Tc Calcs 4.11

SP-2DA..... Tc Calcs 4.13

********** CN CALCULATIONS **********

LF AREA 1..... Runoff CN-Area 5.01

LF AREA 2..... Runoff CN-Area 5.02

LF AREA1..... Runoff CN-Area 5.03

LF AREA2..... Runoff CN-Area 5.04

PRE DEV..... Runoff CN-Area 5.05

SP-2 DA..... Runoff CN-Area 5.06

SP-2DA..... Runoff CN-Area 5.07

********** RUNOFF HYDROGRAPHS **********

Unit Hyd. Equations 6.01

LF AREA 1..... 2
Unit Hyd. Summary 6.03

LF AREA 1..... 10
Unit Hyd. Summary 6.04

LF AREA 1..... 25
Unit Hyd. Summary 6.05

LF AREA 1..... 100
Unit Hyd. Summary 6.06

LF AREA 2..... 2
Unit Hyd. Summary 6.07

LF AREA 2..... 10
Unit Hyd. Summary 6.08

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LF AREA 2..... 25
Unit Hyd. Summary 6.09

LF AREA 2..... 100
Unit Hyd. Summary 6.10

PRE DEV..... 2
Unit Hyd. Summary 6.11

PRE DEV..... 10
Unit Hyd. Summary 6.12

PRE DEV..... 25
Unit Hyd. Summary 6.13

PRE DEV..... 100
Unit Hyd. Summary 6.14

SP-2 DA..... 2
Unit Hyd. Summary 6.15

SP-2 DA..... 10
Unit Hyd. Summary 6.16

SP-2 DA..... 25
Unit Hyd. Summary 6.17

SP-2 DA..... 100
Unit Hyd. Summary 6.18

********** POND VOLUMES **********

POND 2..... Vol: Elev-Area 7.01

POND 2 W/ 1FT... Vol: Elev-Area 7.02

********** OUTLET STRUCTURES **********

Riser/Barrel.... Outlet Input Data 8.01

Table of Contents (continued)

Composite Rating Curve 8.05

Riser/Barrelw1ft Outlet Input Data 8.24
Composite Rating Curve 8.27

********** POND ROUTING **********

POND 2..... Pond E-V-Q Table 9.01

POND 2 OUT 2
Pond Routing Summary 9.37

POND 2 OUT 10
Pond Routing Summary 9.38

POND 2 OUT 25
Pond Routing Summary 9.39

POND 2 OUT 100
Pond Routing Summary 9.40

POND 2 W/ 1FT... Pond E-V-Q Table 9.41

POND 2 W/ 1FTOUT 2
Pond Routing Summary 9.77

POND 2 W/ 1FTOUT 10
Pond Routing Summary 9.78

POND 2 W/ 1FTOUT 25
Pond Routing Summary 9.79

POND 2 W/ 1FTOUT 100
Pond Routing Summary 9.80

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Harnett County

Return Event	Total Depth in	Rainfall Type	RNF ID
2	3.8000	Synthetic Curve	TypeII 24hr
10	5.6000	Synthetic Curve	TypeII 24hr
25	6.6000	Synthetic Curve	TypeII 24hr
100	8.2000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
LF AREA 1	AREA	2	1.581		11.9200	29.60		
LF AREA 1	AREA	10	2.694		11.9200	49.46		
LF AREA 1	AREA	25	3.329		11.9200	60.50		
LF AREA 1	AREA	100	4.361		11.9200	78.06		
LF AREA 2	AREA	2	1.865		11.9200	34.92		
LF AREA 2	AREA	10	3.177		11.9200	58.34		
LF AREA 2	AREA	25	3.927		11.9200	71.36		
LF AREA 2	AREA	100	5.144		11.9200	92.08		
LF AREA1	AREA	2	1.581		11.9200	29.60		
LF AREA1	AREA	10	2.694		11.9200	49.46		
LF AREA1	AREA	25	3.329		11.9200	60.50		
LF AREA1	AREA	100	4.361		11.9200	78.06		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
LF AREA2	AREA	2	1.865		11.9200	34.92		
LF AREA2	AREA	10	3.177		11.9200	58.34		
LF AREA2	AREA	25	3.927		11.9200	71.36		
LF AREA2	AREA	100	5.144		11.9200	92.08		
*OUT 2	JCT	2	2.561		13.6800	2.80		
*OUT 2	JCT	10	3.859		13.7900	3.90		
*OUT 2	JCT	25	4.795		12.9000	8.37		
*OUT 2	JCT	100	6.986		12.1000	48.69		
*OUT 2 W/ 1FT	JCT	2	1.804		15.0500	1.72		
*OUT 2 W/ 1FT	JCT	10	3.039		13.1700	5.80		
*OUT 2 W/ 1FT	JCT	25	4.453		12.2800	18.12		
*OUT 2 W/ 1FT	JCT	100	6.808		12.0600	81.80		
POND 2 IN	POND	2	4.008		11.9200	73.80		
POND 2 IN	POND	10	6.715		11.9200	121.54		
POND 2 IN	POND	25	8.259		11.9200	148.06		
POND 2 IN	POND	100	10.759		11.9200	190.30		
POND 2 OUT	POND	2	2.561		13.6800	2.80	340.77	2.472
POND 2 OUT	POND	10	3.859		13.7900	3.90	342.53	4.326
POND 2 OUT	POND	25	4.796		12.9000	8.37	343.21	5.101
POND 2 OUT	POND	100	6.986		12.1000	48.69	343.78	5.784
POND 2 W/ 1FTIN	POND	2	4.008		11.9200	73.80		
POND 2 W/ 1FTIN	POND	10	6.715		11.9200	121.54		
POND 2 W/ 1FTIN	POND	25	8.259		11.9200	148.06		
POND 2 W/ 1FTIN	POND	100	10.759		11.9200	190.30		
POND 2 W/ 1FTOUT	POND	2	1.804		15.0500	1.72	341.77	3.500
POND 2 W/ 1FTOUT	POND	10	3.039		13.1700	5.80	343.18	5.077
POND 2 W/ 1FTOUT	POND	25	4.454		12.2800	18.12	343.49	5.441
POND 2 W/ 1FTOUT	POND	100	6.808		12.0600	81.80	344.10	6.183

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
PRE DEV.	AREA	2	.155		11.9300	2.77		
PRE DEV.	AREA	10	.327		11.9300	6.12		
PRE DEV.	AREA	25	.433		11.9300	8.15		
PRE DEV.	AREA	100	.614		11.9200	11.56		
*PRE OUT	JCT	2	.155		11.9300	2.77		
*PRE OUT	JCT	10	.327		11.9300	6.12		
*PRE OUT	JCT	25	.433		11.9300	8.15		
*PRE OUT	JCT	100	.614		11.9200	11.56		
SP-2 DA	AREA	2	.562		11.9200	9.27		
SP-2 DA	AREA	10	.845		11.9200	13.73		
SP-2 DA	AREA	25	1.002		11.9200	16.21		
SP-2 DA	AREA	100	1.254		11.9200	20.16		
SP-2DA	AREA	2	.562		11.9200	9.27		
SP-2DA	AREA	10	.845		11.9200	13.73		
SP-2DA	AREA	25	1.002		11.9200	16.21		
SP-2DA	AREA	100	1.254		11.9200	20.16		

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Harnett County

Storm Tag Name = 2

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.8000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	1.865		11.9200	34.92	LF AREA 2
		DL	1.865		11.9200	34.92	
		DN	4.008		11.9200	73.80	POND 2 W/ 1FTIN
ADDLINK 20	ADD	UN	.155		11.9300	2.77	PRE DEV.
		DL	.155		11.9300	2.77	
		DN	.155		11.9300	2.77	PRE OUT
ADDLINK 30	ADD	UN	1.581		11.9200	29.60	LF AREA 1
		DL	1.581		11.9200	29.60	
		DN	4.008		11.9200	73.80	POND 2 W/ 1FTIN
ADDLINK 40	ADD	UN	.562		11.9200	9.27	SP-2 DA
		DL	.562		11.9200	9.27	
		DN	4.008		11.9200	73.80	POND 2 W/ 1FTIN
ADDLINK 50	ADD	UN	1.581		11.9200	29.60	LF AREA1
		DL	1.581		11.9200	29.60	
		DN	4.008		11.9200	73.80	POND 2 IN
ADDLINK 60	ADD	UN	1.865		11.9200	34.92	LF AREA2
		DL	1.865		11.9200	34.92	
		DN	4.008		11.9200	73.80	POND 2 IN
ADDLINK 70	ADD	UN	.562		11.9200	9.27	SP-2DA
		DL	.562		11.9200	9.27	
		DN	4.008		11.9200	73.80	POND 2 IN

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points	
ROUTE 10	PONDrt	UN	4.008		11.9200	73.80	POND 2 W/ 1FTIN	
ROUTE 10			1.804		15.0500	1.72	POND 2 W/ 1FTOUT	
		DL	1.804		15.0500	1.72		
		DN	1.804		15.0500	1.72	OUT 2 W/ 1FT	
ROUTE 20	PONDrt	UN	4.008		11.9200	73.80	POND 2	IN
ROUTE 20			2.561		13.6800	2.80	POND 2	OUT
		DL	2.561		13.6800	2.80		
		DN	2.561		13.6800	2.80	OUT 2	

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Harnett County

Storm Tag Name = 10

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	3.177		11.9200	58.34	LF AREA 2
		DL	3.177		11.9200	58.34	
		DN	6.715		11.9200	121.54	POND 2 W/ 1FTIN
ADDLINK 20	ADD	UN	.327		11.9300	6.12	PRE DEV.
		DL	.327		11.9300	6.12	
		DN	.327		11.9300	6.12	PRE OUT
ADDLINK 30	ADD	UN	2.694		11.9200	49.46	LF AREA 1
		DL	2.694		11.9200	49.46	
		DN	6.715		11.9200	121.54	POND 2 W/ 1FTIN
ADDLINK 40	ADD	UN	.845		11.9200	13.73	SP-2 DA
		DL	.845		11.9200	13.73	
		DN	6.715		11.9200	121.54	POND 2 W/ 1FTIN
ADDLINK 50	ADD	UN	2.694		11.9200	49.46	LF AREA1
		DL	2.694		11.9200	49.46	
		DN	6.715		11.9200	121.54	POND 2 IN
ADDLINK 60	ADD	UN	3.177		11.9200	58.34	LF AREA2
		DL	3.177		11.9200	58.34	
		DN	6.715		11.9200	121.54	POND 2 IN
ADDLINK 70	ADD	UN	.845		11.9200	13.73	SP-2DA
		DL	.845		11.9200	13.73	
		DN	6.715		11.9200	121.54	POND 2 IN

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points	
ROUTE 10	PONDrt	UN	6.715		11.9200	121.54	POND 2 W/ 1FTIN	
ROUTE 10			3.039		13.1700	5.80	POND 2 W/ 1FTOUT	
		DL	3.039		13.1700	5.80		
		DN	3.039		13.1700	5.80	OUT 2 W/ 1FT	
ROUTE 20	PONDrt	UN	6.715		11.9200	121.54	POND 2	IN
ROUTE 20			3.859		13.7900	3.90	POND 2	OUT
		DL	3.859		13.7900	3.90		
		DN	3.859		13.7900	3.90	OUT 2	

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Harnett County

Storm Tag Name = 25

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 25 yr
Total Rainfall Depth= 6.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	3.927		11.9200	71.36	LF AREA 2
		DL	3.927		11.9200	71.36	
		DN	8.259		11.9200	148.06	POND 2 W/ 1FTIN
ADDLINK 20	ADD	UN	.433		11.9300	8.15	PRE DEV.
		DL	.433		11.9300	8.15	
		DN	.433		11.9300	8.15	PRE OUT
ADDLINK 30	ADD	UN	3.329		11.9200	60.50	LF AREA 1
		DL	3.329		11.9200	60.50	
		DN	8.259		11.9200	148.06	POND 2 W/ 1FTIN
ADDLINK 40	ADD	UN	1.002		11.9200	16.21	SP-2 DA
		DL	1.002		11.9200	16.21	
		DN	8.259		11.9200	148.06	POND 2 W/ 1FTIN
ADDLINK 50	ADD	UN	3.329		11.9200	60.50	LF AREA1
		DL	3.329		11.9200	60.50	
		DN	8.259		11.9200	148.06	POND 2 IN
ADDLINK 60	ADD	UN	3.927		11.9200	71.36	LF AREA2
		DL	3.927		11.9200	71.36	
		DN	8.259		11.9200	148.06	POND 2 IN
ADDLINK 70	ADD	UN	1.002		11.9200	16.21	SP-2DA
		DL	1.002		11.9200	16.21	
		DN	8.259		11.9200	148.06	POND 2 IN

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points	
ROUTE 10	PONDrt	UN	8.259		11.9200	148.06	POND 2 W/ 1FTIN	
ROUTE 10			4.454		12.2800	18.12	POND 2 W/ 1FTOUT	
		DL	4.453		12.2800	18.12		
		DN	4.453		12.2800	18.12	OUT 2 W/ 1FT	
ROUTE 20	PONDrt	UN	8.259		11.9200	148.06	POND 2	IN
ROUTE 20			4.796		12.9000	8.37	POND 2	OUT
		DL	4.795		12.9000	8.37		
		DN	4.795		12.9000	8.37	OUT 2	

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Harnett County

Storm Tag Name = 100

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 8.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	5.144		11.9200	92.08	LF AREA 2
		DL	5.144		11.9200	92.08	
		DN	10.759		11.9200	190.30	POND 2 W/ 1FTIN
ADDLINK 20	ADD	UN	.614		11.9200	11.56	PRE DEV.
		DL	.614		11.9200	11.56	
		DN	.614		11.9200	11.56	PRE OUT
ADDLINK 30	ADD	UN	4.361		11.9200	78.06	LF AREA 1
		DL	4.361		11.9200	78.06	
		DN	10.759		11.9200	190.30	POND 2 W/ 1FTIN
ADDLINK 40	ADD	UN	1.254		11.9200	20.16	SP-2 DA
		DL	1.254		11.9200	20.16	
		DN	10.759		11.9200	190.30	POND 2 W/ 1FTIN
ADDLINK 50	ADD	UN	4.361		11.9200	78.06	LF AREA1
		DL	4.361		11.9200	78.06	
		DN	10.759		11.9200	190.30	POND 2 IN
ADDLINK 60	ADD	UN	5.144		11.9200	92.08	LF AREA2
		DL	5.144		11.9200	92.08	
		DN	10.759		11.9200	190.30	POND 2 IN
ADDLINK 70	ADD	UN	1.254		11.9200	20.16	SP-2DA
		DL	1.254		11.9200	20.16	
		DN	10.759		11.9200	190.30	POND 2 IN

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points	
ROUTE 10	PONDrt	UN	10.759		11.9200	190.30	POND 2 W/ 1FTIN	
ROUTE 10			6.808		12.0600	81.80	POND 2 W/ 1FTOUT	
		DL	6.808		12.0600	81.80		
		DN	6.808		12.0600	81.80	OUT 2 W/ 1FT	
ROUTE 20	PONDrt	UN	10.759		11.9200	190.30	POND 2	IN
ROUTE 20			6.986		12.1000	48.69	POND 2	OUT
		DL	6.986		12.1000	48.69		
		DN	6.986		12.1000	48.69	OUT 2	

File.... K:\02\02-330\02334.01 LF Expansion\H&H\
Title... Project Date: 10/4/2004
Project Engineer: wr
Project Title: Watershed
Project Comments:

DESIGN STORMS SUMMARY

Design Storm File,ID = Harnett County

Storm Tag Name = 2

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.8000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 10

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 25

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 25 yr
Total Rainfall Depth= 6.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 100

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 8.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

==========
Total Tc: .0830 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

==========
Total Tc: .0830 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

==========
Total Tc: .0830 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

==========
Total Tc: .0830 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

==========
Total Tc: .0830 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

==========
Total Tc: .0830 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

==========
Total Tc: .0830 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

RUNOFF CURVE NUMBER DATA
::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
	86	8.020			86.00
COMPOSITE AREA & WEIGHTED CN --->		8.020			86.00 (86)

::

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
	86	9.460			86.00
COMPOSITE AREA & WEIGHTED CN --->		9.460			86.00 (86)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	86	8.020			86.00

COMPOSITE AREA & WEIGHTED CN ---> 8.020 86.00 (86)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	86	9.460			86.00
COMPOSITE AREA & WEIGHTED CN --->		9.460			86.00 (86)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

RUNOFF CURVE NUMBER DATA
::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
	69	1.630			69.00
COMPOSITE AREA & WEIGHTED CN --->		1.630			69.00 (69)

::

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	98	1.890			98.00
COMPOSITE AREA & WEIGHTED CN --->		1.890			98.00 (98)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
	98	1.890			98.00
COMPOSITE AREA & WEIGHTED CN --->		1.890			98.00 (98)

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

DEFINITION OF TERMS: ----------

```
At     = Total area (acres):  At = Ai+Ap
Ai     = Impervious area (acres)
Ap     = Pervious area (acres)
CNi    = Runoff curve number for impervious area
CNp    = Runoff curve number for pervious area
fLoss  = f loss constant infiltration (depth/time)
gKs    = Saturated Hydraulic Conductivity (depth/time)
Md     = Volumetric Moisture Deficit
Psi    = Capillary Suction (length)
hK     = Horton Infiltration Decay Rate (time^-1)
fo     = Initial Infiltration Rate (depth/time)
fc     = Ultimate(capacity)Infiltration Rate (depth/time)
Ia     = Initial Abstraction (length)
dt     = Computational increment (duration of unit excess rainfall)
         Default dt is smallest value of 0.1333Tc, rtm, and th
         (Smallest dt is then adjusted to match up with Tp)
UDdt   = User specified override computational main time increment
         (only used if UDdt is => .1333Tc)
D(t)   = Point on distribution curve (fraction of P) for time step t

K      = 2 / (1 + (Tr/Tp)):  default K = 0.75: (for Tr/Tp = 1.67)
Ks     = Hydrograph shape factor
       = Unit Conversions * K:
       = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K
         Default Ks = 645.333 * 0.75 = 484

Lag    = Lag time from center of excess runoff (dt) to Tp:  Lag = 0.6Tc
P      = Total precipitation depth, inches
Pa(t)  = Accumulated rainfall at time step t
Pi(t)  = Incremental rainfall at time step t
qp     = Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi.
       = (Ks * A * Q) / Tp   (where Q = 1in. runoff, A=sq.mi.)
Qu(t)  = Unit hydrograph ordinate (cfs) at time step t
Q(t)   = Final hydrograph ordinate (cfs) at time step t
Rai(t)= Accumulated runoff (inches) at time step t for impervious area
Rap(t)= Accumulated runoff (inches) at time step t for pervious area
Rii(t)= Incremental runoff (inches) at time step t for impervious area
Rip(t)= Incremental runoff (inches) at time step t for pervious area
R(t)   = Incremental weighted total runoff (inches)
Rtm    = Time increment for rainfall table
Si     = S for impervious area:  Si = (1000/CNi) - 10
Sp     = S for pervious area:    Sp = (1000/CNp) - 10
t      = Time step (row) number
Tc     = Time of concentration
Tb     = Time (hrs) of entire unit hydrograph:  Tb = Tp + Tr
Tp     = Time (hrs) to peak of a unit hydrograph:  Tp = (dt/2) + Lag
Tr     = Time (hrs) of receding limb of unit hydrograph:  Tr = ratio of Tp
```

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

```
PRECIPITATION: ------------------------------------------------------------
Column (1):  Time for time step t
Column (2):  D(t)  = Point on distribution curve for time step t
Column (3):  Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4):  Pa(t) = D(t) x P:        Col.(2) x P


PERVIOUS AREA RUNOFF (using SCS Runoff CN Method) -------------------------
Column (5):  Rap(t) = Accumulated pervious runoff for time step t
             If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
             If (Pa(t) is >  0.2Sp) then use:

             Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6):  Rip(t) = Incremental pervious runoff for time step t
             Rip(t) =         Rap(t)          -         Rap(t-1)
             Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

IMPERVIOUS AREA RUNOFF ----------------------------------------------------
Column (7 & 8)... Did not specify to use impervious areas.


INCREMENTAL WEIGHTED RUNOFF: ----------------------------------------------
Column (9):  R(t)  = (Ap/At) x Rip(t)   +  (Ai/At) x Rii(t)
             R(t)  = (Ap/At) x Col.(6)  +  (Ai/At) x Col.(8)


SCS UNIT HYDROGRAPH METHOD: -----------------------------------------------
Column (10): Q(t)   is computed with the SCS unit hydrograph method
                    using R() and Qu().
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.8000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 1 2
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 8.020 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    29.62 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9202 hrs
Peak Flow, Interpolated Output =    29.60 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 1
               CN   =   86
               Area =       8.020 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       2.3659 in
                        1.581 ac-ft

HYG Volume...          1.581 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 1)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   109.09 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 1 10
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 8.020 acres  Runoff CN= 86

==========================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    49.54 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9202 hrs
Peak Flow, Interpolated Output =    49.46 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:LF AREA 1
              CN   =   86
              Area =       8.020 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      4.0305 in
                       2.694 ac-ft

HYG Volume...          2.694 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 1)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   109.09 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 6.6000 in
Rain Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID = - LF AREA 1 25
Tc (Min. Tc) = .0833 hrs
Drainage Area = 8.020 acres Runoff CN= 86

==========
Computational Time Increment = .01111 hrs
Computed Peak Time = 11.9175 hrs
Computed Peak Flow = 60.61 cfs

Time Increment for HYG File = .0100 hrs
Peak Time, Interpolated Output = 11.9202 hrs
Peak Flow, Interpolated Output = 60.50 cfs
==========

DRAINAGE AREA

ID:LF AREA 1
CN = 86
Area = 8.020 acres
S = 1.6279 in
0.2S = .3256 in

Cumulative Runoff

4.9819 in
3.330 ac-ft

HYG Volume... 3.329 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .08330 hrs (ID: LF AREA 1)
Computational Incr, Tm = .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 109.09 cfs
Unit peak time Tp = .05553 hrs
Unit receding limb, Tr = .22213 hrs
Total unit time, Tb = .27767 hrs

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 1 100
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 8.020 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    78.23 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9202 hrs
Peak Flow, Interpolated Output =    78.06 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 1
               CN   =   86
               Area =       8.020 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       6.5254 in
                        4.361 ac-ft

HYG Volume...          4.361 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 1)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   109.09 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.8000 in
Rain Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID = - LF AREA 2 2
Tc (Min. Tc) = .0833 hrs
Drainage Area = 9.460 acres Runoff CN= 86

==========
Computational Time Increment = .01111 hrs
Computed Peak Time = 11.9175 hrs
Computed Peak Flow = 34.94 cfs

Time Increment for HYG File = .0100 hrs
Peak Time, Interpolated Output = 11.9202 hrs
Peak Flow, Interpolated Output = 34.92 cfs
==========

DRAINAGE AREA

ID:LF AREA 2
CN = 86
Area = 9.460 acres
S = 1.6279 in
0.2S = .3256 in

Cumulative Runoff

2.3659 in
1.865 ac-ft

HYG Volume... 1.865 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .08330 hrs (ID: LF AREA 2)
Computational Incr, Tm = .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 128.67 cfs
Unit peak time Tp = .05553 hrs
Unit receding limb, Tr = .22213 hrs
Total unit time, Tb = .27767 hrs

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 2 10
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.460 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    58.43 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9202 hrs
Peak Flow, Interpolated Output =    58.34 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:LF AREA 2
              CN   =   86
              Area =       9.460 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      4.0305 in
                       3.177 ac-ft

HYG Volume...          3.177 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 2)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   128.67 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 6.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 2 25
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.460 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    71.49 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9202 hrs
Peak Flow, Interpolated Output =    71.36 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:LF AREA 2
              CN   =   86
              Area =       9.460 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      4.9819 in
                       3.927 ac-ft

HYG Volume...          3.927 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 2)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   128.67 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 2 100
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.460 acres  Runoff CN= 86

==========================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    92.28 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9202 hrs
Peak Flow, Interpolated Output =    92.08 cfs
==========================================

                 DRAINAGE AREA
              -------------------
              ID:LF AREA 2
              CN   =   86
              Area =       9.460 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      6.5254 in
                       5.144 ac-ft

HYG Volume...          5.144 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 2)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   128.67 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.8000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - PRE DEV. 2
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 1.630 acres  Runoff CN= 69

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9286 hrs
Computed Peak Flow             =     2.77 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9302 hrs
Peak Flow, Interpolated Output =     2.77 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:PRE DEV.
              CN   =   69
              Area =       1.630 acres
              S    =   4.4928 in
              0.2S =    .8986 in

               Cumulative Runoff
              -------------------
                      1.1385 in
                        .155 ac-ft

HYG Volume...           .155 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: PRE DEV.)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    22.17 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - PRE DEV. 10
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 1.630 acres  Runoff CN= 69

==========================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9286 hrs
Computed Peak Flow             =     6.13 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9302 hrs
Peak Flow, Interpolated Output =     6.12 cfs
==========================================

                 DRAINAGE AREA
              -------------------
              ID:PRE DEV.
              CN   =   69
              Area =       1.630 acres
              S    =   4.4928 in
              0.2S =    .8986 in

               Cumulative Runoff
              -------------------
                      2.4041 in
                        .327 ac-ft

HYG Volume...           .327 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: PRE DEV.)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    22.17 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 6.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - PRE DEV. 25
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 1.630 acres  Runoff CN= 69

==========================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9286 hrs
Computed Peak Flow             =     8.17 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9302 hrs
Peak Flow, Interpolated Output =     8.15 cfs
==========================================

                DRAINAGE AREA
             -------------------
             ID:PRE DEV.
             CN   =   69
             Area =       1.630 acres
             S    =   4.4928 in
             0.2S =    .8986 in

              Cumulative Runoff
             -------------------
                     3.1887 in
                       .433 ac-ft

HYG Volume...           .433 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: PRE DEV.)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    22.17 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - PRE DEV. 100
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 1.630 acres  Runoff CN= 69

=============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9286 hrs
Computed Peak Flow             =    11.57 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9202 hrs
Peak Flow, Interpolated Output =    11.56 cfs
=============================================

                 DRAINAGE AREA
              -------------------
              ID:PRE DEV.
              CN   =   69
              Area =       1.630 acres
              S    =   4.4928 in
              0.2S =    .8986 in

               Cumulative Runoff
              -------------------
                      4.5201 in
                        .614 ac-ft

HYG Volume...           .614 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: PRE DEV.)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    22.17 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.8000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - SP-2 DA 2
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 1.890 acres  Runoff CN= 98

=============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =     9.30 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9202 hrs
Peak Flow, Interpolated Output =     9.27 cfs
=============================================

                DRAINAGE AREA
             -------------------
             ID:SP-2 DA
             CN   =   98
             Area =       1.890 acres
             S    =    .2041 in
             0.2S =    .0408 in

              Cumulative Runoff
             -------------------
                     3.5656 in
                       .562 ac-ft

HYG Volume...           .562 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: SP-2 DA)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    25.71 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - SP-2 DA 10
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 1.890 acres  Runoff CN= 98

==========================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    13.77 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9202 hrs
Peak Flow, Interpolated Output =    13.73 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:SP-2 DA
               CN   =   98
               Area =       1.890 acres
               S    =    .2041 in
               0.2S =    .0408 in

                Cumulative Runoff
               -------------------
                       5.3623 in
                         .845 ac-ft

HYG Volume...            .845 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: SP-2 DA)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    25.71 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 6.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - SP-2 DA 25
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 1.890 acres  Runoff CN= 98

=============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    16.25 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9202 hrs
Peak Flow, Interpolated Output =    16.21 cfs
=============================================

                 DRAINAGE AREA
              -------------------
              ID:SP-2 DA
              CN   =   98
              Area =       1.890 acres
              S    =    .2041 in
              0.2S =    .0408 in

               Cumulative Runoff
              -------------------
                      6.3613 in
                       1.002 ac-ft

HYG Volume...          1.002 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: SP-2 DA)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    25.71 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - SP-2 DA 100
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 1.890 acres  Runoff CN= 98

=============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    20.22 cfs

Time Increment for HYG File    =    .0100 hrs
Peak Time, Interpolated Output =  11.9202 hrs
Peak Flow, Interpolated Output =    20.16 cfs
=============================================

                 DRAINAGE AREA
               -------------------
               ID:SP-2 DA
               CN   =   98
               Area =       1.890 acres
               S    =    .2041 in
               0.2S =    .0408 in

                Cumulative Runoff
               -------------------
                       7.9601 in
                        1.254 ac-ft

HYG Volume...          1.254 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: SP-2 DA)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    25.71 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
338.00	-----	.8000	.0000	.000	.000
342.00	-----	1.0800	2.8095	3.746	3.746
344.00	-----	1.2300	3.4626	2.308	6.054
345.00	-----	1.3100	3.8094	1.270	7.324

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
338.00	-----	.8000	.0000	.000	.000
342.00	-----	1.0800	2.8095	3.746	3.746
344.00	-----	1.2300	3.4626	2.308	6.054
345.00	-----	1.3100	3.8094	1.270	7.324

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 338.00 ft
Increment = .01 ft
Max. Elev.= 345.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	WR	--->	TW	343.500	345.000
Stand Pipe	SP	--->	CV	343.000	345.000
Orifice-Circular	O2	--->	CV	339.000	345.000
Orifice-Circular	O1	--->	CV	338.040	345.000
Culvert-Circular	CV	--->	TW	338.040	345.000
TW SETUP, DS Channel					

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

OUTLET STRUCTURE INPUT DATA

```
Structure ID       = WR
Structure Type     = Weir-Rectangular
-----------------------------------
# of Openings      =         1
Crest Elev.        =    343.50 ft
Weir Length        =     30.00 ft
Weir Coeff.        =  3.000000

Weir TW effects      (Use adjustment equation)
```

```
Structure ID       = SP
Structure Type     = Stand Pipe
-----------------------------------
# of Openings      =         1
Invert Elev.       =    343.00 ft
Diameter           =    5.0000 ft
Orifice Area       =   19.6350 sq.ft
Orifice Coeff.     =      .600
Weir Length        =     15.71 ft
Weir Coeff.        =     3.000
K, Submerged       =      .000
K, Reverse         =     1.000
Kb,Barrel          =   .000000  (per ft of full flow)
Barrel Length      =       .00 ft
Mannings n         =     .0000
```

```
Structure ID       = O2
Structure Type     = Orifice-Circular
-----------------------------------
# of Openings      =        10
Invert Elev.       =    339.00 ft
Diameter           =     .1667 ft
Orifice Coeff.     =      .600
```

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

OUTLET STRUCTURE INPUT DATA

```
Structure ID       = O1
Structure Type     = Orifice-Circular
-----------------------------------
# of Openings      =        10
Invert Elev.       =    338.04 ft
Diameter           =     .1670 ft
Orifice Coeff.     =      .600


Structure ID       = CV
Structure Type     = Culvert-Circular
-----------------------------------
No. Barrels        =         1
Barrel Diameter    =    2.5000 ft
Upstream Invert    =    338.04 ft
Dnstream Invert    =    337.62 ft
Horiz. Length      =     83.38 ft
Barrel Length      =     83.38 ft
Barrel Slope       =    .00504 ft/ft

OUTLET CONTROL DATA...
Mannings n         =     .0220
Ke                 =     .9000  (forward entrance loss)
Kb                 =   .026397  (per ft of full flow)
Kr                 =     .9000  (reverse entrance loss)
HW Convergence     =      .001  +/- ft

INLET CONTROL DATA...
Equation form      =         1
Inlet Control K    =     .0340
Inlet Control M    =    1.5000
Inlet Control c    =    .05530
Inlet Control Y    =     .5400
T1 ratio (HW/D)    =     1.260
T2 ratio (HW/D)    =     1.422
Slope Factor       =     -.500

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use   submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...
At T1 Elev =    341.19 ft  --->  Flow =     27.16 cfs
At T2 Elev =    341.60 ft  --->  Flow =     31.05 cfs
```

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

OUTLET STRUCTURE INPUT DATA

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
338.00	.00	Free Outfall		(no Q: WR,SP,O2,O1,CV)
338.01	.00	Free Outfall		(no Q: WR,SP,O2,O1,CV)
338.02	.00	Free Outfall		(no Q: WR,SP,O2,O1,CV)
338.03	.00	Free Outfall		(no Q: WR,SP,O2,O1,CV)
338.04	.00	Free Outfall		(no Q: WR,SP,O2,O1,CV)
338.05	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.06	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.07	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.08	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.09	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.10	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.11	.00	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.12	.02	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.13	.02	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.14	.02	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.15	.02	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.16	.05	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.17	.12	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.18	.12	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.19	.15	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.20	.17	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.21	.17	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.22	.17	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.23	.17	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.24	.24	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.25	.24	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.26	.25	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.27	.25	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.28	.25	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.29	.26	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.30	.26	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.31	.26	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.32	.39	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.33	.39	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.34	.39	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.35	.39	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.36	.42	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.37	.43	Free Outfall		O1,CV (no Q: WR,SP,O2)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
338.38	.53	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.39	.53	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.40	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.41	.55	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.42	.57	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.43	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.44	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.45	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.46	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.47	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.48	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.49	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.50	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.51	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.52	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.53	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.54	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.55	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.56	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.57	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.58	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.59	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.60	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.61	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.62	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.63	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.64	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.65	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.66	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.67	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.68	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.69	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.70	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.71	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.72	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.73	.58	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.74	.59	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.75	.59	Free Outfall		O1,CV (no Q: WR,SP,O2)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
338.76	.60	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.77	.60	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.78	.61	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.79	.61	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.80	.62	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.81	.63	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.82	.63	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.83	.64	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.84	.65	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.85	.65	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.86	.66	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.87	.67	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.88	.68	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.89	.68	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.90	.69	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.91	.69	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.92	.70	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.93	.71	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.94	.71	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.95	.72	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.96	.73	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.97	.73	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.98	.74	Free Outfall		O1,CV (no Q: WR,SP,O2)
338.99	.75	Free Outfall		O1,CV (no Q: WR,SP,O2)
339.00	.75	Free Outfall		O1,CV (no Q: WR,SP,O2)
339.01	.76	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.02	.76	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.03	.78	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.04	.79	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.05	.81	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.06	.83	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.07	.84	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.08	.87	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.09	.89	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.10	.91	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.11	.94	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.12	.96	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.13	.99	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
339.14	1.02	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.15	1.05	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.16	1.08	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.17	1.11	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.18	1.13	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.19	1.15	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.20	1.17	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.21	1.19	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.22	1.21	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.23	1.23	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.24	1.25	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.25	1.26	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.26	1.28	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.27	1.30	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.28	1.31	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.29	1.33	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.30	1.34	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.31	1.36	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.32	1.37	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.33	1.39	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.34	1.40	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.35	1.42	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.36	1.43	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.37	1.45	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.38	1.47	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.39	1.48	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.40	1.49	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.41	1.51	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.42	1.52	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.43	1.53	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.44	1.55	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.45	1.56	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.46	1.57	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.47	1.59	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.48	1.60	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.49	1.61	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.50	1.62	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.51	1.64	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
339.52	1.65	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.53	1.66	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.54	1.67	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.55	1.69	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.56	1.70	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.57	1.71	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.58	1.72	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.59	1.73	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.60	1.74	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.61	1.76	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.62	1.77	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.63	1.78	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.64	1.79	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.65	1.80	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.66	1.81	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.67	1.82	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.68	1.83	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.69	1.85	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.70	1.86	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.71	1.87	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.72	1.88	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.73	1.89	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.74	1.90	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.75	1.91	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.76	1.92	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.77	1.93	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.78	1.94	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.79	1.95	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.80	1.96	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.81	1.97	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.82	1.98	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.83	1.99	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.84	2.00	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.85	2.01	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.86	2.02	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.87	2.03	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.88	2.04	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.89	2.05	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
Elev. ft	Q cfs	TW Elev ft	Converge Error +/-ft	Contributing Structures
339.90	2.06	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.91	2.07	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.92	2.08	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.93	2.09	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.94	2.10	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.95	2.11	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.96	2.12	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.97	2.13	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.98	2.14	Free Outfall		O2,O1,CV (no Q: WR,SP)
339.99	2.15	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.00	2.16	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.01	2.17	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.02	2.18	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.03	2.19	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.04	2.20	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.05	2.21	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.06	2.22	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.07	2.22	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.08	2.23	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.09	2.24	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.10	2.25	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.11	2.26	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.12	2.27	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.13	2.28	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.14	2.29	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.15	2.30	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.16	2.31	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.17	2.31	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.18	2.32	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.19	2.33	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.20	2.34	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.21	2.35	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.22	2.36	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.23	2.37	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.24	2.38	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.25	2.38	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.26	2.39	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.27	2.40	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
340.28	2.41	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.29	2.42	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.30	2.43	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.31	2.44	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.32	2.44	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.33	2.45	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.34	2.46	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.35	2.47	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.36	2.48	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.37	2.49	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.38	2.49	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.39	2.50	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.40	2.51	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.41	2.52	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.42	2.53	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.43	2.54	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.44	2.54	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.45	2.55	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.46	2.56	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.47	2.57	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.48	2.58	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.49	2.58	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.50	2.59	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.51	2.60	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.52	2.61	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.53	2.62	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.54	2.62	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.55	2.63	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.56	2.64	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.57	2.65	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.58	2.65	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.59	2.66	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.60	2.67	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.61	2.68	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.62	2.69	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.63	2.69	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.64	2.70	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.65	2.71	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
Elev. ft	Q cfs	TW Elev ft	Converge Error +/-ft	Contributing Structures
340.66	2.72	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.67	2.72	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.68	2.73	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.69	2.74	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.70	2.75	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.71	2.75	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.72	2.76	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.73	2.77	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.74	2.78	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.75	2.78	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.76	2.79	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.77	2.80	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.78	2.81	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.79	2.81	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.80	2.82	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.81	2.83	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.82	2.84	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.83	2.84	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.84	2.85	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.85	2.86	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.86	2.87	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.87	2.87	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.88	2.88	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.89	2.89	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.90	2.89	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.91	2.90	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.92	2.91	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.93	2.92	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.94	2.92	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.95	2.93	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.96	2.94	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.97	2.95	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.98	2.95	Free Outfall		O2,O1,CV (no Q: WR,SP)
340.99	2.96	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.00	2.97	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.01	2.97	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.02	2.98	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.03	2.99	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
341.04	2.99	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.05	3.00	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.06	3.01	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.07	3.02	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.08	3.02	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.09	3.03	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.10	3.04	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.11	3.04	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.12	3.05	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.13	3.06	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.14	3.06	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.15	3.07	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.16	3.08	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.17	3.08	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.18	3.09	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.19	3.10	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.20	3.10	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.21	3.11	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.22	3.12	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.23	3.12	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.24	3.13	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.25	3.14	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.26	3.14	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.27	3.15	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.28	3.16	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.29	3.16	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.30	3.17	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.31	3.18	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.32	3.18	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.33	3.19	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.34	3.20	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.35	3.20	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.36	3.21	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.37	3.22	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.38	3.22	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.39	3.23	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.40	3.24	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.41	3.24	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
341.42	3.25	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.43	3.26	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.44	3.26	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.45	3.27	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.46	3.28	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.47	3.28	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.48	3.29	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.49	3.29	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.50	3.30	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.51	3.31	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.52	3.31	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.53	3.32	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.54	3.33	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.55	3.33	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.56	3.34	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.57	3.35	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.58	3.35	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.59	3.36	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.60	3.36	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.61	3.37	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.62	3.38	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.63	3.38	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.64	3.39	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.65	3.40	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.66	3.40	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.67	3.41	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.68	3.41	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.69	3.42	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.70	3.43	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.71	3.43	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.72	3.44	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.73	3.45	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.74	3.45	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.75	3.46	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.76	3.46	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.77	3.47	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.78	3.48	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.79	3.48	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
341.80	3.49	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.81	3.49	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.82	3.50	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.83	3.51	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.84	3.51	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.85	3.52	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.86	3.52	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.87	3.53	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.88	3.54	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.89	3.54	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.90	3.55	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.91	3.55	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.92	3.56	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.93	3.57	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.94	3.57	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.95	3.58	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.96	3.58	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.97	3.59	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.98	3.60	Free Outfall		O2,O1,CV (no Q: WR,SP)
341.99	3.60	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.00	3.61	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.01	3.61	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.02	3.62	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.03	3.62	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.04	3.63	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.05	3.64	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.06	3.64	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.07	3.65	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.08	3.65	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.09	3.66	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.10	3.67	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.11	3.67	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.12	3.68	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.13	3.68	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.14	3.69	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.15	3.69	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.16	3.70	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.17	3.71	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
Elev. ft	Q cfs	TW Elev ft	Converge Error +/-ft	Contributing Structures
342.18	3.71	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.19	3.72	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.20	3.72	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.21	3.73	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.22	3.73	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.23	3.74	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.24	3.75	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.25	3.75	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.26	3.76	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.27	3.76	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.28	3.77	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.29	3.77	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.30	3.78	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.31	3.78	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.32	3.79	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.33	3.80	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.34	3.80	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.35	3.81	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.36	3.81	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.37	3.82	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.38	3.82	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.39	3.83	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.40	3.84	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.41	3.84	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.42	3.85	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.43	3.85	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.44	3.86	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.45	3.86	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.46	3.87	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.47	3.87	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.48	3.88	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.49	3.88	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.50	3.89	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.51	3.90	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.52	3.90	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.53	3.91	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.54	3.91	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.55	3.92	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
342.56	3.92	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.57	3.93	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.58	3.93	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.59	3.94	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.60	3.94	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.61	3.95	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.62	3.95	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.63	3.96	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.64	3.96	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.65	3.97	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.66	3.97	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.67	3.98	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.68	3.98	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.69	3.99	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.70	3.99	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.71	4.00	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.72	4.00	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.73	4.01	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.74	4.01	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.75	4.02	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.76	4.02	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.77	4.03	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.78	4.03	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.79	4.04	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.80	4.04	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.81	4.05	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.82	4.05	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.83	4.06	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.84	4.06	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.85	4.07	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.86	4.07	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.87	4.08	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.88	4.08	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.89	4.09	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.90	4.09	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.91	4.10	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.92	4.10	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.93	4.11	Free Outfall		O2,O1,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
342.94	4.11	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.95	4.12	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.96	4.12	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.97	4.13	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.98	4.13	Free Outfall		O2,O1,CV (no Q: WR,SP)
342.99	4.14	Free Outfall		O2,O1,CV (no Q: WR,SP)
343.00	4.14	Free Outfall		O2,O1,CV (no Q: WR,SP)
343.01	4.19	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.02	4.28	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.03	4.39	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.04	4.51	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.05	4.66	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.06	4.82	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.07	4.99	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.08	5.18	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.09	5.38	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.10	5.58	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.11	5.80	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.12	6.03	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.13	6.28	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.14	6.53	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.15	6.79	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.16	7.05	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.17	7.33	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.18	7.61	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.19	7.90	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.20	8.20	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.21	8.51	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.22	8.83	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.23	9.15	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.24	9.48	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.25	9.81	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.26	10.16	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.27	10.51	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.28	10.86	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.29	11.23	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.30	11.60	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.31	11.97	Free Outfall		SP,O2,O1,CV (no Q: WR)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
343.32	12.35	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.33	12.74	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.34	13.13	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.35	13.53	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.36	13.94	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.37	14.35	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.38	14.76	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.39	15.19	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.40	15.61	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.41	16.04	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.42	16.48	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.43	16.92	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.44	17.37	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.45	17.82	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.46	18.28	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.47	18.74	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.48	19.21	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.49	19.67	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.50	20.15	Free Outfall		SP,O2,O1,CV (no Q: WR)
343.51	20.72	Free Outfall		WR,SP,O2,O1,CV
343.52	21.37	Free Outfall		WR,SP,O2,O1,CV
343.53	22.07	Free Outfall		WR,SP,O2,O1,CV
343.54	22.81	Free Outfall		WR,SP,O2,O1,CV
343.55	23.59	Free Outfall		WR,SP,O2,O1,CV
343.56	24.40	Free Outfall		WR,SP,O2,O1,CV
343.57	25.25	Free Outfall		WR,SP,O2,O1,CV
343.58	26.12	Free Outfall		WR,SP,O2,O1,CV
343.59	27.02	Free Outfall		WR,SP,O2,O1,CV
343.60	27.94	Free Outfall		WR,SP,O2,O1,CV
343.61	28.87	Free Outfall		WR,SP,O2,O1,CV
343.62	29.83	Free Outfall		WR,SP,O2,O1,CV
343.63	30.82	Free Outfall		WR,SP,O2,O1,CV
343.64	31.82	Free Outfall		WR,SP,O2,O1,CV
343.65	32.84	Free Outfall		WR,SP,O2,O1,CV
343.66	33.88	Free Outfall		WR,SP,O2,O1,CV
343.67	34.94	Free Outfall		WR,SP,O2,O1,CV
343.68	36.01	Free Outfall		WR,SP,O2,O1,CV
343.69	37.11	Free Outfall		WR,SP,O2,O1,CV

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
343.70	38.22	Free Outfall		WR,SP,O2,O1,CV
343.71	39.35	Free Outfall		WR,SP,O2,O1,CV
343.72	40.49	Free Outfall		WR,SP,O2,O1,CV
343.73	41.65	Free Outfall		WR,SP,O2,O1,CV
343.74	42.82	Free Outfall		WR,SP,O2,O1,CV
343.75	44.01	Free Outfall		WR,SP,O2,O1,CV
343.76	46.32	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.77	47.56	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.78	48.83	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.79	50.10	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.80	50.94	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.81	52.24	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.82	53.09	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.83	54.42	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.84	56.26	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.85	57.10	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.86	57.95	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.87	58.81	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.88	59.68	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.89	60.56	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.90	61.44	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.91	62.35	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.92	63.26	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.93	64.18	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.94	65.12	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.95	66.05	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.96	67.00	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.97	67.96	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.98	68.94	Free Outfall		WR,SP,CV (no Q: O2,O1)
343.99	69.91	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.00	70.91	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.01	71.91	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.02	72.91	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.03	73.93	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.04	74.95	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.05	76.00	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.06	77.04	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.07	78.09	Free Outfall		WR,SP,CV (no Q: O2,O1)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
344.08	79.15	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.09	80.23	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.10	81.31	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.11	82.39	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.12	83.49	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.13	84.60	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.14	85.71	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.15	86.83	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.16	87.95	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.17	89.09	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.18	90.23	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.19	91.39	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.20	92.55	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.21	93.72	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.22	94.90	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.23	96.08	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.24	97.27	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.25	98.48	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.26	99.69	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.27	100.90	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.28	102.12	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.29	103.35	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.30	104.59	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.31	105.83	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.32	107.09	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.33	108.34	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.34	109.61	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.35	110.89	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.36	112.16	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.37	113.45	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.38	114.74	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.39	116.04	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.40	117.35	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.41	118.66	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.42	119.98	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.43	121.31	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.44	122.65	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.45	124.00	Free Outfall		WR,SP,CV (no Q: O2,O1)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
344.46	125.34	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.47	126.70	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.48	128.06	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.49	129.43	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.50	130.81	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.51	132.18	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.52	133.57	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.53	134.97	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.54	136.37	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.55	137.77	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.56	139.19	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.57	140.61	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.58	142.03	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.59	143.47	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.60	144.91	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.61	146.35	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.62	147.80	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.63	149.26	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.64	150.71	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.65	152.18	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.66	153.65	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.67	155.14	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.68	156.63	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.69	158.12	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.70	159.62	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.71	161.13	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.72	162.64	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.73	164.15	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.74	165.67	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.75	167.20	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.76	168.74	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.77	170.27	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.78	171.82	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.79	173.38	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.80	174.93	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.81	176.50	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.82	178.06	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.83	179.63	Free Outfall		WR,SP,CV (no Q: O2,O1)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
344.84	181.22	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.85	182.80	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.86	184.39	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.87	185.99	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.88	187.59	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.89	189.20	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.90	190.80	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.91	192.42	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.92	194.05	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.93	195.67	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.94	197.31	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.95	198.94	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.96	200.58	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.97	202.22	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.98	203.88	Free Outfall		WR,SP,CV (no Q: O2,O1)
344.99	205.54	Free Outfall		WR,SP,CV (no Q: O2,O1)
345.00	207.20	Free Outfall		WR,SP,CV (no Q: O2,O1)

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REQUESTED POND WS ELEVATIONS:

Min. Elev.= 338.00 ft
Increment = .01 ft
Max. Elev.= 345.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	WR	--->	TW	343.500	345.000
Stand Pipe	SP	--->	CV	343.000	345.000
Orifice-Circular	O2	--->	CV	339.000	345.000
Culvert-Circular	CV	--->	TW	338.040	345.000
TW SETUP, DS Channel					

OUTLET STRUCTURE INPUT DATA

```
Structure ID       = WR
Structure Type     = Weir-Rectangular
-----------------------------------
# of Openings      =         1
Crest Elev.        =    343.50 ft
Weir Length        =     30.00 ft
Weir Coeff.        =  3.000000

Weir TW effects      (Use adjustment equation)
```

```
Structure ID       = SP
Structure Type     = Stand Pipe
-----------------------------------
# of Openings      =         1
Invert Elev.       =    343.00 ft
Diameter           =    5.0000 ft
Orifice Area       =   19.6350 sq.ft
Orifice Coeff.     =      .600
Weir Length        =     15.71 ft
Weir Coeff.        =     3.000
K, Submerged       =      .000
K, Reverse         =     1.000
Kb,Barrel          =   .000000  (per ft of full flow)
Barrel Length      =       .00 ft
Mannings n         =     .0000
```

```
Structure ID       = O2
Structure Type     = Orifice-Circular
-----------------------------------
# of Openings      =        10
Invert Elev.       =    339.00 ft
Diameter           =     .1667 ft
Orifice Coeff.     =      .600
```

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OUTLET STRUCTURE INPUT DATA

```
Structure ID       = CV
Structure Type     = Culvert-Circular
-----------------------------------
No. Barrels        =         1
Barrel Diameter    =    2.5000 ft
Upstream Invert    =    338.04 ft
Dnstream Invert    =    337.62 ft
Horiz. Length      =     83.38 ft
Barrel Length      =     83.38 ft
Barrel Slope       =    .00504 ft/ft

OUTLET CONTROL DATA...
Mannings n         =     .0220
Ke                 =     .9000  (forward entrance loss)
Kb                 =   .026397  (per ft of full flow)
Kr                 =     .9000  (reverse entrance loss)
HW Convergence     =      .001  +/- ft

INLET CONTROL DATA...
Equation form      =         1
Inlet Control K    =     .0340
Inlet Control M    =    1.5000
Inlet Control c    =    .05530
Inlet Control Y    =     .5400
T1 ratio (HW/D)    =     1.260
T2 ratio (HW/D)    =     1.422
Slope Factor       =     -.500

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use   submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...
At T1 Elev =    341.19 ft  --->  Flow =     27.16 cfs
At T2 Elev =    341.60 ft  --->  Flow =     31.05 cfs


Structure ID       = TW
Structure Type     = TW SETUP, DS Channel
-----------------------------------
FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations=    30
Min. TW tolerance =    .01 ft
Max. TW tolerance =    .01 ft
Min. HW tolerance =    .01 ft
Max. HW tolerance =    .01 ft
Min.  Q tolerance =    .10 cfs
Max.  Q tolerance =    .10 cfs
```

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
338.00	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.01	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.02	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.03	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.04	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.05	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.06	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.07	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.08	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.09	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.10	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.11	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.12	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.13	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.14	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.15	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.16	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.17	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.18	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.19	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.20	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.21	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.22	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.23	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.24	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.25	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.26	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.27	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.28	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.29	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.30	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.31	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.32	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.33	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.34	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.35	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.36	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.37	.00	Free Outfall		(no Q: WR,SP,O2,CV)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
338.38	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.39	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.40	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.41	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.42	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.43	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.44	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.45	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.46	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.47	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.48	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.49	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.50	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.51	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.52	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.53	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.54	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.55	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.56	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.57	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.58	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.59	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.60	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.61	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.62	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.63	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.64	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.65	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.66	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.67	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.68	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.69	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.70	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.71	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.72	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.73	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.74	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.75	.00	Free Outfall		(no Q: WR,SP,O2,CV)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
338.76	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.77	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.78	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.79	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.80	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.81	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.82	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.83	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.84	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.85	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.86	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.87	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.88	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.89	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.90	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.91	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.92	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.93	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.94	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.95	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.96	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.97	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.98	.00	Free Outfall		(no Q: WR,SP,O2,CV)
338.99	.00	Free Outfall		(no Q: WR,SP,O2,CV)
339.00	.00	Free Outfall		(no Q: WR,SP,O2,CV)
339.01	.00	Free Outfall		O2,CV (no Q: WR,SP)
339.02	.00	Free Outfall		O2,CV (no Q: WR,SP)
339.03	.01	Free Outfall		O2,CV (no Q: WR,SP)
339.04	.01	Free Outfall		O2,CV (no Q: WR,SP)
339.05	.03	Free Outfall		O2,CV (no Q: WR,SP)
339.06	.05	Free Outfall		O2,CV (no Q: WR,SP)
339.07	.06	Free Outfall		O2,CV (no Q: WR,SP)
339.08	.08	Free Outfall		O2,CV (no Q: WR,SP)
339.09	.10	Free Outfall		O2,CV (no Q: WR,SP)
339.10	.12	Free Outfall		O2,CV (no Q: WR,SP)
339.11	.14	Free Outfall		O2,CV (no Q: WR,SP)
339.12	.17	Free Outfall		O2,CV (no Q: WR,SP)
339.13	.19	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
339.14	.22	Free Outfall		O2,CV (no Q: WR,SP)
339.15	.25	Free Outfall		O2,CV (no Q: WR,SP)
339.16	.27	Free Outfall		O2,CV (no Q: WR,SP)
339.17	.31	Free Outfall		O2,CV (no Q: WR,SP)
339.18	.33	Free Outfall		O2,CV (no Q: WR,SP)
339.19	.34	Free Outfall		O2,CV (no Q: WR,SP)
339.20	.36	Free Outfall		O2,CV (no Q: WR,SP)
339.21	.37	Free Outfall		O2,CV (no Q: WR,SP)
339.22	.39	Free Outfall		O2,CV (no Q: WR,SP)
339.23	.40	Free Outfall		O2,CV (no Q: WR,SP)
339.24	.42	Free Outfall		O2,CV (no Q: WR,SP)
339.25	.43	Free Outfall		O2,CV (no Q: WR,SP)
339.26	.44	Free Outfall		O2,CV (no Q: WR,SP)
339.27	.45	Free Outfall		O2,CV (no Q: WR,SP)
339.28	.47	Free Outfall		O2,CV (no Q: WR,SP)
339.29	.48	Free Outfall		O2,CV (no Q: WR,SP)
339.30	.49	Free Outfall		O2,CV (no Q: WR,SP)
339.31	.50	Free Outfall		O2,CV (no Q: WR,SP)
339.32	.51	Free Outfall		O2,CV (no Q: WR,SP)
339.33	.52	Free Outfall		O2,CV (no Q: WR,SP)
339.34	.53	Free Outfall		O2,CV (no Q: WR,SP)
339.35	.54	Free Outfall		O2,CV (no Q: WR,SP)
339.36	.55	Free Outfall		O2,CV (no Q: WR,SP)
339.37	.56	Free Outfall		O2,CV (no Q: WR,SP)
339.38	.57	Free Outfall		O2,CV (no Q: WR,SP)
339.39	.58	Free Outfall		O2,CV (no Q: WR,SP)
339.40	.59	Free Outfall		O2,CV (no Q: WR,SP)
339.41	.60	Free Outfall		O2,CV (no Q: WR,SP)
339.42	.61	Free Outfall		O2,CV (no Q: WR,SP)
339.43	.62	Free Outfall		O2,CV (no Q: WR,SP)
339.44	.63	Free Outfall		O2,CV (no Q: WR,SP)
339.45	.64	Free Outfall		O2,CV (no Q: WR,SP)
339.46	.64	Free Outfall		O2,CV (no Q: WR,SP)
339.47	.65	Free Outfall		O2,CV (no Q: WR,SP)
339.48	.66	Free Outfall		O2,CV (no Q: WR,SP)
339.49	.67	Free Outfall		O2,CV (no Q: WR,SP)
339.50	.68	Free Outfall		O2,CV (no Q: WR,SP)
339.51	.69	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
339.52	.69	Free Outfall		O2,CV (no Q: WR,SP)
339.53	.70	Free Outfall		O2,CV (no Q: WR,SP)
339.54	.71	Free Outfall		O2,CV (no Q: WR,SP)
339.55	.72	Free Outfall		O2,CV (no Q: WR,SP)
339.56	.73	Free Outfall		O2,CV (no Q: WR,SP)
339.57	.73	Free Outfall		O2,CV (no Q: WR,SP)
339.58	.74	Free Outfall		O2,CV (no Q: WR,SP)
339.59	.75	Free Outfall		O2,CV (no Q: WR,SP)
339.60	.76	Free Outfall		O2,CV (no Q: WR,SP)
339.61	.76	Free Outfall		O2,CV (no Q: WR,SP)
339.62	.77	Free Outfall		O2,CV (no Q: WR,SP)
339.63	.78	Free Outfall		O2,CV (no Q: WR,SP)
339.64	.78	Free Outfall		O2,CV (no Q: WR,SP)
339.65	.79	Free Outfall		O2,CV (no Q: WR,SP)
339.66	.80	Free Outfall		O2,CV (no Q: WR,SP)
339.67	.80	Free Outfall		O2,CV (no Q: WR,SP)
339.68	.81	Free Outfall		O2,CV (no Q: WR,SP)
339.69	.82	Free Outfall		O2,CV (no Q: WR,SP)
339.70	.82	Free Outfall		O2,CV (no Q: WR,SP)
339.71	.83	Free Outfall		O2,CV (no Q: WR,SP)
339.72	.84	Free Outfall		O2,CV (no Q: WR,SP)
339.73	.84	Free Outfall		O2,CV (no Q: WR,SP)
339.74	.85	Free Outfall		O2,CV (no Q: WR,SP)
339.75	.86	Free Outfall		O2,CV (no Q: WR,SP)
339.76	.86	Free Outfall		O2,CV (no Q: WR,SP)
339.77	.87	Free Outfall		O2,CV (no Q: WR,SP)
339.78	.88	Free Outfall		O2,CV (no Q: WR,SP)
339.79	.88	Free Outfall		O2,CV (no Q: WR,SP)
339.80	.89	Free Outfall		O2,CV (no Q: WR,SP)
339.81	.90	Free Outfall		O2,CV (no Q: WR,SP)
339.82	.90	Free Outfall		O2,CV (no Q: WR,SP)
339.83	.91	Free Outfall		O2,CV (no Q: WR,SP)
339.84	.91	Free Outfall		O2,CV (no Q: WR,SP)
339.85	.92	Free Outfall		O2,CV (no Q: WR,SP)
339.86	.93	Free Outfall		O2,CV (no Q: WR,SP)
339.87	.93	Free Outfall		O2,CV (no Q: WR,SP)
339.88	.94	Free Outfall		O2,CV (no Q: WR,SP)
339.89	.94	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
339.90	.95	Free Outfall		O2,CV (no Q: WR,SP)
339.91	.96	Free Outfall		O2,CV (no Q: WR,SP)
339.92	.96	Free Outfall		O2,CV (no Q: WR,SP)
339.93	.97	Free Outfall		O2,CV (no Q: WR,SP)
339.94	.97	Free Outfall		O2,CV (no Q: WR,SP)
339.95	.98	Free Outfall		O2,CV (no Q: WR,SP)
339.96	.98	Free Outfall		O2,CV (no Q: WR,SP)
339.97	.99	Free Outfall		O2,CV (no Q: WR,SP)
339.98	.99	Free Outfall		O2,CV (no Q: WR,SP)
339.99	1.00	Free Outfall		O2,CV (no Q: WR,SP)
340.00	1.01	Free Outfall		O2,CV (no Q: WR,SP)
340.01	1.01	Free Outfall		O2,CV (no Q: WR,SP)
340.02	1.02	Free Outfall		O2,CV (no Q: WR,SP)
340.03	1.02	Free Outfall		O2,CV (no Q: WR,SP)
340.04	1.03	Free Outfall		O2,CV (no Q: WR,SP)
340.05	1.03	Free Outfall		O2,CV (no Q: WR,SP)
340.06	1.04	Free Outfall		O2,CV (no Q: WR,SP)
340.07	1.04	Free Outfall		O2,CV (no Q: WR,SP)
340.08	1.05	Free Outfall		O2,CV (no Q: WR,SP)
340.09	1.05	Free Outfall		O2,CV (no Q: WR,SP)
340.10	1.06	Free Outfall		O2,CV (no Q: WR,SP)
340.11	1.06	Free Outfall		O2,CV (no Q: WR,SP)
340.12	1.07	Free Outfall		O2,CV (no Q: WR,SP)
340.13	1.07	Free Outfall		O2,CV (no Q: WR,SP)
340.14	1.08	Free Outfall		O2,CV (no Q: WR,SP)
340.15	1.08	Free Outfall		O2,CV (no Q: WR,SP)
340.16	1.09	Free Outfall		O2,CV (no Q: WR,SP)
340.17	1.10	Free Outfall		O2,CV (no Q: WR,SP)
340.18	1.10	Free Outfall		O2,CV (no Q: WR,SP)
340.19	1.11	Free Outfall		O2,CV (no Q: WR,SP)
340.20	1.11	Free Outfall		O2,CV (no Q: WR,SP)
340.21	1.11	Free Outfall		O2,CV (no Q: WR,SP)
340.22	1.12	Free Outfall		O2,CV (no Q: WR,SP)
340.23	1.12	Free Outfall		O2,CV (no Q: WR,SP)
340.24	1.13	Free Outfall		O2,CV (no Q: WR,SP)
340.25	1.13	Free Outfall		O2,CV (no Q: WR,SP)
340.26	1.14	Free Outfall		O2,CV (no Q: WR,SP)
340.27	1.14	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
340.28	1.15	Free Outfall		O2,CV (no Q: WR,SP)
340.29	1.15	Free Outfall		O2,CV (no Q: WR,SP)
340.30	1.16	Free Outfall		O2,CV (no Q: WR,SP)
340.31	1.16	Free Outfall		O2,CV (no Q: WR,SP)
340.32	1.17	Free Outfall		O2,CV (no Q: WR,SP)
340.33	1.17	Free Outfall		O2,CV (no Q: WR,SP)
340.34	1.18	Free Outfall		O2,CV (no Q: WR,SP)
340.35	1.18	Free Outfall		O2,CV (no Q: WR,SP)
340.36	1.19	Free Outfall		O2,CV (no Q: WR,SP)
340.37	1.19	Free Outfall		O2,CV (no Q: WR,SP)
340.38	1.20	Free Outfall		O2,CV (no Q: WR,SP)
340.39	1.20	Free Outfall		O2,CV (no Q: WR,SP)
340.40	1.21	Free Outfall		O2,CV (no Q: WR,SP)
340.41	1.21	Free Outfall		O2,CV (no Q: WR,SP)
340.42	1.21	Free Outfall		O2,CV (no Q: WR,SP)
340.43	1.22	Free Outfall		O2,CV (no Q: WR,SP)
340.44	1.22	Free Outfall		O2,CV (no Q: WR,SP)
340.45	1.23	Free Outfall		O2,CV (no Q: WR,SP)
340.46	1.23	Free Outfall		O2,CV (no Q: WR,SP)
340.47	1.24	Free Outfall		O2,CV (no Q: WR,SP)
340.48	1.24	Free Outfall		O2,CV (no Q: WR,SP)
340.49	1.25	Free Outfall		O2,CV (no Q: WR,SP)
340.50	1.25	Free Outfall		O2,CV (no Q: WR,SP)
340.51	1.25	Free Outfall		O2,CV (no Q: WR,SP)
340.52	1.26	Free Outfall		O2,CV (no Q: WR,SP)
340.53	1.26	Free Outfall		O2,CV (no Q: WR,SP)
340.54	1.27	Free Outfall		O2,CV (no Q: WR,SP)
340.55	1.27	Free Outfall		O2,CV (no Q: WR,SP)
340.56	1.28	Free Outfall		O2,CV (no Q: WR,SP)
340.57	1.28	Free Outfall		O2,CV (no Q: WR,SP)
340.58	1.29	Free Outfall		O2,CV (no Q: WR,SP)
340.59	1.29	Free Outfall		O2,CV (no Q: WR,SP)
340.60	1.29	Free Outfall		O2,CV (no Q: WR,SP)
340.61	1.30	Free Outfall		O2,CV (no Q: WR,SP)
340.62	1.30	Free Outfall		O2,CV (no Q: WR,SP)
340.63	1.31	Free Outfall		O2,CV (no Q: WR,SP)
340.64	1.31	Free Outfall		O2,CV (no Q: WR,SP)
340.65	1.31	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
340.66	1.32	Free Outfall		O2,CV (no Q: WR,SP)
340.67	1.32	Free Outfall		O2,CV (no Q: WR,SP)
340.68	1.33	Free Outfall		O2,CV (no Q: WR,SP)
340.69	1.33	Free Outfall		O2,CV (no Q: WR,SP)
340.70	1.34	Free Outfall		O2,CV (no Q: WR,SP)
340.71	1.34	Free Outfall		O2,CV (no Q: WR,SP)
340.72	1.34	Free Outfall		O2,CV (no Q: WR,SP)
340.73	1.35	Free Outfall		O2,CV (no Q: WR,SP)
340.74	1.35	Free Outfall		O2,CV (no Q: WR,SP)
340.75	1.36	Free Outfall		O2,CV (no Q: WR,SP)
340.76	1.36	Free Outfall		O2,CV (no Q: WR,SP)
340.77	1.36	Free Outfall		O2,CV (no Q: WR,SP)
340.78	1.37	Free Outfall		O2,CV (no Q: WR,SP)
340.79	1.37	Free Outfall		O2,CV (no Q: WR,SP)
340.80	1.38	Free Outfall		O2,CV (no Q: WR,SP)
340.81	1.38	Free Outfall		O2,CV (no Q: WR,SP)
340.82	1.38	Free Outfall		O2,CV (no Q: WR,SP)
340.83	1.39	Free Outfall		O2,CV (no Q: WR,SP)
340.84	1.39	Free Outfall		O2,CV (no Q: WR,SP)
340.85	1.40	Free Outfall		O2,CV (no Q: WR,SP)
340.86	1.40	Free Outfall		O2,CV (no Q: WR,SP)
340.87	1.40	Free Outfall		O2,CV (no Q: WR,SP)
340.88	1.41	Free Outfall		O2,CV (no Q: WR,SP)
340.89	1.41	Free Outfall		O2,CV (no Q: WR,SP)
340.90	1.42	Free Outfall		O2,CV (no Q: WR,SP)
340.91	1.42	Free Outfall		O2,CV (no Q: WR,SP)
340.92	1.42	Free Outfall		O2,CV (no Q: WR,SP)
340.93	1.43	Free Outfall		O2,CV (no Q: WR,SP)
340.94	1.43	Free Outfall		O2,CV (no Q: WR,SP)
340.95	1.44	Free Outfall		O2,CV (no Q: WR,SP)
340.96	1.44	Free Outfall		O2,CV (no Q: WR,SP)
340.97	1.44	Free Outfall		O2,CV (no Q: WR,SP)
340.98	1.45	Free Outfall		O2,CV (no Q: WR,SP)
340.99	1.45	Free Outfall		O2,CV (no Q: WR,SP)
341.00	1.45	Free Outfall		O2,CV (no Q: WR,SP)
341.01	1.46	Free Outfall		O2,CV (no Q: WR,SP)
341.02	1.46	Free Outfall		O2,CV (no Q: WR,SP)
341.03	1.47	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
341.04	1.47	Free Outfall		O2,CV (no Q: WR,SP)
341.05	1.47	Free Outfall		O2,CV (no Q: WR,SP)
341.06	1.48	Free Outfall		O2,CV (no Q: WR,SP)
341.07	1.48	Free Outfall		O2,CV (no Q: WR,SP)
341.08	1.48	Free Outfall		O2,CV (no Q: WR,SP)
341.09	1.49	Free Outfall		O2,CV (no Q: WR,SP)
341.10	1.49	Free Outfall		O2,CV (no Q: WR,SP)
341.11	1.50	Free Outfall		O2,CV (no Q: WR,SP)
341.12	1.50	Free Outfall		O2,CV (no Q: WR,SP)
341.13	1.50	Free Outfall		O2,CV (no Q: WR,SP)
341.14	1.51	Free Outfall		O2,CV (no Q: WR,SP)
341.15	1.51	Free Outfall		O2,CV (no Q: WR,SP)
341.16	1.51	Free Outfall		O2,CV (no Q: WR,SP)
341.17	1.52	Free Outfall		O2,CV (no Q: WR,SP)
341.18	1.52	Free Outfall		O2,CV (no Q: WR,SP)
341.19	1.52	Free Outfall		O2,CV (no Q: WR,SP)
341.20	1.53	Free Outfall		O2,CV (no Q: WR,SP)
341.21	1.53	Free Outfall		O2,CV (no Q: WR,SP)
341.22	1.54	Free Outfall		O2,CV (no Q: WR,SP)
341.23	1.54	Free Outfall		O2,CV (no Q: WR,SP)
341.24	1.54	Free Outfall		O2,CV (no Q: WR,SP)
341.25	1.55	Free Outfall		O2,CV (no Q: WR,SP)
341.26	1.55	Free Outfall		O2,CV (no Q: WR,SP)
341.27	1.55	Free Outfall		O2,CV (no Q: WR,SP)
341.28	1.56	Free Outfall		O2,CV (no Q: WR,SP)
341.29	1.56	Free Outfall		O2,CV (no Q: WR,SP)
341.30	1.56	Free Outfall		O2,CV (no Q: WR,SP)
341.31	1.57	Free Outfall		O2,CV (no Q: WR,SP)
341.32	1.57	Free Outfall		O2,CV (no Q: WR,SP)
341.33	1.57	Free Outfall		O2,CV (no Q: WR,SP)
341.34	1.58	Free Outfall		O2,CV (no Q: WR,SP)
341.35	1.58	Free Outfall		O2,CV (no Q: WR,SP)
341.36	1.58	Free Outfall		O2,CV (no Q: WR,SP)
341.37	1.59	Free Outfall		O2,CV (no Q: WR,SP)
341.38	1.59	Free Outfall		O2,CV (no Q: WR,SP)
341.39	1.60	Free Outfall		O2,CV (no Q: WR,SP)
341.40	1.60	Free Outfall		O2,CV (no Q: WR,SP)
341.41	1.60	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
341.42	1.61	Free Outfall		O2,CV (no Q: WR,SP)
341.43	1.61	Free Outfall		O2,CV (no Q: WR,SP)
341.44	1.61	Free Outfall		O2,CV (no Q: WR,SP)
341.45	1.62	Free Outfall		O2,CV (no Q: WR,SP)
341.46	1.62	Free Outfall		O2,CV (no Q: WR,SP)
341.47	1.62	Free Outfall		O2,CV (no Q: WR,SP)
341.48	1.63	Free Outfall		O2,CV (no Q: WR,SP)
341.49	1.63	Free Outfall		O2,CV (no Q: WR,SP)
341.50	1.63	Free Outfall		O2,CV (no Q: WR,SP)
341.51	1.64	Free Outfall		O2,CV (no Q: WR,SP)
341.52	1.64	Free Outfall		O2,CV (no Q: WR,SP)
341.53	1.64	Free Outfall		O2,CV (no Q: WR,SP)
341.54	1.65	Free Outfall		O2,CV (no Q: WR,SP)
341.55	1.65	Free Outfall		O2,CV (no Q: WR,SP)
341.56	1.65	Free Outfall		O2,CV (no Q: WR,SP)
341.57	1.66	Free Outfall		O2,CV (no Q: WR,SP)
341.58	1.66	Free Outfall		O2,CV (no Q: WR,SP)
341.59	1.66	Free Outfall		O2,CV (no Q: WR,SP)
341.60	1.67	Free Outfall		O2,CV (no Q: WR,SP)
341.61	1.67	Free Outfall		O2,CV (no Q: WR,SP)
341.62	1.67	Free Outfall		O2,CV (no Q: WR,SP)
341.63	1.68	Free Outfall		O2,CV (no Q: WR,SP)
341.64	1.68	Free Outfall		O2,CV (no Q: WR,SP)
341.65	1.68	Free Outfall		O2,CV (no Q: WR,SP)
341.66	1.69	Free Outfall		O2,CV (no Q: WR,SP)
341.67	1.69	Free Outfall		O2,CV (no Q: WR,SP)
341.68	1.69	Free Outfall		O2,CV (no Q: WR,SP)
341.69	1.70	Free Outfall		O2,CV (no Q: WR,SP)
341.70	1.70	Free Outfall		O2,CV (no Q: WR,SP)
341.71	1.70	Free Outfall		O2,CV (no Q: WR,SP)
341.72	1.71	Free Outfall		O2,CV (no Q: WR,SP)
341.73	1.71	Free Outfall		O2,CV (no Q: WR,SP)
341.74	1.71	Free Outfall		O2,CV (no Q: WR,SP)
341.75	1.72	Free Outfall		O2,CV (no Q: WR,SP)
341.76	1.72	Free Outfall		O2,CV (no Q: WR,SP)
341.77	1.72	Free Outfall		O2,CV (no Q: WR,SP)
341.78	1.73	Free Outfall		O2,CV (no Q: WR,SP)
341.79	1.73	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
341.80	1.73	Free Outfall		O2,CV (no Q: WR,SP)
341.81	1.73	Free Outfall		O2,CV (no Q: WR,SP)
341.82	1.74	Free Outfall		O2,CV (no Q: WR,SP)
341.83	1.74	Free Outfall		O2,CV (no Q: WR,SP)
341.84	1.74	Free Outfall		O2,CV (no Q: WR,SP)
341.85	1.75	Free Outfall		O2,CV (no Q: WR,SP)
341.86	1.75	Free Outfall		O2,CV (no Q: WR,SP)
341.87	1.75	Free Outfall		O2,CV (no Q: WR,SP)
341.88	1.76	Free Outfall		O2,CV (no Q: WR,SP)
341.89	1.76	Free Outfall		O2,CV (no Q: WR,SP)
341.90	1.76	Free Outfall		O2,CV (no Q: WR,SP)
341.91	1.77	Free Outfall		O2,CV (no Q: WR,SP)
341.92	1.77	Free Outfall		O2,CV (no Q: WR,SP)
341.93	1.77	Free Outfall		O2,CV (no Q: WR,SP)
341.94	1.78	Free Outfall		O2,CV (no Q: WR,SP)
341.95	1.78	Free Outfall		O2,CV (no Q: WR,SP)
341.96	1.78	Free Outfall		O2,CV (no Q: WR,SP)
341.97	1.78	Free Outfall		O2,CV (no Q: WR,SP)
341.98	1.79	Free Outfall		O2,CV (no Q: WR,SP)
341.99	1.79	Free Outfall		O2,CV (no Q: WR,SP)
342.00	1.79	Free Outfall		O2,CV (no Q: WR,SP)
342.01	1.80	Free Outfall		O2,CV (no Q: WR,SP)
342.02	1.80	Free Outfall		O2,CV (no Q: WR,SP)
342.03	1.80	Free Outfall		O2,CV (no Q: WR,SP)
342.04	1.81	Free Outfall		O2,CV (no Q: WR,SP)
342.05	1.81	Free Outfall		O2,CV (no Q: WR,SP)
342.06	1.81	Free Outfall		O2,CV (no Q: WR,SP)
342.07	1.82	Free Outfall		O2,CV (no Q: WR,SP)
342.08	1.82	Free Outfall		O2,CV (no Q: WR,SP)
342.09	1.82	Free Outfall		O2,CV (no Q: WR,SP)
342.10	1.82	Free Outfall		O2,CV (no Q: WR,SP)
342.11	1.83	Free Outfall		O2,CV (no Q: WR,SP)
342.12	1.83	Free Outfall		O2,CV (no Q: WR,SP)
342.13	1.83	Free Outfall		O2,CV (no Q: WR,SP)
342.14	1.84	Free Outfall		O2,CV (no Q: WR,SP)
342.15	1.84	Free Outfall		O2,CV (no Q: WR,SP)
342.16	1.84	Free Outfall		O2,CV (no Q: WR,SP)
342.17	1.85	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
342.18	1.85	Free Outfall		O2,CV (no Q: WR,SP)
342.19	1.85	Free Outfall		O2,CV (no Q: WR,SP)
342.20	1.85	Free Outfall		O2,CV (no Q: WR,SP)
342.21	1.86	Free Outfall		O2,CV (no Q: WR,SP)
342.22	1.86	Free Outfall		O2,CV (no Q: WR,SP)
342.23	1.86	Free Outfall		O2,CV (no Q: WR,SP)
342.24	1.87	Free Outfall		O2,CV (no Q: WR,SP)
342.25	1.87	Free Outfall		O2,CV (no Q: WR,SP)
342.26	1.87	Free Outfall		O2,CV (no Q: WR,SP)
342.27	1.88	Free Outfall		O2,CV (no Q: WR,SP)
342.28	1.88	Free Outfall		O2,CV (no Q: WR,SP)
342.29	1.88	Free Outfall		O2,CV (no Q: WR,SP)
342.30	1.88	Free Outfall		O2,CV (no Q: WR,SP)
342.31	1.89	Free Outfall		O2,CV (no Q: WR,SP)
342.32	1.89	Free Outfall		O2,CV (no Q: WR,SP)
342.33	1.89	Free Outfall		O2,CV (no Q: WR,SP)
342.34	1.90	Free Outfall		O2,CV (no Q: WR,SP)
342.35	1.90	Free Outfall		O2,CV (no Q: WR,SP)
342.36	1.90	Free Outfall		O2,CV (no Q: WR,SP)
342.37	1.90	Free Outfall		O2,CV (no Q: WR,SP)
342.38	1.91	Free Outfall		O2,CV (no Q: WR,SP)
342.39	1.91	Free Outfall		O2,CV (no Q: WR,SP)
342.40	1.91	Free Outfall		O2,CV (no Q: WR,SP)
342.41	1.92	Free Outfall		O2,CV (no Q: WR,SP)
342.42	1.92	Free Outfall		O2,CV (no Q: WR,SP)
342.43	1.92	Free Outfall		O2,CV (no Q: WR,SP)
342.44	1.92	Free Outfall		O2,CV (no Q: WR,SP)
342.45	1.93	Free Outfall		O2,CV (no Q: WR,SP)
342.46	1.93	Free Outfall		O2,CV (no Q: WR,SP)
342.47	1.93	Free Outfall		O2,CV (no Q: WR,SP)
342.48	1.94	Free Outfall		O2,CV (no Q: WR,SP)
342.49	1.94	Free Outfall		O2,CV (no Q: WR,SP)
342.50	1.94	Free Outfall		O2,CV (no Q: WR,SP)
342.51	1.94	Free Outfall		O2,CV (no Q: WR,SP)
342.52	1.95	Free Outfall		O2,CV (no Q: WR,SP)
342.53	1.95	Free Outfall		O2,CV (no Q: WR,SP)
342.54	1.95	Free Outfall		O2,CV (no Q: WR,SP)
342.55	1.96	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
342.56	1.96	Free Outfall		O2,CV (no Q: WR,SP)
342.57	1.96	Free Outfall		O2,CV (no Q: WR,SP)
342.58	1.96	Free Outfall		O2,CV (no Q: WR,SP)
342.59	1.97	Free Outfall		O2,CV (no Q: WR,SP)
342.60	1.97	Free Outfall		O2,CV (no Q: WR,SP)
342.61	1.97	Free Outfall		O2,CV (no Q: WR,SP)
342.62	1.98	Free Outfall		O2,CV (no Q: WR,SP)
342.63	1.98	Free Outfall		O2,CV (no Q: WR,SP)
342.64	1.98	Free Outfall		O2,CV (no Q: WR,SP)
342.65	1.98	Free Outfall		O2,CV (no Q: WR,SP)
342.66	1.99	Free Outfall		O2,CV (no Q: WR,SP)
342.67	1.99	Free Outfall		O2,CV (no Q: WR,SP)
342.68	1.99	Free Outfall		O2,CV (no Q: WR,SP)
342.69	1.99	Free Outfall		O2,CV (no Q: WR,SP)
342.70	2.00	Free Outfall		O2,CV (no Q: WR,SP)
342.71	2.00	Free Outfall		O2,CV (no Q: WR,SP)
342.72	2.00	Free Outfall		O2,CV (no Q: WR,SP)
342.73	2.01	Free Outfall		O2,CV (no Q: WR,SP)
342.74	2.01	Free Outfall		O2,CV (no Q: WR,SP)
342.75	2.01	Free Outfall		O2,CV (no Q: WR,SP)
342.76	2.01	Free Outfall		O2,CV (no Q: WR,SP)
342.77	2.02	Free Outfall		O2,CV (no Q: WR,SP)
342.78	2.02	Free Outfall		O2,CV (no Q: WR,SP)
342.79	2.02	Free Outfall		O2,CV (no Q: WR,SP)
342.80	2.03	Free Outfall		O2,CV (no Q: WR,SP)
342.81	2.03	Free Outfall		O2,CV (no Q: WR,SP)
342.82	2.03	Free Outfall		O2,CV (no Q: WR,SP)
342.83	2.03	Free Outfall		O2,CV (no Q: WR,SP)
342.84	2.04	Free Outfall		O2,CV (no Q: WR,SP)
342.85	2.04	Free Outfall		O2,CV (no Q: WR,SP)
342.86	2.04	Free Outfall		O2,CV (no Q: WR,SP)
342.87	2.04	Free Outfall		O2,CV (no Q: WR,SP)
342.88	2.05	Free Outfall		O2,CV (no Q: WR,SP)
342.89	2.05	Free Outfall		O2,CV (no Q: WR,SP)
342.90	2.05	Free Outfall		O2,CV (no Q: WR,SP)
342.91	2.05	Free Outfall		O2,CV (no Q: WR,SP)
342.92	2.06	Free Outfall		O2,CV (no Q: WR,SP)
342.93	2.06	Free Outfall		O2,CV (no Q: WR,SP)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
342.94	2.06	Free Outfall		O2,CV (no Q: WR,SP)
342.95	2.07	Free Outfall		O2,CV (no Q: WR,SP)
342.96	2.07	Free Outfall		O2,CV (no Q: WR,SP)
342.97	2.07	Free Outfall		O2,CV (no Q: WR,SP)
342.98	2.07	Free Outfall		O2,CV (no Q: WR,SP)
342.99	2.08	Free Outfall		O2,CV (no Q: WR,SP)
343.00	2.08	Free Outfall		O2,CV (no Q: WR,SP)
343.01	2.13	Free Outfall		SP,O2,CV (no Q: WR)
343.02	2.22	Free Outfall		SP,O2,CV (no Q: WR)
343.03	2.33	Free Outfall		SP,O2,CV (no Q: WR)
343.04	2.47	Free Outfall		SP,O2,CV (no Q: WR)
343.05	2.62	Free Outfall		SP,O2,CV (no Q: WR)
343.06	2.79	Free Outfall		SP,O2,CV (no Q: WR)
343.07	2.97	Free Outfall		SP,O2,CV (no Q: WR)
343.08	3.17	Free Outfall		SP,O2,CV (no Q: WR)
343.09	3.37	Free Outfall		SP,O2,CV (no Q: WR)
343.10	3.60	Free Outfall		SP,O2,CV (no Q: WR)
343.11	3.83	Free Outfall		SP,O2,CV (no Q: WR)
343.12	4.06	Free Outfall		SP,O2,CV (no Q: WR)
343.13	4.31	Free Outfall		SP,O2,CV (no Q: WR)
343.14	4.56	Free Outfall		SP,O2,CV (no Q: WR)
343.15	4.82	Free Outfall		SP,O2,CV (no Q: WR)
343.16	5.09	Free Outfall		SP,O2,CV (no Q: WR)
343.17	5.37	Free Outfall		SP,O2,CV (no Q: WR)
343.18	5.66	Free Outfall		SP,O2,CV (no Q: WR)
343.19	5.96	Free Outfall		SP,O2,CV (no Q: WR)
343.20	6.26	Free Outfall		SP,O2,CV (no Q: WR)
343.21	6.58	Free Outfall		SP,O2,CV (no Q: WR)
343.22	6.90	Free Outfall		SP,O2,CV (no Q: WR)
343.23	7.23	Free Outfall		SP,O2,CV (no Q: WR)
343.24	7.56	Free Outfall		SP,O2,CV (no Q: WR)
343.25	7.90	Free Outfall		SP,O2,CV (no Q: WR)
343.26	8.25	Free Outfall		SP,O2,CV (no Q: WR)
343.27	8.61	Free Outfall		SP,O2,CV (no Q: WR)
343.28	8.97	Free Outfall		SP,O2,CV (no Q: WR)
343.29	9.34	Free Outfall		SP,O2,CV (no Q: WR)
343.30	9.72	Free Outfall		SP,O2,CV (no Q: WR)
343.31	10.10	Free Outfall		SP,O2,CV (no Q: WR)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
343.32	10.49	Free Outfall		SP,O2,CV (no Q: WR)
343.33	10.88	Free Outfall		SP,O2,CV (no Q: WR)
343.34	11.29	Free Outfall		SP,O2,CV (no Q: WR)
343.35	11.69	Free Outfall		SP,O2,CV (no Q: WR)
343.36	12.10	Free Outfall		SP,O2,CV (no Q: WR)
343.37	12.52	Free Outfall		SP,O2,CV (no Q: WR)
343.38	12.95	Free Outfall		SP,O2,CV (no Q: WR)
343.39	13.38	Free Outfall		SP,O2,CV (no Q: WR)
343.40	13.81	Free Outfall		SP,O2,CV (no Q: WR)
343.41	14.25	Free Outfall		SP,O2,CV (no Q: WR)
343.42	14.70	Free Outfall		SP,O2,CV (no Q: WR)
343.43	15.15	Free Outfall		SP,O2,CV (no Q: WR)
343.44	15.61	Free Outfall		SP,O2,CV (no Q: WR)
343.45	16.07	Free Outfall		SP,O2,CV (no Q: WR)
343.46	16.54	Free Outfall		SP,O2,CV (no Q: WR)
343.47	17.01	Free Outfall		SP,O2,CV (no Q: WR)
343.48	17.49	Free Outfall		SP,O2,CV (no Q: WR)
343.49	17.97	Free Outfall		SP,O2,CV (no Q: WR)
343.50	18.45	Free Outfall		SP,O2,CV (no Q: WR)
343.51	19.03	Free Outfall		WR,SP,O2,CV
343.52	19.69	Free Outfall		WR,SP,O2,CV
343.53	20.41	Free Outfall		WR,SP,O2,CV
343.54	21.16	Free Outfall		WR,SP,O2,CV
343.55	21.96	Free Outfall		WR,SP,O2,CV
343.56	22.79	Free Outfall		WR,SP,O2,CV
343.57	23.65	Free Outfall		WR,SP,O2,CV
343.58	24.54	Free Outfall		WR,SP,O2,CV
343.59	25.46	Free Outfall		WR,SP,O2,CV
343.60	26.40	Free Outfall		WR,SP,O2,CV
343.61	27.37	Free Outfall		WR,SP,O2,CV
343.62	28.37	Free Outfall		WR,SP,O2,CV
343.63	29.38	Free Outfall		WR,SP,O2,CV
343.64	30.41	Free Outfall		WR,SP,O2,CV
343.65	31.46	Free Outfall		WR,SP,O2,CV
343.66	32.54	Free Outfall		WR,SP,O2,CV
343.67	33.63	Free Outfall		WR,SP,O2,CV
343.68	34.74	Free Outfall		WR,SP,O2,CV
343.69	35.87	Free Outfall		WR,SP,O2,CV

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
343.70	37.02	Free Outfall		WR,SP,O2,CV
343.71	38.18	Free Outfall		WR,SP,O2,CV
343.72	39.37	Free Outfall		WR,SP,O2,CV
343.73	40.57	Free Outfall		WR,SP,O2,CV
343.74	41.78	Free Outfall		WR,SP,O2,CV
343.75	43.02	Free Outfall		WR,SP,O2,CV
343.76	44.26	Free Outfall		WR,SP,O2,CV
343.77	45.52	Free Outfall		WR,SP,O2,CV
343.78	46.80	Free Outfall		WR,SP,O2,CV
343.79	48.09	Free Outfall		WR,SP,O2,CV
343.80	49.38	Free Outfall		WR,SP,CV (no Q: O2)
343.81	50.69	Free Outfall		WR,SP,CV (no Q: O2)
343.82	52.01	Free Outfall		WR,SP,CV (no Q: O2)
343.83	53.34	Free Outfall		WR,SP,CV (no Q: O2)
343.84	54.68	Free Outfall		WR,SP,CV (no Q: O2)
343.85	56.03	Free Outfall		WR,SP,CV (no Q: O2)
343.86	57.95	Free Outfall		WR,SP,CV (no Q: O2)
343.87	58.81	Free Outfall		WR,SP,CV (no Q: O2)
343.88	59.68	Free Outfall		WR,SP,CV (no Q: O2)
343.89	60.56	Free Outfall		WR,SP,CV (no Q: O2)
343.90	61.44	Free Outfall		WR,SP,CV (no Q: O2)
343.91	62.35	Free Outfall		WR,SP,CV (no Q: O2)
343.92	63.26	Free Outfall		WR,SP,CV (no Q: O2)
343.93	64.18	Free Outfall		WR,SP,CV (no Q: O2)
343.94	65.12	Free Outfall		WR,SP,CV (no Q: O2)
343.95	66.05	Free Outfall		WR,SP,CV (no Q: O2)
343.96	67.00	Free Outfall		WR,SP,CV (no Q: O2)
343.97	67.96	Free Outfall		WR,SP,CV (no Q: O2)
343.98	68.94	Free Outfall		WR,SP,CV (no Q: O2)
343.99	69.91	Free Outfall		WR,SP,CV (no Q: O2)
344.00	70.91	Free Outfall		WR,SP,CV (no Q: O2)
344.01	71.91	Free Outfall		WR,SP,CV (no Q: O2)
344.02	72.91	Free Outfall		WR,SP,CV (no Q: O2)
344.03	73.93	Free Outfall		WR,SP,CV (no Q: O2)
344.04	74.95	Free Outfall		WR,SP,CV (no Q: O2)
344.05	76.00	Free Outfall		WR,SP,CV (no Q: O2)
344.06	77.04	Free Outfall		WR,SP,CV (no Q: O2)
344.07	78.09	Free Outfall		WR,SP,CV (no Q: O2)

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***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
344.08	79.15	Free Outfall		WR,SP,CV (no Q: O2)
344.09	80.23	Free Outfall		WR,SP,CV (no Q: O2)
344.10	81.31	Free Outfall		WR,SP,CV (no Q: O2)
344.11	82.39	Free Outfall		WR,SP,CV (no Q: O2)
344.12	83.49	Free Outfall		WR,SP,CV (no Q: O2)
344.13	84.60	Free Outfall		WR,SP,CV (no Q: O2)
344.14	85.71	Free Outfall		WR,SP,CV (no Q: O2)
344.15	86.83	Free Outfall		WR,SP,CV (no Q: O2)
344.16	87.95	Free Outfall		WR,SP,CV (no Q: O2)
344.17	89.09	Free Outfall		WR,SP,CV (no Q: O2)
344.18	90.23	Free Outfall		WR,SP,CV (no Q: O2)
344.19	91.39	Free Outfall		WR,SP,CV (no Q: O2)
344.20	92.55	Free Outfall		WR,SP,CV (no Q: O2)
344.21	93.72	Free Outfall		WR,SP,CV (no Q: O2)
344.22	94.90	Free Outfall		WR,SP,CV (no Q: O2)
344.23	96.08	Free Outfall		WR,SP,CV (no Q: O2)
344.24	97.27	Free Outfall		WR,SP,CV (no Q: O2)
344.25	98.48	Free Outfall		WR,SP,CV (no Q: O2)
344.26	99.69	Free Outfall		WR,SP,CV (no Q: O2)
344.27	100.90	Free Outfall		WR,SP,CV (no Q: O2)
344.28	102.12	Free Outfall		WR,SP,CV (no Q: O2)
344.29	103.35	Free Outfall		WR,SP,CV (no Q: O2)
344.30	104.59	Free Outfall		WR,SP,CV (no Q: O2)
344.31	105.83	Free Outfall		WR,SP,CV (no Q: O2)
344.32	107.09	Free Outfall		WR,SP,CV (no Q: O2)
344.33	108.34	Free Outfall		WR,SP,CV (no Q: O2)
344.34	109.61	Free Outfall		WR,SP,CV (no Q: O2)
344.35	110.89	Free Outfall		WR,SP,CV (no Q: O2)
344.36	112.16	Free Outfall		WR,SP,CV (no Q: O2)
344.37	113.45	Free Outfall		WR,SP,CV (no Q: O2)
344.38	114.74	Free Outfall		WR,SP,CV (no Q: O2)
344.39	116.04	Free Outfall		WR,SP,CV (no Q: O2)
344.40	117.35	Free Outfall		WR,SP,CV (no Q: O2)
344.41	118.66	Free Outfall		WR,SP,CV (no Q: O2)
344.42	119.98	Free Outfall		WR,SP,CV (no Q: O2)
344.43	121.31	Free Outfall		WR,SP,CV (no Q: O2)
344.44	122.65	Free Outfall		WR,SP,CV (no Q: O2)
344.45	124.00	Free Outfall		WR,SP,CV (no Q: O2)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
344.46	125.34	Free Outfall		WR,SP,CV (no Q: O2)
344.47	126.70	Free Outfall		WR,SP,CV (no Q: O2)
344.48	128.06	Free Outfall		WR,SP,CV (no Q: O2)
344.49	129.43	Free Outfall		WR,SP,CV (no Q: O2)
344.50	130.81	Free Outfall		WR,SP,CV (no Q: O2)
344.51	132.18	Free Outfall		WR,SP,CV (no Q: O2)
344.52	133.57	Free Outfall		WR,SP,CV (no Q: O2)
344.53	134.97	Free Outfall		WR,SP,CV (no Q: O2)
344.54	136.37	Free Outfall		WR,SP,CV (no Q: O2)
344.55	137.77	Free Outfall		WR,SP,CV (no Q: O2)
344.56	139.19	Free Outfall		WR,SP,CV (no Q: O2)
344.57	140.61	Free Outfall		WR,SP,CV (no Q: O2)
344.58	142.03	Free Outfall		WR,SP,CV (no Q: O2)
344.59	143.47	Free Outfall		WR,SP,CV (no Q: O2)
344.60	144.91	Free Outfall		WR,SP,CV (no Q: O2)
344.61	146.35	Free Outfall		WR,SP,CV (no Q: O2)
344.62	147.80	Free Outfall		WR,SP,CV (no Q: O2)
344.63	149.26	Free Outfall		WR,SP,CV (no Q: O2)
344.64	150.71	Free Outfall		WR,SP,CV (no Q: O2)
344.65	152.18	Free Outfall		WR,SP,CV (no Q: O2)
344.66	153.65	Free Outfall		WR,SP,CV (no Q: O2)
344.67	155.14	Free Outfall		WR,SP,CV (no Q: O2)
344.68	156.63	Free Outfall		WR,SP,CV (no Q: O2)
344.69	158.12	Free Outfall		WR,SP,CV (no Q: O2)
344.70	159.62	Free Outfall		WR,SP,CV (no Q: O2)
344.71	161.13	Free Outfall		WR,SP,CV (no Q: O2)
344.72	162.64	Free Outfall		WR,SP,CV (no Q: O2)
344.73	164.15	Free Outfall		WR,SP,CV (no Q: O2)
344.74	165.67	Free Outfall		WR,SP,CV (no Q: O2)
344.75	167.20	Free Outfall		WR,SP,CV (no Q: O2)
344.76	168.74	Free Outfall		WR,SP,CV (no Q: O2)
344.77	170.27	Free Outfall		WR,SP,CV (no Q: O2)
344.78	171.82	Free Outfall		WR,SP,CV (no Q: O2)
344.79	173.38	Free Outfall		WR,SP,CV (no Q: O2)
344.80	174.93	Free Outfall		WR,SP,CV (no Q: O2)
344.81	176.50	Free Outfall		WR,SP,CV (no Q: O2)
344.82	178.06	Free Outfall		WR,SP,CV (no Q: O2)
344.83	179.63	Free Outfall		WR,SP,CV (no Q: O2)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
344.84	181.22	Free Outfall		WR,SP,CV (no Q: O2)
344.85	182.80	Free Outfall		WR,SP,CV (no Q: O2)
344.86	184.39	Free Outfall		WR,SP,CV (no Q: O2)
344.87	185.99	Free Outfall		WR,SP,CV (no Q: O2)
344.88	187.59	Free Outfall		WR,SP,CV (no Q: O2)
344.89	189.20	Free Outfall		WR,SP,CV (no Q: O2)
344.90	190.80	Free Outfall		WR,SP,CV (no Q: O2)
344.91	192.42	Free Outfall		WR,SP,CV (no Q: O2)
344.92	194.05	Free Outfall		WR,SP,CV (no Q: O2)
344.93	195.67	Free Outfall		WR,SP,CV (no Q: O2)
344.94	197.31	Free Outfall		WR,SP,CV (no Q: O2)
344.95	198.94	Free Outfall		WR,SP,CV (no Q: O2)
344.96	200.58	Free Outfall		WR,SP,CV (no Q: O2)
344.97	202.22	Free Outfall		WR,SP,CV (no Q: O2)
344.98	203.88	Free Outfall		WR,SP,CV (no Q: O2)
344.99	205.54	Free Outfall		WR,SP,CV (no Q: O2)
345.00	207.20	Free Outfall		WR,SP,CV (no Q: O2)

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.00	.00	.000	.8000	.00	.00	.00
338.01	.00	.008	.8006	.00	.00	19.39
338.02	.00	.016	.8013	.00	.00	38.73
338.03	.00	.024	.8019	.00	.00	58.15
338.04	.00	.032	.8026	.00	.00	77.58
338.05	.00	.040	.8032	.00	.00	96.97
338.06	.00	.048	.8039	.00	.00	116.44
338.07	.00	.056	.8045	.00	.00	135.92
338.08	.00	.064	.8052	.00	.00	155.36
338.09	.00	.072	.8058	.00	.00	174.87
338.10	.00	.080	.8065	.00	.00	194.40
338.11	.00	.088	.8071	.00	.00	213.88
338.12	.02	.096	.8078	.00	.02	233.46
338.13	.02	.105	.8084	.00	.02	253.04
338.14	.02	.113	.8091	.00	.02	272.63
338.15	.02	.121	.8097	.00	.02	292.17
338.16	.05	.129	.8104	.00	.05	311.83
338.17	.12	.137	.8110	.00	.12	331.54
338.18	.12	.145	.8117	.00	.12	351.13
338.19	.15	.153	.8124	.00	.15	370.83

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.20	.17	.161	.8130	.00	.17	390.54
338.21	.17	.169	.8137	.00	.17	410.18
338.22	.17	.178	.8143	.00	.17	429.90
338.23	.17	.186	.8150	.00	.17	449.63
338.24	.24	.194	.8156	.00	.24	469.38
338.25	.24	.202	.8163	.00	.24	489.16
338.26	.25	.210	.8169	.00	.25	508.94
338.27	.25	.218	.8176	.00	.25	528.68
338.28	.25	.227	.8182	.00	.25	548.50
338.29	.26	.235	.8189	.00	.26	568.34
338.30	.26	.243	.8195	.00	.26	588.12
338.31	.26	.251	.8202	.00	.26	607.98
338.32	.39	.259	.8209	.00	.39	627.99
338.33	.39	.268	.8215	.00	.39	647.82
338.34	.39	.276	.8222	.00	.39	667.73
338.35	.39	.284	.8228	.00	.39	687.65
338.36	.42	.292	.8235	.00	.42	707.56
338.37	.43	.300	.8241	.00	.43	727.52
338.38	.53	.309	.8248	.00	.53	747.60
338.39	.53	.317	.8255	.00	.53	767.58

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.40	.55	.325	.8261	.00	.55	787.55
338.41	.55	.333	.8268	.00	.55	807.57
338.42	.57	.342	.8274	.00	.57	827.62
338.43	.58	.350	.8281	.00	.58	847.62
338.44	.58	.358	.8287	.00	.58	867.69
338.45	.58	.367	.8294	.00	.58	887.77
338.46	.58	.375	.8301	.00	.58	907.81
338.47	.58	.383	.8307	.00	.58	927.92
338.48	.58	.392	.8314	.00	.58	948.06
338.49	.58	.400	.8320	.00	.58	968.14
338.50	.58	.408	.8327	.00	.58	988.31
338.51	.58	.416	.8334	.00	.58	1008.48
338.52	.58	.425	.8340	.00	.58	1028.62
338.53	.58	.433	.8347	.00	.58	1048.83
338.54	.58	.442	.8354	.00	.58	1069.06
338.55	.58	.450	.8360	.00	.58	1089.24
338.56	.58	.458	.8367	.00	.58	1109.50
338.57	.58	.467	.8373	.00	.58	1129.77
338.58	.58	.475	.8380	.00	.58	1150.00
338.59	.58	.483	.8387	.00	.58	1170.31

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.60	.58	.492	.8393	.00	.58	1190.63
338.61	.58	.500	.8400	.00	.58	1210.91
338.62	.58	.509	.8407	.00	.58	1231.27
338.63	.58	.517	.8413	.00	.58	1251.64
338.64	.58	.525	.8420	.00	.58	1272.03
338.65	.58	.534	.8426	.00	.58	1292.37
338.66	.58	.542	.8433	.00	.58	1312.79
338.67	.58	.551	.8440	.00	.58	1333.22
338.68	.58	.559	.8446	.00	.58	1353.61
338.69	.58	.568	.8453	.00	.58	1374.08
338.70	.58	.576	.8460	.00	.58	1394.57
338.71	.58	.584	.8466	.00	.58	1415.00
338.72	.58	.593	.8473	.00	.58	1435.52
338.73	.58	.601	.8480	.00	.58	1456.05
338.74	.59	.610	.8486	.00	.59	1476.54
338.75	.59	.618	.8493	.00	.59	1497.12
338.76	.60	.627	.8500	.00	.60	1517.70
338.77	.60	.635	.8506	.00	.60	1538.24
338.78	.61	.644	.8513	.00	.61	1558.86
338.79	.61	.652	.8520	.00	.61	1579.49

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.80	.62	.661	.8526	.00	.62	1600.08
338.81	.63	.669	.8533	.00	.63	1620.75
338.82	.63	.678	.8540	.00	.63	1641.44
338.83	.64	.687	.8547	.00	.64	1662.08
338.84	.65	.695	.8553	.00	.65	1682.80
338.85	.65	.704	.8560	.00	.65	1703.53
338.86	.66	.712	.8567	.00	.66	1724.22
338.87	.67	.721	.8573	.00	.67	1744.98
338.88	.68	.729	.8580	.00	.68	1765.77
338.89	.68	.738	.8587	.00	.68	1786.56
338.90	.69	.747	.8593	.00	.69	1807.32
338.91	.69	.755	.8600	.00	.69	1828.15
338.92	.70	.764	.8607	.00	.70	1848.99
338.93	.71	.772	.8614	.00	.71	1869.79
338.94	.71	.781	.8620	.00	.71	1890.67
338.95	.72	.790	.8627	.00	.72	1911.57
338.96	.73	.798	.8634	.00	.73	1932.42
338.97	.73	.807	.8640	.00	.73	1953.35
338.98	.74	.816	.8647	.00	.74	1974.29
338.99	.75	.824	.8654	.00	.75	1995.19

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.00	.75	.833	.8661	.00	.75	2016.17
339.01	.76	.841	.8667	.00	.76	2037.16
339.02	.76	.850	.8674	.00	.76	2058.11
339.03	.78	.859	.8681	.00	.78	2079.14
339.04	.79	.868	.8688	.00	.79	2100.18
339.05	.81	.876	.8694	.00	.81	2121.19
339.06	.83	.885	.8701	.00	.83	2142.28
339.07	.84	.894	.8708	.00	.84	2163.38
339.08	.87	.902	.8715	.00	.87	2184.45
339.09	.89	.911	.8721	.00	.89	2205.59
339.10	.91	.920	.8728	.00	.91	2226.75
339.11	.94	.928	.8735	.00	.94	2247.86
339.12	.96	.937	.8742	.00	.96	2269.05
339.13	.99	.946	.8749	.00	.99	2290.26
339.14	1.02	.955	.8755	.00	1.02	2311.49
339.15	1.05	.963	.8762	.00	1.05	2332.67
339.16	1.08	.972	.8769	.00	1.08	2353.93
339.17	1.11	.981	.8776	.00	1.11	2375.22
339.18	1.13	.990	.8782	.00	1.13	2396.44
339.19	1.15	.999	.8789	.00	1.15	2417.74

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.20	1.17	1.007	.8796	.00	1.17	2439.06
339.21	1.19	1.016	.8803	.00	1.19	2460.33
339.22	1.21	1.025	.8810	.00	1.21	2481.68
339.23	1.23	1.034	.8816	.00	1.23	2503.05
339.24	1.25	1.043	.8823	.00	1.25	2524.36
339.25	1.26	1.051	.8830	.00	1.26	2545.76
339.26	1.28	1.060	.8837	.00	1.28	2567.18
339.27	1.30	1.069	.8844	.00	1.30	2588.54
339.28	1.31	1.078	.8850	.00	1.31	2609.99
339.29	1.33	1.087	.8857	.00	1.33	2631.45
339.30	1.34	1.096	.8864	.00	1.34	2652.86
339.31	1.36	1.105	.8871	.00	1.36	2674.36
339.32	1.37	1.113	.8878	.00	1.37	2695.87
339.33	1.39	1.122	.8884	.00	1.39	2717.33
339.34	1.40	1.131	.8891	.00	1.40	2738.88
339.35	1.42	1.140	.8898	.00	1.42	2760.44
339.36	1.43	1.149	.8905	.00	1.43	2781.95
339.37	1.45	1.158	.8912	.00	1.45	2803.54
339.38	1.47	1.167	.8919	.00	1.47	2825.16
339.39	1.48	1.176	.8925	.00	1.48	2846.79

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.40	1.49	1.185	.8932	.00	1.49	2868.36
339.41	1.51	1.194	.8939	.00	1.51	2890.02
339.42	1.52	1.203	.8946	.00	1.52	2911.70
339.43	1.53	1.211	.8953	.00	1.53	2933.32
339.44	1.55	1.220	.8960	.00	1.55	2955.03
339.45	1.56	1.229	.8967	.00	1.56	2976.76
339.46	1.57	1.238	.8973	.00	1.57	2998.43
339.47	1.59	1.247	.8980	.00	1.59	3020.19
339.48	1.60	1.256	.8987	.00	1.60	3041.96
339.49	1.61	1.265	.8994	.00	1.61	3063.69
339.50	1.62	1.274	.9001	.00	1.62	3085.50
339.51	1.64	1.283	.9008	.00	1.64	3107.32
339.52	1.65	1.292	.9015	.00	1.65	3129.09
339.53	1.66	1.301	.9021	.00	1.66	3150.95
339.54	1.67	1.310	.9028	.00	1.67	3172.83
339.55	1.69	1.319	.9035	.00	1.69	3194.65
339.56	1.70	1.328	.9042	.00	1.70	3216.56
339.57	1.71	1.338	.9049	.00	1.71	3238.48
339.58	1.72	1.347	.9056	.00	1.72	3260.35
339.59	1.73	1.356	.9063	.00	1.73	3282.31

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.60	1.74	1.365	.9070	.00	1.74	3304.28
339.61	1.76	1.374	.9077	.00	1.76	3326.21
339.62	1.77	1.383	.9083	.00	1.77	3348.21
339.63	1.78	1.392	.9090	.00	1.78	3370.23
339.64	1.79	1.401	.9097	.00	1.79	3392.27
339.65	1.80	1.410	.9104	.00	1.80	3414.26
339.66	1.81	1.419	.9111	.00	1.81	3436.34
339.67	1.82	1.428	.9118	.00	1.82	3458.43
339.68	1.83	1.437	.9125	.00	1.83	3480.47
339.69	1.85	1.447	.9132	.00	1.85	3502.59
339.70	1.86	1.456	.9139	.00	1.86	3524.73
339.71	1.87	1.465	.9146	.00	1.87	3546.82
339.72	1.88	1.474	.9153	.00	1.88	3568.99
339.73	1.89	1.483	.9160	.00	1.89	3591.18
339.74	1.90	1.492	.9166	.00	1.90	3613.32
339.75	1.91	1.502	.9173	.00	1.91	3635.54
339.76	1.92	1.511	.9180	.00	1.92	3657.78
339.77	1.93	1.520	.9187	.00	1.93	3679.97
339.78	1.94	1.529	.9194	.00	1.94	3702.25
339.79	1.95	1.538	.9201	.00	1.95	3724.54

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.80	1.96	1.547	.9208	.00	1.96	3746.78
339.81	1.97	1.557	.9215	.00	1.97	3769.10
339.82	1.98	1.566	.9222	.00	1.98	3791.44
339.83	1.99	1.575	.9229	.00	1.99	3813.73
339.84	2.00	1.584	.9236	.00	2.00	3836.11
339.85	2.01	1.594	.9243	.00	2.01	3858.50
339.86	2.02	1.603	.9250	.00	2.02	3880.84
339.87	2.03	1.612	.9257	.00	2.03	3903.26
339.88	2.04	1.621	.9264	.00	2.04	3925.70
339.89	2.05	1.631	.9271	.00	2.05	3948.16
339.90	2.06	1.640	.9278	.00	2.06	3970.57
339.91	2.07	1.649	.9285	.00	2.07	3993.06
339.92	2.08	1.658	.9292	.00	2.08	4015.57
339.93	2.09	1.668	.9299	.00	2.09	4038.03
339.94	2.10	1.677	.9306	.00	2.10	4060.57
339.95	2.11	1.686	.9313	.00	2.11	4083.13
339.96	2.12	1.696	.9320	.00	2.12	4105.64
339.97	2.13	1.705	.9327	.00	2.13	4128.23
339.98	2.14	1.714	.9334	.00	2.14	4150.84
339.99	2.15	1.724	.9341	.00	2.15	4173.40

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
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No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.00	2.16	1.733	.9348	.00	2.16	4196.05
340.01	2.17	1.742	.9355	.00	2.17	4218.71
340.02	2.18	1.752	.9362	.00	2.18	4241.32
340.03	2.19	1.761	.9369	.00	2.19	4264.01
340.04	2.20	1.770	.9376	.00	2.20	4286.72
340.05	2.21	1.780	.9383	.00	2.21	4309.38
340.06	2.22	1.789	.9390	.00	2.22	4332.13
340.07	2.22	1.799	.9397	.00	2.22	4354.89
340.08	2.23	1.808	.9404	.00	2.23	4377.60
340.09	2.24	1.817	.9411	.00	2.24	4400.40
340.10	2.25	1.827	.9418	.00	2.25	4423.21
340.11	2.26	1.836	.9425	.00	2.26	4445.97
340.12	2.27	1.846	.9432	.00	2.27	4468.82
340.13	2.28	1.855	.9439	.00	2.28	4491.69
340.14	2.29	1.865	.9446	.00	2.29	4514.57
340.15	2.30	1.874	.9453	.00	2.30	4537.40
340.16	2.31	1.883	.9460	.00	2.31	4560.31
340.17	2.31	1.893	.9467	.00	2.31	4583.24
340.18	2.32	1.902	.9474	.00	2.32	4606.12
340.19	2.33	1.912	.9481	.00	2.33	4629.09

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
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Outflow HYG file = NONE STORED - POND 2 OUT 2

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Pond Volume Data = POND 2
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No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
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Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.20	2.34	1.921	.9488	.00	2.34	4652.07
340.21	2.35	1.931	.9495	.00	2.35	4675.01
340.22	2.36	1.940	.9502	.00	2.36	4698.02
340.23	2.37	1.950	.9509	.00	2.37	4721.06
340.24	2.38	1.959	.9516	.00	2.38	4744.04
340.25	2.38	1.969	.9523	.00	2.38	4767.11
340.26	2.39	1.978	.9530	.00	2.39	4790.20
340.27	2.40	1.988	.9538	.00	2.40	4813.23
340.28	2.41	1.997	.9545	.00	2.41	4836.35
340.29	2.42	2.007	.9552	.00	2.42	4859.49
340.30	2.43	2.017	.9559	.00	2.43	4882.57
340.31	2.44	2.026	.9566	.00	2.44	4905.74
340.32	2.44	2.036	.9573	.00	2.44	4928.93
340.33	2.45	2.045	.9580	.00	2.45	4952.07
340.34	2.46	2.055	.9587	.00	2.46	4975.29
340.35	2.47	2.064	.9594	.00	2.47	4998.53
340.36	2.48	2.074	.9601	.00	2.48	5021.72
340.37	2.49	2.084	.9608	.00	2.49	5044.99
340.38	2.49	2.093	.9615	.00	2.49	5068.28
340.39	2.50	2.103	.9623	.00	2.50	5091.59

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.40	2.51	2.113	.9630	.00	2.51	5114.85
340.41	2.52	2.122	.9637	.00	2.52	5138.19
340.42	2.53	2.132	.9644	.00	2.53	5161.55
340.43	2.54	2.141	.9651	.00	2.54	5184.86
340.44	2.54	2.151	.9658	.00	2.54	5208.25
340.45	2.55	2.161	.9665	.00	2.55	5231.67
340.46	2.56	2.170	.9672	.00	2.56	5255.02
340.47	2.57	2.180	.9679	.00	2.57	5278.47
340.48	2.58	2.190	.9687	.00	2.58	5301.93
340.49	2.58	2.199	.9694	.00	2.58	5325.34
340.50	2.59	2.209	.9701	.00	2.59	5348.84
340.51	2.60	2.219	.9708	.00	2.60	5372.36
340.52	2.61	2.229	.9715	.00	2.61	5395.82
340.53	2.62	2.238	.9722	.00	2.62	5419.37
340.54	2.62	2.248	.9729	.00	2.62	5442.94
340.55	2.63	2.258	.9737	.00	2.63	5466.45
340.56	2.64	2.268	.9744	.00	2.64	5490.05
340.57	2.65	2.277	.9751	.00	2.65	5513.67
340.58	2.65	2.287	.9758	.00	2.65	5537.24
340.59	2.66	2.297	.9765	.00	2.66	5560.89

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
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Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.60	2.67	2.307	.9772	.00	2.67	5584.56
340.61	2.68	2.316	.9779	.00	2.68	5608.18
340.62	2.69	2.326	.9787	.00	2.69	5631.88
340.63	2.69	2.336	.9794	.00	2.69	5655.61
340.64	2.70	2.346	.9801	.00	2.70	5679.35
340.65	2.71	2.356	.9808	.00	2.71	5703.03
340.66	2.72	2.365	.9815	.00	2.72	5726.81
340.67	2.72	2.375	.9822	.00	2.72	5750.60
340.68	2.73	2.385	.9830	.00	2.73	5774.34
340.69	2.74	2.395	.9837	.00	2.74	5798.16
340.70	2.75	2.405	.9844	.00	2.75	5822.01
340.71	2.75	2.414	.9851	.00	2.75	5845.80
340.72	2.76	2.424	.9858	.00	2.76	5869.68
340.73	2.77	2.434	.9866	.00	2.77	5893.57
340.74	2.78	2.444	.9873	.00	2.78	5917.42
340.75	2.78	2.454	.9880	.00	2.78	5941.35
340.76	2.79	2.464	.9887	.00	2.79	5965.30
340.77	2.80	2.474	.9894	.00	2.80	5989.19
340.78	2.81	2.484	.9902	.00	2.81	6013.17
340.79	2.81	2.494	.9909	.00	2.81	6037.17

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.80	2.82	2.503	.9916	.00	2.82	6061.12
340.81	2.83	2.513	.9923	.00	2.83	6085.16
340.82	2.84	2.523	.9930	.00	2.84	6109.21
340.83	2.84	2.533	.9938	.00	2.84	6133.21
340.84	2.85	2.543	.9945	.00	2.85	6157.30
340.85	2.86	2.553	.9952	.00	2.86	6181.40
340.86	2.87	2.563	.9959	.00	2.87	6205.45
340.87	2.87	2.573	.9966	.00	2.87	6229.59
340.88	2.88	2.583	.9974	.00	2.88	6253.75
340.89	2.89	2.593	.9981	.00	2.89	6277.93
340.90	2.89	2.603	.9988	.00	2.89	6302.05
340.91	2.90	2.613	.9995	.00	2.90	6326.26
340.92	2.91	2.623	1.0003	.00	2.91	6350.49
340.93	2.92	2.633	1.0010	.00	2.92	6374.66
340.94	2.92	2.643	1.0017	.00	2.92	6398.92
340.95	2.93	2.653	1.0024	.00	2.93	6423.20
340.96	2.94	2.663	1.0032	.00	2.94	6447.43
340.97	2.95	2.673	1.0039	.00	2.95	6471.74
340.98	2.95	2.683	1.0046	.00	2.95	6496.08
340.99	2.96	2.693	1.0053	.00	2.96	6520.36

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
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Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.00	2.97	2.703	1.0061	.00	2.97	6544.72
341.01	2.97	2.713	1.0068	.00	2.97	6569.11
341.02	2.98	2.723	1.0075	.00	2.98	6593.44
341.03	2.99	2.733	1.0082	.00	2.99	6617.86
341.04	2.99	2.744	1.0090	.00	2.99	6642.30
341.05	3.00	2.754	1.0097	.00	3.00	6666.68
341.06	3.01	2.764	1.0104	.00	3.01	6691.16
341.07	3.02	2.774	1.0112	.00	3.02	6715.65
341.08	3.02	2.784	1.0119	.00	3.02	6740.08
341.09	3.03	2.794	1.0126	.00	3.03	6764.61
341.10	3.04	2.804	1.0133	.00	3.04	6789.16
341.11	3.04	2.814	1.0141	.00	3.04	6813.65
341.12	3.05	2.82[illegible]	1.0148	.00	3.05	6838.23
341.13	3.06	2.835	1.0155	.00	3.06	6862.82
341.14	3.06	2.845	1.0163	.00	3.06	6887.44
341.15	3.07	2.855	1.0170	.00	3.07	6912.00
341.16	3.08	2.865	1.0177	.00	3.08	6936.65
341.17	3.08	2.875	1.0185	.00	3.08	6961.32
341.18	3.09	2.885	1.0192	.00	3.09	6985.93
341.19	3.10	2.896	1.0199	.00	3.10	7010.63

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
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Pond Volume Data = POND 2
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No Infiltration

INITIAL CONDITIONS

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Starting Outflow = .00 cfs
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Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.20	3.10	2.906	1.0206	.00	3.10	7035.35
341.21	3.11	2.916	1.0214	.00	3.11	7060.02
341.22	3.12	2.926	1.0221	.00	3.12	7084.77
341.23	3.12	2.937	1.0228	.00	3.12	7109.55
341.24	3.13	2.947	1.0236	.00	3.13	7134.27
341.25	3.14	2.957	1.0243	.00	3.14	7159.08
341.26	3.14	2.967	1.0250	.00	3.14	7183.90
341.27	3.15	2.977	1.0258	.00	3.15	7208.67
341.28	3.16	2.988	1.0265	.00	3.16	7233.54
341.29	3.16	2.998	1.0272	.00	3.16	7258.42
341.30	3.17	3.008	1.0280	.00	3.17	7283.24
341.31	3.18	3.019	1.0287	.00	3.18	7308.16
341.32	3.18	3.029	1.0294	.00	3.18	7333.09
341.33	3.19	3.039	1.0302	.00	3.19	7357.97
341.34	3.20	3.049	1.0309	.00	3.20	7382.94
341.35	3.20	3.060	1.0316	.00	3.20	7407.93
341.36	3.21	3.070	1.0324	.00	3.21	7432.86
341.37	3.22	3.080	1.0331	.00	3.22	7457.88
341.38	3.22	3.091	1.0339	.00	3.22	7482.92
341.39	3.23	3.101	1.0346	.00	3.23	7507.98

LEVEL POOL ROUTING DATA

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Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.40	3.24	3.111	1.0353	.00	3.24	7532.98
341.41	3.24	3.122	1.0361	.00	3.24	7558.08
341.42	3.25	3.132	1.0368	.00	3.25	7583.19
341.43	3.26	3.143	1.0375	.00	3.26	7608.24
341.44	3.26	3.153	1.0383	.00	3.26	7633.39
341.45	3.27	3.163	1.0390	.00	3.27	7658.56
341.46	3.28	3.174	1.0398	.00	3.28	7683.66
341.47	3.28	3.184	1.0405	.00	3.28	7708.87
341.48	3.29	3.195	1.0412	.00	3.29	7734.09
341.49	3.29	3.205	1.0420	.00	3.29	7759.25
341.50	3.30	3.215	1.0427	.00	3.30	7784.50
341.51	3.31	3.226	1.0434	.00	3.31	7809.78
341.52	3.31	3.236	1.0442	.00	3.31	7834.99
341.53	3.32	3.247	1.0449	.00	3.32	7860.30
341.54	3.33	3.257	1.0457	.00	3.33	7885.63
341.55	3.33	3.268	1.0464	.00	3.33	7910.89
341.56	3.34	3.278	1.0471	.00	3.34	7936.26
341.57	3.35	3.289	1.0479	.00	3.35	7961.64
341.58	3.35	3.299	1.0486	.00	3.35	7986.96
341.59	3.36	3.310	1.0494	.00	3.36	8012.38

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.60	3.36	3.320	1.0501	.00	3.36	8037.81
341.61	3.37	3.331	1.0509	.00	3.37	8063.19
341.62	3.38	3.341	1.0516	.00	3.38	8088.66
341.63	3.38	3.352	1.0523	.00	3.38	8114.15
341.64	3.39	3.362	1.0531	.00	3.39	8139.65
341.65	3.40	3.373	1.0538	.00	3.40	8165.10
341.66	3.40	3.383	1.0546	.00	3.40	8190.64
341.67	3.41	3.394	1.0553	.00	3.41	8216.20
341.68	3.41	3.404	1.0561	.00	3.41	8241.70
341.69	3.42	3.415	1.0568	.00	3.42	8267.30
341.70	3.43	3.425	1.0575	.00	3.43	8292.92
341.71	3.43	3.436	1.0583	.00	3.43	8318.47
341.72	3.44	3.447	1.0590	.00	3.44	8344.12
341.73	3.45	3.457	1.0598	.00	3.45	8369.79
341.74	3.45	3.468	1.0605	.00	3.45	8395.40
341.75	3.46	3.478	1.0613	.00	3.46	8421.10
341.76	3.46	3.489	1.0620	.00	3.46	8446.83
341.77	3.47	3.500	1.0628	.00	3.47	8472.49
341.78	3.48	3.510	1.0635	.00	3.48	8498.25
341.79	3.48	3.521	1.0643	.00	3.48	8524.02

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.80	3.49	3.532	1.0650	.00	3.49	8549.74
341.81	3.49	3.542	1.0658	.00	3.49	8575.56
341.82	3.50	3.553	1.0665	.00	3.50	8601.39
341.83	3.51	3.563	1.0672	.00	3.51	8627.16
341.84	3.51	3.574	1.0680	.00	3.51	8653.03
341.85	3.52	3.585	1.0687	.00	3.52	8678.91
341.86	3.52	3.596	1.0695	.00	3.52	8704.73
341.87	3.53	3.606	1.0702	.00	3.53	8730.66
341.88	3.54	3.617	1.0710	.00	3.54	8756.60
341.89	3.54	3.628	1.0717	.00	3.54	8782.56
341.90	3.55	3.638	1.0725	.00	3.55	8808.45
341.91	3.55	3.649	1.0732	.00	3.55	8834.45
341.92	3.56	3.660	1.0740	.00	3.56	8860.46
341.93	3.57	3.671	1.0747	.00	3.57	8886.41
341.94	3.57	3.681	1.0755	.00	3.57	8912.46
341.95	3.58	3.692	1.0762	.00	3.58	8938.53
341.96	3.58	3.703	1.0770	.00	3.58	8964.53
341.97	3.59	3.714	1.0777	.00	3.59	8990.64
341.98	3.60	3.724	1.0785	.00	3.60	9016.76
341.99	3.60	3.735	1.0792	.00	3.60	9042.82

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.00	3.61	3.746	1.0800	.00	3.61	9068.98
342.01	3.61	3.757	1.0807	.00	3.61	9095.16
342.02	3.62	3.768	1.0815	.00	3.62	9121.27
342.03	3.62	3.778	1.0822	.00	3.62	9147.48
342.04	3.63	3.789	1.0829	.00	3.63	9173.71
342.05	3.64	3.800	1.0836	.00	3.64	9199.88
342.06	3.64	3.811	1.0844	.00	3.64	9226.14
342.07	3.65	3.822	1.0851	.00	3.65	9252.42
342.08	3.65	3.833	1.0858	.00	3.65	9278.64
342.09	3.66	3.844	1.0865	.00	3.66	9304.96
342.10	3.67	3.854	1.0873	.00	3.67	9331.29
342.11	3.67	3.865	1.0880	.00	3.67	9357.56
342.12	3.68	3.876	1.0887	.00	3.68	9383.93
342.13	3.68	3.887	1.0895	.00	3.68	9410.32
342.14	3.69	3.898	1.0902	.00	3.69	9436.73
342.15	3.69	3.909	1.0909	.00	3.69	9463.07
342.16	3.70	3.920	1.0916	.00	3.70	9489.51
342.17	3.71	3.931	1.0924	.00	3.71	9515.97
342.18	3.71	3.942	1.0931	.00	3.71	9542.36
342.19	3.72	3.953	1.0938	.00	3.72	9568.86

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.20	3.72	3.963	1.0946	.00	3.72	9595.37
342.21	3.73	3.974	1.0953	.00	3.73	9621.81
342.22	3.73	3.985	1.0960	.00	3.73	9648.36
342.23	3.74	3.996	1.0968	.00	3.74	9674.93
342.24	3.75	4.007	1.0975	.00	3.75	9701.43
342.25	3.75	4.018	1.0982	.00	3.75	9728.03
342.26	3.76	4.029	1.0989	.00	3.76	9754.64
342.27	3.76	4.040	1.0997	.00	3.76	9781.20
342.28	3.77	4.051	1.1004	.00	3.77	9807.85
342.29	3.77	4.062	1.1011	.00	3.77	9834.52
342.30	3.78	4.073	1.1019	.00	3.78	9861.13
342.31	3.78	4.084	1.1026	.00	3.78	9887.83
342.32	3.79	4.095	1.1033	.00	3.79	9914.56
342.33	3.80	4.106	1.1041	.00	3.80	9941.22
342.34	3.80	4.117	1.1048	.00	3.80	9967.98
342.35	3.81	4.128	1.1055	.00	3.81	9994.75
342.36	3.81	4.140	1.1063	.00	3.81	10021.47
342.37	3.82	4.151	1.1070	.00	3.82	10048.28
342.38	3.82	4.162	1.1078	.00	3.82	10075.11
342.39	3.83	4.173	1.1085	.00	3.83	10101.96

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.40	3.84	4.184	1.1092	.00	3.84	10128.74
342.41	3.84	4.195	1.1100	.00	3.84	10155.63
342.42	3.85	4.206	1.1107	.00	3.85	10182.53
342.43	3.85	4.217	1.1114	.00	3.85	10209.36
342.44	3.86	4.228	1.1122	.00	3.86	10236.30
342.45	3.86	4.239	1.1129	.00	3.86	10263.26
342.46	3.87	4.251	1.1136	.00	3.87	10290.15
342.47	3.87	4.262	1.1144	.00	3.87	10317.14
342.48	3.88	4.273	1.1151	.00	3.88	10344.15
342.49	3.88	4.284	1.1158	.00	3.88	10371.09
342.50	3.89	4.295	1.1166	.00	3.89	10398.14
342.51	3.90	4.306	1.1173	.00	3.90	10425.20
342.52	3.90	4.317	1.1181	.00	3.90	10452.20
342.53	3.91	4.329	1.1188	.00	3.91	10479.29
342.54	3.91	4.340	1.1195	.00	3.91	10506.41
342.55	3.92	4.351	1.1203	.00	3.92	10533.46
342.56	3.92	4.362	1.1210	.00	3.92	10560.61
342.57	3.93	4.373	1.1218	.00	3.93	10587.78
342.58	3.93	4.385	1.1225	.00	3.93	10614.88
342.59	3.94	4.396	1.1232	.00	3.94	10642.09

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.60	3.94	4.407	1.1240	.00	3.94	10669.31
342.61	3.95	4.418	1.1247	.00	3.95	10696.47
342.62	3.95	4.430	1.1255	.00	3.95	10723.73
342.63	3.96	4.441	1.1262	.00	3.96	10751.00
342.64	3.96	4.452	1.1269	.00	3.96	10778.30
342.65	3.97	4.463	1.1277	.00	3.97	10805.53
342.66	3.97	4.475	1.1284	.00	3.97	10832.86
342.67	3.98	4.486	1.1292	.00	3.98	10860.21
342.68	3.98	4.497	1.1299	.00	3.98	10887.49
342.69	3.99	4.509	1.1306	.00	3.99	10914.88
342.70	3.99	4.520	1.1314	.00	3.99	10942.28
342.71	4.00	4.531	1.1321	.00	4.00	10969.61
342.72	4.00	4.543	1.1329	.00	4.00	10997.05
342.73	4.01	4.554	1.1336	.00	4.01	11024.51
342.74	4.01	4.565	1.1344	.00	4.01	11051.90
342.75	4.02	4.577	1.1351	.00	4.02	11079.39
342.76	4.02	4.588	1.1359	.00	4.02	11106.90
342.77	4.03	4.599	1.1366	.00	4.03	11134.35
342.78	4.03	4.611	1.1373	.00	4.03	11161.90
342.79	4.04	4.622	1.1381	.00	4.04	11189.46

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.80	4.04	4.633	1.1388	.00	4.04	11216.96
342.81	4.05	4.645	1.1396	.00	4.05	11244.56
342.82	4.05	4.656	1.1403	.00	4.05	11272.18
342.83	4.06	4.668	1.1411	.00	4.06	11299.73
342.84	4.06	4.679	1.1418	.00	4.06	11327.38
342.85	4.07	4.690	1.1426	.00	4.07	11355.06
342.86	4.07	4.702	1.1433	.00	4.07	11382.66
342.87	4.08	4.713	1.1441	.00	4.08	11410.37
342.88	4.08	4.725	1.1448	.00	4.08	11438.10
342.89	4.09	4.736	1.1455	.00	4.09	11465.85
342.90	4.09	4.748	1.1463	.00	4.09	11493.52
342.91	4.10	4.759	1.1470	.00	4.10	11521.31
342.92	4.10	4.771	1.1478	.00	4.10	11549.11
342.93	4.11	4.782	1.1485	.00	4.11	11576.84
342.94	4.11	4.794	1.1493	.00	4.11	11604.67
342.95	4.12	4.805	1.1500	.00	4.12	11632.53
342.96	4.12	4.817	1.1508	.00	4.12	11660.31
342.97	4.13	4.828	1.1515	.00	4.13	11688.21
342.98	4.13	4.840	1.1523	.00	4.13	11716.11
342.99	4.14	4.851	1.1530	.00	4.14	11743.96

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.00	4.14	4.863	1.1538	.00	4.14	11771.90
343.01	4.19	4.874	1.1545	.00	4.19	11799.91
343.02	4.28	4.886	1.1553	.00	4.28	11827.88
343.03	4.39	4.897	1.1560	.00	4.39	11855.99
343.04	4.51	4.909	1.1568	.00	4.51	11884.13
343.05	4.66	4.920	1.1575	.00	4.66	11912.21
343.06	4.82	4.932	1.1583	.00	4.82	11940.42
343.07	4.99	4.944	1.1590	.00	4.99	11968.66
343.08	5.18	4.955	1.1598	.00	5.18	11996.85
343.09	5.38	4.967	1.1605	.00	5.38	12025.15
343.10	5.58	4.978	1.1613	.00	5.58	12053.48
343.11	5.80	4.990	1.1620	.00	5.80	12081.75
343.12	6.03	5.002	1.1628	.00	6.03	12110.14
343.13	6.28	5.013	1.1636	.00	6.28	12138.56
343.14	6.53	5.025	1.1643	.00	6.53	12167.01
343.15	6.79	5.037	1.1651	.00	6.79	12195.39
343.16	7.05	5.048	1.1658	.00	7.05	12223.89
343.17	7.33	5.060	1.1666	.00	7.33	12252.42
343.18	7.61	5.072	1.1673	.00	7.61	12280.88
343.19	7.90	5.083	1.1681	.00	7.90	12309.46

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.20	8.20	5.095	1.1688	.00	8.20	12338.06
343.21	8.51	5.107	1.1696	.00	8.51	12366.61
343.22	8.83	5.118	1.1703	.00	8.83	12395.26
343.23	9.15	5.130	1.1711	.00	9.15	12423.94
343.24	9.48	5.142	1.1719	.00	9.48	12452.56
343.25	9.81	5.154	1.1726	.00	9.81	12481.29
343.26	10.16	5.165	1.1734	.00	10.16	12510.05
343.27	10.51	5.177	1.1741	.00	10.51	12538.75
343.28	10.86	5.189	1.1749	.00	10.86	12567.55
343.29	11.23	5.200	1.1756	.00	11.23	12596.39
343.30	11.60	5.212	1.1764	.00	11.60	12625.16
343.31	11.97	5.224	1.1771	.00	11.97	12654.04
343.32	12.35	5.236	1.1779	.00	12.35	12682.94
343.33	12.74	5.248	1.1787	.00	12.74	12711.78
343.34	13.13	5.259	1.1794	.00	13.13	12740.74
343.35	13.53	5.271	1.1802	.00	13.53	12769.72
343.36	13.94	5.283	1.1809	.00	13.94	12798.63
343.37	14.35	5.295	1.1817	.00	14.35	12827.66
343.38	14.76	5.307	1.1825	.00	14.76	12856.71
343.39	15.19	5.318	1.1832	.00	15.19	12885.78

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.40	15.61	5.330	1.1840	.00	15.61	12914.79
343.41	16.04	5.342	1.1847	.00	16.04	12943.91
343.42	16.48	5.354	1.1855	.00	16.48	12973.06
343.43	16.92	5.366	1.1863	.00	16.92	13002.14
343.44	17.37	5.378	1.1870	.00	17.37	13031.33
343.45	17.82	5.390	1.1878	.00	17.82	13060.55
343.46	18.28	5.401	1.1885	.00	18.28	13089.70
343.47	18.74	5.413	1.1893	.00	18.74	13118.96
343.48	19.21	5.425	1.1901	.00	19.21	13148.24
343.49	19.67	5.437	1.1908	.00	19.67	13177.46
343.50	20.15	5.449	1.1916	.00	20.15	13206.79
343.51	20.72	5.461	1.1923	.00	20.72	13236.23
343.52	21.37	5.473	1.1931	.00	21.37	13265.68
343.53	22.07	5.485	1.1939	.00	22.07	13295.30
343.54	22.81	5.497	1.1946	.00	22.81	13324.97
343.55	23.59	5.509	1.1954	.00	23.59	13354.61
343.56	24.40	5.521	1.1962	.00	24.40	13384.39
343.57	25.25	5.533	1.1969	.00	25.25	13414.22
343.58	26.12	5.545	1.1977	.00	26.12	13444.00
343.59	27.02	5.557	1.1985	.00	27.02	13473.92

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.60	27.94	5.569	1.1992	.00	27.94	13503.88
343.61	28.87	5.581	1.2000	.00	28.87	13533.79
343.62	29.83	5.593	1.2007	.00	29.83	13563.83
343.63	30.82	5.605	1.2015	.00	30.82	13593.90
343.64	31.82	5.617	1.2023	.00	31.82	13624.02
343.65	32.84	5.629	1.2030	.00	32.84	13654.09
343.66	33.88	5.641	1.2038	.00	33.88	13684.28
343.67	34.94	5.653	1.2046	.00	34.94	13714.50
343.68	36.01	5.665	1.2053	.00	36.01	13744.68
343.69	37.11	5.677	1.2061	.00	37.11	13774.98
343.70	38.22	5.689	1.2069	.00	38.22	13805.32
343.71	39.35	5.701	1.2076	.00	39.35	13835.61
343.72	40.49	5.713	1.2084	.00	40.49	13866.01
343.73	41.65	5.725	1.2092	.00	41.65	13896.45
343.74	42.82	5.737	1.2099	.00	42.82	13926.83
343.75	44.01	5.749	1.2107	.00	44.01	13957.34
343.76	46.32	5.761	1.2115	.00	46.32	13988.99
343.77	47.56	5.774	1.2123	.00	47.56	14019.50
343.78	48.83	5.786	1.2130	.00	48.83	14050.14
343.79	50.10	5.798	1.2138	.00	50.10	14080.80

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.80	50.94	5.810	1.2146	.00	50.94	14110.96
343.81	52.24	5.822	1.2153	.00	52.24	14141.69
343.82	53.09	5.834	1.2161	.00	53.09	14171.99
343.83	54.42	5.846	1.2169	.00	54.42	14202.70
343.84	56.26	5.859	1.2176	.00	56.26	14234.03
343.85	57.10	5.871	1.2184	.00	57.10	14264.37
343.86	57.95	5.883	1.2192	.00	57.95	14294.66
343.87	58.81	5.895	1.2200	.00	58.81	14325.06
343.88	59.68	5.907	1.2207	.00	59.68	14355.49
343.89	60.56	5.920	1.2215	.00	60.56	14385.95
343.90	61.44	5.932	1.2223	.00	61.44	14416.34
343.91	62.35	5.944	1.2230	.00	62.35	14446.87
343.92	63.26	5.956	1.2238	.00	63.26	14477.41
343.93	64.18	5.968	1.2246	.00	64.18	14507.90
343.94	65.12	5.981	1.2254	.00	65.12	14538.50
343.95	66.05	5.993	1.2261	.00	66.05	14569.13
343.96	67.00	6.005	1.2269	.00	67.00	14599.70
343.97	67.96	6.018	1.2277	.00	67.96	14630.39
343.98	68.94	6.030	1.2285	.00	68.94	14661.12
343.99	69.91	6.042	1.2292	.00	69.91	14691.77

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.00	70.91	6.054	1.2300	.00	70.91	14722.54
344.01	71.91	6.067	1.2308	.00	71.91	14753.35
344.02	72.91	6.079	1.2316	.00	72.91	14784.09
344.03	73.93	6.091	1.2324	.00	73.93	14814.95
344.04	74.95	6.104	1.2332	.00	74.95	14845.84
344.05	76.00	6.116	1.2339	.00	76.00	14876.67
344.06	77.04	6.128	1.2347	.00	77.04	14907.61
344.07	78.09	6.141	1.2355	.00	78.09	14938.58
344.08	79.15	6.153	1.2363	.00	79.15	14969.49
344.09	80.23	6.165	1.2371	.00	80.23	15000.52
344.10	81.31	6.178	1.2379	.00	81.31	15031.58
344.11	82.39	6.190	1.2387	.00	82.39	15062.57
344.12	83.49	6.203	1.2395	.00	83.49	15093.68
344.13	84.60	6.215	1.2403	.00	84.60	15124.82
344.14	85.71	6.227	1.2410	.00	85.71	15155.99
344.15	86.83	6.240	1.2418	.00	86.83	15187.08
344.16	87.95	6.252	1.2426	.00	87.95	15218.30
344.17	89.09	6.265	1.2434	.00	89.09	15249.55
344.18	90.23	6.277	1.2442	.00	90.23	15280.73
344.19	91.39	6.290	1.2450	.00	91.39	15312.04

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.20	92.55	6.302	1.2458	.00	92.55	15343.37
344.21	93.72	6.314	1.2466	.00	93.72	15374.63
344.22	94.90	6.327	1.2474	.00	94.90	15406.02
344.23	96.08	6.339	1.2482	.00	96.08	15437.43
344.24	97.27	6.352	1.2490	.00	97.27	15468.77
344.25	98.48	6.364	1.2498	.00	98.48	15500.23
344.26	99.69	6.377	1.2506	.00	99.69	15531.73
344.27	100.90	6.389	1.2514	.00	100.90	15563.15
344.28	102.12	6.402	1.2521	.00	102.12	15594.69
344.29	103.35	6.414	1.2529	.00	103.35	15626.27
344.30	104.59	6.427	1.2537	.00	104.59	15657.77
344.31	105.83	6.439	1.2545	.00	105.83	15689.39
344.32	107.09	6.452	1.2553	.00	107.09	15721.05
344.33	108.34	6.465	1.2561	.00	108.34	15752.63
344.34	109.61	6.477	1.2569	.00	109.61	15784.34
344.35	110.89	6.490	1.2577	.00	110.89	15816.07
344.36	112.16	6.502	1.2585	.00	112.16	15847.73
344.37	113.45	6.515	1.2593	.00	113.45	15879.51
344.38	114.74	6.528	1.2601	.00	114.74	15911.31
344.39	116.04	6.540	1.2609	.00	116.04	15943.15

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.40	117.35	6.553	1.2617	.00	117.35	15974.92
344.41	118.66	6.565	1.2625	.00	118.66	16006.81
344.42	119.98	6.578	1.2633	.00	119.98	16038.72
344.43	121.31	6.591	1.2641	.00	121.31	16070.57
344.44	122.65	6.603	1.2649	.00	122.65	16102.53
344.45	124.00	6.616	1.2657	.00	124.00	16134.53
344.46	125.34	6.629	1.2665	.00	125.34	16166.45
344.47	126.70	6.641	1.2673	.00	126.70	16198.49
344.48	128.06	6.654	1.2681	.00	128.06	16230.56
344.49	129.43	6.667	1.2689	.00	129.43	16262.57
344.50	130.81	6.679	1.2697	.00	130.81	16294.69
344.51	132.18	6.692	1.2705	.00	132.18	16326.84
344.52	133.57	6.705	1.2713	.00	133.57	16358.92
344.53	134.97	6.717	1.2721	.00	134.97	16391.12
344.54	136.37	6.730	1.2729	.00	136.37	16423.34
344.55	137.77	6.743	1.2737	.00	137.77	16455.49
344.56	139.19	6.756	1.2745	.00	139.19	16487.78
344.57	140.61	6.768	1.2753	.00	140.61	16520.08
344.58	142.03	6.781	1.2761	.00	142.03	16552.31
344.59	143.47	6.794	1.2769	.00	143.47	16584.66

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.60	144.91	6.807	1.2777	.00	144.91	16617.05
344.61	146.35	6.819	1.2785	.00	146.35	16649.36
344.62	147.80	6.832	1.2793	.00	147.80	16681.79
344.63	149.26	6.845	1.2801	.00	149.26	16714.24
344.64	150.71	6.858	1.2809	.00	150.71	16746.71
344.65	152.18	6.871	1.2817	.00	152.18	16779.12
344.66	153.65	6.883	1.2825	.00	153.65	16811.65
344.67	155.14	6.896	1.2833	.00	155.14	16844.22
344.68	156.63	6.909	1.2841	.00	156.63	16876.71
344.69	158.12	6.922	1.2849	.00	158.12	16909.31
344.70	159.62	6.935	1.2857	.00	159.62	16941.95
344.71	161.13	6.948	1.2865	.00	161.13	16974.52
344.72	162.64	6.961	1.2873	.00	162.64	17007.20
344.73	164.15	6.973	1.2882	.00	164.15	17039.91
344.74	165.67	6.986	1.2890	.00	165.67	17072.55
344.75	167.20	6.999	1.2898	.00	167.20	17105.31
344.76	168.74	7.012	1.2906	.00	168.74	17138.10
344.77	170.27	7.025	1.2914	.00	170.27	17170.81
344.78	171.82	7.038	1.2922	.00	171.82	17203.65
344.79	173.38	7.051	1.2930	.00	173.38	17236.52

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.80	174.93	7.064	1.2938	.00	174.93	17269.30
344.81	176.50	7.077	1.2946	.00	176.50	17302.22
344.82	178.06	7.090	1.2954	.00	178.06	17335.16
344.83	179.63	7.103	1.2962	.00	179.63	17368.03
344.84	181.22	7.116	1.2970	.00	181.22	17401.02
344.85	182.80	7.129	1.2978	.00	182.80	17434.03
344.86	184.39	7.142	1.2986	.00	184.39	17466.97
344.87	185.99	7.155	1.2995	.00	185.99	17500.03
344.88	187.59	7.168	1.3003	.00	187.59	17533.13
344.89	189.20	7.181	1.3011	.00	189.20	17566.24
344.90	190.80	7.194	1.3019	.00	190.80	17599.28
344.91	192.42	7.207	1.3027	.00	192.42	17632.45
344.92	194.05	7.220	1.3035	.00	194.05	17665.63
344.93	195.67	7.233	1.3043	.00	195.67	17698.75
344.94	197.31	7.246	1.3051	.00	197.31	17731.99
344.95	198.94	7.259	1.3059	.00	198.94	17765.25
344.96	200.58	7.272	1.3068	.00	200.58	17798.43
344.97	202.22	7.285	1.3076	.00	202.22	17831.74
344.98	203.88	7.298	1.3084	.00	203.88	17865.08
344.99	205.54	7.311	1.3092	.00	205.54	17898.35

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 IN 2
Outflow HYG file = NONE STORED - POND 2 OUT 2

Pond Node Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 338.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
345.00	207.20	7.324	1.3100	.00	207.20	17931.74

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 2       IN  2
Outflow HYG file = NONE STORED - POND 2       OUT 2

Pond Node   Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   338.00 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0100 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =     73.80 cfs    at   11.9200 hrs
Peak Outflow      =      2.80 cfs    at   13.6800 hrs
-----------------------------------------------------
Peak Elevation    =    340.77 ft
Peak Storage =          2.472 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =       4.008
- Infiltration =        .000
- HYG Vol OUT  =       2.561
- Retained Vol =       1.447
                  ----------
Unrouted Vol =        .000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 2       IN  10
Outflow HYG file = NONE STORED - POND 2       OUT 10

Pond Node   Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   338.00 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0100 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow        =    121.54 cfs    at   11.9200 hrs
Peak Outflow       =      3.91 cfs    at   13.7900 hrs
-----------------------------------------------------
Peak Elevation     =    342.53 ft
Peak Storage =           4.326 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =       6.715
- Infiltration =        .000
- HYG Vol OUT  =       3.859
- Retained Vol =       2.856
                  ----------
Unrouted Vol =         .000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 2       IN  25
Outflow HYG file = NONE STORED - POND 2       OUT 25

Pond Node   Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   338.00 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0100 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =    148.06 cfs    at   11.9200 hrs
Peak Outflow      =      8.37 cfs    at   12.9000 hrs
-----------------------------------------------------
Peak Elevation    =    343.21 ft
Peak Storage =          5.101 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =       8.259
- Infiltration =        .000
- HYG Vol OUT  =       4.796
- Retained Vol =       3.463
                   ----------
Unrouted Vol =       -.000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 2       IN  100
Outflow HYG file = NONE STORED - POND 2       OUT 100

Pond Node   Data = POND 2
Pond Volume Data = POND 2
Pond Outlet Data = Riser/Barrel

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   338.00 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0100 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =    190.30 cfs    at   11.9200 hrs
Peak Outflow      =     48.69 cfs    at   12.1000 hrs
-----------------------------------------------------
Peak Elevation    =    343.78 ft
Peak Storage =          5.784 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =      10.759
- Infiltration =        .000
- HYG Vol OUT  =       6.986
- Retained Vol =       3.773
                  ----------
Unrouted Vol =       -.000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.00	.00	.000	.8000	.00	.00	.00
338.01	.00	.008	.8006	.00	.00	19.39
338.02	.00	.016	.8013	.00	.00	38.73
338.03	.00	.024	.8019	.00	.00	58.15
338.04	.00	.032	.8026	.00	.00	77.58
338.05	.00	.040	.8032	.00	.00	96.97
338.06	.00	.048	.8039	.00	.00	116.44
338.07	.00	.056	.8045	.00	.00	135.92
338.08	.00	.064	.8052	.00	.00	155.36
338.09	.00	.072	.8058	.00	.00	174.87
338.10	.00	.080	.8065	.00	.00	194.40
338.11	.00	.088	.8071	.00	.00	213.88
338.12	.00	.096	.8078	.00	.00	233.44
338.13	.00	.105	.8084	.00	.00	253.02
338.14	.00	.113	.8091	.00	.00	272.61
338.15	.00	.121	.8097	.00	.00	292.15
338.16	.00	.129	.8104	.00	.00	311.78
338.17	.00	.137	.8110	.00	.00	331.42
338.18	.00	.145	.8117	.00	.00	351.01
338.19	.00	.153	.8124	.00	.00	370.68

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.20	.00	.161	.8130	.00	.00	390.37
338.21	.00	.169	.8137	.00	.00	410.01
338.22	.00	.178	.8143	.00	.00	429.73
338.23	.00	.186	.8150	.00	.00	449.46
338.24	.00	.194	.8156	.00	.00	469.15
338.25	.00	.202	.8163	.00	.00	488.91
338.26	.00	.210	.8169	.00	.00	508.69
338.27	.00	.218	.8176	.00	.00	528.43
338.28	.00	.227	.8182	.00	.00	548.24
338.29	.00	.235	.8189	.00	.00	568.07
338.30	.00	.243	.8195	.00	.00	587.86
338.31	.00	.251	.8202	.00	.00	607.72
338.32	.00	.259	.8209	.00	.00	627.59
338.33	.00	.268	.8215	.00	.00	647.42
338.34	.00	.276	.8222	.00	.00	667.33
338.35	.00	.284	.8228	.00	.00	687.26
338.36	.00	.292	.8235	.00	.00	707.14
338.37	.00	.300	.8241	.00	.00	727.09
338.38	.00	.309	.8248	.00	.00	747.06
338.39	.00	.317	.8255	.00	.00	767.05

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.40	.00	.325	.8261	.00	.00	786.99
338.41	.00	.333	.8268	.00	.00	807.01
338.42	.00	.342	.8274	.00	.00	827.05
338.43	.00	.350	.8281	.00	.00	847.04
338.44	.00	.358	.8287	.00	.00	867.10
338.45	.00	.367	.8294	.00	.00	887.19
338.46	.00	.375	.8301	.00	.00	907.23
338.47	.00	.383	.8307	.00	.00	927.34
338.48	.00	.392	.8314	.00	.00	947.47
338.49	.00	.400	.8320	.00	.00	967.56
338.50	.00	.408	.8327	.00	.00	987.72
338.51	.00	.416	.8334	.00	.00	1007.90
338.52	.00	.425	.8340	.00	.00	1028.03
338.53	.00	.433	.8347	.00	.00	1048.25
338.54	.00	.442	.8354	.00	.00	1068.47
338.55	.00	.450	.8360	.00	.00	1088.65
338.56	.00	.458	.8367	.00	.00	1108.91
338.57	.00	.467	.8373	.00	.00	1129.19
338.58	.00	.475	.8380	.00	.00	1149.42
338.59	.00	.483	.8387	.00	.00	1169.73

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.60	.00	.492	.8393	.00	.00	1190.05
338.61	.00	.500	.8400	.00	.00	1210.33
338.62	.00	.509	.8407	.00	.00	1230.68
338.63	.00	.517	.8413	.00	.00	1251.05
338.64	.00	.525	.8420	.00	.00	1271.44
338.65	.00	.534	.8426	.00	.00	1291.78
338.66	.00	.542	.8433	.00	.00	1312.20
338.67	.00	.551	.8440	.00	.00	1332.64
338.68	.00	.559	.8446	.00	.00	1353.03
338.69	.00	.568	.8453	.00	.00	1373.50
338.70	.00	.576	.8460	.00	.00	1393.98
338.71	.00	.584	.8466	.00	.00	1414.42
338.72	.00	.593	.8473	.00	.00	1434.94
338.73	.00	.601	.8480	.00	.00	1455.47
338.74	.00	.610	.8486	.00	.00	1475.96
338.75	.00	.618	.8493	.00	.00	1496.52
338.76	.00	.627	.8500	.00	.00	1517.10
338.77	.00	.635	.8506	.00	.00	1537.64
338.78	.00	.644	.8513	.00	.00	1558.25
338.79	.00	.652	.8520	.00	.00	1578.88

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
338.80	.00	.661	.8526	.00	.00	1599.47
338.81	.00	.669	.8533	.00	.00	1620.13
338.82	.00	.678	.8540	.00	.00	1640.81
338.83	.00	.687	.8547	.00	.00	1661.44
338.84	.00	.695	.8553	.00	.00	1682.15
338.85	.00	.704	.8560	.00	.00	1702.88
338.86	.00	.712	.8567	.00	.00	1723.56
338.87	.00	.721	.8573	.00	.00	1744.32
338.88	.00	.729	.8580	.00	.00	1765.09
338.89	.00	.738	.8587	.00	.00	1785.88
338.90	.00	.747	.8593	.00	.00	1806.63
338.91	.00	.755	.8600	.00	.00	1827.45
338.92	.00	.764	.8607	.00	.00	1848.29
338.93	.00	.772	.8614	.00	.00	1869.09
338.94	.00	.781	.8620	.00	.00	1889.96
338.95	.00	.790	.8627	.00	.00	1910.85
338.96	.00	.798	.8634	.00	.00	1931.69
338.97	.00	.807	.8640	.00	.00	1952.61
338.98	.00	.816	.8647	.00	.00	1973.55
338.99	.00	.824	.8654	.00	.00	1994.44

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.00	.00	.833	.8661	.00	.00	2015.41
339.01	.00	.841	.8667	.00	.00	2036.40
339.02	.00	.850	.8674	.00	.00	2057.34
339.03	.01	.859	.8681	.00	.01	2078.37
339.04	.01	.868	.8688	.00	.01	2099.41
339.05	.03	.876	.8694	.00	.03	2120.42
339.06	.05	.885	.8701	.00	.05	2141.50
339.07	.06	.894	.8708	.00	.06	2162.60
339.08	.08	.902	.8715	.00	.08	2183.66
339.09	.10	.911	.8721	.00	.10	2204.80
339.10	.12	.920	.8728	.00	.12	2225.96
339.11	.14	.928	.8735	.00	.14	2247.06
339.12	.17	.937	.8742	.00	.17	2268.25
339.13	.19	.946	.8749	.00	.19	2289.46
339.14	.22	.955	.8755	.00	.22	2310.69
339.15	.25	.963	.8762	.00	.25	2331.87
339.16	.27	.972	.8769	.00	.27	2353.13
339.17	.31	.981	.8776	.00	.31	2374.41
339.18	.33	.990	.8782	.00	.33	2395.63
339.19	.34	.999	.8789	.00	.34	2416.93

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.20	.36	1.007	.8796	.00	.36	2438.25
339.21	.37	1.016	.8803	.00	.37	2459.51
339.22	.39	1.025	.8810	.00	.39	2480.86
339.23	.40	1.034	.8816	.00	.40	2502.22
339.24	.42	1.043	.8823	.00	.42	2523.53
339.25	.43	1.051	.8830	.00	.43	2544.93
339.26	.44	1.060	.8837	.00	.44	2566.34
339.27	.45	1.069	.8844	.00	.45	2587.70
339.28	.47	1.078	.8850	.00	.47	2609.14
339.29	.48	1.087	.8857	.00	.48	2630.60
339.30	.49	1.096	.8864	.00	.49	2652.01
339.31	.50	1.105	.8871	.00	.50	2673.50
339.32	.51	1.113	.8878	.00	.51	2695.01
339.33	.52	1.122	.8884	.00	.52	2716.47
339.34	.53	1.131	.8891	.00	.53	2738.01
339.35	.54	1.140	.8898	.00	.54	2759.56
339.36	.55	1.149	.8905	.00	.55	2781.07
339.37	.56	1.158	.8912	.00	.56	2802.66
339.38	.57	1.167	.8919	.00	.57	2824.27
339.39	.58	1.176	.8925	.00	.58	2845.89

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.40	.59	1.185	.8932	.00	.59	2867.46
339.41	.60	1.194	.8939	.00	.60	2889.11
339.42	.61	1.203	.8946	.00	.61	2910.79
339.43	.62	1.211	.8953	.00	.62	2932.41
339.44	.63	1.220	.8960	.00	.63	2954.11
339.45	.64	1.229	.8967	.00	.64	2975.83
339.46	.64	1.238	.8973	.00	.64	2997.50
339.47	.65	1.247	.8980	.00	.65	3019.26
339.48	.66	1.256	.8987	.00	.66	3041.03
339.49	.67	1.265	.8994	.00	.67	3062.75
339.50	.68	1.274	.9001	.00	.68	3084.55
339.51	.69	1.283	.9008	.00	.69	3106.37
339.52	.69	1.292	.9015	.00	.69	3128.14
339.53	.70	1.301	.9021	.00	.70	3149.99
339.54	.71	1.310	.9028	.00	.71	3171.86
339.55	.72	1.319	.9035	.00	.72	3193.68
339.56	.73	1.328	.9042	.00	.73	3215.58
339.57	.73	1.338	.9049	.00	.73	3237.50
339.58	.74	1.347	.9056	.00	.74	3259.37
339.59	.75	1.356	.9063	.00	.75	3281.32

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.60	.76	1.365	.9070	.00	.76	3303.29
339.61	.76	1.374	.9077	.00	.76	3325.21
339.62	.77	1.383	.9083	.00	.77	3347.21
339.63	.78	1.392	.9090	.00	.78	3369.23
339.64	.78	1.401	.9097	.00	.78	3391.27
339.65	.79	1.410	.9104	.00	.79	3413.25
339.66	.80	1.419	.9111	.00	.80	3435.32
339.67	.80	1.428	.9118	.00	.80	3457.41
339.68	.81	1.437	.9125	.00	.81	3479.44
339.69	.82	1.447	.9132	.00	.82	3501.56
339.70	.82	1.456	.9139	.00	.82	3523.70
339.71	.83	1.465	.9146	.00	.83	3545.78
339.72	.84	1.474	.9153	.00	.84	3567.95
339.73	.84	1.483	.9160	.00	.84	3590.14
339.74	.85	1.492	.9166	.00	.85	3612.27
339.75	.86	1.502	.9173	.00	.86	3634.49
339.76	.86	1.511	.9180	.00	.86	3656.73
339.77	.87	1.520	.9187	.00	.87	3678.91
339.78	.88	1.529	.9194	.00	.88	3701.18
339.79	.88	1.538	.9201	.00	.88	3723.47

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
339.80	.89	1.547	.9208	.00	.89	3745.70
339.81	.90	1.557	.9215	.00	.90	3768.03
339.82	.90	1.566	.9222	.00	.90	3790.36
339.83	.91	1.575	.9229	.00	.91	3812.65
339.84	.91	1.584	.9236	.00	.91	3835.02
339.85	.92	1.594	.9243	.00	.92	3857.40
339.86	.93	1.603	.9250	.00	.93	3879.74
339.87	.93	1.612	.9257	.00	.93	3902.16
339.88	.94	1.621	.9264	.00	.94	3924.60
339.89	.94	1.631	.9271	.00	.94	3947.05
339.90	.95	1.640	.9278	.00	.95	3969.46
339.91	.96	1.649	.9285	.00	.96	3991.94
339.92	.96	1.658	.9292	.00	.96	4014.45
339.93	.97	1.668	.9299	.00	.97	4036.90
339.94	.97	1.677	.9306	.00	.97	4059.44
339.95	.98	1.686	.9313	.00	.98	4082.00
339.96	.98	1.696	.9320	.00	.98	4104.50
339.97	.99	1.705	.9327	.00	.99	4127.09
339.98	.99	1.714	.9334	.00	.99	4149.70
339.99	1.00	1.724	.9341	.00	1.00	4172.25

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.00	1.01	1.733	.9348	.00	1.01	4194.89
340.01	1.01	1.742	.9355	.00	1.01	4217.55
340.02	1.02	1.752	.9362	.00	1.02	4240.15
340.03	1.02	1.761	.9369	.00	1.02	4262.85
340.04	1.03	1.770	.9376	.00	1.03	4285.55
340.05	1.03	1.780	.9383	.00	1.03	4308.21
340.06	1.04	1.789	.9390	.00	1.04	4330.95
340.07	1.04	1.799	.9397	.00	1.04	4353.71
340.08	1.05	1.808	.9404	.00	1.05	4376.42
340.09	1.05	1.817	.9411	.00	1.05	4399.21
340.10	1.06	1.827	.9418	.00	1.06	4422.02
340.11	1.06	1.836	.9425	.00	1.06	4444.78
340.12	1.07	1.846	.9432	.00	1.07	4467.62
340.13	1.07	1.855	.9439	.00	1.07	4490.48
340.14	1.08	1.865	.9446	.00	1.08	4513.36
340.15	1.08	1.874	.9453	.00	1.08	4536.18
340.16	1.09	1.883	.9460	.00	1.09	4559.10
340.17	1.10	1.893	.9467	.00	1.10	4582.02
340.18	1.10	1.902	.9474	.00	1.10	4604.90
340.19	1.11	1.912	.9481	.00	1.11	4627.86

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.20	1.11	1.921	.9488	.00	1.11	4650.84
340.21	1.11	1.931	.9495	.00	1.11	4673.77
340.22	1.12	1.940	.9502	.00	1.12	4696.79
340.23	1.12	1.950	.9509	.00	1.12	4719.82
340.24	1.13	1.959	.9516	.00	1.13	4742.79
340.25	1.13	1.969	.9523	.00	1.13	4765.86
340.26	1.14	1.978	.9530	.00	1.14	4788.94
340.27	1.14	1.988	.9538	.00	1.14	4811.97
340.28	1.15	1.997	.9545	.00	1.15	4835.09
340.29	1.15	2.007	.9552	.00	1.15	4858.22
340.30	1.16	2.017	.9559	.00	1.16	4881.30
340.31	1.16	2.026	.9566	.00	1.16	4904.47
340.32	1.17	2.036	.9573	.00	1.17	4927.66
340.33	1.17	2.045	.9580	.00	1.17	4950.79
340.34	1.18	2.055	.9587	.00	1.18	4974.01
340.35	1.18	2.064	.9594	.00	1.18	4997.24
340.36	1.19	2.074	.9601	.00	1.19	5020.43
340.37	1.19	2.084	.9608	.00	1.19	5043.70
340.38	1.20	2.093	.9615	.00	1.20	5066.99
340.39	1.20	2.103	.9623	.00	1.20	5090.29

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.40	1.21	2.113	.9630	.00	1.21	5113.54
340.41	1.21	2.122	.9637	.00	1.21	5136.88
340.42	1.21	2.132	.9644	.00	1.21	5160.24
340.43	1.22	2.141	.9651	.00	1.22	5183.54
340.44	1.22	2.151	.9658	.00	1.22	5206.93
340.45	1.23	2.161	.9665	.00	1.23	5230.34
340.46	1.23	2.170	.9672	.00	1.23	5253.70
340.47	1.24	2.180	.9679	.00	1.24	5277.14
340.48	1.24	2.190	.9687	.00	1.24	5300.60
340.49	1.25	2.199	.9694	.00	1.25	5324.01
340.50	1.25	2.209	.9701	.00	1.25	5347.50
340.51	1.25	2.219	.9708	.00	1.25	5371.01
340.52	1.26	2.229	.9715	.00	1.26	5394.47
340.53	1.26	2.238	.9722	.00	1.26	5418.02
340.54	1.27	2.248	.9729	.00	1.27	5441.58
340.55	1.27	2.258	.9737	.00	1.27	5465.09
340.56	1.28	2.268	.9744	.00	1.28	5488.69
340.57	1.28	2.277	.9751	.00	1.28	5512.30
340.58	1.29	2.287	.9758	.00	1.29	5535.87
340.59	1.29	2.297	.9765	.00	1.29	5559.52

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.60	1.29	2.307	.9772	.00	1.29	5583.18
340.61	1.30	2.316	.9779	.00	1.30	5606.80
340.62	1.30	2.326	.9787	.00	1.30	5630.50
340.63	1.31	2.336	.9794	.00	1.31	5654.22
340.64	1.31	2.346	.9801	.00	1.31	5677.96
340.65	1.31	2.356	.9808	.00	1.31	5701.64
340.66	1.32	2.365	.9815	.00	1.32	5725.41
340.67	1.32	2.375	.9822	.00	1.32	5749.20
340.68	1.33	2.385	.9830	.00	1.33	5772.93
340.69	1.33	2.395	.9837	.00	1.33	5796.76
340.70	1.34	2.405	.9844	.00	1.34	5820.60
340.71	1.34	2.414	.9851	.00	1.34	5844.38
340.72	1.34	2.424	.9858	.00	1.34	5868.26
340.73	1.35	2.434	.9866	.00	1.35	5892.15
340.74	1.35	2.444	.9873	.00	1.35	5915.99
340.75	1.36	2.454	.9880	.00	1.36	5939.92
340.76	1.36	2.464	.9887	.00	1.36	5963.86
340.77	1.36	2.474	.9894	.00	1.36	5987.75
340.78	1.37	2.484	.9902	.00	1.37	6011.73
340.79	1.37	2.494	.9909	.00	1.37	6035.73

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
340.80	1.38	2.503	.9916	.00	1.38	6059.67
340.81	1.38	2.513	.9923	.00	1.38	6083.71
340.82	1.38	2.523	.9930	.00	1.38	6107.76
340.83	1.39	2.533	.9938	.00	1.39	6131.75
340.84	1.39	2.543	.9945	.00	1.39	6155.84
340.85	1.40	2.553	.9952	.00	1.40	6179.94
340.86	1.40	2.563	.9959	.00	1.40	6203.99
340.87	1.40	2.573	.9966	.00	1.40	6228.12
340.88	1.41	2.583	.9974	.00	1.41	6252.28
340.89	1.41	2.593	.9981	.00	1.41	6276.45
340.90	1.42	2.603	.9988	.00	1.42	6300.57
340.91	1.42	2.613	.9995	.00	1.42	6324.78
340.92	1.42	2.623	1.0003	.00	1.42	6349.00
340.93	1.43	2.633	1.0010	.00	1.43	6373.17
340.94	1.43	2.643	1.0017	.00	1.43	6397.43
340.95	1.44	2.653	1.0024	.00	1.44	6421.71
340.96	1.44	2.663	1.0032	.00	1.44	6445.93
340.97	1.44	2.673	1.0039	.00	1.44	6470.24
340.98	1.45	2.683	1.0046	.00	1.45	6494.57
340.99	1.45	2.693	1.0053	.00	1.45	6518.85

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.00	1.45	2.703	1.0061	.00	1.45	6543.21
341.01	1.46	2.713	1.0068	.00	1.46	6567.60
341.02	1.46	2.723	1.0075	.00	1.46	6591.92
341.03	1.47	2.733	1.0082	.00	1.47	6616.34
341.04	1.47	2.744	1.0090	.00	1.47	6640.78
341.05	1.47	2.754	1.0097	.00	1.47	6665.16
341.06	1.48	2.764	1.0104	.00	1.48	6689.63
341.07	1.48	2.774	1.0112	.00	1.48	6714.12
341.08	1.48	2.784	1.0119	.00	1.48	6738.55
341.09	1.49	2.794	1.0126	.00	1.49	6763.07
341.10	1.49	2.804	1.0133	.00	1.49	6787.61
341.11	1.50	2.814	1.0141	.00	1.50	6812.10
341.12	1.50	2.824	1.0148	.00	1.50	6836.67
341.13	1.50	2.835	1.0155	.00	1.50	6861.27
341.14	1.51	2.845	1.0163	.00	1.51	6885.88
341.15	1.51	2.855	1.0170	.00	1.51	6910.44
341.16	1.51	2.865	1.0177	.00	1.51	6935.08
341.17	1.52	2.875	1.0185	.00	1.52	6959.75
341.18	1.52	2.885	1.0192	.00	1.52	6984.36
341.19	1.52	2.896	1.0199	.00	1.52	7009.06

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.20	1.53	2.906	1.0206	.00	1.53	7033.78
341.21	1.53	2.916	1.0214	.00	1.53	7058.44
341.22	1.54	2.926	1.0221	.00	1.54	7083.19
341.23	1.54	2.937	1.0228	.00	1.54	7107.96
341.24	1.54	2.947	1.0236	.00	1.54	7132.68
341.25	1.55	2.957	1.0243	.00	1.55	7157.48
341.26	1.55	2.967	1.0250	.00	1.55	7182.31
341.27	1.55	2.977	1.0258	.00	1.55	7207.08
341.28	1.56	2.988	1.0265	.00	1.56	7231.94
341.29	1.56	2.998	1.0272	.00	1.56	7256.81
341.30	1.56	3.008	1.0280	.00	1.56	7281.63
341.31	1.57	3.019	1.0287	.00	1.57	7306.55
341.32	1.57	3.029	1.0294	.00	1.57	7331.48
341.33	1.57	3.039	1.0302	.00	1.57	7356.35
341.34	1.58	3.049	1.0309	.00	1.58	7381.32
341.35	1.58	3.060	1.0316	.00	1.58	7406.30
341.36	1.58	3.070	1.0324	.00	1.58	7431.23
341.37	1.59	3.080	1.0331	.00	1.59	7456.25
341.38	1.59	3.091	1.0339	.00	1.59	7481.29
341.39	1.60	3.101	1.0346	.00	1.60	7506.35

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.40	1.60	3.111	1.0353	.00	1.60	7531.34
341.41	1.60	3.122	1.0361	.00	1.60	7556.43
341.42	1.61	3.132	1.0368	.00	1.61	7581.54
341.43	1.61	3.143	1.0375	.00	1.61	7606.60
341.44	1.61	3.153	1.0383	.00	1.61	7631.74
341.45	1.62	3.163	1.0390	.00	1.62	7656.90
341.46	1.62	3.174	1.0398	.00	1.62	7682.01
341.47	1.62	3.184	1.0405	.00	1.62	7707.21
341.48	1.63	3.195	1.0412	.00	1.63	7732.42
341.49	1.63	3.205	1.0420	.00	1.63	7757.58
341.50	1.63	3.215	1.0427	.00	1.63	7782.83
341.51	1.64	3.226	1.0434	.00	1.64	7808.10
341.52	1.64	3.236	1.0442	.00	1.64	7833.32
341.53	1.64	3.247	1.0449	.00	1.64	7858.62
341.54	1.65	3.257	1.0457	.00	1.65	7883.95
341.55	1.65	3.268	1.0464	.00	1.65	7909.21
341.56	1.65	3.278	1.0471	.00	1.65	7934.57
341.57	1.66	3.289	1.0479	.00	1.66	7959.95
341.58	1.66	3.299	1.0486	.00	1.66	7985.27
341.59	1.66	3.310	1.0494	.00	1.66	8010.68

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.60	1.67	3.320	1.0501	.00	1.67	8036.11
341.61	1.67	3.331	1.0509	.00	1.67	8061.49
341.62	1.67	3.341	1.0516	.00	1.67	8086.95
341.63	1.68	3.352	1.0523	.00	1.68	8112.44
341.64	1.68	3.362	1.0531	.00	1.68	8137.94
341.65	1.68	3.373	1.0538	.00	1.68	8163.39
341.66	1.69	3.383	1.0546	.00	1.69	8188.93
341.67	1.69	3.394	1.0553	.00	1.69	8214.48
341.68	1.69	3.404	1.0561	.00	1.69	8239.98
341.69	1.70	3.415	1.0568	.00	1.70	8265.58
341.70	1.70	3.425	1.0575	.00	1.70	8291.19
341.71	1.70	3.436	1.0583	.00	1.70	8316.74
341.72	1.71	3.447	1.0590	.00	1.71	8342.39
341.73	1.71	3.457	1.0598	.00	1.71	8368.05
341.74	1.71	3.468	1.0605	.00	1.71	8393.66
341.75	1.72	3.478	1.0613	.00	1.72	8419.36
341.76	1.72	3.489	1.0620	.00	1.72	8445.08
341.77	1.72	3.500	1.0628	.00	1.72	8470.74
341.78	1.73	3.510	1.0635	.00	1.73	8496.50
341.79	1.73	3.521	1.0643	.00	1.73	8522.27

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
341.80	1.73	3.532	1.0650	.00	1.73	8547.99
341.81	1.73	3.542	1.0658	.00	1.73	8573.80
341.82	1.74	3.553	1.0665	.00	1.74	8599.62
341.83	1.74	3.563	1.0672	.00	1.74	8625.39
341.84	1.74	3.574	1.0680	.00	1.74	8651.26
341.85	1.75	3.585	1.0687	.00	1.75	8677.14
341.86	1.75	3.596	1.0695	.00	1.75	8702.96
341.87	1.75	3.606	1.0702	.00	1.75	8728.88
341.88	1.76	3.617	1.0710	.00	1.76	8754.82
341.89	1.76	3.628	1.0717	.00	1.76	8780.77
341.90	1.76	3.638	1.0725	.00	1.76	8806.67
341.91	1.77	3.649	1.0732	.00	1.77	8832.66
341.92	1.77	3.660	1.0740	.00	1.77	8858.67
341.93	1.77	3.671	1.0747	.00	1.77	8884.62
341.94	1.78	3.681	1.0755	.00	1.78	8910.67
341.95	1.78	3.692	1.0762	.00	1.78	8936.73
341.96	1.78	3.703	1.0770	.00	1.78	8962.73
341.97	1.78	3.714	1.0777	.00	1.78	8988.83
341.98	1.79	3.724	1.0785	.00	1.79	9014.95
341.99	1.79	3.735	1.0792	.00	1.79	9041.01

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.00	1.79	3.746	1.0800	.00	1.79	9067.17
342.01	1.80	3.757	1.0807	.00	1.80	9093.34
342.02	1.80	3.768	1.0815	.00	1.80	9119.45
342.03	1.80	3.778	1.0822	.00	1.80	9145.66
342.04	1.81	3.789	1.0829	.00	1.81	9171.89
342.05	1.81	3.800	1.0836	.00	1.81	9198.05
342.06	1.81	3.811	1.0844	.00	1.81	9224.31
342.07	1.82	3.822	1.0851	.00	1.82	9250.59
342.08	1.82	3.833	1.0858	.00	1.82	9276.81
342.09	1.82	3.844	1.0865	.00	1.82	9303.12
342.10	1.82	3.854	1.0873	.00	1.82	9329.45
342.11	1.83	3.865	1.0880	.00	1.83	9355.72
342.12	1.83	3.876	1.0887	.00	1.83	9382.09
342.13	1.83	3.887	1.0895	.00	1.83	9408.47
342.14	1.84	3.898	1.0902	.00	1.84	9434.88
342.15	1.84	3.909	1.0909	.00	1.84	9461.21
342.16	1.84	3.920	1.0916	.00	1.84	9487.65
342.17	1.85	3.931	1.0924	.00	1.85	9514.11
342.18	1.85	3.942	1.0931	.00	1.85	9540.50
342.19	1.85	3.953	1.0938	.00	1.85	9566.99

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.20	1.85	3.963	1.0946	.00	1.85	9593.50
342.21	1.86	3.974	1.0953	.00	1.86	9619.94
342.22	1.86	3.985	1.0960	.00	1.86	9646.49
342.23	1.86	3.996	1.0968	.00	1.86	9673.05
342.24	1.87	4.007	1.0975	.00	1.87	9699.55
342.25	1.87	4.018	1.0982	.00	1.87	9726.14
342.26	1.87	4.029	1.0989	.00	1.87	9752.76
342.27	1.88	4.040	1.0997	.00	1.88	9779.31
342.28	1.88	4.051	1.1004	.00	1.88	9805.96
342.29	1.88	4.062	1.1011	.00	1.88	9832.63
342.30	1.88	4.073	1.1019	.00	1.88	9859.23
342.31	1.89	4.084	1.1026	.00	1.89	9885.94
342.32	1.89	4.095	1.1033	.00	1.89	9912.66
342.33	1.89	4.106	1.1041	.00	1.89	9939.31
342.34	1.90	4.117	1.1048	.00	1.90	9966.07
342.35	1.90	4.128	1.1055	.00	1.90	9992.84
342.36	1.90	4.140	1.1063	.00	1.90	10019.55
342.37	1.90	4.151	1.1070	.00	1.90	10046.36
342.38	1.91	4.162	1.1078	.00	1.91	10073.19
342.39	1.91	4.173	1.1085	.00	1.91	10100.04

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.40	1.91	4.184	1.1092	.00	1.91	10126.82
342.41	1.92	4.195	1.1100	.00	1.92	10153.70
342.42	1.92	4.206	1.1107	.00	1.92	10180.60
342.43	1.92	4.217	1.1114	.00	1.92	10207.43
342.44	1.92	4.228	1.1122	.00	1.92	10234.37
342.45	1.93	4.239	1.1129	.00	1.93	10261.32
342.46	1.93	4.251	1.1136	.00	1.93	10288.21
342.47	1.93	4.262	1.1144	.00	1.93	10315.20
342.48	1.94	4.273	1.1151	.00	1.94	10342.20
342.49	1.94	4.284	1.1158	.00	1.94	10369.14
342.50	1.94	4.295	1.1166	.00	1.94	10396.19
342.51	1.94	4.306	1.1173	.00	1.94	10423.25
342.52	1.95	4.317	1.1181	.00	1.95	10450.24
342.53	1.95	4.329	1.1188	.00	1.95	10477.34
342.54	1.95	4.340	1.1195	.00	1.95	10504.45
342.55	1.96	4.351	1.1203	.00	1.96	10531.50
342.56	1.96	4.362	1.1210	.00	1.96	10558.65
342.57	1.96	4.373	1.1218	.00	1.96	10585.81
342.58	1.96	4.385	1.1225	.00	1.96	10612.92
342.59	1.97	4.396	1.1232	.00	1.97	10640.12

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.60	1.97	4.407	1.1240	.00	1.97	10667.34
342.61	1.97	4.418	1.1247	.00	1.97	10694.49
342.62	1.98	4.430	1.1255	.00	1.98	10721.75
342.63	1.98	4.441	1.1262	.00	1.98	10749.03
342.64	1.98	4.452	1.1269	.00	1.98	10776.32
342.65	1.98	4.463	1.1277	.00	1.98	10803.54
342.66	1.99	4.475	1.1284	.00	1.99	10830.87
342.67	1.99	4.486	1.1292	.00	1.99	10858.22
342.68	1.99	4.497	1.1299	.00	1.99	10885.50
342.69	1.99	4.509	1.1306	.00	1.99	10912.88
342.70	2.00	4.520	1.1314	.00	2.00	10940.28
342.71	2.00	4.531	1.1321	.00	2.00	10967.62
342.72	2.00	4.543	1.1329	.00	2.00	10995.05
342.73	2.01	4.554	1.1336	.00	2.01	11022.51
342.74	2.01	4.565	1.1344	.00	2.01	11049.90
342.75	2.01	4.577	1.1351	.00	2.01	11077.39
342.76	2.01	4.588	1.1359	.00	2.01	11104.89
342.77	2.02	4.599	1.1366	.00	2.02	11132.34
342.78	2.02	4.611	1.1373	.00	2.02	11159.88
342.79	2.02	4.622	1.1381	.00	2.02	11187.44

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
342.80	2.03	4.633	1.1388	.00	2.03	11214.94
342.81	2.03	4.645	1.1396	.00	2.03	11242.54
342.82	2.03	4.656	1.1403	.00	2.03	11270.15
342.83	2.03	4.668	1.1411	.00	2.03	11297.70
342.84	2.04	4.679	1.1418	.00	2.04	11325.36
342.85	2.04	4.690	1.1426	.00	2.04	11353.03
342.86	2.04	4.702	1.1433	.00	2.04	11380.63
342.87	2.04	4.713	1.1441	.00	2.04	11408.34
342.88	2.05	4.725	1.1448	.00	2.05	11436.06
342.89	2.05	4.736	1.1455	.00	2.05	11463.81
342.90	2.05	4.748	1.1463	.00	2.05	11491.48
342.91	2.05	4.759	1.1470	.00	2.05	11519.26
342.92	2.06	4.771	1.1478	.00	2.06	11547.06
342.93	2.06	4.782	1.1485	.00	2.06	11574.79
342.94	2.06	4.794	1.1493	.00	2.06	11602.62
342.95	2.07	4.805	1.1500	.00	2.07	11630.47
342.96	2.07	4.817	1.1508	.00	2.07	11658.26
342.97	2.07	4.828	1.1515	.00	2.07	11686.15
342.98	2.07	4.840	1.1523	.00	2.07	11714.05
342.99	2.08	4.851	1.1530	.00	2.08	11741.89

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.00	2.08	4.863	1.1538	.00	2.08	11769.83
343.01	2.13	4.874	1.1545	.00	2.13	11797.84
343.02	2.22	4.886	1.1553	.00	2.22	11825.82
343.03	2.33	4.897	1.1560	.00	2.33	11853.93
343.04	2.47	4.909	1.1568	.00	2.47	11882.08
343.05	2.62	4.920	1.1575	.00	2.62	11910.17
343.06	2.79	4.932	1.1583	.00	2.79	11938.39
343.07	2.97	4.944	1.1590	.00	2.97	11966.64
343.08	3.17	4.955	1.1598	.00	3.17	11994.84
343.09	3.37	4.967	1.1605	.00	3.37	12023.15
343.10	3.60	4.978	1.1613	.00	3.60	12051.49
343.11	3.83	4.990	1.1620	.00	3.83	12079.78
343.12	4.06	5.002	1.1628	.00	4.06	12108.17
343.13	4.31	5.013	1.1636	.00	4.31	12136.59
343.14	4.56	5.025	1.1643	.00	4.56	12165.04
343.15	4.82	5.037	1.1651	.00	4.82	12193.43
343.16	5.09	5.048	1.1658	.00	5.09	12221.93
343.17	5.37	5.060	1.1666	.00	5.37	12250.46
343.18	5.66	5.072	1.1673	.00	5.66	12278.93
343.19	5.96	5.083	1.1681	.00	5.96	12307.51

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.20	6.26	5.095	1.1688	.00	6.26	12336.12
343.21	6.58	5.107	1.1696	.00	6.58	12364.67
343.22	6.90	5.118	1.1703	.00	6.90	12393.33
343.23	7.23	5.130	1.1711	.00	7.23	12422.02
343.24	7.56	5.142	1.1719	.00	7.56	12450.65
343.25	7.90	5.154	1.1726	.00	7.90	12479.38
343.26	8.25	5.165	1.1734	.00	8.25	12508.15
343.27	8.61	5.177	1.1741	.00	8.61	12536.85
343.28	8.97	5.189	1.1749	.00	8.97	12565.66
343.29	9.34	5.200	1.1756	.00	9.34	12594.50
343.30	9.72	5.212	1.1764	.00	9.72	12623.28
343.31	10.10	5.224	1.1771	.00	10.10	12652.17
343.32	10.49	5.236	1.1779	.00	10.49	12681.08
343.33	10.88	5.248	1.1787	.00	10.88	12709.93
343.34	11.29	5.259	1.1794	.00	11.29	12738.89
343.35	11.69	5.271	1.1802	.00	11.69	12767.88
343.36	12.10	5.283	1.1809	.00	12.10	12796.80
343.37	12.52	5.295	1.1817	.00	12.52	12825.83
343.38	12.95	5.307	1.1825	.00	12.95	12854.89
343.39	13.38	5.318	1.1832	.00	13.38	12883.98

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.40	13.81	5.330	1.1840	.00	13.81	12912.99
343.41	14.25	5.342	1.1847	.00	14.25	12942.12
343.42	14.70	5.354	1.1855	.00	14.70	12971.28
343.43	15.15	5.366	1.1863	.00	15.15	13000.37
343.44	15.61	5.378	1.1870	.00	15.61	13029.57
343.45	16.07	5.390	1.1878	.00	16.07	13058.79
343.46	16.54	5.401	1.1885	.00	16.54	13087.95
343.47	17.01	5.413	1.1893	.00	17.01	13117.23
343.48	17.49	5.425	1.1901	.00	17.49	13146.52
343.49	17.97	5.437	1.1908	.00	17.97	13175.75
343.50	18.45	5.449	1.1916	.00	18.45	13205.09
343.51	19.03	5.461	1.1923	.00	19.03	13234.55
343.52	19.69	5.473	1.1931	.00	19.69	13264.01
343.53	20.41	5.485	1.1939	.00	20.41	13293.64
343.54	21.16	5.497	1.1946	.00	21.16	13323.32
343.55	21.96	5.509	1.1954	.00	21.96	13352.98
343.56	22.79	5.521	1.1962	.00	22.79	13382.77
343.57	23.65	5.533	1.1969	.00	23.65	13412.62
343.58	24.54	5.545	1.1977	.00	24.54	13442.42
343.59	25.46	5.557	1.1985	.00	25.46	13472.36

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.60	26.40	5.569	1.1992	.00	26.40	13502.35
343.61	27.37	5.581	1.2000	.00	27.37	13532.29
343.62	28.37	5.593	1.2007	.00	28.37	13562.36
343.63	29.38	5.605	1.2015	.00	29.38	13592.47
343.64	30.41	5.617	1.2023	.00	30.41	13622.62
343.65	31.46	5.629	1.2030	.00	31.46	13652.71
343.66	32.54	5.641	1.2038	.00	32.54	13682.94
343.67	33.63	5.653	1.2046	.00	33.63	13713.20
343.68	34.74	5.665	1.2053	.00	34.74	13743.41
343.69	35.87	5.677	1.2061	.00	35.87	13773.74
343.70	37.02	5.689	1.2069	.00	37.02	13804.12
343.71	38.18	5.701	1.2076	.00	38.18	13834.44
343.72	39.37	5.713	1.2084	.00	39.37	13864.89
343.73	40.57	5.725	1.2092	.00	40.57	13895.37
343.74	41.78	5.737	1.2099	.00	41.78	13925.79
343.75	43.02	5.749	1.2107	.00	43.02	13956.35
343.76	44.26	5.761	1.2115	.00	44.26	13986.93
343.77	45.52	5.774	1.2123	.00	45.52	14017.46
343.78	46.80	5.786	1.2130	.00	46.80	14048.11
343.79	48.09	5.798	1.2138	.00	48.09	14078.79

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
343.80	49.38	5.810	1.2146	.00	49.38	14109.41
343.81	50.69	5.822	1.2153	.00	50.69	14140.15
343.82	52.01	5.834	1.2161	.00	52.01	14170.92
343.83	53.34	5.846	1.2169	.00	53.34	14201.63
343.84	54.68	5.859	1.2176	.00	54.68	14232.44
343.85	56.03	5.871	1.2184	.00	56.03	14263.31
343.86	57.95	5.883	1.2192	.00	57.95	14294.66
343.87	58.81	5.895	1.2200	.00	58.81	14325.06
343.88	59.68	5.907	1.2207	.00	59.68	14355.49
343.89	60.56	5.920	1.2215	.00	60.56	14385.95
343.90	61.44	5.932	1.2223	.00	61.44	14416.34
343.91	62.35	5.944	1.2230	.00	62.35	14446.87
343.92	63.26	5.956	1.2238	.00	63.26	14477.41
343.93	64.18	5.968	1.2246	.00	64.18	14507.90
343.94	65.12	5.981	1.2254	.00	65.12	14538.50
343.95	66.05	5.993	1.2261	.00	66.05	14569.13
343.96	67.00	6.005	1.2269	.00	67.00	14599.70
343.97	67.96	6.018	1.2277	.00	67.96	14630.39
343.98	68.94	6.030	1.2285	.00	68.94	14661.12
343.99	69.91	6.042	1.2292	.00	69.91	14691.77

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.00	70.91	6.054	1.2300	.00	70.91	14722.54
344.01	71.91	6.067	1.2308	.00	71.91	14753.35
344.02	72.91	6.079	1.2316	.00	72.91	14784.09
344.03	73.93	6.091	1.2324	.00	73.93	14814.95
344.04	74.95	6.104	1.2332	.00	74.95	14845.84
344.05	76.00	6.116	1.2339	.00	76.00	14876.67
344.06	77.04	6.128	1.2347	.00	77.04	14907.61
344.07	78.09	6.141	1.2355	.00	78.09	14938.58
344.08	79.15	6.153	1.2363	.00	79.15	14969.49
344.09	80.23	6.165	1.2371	.00	80.23	15000.52
344.10	81.31	6.178	1.2379	.00	81.31	15031.58
344.11	82.39	6.190	1.2387	.00	82.39	15062.57
344.12	83.49	6.203	1.2395	.00	83.49	15093.68
344.13	84.60	6.215	1.2403	.00	84.60	15124.82
344.14	85.71	6.227	1.2410	.00	85.71	15155.99
344.15	86.83	6.240	1.2418	.00	86.83	15187.08
344.16	87.95	6.252	1.2426	.00	87.95	15218.30
344.17	89.09	6.265	1.2434	.00	89.09	15249.55
344.18	90.23	6.277	1.2442	.00	90.23	15280.73
344.19	91.39	6.290	1.2450	.00	91.39	15312.04

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.20	92.55	6.302	1.2458	.00	92.55	15343.37
344.21	93.72	6.314	1.2466	.00	93.72	15374.63
344.22	94.90	6.327	1.2474	.00	94.90	15406.02
344.23	96.08	6.339	1.2482	.00	96.08	15437.43
344.24	97.27	6.352	1.2490	.00	97.27	15468.77
344.25	98.48	6.364	1.2498	.00	98.48	15500.23
344.26	99.69	6.377	1.2506	.00	99.69	15531.73
344.27	100.90	6.389	1.2514	.00	100.90	15563.15
344.28	102.12	6.402	1.2521	.00	102.12	15594.69
344.29	103.35	6.414	1.2529	.00	103.35	15626.27
344.30	104.59	6.427	1.2537	.00	104.59	15657.77
344.31	105.83	6.439	1.2545	.00	105.83	15689.39
344.32	107.09	6.452	1.2553	.00	107.09	15721.05
344.33	108.34	6.465	1.2561	.00	108.34	15752.63
344.34	109.61	6.477	1.2569	.00	109.61	15784.34
344.35	110.89	6.490	1.2577	.00	110.89	15816.07
344.36	112.16	6.502	1.2585	.00	112.16	15847.73
344.37	113.45	6.515	1.2593	.00	113.45	15879.51
344.38	114.74	6.528	1.2601	.00	114.74	15911.31
344.39	116.04	6.540	1.2609	.00	116.04	15943.15

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.40	117.35	6.553	1.2617	.00	117.35	15974.92
344.41	118.66	6.565	1.2625	.00	118.66	16006.81
344.42	119.98	6.578	1.2633	.00	119.98	16038.72
344.43	121.31	6.591	1.2641	.00	121.31	16070.57
344.44	122.65	6.603	1.2649	.00	122.65	16102.53
344.45	124.00	6.616	1.2657	.00	124.00	16134.53
344.46	125.34	6.629	1.2665	.00	125.34	16166.45
344.47	126.70	6.641	1.2673	.00	126.70	16198.49
344.48	128.06	6.654	1.2681	.00	128.06	16230.56
344.49	129.43	6.667	1.2689	.00	129.43	16262.57
344.50	130.81	6.679	1.2697	.00	130.81	16294.69
344.51	132.18	6.692	1.2705	.00	132.18	16326.84
344.52	133.57	6.705	1.2713	.00	133.57	16358.92
344.53	134.97	6.717	1.2721	.00	134.97	16391.12
344.54	136.37	6.730	1.2729	.00	136.37	16423.34
344.55	137.77	6.743	1.2737	.00	137.77	16455.49
344.56	139.19	6.756	1.2745	.00	139.19	16487.78
344.57	140.61	6.768	1.2753	.00	140.61	16520.08
344.58	142.03	6.781	1.2761	.00	142.03	16552.31
344.59	143.47	6.794	1.2769	.00	143.47	16584.66

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.60	144.91	6.807	1.2777	.00	144.91	16617.05
344.61	146.35	6.819	1.2785	.00	146.35	16649.36
344.62	147.80	6.832	1.2793	.00	147.80	16681.79
344.63	149.26	6.845	1.2801	.00	149.26	16714.24
344.64	150.71	6.858	1.2809	.00	150.71	16746.71
344.65	152.18	6.871	1.2817	.00	152.18	16779.12
344.66	153.65	6.883	1.2825	.00	153.65	16811.65
344.67	155.14	6.896	1.2833	.00	155.14	16844.22
344.68	156.63	6.909	1.2841	.00	156.63	16876.71
344.69	158.12	6.922	1.2849	.00	158.12	16909.31
344.70	159.62	6.935	1.2857	.00	159.62	16941.95
344.71	161.13	6.948	1.2865	.00	161.13	16974.52
344.72	162.64	6.961	1.2873	.00	162.64	17007.20
344.73	164.15	6.973	1.2882	.00	164.15	17039.91
344.74	165.67	6.986	1.2890	.00	165.67	17072.55
344.75	167.20	6.999	1.2898	.00	167.20	17105.31
344.76	168.74	7.012	1.2906	.00	168.74	17138.10
344.77	170.27	7.025	1.2914	.00	170.27	17170.81
344.78	171.82	7.038	1.2922	.00	171.82	17203.65
344.79	173.38	7.051	1.2930	.00	173.38	17236.52

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
344.80	174.93	7.064	1.2938	.00	174.93	17269.30
344.81	176.50	7.077	1.2946	.00	176.50	17302.22
344.82	178.06	7.090	1.2954	.00	178.06	17335.16
344.83	179.63	7.103	1.2962	.00	179.63	17368.03
344.84	181.22	7.116	1.2970	.00	181.22	17401.02
344.85	182.80	7.129	1.2978	.00	182.80	17434.03
344.86	184.39	7.142	1.2986	.00	184.39	17466.97
344.87	185.99	7.155	1.2995	.00	185.99	17500.03
344.88	187.59	7.168	1.3003	.00	187.59	17533.13
344.89	189.20	7.181	1.3011	.00	189.20	17566.24
344.90	190.80	7.194	1.3019	.00	190.80	17599.28
344.91	192.42	7.207	1.3027	.00	192.42	17632.45
344.92	194.05	7.220	1.3035	.00	194.05	17665.63
344.93	195.67	7.233	1.3043	.00	195.67	17698.75
344.94	197.31	7.246	1.3051	.00	197.31	17731.99
344.95	198.94	7.259	1.3059	.00	198.94	17765.25
344.96	200.58	7.272	1.3068	.00	200.58	17798.43
344.97	202.22	7.285	1.3076	.00	202.22	17831.74
344.98	203.88	7.298	1.3084	.00	203.88	17865.08
344.99	205.54	7.311	1.3092	.00	205.54	17898.35

LEVEL POOL ROUTING DATA

HYG Dir = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow HYG file = NONE STORED - POND 2 W/ 1FTIN 2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 339.00 ft
Starting Volume = .833 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
345.00	207.20	7.324	1.3100	.00	207.20	17931.74

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 2 W/ 1FTIN  2
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 2

Pond Node   Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   339.00 ft
Starting Volume    =     .833 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0100 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =     73.80 cfs    at   11.9200 hrs
Peak Outflow      =      1.72 cfs    at   15.0500 hrs
-----------------------------------------------------
Peak Elevation    =    341.77 ft
Peak Storage =          3.500 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =       .833
+ HYG Vol IN   =      4.008
- Infiltration =       .000
- HYG Vol OUT  =      1.804
- Retained Vol =      3.037
                 ----------
Unrouted Vol =       -.000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 2 W/ 1FTIN  10
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 10

Pond Node   Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   339.00 ft
Starting Volume    =     .833 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0100 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =    121.54 cfs    at   11.9200 hrs
Peak Outflow      =      5.80 cfs    at   13.1700 hrs
-----------------------------------------------------
Peak Elevation    =    343.18 ft
Peak Storage =          5.077 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =        .833
+ HYG Vol IN   =       6.715
- Infiltration =        .000
- HYG Vol OUT  =       3.039
- Retained Vol =       4.509
              ----------
Unrouted Vol =        .000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 2 W/ 1FTIN  25
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 25

Pond Node   Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   339.00 ft
Starting Volume    =     .833 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0100 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =    148.06 cfs    at   11.9200 hrs
Peak Outflow      =     18.12 cfs    at   12.2800 hrs
-----------------------------------------------------
Peak Elevation    =    343.49 ft
Peak Storage =          5.441 ac-ft
=====================================================


MASS BALANCE (ac-ft)
---------------------------
+ Initial Vol  =        .833
+ HYG Vol IN   =       8.259
- Infiltration =        .000
- HYG Vol OUT  =       4.454
- Retained Vol =       4.638
                  ----------
Unrouted Vol =       -.000 ac-ft  (.000% of Inflow Volume)
```

LEVEL POOL ROUTING SUMMARY

```
HYG Dir          = K:\02\02-330\02334.01 LF Expansion\H&H\
Inflow  HYG file = NONE STORED - POND 2 W/ 1FTIN  100
Outflow HYG file = NONE STORED - POND 2 W/ 1FTOUT 100

Pond Node   Data = POND 2 W/ 1FT
Pond Volume Data = POND 2 W/ 1FT
Pond Outlet Data = Riser/Barrelw1ft

No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =   339.00 ft
Starting Volume    =     .833 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .0100 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow        =    190.30 cfs    at   11.9200 hrs
Peak Outflow       =     81.80 cfs    at   12.0600 hrs
-----------------------------------------------------
Peak Elevation     =    344.10 ft
Peak Storage =           6.183 ac-ft
=====================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol   =        .833
+ HYG Vol IN    =      10.759
- Infiltration =         .000
- HYG Vol OUT   =       6.808
- Retained Vol =        4.783
                 ----------
Unrouted Vol =        -.000 ac-ft  (.000% of Inflow Volume)
```

Index of Starting Page Numbers for ID Names

----- H -----
Harnett County... 3.01

----- L -----
LF AREA 1... 4.01, 5.01, 6.03, 6.04,
6.05, 6.06
LF AREA 2... 4.03, 5.02, 6.07, 6.08,
6.09, 6.10
LF AREA1... 4.05, 5.03
LF AREA2... 4.07, 5.04

----- P -----
POND 2... 7.01, 9.01, 9.37, 9.38,
9.39, 9.40
POND 2 W/ 1FT... 7.02, 9.41, 9.77,
9.78, 9.79, 9.80
PRE DEV.... 4.09, 5.05, 6.11, 6.12,
6.13, 6.14

----- R -----
Riser/Barrel... 8.01, 8.05
Riser/Barrelw1ft... 8.24, 8.27

----- S -----
SP-2 DA... 4.11, 5.06, 6.15, 6.16,
6.17, 6.18
SP-2DA... 4.13, 5.07

----- W -----
Watershed... 1.01, 2.01, 2.03, 2.05,
2.07

Minimum Drain Time

==========
JOB TITLE
==========

Project Date: 10/4/2004
Project Engineer: wr
Project Title: Watershed
Project Comments:

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********** TIME VS.ELEV **********

MIN DRAIN TIMOUT Time-Elev 1.01

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

TIME vs. ELEVATION (ft)

Output Time increment = .5000 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	339.72	339.64	339.56	339.48	339.41
2.5000	339.34	339.28	339.22	339.17	339.12
5.0000	339.07	339.04	339.00	338.96	338.93
7.5000	338.90	338.86	338.83	338.80	338.77
10.0000	338.74	338.71	338.69	338.66	338.63
12.5000	338.60	338.57	338.54	338.51	338.48
15.0000	338.46	338.43	338.40	338.37	338.35
17.5000	338.33	338.31	338.30	338.29	338.27
20.0000	338.26	338.25	338.24	338.23	338.22
22.5000	338.21	338.20	338.19	338.18	338.18
25.0000	338.17	338.17	338.16	338.16	338.16
27.5000	338.15	338.15	338.15	338.15	338.15
30.0000	338.15	338.15	338.15	338.15	338.14
32.5000	338.14	338.14	338.14	338.14	338.14
35.0000	338.14	338.14	338.14	338.14	338.13
37.5000	338.13	338.13	338.13	338.13	338.13
40.0000	338.13	338.13	338.13	338.13	338.13
42.5000	338.12	338.12	338.12	338.12	338.12
45.0000	338.12	338.12	338.12	338.12	338.12
47.5000	338.12	338.12	338.11	338.11	338.11
50.0000	338.11	338.11	338.11	338.11	338.11
52.5000	338.11	338.11	338.11	338.11	338.11
55.0000	338.11	338.11	338.11	338.11	338.11
57.5000	338.11	338.11	338.11	338.11	338.11
60.0000	338.11	338.11	338.11	338.11	338.11
62.5000	338.11	338.11	338.11	338.11	338.11
65.0000	338.11	338.11	338.11	338.11	338.11
67.5000	338.11	338.11	338.11	338.11	338.11
70.0000	338.11	338.11	338.11	338.11	338.11

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----- M -----
MIN DRAIN TIMOUT... 1.01

First Flush Volume

==========
JOB TITLE
==========

Project Date: 10/4/2004
Project Engineer: wr
Project Title: Watershed
Project Comments:

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********** BMP (BEST MGT. PRACTICES) **********

FIRST FLUSH..... 1st Flush 1.01

File.... K:\02\02-330\02334.01 LF Expansion\H&H\SEDIMENTATION POND 2-EC.PPW

BMP FIRST FLUSH CALCULATIONS

First Flush Depth = 1.0000 in
Drainage Area = 19.370 acres

Volume = Flush Depth * Drainage Area

First Flush volume = 1.614 ac-ft

Index of Starting Page Numbers for ID Names

----- F -----
FIRST FLUSH... 1.01

PondPack Ditch Sizing Results

==========
JOB TITLE
==========

Project Date: 9/23/2004
Project Engineer: wr
Project Title: Watershed
Project Comments:

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********** MASTER SUMMARY **********

Watershed..... Master Network Summary 1.01

********** NETWORK SUMMARIES (DETAILED) **********

Watershed..... 2-yr
Executive Summary (Links) 2.01

Watershed..... 10-yr
Executive Summary (Links) 2.03

Watershed..... 25-yr
Executive Summary (Links) 2.05

Watershed..... 100-yr
Executive Summary (Links) 2.07

********** DESIGN STORMS SUMMARY **********

Harnett County.. Design Storms 3.01

********** TC CALCULATIONS **********

LF AREA 1..... Tc Calcs 4.01

LF AREA 2..... Tc Calcs 4.03

LF AREA 3..... Tc Calcs 4.05

LF AREA 4A..... Tc Calcs 4.07

LF AREA 4B..... Tc Calcs 4.09

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LF AREA 5..... Tc Calcs 4.11

LF AREA 5A..... Tc Calcs 4.13

********** CN CALCULATIONS **********

LF AREA 1..... Runoff CN-Area 5.01

LF AREA 2..... Runoff CN-Area 5.02

LF AREA 3..... Runoff CN-Area 5.03

LF AREA 4A..... Runoff CN-Area 5.04

LF AREA 4B..... Runoff CN-Area 5.05

LF AREA 5..... Runoff CN-Area 5.06

LF AREA 5A..... Runoff CN-Area 5.07

********** RUNOFF HYDROGRAPHS **********

Unit Hyd. Equations 6.01

LF AREA 1..... 2-yr
Unit Hyd. Summary 6.03

LF AREA 1..... 10-yr
Unit Hyd. Summary 6.04

LF AREA 1..... 25-yr
Unit Hyd. Summary 6.05

LF AREA 1..... 100-yr
Unit Hyd. Summary 6.06

LF AREA 2..... 2-yr
Unit Hyd. Summary 6.07

LF AREA 2..... 10-yr
Unit Hyd. Summary 6.08

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LF AREA 2..... 25-yr
Unit Hyd. Summary 6.09

LF AREA 2..... 100-yr
Unit Hyd. Summary 6.10

LF AREA 3..... 2-yr
Unit Hyd. Summary 6.11

LF AREA 3..... 10-yr
Unit Hyd. Summary 6.12

LF AREA 3..... 25-yr
Unit Hyd. Summary 6.13

LF AREA 3..... 100-yr
Unit Hyd. Summary 6.14

LF AREA 4A..... 2-yr
Unit Hyd. Summary 6.15

LF AREA 4A..... 10-yr
Unit Hyd. Summary 6.16

LF AREA 4A..... 25-yr
Unit Hyd. Summary 6.17

LF AREA 4A..... 100-yr
Unit Hyd. Summary 6.18

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MASTER DESIGN STORM SUMMARY

Network Storm Collection: Harnett County

Return Event	Total Depth in	Rainfall Type	RNF ID
2-yr	3.7500	Synthetic Curve	TypeII 24hr
10-yr	5.6000	Synthetic Curve	TypeII 24hr
25-yr	6.6000	Synthetic Curve	TypeII 24hr
100-yr	8.2000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*AREA 1&2 OUT	JCT	2	3.381		11.9200	63.33		
*AREA 1&2 OUT	JCT	10	5.871		11.9200	107.81		
*AREA 1&2 OUT	JCT	25	7.257		11.9200	131.86		
*AREA 1&2 OUT	JCT	100	9.505		11.9200	170.15		
*AREA 3 OUT	JCT	2	1.917		11.9200	35.90		
*AREA 3 OUT	JCT	10	3.328		11.9200	61.12		
*AREA 3 OUT	JCT	25	4.114		11.9200	74.76		
*AREA 3 OUT	JCT	100	5.389		11.9200	96.46		
*AREA 4A OUT	JCT	2	.540		11.9200	10.11		
*AREA 4A OUT	JCT	10	.937		11.9200	17.21		
*AREA 4A OUT	JCT	25	1.158		11.9200	21.05		
*AREA 4A OUT	JCT	100	1.517		11.9200	27.16		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*AREA 5A	JCT	2	1.870		11.9200	35.04		
*AREA 5A	JCT	10	3.248		11.9200	59.64		
*AREA 5A	JCT	25	4.014		11.9200	72.95		
*AREA 5A	JCT	100	5.258		11.9200	94.13		
*AREA4B&5 OUT	JCT	2	3.456		11.9200	64.74		
*AREA4B&5 OUT	JCT	10	6.002		11.9200	110.22		
*AREA4B&5 OUT	JCT	25	7.419		11.9200	134.80		
*AREA4B&5 OUT	JCT	100	9.717		11.9200	173.95		
LF AREA 1	AREA	2	1.551		11.9200	29.06		
LF AREA 1	AREA	10	2.694		11.9200	49.46		
LF AREA 1	AREA	25	3.329		11.9200	60.50		
LF AREA 1	AREA	100	4.361		11.9200	78.07		
LF AREA 2	AREA	2	1.830		11.9200	34.27		
LF AREA 2	AREA	10	3.177		11.9200	58.35		
LF AREA 2	AREA	25	3.927		11.9200	71.36		
LF AREA 2	AREA	100	5.144		11.9200	92.08		
LF AREA 3	AREA	2	1.917		11.9200	35.90		
LF AREA 3	AREA	10	3.328		11.9200	61.12		
LF AREA 3	AREA	25	4.114		11.9200	74.76		
LF AREA 3	AREA	100	5.389		11.9200	96.46		
LF AREA 4A	AREA	2	.540		11.9200	10.11		
LF AREA 4A	AREA	10	.937		11.9200	17.21		
LF AREA 4A	AREA	25	1.158		11.9200	21.05		
LF AREA 4A	AREA	100	1.517		11.9200	27.16		
LF AREA 4B	AREA	2	.364		11.9200	6.81		
LF AREA 4B	AREA	10	.631		11.9200	11.60		
LF AREA 4B	AREA	25	.780		11.9200	14.18		
LF AREA 4B	AREA	100	1.022		11.9200	18.30		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
LF AREA 5	AREA	2	3.093		11.9200	57.93		
LF AREA 5	AREA	10	5.370		11.9200	98.62		
LF AREA 5	AREA	25	6.638		11.9200	120.62		
LF AREA 5	AREA	100	8.695		11.9200	155.65		
LF AREA 5A	AREA	2	1.870		11.9200	35.04		
LF AREA 5A	AREA	10	3.248		11.9200	59.64		
LF AREA 5A	AREA	25	4.014		11.9200	72.95		
LF AREA 5A	AREA	100	5.258		11.9200	94.13		
PH3A-PIPE	AREA	2	1.151		11.9200	21.56		
PH3A-PIPE	AREA	10	1.998		11.9200	36.70		
PH3A-PIPE	AREA	25	2.470		11.9200	44.88		
PH3A-PIPE	AREA	100	3.235		11.9200	57.92		
*PH3A1 OUT	JCT	2	.689		11.9200	12.90		
*PH3A1 OUT	JCT	10	1.196		11.9200	21.96		
*PH3A1 OUT	JCT	25	1.478		11.9200	26.86		
*PH3A1 OUT	JCT	100	1.936		11.9200	34.65		
*PH3A2 OUT	JCT	2	.899		11.9200	16.85		
*PH3A2 OUT	JCT	10	1.562		11.9200	28.68		
*PH3A2 OUT	JCT	25	1.930		11.9200	35.08		
*PH3A2 OUT	JCT	100	2.529		11.9200	45.26		
*PH3B OUT	JCT	2	1.675		11.9600	28.64		
*PH3B OUT	JCT	10	2.909		11.9600	48.73		
*PH3B OUT	JCT	25	3.596		11.9600	59.59		
*PH3B OUT	JCT	100	4.710		11.9400	76.91		
PHASE 3A-1	AREA	2	.689		11.9200	12.90		
PHASE 3A-1	AREA	10	1.196		11.9200	21.96		
PHASE 3A-1	AREA	25	1.478		11.9200	26.86		
PHASE 3A-1	AREA	100	1.936		11.9200	34.65		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
PHASE 3A-2	AREA	2	.899		11.9200	16.85		
PHASE 3A-2	AREA	10	1.562		11.9200	28.68		
PHASE 3A-2	AREA	25	1.930		11.9200	35.08		
PHASE 3A-2	AREA	100	2.529		11.9200	45.26		
PHASE 3B	AREA	2	1.675		11.9600	28.64		
PHASE 3B	AREA	10	2.909		11.9600	48.73		
PHASE 3B	AREA	25	3.596		11.9600	59.59		
PHASE 3B	AREA	100	4.710		11.9400	76.91		
*PIPE3A OUT	JCT	2	1.151		11.9200	21.56		
*PIPE3A OUT	JCT	10	1.998		11.9200	36.70		
*PIPE3A OUT	JCT	25	2.470		11.9200	44.88		
*PIPE3A OUT	JCT	100	3.235		11.9200	57.92		

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Harnett County

Storm Tag Name = 2-yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.7500 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	1.917		11.9200	35.90	LF AREA 3
		DL	1.917		11.9200	35.90	
		DN	1.917		11.9200	35.90	AREA 3 OUT
ADDLINK 100	ADD	UN	.689		11.9200	12.90	PHASE 3A-1
		DL	.689		11.9200	12.90	
		DN	.689		11.9200	12.90	PH3A1 OUT
ADDLINK 110	ADD	UN	.899		11.9200	16.85	PHASE 3A-2
		DL	.899		11.9200	16.85	
		DN	.899		11.9200	16.85	PH3A2 OUT
ADDLINK 20	ADD	UN	1.551		11.9200	29.06	LF AREA 1
		DL	1.551		11.9200	29.06	
		DN	3.381		11.9200	63.33	AREA 1&2 OUT
ADDLINK 30	ADD	UN	1.830		11.9200	34.27	LF AREA 2
		DL	1.830		11.9200	34.27	
		DN	3.381		11.9200	63.33	AREA 1&2 OUT
ADDLINK 40	ADD	UN	1.870		11.9200	35.04	LF AREA 5A
		DL	1.870		11.9200	35.04	
		DN	1.870		11.9200	35.04	AREA 5A
ADDLINK 50	ADD	UN	1.675		11.9600	28.64	PHASE 3B
		DL	1.675		11.9600	28.64	
		DN	1.675		11.9600	28.64	PH3B OUT

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 60	ADD	UN	1.151		11.9200	21.56	PH3A-PIPE
		DL	1.151		11.9200	21.56	
		DN	1.151		11.9200	21.56	PIPE3A OUT
ADDLINK 70	ADD	UN	.364		11.9200	6.81	LF AREA 4B
		DL	.364		11.9200	6.81	
		DN	3.456		11.9200	64.74	AREA4B&5 OUT
ADDLINK 80	ADD	UN	3.093		11.9200	57.93	LF AREA 5
		DL	3.093		11.9200	57.93	
		DN	3.456		11.9200	64.74	AREA4B&5 OUT
ADDLINK 90	ADD	UN	.540		11.9200	10.11	LF AREA 4A
		DL	.540		11.9200	10.11	
		DN	.540		11.9200	10.11	AREA 4A OUT

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Harnett County

Storm Tag Name = 10-yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	3.328		11.9200	61.12	LF AREA 3
		DL	3.328		11.9200	61.12	
		DN	3.328		11.9200	61.12	AREA 3 OUT
ADDLINK 100	ADD	UN	1.196		11.9200	21.96	PHASE 3A-1
		DL	1.196		11.9200	21.96	
		DN	1.196		11.9200	21.96	PH3A1 OUT
ADDLINK 110	ADD	UN	1.562		11.9200	28.68	PHASE 3A-2
		DL	1.562		11.9200	28.68	
		DN	1.562		11.9200	28.68	PH3A2 OUT
ADDLINK 20	ADD	UN	2.694		11.9200	49.46	LF AREA 1
		DL	2.694		11.9200	49.46	
		DN	5.871		11.9200	107.81	AREA 1&2 OUT
ADDLINK 30	ADD	UN	3.177		11.9200	58.35	LF AREA 2
		DL	3.177		11.9200	58.35	
		DN	5.871		11.9200	107.81	AREA 1&2 OUT
ADDLINK 40	ADD	UN	3.248		11.9200	59.64	LF AREA 5A
		DL	3.248		11.9200	59.64	
		DN	3.248		11.9200	59.64	AREA 5A
ADDLINK 50	ADD	UN	2.909		11.9600	48.73	PHASE 3B
		DL	2.909		11.9600	48.73	
		DN	2.909		11.9600	48.73	PH3B OUT

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 60	ADD	UN	1.998		11.9200	36.70	PH3A-PIPE
		DL	1.998		11.9200	36.70	
		DN	1.998		11.9200	36.70	PIPE3A OUT
ADDLINK 70	ADD	UN	.631		11.9200	11.60	LF AREA 4B
		DL	.631		11.9200	11.60	
		DN	6.002		11.9200	110.22	AREA4B&5 OUT
ADDLINK 80	ADD	UN	5.370		11.9200	98.62	LF AREA 5
		DL	5.370		11.9200	98.62	
		DN	6.002		11.9200	110.22	AREA4B&5 OUT
ADDLINK 90	ADD	UN	.937		11.9200	17.21	LF AREA 4A
		DL	.937		11.9200	17.21	
		DN	.937		11.9200	17.21	AREA 4A OUT

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Harnett County

Storm Tag Name = 25-yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 25 yr
Total Rainfall Depth= 6.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	4.114		11.9200	74.76	LF AREA 3
		DL	4.114		11.9200	74.76	
		DN	4.114		11.9200	74.76	AREA 3 OUT
ADDLINK 100	ADD	UN	1.478		11.9200	26.86	PHASE 3A-1
		DL	1.478		11.9200	26.86	
		DN	1.478		11.9200	26.86	PH3A1 OUT
ADDLINK 110	ADD	UN	1.930		11.9200	35.08	PHASE 3A-2
		DL	1.930		11.9200	35.08	
		DN	1.930		11.9200	35.08	PH3A2 OUT
ADDLINK 20	ADD	UN	3.329		11.9200	60.50	LF AREA 1
		DL	3.329		11.9200	60.50	
		DN	7.257		11.9200	131.86	AREA 1&2 OUT
ADDLINK 30	ADD	UN	3.927		11.9200	71.36	LF AREA 2
		DL	3.927		11.9200	71.36	
		DN	7.257		11.9200	131.86	AREA 1&2 OUT
ADDLINK 40	ADD	UN	4.014		11.9200	72.95	LF AREA 5A
		DL	4.014		11.9200	72.95	
		DN	4.014		11.9200	72.95	AREA 5A
ADDLINK 50	ADD	UN	3.596		11.9600	59.59	PHASE 3B
		DL	3.596		11.9600	59.59	
		DN	3.596		11.9600	59.59	PH3B OUT

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 60	ADD	UN	2.470		11.9200	44.88	PH3A-PIPE
		DL	2.470		11.9200	44.88	
		DN	2.470		11.9200	44.88	PIPE3A OUT
ADDLINK 70	ADD	UN	.780		11.9200	14.18	LF AREA 4B
		DL	.780		11.9200	14.18	
		DN	7.419		11.9200	134.80	AREA4B&5 OUT
ADDLINK 80	ADD	UN	6.638		11.9200	120.62	LF AREA 5
		DL	6.638		11.9200	120.62	
		DN	7.419		11.9200	134.80	AREA4B&5 OUT
ADDLINK 90	ADD	UN	1.158		11.9200	21.05	LF AREA 4A
		DL	1.158		11.9200	21.05	
		DN	1.158		11.9200	21.05	AREA 4A OUT

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Harnett County

Storm Tag Name = 100-yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 8.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	5.389		11.9200	96.46	LF AREA 3
		DL	5.389		11.9200	96.46	
		DN	5.389		11.9200	96.46	AREA 3 OUT
ADDLINK 100	ADD	UN	1.936		11.9200	34.65	PHASE 3A-1
		DL	1.936		11.9200	34.65	
		DN	1.936		11.9200	34.65	PH3A1 OUT
ADDLINK 110	ADD	UN	2.529		11.9200	45.26	PHASE 3A-2
		DL	2.529		11.9200	45.26	
		DN	2.529		11.9200	45.26	PH3A2 OUT
ADDLINK 20	ADD	UN	4.361		11.9200	78.07	LF AREA 1
		DL	4.361		11.9200	78.07	
		DN	9.505		11.9200	170.15	AREA 1&2 OUT
ADDLINK 30	ADD	UN	5.144		11.9200	92.08	LF AREA 2
		DL	5.144		11.9200	92.08	
		DN	9.505		11.9200	170.15	AREA 1&2 OUT
ADDLINK 40	ADD	UN	5.258		11.9200	94.13	LF AREA 5A
		DL	5.258		11.9200	94.13	
		DN	5.258		11.9200	94.13	AREA 5A
ADDLINK 50	ADD	UN	4.710		11.9400	76.91	PHASE 3B
		DL	4.710		11.9400	76.91	
		DN	4.710		11.9400	76.91	PH3B OUT

NETWORK SUMMARY -- LINKS
(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADDLINK 60	ADD	UN	3.235		11.9200	57.92	PH3A-PIPE
		DL	3.235		11.9200	57.92	
		DN	3.235		11.9200	57.92	PIPE3A OUT
ADDLINK 70	ADD	UN	1.022		11.9200	18.30	LF AREA 4B
		DL	1.022		11.9200	18.30	
		DN	9.717		11.9200	173.95	AREA4B&5 OUT
ADDLINK 80	ADD	UN	8.695		11.9200	155.65	LF AREA 5
		DL	8.695		11.9200	155.65	
		DN	9.717		11.9200	173.95	AREA4B&5 OUT
ADDLINK 90	ADD	UN	1.517		11.9200	27.16	LF AREA 4A
		DL	1.517		11.9200	27.16	
		DN	1.517		11.9200	27.16	AREA 4A OUT

File.... K:\02\02-330\02334.01 LF Expansion\H&H\
Title... Project Date: 9/23/2004
Project Engineer: wr
Project Title: Watershed
Project Comments:

DESIGN STORMS SUMMARY

Design Storm File,ID = Harnett County

Storm Tag Name = 2-yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.7500 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 10-yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 25-yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 25 yr
Total Rainfall Depth= 6.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 100-yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 8.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

==========
Total Tc: .0830 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

==========
Total Tc: .0830 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

==========
Total Tc: .0830 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

```
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
TIME OF CONCENTRATION CALCULATOR
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::


----------------------------------------------------------------------


Segment #1:  Tc: User Defined

                                        Segment #1 Time:     .0830 hrs
----------------------------------------------------------------------

                                                 ========================
                                                  Total Tc:     .0830 hrs

                                                  Calculated Tc < Min.Tc:
                                                  Use Minimum Tc...
                                                  Use Tc =      .0833 hrs
                                                 ========================
```

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

```
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
TIME OF CONCENTRATION CALCULATOR
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::


----------------------------------------------------------------------


Segment #1:  Tc: User Defined

                                        Segment #1 Time:     .0830 hrs
----------------------------------------------------------------------

                                                 ========================
                                                  Total Tc:     .0830 hrs

                                                  Calculated Tc < Min.Tc:
                                                  Use Minimum Tc...
                                                  Use Tc =      .0833 hrs
                                                 ========================
```

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

==========
Total Tc: .0830 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

==========
Total Tc: .0830 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

Tc Equations used...

==== User Defined ==========

Tc = Value entered by user

Where: Tc = Time of concentration

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

RUNOFF CURVE NUMBER DATA

::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	86	8.020			86.00
COMPOSITE AREA & WEIGHTED CN --->		8.020			86.00 (86)

::

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

RUNOFF CURVE NUMBER DATA
::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
	86	9.460			86.00
COMPOSITE AREA & WEIGHTED CN --->		9.460			86.00 (86)

::

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	86	9.910			86.00
COMPOSITE AREA & WEIGHTED CN --->		9.910			86.00 (86)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

RUNOFF CURVE NUMBER DATA
::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
	86	2.790			86.00
COMPOSITE AREA & WEIGHTED CN --->		2.790			86.00 (86)

::

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	86	1.880			86.00
COMPOSITE AREA & WEIGHTED CN --->		1.880			86.00 (86)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	86	15.990			86.00
COMPOSITE AREA & WEIGHTED CN --->		15.990			86.00 (86)

File.... K:\02\02-330\02334.01 LF Expansion\H&H\DITCH SIZING.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	86	9.670			86.00
COMPOSITE AREA & WEIGHTED CN --->		9.670			86.00 (86)

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

DEFINITION OF TERMS: ----------

```
At    = Total area (acres):  At = Ai+Ap
Ai    = Impervious area (acres)
Ap    = Pervious area (acres)
CNi   = Runoff curve number for impervious area
CNp   = Runoff curve number for pervious area
fLoss = f loss constant infiltration (depth/time)
gKs   = Saturated Hydraulic Conductivity (depth/time)
Md    = Volumetric Moisture Deficit
Psi   = Capillary Suction (length)
hK    = Horton Infiltration Decay Rate (time^-1)
fo    = Initial Infiltration Rate (depth/time)
fc    = Ultimate(capacity)Infiltration Rate (depth/time)
Ia    = Initial Abstraction (length)
dt    = Computational increment (duration of unit excess rainfall)
        Default dt is smallest value of 0.1333Tc, rtm, and th
        (Smallest dt is then adjusted to match up with Tp)
UDdt  = User specified override computational main time increment
        (only used if UDdt is => .1333Tc)
D(t)  = Point on distribution curve (fraction of P) for time step t

K     = 2 / (1 + (Tr/Tp)):  default K = 0.75: (for Tr/Tp = 1.67)
Ks    = Hydrograph shape factor
      = Unit Conversions * K:
      = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K
        Default Ks = 645.333 * 0.75 = 484

Lag   = Lag time from center of excess runoff (dt) to Tp:  Lag = 0.6Tc
P     = Total precipitation depth, inches
Pa(t) = Accumulated rainfall at time step t
Pi(t) = Incremental rainfall at time step t
qp    = Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi.
      = (Ks * A * Q) / Tp   (where Q = 1in. runoff, A=sq.mi.)
Qu(t) = Unit hydrograph ordinate (cfs) at time step t
Q(t)  = Final hydrograph ordinate (cfs) at time step t
Rai(t)= Accumulated runoff (inches) at time step t for impervious area
Rap(t)= Accumulated runoff (inches) at time step t for pervious area
Rii(t)= Incremental runoff (inches) at time step t for impervious area
Rip(t)= Incremental runoff (inches) at time step t for pervious area
R(t)  = Incremental weighted total runoff (inches)
Rtm   = Time increment for rainfall table
Si    = S for impervious area:  Si = (1000/CNi) - 10
Sp    = S for pervious area:    Sp = (1000/CNp) - 10
t     = Time step (row) number
Tc    = Time of concentration
Tb    = Time (hrs) of entire unit hydrograph:  Tb = Tp + Tr
Tp    = Time (hrs) to peak of a unit hydrograph:  Tp = (dt/2) + Lag
Tr    = Time (hrs) of receding limb of unit hydrograph:  Tr = ratio of Tp
```

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

PRECIPITATION: ----------
Column (1): Time for time step t
Column (2): D(t) = Point on distribution curve for time step t
Column (3): Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4): Pa(t) = D(t) x P: Col.(2) x P

PERVIOUS AREA RUNOFF (using SCS Runoff CN Method) ----------
Column (5): Rap(t) = Accumulated pervious runoff for time step t
If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
If (Pa(t) is > 0.2Sp) then use:

Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6): Rip(t) = Incremental pervious runoff for time step t
Rip(t) = Rap(t) - Rap(t-1)
Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

IMPERVIOUS AREA RUNOFF ----------
Column (7 & 8)... Did not specify to use impervious areas.

INCREMENTAL WEIGHTED RUNOFF: ----------
Column (9): R(t) = (Ap/At) x Rip(t) + (Ai/At) x Rii(t)
R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS UNIT HYDROGRAPH METHOD: ----------
Column (10): Q(t) is computed with the SCS unit hydrograph method
using R() and Qu().

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.7500 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 1 2-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 8.020 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    29.07 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    29.06 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:LF AREA 1
              CN   =   86
              Area =       8.020 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      2.3210 in
                       1.551 ac-ft

HYG Volume...          1.551 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 1)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =   109.09 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 1 10-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 8.020 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    49.54 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    49.46 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 1
               CN   =   86
               Area =       8.020 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       4.0305 in
                        2.694 ac-ft

HYG Volume...          2.694 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 1)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   109.09 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 6.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 1 25-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 8.020 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    60.61 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    60.50 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:LF AREA 1
              CN   =   86
              Area =       8.020 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      4.9819 in
                       3.330 ac-ft

HYG Volume...          3.329 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 1)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   109.09 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 1 100-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 8.020 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    78.23 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    78.07 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:LF AREA 1
              CN   =   86
              Area =       8.020 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      6.5254 in
                       4.361 ac-ft

HYG Volume...          4.361 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 1)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   109.09 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.7500 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 2 2-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.460 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    34.30 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    34.27 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 2
               CN    =   86
               Area =       9.460 acres
               S     =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       2.3210 in
                        1.830 ac-ft

HYG Volume...          1.830 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 2)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   128.67 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 2 10-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.460 acres  Runoff CN= 86

=============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    58.43 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    58.35 cfs
=============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 2
               CN   =   86
               Area =       9.460 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       4.0305 in
                        3.177 ac-ft

HYG Volume...           3.177 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 2)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   128.67 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 6.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 2 25-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.460 acres  Runoff CN= 86

=============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    71.49 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    71.36 cfs
=============================================

                 DRAINAGE AREA
              -------------------
              ID:LF AREA 2
              CN   =   86
              Area =       9.460 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      4.9819 in
                       3.927 ac-ft

HYG Volume...          3.927 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 2)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   128.67 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 2 100-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.460 acres  Runoff CN= 86

==========================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    92.28 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    92.08 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:LF AREA 2
              CN   =   86
              Area =       9.460 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      6.5254 in
                       5.144 ac-ft

HYG Volume...          5.144 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 2)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   128.67 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.7500 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 3 2-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.910 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    35.93 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    35.90 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 3
               CN   =   86
               Area =       9.910 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       2.3210 in
                        1.917 ac-ft

HYG Volume...          1.917 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 3)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   134.80 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 3 10-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.910 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    61.21 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    61.12 cfs
============================================

                DRAINAGE AREA
             -------------------
             ID:LF AREA 3
             CN   =   86
             Area =       9.910 acres
             S    =   1.6279 in
             0.2S =    .3256 in

              Cumulative Runoff
             -------------------
                     4.0305 in
                      3.328 ac-ft

HYG Volume...          3.328 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 3)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   134.80 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 6.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 3 25-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.910 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    74.89 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    74.76 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:LF AREA 3
              CN    =   86
              Area =       9.910 acres
              S     =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      4.9819 in
                       4.114 ac-ft

HYG Volume...          4.114 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 3)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   134.80 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 3 100-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.910 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    96.67 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    96.46 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:LF AREA 3
              CN   =   86
              Area =       9.910 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      6.5254 in
                       5.389 ac-ft

HYG Volume...          5.389 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 3)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   134.80 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.7500 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 4A 2-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 2.790 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    10.11 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    10.11 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:LF AREA 4A
              CN   =   86
              Area =       2.790 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      2.3210 in
                        .540 ac-ft

HYG Volume...           .540 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 4A)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    37.95 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 4A 10-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 2.790 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    17.23 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    17.21 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 4A
               CN   =   86
               Area =       2.790 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       4.0305 in
                         .937 ac-ft

HYG Volume...            .937 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .08330 hrs (ID: LF AREA 4A)
Computational Incr, Tm =    .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =    37.95 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 6.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 4A 25-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 2.790 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    21.08 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    21.05 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 4A
               CN   =   86
               Area =       2.790 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       4.9819 in
                        1.158 ac-ft

HYG Volume...          1.158 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 4A)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    37.95 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 4A 100-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 2.790 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    27.21 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    27.16 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 4A
               CN   =   86
               Area =       2.790 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       6.5254 in
                        1.517 ac-ft

HYG Volume...          1.517 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 4A)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    37.95 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.7500 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 4B 2-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 1.880 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =     6.82 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =     6.81 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 4B
               CN   =   86
               Area =       1.880 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       2.3210 in
                         .364 ac-ft

HYG Volume...            .364 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 4B)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    25.57 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 4B 10-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 1.880 acres  Runoff CN= 86

==========================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    11.61 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    11.60 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:LF AREA 4B
              CN   =   86
              Area =       1.880 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      4.0305 in
                        .631 ac-ft

HYG Volume...           .631 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 4B)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    25.57 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 6.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 4B 25-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 1.880 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    14.21 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    14.18 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:LF AREA 4B
              CN    =   86
              Area =       1.880 acres
              S     =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      4.9819 in
                        .780 ac-ft

HYG Volume...           .780 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 4B)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    25.57 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 4B 100-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 1.880 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    18.34 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    18.30 cfs
============================================

                DRAINAGE AREA
             -------------------
             ID:LF AREA 4B
             CN   =   86
             Area =       1.880 acres
             S    =   1.6279 in
             0.2S =    .3256 in

              Cumulative Runoff
             -------------------
                     6.5254 in
                      1.022 ac-ft

HYG Volume...          1.022 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 4B)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    25.57 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.7500 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 5 2-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 15.990 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    57.97 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    57.93 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:LF AREA 5
              CN   =   86
              Area =      15.990 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      2.3210 in
                       3.093 ac-ft

HYG Volume...          3.093 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 5)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   217.50 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 5 10-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 15.990 acres  Runoff CN= 86

==========================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    98.77 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    98.62 cfs
==========================================

                DRAINAGE AREA
              -------------------
              ID:LF AREA 5
              CN   =   86
              Area =      15.990 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      4.0305 in
                       5.371 ac-ft

HYG Volume...          5.370 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 5)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   217.50 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 6.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 5 25-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 15.990 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =   120.84 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =   120.62 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 5
               CN   =   86
               Area =      15.990 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       4.9819 in
                        6.638 ac-ft

HYG Volume...           6.638 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 5)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =   217.50 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 5 100-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 15.990 acres  Runoff CN= 86

=============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =   155.97 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =   155.65 cfs
=============================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 5
               CN   =   86
               Area =      15.990 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       6.5254 in
                        8.695 ac-ft

HYG Volume...          8.695 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 5)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   217.50 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration      = 24.0000 hrs     Rain Depth = 3.7500 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 5A 2-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.670 acres  Runoff CN= 86

==========================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    35.06 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    35.04 cfs
==========================================

                 DRAINAGE AREA
               -------------------
               ID:LF AREA 5A
               CN   =   86
               Area =       9.670 acres
               S    =   1.6279 in
               0.2S =    .3256 in

                Cumulative Runoff
               -------------------
                       2.3210 in
                        1.870 ac-ft

HYG Volume...          1.870 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 5A)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   131.53 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration      = 24.0000 hrs     Rain Depth = 5.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 5A 10-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.670 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    59.73 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    59.64 cfs
============================================

                 DRAINAGE AREA
              -------------------
              ID:LF AREA 5A
              CN   =   86
              Area =       9.670 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      4.0305 in
                       3.248 ac-ft

HYG Volume...          3.248 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 5A)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   131.53 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration      = 24.0000 hrs     Rain Depth = 6.6000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 5A 25-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.670 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    73.08 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    72.95 cfs
============================================

                DRAINAGE AREA
             -------------------
             ID:LF AREA 5A
             CN    =   86
             Area =       9.670 acres
             S     =   1.6279 in
             0.2S =    .3256 in

              Cumulative Runoff
             -------------------
                     4.9819 in
                      4.015 ac-ft

HYG Volume...          4.014 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 5A)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,          qp =   131.53 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration      = 24.0000 hrs     Rain Depth = 8.2000 in
Rain Dir      = K:\02\02-330\02334.01 LF Expansion\H&H\
Rain File -ID =  - TypeII  24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = K:\02\02-330\02334.01 LF Expansion\H&H\
HYG File - ID =  - LF AREA 5A 100-yr
Tc (Min. Tc)  = .0833 hrs
Drainage Area = 9.670 acres  Runoff CN= 86

============================================
Computational Time Increment   =   .01111 hrs
Computed Peak Time             =  11.9175 hrs
Computed Peak Flow             =    94.32 cfs

Time Increment for HYG File    =    .0200 hrs
Peak Time, Interpolated Output =  11.9201 hrs
Peak Flow, Interpolated Output =    94.13 cfs
============================================

                DRAINAGE AREA
              -------------------
              ID:LF AREA 5A
              CN   =   86
              Area =       9.670 acres
              S    =   1.6279 in
              0.2S =    .3256 in

               Cumulative Runoff
              -------------------
                      6.5254 in
                       5.258 ac-ft

HYG Volume...          5.258 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .08330 hrs (ID: LF AREA 5A)
Computational Incr, Tm =   .01111 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   131.53 cfs
Unit peak time      Tp =   .05553 hrs
Unit receding limb, Tr =   .22213 hrs
Total unit time,    Tb =   .27767 hrs
```

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